2018 Annual Report

Powering your ideas™

At a glance

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

The Bank is a client-centric integrated financial services group operating in three Canadian business segments—Personal & Commercial Banking, Wealth Management and Financial Markets—that represent nearly 90% of its revenues. A fourth segment—U.S. Specialty Finance and International—complements the growth of our domestic operations.

National Bank was established by entrepreneurs for entrepreneurs. Today it is a full-service bank with leading shares across a broad spectrum of financial products in its core Quebec market, and leadership positions across the country in selected activities.

Headquartered in Montreal, the Bank has more than 23,000 employees and is proud to be recognized for being an employer of choice and for promoting diversity and inclusion. National Bank strives to meet the highest standards of social responsibility while creating value for its shareholders.

The Bank's securities are listed on the Toronto Stock Exchange (TSX: NA).

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23,450 Employees

428 Branches

937 Banking Machines

2.7 million Clients

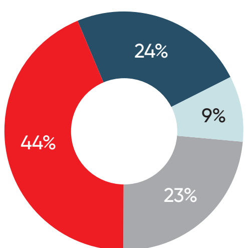
$485 B Assets under Administration and under Management

$262 B Total Assets

$7,166 M Total Revenues

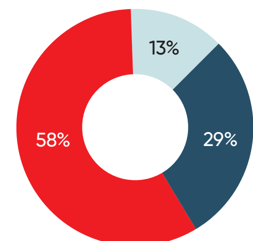
$2,232 M Net Income

$20.0 B Market Capitalization



2018 Total Revenues by Business Segment[1]

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



2018 Total Revenues by Geographic Distribution[1]

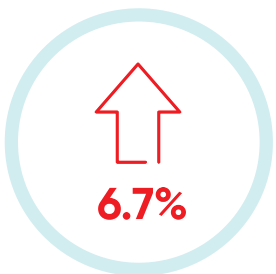
- Quebec
- Other provinces
- Outside of Canada

(1) Excluding the *Other* heading

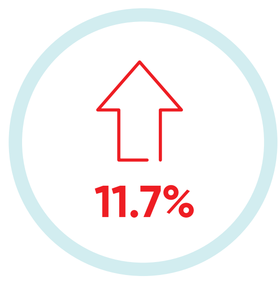
Investing in National Bank

Strong Earnings Growth[1]
2014-2018 / CAGR[2]

Consistent Dividend Growth[3]
2014-2018 / CAGR[2]



Solid Capital Position[4]
As at October 31, 2018



- Canadian super-regional bank with leading franchise in Quebec
- Diversified business mix driving consistent performance
  - Undisputed leadership in Quebec market
  - Targeted growth strategy across Canada, with headroom for continued expansion
  - Disciplined international strategy delivering high returns
- Balance between prudent risk management and sustainable growth
- Transformation driving efficiencies and enhanced customer experience
- Industry-leading ROE on a global basis
- Strong capital level providing flexibility
- Attractive dividend yield and consistent annual dividend growth
- Superior total shareholder returns

2018 RETURN ON EQUITY **18.4%**

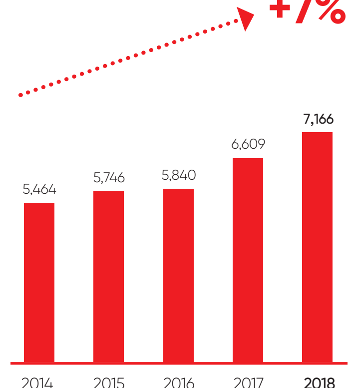
Industry-Leading Total Shareholder Returns (CAGR[2])
(for the periods ended October 31, 2018)

	National Bank	Canadian Peers[5]
3 years	16.2%	11.9%
10 years	15.1%	12.5%

(1) Based on diluted earnings per share
(2) Compound annual growth rate
(3) Based on annual dividends per common share
(4) Common Equity Tier 1 (CET1) capital ratio
(5) Includes Bank of Montreal, Canadian Imperial Bank of Commerce, Royal Bank of Canada, Bank of Nova Scotia and Toronto-Dominion Bank

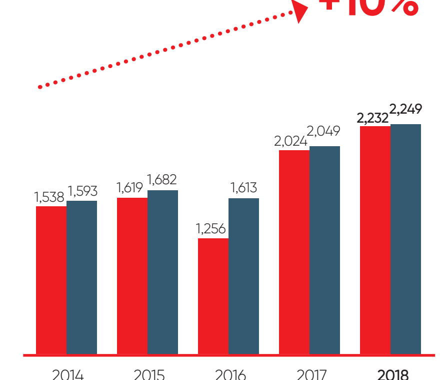
Financial Overview

Total Revenues
(millions of Canadian dollars)
2014-2018 / CAGR



Growth rate 2018-17
+8%

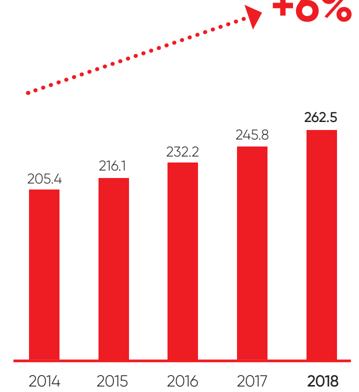
Net Income
(millions of Canadian dollars)
2014-2018 / CAGR



Growth rate 2018-17
+10%

Excluding specified items[1]

Total Assets
(billions of Canadian dollars)
2014-2018 / CAGR



Growth rate 2018-17
+7%

As at October 31 or for the year ended October 31 (millions of Canadian dollars, except per share amounts)	2018	2017	% change
Operating results			
Total revenues	**7,166**	6,609	**8**
Net income	**2,232**	2,024	**10**
Diluted earnings per share	**$ 5.94**	$ 5.38	**10**
Return on common shareholders' equity	**18.4 %**	18.1 %	
Operating results on a taxable equivalent basis and excluding specified items[1]			
Total revenues on a taxable equivalent basis and excluding specified items	**7,420**	6,864	**8**
Net income excluding specified items	**2,249**	2,049	**10**
Diluted earnings per share excluding specified items	**$ 5.99**	$ 5.45	**10**
Return on common shareholders' equity excluding specified items	**18.5 %**	18.3 %	
Efficiency ratio on a taxable equivalent basis and excluding specified items	**54.6 %**	55.9 %	
Dividends declared	**$ 2.44**	$ 2.28	**7**
Total assets	**262,471**	245,827	**7**
Regulatory ratios under Basel III			
Common Equity Tier 1 (CET1) capital ratio	**11.7 %**	11.2 %	
Leverage ratio	**4.0 %**	4.0 %	
Liquidity coverage ratio (LCR)	**147 %**	132 %	

(1) See the Financial Reporting Method section on page 10 for additional information on non-GAAP financial measures.

Message From the President and Chief Executive Officer

As I look back on this past year, I am very pleased with the Bank's overall performance. Year after year, the Bank delivers solid business growth and strong returns for our shareholders while helping our clients, employees and communities thrive. I am also very satisfied with the progress made in positioning the Bank for long-term success through our ongoing transformation and cultural evolution.

In 2018, the Bank generated record net income of $2.2 billion, up 10% from last year. Across the Bank, we achieved solid growth while managing costs effectively and maintaining strong credit quality. This translated into a return on equity of 18.4%, among the highest in our industry globally. Our overall performance demonstrates the strength of our franchise and our ability to execute our strategic priorities.

Year after year, the Bank delivers solid business growth and strong returns for our shareholders while helping our clients, employees and communities thrive.

Our shareholders were rewarded with two dividend increases, and we returned additional capital through higher share repurchases. The Bank has delivered industry-leading total shareholder returns of 16% and 15% over the three- and ten-year periods ended October 31, 2018.

We have a clear capital deployment strategy. Our first priority is to maintain strong capital levels. Our Common Equity Tier 1 capital ratio now stands at 11.7% – the highest level in our history – providing us with flexibility to invest in growth initiatives and return capital to shareholders. Organic growth remains our primary focus with the objective of enhancing customer experience and generating an operating leverage between 1% and 2%.

An Agile, Collaborative and Adaptable Organization

Over the years, the Bank's franchise was built through our strong entrepreneurial culture and passion for people. We strongly believe that the cornerstone of our transformation is the evolution of our culture into an agile, collaborative and adaptable organization. In an environment of constant change, our culture will be a sustainable advantage and a key differentiator that is visible to our clients, employees and communities.

In line with our strategic priorities, we are making significant investments in technology and digital initiatives to be a simple and efficient bank and meet our clients' expectations. In 2018, sustained investments focused on deploying new digital services and advancing the automation of operations. We are seeing tangible results from our initiatives, with improved client satisfaction and strong efficiency gains. We have also continued to make major investments in data and the protection of client information. To keep pace with the development of new digital services and the increased use of artificial intelligence to elevate client experience, technology investments will remain significant for the next several years.

Driving Business Growth

As a super-regional Canadian bank with a leading franchise in Quebec, we continue to benefit from strong economic conditions in our home province, highlighted by historically low unemployment rates. Public finances are sound, as Quebec has declared budget surpluses for the past three years, and consumer and business confidence is high. We have good visibility on large infrastructure investments that will fuel economic growth over the next three to five years, with foreign investment and immigration adding further stimulus. Furthermore, the indebtedness of Quebec households is below the Canadian average, largely due to greater housing affordability, full employment of the prime-age population and a large proportion of women in the workforce. With about 58% of our revenues derived from our Quebec operations, we enter 2019 with prudent optimism as we balance volume growth, margins and credit quality.

In Personal and Commercial Banking, we are the leading bank in Quebec with very strong brand recognition. In the retail market, our objective is to help our clients meet their financial objectives in a simple, relevant and efficient way. Our strategic priorities are focused on advice, relationships, a team approach and convenience.

In Commercial Banking, we enter 2019 with double-digit volume growth. We have increased our presence on the ground and improved our digital offering, driving growth in both loans and deposits. We are also winning our share of business transfer opportunities, helping entrepreneurs pass on control of their businesses to the next generation. Outside Quebec, we are gaining market share by focusing on specialty verticals where we have recognized expertise.

Our Wealth Management segment has grown significantly in recent years and, for 2018, accounted for 24% of our revenue. This has been achieved through a differentiated offering that responds to client needs for choice and unbiased advice. In the process, we have become the largest manager of managers in the country, Canada's leading business focused on serving independent asset managers and a leading provider of white label banking solutions to financial institutions.

Our Financial Markets segment delivered strong and consistent performance again in 2018, reflecting our diversified business mix, focus on client-driven activities, leadership in selected niches, and flexible approach to capital allocation. In 2019, we will build on our base as the number one investment bank in Quebec and the leader in government debt underwriting, ETF structuring and trading, structured products and equity derivatives across the country.

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

While Canada remains our core market, we are complementing domestic growth by applying a disciplined international strategy that delivers higher returns. In 2018, Credigy achieved strong earnings and solid returns despite tighter market conditions. Looking forward, our strategy is for disciplined growth at Credigy that falls within our return objectives and risk parameters. In Cambodia, our ABA Bank subsidiary maintained its rapid growth in 2018 while delivering an ROE of over 30%. Since we acquired majority control in 2016, ABA Bank has nearly doubled in size to become the fourth largest bank in the country. With our support, the future of ABA Bank's simple banking model is promising in a significantly unbanked market and a rapidly growing economy.

Looking Ahead

After an excellent 2018, all our business segments are well-positioned for growth. The strength and resilience of the Quebec economy gives us comfort at the current stage of the business cycle, and we remain vigilant in balancing our objectives of sustainable growth and prudent risk management. Heading into a new year, we have clear strategic priorities to guide us and a highly engaged team to drive execution.

With the Bank's greatest asset being its 23,000 employees, we continuously invest to maintain the best team and our standing as an employer of choice. In this regard, over 1,000 proud and excited employees recently participated in a ground-breaking ceremony to launch the construction of our new Montreal head office. The new building is designed with occupant health and well-being in mind, and our employees were involved in planning their work spaces. As a Bank that puts people first, we aim to meet the highest global standards in sustainable construction, with an objective to attain LEED v4 Gold and WELL certification for our new headquarters. We are also investing in modern work spaces in other parts of Canada, including our principal offices in Toronto and Vancouver.

With the Bank's greatest asset being its 23,000 employees, we continuously invest to maintain the best team and our standing as an employer of choice.

In these times of profound change, I thank my colleagues in the Office of the President for their leadership and dedication to building the National Bank of the future. Three new members joined the senior management team in the past year – Lucie Blanchet and Stéphane Achard as co-heads of Personal and Commercial Banking and Laurent Ferreira as co-head of Financial Markets – while Brigitte Hébert added Human Resources and Corporate Affairs to her responsibilities. All of them bring solid leadership, vast experience and much passion to their new roles. On behalf of the Office of the President, I also wish to acknowledge the tremendous efforts, professionalism and commitment of our employees.

As always, I appreciate the judicious counsel of our Board of Directors and thank our directors for their support. Finally, I would like to thank our clients for their business and their trust as well as our shareholders for their continued support.

Louis Vachon
President and Chief Executive Officer

Office of the President Members

Louis Vachon
President and Chief Executive Officer

William Bonnell
Executive Vice-President,
Risk Management

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

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

Stéphane Achard
Executive Vice-President,
Commercial Banking and Insurance

Dominique Fagnoule
Executive Vice-President,
Information Technology

Denis Girouard
Executive Vice-President and Co-Head,
Financial Markets

Ricardo Pascoe
Chief Transformation Officer and
Executive Vice-President

Lucie Blanchet
Executive Vice-President,
Personal Banking and Marketing

Laurent Ferreira
Executive Vice-President and Co-Head,
Financial Markets

Brigitte Hébert
Executive Vice-President,
Human Resources, Corporate Affairs
and Operations

Message From the Chairman of the Board

Our 2018 financial results are a source of great satisfaction for the Board of Directors. All of our business segments achieved growth while net income exceeded last year's record level. The Bank also generated industry-leading return on equity while improving efficiency and maintaining excellent credit quality. Significant progress in the Bank's transformation further supports our positive assessment of the year and optimism for the future.

The Board sees the overall performance in 2018 as validation not only of the Bank's strategy but also of our strong confidence in the senior leadership team and our system of governance. We will continue to work constructively with management and focus on the key drivers of the Bank's long-term success.

Building the Future

The Bank's sustainability and ability to create value for all stakeholders are fundamental Board responsibilities that we exercise through a number of levers, notably our oversight of strategy. Together with the Office of the President, we conduct annual strategic reviews and periodic assessments of specific initiatives, during which we have an opportunity to challenge management and offer our perspectives. The Board also approves the annual business plans of each business segment and closely monitors their results.

Over the past two years, we have focused particular attention on monitoring the Bank's digital transformation and considerable technology investments. The Board is pleased with the tangible progress made to date. We look forward to reaching new milestones and gaining additional benefits as the digital journey continues.

Investing in People

In 2018, as part of an orderly renewal of the Office of the President, the Board approved the appointment of new heads of Personal and Commercial, and Human Resources and Corporate Affairs segments as well as a new co-head of Financial Markets. The current members of the Office of the President have the depth and breadth of experience to provide strong and effective leadership. They form a highly capable team and have the full confidence of the Board.

At a time of rapid change in our industry, people and culture are at the heart of the Bank's transformation. Talent is our most important asset and the cornerstone of building an adaptable organization. This philosophy is fully endorsed by the Board and the senior management team.

Strong Risk Management Culture

In the normal course of business, the Bank is supported by a strong risk management culture that is constantly reinforced by active compliance, control, and audit activities. While being assured of rigorous attention to risk in day-to-day operations, the Board has overseen a major effort to bolster the Bank's cyber defences through major capital investment over the past two years. The Bank's ability to safeguard the personal information of its customers and offer uninterrupted service has been enhanced, and we will continue to invest as technologies evolve.

At the Forefront of Governance

The aforementioned activities and actions of the Board are all part of good governance. As a Board, we are committed to the highest standards in exercising our responsibilities and to adopting the best practices that further advance our ability to meet our duty to shareholders. Initiatives such as committee chair rotations, Board performance self-assessments, information sessions on industry trends and the Bank's business, constructive shareholder engagement as well as many other activities help our Board remain alert and capable of fully assuming its role.

The composition of the Board is a key factor in our effectiveness. We have a highly capable Board, diverse in terms of gender, geographic representation, perspective, and experience. Board renewal is supported by an ongoing process of identifying potential directors whose profiles are aligned with the Bank's business. In this regard, we were pleased to welcome Robert Paré to our Board following his election by shareholders in April 2018. A lawyer and strategic advisor at Fasken Martineau DuMoulin, Mr. Paré is recognized for his corporate governance and best practices expertise acquired during a distinguished career in corporate and commercial law.

Our colleague Richard Fortin has informed us of his intention to retire at the end of December 2018 after five years of dedicated service, in particular as Chair of the Risk Management Committee. We thank him sincerely for his commitment to the Bank's success.

In my capacity as Chair, I take this opportunity to express my deep appreciation to my Board colleagues for sharing their experience and wisdom for the benefit of the Bank and all its stakeholders.

Recognizing Success

The Bank's excellent results in 2018 reflect strong execution of a winning strategy. On behalf of the Board, I would like to acknowledge the dedication of Louis Vachon and his team in the Office of the President and thank them for their leadership.

The Board is well aware that massive change places high demands on the Bank's team of more than 23,000 employees. We salute their willingness to assimilate new business processes and adopt new ways of serving clients while continuing to be the Bank's most effective ambassadors in their communities.

We also thank our clients for their loyalty and our shareholders, both large and small, for placing their confidence in us.

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.

Board of Directors Members

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

Raymond Bachand
Montreal, Quebec, Canada
Strategic Advisor,
Norton Rose Fulbright Canada LLP
and Corporate Director
Director since October 2014

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

Pierre Blouin
Île-Bizard, Quebec, Canada
Corporate Director
Director since September 2016

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

Gillian H. Denham
Toronto, Ontario, Canada
Corporate Director
Director since October 2010

Richard Fortin
Boucherville, Quebec, Canada
Corporate Director
Director since August 2013

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

Rebecca McKillican
Oakville, Ontario, Canada
President and Chief Executive Officer,
Well.ca
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 Jr.
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

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

Louis Vachon
Beaconsfield, Quebec, Canada
President and Chief Executive Officer,
National Bank of Canada
Director since August 2006

Board Committees

Audit Committee
Karen Kinsley *(Chair)*
Pierre Blouin
Richard Fortin
Andrée Savoie

Risk Management Committee
Richard Fortin *(Chair)*
Raymond Bachand
Pierre Boivin
Karen Kinsley
Lino A. Saputo Jr.
Pierre Thabet

Human Resources Committee
Pierre Boivin *(Chair)*
Maryse Bertrand
Pierre Blouin
Gillian H. Denham
Rebecca McKillican

Conduct Review and Corporate Governance Committee
Maryse Bertrand *(Chair)*
Raymond Bachand
Jean Houde
Robert Paré
Lino A. Saputo Jr.
Andrée Savoie

Our 2018 social responsibility initiatives

Helping our clients power their ideas

- Leading-edge digital and mobile banking services and many specialized services
- Partnerships with fintechs to improve personal and commercial services
- New branch concepts where advice and technology converge
- Active participation in developing the entrepreneurial ecosystem

Supporting the community

- Millions of dollars paid to the community in the form of donations, sponsorships and through fundraising initiatives
- Hundreds of organizations supported Canada-wide
- Committed to enhancing the impact of our social investments

Fuelling economic development

- $161 million invested in our facilities
- $1.1 billion spent on goods and services

Promoting diversity and inclusion

- Ongoing support of women, cultural communities and the LGBT community
- Listed as one of Canada's Best Diversity Employers for many years
- Awarded gold certification by Women in Governance

Helping protect the environment

- Award-winning energy efficiency program
- Received several LEED® certifications
- Design of new head office in accordance with the strictest standards in terms of sustainable construction and occupants' health and well-being

Financial information related to climate change

At its most recent annual meeting, National Bank announced its support for the Financial Stability Board's Task Force on Climate-related Financial Disclosure. The Bank has therefore committed to ensuring that its disclosures include relevant information on various topics addressed by the task force. In collaboration with industry partners, the Bank is working on developing a relevant disclosure approach.

To learn more: **nbc.ca**

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	8	
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26	Credit risk exposures	67 and 152 to 163	8 to 10, 17 to 26, 29 and 30, and 19 to 25[2]
27	Policies for identifying impaired loans	65 and 120 to 123	
28	Movements in impaired loans and allowances for credit losses	98, 101, 102 and 152 to 163	24 and 25[2]
29	Counterparty credit risk relating to derivatives transactions	65, 66 and 171 to 174	11, 12 and 27 to 33
30	Credit risk mitigation	64 to 66, 149	18, 19, 33 and 35 to 37
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31	Other risks: governance, measurement and management	54, 55 and 84 to 87	
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(1) Fourth quarter 2018.
(2) These pages are included in the document entitled *Supplementary Financial Information – Fourth Quarter 2018.*

Management's Discussion and Analysis

December 4, 2018

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, 2018 (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, 2018. 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.

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Caution Regarding Forward-Looking Statements

From time to time, the Bank makes written and oral forward-looking statements, such as those contained in the Major Economic Trends section of this Annual Report, in other filings with Canadian securities regulators, and in other communications, for the purpose of describing the economic environment in which the Bank will operate during fiscal 2019 and the objectives it hopes to achieve for that period. These forward-looking statements are made in accordance with current securities legislation in Canada and the United States. They include, among others, statements with respect to the economy—particularly the Canadian and U.S. economies—market changes, observations regarding the Bank's objectives and its strategies for achieving them, Bank-projected financial returns and certain risks faced by the Bank. These forward-looking statements are typically identified by future or conditional verbs or words such as "outlook," "believe," "anticipate," "estimate," "project," "expect," "intend," "plan," and similar terms and expressions.

By their very nature, such 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 2019 and how that will affect the Bank's business are among the main factors considered in setting the Bank's strategic priorities and objectives and in determining its financial targets, including provisions for credit losses. In determining its expectations for economic growth, both broadly and in the financial services sector in particular, the Bank primarily considers historical economic data provided by the Canadian and U.S. governments and their agencies.

There is a strong possibility that express or implied projections contained in these forward-looking statements will not materialize or will not be accurate. The Bank recommends that readers not place undue reliance on these statements, as a number of factors, many of which are beyond the Bank's control, could cause actual future results, conditions, actions or events to differ significantly from the targets, expectations, estimates or intentions expressed in the forward-looking statements. These factors include credit risk, market risk, liquidity and funding risk, operational risk, regulatory compliance risk, reputation risk, strategic risk and environmental risk, all of which are described in more detail in the Risk Management section beginning on page 52 of this Annual Report; general economic environment and financial market conditions in Canada, the United States and certain other countries in which the Bank conducts business, including regulatory changes affecting the Bank's business, capital and liquidity; changes in the accounting policies the Bank uses to report its financial condition, including uncertainties associated with assumptions and critical accounting estimates; tax laws in the countries in which the Bank operates, primarily Canada and the United States (including the U.S. *Foreign Account Tax Compliance Act* (FATCA)); changes to capital and liquidity guidelines and to the manner in which they are to be presented and interpreted; changes to the credit ratings assigned to the Bank; and potential disruptions to the Bank's information technology systems, including evolving cyber attack risk.

The foregoing list of risk factors is not exhaustive. Additional information about these factors can be found in the Risk Management section of this Annual Report. 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.

The forward-looking information contained in this document is presented for the purpose of interpreting the information contained herein and may not be appropriate for other purposes.

Financial Reporting Method

Non-GAAP Financial Measures

The Bank uses a number of financial measures when assessing its results and measuring its overall performance. Some of these financial measures are not calculated in accordance with GAAP, which are based on IFRS. 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. Securities regulators require companies to caution readers that non-GAAP measures do not have a standardized meaning under GAAP and therefore may not be comparable to similar measures used by other companies.

In addition to the specified items, in fiscal 2017 the Bank had recorded a $40 million reversal ($29 million net of income taxes) to the sectoral provision on non-impaired loans taken for the oil and gas producer and service company portfolio and reported in the Personal and Commercial segment. In fiscal 2016, the provisions for credit losses had included an amount of $250 million related to that sectoral provision. Given the materiality of the sectoral provision recorded and presented in accordance with GAAP, it has been excluded from certain analyses in this MD&A.

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.

Reconciliation of Non-GAAP Financial Measures

Year ended October 31
(millions of Canadian dollars)

	2018						2017
	Personal and Commercial	Wealth Management	Financial Markets	USSF&I	Other		
Net interest income[1]	2,212	510	268	584	(192)	3,382	3,436
Taxable equivalent[2]	–	–	141	–	3	144	209
Net interest income on a taxable equivalent basis	2,212	510	409	584	(189)	3,526	3,645
Non-interest income[1]	1,027	1,249	1,233	55	220	3,784	3,173
Taxable equivalent[2]	–	–	101	–	–	101	35
Acquisition-related revenues[3]	–	9	–	–	–	9	11
Non-interest income on a taxable equivalent basis and excluding specified items	1,027	1,258	1,334	55	220	3,894	3,219
Total revenues on a taxable equivalent basis and excluding specified items	3,239	1,768	1,743	639	31	7,420	6,864
Non-interest expenses	1,720	1,092	697	251	303	4,063	3,857
Charges related to acquisitions[4]	–	(11)	–	–	–	(11)	(19)
Non-interest expenses excluding specified items	1,720	1,081	697	251	303	4,052	3,838
Contribution on a taxable equivalent basis and excluding specified items	1,519	687	1,046	388	(272)	3,368	3,026
Provisions for credit losses	226	3	4	94	–	327	244
Income before income taxes on a taxable equivalent basis and excluding specified items	1,293	684	1,042	294	(272)	3,041	2,782
Income taxes	345	175	36	72	(84)	544	484
Taxable equivalent[2]	–	–	242	–	3	245	244
Income taxes on acquisition-related items[3][4]	–	3	–	–	–	3	5
Income taxes on a taxable equivalent basis and excluding specified items	345	178	278	72	(81)	792	733
Net income excluding specified items	948	506	764	222	(191)	2,249	2,049
Specified items after income taxes	–	(17)	–	–	–	(17)	(25)
Net income	948	489	764	222	(191)	2,232	2,024
Non-controlling interests	–	–	–	38	49	87	84
Net income attributable to the Bank's shareholders	948	489	764	184	(240)	2,145	1,940

(1) On November 1, 2017, the Bank changed the presentation of certain Consolidated Balance Sheet items; in particular, the *Purchased receivables* item is now reported in *Loans*. As a result of this change, for the year ended October 31, 2017, a $204 million amount reported in *Non-interest income* was reclassified to *Net interest income*. This reclassification had no impact on *Net income*.

(2) 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.

(3) During the year ended October 31, 2018, the Bank recorded an amount of $9 million ($9 million net of income taxes) for its share in the integration costs incurred by Fiera Capital Corporation (Fiera Capital). For the year ended October 31, 2017, the total amount of these costs had been $11 million ($9 million net of income taxes) and had also included the Bank's share in the integration costs arising from its equity interest in TMX Group Limited.

(4) During the year ended October 31, 2018, the Bank recorded $11 million in charges ($8 million net of income taxes) related to the Wealth Management acquisitions (2017: $19 million, $16 million net of income taxes). These charges consisted mostly of retention bonuses and the amortization of intangible assets.

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, 2018, 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, 2018, 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 page 10 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, 2018, 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, 2018, 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)	2018	2017	2016	2018-17 % change
Operating results				
Total revenues	7,166	6,609	5,840	8
Net income	2,232	2,024	1,256	10
Net income attributable to the Bank's shareholders	2,145	1,940	1,181	11
Return on common shareholders' equity	18.4 %	18.1 %	11.7 %	
Dividend payout ratio[1]	41 %	42 %	66 %	
Earnings per share				
Basic	$ 6.01	$ 5.44	$ 3.31	10
Diluted	5.94	5.38	3.29	10
Operating results on a taxable equivalent basis and excluding specified items[2]				
Total revenues on a taxable equivalent basis and excluding specified items	7,420	6,864	6,279	8
Net income excluding specified items	2,249	2,049	1,613	10
Return on common shareholders' equity excluding specified items	18.5 %	18.3 %	15.5 %	
Dividend payout ratio excluding specified items[1]	40 %	41 %	50 %	
Efficiency ratio on a taxable equivalent basis and excluding specified items	54.6 %	55.9 %	58.2 %	
Earnings per share excluding specified items[2]				
Basic	$ 6.06	$ 5.52	$ 4.38	10
Diluted	5.99	5.45	4.35	10
Common share information				
Dividends declared	$ 2.44	$ 2.28	$ 2.18	
Book value	34.40	31.51	28.52	
Share price				
High	65.63	62.74	47.88	
Low	58.69	46.83	35.83	
Close	59.76	62.61	47.88	
Number of common shares *(thousands)*	335,071	339,592	338,053	
Market capitalization	20,024	21,262	16,186	
Balance sheet and off-balance-sheet				
Total assets	262,471	245,827	232,206	7
Loans and acceptances, net of allowances[3]	146,082	136,457	128,036	7
Net impaired loans[4] as a % of average loans and acceptances	0.3 %	0.2 %	0.2 %	
Deposits	170,830	156,671	142,066	9
Equity attributable to common shareholders	11,526	10,700	9,642	8
Assets under administration and under management	485,080	477,358	397,342	2
Regulatory ratios under Basel III				
Capital ratios[5]				
Common Equity Tier 1 (CET1)	11.7 %	11.2 %	10.1 %	
Tier 1[6]	15.5 %	14.9 %	13.5 %	
Total[6]	16.8 %	15.1 %	15.3 %	
Leverage ratio[5]	4.0 %	4.0 %	3.7 %	
Liquidity coverage ratio (LCR)	147 %	132 %	134 %	
Other Information				
Number of employees — worldwide	23,450	21,635	21,770	8
Number of branches in Canada	428	429	450	–
Number of banking machines in Canada	937	931	938	1

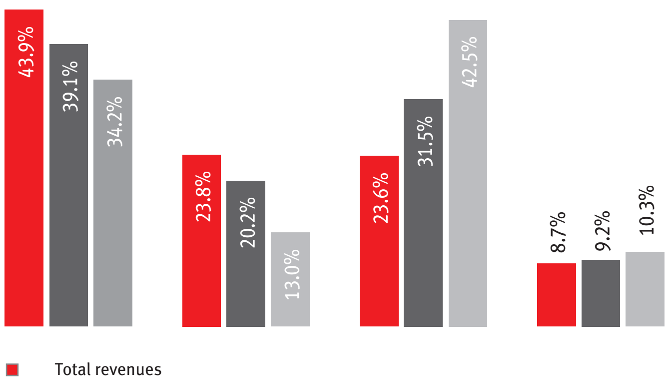
(1) Last four quarters.
(2) See the Financial Reporting Method section on page 10 for additional information on non-GAAP financial measures.
(3) The *Purchased receivables* amount of $2,014 million, which was presented separately on the Consolidated Balance Sheet as at October 31, 2017, is now reported in *Loans and acceptances, net of allowances* (2016: $1,858 million).
(4) Net impaired loans are presented net of allowances for credit losses on Stage 3 loan amounts drawn and do not include purchased or originated credit-impaired loans.
(5) The ratios are calculated using the "all-in" methodology.
(6) Ratios as at October 31, 2017 included the redemption of the Series 28 preferred shares on November 15, 2017.

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. For presentation purposes, other activities are reported in the *Other* heading of the business 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.

Business Mix(1)
Year ended October 31, 2018
(taxable equivalent basis)(2)

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



Total revenues
Net income
Economic capital

(1) Excluding the *Other* heading.
(2) See the Financial Reporting Method section on page 10 for additional information on non-GAAP financial measures.

Objectives and 2018 Results

When the Bank sets its medium-term objectives, it does not take specified items(1) into consideration, as they are inherently unpredictable or non-recurring. Management therefore excludes specified items when assessing the Bank's performance against its objectives.

In fiscal 2018, the Bank recorded $2,232 million in net income compared to $2,024 million in fiscal 2017. Its 2018 diluted earnings per share stood at $5.94 versus $5.38 in 2017, and its 2018 return on common shareholders' equity (ROE) was 18.4% versus 18.1% in 2017. Net income excluding specified items totalled $2,249 million in fiscal 2018, up 10%, and diluted earnings per share excluding specified items stood at $5.99, up 10% from $5.45. Furthermore, ROE excluding specified items was 18.5% in 2018 versus 18.3% in 2017.

(1) See the Financial Reporting Method section on page 10 for additional information on non-GAAP financial measures.

In 2018, the Bank met all of its medium-term objectives, even reaching the upper end of its target range for growth in diluted earnings per share excluding specified items. This result was driven by solid net income growth across all the business segments. And, even though the dividend per share was raised twice, for a 7% increase in fiscal 2018, the dividend payout ratio excluding specified items was at the lower end of the target range, mainly due to rapid growth in diluted earnings per share excluding specified items.

Medium-Term Objectives and 2018 Results

	Medium-term objectives (%)	2018 results (%)
Growth in diluted earnings per share excluding specified items(1)	5-10	10
ROE excluding specified items(1)	15-20	18.5
Dividend payout ratio excluding specified items(1)	40-50	40
CET1 capital ratio	› 10.75	11.7
Leverage ratio	› 3.75	4.0

(1) See the Financial Reporting Method section on page 10 for additional information on non-GAAP financial measures.

Dividends

For fiscal 2018, the Bank declared $829 million in dividends to common shareholders (2017: $778 million), representing 41% of net income attributable to common shareholders (2017: 42%) and representing 40% of net income attributable to common shareholders excluding specified items (2017: 41%).

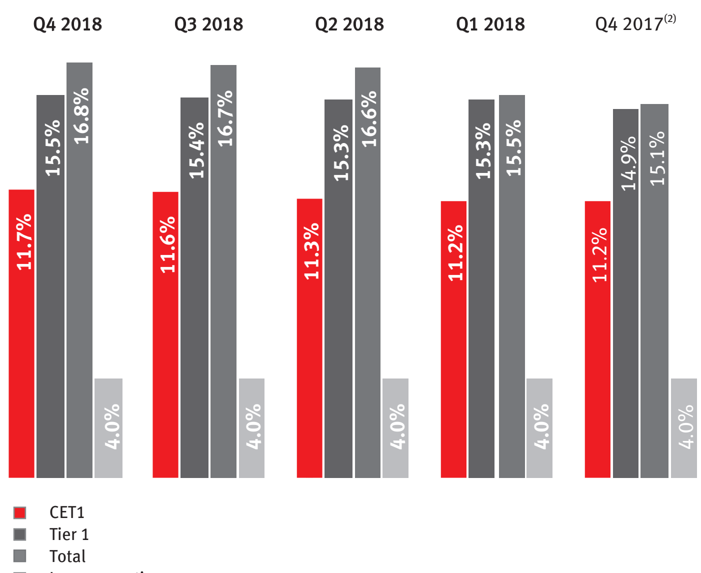
Annual Dividend(1)

(1) The figures for fiscal 2014 have been adjusted to reflect the stock dividend paid in 2014.

Regulatory Capital Ratios

As at October 31, 2018, the Bank's CET1, Tier 1 and Total capital ratios were, respectively, 11.7%, 15.5% and 16.8%, i.e., above the regulatory requirements, compared to ratios of, respectively, 11.2%, 14.9% and 15.1% as at October 31, 2017. The increase in the CET1 capital ratio stems essentially from net income net of dividends, common share issuances under the Stock Option Plan, and remeasurements of pension plans and other post-employment benefit plans, factors that were tempered by growth in risk-weighted assets, by the common share repurchases made during the year ended October 31, 2018, and by the impact of adopting of IFRS 9 on November 1, 2017. The increases in the Tier 1 and Total capital ratios were essentially driven by the same items. However, the increase in the Tier 1 capital ratio was also due to the $600 million issuances of Series 40 and 42 preferred shares, partly offset by the $400 million redemption of NBC Asset Trust units, while the $750 million issuance of medium-term notes on February 1, 2018 contributed to the higher Total capital ratio. As at October 31, 2018 the leverage ratio was 4.0%, unchanged from October 31, 2017.

Evolution of Regulatory Ratios Under Basel III[1]



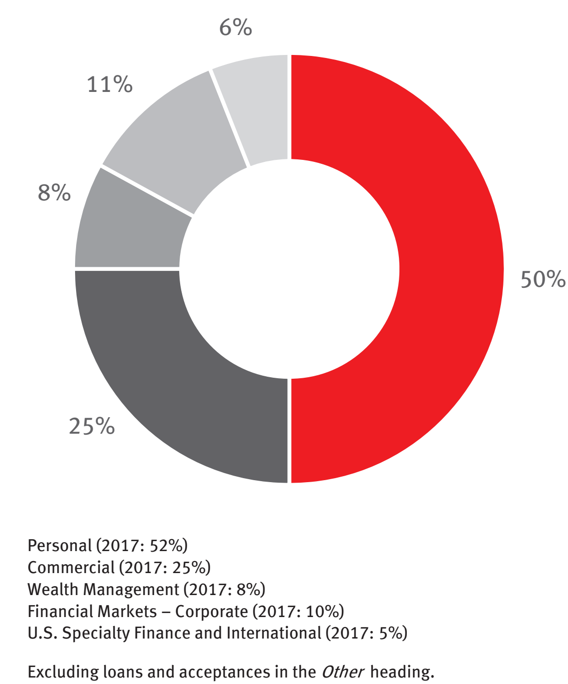
(1) The ratios are calculated using the "all-in" methodology.
(2) The Tier 1 capital ratio and the Total capital ratio included the redemption of the Series 28 preferred shares on November 15, 2017.

High Quality Loan Portfolio

For fiscal 2018, the Bank recorded $327 million in provisions for credit losses, $83 million more than those recorded in fiscal 2017. The higher year-over-year provisions stem mainly from provisions for credit losses on non-impaired loans of the Personal and Commercial segment and from the credit loss provisions taken for USSF&I segment loans, which were essentially attributable to the Credigy Ltd. (Credigy) subsidiary. The 2018 provisions for credit losses represented 0.23% of average loans and acceptances compared to 0.19% in fiscal 2017.

Breakdown of the Average Loan and Acceptance Portfolio[1]

As at October 31, 2018



- Personal (2017: 52%)
- Commercial (2017: 25%)
- Wealth Management (2017: 8%)
- Financial Markets – Corporate (2017: 10%)
- U.S. Specialty Finance and International (2017: 5%)

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

Risk Profile

(millions of Canadian dollars)	2018	2017
Provisions for credit losses	327	244
Provisions for credit losses as a % of average loans and acceptances	0.23 %	0.19 %
Provisions for credit losses on impaired loans[1] as a % of average loans and acceptances	0.23 %	0.19 %
Net charge-offs as a % of average loans and acceptances	0.23 %	0.23 %
Gross impaired loans[1]	630	380
Net impaired loans[2]	404	206

(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. These impaired loans do not include purchased or originated credit-impaired (POCI) loans.
(2) Net impaired loans are presented net of allowances for credit losses on Stage 3 loan amounts drawn and do not include POCI loans.

Major Economic Trends

Global Economy

After posting its strongest growth in six years, the global economy is showing signs of slowing down. The U.S. economy definitely has wind in its sails but this is not the case for several other major economies, including China's economy, which appears to be losing steam. The strength of the U.S. dollar and oil prices means that energy bills have increased considerably over the past year in many emerging nations, which is equivalent to a tax for consumers. In addition, rising interest rates are an obstacle to several countries that have experienced strong increases in U.S.-dollar denominated debt in recent years. To limit the depreciation of their currencies and the resulting inflation, some emerging nations will have to raise their interest rates, thereby curbing their domestic economies even more. Fortunately, inflation is still under control in the United States, the Eurozone and Japan, enabling the major central banks to gradually reduce their monetary accommodation. Global economic growth is expected to slow down to around 3.5% next year, assuming that trade tensions between China and the United States do not worsen.

United States

The U.S. economy should grow at a rate of approximately 2.5% in 2019 thanks to massive budget stimulus and a monetary policy that is still accommodating. Business confidence is at a record level, which bodes well for employment and investment. Consumers are also very optimistic, due to the lowest unemployment rate in close to 50 years and wage growth that should support consumption in the coming quarters.

Nevertheless, it would be surprising if the U.S. Federal Reserve raised interest rates more than twice in 2019 given that its actions have consequences for emerging nations, which account for almost 60% of trade with the United States. Furthermore, the U.S. real estate sector is already shaken by the increase in mortgage rates.

Canada

The Canadian economy continued to do well in 2018 despite concerns related to real estate and household debt in a context of rising interest rates. The tighter conditions on granting credit for uninsured mortgages had the expected effect, cooling down residential real estate in the hottest, most expensive markets (Vancouver and Toronto). Nationally, mortgage credit is growing at its slowest rate in 17 years. However, we are far from the catastrophe some people fear, as house sales have stabilized at their average rate over the last 10 years, which suggests that housing prices should not decline significantly. The job market is tight nationwide, which should be reflected in good wage growth, enabling households to cope with future interest rate increases. The weak Canadian dollar remains favourable for exports, as the new United States–Mexico–Canada Agreement (USMCA) has reassured exporters, who may in turn increase their investments. With a federal election coming in 2019, budget stimulus cannot be ruled out, which could enable the economy to grow by approximately 2.0% in 2019, still above potential. In this context, the Bank of Canada is likely to continue normalizing its monetary policy. The Bank is anticipating a policy rate of 2.5% by the end of 2019.

Quebec's economy is experiencing an exceptional period. After growing by 2.8% in 2017 and almost 2.5% in 2018, GDP will decline to 1.7% in 2019. Although more moderate, this rate is still higher than the GDP potential growth, estimated at less than 1.5%. Economic growth has reduced the unemployment rate to less than 6% for the first time in over 40 years, boosting household confidence, which is currently at a peak. The savings rate is high, and households are less indebted than elsewhere in the country, which is a good sign for consumption in the coming quarters. Residential real estate, which is more affordable in Quebec, did not undergo the slowdown observed in Ontario and British Columbia. Home resales reached a record level in 2018 and prices are growing faster. Despite the labour shortage, business confidence is solid, which should mean increased investments to compensate for the scarcity of workers.

Financial Analysis

Consolidated Results

Year ended October 31
(millions of Canadian dollars)

	2018	2017	% change
Operating results			
Net interest income[1]	3,382	3,436	(2)
Non-interest income[1]	3,784	3,173	19
Total revenues	7,166	6,609	8
Non-interest expenses	4,063	3,857	5
Contribution	3,103	2,752	13
Provisions for credit losses[2]	327	244	34
Income before income taxes	2,776	2,508	11
Income taxes	544	484	12
Net income	2,232	2,024	10
Diluted earnings per share *(dollars)*	5.94	5.38	10
Taxable equivalent[3]			
Net interest income	144	209	
Non-interest income	101	35	
Income taxes	245	244	
Impact of taxable equivalent basis on net income	–	–	
Specified items[3]			
Acquisition-related items	(20)	(30)	
Specified items before income taxes	(20)	(30)	
Income taxes on specified items	(3)	(5)	
Specified items after income taxes	(17)	(25)	
Operating results on a taxable equivalent basis and excluding specified items[3]			
Net interest income on a taxable equivalent basis and excluding specified items[1]	3,526	3,645	(3)
Non-interest income on a taxable equivalent basis and excluding specified items[1]	3,894	3,219	21
Total revenues on a taxable equivalent basis and excluding specified items	7,420	6,864	8
Non-interest expenses excluding specified items	4,052	3,838	6
Contribution on a taxable equivalent basis and excluding specified items	3,368	3,026	11
Provisions for credit losses[2]	327	244	34
Income before income taxes on a taxable equivalent basis and excluding specified items	3,041	2,782	9
Income taxes on a taxable equivalent basis and excluding specified items	792	733	8
Net income excluding specified items	2,249	2,049	10
Diluted earnings per share excluding specified items *(dollars)*	5.99	5.45	10
Average assets	265,762	248,351	7
Average loans and acceptances	139,887	130,882	7
Net impaired loans[4] as a % of average loans and acceptances	0.3 %	0.2 %	
Average deposits	167,176	154,254	8
Efficiency ratio on a taxable equivalent basis and excluding specified items[3]	54.6 %	55.9 %	

(1) On November 1, 2017, the Bank changed the presentation of certain Consolidated Balance Sheet items; in particular, the *Purchased receivables* item is now reported in *Loans*. As a result of this change, a $204 million amount reported in *Non-interest income* was reclassified to *Net interest income* for the year ended October 31, 2017. This reclassification had no impact on *Net income*.
(2) During the year ended October 31, 2017, the Bank reversed, by $40 million, the sectoral provision on non-impaired loans recorded for the oil and gas producer and service company loan portfolio, and the provisions for credit losses included an amount of $40 million to reflect an increase in the collective allowance for credit risk on non-impaired loans.
(3) See the Financial Reporting Method section on page 10 for additional information on non-GAAP financial measures.
(4) Net impaired loans are presented net of allowances for credit losses on Stage 3 loan amounts drawn and do not include purchased or originated credit-impaired loans.

Analysis of Consolidated Results

Financial Results

For fiscal 2018, the Bank's net income totalled $2,232 million compared to $2,024 million in fiscal 2017, an increase that was driven by net income growth across all the business segments. In 2018, the specified items net of income taxes reduced net income by $17 million, whereas, in 2017, they had reduced net income by $25 million. The Bank's 2018 net income excluding specified items totalled $2,249 million, up 10% from $2,049 million in 2017.

Total Revenues

For fiscal 2018, the Bank's total revenues on a taxable equivalent basis[1] amounted to $7,411 million, a $558 million year-over-year increase (Table 2, page 96) driven by revenue growth across all of the Bank's business segments. As for the 2018 total revenues on a taxable equivalent basis and excluding specified items, they were up $556 million or 8% year over year. Both the 2018 and 2017 specified items consisted of acquisition-related items.

Net Interest Income

For fiscal 2018, the Bank's net interest income on a taxable equivalent basis totalled $3,526 million, down $119 million from $3,645 million in fiscal 2017 (Table 3, page 96).

In the Personal and Commercial segment, the 2018 net interest income totalled $2,212 million, a $143 million or 7% year-over-year increase driven by growth in loan and deposit volumes, which rose 5% and 7%, respectively. The loan growth came mainly from mortgage and commercial lending activity. Another factor contributing to the Personal and Commercial segment's increase in net interest income was a higher net interest margin, which reached 2.32% in 2018 versus 2.26% in 2017, largely due to higher deposit margins. In the Wealth Management segment, the 2018 net interest income totalled $510 million, a $79 million year-over-year increase owing to improved margins. These increases also reflect a favourable impact from the Bank of Canada's interest rate hikes.

In the U.S. Speciality Finance and International segment, the 2018 net interest income was up $118 million year over year given growth in the Credigy subsidiary's loan volumes as well as growth in the Advanced Bank of Asia Limited (ABA Bank) subsidiary's loan and deposit volumes. As for the Financial Markets segment, the 2018 net interest income was down $363 million year over year, mainly due to trading activities, and should be examined together with the other items of trading activity revenues.

(1) See the Financial Reporting Method section on page 10 for additional information on non-GAAP financial measures.

Non-Interest Income

For fiscal 2018, non-interest income on a taxable equivalent basis totalled $3,885 million versus $3,208 million in fiscal 2017 (Table 4, page 97). The trading revenues recorded in non-interest income amounted to $941 million compared to $409 million in 2017. Including the portion recorded in net interest income, trading activity revenues amounted to $1,131 million in 2018 (Table 5, page 97), a $141 million year-over-year increase attributable to revenues from equity securities, revenues from commodities and foreign exchange activities, and revenues from the other segments, whereas revenues from fixed-income securities were down year over year.

As shown in Table 4 on page 97, the 2018 revenues from underwriting and advisory fees were up $39 million year over year, in particular due to merger and acquisition activities in the Financial Markets segment. Revenues from securities brokerage commissions were down 10% year over year given a migration of assets from transactional accounts to fee-based accounts in recent years. Together, mutual fund revenues and trust service revenues totalled $1,025 million in 2018, a $95 million year-over-year increase resulting from growth in fee-based revenues and in assets under administration and under management.

The 2018 revenues from credit fees and revenues from acceptances and letters of credit and guarantee increased $42 million year over year, partly due to stronger lending activity in both Commercial Banking and the Financial Markets segment. Card revenues advanced during fiscal 2018, posting 20% year-over-year growth. The 2018 revenues from deposit and payment service charges remained stable, while insurance revenues and other-than-trading foreign exchange revenues rose by $4 million and $14 million, respectively. Gains on securities decreased $63 million, as many securities were sold in fiscal 2017, while the Bank's share in the net income of associates and joint ventures declined $7 million. Other revenues amounted to $173 million in 2018, up $14 million from 2017 primarily due to securities lending revenues.

Provisions for Credit Losses

For fiscal 2018, the Bank recorded $327 million in provisions for credit losses (Table 6, page 98), $83 million more than the provisions recorded for fiscal 2017. This increase stems mainly from credit loss provisions taken for Personal Banking loans and Commercial Banking loans, which increased $15 million and $58 million, respectively, in fiscal 2018. These two increases stem from the provisions recorded on non-impaired loans, as a $40 million reversal to the sectoral provision for the oil and gas producer and service company loan portfolio had been recorded in fiscal 2017. In addition, the credit loss provisions recorded for U.S. Specialty Finance and International loans were up $46 million, essentially attributable to the Credigy subsidiary. During fiscal 2017, a $40 million increase in the collective allowance for credit risk on non-impaired loans had been recorded to reflect growth in the Bank's overall credit portfolio. Provisions for credit losses on impaired loans in 2018 represent 0.23% of average loans and acceptances, up from 0.19% in 2017, mainly due to higher credit losses on impaired loans at the Credigy subsidiary.

Non-Interest Expenses

In fiscal 2018, non-interest expenses stood at $4,063 million (Table 7, page 99), a $206 million increase when compared to fiscal 2017, while non-interest expenses excluding specified items rose $214 million or 6%.

Compensation and employee benefits stood at $2,466 million in 2018, a 5% year-over-year increase resulting from a greater number of employees and the higher variable compensation associated with revenue growth. The increase in technology expenses, including amortization, came from the technology investments made to execute the Bank's transformation plan and for business development activities. The 2018 professional fees stood at $244 million, a $10 million year-over-year decrease related to the servicing fees associated with Credigy's business activities, whereas advertising and external relations expenses and other expenses were up year over year. Furthermore, the expansion of ABA Bank's banking network led to an overall increase in non-interest expenses.

Income Taxes

Detailed information about the Bank's income taxes is provided in Note 25 to the consolidated financial statements. For fiscal 2018, income taxes stood at $544 million, for an effective tax rate of 20%, compared to $484 million and an effective tax rate of 19% in 2017. Credigy's lower effective income tax rate arising from the U.S. tax reform was partly offset by a decrease in the value of deferred tax assets and by income taxes on the deemed repatriation of foreign profits.

Business Segment Analysis | Personal and Commercial

The Personal and Commercial segment meets the financial needs of close to 2.6 million individuals and close to 137,000 businesses across Canada. These clients entrust the Bank to manage, invest and safeguard their assets and finance their projects. Personal Banking offers everyday transaction solutions, mortgage loans, home equity lines of credit, consumer loans, payment solutions, savings options, and tailored investment solutions as well as a diverse range of insurance products through specialized subsidiaries. Commercial Banking offers financial advice and a full line of services, including credit, deposit and investment solutions, international trade, foreign exchange transactions, payroll, cash management, insurance, electronic transactions and complementary services. 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, 428 branches and 937 banking machines across Canada, clients can do their daily banking whenever and wherever they wish.

Personal Banking

Personal Banking offers a complete range of financing and investment products and services to over 2.6 million individuals, mainly in Quebec, helping them 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 diverse range of insurance products.

Commercial Banking

Commercial Banking serves the financial needs of over 137,000 small and medium-sized enterprises and large corporations, helping them to achieve growth. It offers a full line of financial products and services, including credit, deposit and investment solutions, international trade, foreign exchange transactions, payroll, cash management, insurance, electronic transactions and complementary services. With deep roots in the business community for over 150 years, Commercial Banking is Quebec's leading provider of the core banking products for businesses. It is also known across Canada for its expertise in targeted specialized industries such as health, agriculture and agri-food, technology, motion pictures, real estate and oil and gas.

Economic and Market Review

- Favourable economic environment in Quebec and the rest of the country, primarily driven by over 2% GDP growth and continuously low interest rates, despite the hikes in the policy interest rate since 2017.
- Historically low unemployment rate in Quebec over the last two years and a prime working age population (25 to 54 years) that is fully employed.
- High levels of consumer and business confidence in Quebec.
- Increased investment by Quebec and Canadian companies.
- Lower household debt level in Quebec compared to the Canadian average and the highest savings rate among provinces.
- Rapid transformation of the financial sector toward digital and mobile services and vigorous competition between established entities and new market participants that are distinguishing themselves through new technologies.

Key Success Factors

- Largest bank in Quebec in terms of market share and strong brand recognition.
- 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.
- The largest sales force in Quebec, consisting of both generalists and specialists, positioning us to offer the best advice to clients.
- Unmatched closeness to Quebec entrepreneurs, with leading expertise in business lending and risk management solutions.
- Recognized expertise across Canada in specialized industries.
- Ability to meet all of 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 simple and effective bank focused on constantly improving the client experience.

Strategic Priorities	2018 Achievements and Highlights
Maintain volume growth and credit quality	– Addition of 230 home financing specialists to help clients develop their mortgage strategies. – Increased geographic coverage of mobile sales force, investment specialists and business account managers to foster volume growth. – Strong volume growth across the main Personal Banking products. – Higher mortgage growth in the second half of 2018 following a repositioning of the distribution model. – Acceleration of commercial loan and deposit volume growth during the year. – High credit quality, with credit loss provisions on impaired loans of 23 basis points in Personal Banking and 12 basis points in Commercial Banking.
Improve the client experience	– Launch of a new financing platform for SMEs so that they can borrow online and obtain a decision within minutes. – An enhanced mobile payment offering for individuals and third-place ranking maintained for the best mobile applications in Canada. – Launch of the Bank's first virtual assistant for making appointments online through digital channels and Facebook Messenger. – Several 2018 Ipsos Financial Service Excellence Awards won for client service excellence. – Better approach to measuring client satisfaction through an improved survey experience.
Accelerate the digital transformation	– Launch of a new transactional site providing clients with a 360-degree view of their bank accounts, including accounts held with other banking institutions, to facilitate budget planning. – Deployment of several origination tools, including instantaneous credit card approvals, online mortgage preapprovals, and the ability to start the personal and business account opening process online. – Enhanced digital experience through the addition of features such as Interac transfers, confirmations that recipients have received automatic deposits, cancellations of transfers, and recipient management. – First in Canada to launch Easy Pay, a mobile point-of-sale solution that allows SMEs to accept contactless payments.
Improve efficiency	– Simplification and digital aligning of the banking solutions offered to retail and business clients. – Automation and digitization of administrative processes and reducing the footprint of branches. – Efficiency ratio reduced to 53%, meeting the target set in 2015.

Priorities and Outlook for 2019

The Bank expects the strong economic fundamentals in its core Quebec market to support growth in 2019. With the business cycle in the mature phase in the U.S., which is a large export market for commercial clients, the Bank is comforted by the strong diversification of the Quebec economy, sound governance of public finances that has led to three consecutive years of provincial budget surpluses, and good visibility on major government infrastructure projects over the next several years. Residential housing remains affordable in Montreal and across Quebec while household debt is manageable, reflecting a historically low unemployment rate and the world's second highest proportion of women in the labour force. These and other factors provide a favourable context as the Bank enters a new fiscal year.

The Personal and Commercial segment's 2019 performance will be driven by its execution against its priorities and its ability to balance volume growth, margins and credit quality.

Maintain the Pace of Growth

- Develop a retail offering that is tailored to market particularities, competition, geographic location and micromarkets.
- Enhance marketing and capitalize on online origination features to attract new arrivals, millennials, professionals and SMEs.
- Provide a digital savings experience that combines the strength of advisors and modern technologies to help clients reach their life goals.
- Update the range of cash management products, adapting them to the needs of clients and helping them to manage their business's cash cycle.
- Achieve greater presence with specialized industries and increase market coverage to grow the Bank's market share among small businesses in Quebec.

Focus on Client Experience

- Emphasize a team approach that offers the best advice and solutions by combining generalists and specialists.
- Provide a simple, unified client experience by applying an integrated approach across all products and distribution channels.
- Develop the marketing capabilities needed to conduct effective campaigns, anticipate client preferences, and personalize client interactions.
- Modernize the client feedback process.
- Transform the in-branch experience by supporting clients through the shift to self-service, removing physical barriers and being proactive through the advisory offering.
- Help business clients to grow by giving them access to the Bank's network of entrepreneurs.
- Deepen relationships with business clients with the help of data analysis and digital client relationship management tools.

Continue the Digital Transformation

- Expand client self-service options by deploying new digital features such as international transfers and online credit card activation.
- Improve the Interac payment offering by enabling business clients to send payment requests to customers and to receive direct deposits from them.
- Make continuous improvements to the mobile application, for both retail and business clients.
- Modernize and simplify the digital user experience for both large corporations and SMEs by deploying single sign-on features, Enterprise Resource Planning (ERP) integration, and roles and access management.

Focus on Efficiency

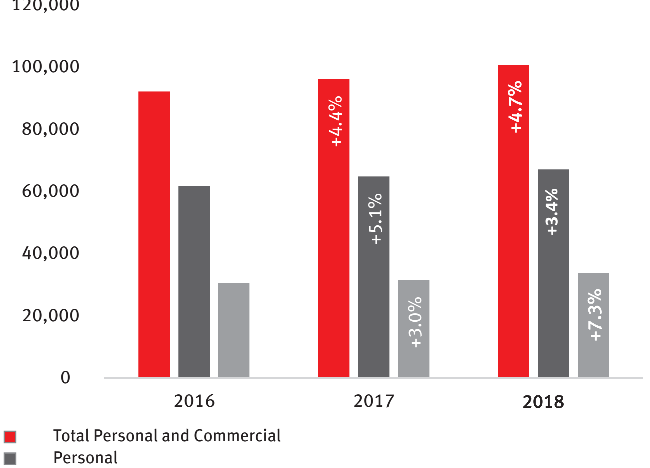
- Simplify the product offering, digitize and automate key processes.
- Automate our click-to-chat/chatbot dialogue mechanisms in order to personalize certain client interactions on a mass scale and make the Customer Contact Centres more accessible.
- Continue simplification and unification of the core client lifecycle activities, whether they be retail clients (account opening, payments, home purchase and saving) or business clients (account opening, financing and cash management).

Segment Results – Personal and Commercial

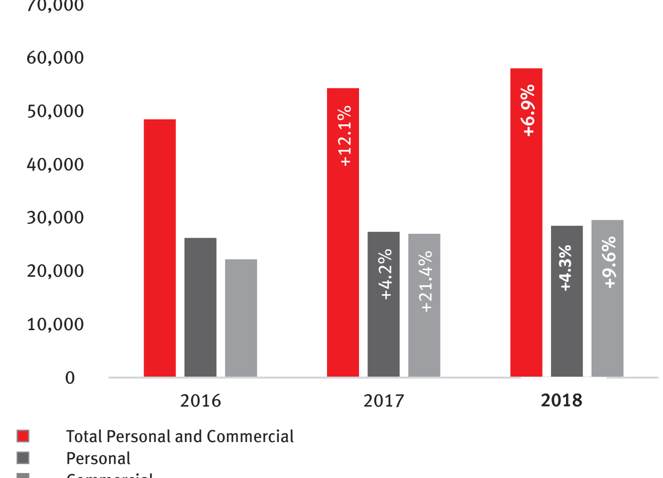
Year ended October 31 (millions of Canadian dollars)	2018	2017[1]	2016[1]	2018-17 % change
Net interest income	2,212	2,069	1,955	7
Non-interest income	1,027	988	945	4
Total revenues	3,239	3,057	2,900	6
Non-interest expenses	1,720	1,672	1,662	3
Contribution	1,519	1,385	1,238	10
Provisions for credit losses[2]	226	153	475	48
Income before income taxes	1,293	1,232	763	5
Income taxes	345	329	206	5
Net income	948	903	557	5
Net income excluding the impact of the sectoral provision[3]	948	874	740	8
Net interest margin[4]	2.32 %	2.26 %	2.24 %	
Average interest-bearing assets	95,344	91,633	87,266	4
Average assets	100,619	96,433	92,347	4
Average gross loans and acceptances	100,572	96,060	91,995	5
Net impaired loans[5] under IFRS 9	372			
Net impaired loans under IAS 39		199	275	
Net impaired loans[5] as a % of average loans and acceptances	0.4 %	0.2 %	0.3 %	
Average deposits	58,051	54,302	48,436	7
Efficiency ratio	53.1 %	54.7 %	57.3 %	

(1) For the years ended October 31, 2017 and 2016, certain amounts have been reclassified.
(2) Given the adoption of IFRS 9 on November 1, 2017, the Bank accounts for all provisions for credit losses within the business segments. For the years ended October 31, 2017 and 2016, only provisions for credit losses on impaired loans had been recognized in the business segments, whereas provisions for credit losses on non-impaired loans had been recognized in the *Other* heading. During the year ended October 31, 2017, the Bank had recorded a $40 million reversal ($29 million net of income taxes) of the sectoral provision on non-impaired loans taken for the oil and gas producer and service company loan portfolio. For the year ended October 31, 2016, the provisions for credit losses had included this sectoral provision of $250 million ($183 million net of income taxes).
(3) Given the materiality of the sectoral provision, recorded in accordance with GAAP, net income excluding the impact of the sectoral provision has been presented to provide a better assessment of the segment's results. See the Financial Reporting Method section on page 10 for additional information on non-GAAP financial measures.
(4) Net interest margin is calculated by dividing net interest income by average interest-bearing assets.
(5) Net impaired loans are presented net of allowances for credit losses on Stage 3 loan amounts drawn.

Loan and Acceptance Volumes
(millions of Canadian dollars)
(% of year-over-year growth)



Deposit Volumes
(millions of Canadian dollars)
(% of year-over-year growth)



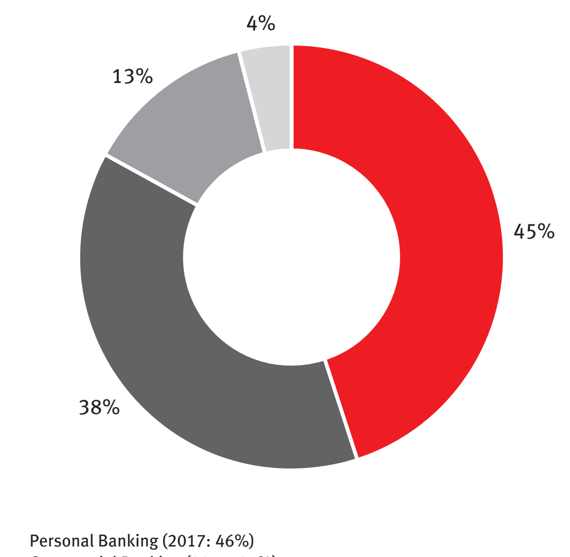
Financial Results

In the Personal and Commercial segment, net income totalled $948 million in fiscal 2018, up 5% from $903 million in fiscal 2017. The fiscal 2018 net income was up 8% when compared to the net income excluding the impact of the sectoral provision on non-impaired loans for the oil and gas producer and service company loan portfolio, which had been reversed by $29 million, net of income taxes, in fiscal 2017. The segment's total revenues rose $182 million or 6% year over year, as net interest income grew $143 million while non-interest income grew $39 million. The increase in net interest income was driven primarily by higher personal and commercial loan and deposit volumes as well as by a wider net interest margin, which rose to 2.32% in 2018 from 2.26% in 2017 owing mainly to growth in deposit margins.

The segment's 2018 non-interest expenses stood at $1,720 million, a 3% year-over-year increase resulting mainly from higher compensation and employee benefits, operations support charges, and technology investment expenses. Given these results, the segment's 2018 contribution increased 10% year over year. Furthermore, at 53.1%, the segment's 2018 efficiency ratio improved by 1.6 percentage points from 54.7% in 2017 (57.3% in 2016).

For 2018, the segment recorded $226 million in provisions for credit losses, $73 million more than the $153 million recorded in 2017. This increase was mainly due to the $40 million reversal of the sectoral provision in fiscal 2017 as well as to higher credit loss provisions on personal and commercial loans, in particular provisions recorded for non-impaired loans and for credit card receivables.

Total Revenues by Category
Year ended October 31, 2018



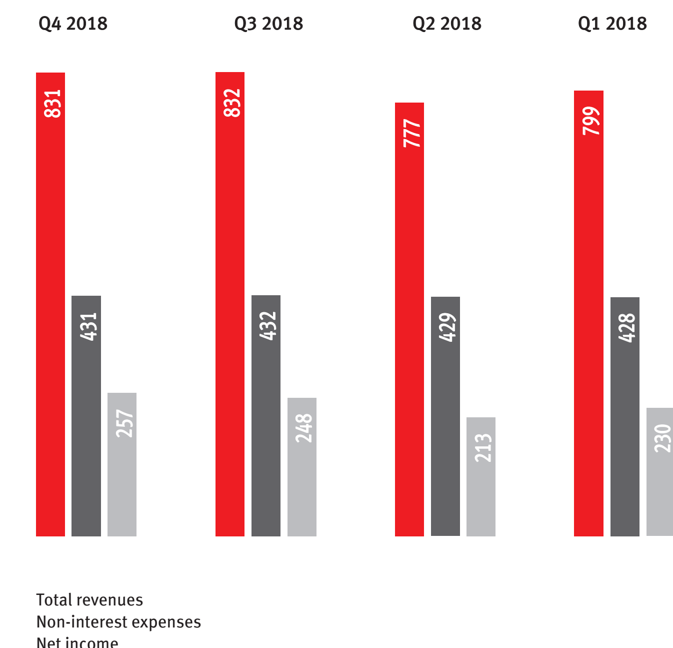
Personal Banking

Personal Banking's total revenues amounted to $2,015 million in fiscal 2018, up 4% from $1,941 million in 2017. This growth came mainly from 3.4% growth in loan volumes, mainly mortgage loans, and a 4.3% increase in deposit volumes. Personal Banking's 2018 non-interest income was up $13 million year over year, essentially due to higher card revenues, higher internal commission revenues generated by the distribution of Wealth Management products, and an increase in insurance revenues despite the gain realized in 2017 upon a change to the distribution model for property and casualty insurance. Personal Banking's non-interest expenses rose by $37 million in 2018, resulting mainly from higher compensation and employee benefits, technology investment expenses, and operations support charges.

Commercial Banking

For fiscal 2018, Commercial Banking's revenues amounted to $1,224 million, rising 10% from $1,116 million in fiscal 2017. Its net interest income was up, essentially due to 7.3% and 9.6% growth in loan and deposit volumes, respectively, and to a wider net interest margin resulting mainly from deposit margins. Commercial Banking's 2018 non-interest income grew $26 million year over year owing to increases in revenues from credit fees, revenues from bankers' acceptances, and revenues from foreign exchange activities. Its 2018 non-interest expenses rose $11 million, mainly due to higher compensation and employee benefits and higher operations support charges.

Quarterly Results
(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 offers investment solutions to independent advisors as well as solutions to institutional clients.

Business Lines

Investment Solutions
National Bank Investments (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.

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 close to 1,000 advisors at over 100 service points across Canada. Its advisors serve over 400,000 retail clients, proposing portfolio management services, financial and succession planning, and insurance and pension services while working in close collaboration with other segments of the Bank.

Private Banking
Private Banking 1859 offers highly personalized wealth management services and advice across Canada, helping affluent clients to benefit from comprehensive management of their personal and family fortunes. As a true market leader in Quebec, *Private Banking 1859* continues to expand its operations across Canada with its extensive range of financial solutions 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, through an optimized mobile trading platform, or by speaking directly to a representative on the phone.

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 and Credit Products
The Wealth Management segment provides independent advisors across Canada with an extensive range of investment products, including GICs, mutual funds, notes, structured products and monetization, helping to support their own business needs and client relationships. It also offers banking services such as investment loans, mortgages and other financial products, in partnership with non-bank financial institutions seeking to expand their service offering to their own clients.

Trust and Estate Services
Through National Bank Trust, 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. It also offers integrated trustee and depository services as well as securities custody services.

Economic and Market Review

The tightening of monetary policy continued in 2018, and additional rate hikes by the Bank of Canada are expected in 2019. Barring any unexpected economic shocks, economic growth will probably continue despite the rising cost of money. The markets reached the maturity phase of their cycle in 2018, but this could last into the foreseeable future.

The financial services industry is still experiencing rapid change, and demographic transition will play a decisive role in its evolution. Several factors are reshaping the industry's demand curve, including the transfer of wealth from the children of the Great Depression, baby-boomers transitioning into retirement, a resurgence of Generation X into accumulation mode, and the arrival of millennial households.

In the coming years, technological excellence capable of providing clients with the most relevant, personalized experience will be needed to win the client retention battle. With the multitude of solutions being offered by new industry players (FinTechs), the development of artificial intelligence applications is becoming a major differentiating factor in the industry. On the regulatory front, many consultations are under way and could require even more adjustments in the future.

Key Success Factors

- Leadership position in Quebec in terms of market share and brand recognition.
- Strong market penetration across Canada in full-service brokerage and private management services.
- Ability to build strong ties with clients through the advice provided and the solutions offered at every stage of their lives.
- Largest manager of managers in Canada (open architecture); our clients benefit from objective advice.
- Leader in the Canadian market for distribution to independent advisors.
- High level of client satisfaction with our direct brokerage services.
- Proven track record and excellent reputation as a business partner among non-bank financial institutions.

Objectives and Strategies

Capitalizing on the strength of the Bank's brand, its distribution capacity, and Wealth Management's differentiated business model to grow market shares in the mass and mass affluent markets. Increase market penetration across Canada through organic growth as well as targeted actions and partnerships.

Strategic Priorities	2018 Achievements and Highlights
Execute the plan related to our Savings Bank approach and integrated into the NBI business plan	– Development of the NatGo experience, currently in the pilot project stage, to be deployed for customers in 2019.
Achieve the growth potential of NBIN	– NBIN's integration of Hollis Wealth was the largest transaction of its kind completed by the Bank and was a resounding success. – Major investments to strengthen NBIN's presence in the custodial services market and in the Mutual Fund Dealers Association of Canada (MFDA) environment.
Optimize the open architecture	– On the strength of its open architecture, NBI offers Meritage portfolios, all of which rank in the first quartile, even when considering the fees.
Continue to optimize the business model of NBFWM	– NBFWM recruited a large number of advisors who are aligned with the Bank's values and corporate culture.
Develop a strategy for capturing market share in Ontario for NBFWM and *Private Banking 1859*	– A business plan has been developed and will be implemented in fiscal 2019.

Priorities and Outlook for 2019

Transform Client Service:
- Offer sound, independent advice that emphasizes the client's constantly evolving goals.
- Invest in cutting-edge platforms and tools to stay at the forefront of the digital evolution.
- Promote data-based solutions to ensure a comprehensive approach.

Concentrate on Fast-Growing Markets:
- Grow the market share of the retail client portfolio by maximizing integration across all distribution channels.
- Accelerate the acquisition of mass and mass affluent customers in Quebec.
- Continue market penetration efforts outside Quebec.
- Leverage the solutions developed across all distribution channels for B2B clients.

Continue Transforming Wealth Management's Culture:
- Leverage Wealth Management's unified team to provide clients with an integrated and transparent approach.
- Rely on agility and empower employees to accelerate the transformation.
- Encourage an innovation mindset.

Segment Results – Wealth Management

Year ended October 31 (millions of Canadian dollars)	2018	2017[1]	2016[1]	2018-17 % change
Net interest income	510	431	372	18
Fee-based revenues	987	906	803	9
Transaction and other revenues	262	267	266	(2)
Total revenues	1,759	1,604	1,441	10
Non-interest expenses	1,092	1,046	999	4
Contribution	667	558	442	20
Provisions for credit losses[2]	3	3	5	–
Income before income taxes	664	555	437	20
Income taxes	175	147	116	19
Net income	489	408	321	20
Specified items after income taxes[3]	17	23	26	
Net income excluding specified items[3]	506	431	347	17
Average assets	12,551	11,652	11,006	8
Average loans and acceptances	11,104	9,924	9,379	12
Net impaired loans[4] under IFRS 9	17			
Net impaired loans under IAS 39		4	5	
Average deposits	31,592	31,192	28,344	1
Efficiency ratio excluding specified items[3]	61.1 %	63.7 %	67.3 %	

(1) For the years ended October 31, 2017 and 2016, certain amounts have been reclassified.
(2) Given the adoption of IFRS 9 on November 1, 2017, the Bank accounts for all provisions for credit losses within the business segments. For the years ended October 31, 2017 and 2016, only provisions for credit losses on impaired loans had been recognized in the business segments, whereas provisions for credit losses on non-impaired loans had been recognized in the *Other* heading.
(3) See the Financial Reporting Method section on page 10 for additional information on non-GAAP financial measures. For fiscal 2016, the specified items included the acquisition-related items of recent years.
(4) Net impaired loans are presented net of allowances for credit losses on Stage 3 loan amounts drawn.

Assets Under Administration or Under Management – Wealth Management

As at October 31 (millions of Canadian dollars)	2018	2017	2016	2018-17 % change
Assets under administration	416,199	411,817	341,047	1
Assets under management				
Individual	37,007	33,349	27,589	11
Mutual funds	31,874	32,192	28,706	(1)
	68,881	65,541	56,295	5
Assets under administration and under management	485,080	477,358	397,342	2

Financial Results

In the Wealth Management segment, net income totalled $489 million in fiscal 2018, up $81 million or 20% from $408 million in fiscal 2017. For 2018, the segment's net income excluding specified items (with the specified items including the acquisition-related items of recent years) totalled $506 million, up $75 million or 17% from $431 million in 2017.

Total revenues amounted to $1,759 million in 2018 compared to $1,604 million in 2017, a $155 million year-over-year increase driven mainly by 18% growth in net interest income, attributable to improved margins, and by 9% growth in fee-based revenues given net inflows across all solutions and a steady rise in stock market performance during 2018. As for the 2018 transaction-based and other revenues, they were down when compared to 2017.

The segment's non-interest expenses stood at $1,092 million in 2018 compared to $1,046 million in 2017, a 4% year-over-year increase attributable primarily to the higher variable compensation and external management fees associated with the revenue growth arising from greater business volume as well as to higher operations support charges. The 2018 efficiency ratio excluding specified items was 61.1%, an improvement of 2.6 percentage points from 63.7% in 2017 (67.3% in 2016).

The segment recorded $3 million in provisions for credit losses in 2018, stable when compared to 2017.

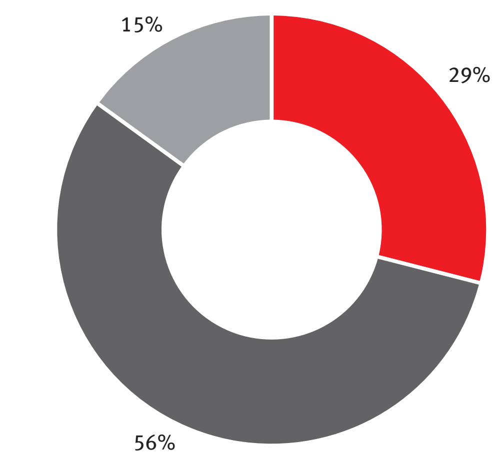
Assets Under Administration and Under Management

As at October 31, 2018, assets under administration and under management totalled $485.1 billion, a $7.7 billion or 2% increase from one year earlier, with net inflows into various solutions tempered by a drop in stock prices at the end of fiscal 2018. When compared to October 31, 2016, assets under administration and under management grew 22%.

Assets under administration amounted to $416.2 billion as at October 31, 2018, a $4.4 billion increase since October 31, 2017 that came from net inflows to various solutions.

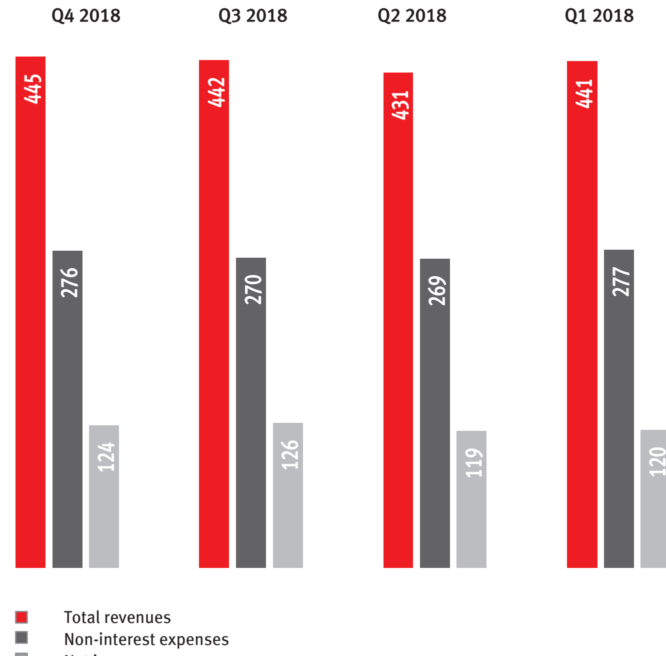
In the individuals category, assets under management amounted to $37.0 billion as at October 31, 2018 compared to $33.3 billion as at October 31, 2017. Mutual funds totalled $31.9 billion as at October 31, 2018, down when compared to October 31, 2017.

Total Revenues by Category
Year ended October 31, 2018



- Net interest income (2017: 27%)
- Fee-based services (2017: 56%)
- Transaction-based and other revenues (2017: 17%)

Quarterly Results
(millions of Canadian dollars)



- Total revenues
- Non-interest expenses
- Net income

Business Segment Analysis | Financial Markets

The Financial Markets segment offers a full range of products and services to corporate, government and institutional clients. Whether providing comprehensive advisory services, macroeconomic and issuer-focused research, or capital markets services, its focus is on client relationships and their growth. Over 700 professionals serve client needs through offices in North America, Europe, the U.K. and Asia.

Lines of Business

The Financial Markets segment operates two main business lines: Global Markets and 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 in Canada by volume. The financial and business risks of its clients are mitigated through solutions covering interest rates, foreign exchange rates, equities and commodities. The segment offers structuring advice to asset managers and fund companies for new product development and supports their success by providing liquidity, research and counterparty services. It also issues tailored investment products in all asset classes to institutional and retail investors.

Corporate and Investment Banking
Financial Markets offers loan origination and syndication to corporations for project financing, merger and acquisition transactions, and general corporate purposes. The segment is also an investment banking leader across Canada and the overall top-ranked franchise in Quebec. Its comprehensive services include strategic advisory for financing and mergers and acquisitions as well as debt and equity underwriting. It is the Canadian leader in government and corporate high yield debt underwriting. Dominant in Quebec, it leads deals 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

Financial Markets started fiscal 2018 very strong as our flexible approach to capital allocation provided us with the ability to seize opportunities in the securities finance business. Plagued by periods of volatility, domestic equity offerings fell drastically. However, the segment achieved strong progress building its M&A franchise through several landmark transactions. Results for the second half of 2018 were influenced by global trade tensions and strong economic fundamentals in Canada.

Key Success Factors

- Integrated approach, teamwork, alignment and communication among all groups.
- Focused on client relationships and their growth.
- Diversified client activity and revenue mix.
- Recognized track record of innovation in derivatives and structuring.
- Proven ability to adapt to evolving capital markets conditions and deliver consistent financial performance.

Objectives and Strategies

Strategic Priorities	2018 Achievements and Highlights
Maintain leadership in Canadian debt underwriting	Ranked first in government debt underwriting: – Lead and joint-lead on Canada Mortgage Bond issuances aggregating $29.25 billion. – Lead on deals for the Province of Quebec aggregating $9.5 billion. – Joint lead on the Province of Alberta's US$2.25 billion five-year offering. – Inaugural lead for the Province of Saskatchewan. – Lead on a 10-year transaction for the First Nations Finance Authority. – Lead on the City of Toronto's largest 20-year transaction. Leader in corporate debt underwriting: – Joint bookrunner on a $1.4 billion multi-tranche offering for Hydro-One Inc. – Joint bookrunner on a $1.2 billion multi-tranche offering for METRO INC. – Joint bookrunner on a US$900 million offering for Alimentation Couche-Tard Inc. – Joint bookrunner on a $500 million dual tranche offering for Union Gas Limited. – Joint bookrunner on a $500 million dual tranche offering for SmartCentres REIT. – Joint bookrunner on a $220 million offering for Superior Plus LP.

Strategic Priorities	2018 Achievements and Highlights
Expand our client coverage to increase our presence in advisory services	– Financial advisor to Enercare Inc. on its $4.3 billion sale to Brookfield Infrastructure. – Advisor to the special committee of the board of directors of Raging River Exploration Inc. on its strategic repositioning process and its resulting $1.9 billion merger with Baytex Energy Corp. Additionally, provided a fairness opinion about the merger to the special committee and board. – Financial advisor to Stingray Group Inc. on its acquisition of Newfoundland Capital Corporation Limited for $506 million. Also acted as joint bookrunner on the related $83 million public equity financing and as sole lead arranger and bookrunner on the $450 million in credit facilities to finance the transaction. – Exclusive financial advisor to Whitecap Resources Inc. on its $940 million acquisition of Cenovus Energy Inc.'s Weyburn light oil assets and on a $92.5 million private placement. Also acted as exclusive financial advisor, co-lead underwriter, and joint bookrunner on a concurrent $332.5 million bought deal offering of Whitecap common shares. – On February 26, 2018, in conjunction with Industrial Alliance Insurance and Financial Services Inc. entering into an arrangement agreement to create a new holding company, National Bank Financial Inc. provided an opinion to Industrial Alliance's board of directors that the proposed arrangement was fair, from a financial point of view, to the company's common shareholders. On the same day, and concurrent with the announcement of the acquisition of PPI Management Inc., National Bank Financial Inc. acted as co-lead underwriter for the issuance of $149 million of common shares and $150 million preferred shares. – Exclusive financial advisor to Hydro-Québec on the sale of a majority interest (55%) in TM4 Inc. to Dana Incorporated for a cash consideration of $165 million.
Leverage leadership in equity distribution to increase lead and co-lead positions	– Co-lead on the Morneau Shepell Inc. offering and lead on the associated foreign exchange and interest rate hedging. – Lead underwriter on Shopify Inc.'s US$658 million equity financing. – Co-bookrunner on Nevada Copper's $128 million and $108 million equity financings.
Maintain leadership in investment products	U.S. initiative for structured notes: – Since March 2018, the top tier U.S. wealth management networks approved the Bank as an issuer. This approval resulted in the issuance of a number of structured notes on different underlying assets and indices for nearly $1.0 billion. The notes are classified as retail deposits and contribute to the diversification of the Bank's deposit base. This 2018 issuance amount represents an increase of almost $900 million from 2017. Exchange-traded funds (ETF) initiative: – Given reduced ETF market volume in 2018, the ETF market-making team captured almost 40% market share, effectively becoming the number one ETF market-maker in Canada. For fixed-income ETFs, a key area of focus, market share grew by over 50%, moving the Bank into the number one position in Canada. The ETF team was selected to act as designated broker 43 times this year, up from 33 times last year. Managed retail products: – In the managed retail product space, the Bank was able to lead another $500 million of overnight split share re-openings in 2018. The Bank pioneered the overnight approach, which continues to be a successful means for asset managers to raise capital.

Priorities and Outlook for 2019

- Strategic pillar: Continue to automate processes, use artificial intelligence, and increase data-sharing across the Financial Markets segment.
- Develop advisory relationships with investor clients.
- Increase market share with corporations for all fee-based products.

Segment Results – Financial Markets

Year ended October 31 (taxable equivalent basis)[1] (millions of Canadian dollars)	2018	2017[2]	2016[2]	2018-17 % change
Global markets				
Equities	564	496	438	14
Fixed-income	265	294	263	(10)
Commodities and foreign exchange	126	103	116	22
	955	893	817	7
Financial market fees	349	304	285	15
Corporate banking	377	327	322	15
Gains on investments and other	62	94	(114)	(34)
Total revenues on a taxable equivalent basis	1,743	1,618	1,310	8
Non-interest expenses	697	665	614	5
Contribution on a taxable equivalent basis	1,046	953	696	10
Provisions for credit losses[3]	4	–	–	
Income before income taxes on a taxable equivalent basis	1,042	953	696	9
Income taxes on a taxable equivalent basis	278	255	213	9
Net income	764	698	483	9
Specified items after income taxes[1]	–	–	145	
Net income excluding specified items[1]	764	698	628	9
Average assets	100,721	94,991	87,491	6
Average loans and acceptances	15,116	13,118	12,552	15
Net impaired loans[4]	–	–	–	
Average deposits	23,510	20,926	15,201	12
Efficiency ratio on a taxable equivalent basis and excluding specified items[1]	40.0 %	41.1 %	41.7 %	

(1) See the Financial Reporting Method section on page 10 for additional information on non-GAAP financial measures. For fiscal 2016, the specified items included a $164 million write-off of the equity interest in associate Maple ($145 million net of income taxes).
(2) For the years ended October 31, 2017 and 2016, certain amounts have been reclassified.
(3) Given the adoption of IFRS 9 on November 1, 2017, the Bank accounts for all provisions for credit losses within the business segments. For the years ended October 31, 2017 and 2016, only provisions for credit losses on impaired loans had been recognized in the business segments, whereas provisions for credit losses on non-impaired loans had been recognized in the *Other* heading.
(4) Net impaired loans are presented net of allowances for credit losses on Stage 3 loan amounts drawn.

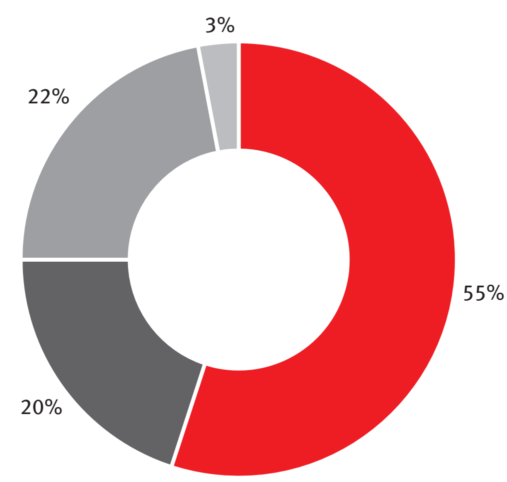
Financial Results

In the Financial Markets segment, net income totalled $764 million in fiscal 2018, up $66 million or 9% from fiscal 2017. Total revenues on a taxable equivalent basis amounted to $1,743 million compared to $1,618 million in fiscal 2017, a $125 million increase driven by all revenue types except for gains on investments and other revenues. Due to favourable market conditions in fiscal 2018, global markets revenues increased 7% year over year. Specifically, revenues from equity securities and from commodity and foreign exchange activities grew 14% and 22%, respectively, while fixed-income revenues declined 10%. Revenues from financial market fees were up 15%, particularly due to solid performance in merger and acquisition business. Furthermore, corporate banking revenues grew 15% year over year owing to more robust lending activity. Lastly, higher gains on investments and other revenues had been recorded in fiscal 2017, whereas the $164 million write-off ($145 million net of income taxes) of the equity interest in associate Maple recorded in fiscal 2016 had a significant impact on the segment's result.

For the year ended October 31, 2018, the segment's non-interest expenses increased 5% year over year, mainly due to the higher variable compensation associated with revenue growth as well as to higher operations support charges. At 40.0%, the 2018 efficiency ratio on a taxable equivalent basis and excluding specified items improved by 1.1 percentage points when compared to 41.1% in 2017 and also improved compared to 41.7% in 2016.

For 2018, the segment recorded $4 million in provisions for credit losses on non-impaired loans, whereas no provisions had been recorded in 2017 and 2016.

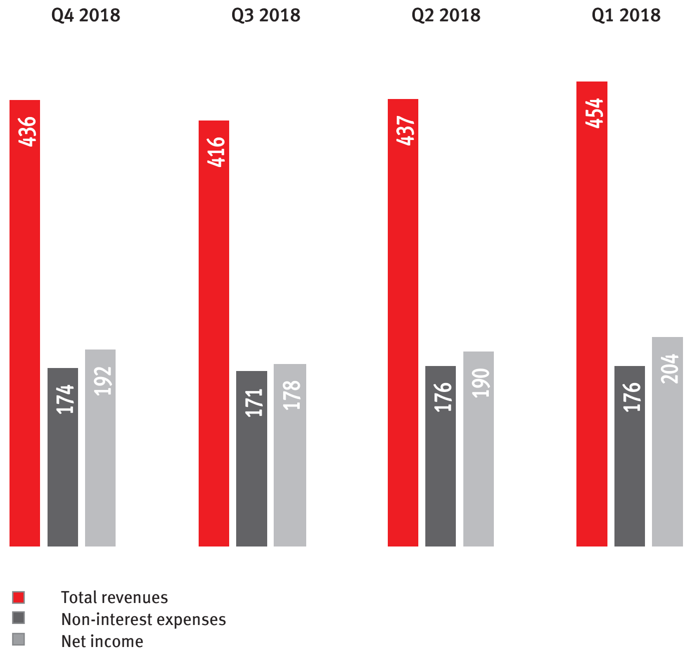
Total Revenues by Category
Year ended October 31, 2018
(taxable equivalent basis)[(1)]



- Global markets (2017: 55%)
- Financial market fees (2017: 19%)
- Corporate Banking (2017: 20%)
- Gains on investments and other (2017: 6%)

(1) See the Financial Reporting Method section on page 10 for additional information on non-GAAP financial measures.

Quarterly Results
(taxable equivalent basis)[(1)]
(millions of Canadian dollars)



- Total revenues
- Non-interest expenses
- Net income

(1) See the Financial Reporting Method section on page 10 for additional information on non-GAAP financial measures.

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

The Bank complements its Canadian growth with a targeted and disciplined international strategy that aims for higher returns and offers additional strategic options for capital deployment. 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. During fiscal 2018, the U.S. Specialty Finance and International segment generated 9% of consolidated total revenue and 10% of net income.

U.S. Specialty Finance – Credigy

Credigy is a specialty finance company with flexibility across its capital structure to acquire or finance all segments of the consumer receivables market. Based in Atlanta, the company is primarily active in performing assets covering a broad range of asset classes, mostly in the U.S. market. The Bank holds an 80% ownership interest in Credigy.

Economic and Market Review

U.S. consumer credit is expected to reach record levels in 2018, fueled by strong economic growth and low unemployment, despite four interest rate hikes by the Federal Reserve during the year. Significant increases in overall market liquidity in the U.S. are creating short-term pressure on net spreads in specialty finance.

Key Success Factors

- Ability to seize opportunities in rapidly changing market conditions through a disciplined yet adaptable investment strategy.
- Diversification across several classes of performing assets.
- Market credibility achieved through over 250 transactions life-to-date, representing over US$11 billion in total investments supported by the Bank.
- Rigorous pricing approach strengthened by continuous refinement of modelling and analytics capabilities and deep expertise in specific asset classes.
- Proven expertise in the successful management and servicing of consumer assets.

Objectives and Strategies

Provide customized solutions for the consumer receivables market in pursuit of the best risk-adjusted returns and a return on assets (ROA) of at least 2.5%.

Strategic Priorities	2018 Achievements and Highlights
Sustain deal flow by being a partner of choice for bank and non-bank institutions facing complex challenges and strategic changes.	– Maintained strong average assets of $6.4 billion.
Maintain a diversified mix of performing assets	– Performing assets accounted for 97% of assets compared to 96% at the end of 2017. – Continued diversification in asset classes focusing on both secured and unsecured consumer assets.
Proactively mitigate risks	– Monitoring and refinement of credit models allow Credigy to focus on the best risk/reward investments. – Continue disciplined approach to ensure a balance between risk and return and an ROA of at least 2.5%.

Priorities and Outlook for 2019

Credigy continues to position itself as a transaction partner of choice that has the willingness and financial capacity to negotiate mutually beneficial deals with both bank and non-bank financial institutions. While building its deal pipeline, the company continuously refines and enhances its modelling and analytics tools to optimize pricing and servicing of the consumer receivables portfolios. Market conditions are expected to remain neutral in 2019 in an environment of strong credit expansion. Credigy's diversification will permit continued growth, albeit at slower rates in the current market conditions and until spreads widen.

International – ABA Bank

ABA Bank is a profitable, rapidly growing bank that offers financial services to individuals and businesses in Cambodia with an ROE of 31%. It offers a full spectrum of financial services to micro, small and medium-size enterprises (MSMEs) as well as to individuals through 63 branches and 259 banking machines across the country. It has been selected as Best Bank in Cambodia by *Euromoney Magazine* for five consecutive years since 2014. Since 2016, the Bank is the majority shareholder, holding a 90% ownership interest, and has invested US$81 million in ABA Bank subordinated debt.

Economic and Market Review

- GDP growth in Cambodia averaging near 7% for the past decade.
- A diversified economy based largely on the U.S. dollar. Strong GDP growth is supported by membership in the Association of Southeast Asian Nations (ASEAN) trade association and an expansionary fiscal policy.
- Highly underbanked market. Approximately 7% of the population have a credit account and 33% have a deposit account.
- High adoption and use of mobile technology and social media. Over 70% of the population of 16.5 million is under 35 years of age.

Key Success Factors

- Strong risk management driving high credit quality.
- Ability to fund loan growth through deposits by leveraging the Bank's reputation as a world-class financial institution.
- Experienced leadership team and well-trained employees.
- Governance structure based on high Canadian standards while providing local management with the autonomy to pursue strategic priorities and business objectives.

Objectives and Strategies

Pursue omnichannel banking focused on being the lending partner of choice to MSMEs, while increasing market penetration in deposits and transactional services for retail and business clients.

Strategic Priorities	2018 Achievements and Highlights
Grow market share in MSME lending while maintaining credit quality	– Achieved 53% growth in loan volumes, with 100% of all loans collateralized. – Non-performing loans were 0.8% compared to 0.5% in 2017. – Greater market penetration with the opening of 14 new branches for a total of 63 branches country-wide. – Ranked fourth largest bank in Cambodia by assets.
Sustain growth in deposits and transactional services	– Deposits increased 51% compared to 2017. – Continued enhancements to self-banking capabilities, including the first full-scale mobile banking application in Cambodia. – Self-banking transactions made up 91% of all transactions compared to 81% in 2017.

Priorities and Outlook for 2019

ABA Bank enters 2019 with strong growth momentum and a positive outlook. It will continue to offer simple and efficient banking solutions in the underbanked Cambodian market, focusing on MSME clients to achieve loan growth while increasing its stable deposit base by leveraging the Bank's reputation and offering convenience to retail customers through its advanced digital and self-banking infrastructure and expanding branch network. It plans to open an additional six to eight branches in 2019 to extend its reach into new regions of the country and gain direct access to a larger pool of MSME customers and retail deposits.

International – Other Investments

In addition to its controlling interest in ABA Bank, the Bank also holds minority positions in financial groups active in trade with French-speaking Africa and Africa-Asia. As at October 31, 2018, the total amount invested in emerging markets was $544 million. Of this amount, the investment in ABA Bank represents $322 million or 59%.

The Bank is currently focused on supporting ABA Bank's rapid growth and on operationalizing its governance framework. The Bank has consequently extended its moratorium on making significant new investments in emerging markets until 2020.

Segment Results – U.S. Specialty Finance and International

Year ended October 31 (millions of Canadian dollars)	2018	2017[1]	2016[1]	2018-17 % change
Net interest income	584	466	284	25
Non-interest income	55	75	127	(27)
Total revenues	639	541	411	18
Credigy	446	409	324	9
ABA Bank and International	193	132	87	46
Non-interest expenses	251	225	207	12
Credigy	156	163	182	(4)
ABA Bank and International	95	62	25	53
Contribution	388	316	204	23
Provisions for credit losses[2]	94	48	4	96
Income before income taxes	294	268	200	10
Income taxes	72	84	53	(14)
Net income	222	184	147	21
Non-controlling interests	38	29	20	31
Net income attributable to the Bank's shareholders	184	155	127	19
Average assets	9,270	7,519	5,319	23
Average loans and acceptances	7,853	6,062	3,499	30
Net impaired loans[3] under IFRS 9	15			
Net impaired loans under IAS 39		3	1	
Purchased or originated credit-impaired (POCI) loans	1,576	1,990	1,846	(21)
Average other revenue-bearing assets	15	449	1,162	(97)
Average deposits	1,907	1,265	487	51
Efficiency ratio	39.3 %	41.6 %	50.4 %	

(1) For the years ended October 31, 2017 and 2016, certain amounts have been reclassified.
(2) Given the adoption of IFRS 9 on November 1, 2017, the Bank accounts for all provisions for credit losses within the business segments. For the years ended October 31, 2017 and 2016, only provisions for credit losses on impaired loans had been recognized in the business segments, whereas provisions for credit losses on non-impaired loans had been recognized in the *Other* heading.
(3) Net impaired loans are presented net of allowances for credit losses on Stage 3 loan amounts drawn and do not include POCI loans.

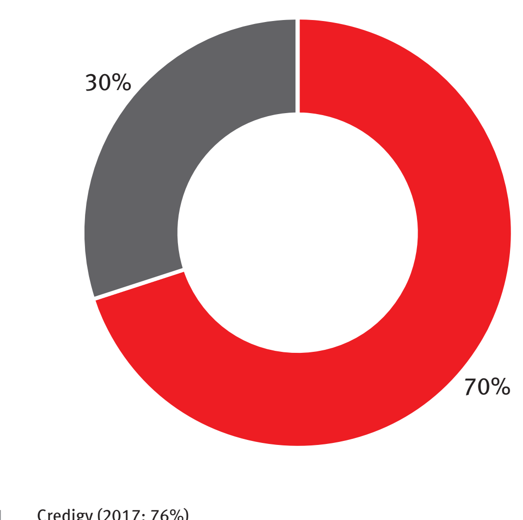
Financial Results

For the year ended October 31, 2018, the USSF&I segment generated $222 million in net income compared to $184 million in fiscal 2017. Its 2018 total revenues amounted to $639 million versus $541 million in 2017; this 18% revenue growth was driven by an increase in Credigy's revenues, particularly due to growth in loan volumes, and by growth in ABA Bank's revenues, which increased steadily due to higher loan and deposit volumes.

The segment's 2018 non-interest expenses stood at $251 million, a $26 million year-over-year increase attributable essentially to the ABA Bank non-interest expenses incurred to expand its banking network. As for Credigy's non-interest expenses, they were down 4% year over year, primarily as a result of lower servicing fees.

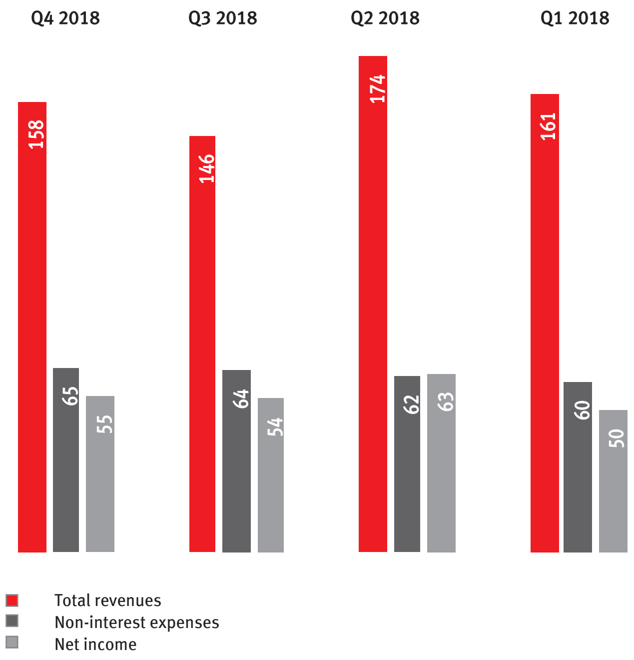
For 2018, the segment recorded $94 million in provisions for credit losses, consisting essentially of Credigy's credit loss provisions.

Total Revenues by Category
Year ended October 31, 2018



Credigy (2017: 76%)
ABA Bank (2017: 23%)
International (2017: 1%)

Quarterly Results
(millions of Canadian dollars)



Total revenues
Non-interest expenses
Net income

Business Segment Analysis | Other

The *Other* heading reports on Treasury operations, including the Bank's asset and liability management, liquidity management and funding operations; certain non-recurring items; and the unallocated portion of corporate units. Corporate units include Information Technology, Transformation, Risk Management, Human Resources, Corporate Affairs and 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)

	2018	2017[2]	2016[2]
Net interest income	**(189)**	(93)	(113)
Non-interest income	**220**	126	126
Total revenues on a taxable equivalent basis	**31**	33	13
Non-interest expenses	**303**	249	393
Contribution on a taxable equivalent basis	**(272)**	(216)	(380)
Provisions for credit losses[3]	**–**	40	–
Income before income taxes on a taxable equivalent basis	**(272)**	(256)	(380)
Income taxes (recovery) on a taxable equivalent basis	**(81)**	(87)	(128)
Net loss	**(191)**	(169)	(252)
Non-controlling interests	**49**	55	55
Net loss attributable to the Bank's shareholders	**(240)**	(224)	(307)
Specified items after income taxes[1]	**–**	2	186
Net loss excluding specified items[1]	**(191)**	(167)	(66)
Average assets	**42,601**	37,756	39,750

(1) See the Financial Reporting Method section on page 10 for additional information on non-GAAP financial measures. In fiscal 2016, the specified items consisted mainly of the following items, net of income taxes: a restructuring charge of $96 million, impairment losses on intangible assets of $32 million, and litigation charges of $18 million.
(2) For the years ended October 31, 2017 and 2016, certain amounts have been reclassified.
(3) Given the adoption of IFRS 9 on November 1, 2017, the Bank accounts for all provisions for credit losses within the business segments. For the years ended October 31, 2017 and 2016, only provisions for credit losses on impaired loans had been recognized in the business segments, whereas provisions for credit losses on non-impaired loans had been recognized in the *Other* heading. For fiscal 2017, the $40 million in provisions for credit losses consisted of an increase in the collective allowance for credit risk on non-impaired loans.

Financial Results

For the *Other* heading of segment results, there was a net loss of $191 million in fiscal 2018 compared to a net loss of $169 million in fiscal 2017. This change was mainly due to an increase in non-interest expenses, particularly technology investment expenses made as part of the Bank's transformation plan and for business development activities, and to a higher contribution from Treasury activities in 2017. These items more than offset the expected favourable impact on fiscal 2018 of the $40 million increase ($29 million net of income taxes) recorded for the collective allowance for credit risk on non-impaired loans in fiscal 2017 to reflect growth in the Bank's overall credit portfolio.

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. For example, the second quarter of the fiscal year has fewer days than the other quarters, which can result in reductions to total revenues and certain non-interest expense items. The following table presents a summary of results for the past eight quarters. Furthermore, a summary of results for the past 12 quarters is provided in Table 1 on pages 94 and 95.

Quarterly Results Summary[1]

(millions of Canadian dollars)				2018				2017[2]
	Q4	Q3	Q2	Q1	Q4	Q3	Q2	Q1
Statement of income data								
Net interest income	826	837	885	834	881	887	815	853
Non-interest income	988	955	869	972	823	788	782	780
Total revenues	1,814	1,792	1,754	1,806	1,704	1,675	1,597	1,633
Provisions for credit losses	73	76	91	87	70	58	56	60
Non-interest expenses	1,036	1,011	992	1,024	976	971	941	969
Income taxes	139	136	124	145	133	128	116	107
Net income	566	569	547	550	525	518	484	497

(1) For additional information about the 2018 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 2018,* published on December 5, 2018.
(2) For the fiscal 2017 quarterly periods, certain amounts have been reclassified. These reclassifications had no impact on net income.

The above analysis of the past eight quarters reflects the sustained performance of all the business segments and helps readers identify the items that have favourably or unfavourably affected results. Thanks to the net income growth across all of the Bank's main business segments, the net income for each quarter of 2018 was up year over year.

Net interest income posted year-over-year decreases in each quarter of 2018 except for the second quarter, which posted a year-over-year increase. These decreases came mainly from a decline in the net interest income results of the Financial Markets segment that were partly offset by the increase in non-interest income. These decreases were tempered, however, by growth in personal and commercial loan and deposit volumes, net interest income growth at Wealth Management (notably due to deposit growth and improved margins) and the net interest income growth at the Credigy and ABA Bank subsidiaries. The year-over-year increase in net interest income for the second quarter of 2018 was a result of higher net interest income in the Financial Markets segment, notably due to equity securities revenues recorded during the quarter.

Non-interest income posted year-over-year increases in every quarter of fiscal 2018 owing to sustained growth across all the business segments.

The provisions for credit losses in every quarter of fiscal 2018 were affected by the application of IFRS 9 on November 1, 2017. They posted year-over-year increases in every quarter of 2018, partly due to provisions recorded on non-impaired personal and commercial loans and to provisions recorded for the U.S. Specialty Finance and International segment and related essentially to the Credigy subsidiary. Furthermore, during the second quarter of 2017, the Bank had recorded a $40 million reversal to the sectoral provision on non-impaired loans taken for the oil and gas producer and service company loan portfolio. The 2017 second-quarter provisions for credit losses had also included a $40 million increase in the collective allowance for credit risk on non-impaired loans.

The non-interest expense results for every quarter of 2018 were up year over year. Explaining these increases were compensation and employee benefits (including the variable compensation associated with revenue growth in the business segments), technology investments expenses made as part of the Bank's transformation plan and for business development activities, and expenses related to the expansion of ABA Bank banking network.

The effective tax rate was relatively stable over the four quarters of 2018, whereas it was lower in the first quarter of 2017. The change in the effective tax rate between the first quarters of 2018 and 2017 came from lower tax-exempt dividend income in the first quarter of 2018. In addition, the U.S. tax reform had an impact on the effective tax rates of the second, third and fourth quarters of fiscal 2018.

Analysis of the Consolidated Balance Sheet

The Consolidated Balance Sheet as at October 31, 2018 reflects the adoption of IFRS 9 on November 1, 2017. For additional information on IFRS 9 adoption, refer to Notes 1 and 3 to the consolidated financial statements. Comparative information has not been restated.

Consolidated Balance Sheet Summary

As at October 31 (millions of Canadian dollars)	2018	2017[1]	% change
Assets			
Cash and deposits with financial institutions	12,756	8,802	45
Securities	69,783	65,343	7
Securities purchased under reverse repurchase agreements and securities borrowed	18,159	20,789	(13)
Loans and acceptances, net of allowances	146,082	136,457	7
Other	15,691	14,436	9
	262,471	245,827	7
Liabilities and equity			
Deposits	170,830	156,671	9
Other	76,539	75,589	1
Subordinated debt	747	9	
Equity attributable to the Bank's shareholders	13,976	12,750	10
Non-controlling interests	379	808	(53)
	262,471	245,827	7

(1) On November 1, 2017, the Bank changed the presentation of certain items on the Consolidated Balance Sheet, and the October 31, 2017 figures were reclassified to reflect those changes.

As at October 31, 2018, the Bank's total assets amounted to $262.5 billion compared to $245.8 billion at year-end 2017, a 7% increase owing mainly to a $4.0 billion increase in cash and deposits with financial institutions, a $4.5 billion increase in securities, and a $9.6 billion increase in loans and acceptances net of allowances.

Cash and Deposits With Financial Institutions

At $12.8 billion as at October 31, 2018, cash and deposits with financial institutions have risen $4.0 billion since October 31, 2017, mainly due to growth in deposits with the U.S. Federal Reserve. The Bank's liquidity and funding risk management practices are described on pages 75 to 83 of this MD&A.

Securities

As at October 31, 2018, securities totalled $69.8 billion (27% of total assets). During fiscal 2018, they grew $4.5 billion from $65.3 billion as at October 31, 2017. This growth was essentially due to an $8.3 billion increase in securities at fair value through profit or loss, as securities issued or guaranteed by the Canadian government were up $5.9 billion and securities issued or guaranteed by Canadian provincial and municipal governments were up $2.9 billion. As at October 31, 2018, securities purchased under reverse repurchase agreements and securities borrowed totalled $18.2 billion, a 13% decrease from the same date last year that stems mainly from Treasury activities. The Bank's market risk management policies are described on pages 68 to 75 of this MD&A.

Loans and Acceptances

As at October 31, 2018, loans and acceptances, net of allowances for credit losses, totalled $146.1 billion, up $9.6 billion or 7% from October 31, 2017, and accounted for 56% of total assets.

Residential mortgage loans outstanding totalled $53.7 billion as at October 31, 2018, rising $2.1 billion or 4% since year-end 2017. This growth was driven by demand for mortgage credit and business growth at ABA Bank.

Personal loans totalled $37.4 billion at year-end 2018, a $1.8 billion or 5% increase from $35.6 billion at year-end 2017. This increase came from growth in Personal Banking's business activities, mainly due to home equity lines of credit. As for credit card receivables, they increased 3% to total $2.3 billion as at October 31, 2018.

At $53.4 billion as at October 31, 2018, loans and acceptances to businesses and government increased $5.7 billion or 12% since October 31, 2017, mainly due to business growth at Commercial Banking and in the Financial Markets segment.

Table 9 (page 101) shows gross loans and acceptances by borrower category as at October 31, 2018. At $70.6 billion, residential mortgage loans (including home equity lines of credit) have posted strong growth since 2014 and account for 48% of total loans and acceptances as at October 31, 2018; this growth was driven by sustained demand for mortgage credit. As for retail loans, they totalled $16.5 billion as at October 31, 2018. With respect to commercial loans, there was year-over-year growth mainly in the agriculture category, mining category, manufacturing category and real estate category, whereas certain categories posted year-over-year decreases, notably the retail trade category and the finance and insurance category. Purchased or originated credit-impaired loans were down when compared to October 31, 2017.

Impaired Loans
Following IFRS 9 adoption on November 1, 2017, 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. These impaired loans do not include POCI loans.

As at October 31, 2018, gross impaired loans stood at $630 million compared to $599 million as at November 1, 2017 and $380 million as at October 31, 2017 (Table 10, page 101). As at October 31, 2018, net impaired loans stood at $404 million compared to $360 million as at November 1, 2017, a $44 million increase arising mainly from commercial loan portfolios. As at October 31, 2017, net impaired loans stood at $206 million.

A detailed description of the Bank's credit risk management practices is provided on pages 61 to 67 of this MD&A as well as in Note 8 to the consolidated financial statements.

Other Assets
As at October 31, 2018, other assets totalled $15.7 billion compared to $14.4 billion as at October 31, 2017, a $1.3 billion increase arising mainly from a $0.9 billion increase in the other item of other assets, notably the *Due from clients, dealers and brokers* item. As for derivative financial instruments, investments in associates and joint ventures, goodwill, premises and equipment, and intangible assets, they remained relatively stable year over year.

Deposit Liability
At $170.8 billion as at October 31, 2018, deposits increased by $14.1 billion or 9% since year-end 2017. At $55.7 billion, personal deposits, as presented in Table 12 (page 102), increased $3.5 billion since October 31, 2017 and accounted for 33% of all deposits. This increase was driven by Bank initiatives designed to grow this type of deposit as well as by growth at the ABA Bank subsidiary. A summary of total personal savings is provided in the following table below.

As shown in Table 12, business and government deposits totalled $110.3 billion, up $11.2 billion from $99.1 billion at year-end 2017. This increase came mainly from government and banking business as well as Treasury funding activities. Deposits from deposit-taking institutions were down $0.6 billion from the same date last year.

As at October 31, 2018, total personal savings amounted to $211.5 billion, up from $209.0 billion as at October 31, 2017. Overall, off-balance-sheet personal savings stood at $155.8 billion as at October 31, 2018 compared to $156.8 billion one year earlier, a decrease that is essentially attributable to a decline in stock market prices at the end of 2018.

Total Personal Savings

As at October 31 (millions of Canadian dollars)	2018	2017	% change
Balance sheet			
Deposits[(1)]	55,688	52,175	7
Off-balance-sheet			
Brokerage	123,458	124,212	(1)
Mutual funds	31,874	32,192	(1)
Other	440	408	8
	155,772	156,812	(1)
Total	211,460	208,987	1

(1) The Bank reclassified certain amounts presented in the *Deposits* item of the Consolidated Balance Sheet. As at October 31, 2017, a $1,544 million amount was reclassified from *Deposits – Personal* into *Deposits – Business and government.*

Other Liabilities
Other liabilities stood at $76.5 billion as at October 31, 2018, rising $0.9 billion since October 31, 2017, essentially due to a $2.4 billion increase in obligations related to securities sold short, partly offset by a $1.8 billion decrease in obligations related to securities sold under repurchase agreements and securities loaned and a $0.6 billion decrease in derivative financial instruments.

Subordinated Debt and Other Contractual Obligations
Since October 31, 2017, subordinated debt increased due to a $750 million issuance of medium-term notes on February 1, 2018.

The contractual obligations are presented in detail in Note 30 to the consolidated financial statements.

Equity
As at October 31, 2018, equity attributable to the Bank's shareholders was $14.0 billion, up $1.2 billion from $12.8 billion as at October 31, 2017. This increase came from net income net of dividends, from remeasurements of pension plans and other post-employment benefit plans, and from the issuances of Series 40 and Series 42 preferred shares for $600 million, tempered by a $200 million redemption of Series 28 preferred shares for cancellation. The issuances of common shares under the stock option plan were more than offset by common shares repurchased for cancellation and the impact of shares purchased or sold for trading. As for non-controlling interests, they were down $429 million, essentially due to the $400 million redemption of trust units issued by NBC Asset Trust. The Consolidated Statements of Changes in Equity on page 110 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.

Exposures to Certain Activities

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. 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 8 of this MD&A 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. Alt-A loans are granted to borrowers who cannot provide standard proof of income. The Bank's Alt-A loan volume was $425 million as at October 31, 2018 ($408 million as at October 31, 2017).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, 2018, total commitments for this type of loan stood at $2,967 million ($3,269 million as at October 31, 2017). Details about other exposures are provided in the table concerning structured entities in Note 28 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 23 to the consolidated financial statements. Additional information on related parties is presented in Notes 10, 28 and 29 to the consolidated financial statements.

Income Taxes

In September 2018, the Bank was reassessed by the Canada Revenue Agency (CRA) for additional income tax and interest of approximately $130 million (including estimated provincial tax and interest) in respect of certain Canadian dividends received by the Bank during 2013.

In May 2017, the Bank had been reassessed for additional income tax and interest of approximately $77 million (including provincial tax and interest) in respect of certain Canadian dividends received by the Bank during 2012.

The transactions to which these reassessments relate are similar to those prospectively addressed by the synthetic equity arrangement rules introduced in the 2015 Canadian federal budget.

Also in July 2018, the CRA confirmed in writing that, except for the above-mentioned reassessment for 2012, it would not pursue the proposed reassessment in respect of 2011 and 2012 that had been communicated to the Bank in March 2017.

The CRA may issue reassessments to the Bank for taxation years subsequent to 2013 in regard to activities similar to those that were the subject of the 2013 and 2012 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, 2018.

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 28 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, 2018, the outstanding amount of NHA securities issued by the Bank and sold to CHT was $16.5 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 9 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, 2018, the credit card receivables portfolio held by CCCT II (net of the Bank Certificate held by the Bank) represented an amount outstanding of $1.4 billion. CCCT II issued investors' certificates, $0.9 billion of which is held by third parties and $0.5 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 certificates are rated by Fitch Ratings Inc. (Fitch) and DBRS Limited (DBRS). 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 certificates subordinated to the senior notes, representing 6.4% 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 27 and 28 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 17 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 27 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 27 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 regarding financial assets received as collateral, see Note 27 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 on 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 levels of capital at the Bank.

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 (RAROC) 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 different business segments.

Structure and Governance

Along with its partners from Risk Management and from Treasury 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, but the Standardized Approach is used to assess interest-rate specific risk.

Lastly, for externally rated securitization exposures, the Bank uses the Rating-Based Approach (RBA). 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, DBRS or a combination of these ratings. The Bank uses the Internal Assessment Approach (IAA) for unrated securitization exposures relating to the asset-backed commercial paper conduits it sponsors. Under the IAA, the Bank considers all relevant risk factors in assessing the credit quality of the exposures in the same manner as would an external credit assessment institution. The Bank uses loss coverage models and policies to quantify and monitor the level of risk. Under the IAA, the Bank assesses the extent to which the available credit enhancement for loss protection provides coverage for expected losses and stressed levels of projected losses. All exposures are assigned an internal risk rating, which is reviewed annually. The internal ratings are scaled to correspond to the long-term ratings used by the rating agencies. The Bank's IAA process is subject to all of the key elements and principles of the Bank's risk management governance structure. The securitization exposures are multiplied by the OSFI's prescribed risk weights to calculate RWA for capital purposes. The Bank uses OSFI's supervisory formula (SF) for all other unrated securitization exposures. Under the SF, RWA is derived from different inputs specific to the securitization exposure such as the implicit capital charge related to the underlying exposures, the credit enhancement level and thickness of the tranche exposure, the number of exposures and the weighted average loss given default (LGD).

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 capital deductions. The Additional Tier 1 instruments comprise eligible non-cumulative preferred shares and the eligible amount of innovative instruments. The sum of CET1 and Additional Tier 1 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.

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. The Bank expects to phase out all of its non-NVCC instruments without resorting to any regulatory event redemption.

The Basel III regulatory framework sets out transitional arrangements for the period of 2013 to 2019. OSFI has introduced two methodologies for determining capital. The "all-in" methodology includes all of the regulatory adjustments that will be required by 2019 while retaining the phase-out rules for non-qualifying capital instruments. The "transitional" methodology, which is in line with the BCBS guidelines, in addition to applying the phase-out rules for non-qualifying capital instruments, also applies a more flexible and steady phasing in of the required regulatory adjustments. Given that the phasing in of the capital-related adjustments ended in the first quarter of 2018, it is no longer necessary to determine capital according to the "transitional" methodology. OSFI requires Canadian banks to meet or exceed the "all-in" minimum ratios rather than the transitional minimum ratios. Consequently, the Bank and all other major Canadian banks have had to maintain, on an "all-in" basis, a CET1 capital ratio of at least 8.0%, a Tier 1 capital ratio of at least 9.5%, and a Total capital ratio of at least 11.5%. All of these ratios are to include a capital conservation buffer of 2.5% and a 1% surcharge applicable to Domestic Systemically Important Banks (D-SIBs).

Since the introduction of the Basel II framework, OSFI has prescribed a capital floor requirement for banks that apply the advanced internal ratings-based (AIRB) approach for credit risk. The revised capital floor sets the regulatory capital level according to the Basel II standardized approach. If the capital requirement under Basel III is less than 75% of the capital requirements as calculated under Basel II, the difference is added to risk-weighted assets.

In addition, during fiscal 2018, OSFI introduced a Domestic Stability Buffer (the buffer) that D-SIBs will have to maintain to protect against risks associated with systemic vulnerabilities. A D-SIB that fails to meet the buffer requirement will not be subject to automatic constraints to reduce capital distributions but will have to provide a remediation plan to OSFI.

The table below provides a comparison of the transitional ratios established by the BCBS and those required by OSFI's "all-in" methodology. All ratios include the capital conservation buffer and the D-SIB surcharge, when applicable.

To ensure an implementation similar to that in other countries, OSFI has decided to phase in the Credit Valuation Adjustment (CVA) charge over a five-year period beginning in 2014. For fiscal 2018, 80%, 83% and 86% of total CVA were applied, respectively, to the calculation of the CET1, Tier 1 and Total capital ratios. These percentages will increase to 100% in 2019.

Since January 1, 2015, OSFI has been 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.

The Bank ensures that its capital levels are always above the minimum capital requirements for OSFI's "all-in" ratios. 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.

Requirements – Regulatory Ratios

	2018	2019	2020	2021	2022
BCBS transitional ratios					
Capital conservation buffer	**1.875 %**	2.5 %	2.5 %	2.5 %	2.5 %
CET1 capital ratio	**6.375 %**	7.0 %	7.0 %	7.0 %	7.0 %
Tier 1 capital ratio	**7.875 %**	8.5 %	8.5 %	8.5 %	8.5 %
Total capital ratio	**9.875 %**	10.5 %	10.5 %	10.5 %	10.5 %
Phase-out of non-qualifying capital instruments	**40 %**	30 %	20 %	10 %	– %
OSFI's "all-in" ratios					
Capital conservation buffer	**2.5 %**	2.5 %	2.5 %	2.5 %	2.5 %
D-SIB surcharge	**1.0 %**	1.0 %	1.0 %	1.0 %	1.0 %
CET1 capital ratio(1)	**8.0 %**	8.0 %	8.0 %	8.0 %	8.0 %
Tier 1 capital ratio(1)	**9.5 %**	9.5 %	9.5 %	9.5 %	9.5 %
Total capital ratio(1)	**11.5 %**	11.5 %	11.5 %	11.5 %	11.5 %
Phase-out of non-qualifying capital instruments	**40 %**	30 %	20 %	10 %	– %
Leverage ratio	**3.0 %**	3.0 %	3.0 %	3.0 %	3.0 %

(1) On June 25, 2018, OSFI introduced a domestic stability buffer (the buffer) to be held by D-SIBs. The buffer level varies between 0% and 2.5% of risk-weighted assets and was set 1.5% as at October 31, 2018. For additional information, refer to the Regulatory Context section hereafter.

Regulatory Context

The Bank closely monitors regulatory developments and participates actively in the various consultative processes. Presented below are brief descriptions of ongoing regulatory projects.

In March 2014, the BCBS issued the final rules on the standardized approach for measuring counterparty credit risk (SA-CCR), which will replace the Current Exposure Method (CEM). Application of SA-CCR will be mandatory as of the first quarter of 2019.

On April 21, 2016, the BCBS issued the final version of *Interest Rate Risk in the Banking Book,* a document that addresses risk management, capital treatment, and the supervision of interest rate risk in the banking book. These rules are intended to ensure that banks have adequate capital to cover potential banking book losses arising from interest rate movements and to limit capital arbitrage between the trading book and the banking book. On October 5, 2018, OSFI published, for public consultation purposes, a new guideline on interest rate risk in the banking book (IRRBB) to replace the current guideline. The Bank is currently working to comply with this new OSFI-proposed guideline that is planned to take effect on January 1, 2020.

On December 7, 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. The reforms must be implemented starting in 2022 and include the following: revisions to the standardized approaches for calculating credit risk and operational risk; a constraint on using the internal ratings-based approach for calculating credit risk; and revisions to the leverage ratio, the CVA, and the calculation of the output floor. The BCBS has also set 2022 as the implementation date and the first regulatory reporting date for the market risk framework published in January 2016. On July 16, 2018, OSFI issued discussion paper *Implementation of the Final Basel III Reforms in Canada*, which sets out OSFI's preliminary views on the scope and timelines for implementing the final Basel III reforms in Canada.

On January 12, 2018, OSFI issued a document that sets out revisions to capital floor calculations. The purpose of the capital floor is to reduce the risk related to internal credit risk calculation models and to improve the comparability of risk among banks. The new floor will replace the one currently being used, which is based on Basel I requirements. The revised capital floor will set the regulatory capital level that will have to be met by banks that use the internal models based on the Basel II standardized approach. As of the second quarter of 2018, the new floor has been progressively coming into effect, starting with a 70% floor factor that rose to 72.5% in the third quarter of 2018 and reached 75% in the fourth quarter of 2018.

On February 27, 2018, the BCBS issued *Pillar 3 Disclosure Requirements – Updated Framework,* a consultative document that presents the additional disclosure requirements that will apply when the outstanding Basel III regulatory reforms take effect as of 2022. The revisions to the Pillar 3 disclosure requirements made during Phase 1 and Phase 2 (issued on January 28, 2015 and March 11, 2016, respectively) combined with these new disclosure requirements will form a single Pillar 3 disclosure framework.

On March 22, 2018, the BCBS issued a consultative document entitled *Pillar 3 Disclosure Requirements: Regulatory Treatment of Accounting Provisions*. This document is a technical amendment on the Pillar 3 disclosure requirements addressing provisions for expected credit losses and the related transitional arrangements. The proposed implementation date is January 1, 2019.

On March 22, 2018, the BCBS also issued *Revisions to the Minimum Capital Requirements for Market Risk*, a consultative document prepared to resolve shortcomings in the *Minimum Capital Requirements for Market Risk* standard, which will have to be applied as of 2022.

On April 18, 2018, the Government of Canada issued the final regulations under the *Canadian Deposit Insurance Corporation (CDIC) Act* and the *Bank Act* providing the details of conversion, issuance and compensation regimes for bail-in instruments issued by D-SIBs, including the Bank, (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 of the Bank (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 the Bail-In Regulations come into force will not be subject to a Bail-In Conversion, unless, in the case of a liability, the terms of such 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 are not expected to have a material impact on the Bank's funding plan.

In conjunction with the issuance of the Bail-In Regulations, OSFI issued its final *Total Loss Absorbing Capacity (TLAC) Guideline*, which came into effect on September 23, 2018 as well as revisions to its *Capital Adequacy Requirements (CAR) Guideline*. The TLAC Guideline requires D-SIBs to maintain sufficient loss absorbing capacity to support their recapitalization in the unlikely event of a failure so that they can remain open and operating without requiring public funds or threatening financial stability. On August 21, 2018, as set out in the *Bank Act*, OSFI issued orders to each D-SIB, setting the minimum risk-based TLAC ratio at 23% (including the domestic stability buffer) of risk-weighted assets and the minimum TLAC leverage ratio at 6.75%. D-SIBs must fully meet these minimum TLAC requirements by November 1, 2021 and public disclosure and regulatory reporting relating to the TLAC Guideline will commence as of the first quarter of 2019. The Bank does not anticipate any challenges in meeting these TLAC requirements. The revisions of the CAR Guideline implement the prudential treatment for holdings of other TLAC instruments (as defined in the TLAC Guideline) and apply to all D-SIBs effective the first quarter of 2019.

On May 14, 2018, the BCBS and the board of directors of the International Organization of Securities Commissions issued a document entitled *Criteria for Identifying 'Simple, Transparent and Comparable' (STC) Short-Term Securitisations*. The BCBS also issued the final document entitled *Capital Treatment for 'Simple, Transparent and Comparable' Short-Term Securitisations*. Short-term securitizations that meet the STC criteria will be eligible for lower minimum capital requirements. The guidelines and principles set out in these two documents are similar to those applicable to STC term securitizations issued in July 2016. These documents complete the *Revisions to the Securitisation Framework* document issued in July 2016. Application of the revised securitization framework will be mandatory as of first quarter 2019.

On June 25, 2018, OSFI issued a letter on the domestic stability buffer (the buffer) held by D-SIBs to protect against risks associated with systemic vulnerabilities. A vulnerability is considered if it is measurable, material, and cyclical and has a system-wide impact that could materialize in the foreseeable future. The vulnerabilities identified at this time are Canadian consumer indebtedness, asset imbalances in the Canadian market, and Canadian institutional indebtedness. The capital buffer level will be based on OSFI's assessment of these vulnerabilities combined with its supervisory judgment. The buffer level, to vary between 0% and 2.5% of risk-weighted assets, is identical for all D-SIBs and has been set at 1.5%. This buffer consists exclusively of CET1 capital. OSFI may increase the buffer if it perceives increased risks or reduce the buffer if it considers that the risks have decreased. A D-SIB that fails to meet the buffer requirement will not be subject to automatic constraints to reduce capital distributions but will have to provide a remediation plan to OSFI. This new buffer took effect in the third quarter of 2018.

On October 30, 2018, OSFI released the final version of the *Capital Adequacy Requirements (CAR) Guideline* that will take effect in the first quarter of 2019. The main changes involve implementation of the standardized approach for measuring counterparty credit risk, the capital requirements for bank exposures to central counterparties, and the new provisions of the securitization framework.

Capital Management in 2018

Management Activities

During the fiscal year ended October 31, 2018, the Bank repurchased 7,500,000 common shares for $467 million, which reduced *Common share* capital by $64 million and *Retained earnings* by $403 million. The repurchase of 3,000,000 common shares was part of the normal course issuer bid to repurchase for cancellation program that the Bank launched on June 5, 2017 and that ended on June 4, 2018, under which the Bank repurchased a total of 5,000,000 common shares under the program. On June 6, 2018, the Bank began a new normal course issuer bid to repurchase for cancellation up to 8,000,000 common shares over the 12-month period ending no later than June 5, 2019. During the year ended October 31, 2018, the Bank repurchased 4,500,000 common shares under the new program.

On November 15, 2017, the Bank redeemed all the issued and outstanding Non-Cumulative 5-Year Rate-Reset Series 28 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 8,000,000 Series 28 preferred shares for a total amount of $200 million. These instruments had already been excluded from the capital ratio calculations as at October 31, 2017.

On January 22, 2018, the Bank issued 12,000,000 Non-Cumulative 5-Year Rate-Reset Series 40 First Preferred Shares at a price equal to $25.00 per share for gross proceeds of $300 million. Given that the Series 40 preferred shares satisfy the NVCC requirements, they qualify for the purposes of calculating regulatory capital under Basel III.

On February 1, 2018, the Bank issued medium-term notes for a total amount of $750 million, bearing interest at a rate of 3.183% and maturing on February 1, 2028. As these medium-term notes satisfy the NVCC requirements, they qualify for the purposes of calculating regulatory capital under Basel III.

On June 11, 2018, the Bank issued 12,000,000 Non-Cumulative 5-Year Rate-Reset Series 42 First Preferred Shares at a per-share price of $25.00 for gross proceeds of $300 million. Given that the Series 42 preferred shares satisfy the NVCC requirements, they qualify for the purposes of calculating regulatory capital under Basel III.

Lastly, on June 30, 2018, NBC Asset Trust (the Trust), a closed-end trust established by the Bank, redeemed all of the outstanding 400,000 trust units (NBC CapS II – Series 1) at a per-unit price of $1,000 for gross proceeds of $400 million.

As at October 31, 2018, the Bank had 335,070,642 issued and outstanding common shares compared to 339,591,965 a year earlier as well as 98,000,000 issued and outstanding preferred shares compared to 82,000,000 as at October 31, 2017. For additional information on capital instruments, see Notes 16, 19 and 20 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 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 2018, the Bank declared $829 million in dividends to common shareholders, which represents 41% of net income attributable to common shareholders (2017: 42%). These dividends represented 40% of net income attributable to common shareholders excluding specified items (2017: 41%). The declared dividends are within the target payout range. The Bank has taken a prudent approach to managing regulatory capital and remains confident in its ability to increase earnings going forward.

Shares and Stock Options

	As at October 31, 2018	
	Number of shares	$ million
First preferred shares		
Series 30	14,000,000	350
Series 32	12,000,000	300
Series 34	16,000,000	400
Series 36	16,000,000	400
Series 38	16,000,000	400
Series 40	12,000,000	300
Series 42	12,000,000	300
	98,000,000	2,450
Common shares	335,070,642	2,822
Stock options	13,064,746	

As at November 30, 2018, there were 335,782,996 common shares and 13,055,458 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 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 99,125,000 Bank common shares, which would have a 22.4% dilutive effect based on the number of Bank common shares outstanding as at October 31, 2018.

Regulatory Capital Ratios

As at October 31, 2018, the Bank's CET1, Tier 1 and Total capital ratios were, respectively, 11.7%, 15.5% and 16.8%, i.e., above the regulatory requirements, compared to ratios of, respectively, 11.2%, 14.9% and 15.1% as at October 31, 2017. The increase in the CET1 capital ratio stems essentially from net income net of dividends, common share issuances under the Stock Option Plan, and remeasurements of pension plans and other post-employment benefit plans, factors that were tempered by growth in risk-weighted assets, by the common share repurchases made during the year ended October 31, 2018, and by the impact of adopting IFRS 9 on November 1, 2017. The increases in the Tier 1 and Total capital ratios were essentially driven by the same items. However, the increase in the Tier 1 capital ratio was also due to the $600 million issuances of Series 40 and 42 preferred shares, partly offset by the $400 million redemption of NBC Asset Trust units, while the $750 million issuance of medium-term notes on February 1, 2018 contributed to the higher Total capital ratio. As at October 31, 2018 the leverage ratio was 4.0%, unchanged from October 31, 2017.

Regulatory Capital and Ratios Under Basel III[1]

As at October 31 (millions of Canadian dollars)	2018	2017
Capital		
CET1	8,608	7,856
Tier 1[2]	11,410	10,457
Total[2]	12,352	10,661
Risk-weighted assets		
CET1 capital	73,654	70,173
Tier 1 capital	73,670	70,327
Total capital	73,685	70,451
Total exposure	284,337	262,539
Capital ratios		
CET1	11.7 %	11.2 %
Tier 1[2]	15.5 %	14.9 %
Total[2]	16.8 %	15.1 %
Leverage ratio	4.0 %	4.0 %

(1) Figures are presented on an "all-in" basis.
(2) Figures as at October 31, 2017 included the redemption of the Series 28 preferred shares on November 15, 2017.

Movement in Regulatory Capital[1]

Year ended October 31 (millions of Canadian dollars)	2018	2017
Common Equity Tier 1 (CET1) capital		
Balance at beginning	7,856	6,865
Issuance of common shares (including Stock Option Plan)	113	179
Impact of shares purchased or sold for trading	(10)	(37)
Repurchase of common shares	(467)	(115)
Other contributed surplus	14	(15)
Dividends on preferred and common shares	(934)	(863)
Net income attributable to the Bank's shareholders	2,145	1,940
Common share capital issued by subsidiaries and held by third parties	5	1
Removal of own credit spread net of income taxes	(24)	25
Impact of adopting IFRS 9 on November 1, 2017	(122)	
Other	97	19
Movements in accumulated other comprehensive income		
Translation adjustments	27	(39)
Available-for-sale securities		(12)
Debt securities at fair value through other comprehensive income	(16)	
Impact of adopting IFRS 9 on November 1, 2017	(10)	
Other	1	(10)
Change in goodwill and intangible assets (net of related tax liability)	(57)	(81)
Other, including regulatory adjustments and transitional arrangements		
Change in defined benefit pension plan asset (net of related tax liability)	(7)	3
Change in amount exceeding 15% threshold		
Deferred tax assets	–	–
Significant investment in common shares of financial institutions	–	–
Change in other regulatory adjustments[2]	(3)	(4)
Balance at end	8,608	7,856
Additional Tier 1 capital		
Balance at beginning	2,601	2,400
New Tier 1 eligible capital issuances	600	400
Redeemed capital[3]	(400)	(200)
Change in non-qualifying Additional Tier 1 subject to phase-out	–	–
Other, including regulatory adjustments and transitional arrangements	1	1
Balance at end	2,802	2,601
Total Tier 1 capital	11,410	10,457
Tier 2 capital		
Balance at beginning	204	1,241
New Tier 2 eligible capital issuances	750	–
Redeemed capital	–	(1,000)
Change in non-qualifying Tier 2 subject to phase-out	–	–
Tier 2 instruments issued by subsidiaries and held by third parties	2	–
Change in certain allowances for credit losses	(14)	(37)
Other, including regulatory adjustments and transitional arrangements	–	–
Balance at end	942	204
Total regulatory capital	12,352	10,661

(1) Figures are presented on an "all-in" basis.
(2) Represents the change in investments in the Bank's own CET1.
(3) Figures for the year ended October 31, 2017 included the redemption of the Series 28 preferred shares on November 15, 2017.

RWA by Key Risk Drivers

CET1 RWA amounted to $73.7 billion as at October 31, 2018, rising $3.5 billion from $70.2 billion as at October 31, 2017. This organic growth in RWA was partly offset by an improved portfolio quality and an updating of the models. The changes in the Bank's risk-weighted assets 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, 2018	July 31, 2018	April 30, 2018	January 31, 2018	October 31, 2017
	Total	Total	Total	Total	Total
Credit risk – Risk-weighted assets at beginning	57,974	58,377	57,625	57,037	56,066
Book size	1,629	(486)	1,974	1,289	833
Book quality	(203)	(70)	(1,681)	(143)	141
Model updates	(72)	–	(74)	–	(426)
Methodology and policy	–	–	–	–	–
Acquisitions and disposals	–	–	–	–	–
Foreign exchange movements	148	153	533	(558)	423
Credit risk – Risk-weighted assets at end	59,476	57,974	58,377	57,625	57,037
Market risk – Risk-weighted assets at beginning	4,755	4,055	3,336	3,097	3,263
Movement in risk levels[2]	(406)	700	719	239	(166)
Model updates	(914)	–	–	–	–
Methodology and policy	–	–	–	–	–
Acquisitions and disposals	–	–	–	–	–
Market risk – Risk-weighted assets at end	3,435	4,755	4,055	3,336	3,097
Operational risk – Risk-weighted assets at beginning	10,539	10,402	10,218	10,039	9,827
Movement in risk levels	204	137	184	179	212
Acquisitions and disposals	–	–	–	–	–
Operational risk – Risk-weighted assets at end	10,743	10,539	10,402	10,218	10,039
Risk-weighted assets at end	73,654	73,268	72,834	71,179	70,173

(1) Figures are presented on an "all-in" basis and have been calculated based on CET1 risk-weighted assets.
(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 exposure 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.

Allocation of Economic Capital and Regulatory RWA

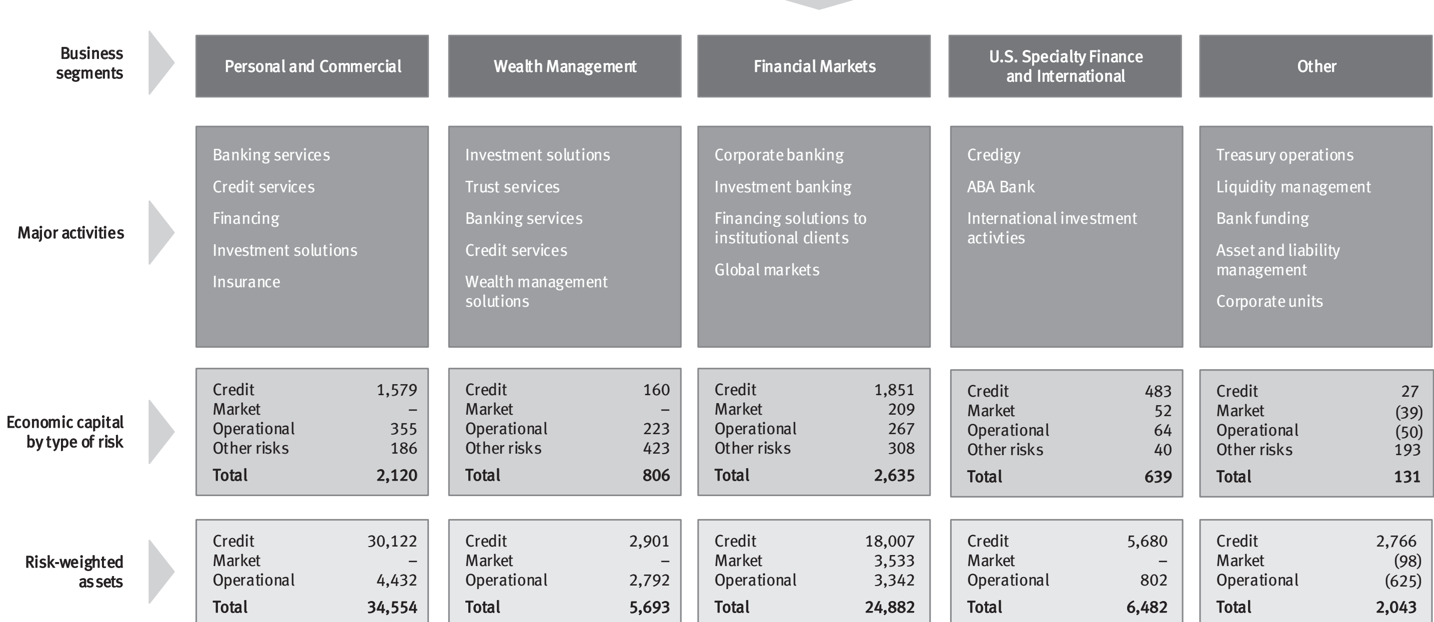
Economic capital is an internal measure that the Bank uses to determine the capital it needs to remain solvent and to pursue its business operations. Economic capital takes into consideration the credit, market, operational, business and other risks to which the Bank is exposed as well as the risk diversification 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 done 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, 2018
(millions of Canadian dollars)

NATIONAL BANK OF CANADA



	Personal and Commercial	Wealth Management	Financial Markets	U.S. Specialty Finance and International	Other
Major activities	Banking services Credit services Financing Investment solutions Insurance	Investment solutions Trust services Banking services Credit services Wealth management solutions	Corporate banking Investment banking Financing solutions to institutional clients Global markets	Credigy ABA Bank International investment activties	Treasury operations Liquidity management Bank funding Asset and liability management Corporate units
Economic capital by type of risk					
Credit	1,579	160	1,851	483	27
Market	–	–	209	52	(39)
Operational	355	223	267	64	(50)
Other risks	186	423	308	40	193
Total	**2,120**	**806**	**2,635**	**639**	**131**
Risk-weighted assets					
Credit	30,122	2,901	18,007	5,680	2,766
Market	–	–	3,533	–	(98)
Operational	4,432	2,792	3,342	802	(625)
Total	**34,554**	**5,693**	**24,882**	**6,482**	**2,043**

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.*

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 expansion strategy. The purpose of sound risk management is to provide reasonable assurance that incurred risks do not exceed acceptable thresholds and that risk-taking contributes to the creation of shareholder value. For the Bank, this means striking a healthy balance between return and risk.

The Bank is exposed to risk in two ways. First, it voluntarily exposes itself to certain risk categories, particularly credit and market risk, in order to generate revenue. Second, it assumes 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 risk. These risks may result in losses that could adversely affect future earnings.

Top and Emerging Risks

Top and emerging risks are risks that could have a material adverse effect on the Bank's financial results, reputation or long-term business model and strategy. The Bank's processes are designed to detect and assess these risks as early as possible so that appropriate mitigating strategies can be applied. The Bank's top and emerging risks are as follows.

Risk	Trend	Description
Global economic risks	⇨	Currently, the main global risks consist of slowing economic growth in certain emerging countries. In recent years, U.S.-dollar debt levels in certain countries have risen sharply, and an appreciation of the U.S. dollar could compromise the creditworthiness of certain borrowers. Similarly, a variety of geopolitical tensions remain a source of concern. The adoption of protectionist measures could also undermine international trade. Among other things, the U.S. administration brings its share of concerns about future policies that might affect the Canadian and Quebec economies. Protectionism directed at Canada could adversely affect certain industries and slow trade, negatively affecting export clients in turn. Escalating trade tensions between China and the U.S. could compromise global economic expansion and cause collateral damage, in particular to the Canadian economy. In addition, the rising nationalism and waves of displacement toward Western Europe continue to stoke fears. Given the exceptional monetary measures taken by central banks combined with mild economic growth and low inflation, long-term interest rates have remained low for a long time in advanced economies. Such a situation could have prompted market participants to adopt excessive risk-taking strategies in search of higher returns, the negative effects of which may be felt if interest rates return to normal faster than expected, particularly in the U.S. Therefore, the Bank is remaining vigilant and continuing to rely on its strong risk management framework to identify, assess and mitigate risk so that it remains within the risk appetite limits.
Economic risks in Canada	⇨	The domestic energy sector struggled in the wake of the global oil supply shock but is gradually adapting to the new environment. In the event that oil and gas prices fall again, producers may face obstacles that will negatively affect their ability to repay debt and that will erode the quality of their credit. While provinces that produce fossil energy resources saw positive economic growth in the first half of 2018, their unemployment rates remained high, and the recent drop in oil prices pose additional challenges. Sound economic and financial conditions in the three largest provinces (Ontario, Quebec and British Columbia) continue to support a credit environment favourable to the loan portfolios. Still, Canada remains vulnerable to a deteriorating economic backdrop, which threatens to erode job creation and disposable household income—even more so given the high household debt levels. Economic growth, and more specifically the housing market, has been stimulated in recent years by very low interest rates. An unexpected jump in inflation represents a risk to the Canadian economy to the extent that it could prompt the Bank of Canada to quickly cut back its monetary stimulus. Should this occur, real estate assets, among others, would be vulnerable to a price correction, and tighter mortgage rules remain an issue for Canadian households. The Bank also monitors international developments that may affect the Canadian economy. As mentioned, U.S. protectionism has cast substantial uncertainty over the trade relationship between Canada and the United States and other economic partners. These uncertainties have significantly destabilized certain sectors, and the Bank has responded by continuing to monitor market developments and remaining vigilant in line with its risk tolerance policy.

Risk	Trend	Description
Information system disruptions and security breaches	⇨	Technology has become a major part of the banking industry's operations, in particular the ever-increasing use of mobile, wireless and web-enabled devices. Despite the Bank's efforts to ensure the integrity of its systems and information, it 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. It is also possible for the Bank to be unable to prevent or implement effective preventive measures against every potential cyber-threat, as the tactics used are multiplying, change frequently, come from a wide range of sources and are increasingly sophisticated. Disruptions to or malfunctions in the physical infrastructure or operating systems that support the Bank and its clients, or cyber attacks and security breaches affecting the networks, systems or tools that clients use to access products and services, 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, 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. To protect its customers, the Bank actively monitors and manages its control environment as well as evolving cyber threats around the world. It continues to improve its existing processes and practices to identify risks, protect information assets, and detect and respond to potential threats. The Bank continually assesses the effectiveness of its key controls through testing and through internal and external assessments of its current practices. The Bank is also investing in multiple projects designed to better protect itself against cyber attacks, comply with industry standards, and continually improve security controls. The Board's Risk Management Committee is regularly informed of cybersecurity trends and developments to gain a better understanding of potential cybersecurity risks.
Reliance on technology and third parties	⬀	The Bank is reliant on technology, as clients are seeking greater access to products and services on a variety of platforms and because many of its products and services require substantial processing of data, much of which is confidential. As such, the Bank's technology platform must be able to manage all such data. The fast pace of technological change combined with both client and competitive pressures require significant and sustained investment in technology. Unsuccessful 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 for support in its IT activities and in the handling of certain business processes that involve sharing confidential information. 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 it would have on the Bank's reputation. To mitigate this risk, the Bank has a third-party-related risk management framework that includes business continuity plans, which are tested periodically to ensure their effectiveness in times of crisis. A multitude of checks on information security and on financial health and performance are conducted before any agreement is reached and for the duration thereof. Despite these preventive measures and the efforts deployed by the Bank's teams to manage third parties, there remains a possibility that certain risks will materialize. In such cases, the Bank would then rely on the contingency and mitigation measures established in collaboration with the third parties. The Bank is aware of the significance of third-party-related risks and continues to develop its practices in this regard.
Technological innovation	⬀	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. 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 operating results or financial position.

Other Factors That Can Affect Future Results

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," which 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 from Canada in foreign currencies.

As part of its activities, the Bank must adhere to the regulatory requirements to combat money laundering and terrorist financing activities (MLTFA) 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. MLTFA risk is a financial, regulatory and reputation risk. In order to meet these regulatory requirements, the Bank has implemented a program to combat MLTFA in addition to a program on international sanctions. This program is the principal means used by the Bank to introduce and maintain effective control over Bank-wide risks of exposure to MLTFA and activities that could violate the international sanctions. Implementing controls that take these risks into consideration, as well as direct involvement on the part of directors, officers and employees of the Bank, are essential for the program to be effective. By systematically applying the appropriate standards and procedures in their day-to-day work, employees play a role in preserving the Bank's reputation and integrity.

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.

Level of Competition

The level of competition in the Bank's markets has an impact on its performance. Retaining clients hinges on several factors, including the prices of products and services, quality of service, and changes to the products and services offered.

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.

Ability to Attract and Retain Key Officers
The Bank's future performance depends largely on its ability to attract and retain key officers. There is intense competition for the best people in the financial services industry, and there is no assurance that the Bank, or any entity it acquires, will be able to continue to attract and retain key officers.

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 27 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.

Other Factors
Other factors that could affect the Bank's future results include amendments to tax legislation, 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 or natural catastrophes on the Bank's activities, and the Bank's ability to foresee and effectively manage the risks associated with these factors through rigorous risk management.

Risk Management Framework

Risk is rigorously managed. That means it is identified, measured and controlled to ensure that the Bank's operations yield an adequate return for the level of risk assumed. Managing risk requires a solid understanding of every type of risk found across the Bank. In addition to providing assurance that risk levels do not exceed acceptable thresholds, effective risk management can be used to control the volatility of the Bank's results.

Despite the exercise of stringent risk management and the mitigation measures in place, risk cannot be suppressed entirely, and the residual risks may occasionally cause significant losses. In the normal course of business, the Bank is primarily exposed to the risks presented below.

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

To achieve its risk management objectives, the Bank relies on a risk management framework that combines the following components:

- incorporation of risk management into the corporate culture;
- risk appetite and reporting;
- enterprise-wide stress testing;
- governance structure;
- risk management policies;
- risk models governance and vetting framework;
- independent oversight and evaluation by the Compliance Service;
- independent assessment by Internal Audit.

Incorporation of Risk Management Into the Corporate Culture

The Bank's management continually promotes risk management through internal communications. A balanced approach is advocated, whereby business development initiatives are combined with a constant focus on sound risk management. In particular, risk is taken into consideration when preparing the segments' business plans, when analyzing strategic initiatives and when launching new products. The Bank's risk management is also strengthened by incentive compensation programs that are structured to reflect the Bank's risk appetite. In addition, Internal Audit carries out an evaluation of the culture through its mandates. Finally, all employees must complete mandatory annual regulatory compliance training focused on the Bank's Code of Conduct and Ethics and its fight against MLTFA. Risk management training is also offered across all segments of the Bank.

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
Business Units

- 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.

Second Line of Defence
Risk Management and Oversight Functions

- Establish the enterprise-wide risk management framework and policies.
- Provide independent oversight of management practices and an independent challenge of the first line of defence.
- Promote an effective risk management culture throughout the Bank.
- Monitor and report on risk.

Third Line of Defence
Internal Audit

- Provide independent assurance to management and the Board on the overall effectiveness of the risk management policies, processes and practices, including the manner in which the first and second lines of defence reach their control and risk management objectives.

The following guiding principles support strong 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 an effective and robust 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 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 promotes a sound risk culture across the organization;
- fact-based: good risk management relies heavily on common sense and judgment and on advanced systems and models.

Risk Appetite and Reporting

Risk-taking is intrinsic to a financial institution's business. Business unit strategies have always—implicitly or explicitly—incorporated decisions about the amount of risk they are willing to assume. Risk appetite represents how much risk an organization is willing to assume to achieve its business strategy. The Bank cultivates a risk management culture that is aligned with its risk appetite, doing so by setting risk tolerance thresholds that determine its risk-taking capacity.

The Bank's risk appetite framework consists of principles, statements, metrics as well as targets and is reinforced by policies and limits. It is defined both quantitatively and qualitatively and requires:

- a strong credit rating to be maintained;
- a risk-reward balance;
- a stable risk profile;
- a strategic level of concentration aligned with approved targets;
- a strong capital position;
- a strong liquidity position;
- a low tolerance to operational and reputation risk;
- a rigorous management of regulatory compliance risk, including sales practices;
- operational and information systems stability in both normal circumstances and crisis.

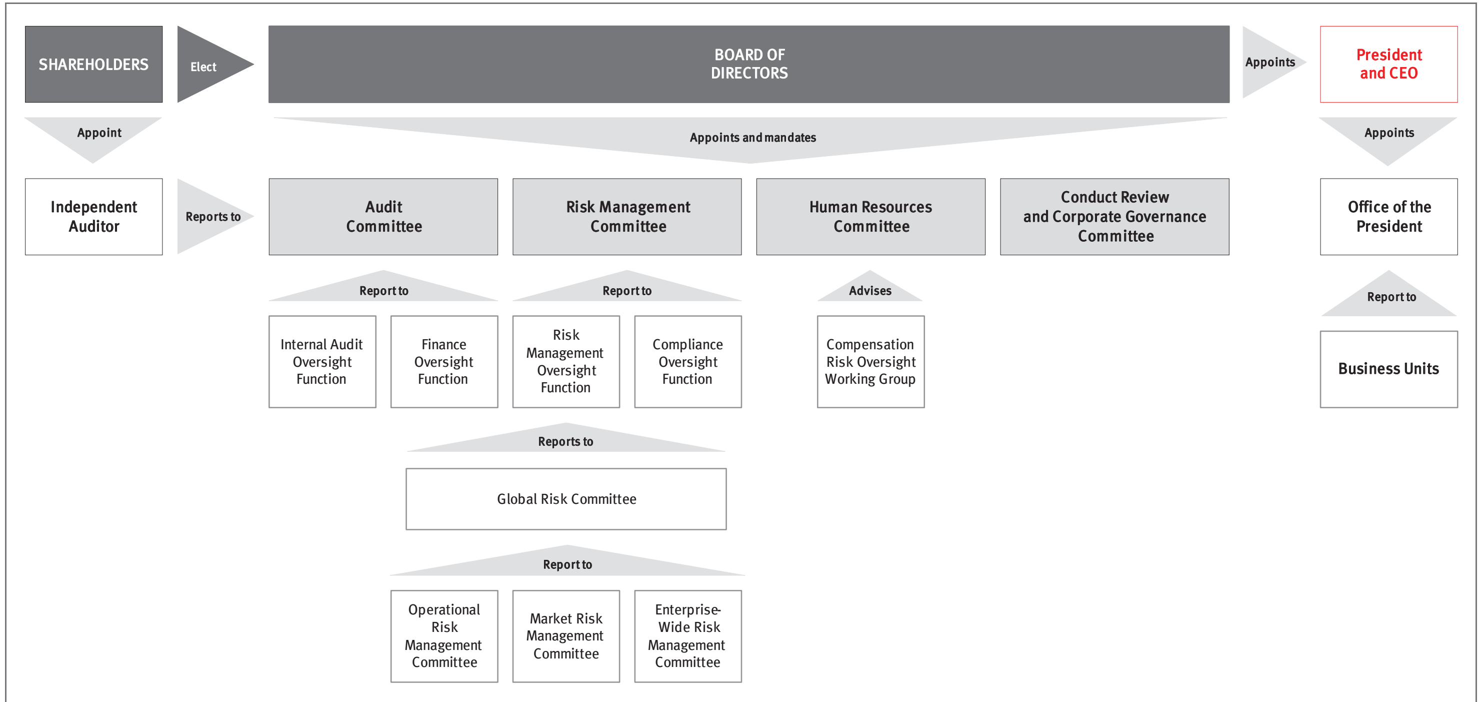
The Bank's management and business units are involved in the process for setting the risk appetite and are responsible for adequately monitoring the chosen key risk indicators. These needs are assessed by means of the enterprise strategic planning process. The risk indicators are reported on a regular 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 reviewed by a group of stress testing experts, a stress testing oversight group and the Global Risk Committee and are approved by the Board. For additional information, see the Stress Testing and Crisis Scenarios sections of this MD&A applicable to credit risk, market risk, and liquidity risk.

Governance Structure *

The following diagram shows the Bank's overall governance architecture and the governance relationships established for risk management. As the second line of defence, the Risk Management Group sets the risk management rules, policies and guidelines to which the business units must adhere and also ensures compliance therewith.



The Board of Directors (Board)[1]

The Board examines and approves 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. It performs its mandate in this regard both directly and through its committees, particularly the Audit Committee, the Risk Management Committee, the Human Resources Committee and the Conduct Review and Corporate Governance Committee.

The Audit Committee[1]

The Audit Committee oversees the work of the internal auditor and the independent auditor, the financial reporting and analysis process, the Bank's internal controls, and the application of the policy for reporting irregularities related to accounting, internal accounting controls and other auditing matters.

The Risk Management Committee (RMC)[1]

The Risk Management Committee reviews the risk appetite framework, the main risk management policies as well as risk tolerance limits and recommends their approval by the Board. 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 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 to the Board that it approve 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 also periodically reviews and examines the management succession plan.

The Conduct Review and Corporate Governance Committee[1]

The Conduct Review and Corporate Governance Committee is in charge of implementing and ensuring compliance with rules, procedures, and governance. It oversees the processes for managing and monitoring related party transactions and evaluates the performance and effectiveness of the Board and its members.

(1) Additional information about the Bank's governance architecture can be found in the Management Proxy Circular for the 2019 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 its committees 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 as well as advice on the effectiveness of the main governance, risk management, and internal control processes and systems and for making recommendations 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.

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 is 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 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's 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, Human Resources, Corporate Affairs and Operations. 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 Risk Management Committee also reviews the reports presented by the working group to the Human Resources Committee.

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 Market Risk Management Committee, and the Enterprise-Wide Risk Management Committee presented in the governance structure diagram 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 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 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
Risk management policies and the related standards and procedures are the essential elements of the risk management framework. They 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 all the main risks in the Bank, are reviewed regularly to ensure they are still relevant given changes in the markets and in the business plans of the Bank's business units, and apply to the entire Bank and its subsidiaries. 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.

Risk Models Governance and Vetting Framework
In most cases, the Bank's exposure to the main risks, such as credit risk and market risk, is assessed through the use of models. The key components of the Bank's model vetting 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 both the model development and the model vetting groups. The scope of models covered is wide, ranging from the 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, IFRS 9 models, and financial-crime models.

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, hence the implementation of a rigorous policy and sound model vetting processes to ensure models can be used appropriately and efficiently to manage risks.

One of the cornerstones of the Bank's policies is the general principle that all models that are deemed important for the Bank or that are used for regulatory capital purposes require independent vetting. To that effect, all models used by the Bank are classified in terms of their risk level (low, medium or high). Based on that assessment, the Bank applies strict guidelines with respect to model review requirements and the minimum frequency of such reviews. 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 and Chief Compliance Officer has 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.

The control framework covers the following:

- identification, evaluation, communication, maintenance and updating of regulatory requirements;
- information gathering and monitoring of regulatory changes;
- identification of the business units affected by these requirements;
- documentation of compliance and regulatory requirement controls applicable to daily operations, including monitoring procedures, remedial action plans and periodic reports produced by the business units;
- continuous training for all employees;
- information exchange between the business segments, business units and Compliance;
- independent oversight and evaluation to assess the effectiveness of regulatory compliance risk management by the business units and to detect shortcomings or non-compliance in the application of existing policies, standards and procedures;
- quarterly and annual reports to the RMC on the main results of compliance oversight and on any change to the regulatory compliance risk framework or its effectiveness;
- annual certification process.

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 applying a systematic, methodical approach for assessing and improving the effectiveness of the design and operation of its main governance, risk management and internal control processes and systems and formulates recommendations to promote the Bank's long-term strength.

Whenever recommendations are issued, Internal Audit is mandated to independently evaluate the appropriateness of the measures taken by managers to resolve issues and then to ensure rigorous follow-up.

The Senior Vice-President of 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. Internal Audit has unrestricted access to all business segments, corporate units and subsidiaries of the Bank.

Credit Risk Management

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.

Governance

A policy framework centralizes the governance of activities that generate credit risk for the Bank and is supplemented by a series of subordinate internal or sectoral policies and standards on specific management issues such as 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 and be reviewed and approved by the management of the Risk Management Group. The Risk Management Group 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.

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 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 taken, 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 determine 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 or 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 (EAD);
- 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 on the next page.

AIRB APPROACH	DATA	DOWNTURN PERIOD	METHODOLOGY FOR CALCULATING LGD
Retail	The Bank's internal historical data from 1996 to 2016	1996-1998, 2000-2002 October 2008 – December 2009	LGD based on the Bank's historical internal data on recoveries and losses
Corporate	The Bank's internal historical data from 2000 to 2016	2000-2003 and 2008-2009	LGD based on the Bank's historical internal data on recoveries and losses
Sovereign	Moody's observed default price of bonds, from 1983 to 2000 S&P rating history from 1975 to 2011	No specific period	Based on implied market LGD using observed bond price decreases following the issuer's default
Financial institutions	Global Credit Data Consortium loss and recovery database from 1998 to 2014	1991-1992, 1994, 1998, 2001-2002 and 2008-2009	Model for predicting LGD based on different issue- and issuer-related risk drivers

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 and lines of credit. 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 loan 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 probability of default, loss given default and exposure at default, 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 probability of default. Loss given default 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.

Under the Bank's standards applicable to default-risk rating and facility-risk rating and according to its risk review, renewal and quantification standards, default risk ratings must be reviewed annually.

Credit scoring models are also used to grant credit. These models use proven statistical methods that measure applicants' characteristics and history based on internal and external historical information to estimate the applicant's future credit behaviour and assign a probability of default. The underlying data include client 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 below shows the PD categories along with the associated credit qualities of the personal credit portfolio.

Internal Default Risk Rating – Personal Credit Portfolio *

PD (%)	Description[(1)]
0.000-0.144	Excellent
0.145-0.506	Good
0.507-2.681	Satisfactory
2.682-9.348	Special mention
9.349-99.999	Substandard
100	Default

(1) Additional information is provided in Note 8 – *Loans and Allowances for Credit Losses* to the audited annual consolidated financial statements for the year ended October 31, 2018.

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 and management quality. 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 probability of default (see the following table). 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 grades by major risk category and compares them with the ratings of two major rating agencies.

Internal Default Risk Ratings – Business and government *

Ratings	PD (%) – Corporate and financial institutions	PD (%) – Sovereign	Standard & Poor's	Moody's	Description[(1)]
1–2.5	0.000–0.102	0.000–0.059	AAA to A-	Aaa to A3	Excellent
3–4	0.103–0.461	0.060–0.341	BBB+ to BBB-	Baa1 to Baa3	Good
4.5–6.5	0.462–5.624	0.342–6.275	BB+ to B	Ba1 to B2	Satisfactory
7–7.5	5.625–15.283	6.276–20.098	B- to CCC+	B3 to Caa1	Special mention
8–8.5	15.284–99.999	20.099–99.999	CCC & CCC-	Caa2 & Caa3	Substandard
9–10	100	100	CC, C & D	Ca, C & D	Default

(1) Additional information is provided in Note 8 – *Loans and Allowances for Credit Losses* to the audited annual consolidated financial statements for the year ended October 31, 2018.

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, a loss-given-default risk rating that is independent of the risk rating assigned to the obligor.

The Bank's default, and in some cases credit facility, risk-rating systems and 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 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 probability of default, loss given default and exposure at default. For probability of default in particular, this backtesting takes the form of sequentially applied statistical tests designed to assess the following criteria:

- the model's discriminatory power;
- overrides;
- model calibration;
- the stability of the model's output.

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 to new models or changes to existing models are approved through 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, and a summary report of all changes to the models is submitted to the RMC once a year.

The facility and default risk-rating systems, methods and models are also subject to periodic independent validation as often as required given the inherent risk of the activity. 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 factors allowing accurate risk classification 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. Each year, the Risk Management Group presents a summary report on the validations to the RMC.

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 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 probability of default;
– exposure at default;
– loss in the event of default;
– the default probability correlation among 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 the level of regulatory capital needed to absorb potential losses and 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.

Mortgage Loan Underwriting

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.

Credit-Granting Process

Credit-granting decisions are based first and foremost on the results of the risk assessment. Aside from a client'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. 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.

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. Collateral is not required in all cases. It depends upon 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.

Portfolio Diversification and Management

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.

Other Risk Mitigation Methods

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 steps in to maximize collection of the disbursed amounts and tailor strategies to these accounts.

In these cases, loan portfolio managers prepare and submit, to the credit department, a detailed monitoring report (watchlist) each month to track the status of at-risk obligors and the corrective measures undertaken. The management of each department concerned performs follow-ups on the reports, and each quarter a credit monitoring committee meets to review the action plans and monitoring reports of obligors that have commitments of $3 million or more. The authority to approve allowances for credit losses is attributed using limits delegated on the basis of hierarchical level under the Credit Risk Management Policy.

Information on the recognition of impaired loans and allowances for credit losses is presented in Notes 1 and 8 to the consolidated financial statements.

Forbearance and Restructuring

Situations where a business or retail obligor begin 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 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 2018 and 2017, 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 17 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 broad category of financial instrument 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 two elements are established based on the potential volatility of the underlying assets until maturity 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 most 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 common between financial institutions active in international financial markets since they limit credit risk while providing traders with additional flexibility to continue trading with the counterparty. The Bank often 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 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 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.

The Bank has identified circumstances in which it is likely to be exposed to wrong-way risk, which is generally associated with exposure to counterparty risk and characterized by higher risk for the Bank if a counterparty's probability of default increases (unfavourable positive correlation). A common wrong-way risk arises from the trading of derivatives contracts with counterparties where the underlying assets may include equity securities issued by those counterparties.

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 17 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 from 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 significant 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.

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 *

(millions of Canadian dollars)						As at October 31, 2018
	Drawn	Undrawn commitments	Repo-style transactions[1]	OTC derivatives	Other off-balance-sheet items[2]	Total
Retail						
Residential mortgage	45,926	8,287	–	–	–	54,213
Qualifying revolving retail	2,829	3,447	–	–	–	6,276
Other retail	15,461	1,589	–	–	14	17,064
	64,216	13,323	–	–	14	77,553
Non-retail						
Corporate	50,750	17,588	16,657	29	3,503	88,527
Sovereign	27,131	5,234	41,364	47	139	73,915
Financial institutions	4,107	303	75,839	4,122	738	85,109
	81,988	23,125	133,860	4,198	4,380	247,551
Trading portfolio	–	–	–	9,620	–	9,620
Securitization	1,474	–	–	–	3,272	4,746
Total – Gross credit risk	147,678	36,448	133,860	13,818	7,666	339,470
Standardized Approach	13,152	253	14,577	3,965	356	32,303
AIRB Approach	134,526	36,195	119,283	9,853	7,310	307,167
Total – Gross credit risk	147,678	36,448	133,860	13,818	7,666	339,470

(millions of Canadian dollars)						As at October 31, 2017
	Drawn	Undrawn commitments	Repo-style transactions[1]	OTC derivatives	Other off-balance-sheet items[2]	Total
Retail						
Residential mortgage	41,308	7,720	–	–	–	49,028
Qualifying revolving retail	2,834	3,362	–	–	–	6,196
Other retail	15,169	1,452	–	–	14	16,635
	59,311	12,534	–	–	14	71,859
Non-retail						
Corporate	44,554	16,002	16,553	14	2,936	80,059
Sovereign	24,325	4,024	35,289	314	144	64,096
Financial institutions	4,505	193	77,902	3,279	641	86,520
	73,384	20,219	129,744	3,607	3,721	230,675
Trading portfolio	–	–	–	8,309	–	8,309
Securitization	1,324	–	–	–	3,416	4,740
Total – Gross credit risk	134,019	32,753	129,744	11,916	7,151	315,583
Standardized Approach	11,154	230	29,192	3,110	366	44,052
AIRB Approach	122,865	32,523	100,552	8,806	6,785	271,531
Total – Gross credit risk	134,019	32,753	129,744	11,916	7,151	315,583

(1) Securities purchased under reverse repurchase agreements and sold under repurchase agreements as well as securities loaned and borrowed.
(2) Letters of guarantee, documentary letters of credit and securitized assets that represent the Bank's commitment to make payments in the event that a client cannot meet its financial obligations to third parties.

Market Risk Management

Market risk is the risk of losses in on- and off-balance-sheet positions arising from movements in market parameters.

The Bank is exposed to market risk through its participation in market making, trading, investment and asset/liability management activities. Trading and market making activities involve taking positions, particularly 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.

Market risk comes from a number of factors, the most important of which are:

- interest rate risk: relates to changes in the term structure (and/or the implied volatility) of the interest rates on financial instruments such as bonds, money market instruments and derivative financial instruments;
- foreign exchange risk: relates to changes (and/or the implied volatility) of the exchange rates on financial instruments such as investments in foreign subsidiaries, foreign currency denominated loans and securities, future cash flows in foreign currencies and derivative financial instruments;
- equity risk: relates to changes in overall equity prices (general equity risk) or in individual characteristics that are specific to an entity (equity-specific risk), and/or their implied volatility, for financial instruments such as common shares and options;
- commodity risk: relates to changes (and/or the implied volatility) in the commodity prices for financial instruments used in exchange trading or over-the-counter trading, involving either physical trading or derivatives trading of commodities;
- traded credit risk: relates to changes in the creditworthiness of all issuers (general traded credit risk) or in the characteristics of an issuer (issuer-specific traded credit risk), and/or their implied volatility, relating mainly to the Bank's portfolios of debt securities and credit derivatives, whose value could be adversely affected by changes in credit spreads, credit migration or defaults;
- implied correlation risk: relates to changes in the implied correlations between two or more risk factors found primarily in complex derivative financial instruments with several correlated risk factors;
- market liquidity risk: relates to a significant decrease or, at worst, a halt in the level of expected market activity for a specific market or for a variety of instruments, thereby making the instruments concerned less liquid or illiquid. This exposes the Bank to losses due to the inability to execute its transactions at the prevailing prices, which may not represent the true price at which the position can be fully unwound. Almost all traded instruments are exposed to this type of risk depending mainly on frequency and volume of transactions;
- portfolio diversification and hedging risk (basis risk): relates to changes in correlations realized between two or more risk factors. Adverse changes in realized correlations can reduce the portfolio diversification benefit in the sense that several of the positions could have a higher correlation than expected, giving rise to simultaneous losses. In addition, adverse changes in realized correlations can make hedging strategies less effective if the underlying position and the hedge position have a weaker correlation than expected.

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, proprietary trading, 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

The RMC is responsible for approving the market risk management policy framework and the Bank's market risk appetite measures and targets. The Bank's President and Chief Executive Officer, who has ultimate responsibility for market risk limits, manages the Bank's market risk based on the risk appetite targets set and approved by the Board to generate acceptable return on market risk capital. The President and Chief Executive Officer delegates risk-taking responsibilities to business unit managers reporting to him. The business units are responsible for the market risks inherent to their particular activities and must therefore actively manage such risks. The Market Risk Management Committee reviews market risk across the Bank, with an emphasis on trading activities, and ensures that the magnitude and mix of risks remain within the Bank's market risk appetite targets and risk limits. This committee also ensures that the risk management environment is transparent, disciplined and controlled.

An integrated control framework is used to manage market risk, which is overseen by the Market Risk Management Committee. The Bank is continually adapting its market risk management and oversight framework.

A comprehensive policy governs global market risk management across the Bank's units and subsidiaries that are exposed to this type of risk. The policy presents the main mechanisms used for identifying and measuring the types of market risk to which the Bank is exposed, most of which are described on the previous page. It also defines the link between the Bank's market risk appetite approved by the Board and the framework implemented for setting market risk limits across all the Bank's business units that are allowed to undertake market risk. The purpose of the market risk limits is to set out tolerance thresholds for these business units or portfolios to comply with the Bank's market risk appetite targets. These are cascaded down to business units using a hierarchy of different types of limits (e.g., Value at Risk (VaR), Stressed VaR (SVaR), stress testing), as well as an appropriate breach escalation process.

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, 2018				
		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	12,756	226	12,269	261	Interest rate[3]
Securities					
At fair value through profit or loss	55,817	51,575	4,242	–	Interest rate[3] and equity[4]
At fair value through other comprehensive income	5,668	–	5,668	–	Interest rate[3] and equity[5]
At amortized cost	8,298	–	8,298	–	Interest rate[3]
Securities purchased under reverse repurchase agreements and securities borrowed	18,159	–	18,159	–	Interest rate[3][6]
Loans and acceptances, net of allowances	146,082	5,417	140,665	–	Interest rate[3]
Derivative financial instruments	8,608	7,625	983	–	Interest rate[7] and exchange rate[7]
Defined benefit asset	64	–	64	–	Other[8]
Other	7,019	–	–	7,019	
	262,471	64,843	190,348	7,280	
Liabilities					
Deposits	170,830	7,187	163,643	–	Interest rate[3]
Acceptances	6,801	–	6,801	–	Interest rate[3]
Obligations related to securities sold short	17,780	17,780	–	–	
Obligations related to securities sold under repurchase agreements and securities loaned	19,998	–	19,998	–	Interest rate[3][6]
Derivative financial instruments	6,036	4,807	1,229	–	Interest rate[7] and exchange rate[7]
Liabilities related to transferred receivables	20,100	3,733	16,367	–	Interest rate[3]
Defined benefit liability	186	–	186	–	Other[8]
Other	5,638	21	910	4,707	Interest rate[3]
Subordinated debt	747	–	747	–	Interest rate[3]
	248,116	33,528	209,881	4,707	

(1) Trading positions whose risk measures are VaR and SVaR. For additional information, see the tables on the following pages that show the VaR and SVaR distributions of the trading portfolios by risk category as well as their correlation effect.
(2) Non-trading positions that use other risk measures.
(3) For additional information, see the tables on the following pages that show the VaR and SVaR distributions of the trading portfolios by risk category and their correlation effect as well as the interest rate sensitivity tables.
(4) For additional information, see Note 7 to the consolidated financial statements.
(5) The fair value of equity securities designated at fair value through other comprehensive income is presented in Notes 4 and 7 to the consolidated financial statements.
(6) These instruments are recorded at amortized cost and are subject to credit risk for capital management purposes. For transactions with maturities of more than one day, interest rate risk is included in the VaR and SVaR measures when they relate to trading activities.
(7) For additional information, see Notes 17 and 18 to the consolidated financial statements.
(8) For additional information, see Note 24 to the consolidated financial statements.

(millions of Canadian dollars) As at October 31, 2017

	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	8,802	154	8,385	263	Interest rate[3]
Securities					
At fair value through profit or loss	47,536	46,825	711	–	Interest rate[3]
Available-for-sale	8,552	–	8,552	–	Interest rate[3] and equity[4]
Held-to-maturity	9,255	–	9,255	–	Interest rate[3]
Securities purchased under reverse repurchase agreements and securities borrowed	20,789	–	20,789	–	Interest rate[3][5]
Loans and acceptances, net of allowances[6]	136,457	5,638	130,819	–	Interest rate[3]
Derivative financial instruments	8,423	7,508	915	–	Interest rate[7] and exchange rate[7]
Defined benefit asset	56	–	56	–	Other[8]
Other	5,957	–	–	5,957	
	245,827	60,125	179,482	6,220	
Liabilities					
Deposits	156,671	5,692	150,979	–	Interest rate[3]
Acceptances	5,991	–	5,991	–	Interest rate[3]
Obligations related to securities sold short	15,363	15,363	–	–	
Obligations related to securities sold under repurchase agreements and securities loaned	21,767	–	21,767	–	Interest rate[3][5]
Derivative financial instruments	6,612	6,045	567	–	Interest rate[7] and exchange rate[7]
Liabilities related to transferred receivables	20,098	4,452	15,646	–	Interest rate[3]
Defined benefit liability	252	–	252	–	Other[8]
Other	5,506	15	945	4,546	Interest rate[3]
Subordinated debt	9	–	9	–	Interest rate[3]
	232,269	31,567	196,156	4,546	

(1) Trading positions whose risk measures are VaR and SVaR. For additional information, see the tables on the following pages that show the VaR and SVaR distributions of the trading portfolios by risk category as well as their correlation effect.
(2) Non-trading positions that use other risk measures.
(3) For additional information, see the tables on the following pages that show the VaR and SVaR distributions of the trading portfolios by risk category and their correlation effect as well as the interest rate sensitivity tables.
(4) The fair value of equity securities classified as available-for-sale is presented in Notes 4 and 7 to the consolidated financial statements.
(5) These instruments are recorded at amortized cost and are subject to credit risk for capital management purposes. For transactions with maturities of more than one day, interest rate risk is included in the VaR and SVaR measures when they relate to trading activities.
(6) An amount of $2,014 million classified in *Purchased receivables* and an amount of $5,991 million classified in *Customers' liability under acceptances* as at October 31, 2017 are now reported in *Loans and acceptances, net of allowances*.
(7) For additional information, see Notes 17 and 18 to the consolidated financial statements.
(8) For additional information, see Note 24 to the consolidated financial statements.

Assessing 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 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 product and by risk type as well as aggregate risk by portfolio, for the Bank as a whole. 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 of the Financial Markets segment and Corporate Treasury of the Bank.

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 to VaR, for the Bank it represents only one component in its 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.

Trading Activities

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

VaR of Trading Portfolios by Risk Category[(1)] *

(millions of Canadian dollars)	Year ended October 31, 2018			
	Low	**High**	**Average**	**Period end**
Interest rate	(3.0)	(5.9)	(4.1)	(5.9)
Foreign exchange	(0.5)	(2.7)	(1.2)	(1.4)
Equity	(1.6)	(5.8)	(3.5)	(4.7)
Commodity	(0.5)	(1.7)	(1.0)	(0.9)
Correlation effect[(2)]	n.m.	n.m.	4.6	7.0
Total trading VaR	**(3.1)**	**(7.4)**	**(5.2)**	**(5.9)**

(millions of Canadian dollars)	Year ended October 31, 2017			
	Low	High	Average	Period end
Interest rate	(2.1)	(7.8)	(4.1)	(4.1)
Foreign exchange	(0.8)	(3.7)	(2.2)	(1.0)
Equity	(2.2)	(14.2)	(3.4)	(2.5)
Commodity	(0.4)	(2.0)	(0.8)	(0.7)
Correlation effect[(2)]	n.m.	n.m.	5.3	4.4
Total trading VaR	(3.6)	(11.1)	(5.2)	(3.9)

n.m. Computation of a correlation 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 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 correlation effect.

SVaR of Trading Portfolios by Risk Category[1] *

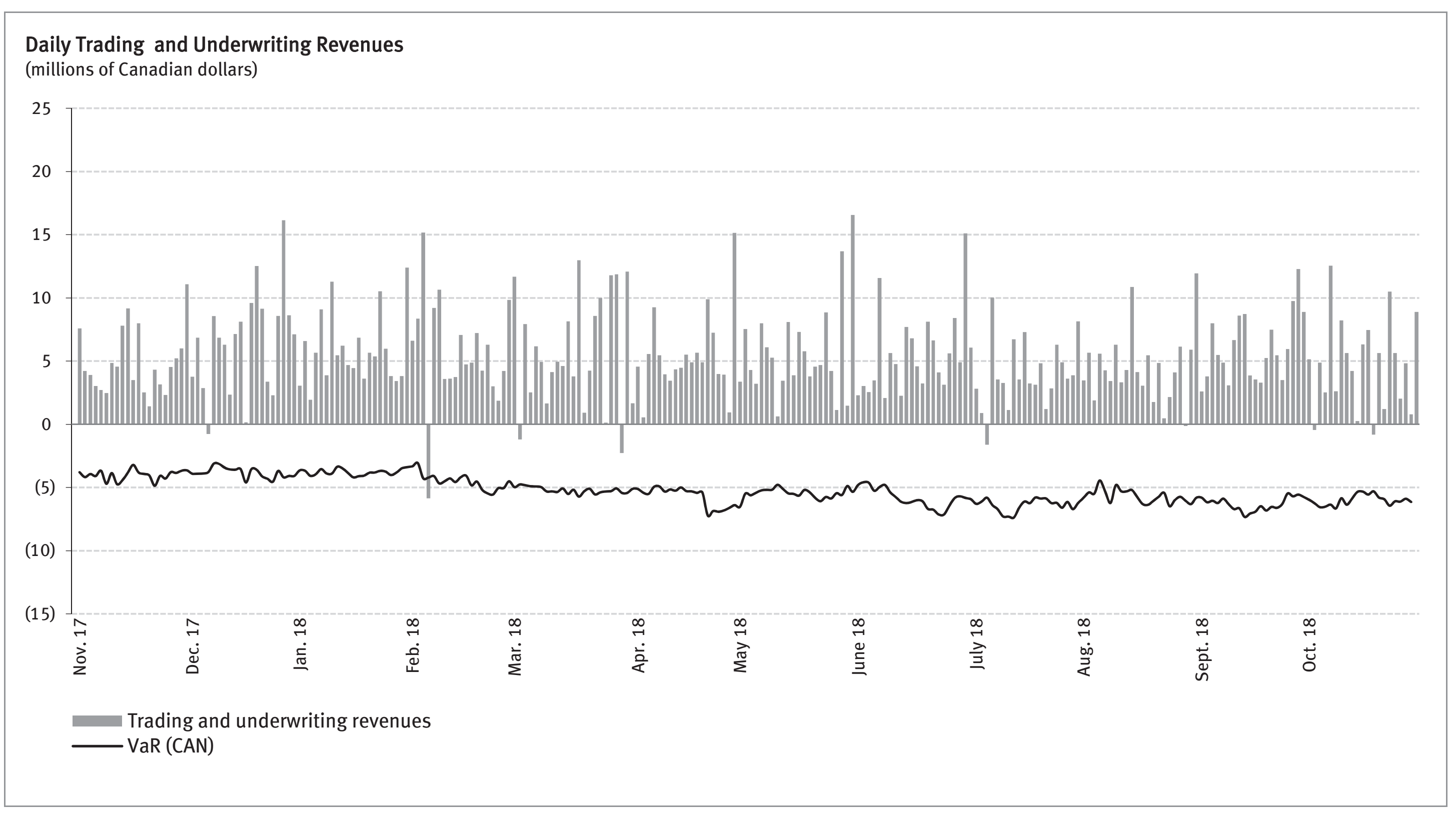
(millions of Canadian dollars)	Year ended October 31, 2018			
	Low	High	Average	Period end
Interest rate	(7.5)	(15.7)	(11.8)	(13.6)
Foreign exchange	(0.5)	(4.1)	(1.5)	(2.4)
Equity	(1.2)	(9.3)	(3.5)	(9.3)
Commodity	(0.4)	(2.9)	(1.8)	(2.2)
Correlation effect[2]	n.m.	n.m.	8.9	17.7
Total trading SVaR	(4.0)	(17.8)	(9.7)	(9.8)

(millions of Canadian dollars)	Year ended October 31, 2017			
	Low	High	Average	Period end
Interest rate	(4.1)	(13.4)	(8.1)	(10.6)
Foreign exchange	(1.0)	(8.6)	(2.6)	(1.7)
Equity	(2.5)	(16.3)	(4.6)	(5.3)
Commodity	(0.5)	(2.7)	(1.0)	(0.7)
Correlation effect[2]	n.m.	n.m.	9.2	10.2
Total trading SVaR	(3.9)	(13.7)	(7.1)	(8.1)

n.m. Computation of a correlation 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 SVaR using a 99% confidence level.
(2) The total trading SVaR is less than the sum of the individual risk factor SVaR results due to the correlation effect.

The average total trading VaR stood at $5.2 million for fiscal 2018, stable when compared to fiscal 2017. Average total trading SVaR was $9.7 million in fiscal 2018, an increase from $7.1 million in fiscal 2017 that was essentially due to higher interest rate risk.

The table below shows daily trading and underwriting revenues and VaR. Daily trading and underwriting revenues were positive on 97% of the days for the year ended October 31, 2018. Daily trading and underwriting losses in excess of $1 million were recorded on 4 days. Only one of these 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. Stress testing enhances transparency by exploring a range of potential low-probability events. Stress tests cover a complete and wide range of risk factors (considering interrelations among them) in order to identify key potential risks and vulnerabilities to the Bank's exposures under several plausible events. Stress tests are performed on single risk factors or multiple risk factors or are based on historical events.

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

- interest rate: sharp parallel increases/decreases in interest rates; non-parallel movements (flattening and steepening) and increases/decreases in credit spreads;
- equity: sharp stock market crash coupled with a significant increase in volatility; increase in stock prices associated with lesser volatility; increase in volatility of term structure coupled with a decrease in stock prices;
- commodity: significant increases/decreases in commodity prices coupled with increases/decreases in volatility; short-term and long-term increases/decreases in commodity prices;
- foreign exchange: depreciation/appreciation of the U.S. dollar and of other currencies relative to the Canadian dollar.

Controlling Risk
Outstanding VaR exposure is monitored daily in relation to established limits for each type of market risk, portfolio and business unit. The RMC reviews VaR results and other risk measure results each quarter, including any breaches of the limits set out in the policy.

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.

A separate policy governs the pricing and valuation adjustments on financial instruments measured at fair value.

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 in 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 Corporate Treasury.

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 the Bank's risk appetite. This has to be accomplished within prescribed risk limits and is done primarily by implementing a policy framework approved by the Board, 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.

Regulatory Context

On October 5, 2018, OSFI issued, for public consultation, a new guideline on managing interest rate risk in the banking book (IRRBB) to replace the current guideline. OSFI's proposed guideline incorporates most of the guidance in the April 2016 BCBS document that sets standards for IRRBB management. OSFI's objective with this public consultation is to ensure that the methods used by financial institutions to measure, manage and monitor IRRBB (and OSFI's related oversight practices) remain current and comprehensive with respect to defining a risk control framework for managing IRRBB to a prudent level. The Bank is currently working to comply with this new OSFI-proposed guideline that is expected to take effect on January 1, 2020.

Governance

Management of the Bank's structural interest rate risk is mandated to Corporate Treasury. In this role, the Corporate Treasury executives and personnel are responsible for the identification and 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 and monitoring of these activities. Moreover, they must ensure compliance with the structural interest rate risk policy. The Office of the President approves and endorses the structural interest rate exposure and strategies on the recommendation of Corporate Treasury. Operational supervision is ensured by two committees: the Management Forecast Committee and the Intersector Funding Committee. The former analyzes the various structural interest rate risk metrics. The latter ensures that the funds transfer pricing mechanism is adequate and captures all new products offered. Both committees report to the Office of the President – Asset/Liability Management Committee.

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 yield curve.

The following tables present the potential before-tax impact of an immediate and sustained 100-basis-point increase or decrease in interest rates on the economic value of equity and on the net interest income of the non-trading portfolios for the next 12 months, assuming no further hedging is undertaken.

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

(millions of Canadian dollars)			**As at October 31, 2018**
	Canadian dollar	**Other currencies**	**Total**
Impact on equity			
100-basis-point increase in the interest rate	**(140)**	**9**	**(131)**
100-basis-point decrease in the interest rate	**154**	**17**	**171**
Impact on net interest income			
100-basis-point increase in the interest rate	**10**	**19**	**29**
100-basis-point decrease in the interest rate	**34**	**8**	**42**

(millions of Canadian dollars)			As at October 31, 2017
	Canadian dollar	Other currencies	Total
Impact on equity			
100-basis-point increase in the interest rate	(191)	36	(155)
100-basis-point decrease in the interest rate	159	(6)	153
Impact on net interest income			
100-basis-point increase in the interest rate	3	44	47
100-basis-point decrease in the interest rate	(7)	(11)	(18)

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 hedge funds and private equity funds, for investment banking services, are also subject to these limits. Restrictions are also set on investments defined as special. Lastly, the Bank has a specific strategic investment policy, approved by the Board, which defines strategic investments 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 net interest income and shareholders' equity. The Bank uses financial instruments (derivative and non-derivative) to hedge some of 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, net of related hedges, 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 exposure 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 Management

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 Board, 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 while adapting its processes and policies to reflect the Bank's liquidity risk appetite towards these new requirements.

In May 2014, OSFI issued its final *Liquidity Adequacy Requirements* (LAR) guideline and this LAR guideline is reviewed annually to reflect national and international regulatory changes. The LAR guideline is the new liquidity framework proposed by OSFI. It contains the following 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 intended to oversee banks through 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 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 OSFI guideline entitled *Public Disclosure Requirements for Domestic Systemically Important Banks on Liquidity Coverage Ratio* is based on the BCBS's final LCR rules and prescribes a standardized format across the banking industry. The Canadian D-SIBs implemented the LCR disclosure requirements in January 2015.

The Bank is currently monitoring the NSFR and will be compliant in time for the implementation. In June 2015, BCBS issued its final *Net Stable Funding Ratio Disclosure Standards* document. Designed to improve the transparency of NSFR disclosure, this document sets out a common framework for public disclosure of this ratio. On February 6, 2018, OSFI notified Canadian deposit-taking institutions of its intention to extend the NSFR implementation date to January 1, 2020, one year later than planned.

The Bank also produces Quantitative Impact Study (QIS) reports that are submitted to the Bank for International Settlements (BIS). Using the QIS results, the BIS can follow the progress of Basel III implementation.

Governance
Corporate Treasury manages liquidity and funding needs Bank-wide. Its activities comprise:

- managing day-to-day cash flow, collateral and short-term funding;
- planning and issuing long-term funding and determining liquidity cost transfer pricing;
- participating in the development and implementation of the liquidity management framework, the Liquidity, Funding and Pledging Governance policy, the annual funding plan and the liquidity contingency plan;
- developing and implementing the LAR guidelines and the national and international regulations to which the Bank must adhere;
- monitoring, measuring and reporting on the Bank's exposure to liquidity risk, both overall and by currency;
- establishing and maintaining an adequate risk assessment process and effective controls.

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 two levels of limits. The first level of limits encompasses the Bank's overall liquidity position and is Board approved, while the second level of limits is more focused on specific elements of liquidity risk and is approved by the GRC. 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 Corporate Treasury, submits the proposed revision to the GRC. If the latter approves the request, it is presented to the Board for approval only if a level-one limit is concerned.

Liquidity risk supervision at the Bank is mainly assigned to the Liquidity and Funding Committee, composed of representatives from Corporate Treasury, the Risk Management Group, and Internal Audit. In accordance with the roles and responsibilities under their respective mandates, the members of this committee are also asked for input in developing risk management and control mechanisms and implementing policies.

Through the Liquidity and Funding Committee, Corporate Treasury 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, Corporate Treasury takes remedial action. According to the escalation process, problematic situations are reported to the management of the Finance unit and of the Risk Management Group, as well as to the GRC and to 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.

Although the day-to-day and strategic management of risks associated with liquidity, funding and pledging activities and the monitoring of compliance with the resulting policy is assumed by Corporate Treasury, the Risk Management Group is responsible for ensuring that an appropriate risk management framework is in place and that risk appetite and policy are adhered to. This provides an independent oversight and effective challenge for the liquidity, funding and pledging decisions, strategy and exposure.

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, funding and pledging activities within Corporate Treasury, the Bank can better coordinate enterprise-wide funding and risk monitoring activities. All internal funding transactions between Bank entities are controlled by Corporate Treasury.

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. These scenarios are reviewed and submitted to the Board once a year for approval.

The Bank considers, among its simulations, a severe liquidity crisis scenario, where the Bank experiences difficulties in a turbulent financial market. This scenario significantly reduces access to its funding sources and the marketability of its assets.

The stress test results provide the Bank with its potential liquidity requirements under each scenario and, given the liquidity risk appetite adopted, allow the Bank to manage unwanted risk. Each scenario has its own set of underlying assumptions that cover a wide range of aspects, including haircuts, encumbrance on liquid assets, loss of deposits, collateral usage and assets pledged. It also includes an estimate of the funding needs of contingent liabilities. Contingent liquidity risk refers to the possibility that the Bank needs a significant amount of funding due to events such as an unexpected increase in drawdowns on committed lines, withdrawal of deposits, increase in collateral requirements or other triggers embedded in legal documentation.

The scenarios are based on the following underlying assumptions:

- partial non-renewal at maturity for most of the Bank's unsecured wholesale funding;
- non-renewal of a portion of the retail and commercial deposits;
- run-offs on demand deposits;
- partial renewal of loans;
- drawdowns on committed lines;
- additional collateral required for the Bank in the event of a credit rating downgrade;
- limited access to the foreign exchange market.

The results of these stress tests are reviewed on a monthly basis by the Liquidity and Funding Committee while the Board reviews the results each quarter.

Lastly, 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 Management 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 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. This portfolio consists of highly liquid securities, most of which are issued or guaranteed by governments, and of cash loans maturing in less than 30 days. 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

As at October 31 (millions of Canadian dollars)					2018	2017
	Bank-owned liquid assets[1]	Liquid assets received[2]	Total liquid assets	Encumbered liquid assets[3]	Unencumbered liquid assets	Unencumbered liquid assets
Cash and deposits with financial institutions	12,756	–	12,756	2,469	10,287	6,845
Securities						
Issued or guaranteed by the Canadian government, U.S. Treasury, other U.S. agencies and other foreign governments	22,843	21,202	44,045	23,220	20,825	19,321
Issued or guaranteed by Canadian provincial and municipal governments	14,492	7,916	22,408	15,868	6,540	4,705
Other debt securities	5,486	2,800	8,286	2,888	5,398	3,485
Equity securities	26,962	25,565	52,527	35,916	16,611	19,663
Loans						
Securities backed by insured residential mortgages	9,101	–	9,101	5,815	3,286	5,392
As at October 31, 2018	91,640	57,483	149,123	86,176	62,947	
As at October 31, 2017	83,650	58,254	141,904	82,493		59,411

As at October 31 (millions of Canadian dollars)	2018	2017
Unencumbered liquid assets by entity		
National Bank (parent)	30,205	27,769
Domestic subsidiaries	11,543	9,871
Foreign subsidiaries and branches	21,199	21,771
	62,947	59,411

As at October 31 (millions of Canadian dollars)	2018	2017
Unencumbered liquid assets by currency		
Canadian dollar	35,838	31,146
U.S. dollar	22,663	21,260
Other currencies	4,446	7,005
	62,947	59,411

Liquid Asset Portfolio – Average[4]

Year ended October 31 (millions of Canadian dollars)					2018	2017
	Bank-owned liquid assets[1]	Liquid assets received[2]	Total liquid assets	Encumbered liquid assets[3]	Unencumbered liquid assets	Unencumbered liquid assets
Cash and deposits with financial institutions	11,356	–	11,356	2,258	9,098	8,883
Securities						
Issued or guaranteed by the Canadian government, U.S. Treasury, other U.S. agencies and other foreign governments	24,636	25,642	50,278	31,098	19,180	15,275
Issued or guaranteed by Canadian provincial and municipal governments	12,946	8,405	21,351	16,699	4,652	5,877
Other debt securities	5,090	1,966	7,056	3,015	4,041	3,686
Equity securities	33,137	27,334	60,471	38,470	22,001	14,905
Loans						
Securities backed by insured residential mortgages	9,348	–	9,348	5,051	4,297	6,804
As at October 31, 2018	96,513	63,347	159,860	96,591	63,269	
As at October 31, 2017	86,957	51,234	138,191	82,761		55,430

(1) Bank-owned liquid assets include assets for which there are no legal or geographic restrictions.
(2) Securities received as collateral with respect to securities financing and derivative transactions and securities purchased under reverse repurchase agreements and securities borrowed.
(3) 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.
(4) 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

(millions of Canadian dollars)						As at October 31, 2018
		Encumbered assets[1]		Unencumbered assets	Total	Encumbered assets as % of total assets
	Pledged as collateral	Other[2]	Available as collateral	Other[3]		
Cash and deposits with financial institutions	87	2,382	10,287	–	12,756	0.9
Securities	20,787	–	48,996	–	69,783	7.9
Securities purchased under reverse repurchase agreements and securities borrowed	–	17,781	378	–	18,159	6.8
Loans and acceptances, net of allowances	28,670	–	3,286	114,126	146,082	10.9
Derivative financial instruments	–	–	–	8,608	8,608	–
Investments in associates and joint ventures	–	–	–	645	645	–
Premises and equipment	–	–	–	601	601	–
Goodwill	–	–	–	1,412	1,412	–
Intangible assets	–	–	–	1,314	1,314	–
Other assets	–	–	–	3,111	3,111	–
	49,544	20,163	62,947	129,817	262,471	26.5

(millions of Canadian dollars)						As at October 31, 2017
		Encumbered assets[1]		Unencumbered assets	Total	Encumbered assets as % of total assets
	Pledged as collateral	Other[2]	Available as collateral	Other[3]		
Cash and deposits with financial institutions	76	1,881	6,845	–	8,802	0.8
Securities	23,595	–	41,748	–	65,343	9.6
Securities purchased under reverse repurchase agreements and securities borrowed	–	15,363	5,426	–	20,789	6.2
Loans and acceptances, net of allowances[4]	30,775	–	5,392	100,290	136,457	12.5
Derivative financial instruments	–	–	–	8,423	8,423	–
Investments in associates and joint ventures	–	–	–	631	631	–
Premises and equipment	–	–	–	558	558	–
Goodwill	–	–	–	1,409	1,409	–
Intangible assets	–	–	–	1,239	1,239	–
Other assets	–	–	–	2,176	2,176	–
	54,446	17,244	59,411	114,726	245,827	29.1

(1) 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 covered bond programs.

(2) Other encumbered assets include assets for which there are restrictions and therefore cannot be used for collateral or funding purposes as well as assets used to cover short sales.

(3) 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 (for example, Canada Mortgage and Housing Corporation insured mortgages that can be securitized into mortgage-backed securities under the *National Housing Act* (Canada)).

(4) An amount of $2,014 million classified in *Purchased receivables* and an amount of $5,991 million classified in *Customers' liability under acceptances* as at October 31, 2017 are now reported in *Loans and acceptances, net of allowances*.

Liquidity Coverage Ratio (LCR)

The LCR was introduced primarily to ensure banks maintain sufficient liquidity to withstand periods of severe short-term stress. 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 (HQLA) 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.

The following table provides average LCR data calculated using the daily figures in the quarter. For the quarter ended October 31, 2018, the Bank's average LCR was 147%, well above the 100% regulatory requirement and demonstrating the Bank's solid liquidity position.

LCR Disclosure Requirements[1]

(millions of Canadian dollars)			For the quarter ended
	October 31, 2018		July 31, 2018
	Total unweighted value[2] (average)	Total weighted value[3] (average)	Total weighted value[3] (average)
High-quality liquid assets (HQLA)			
1 Total HQLA	n.a.	44,699	44,580
Cash outflows			
2 Retail deposits and deposits from small business customers, of which:	41,263	2,784	2,741
3 Stable deposits	19,176	575	568
4 Less stable deposits	22,087	2,209	2,173
5 Unsecured wholesale funding, of which:	61,553	32,021	32,428
6 Operational deposits (all counterparties)	12,096	2,908	2,728
7 Non-operational deposits (all counterparties)	42,599	22,255	22,262
8 Unsecured debt	6,858	6,858	7,438
9 Secured wholesale funding	n.a.	17,048	18,935
10 Additional requirements, of which:	32,530	9,169	8,492
11 Outflows related to derivative exposures and other collateral requirements	7,454	4,273	3,593
12 Outflows related to loss of funding on secured debt securities	1,169	1,169	1,076
13 Backstop liquidity and credit enhancement facilities and commitments to extend credit	23,907	3,727	3,823
14 Other contractual commitments to extend credit	1,634	534	265
15 Other contingent commitments to extend credit	87,865	1,325	1,306
16 Total cash outflows	n.a.	62,881	64,167
Cash inflows			
17 Secured lending (e.g., reverse repos)	88,260	19,175	18,210
18 Inflows from fully performing exposures	8,644	5,040	5,153
19 Other cash inflows	8,286	8,286	10,564
20 Total cash inflows	105,190	32,501	33,927
		Total adjusted value[4]	Total adjusted value[4]
21 Total HQLA	n.a.	44,699	44,580
22 Total net cash outflows	n.a.	30,380	30,240
23 Liquidity coverage ratio (%)[5]	n.a.	147 %	147 %

n.a. Not applicable
(1) OSFI prescribed a table format in order to standardize disclosure throughout the banking industry.
(2) Unweighted values are calculated as outstanding balances maturing or callable within 30 days (for inflows and outflows).
(3) Weighted values are calculated after the application of respective haircuts (for HQLA) or inflow and outflow rates.
(4) Total adjusted values are calculated after the application of both haircuts and inflow and outflow rates and any applicable caps.
(5) The data in this table has been calculated using averages of the daily figures in the quarter.

Level 1 liquid assets represent 87% 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, 2018 and the previous quarter was a result of normal business activities. 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 was 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 is presented monthly to the Liquidity and Funding Committee.

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.

The Bank's branch network deposits are its primary and most stable source of funding. Stable funds are used to fund Bank activities, whereas funds from the wholesale markets are used to fund securities. In order to maintain the ideal funding profile, the Bank seeks to limit short-term wholesale funding and is careful to diversify its funding sources. The Bank seeks to diversify its funding sources by geographic location, currency, instrument, maturity and depositor. In addition, the Bank is actively involved in securitization programs (residential mortgages and credit card receivables) that diversify its access to long-term funding.

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 30 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 macro-economic 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. The following table presents the Bank's credit ratings according to four rating agencies as at October 31, 2018. Funding and liquidity levels remained sound and robust, and the Bank continues to enjoy excellent access to the market for its funding needs.

The Bank's Credit Ratings

As at October 31, 2018

	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)	A+
Long-term non-bail-inable senior debt(1)	Aa3	A	AA(low)	A+
Senior debt(2)	A3	BBB+	A(high)	A+
Subordinated debt	Baa2	BBB+	A	A
NVCC subordinated debt	Baa2(hyb)	BBB	BBB(high)	
NVCC preferred shares	Ba1(hyb)	P-3(high)	Pfd-2(low)	
Counterparty risk(3)	Aa3/P-1			A+
Covered bonds program	Aaa		AAA	AAA
Rating outlook	Stable	Stable	Stable	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 terminology is Counterparty Risk Rating while Fitch's terminology is 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 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, 2018	
	One-notch downgrade	Three-notch downgrade
Derivatives[1]	1	12

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

Funding Strategy
The key objectives of the funding strategy are to:

- support the Bank's organic growth through prudent liquidity and funding management;
- withstand severe stresses;
- fund core banking activities with stable deposits and securitization;
- fund the securities portfolio with secured and unsecured wholesale funding;
- limit short-term wholesale funding; and
- maintain active access to wholesale funding markets and ensure diversification.

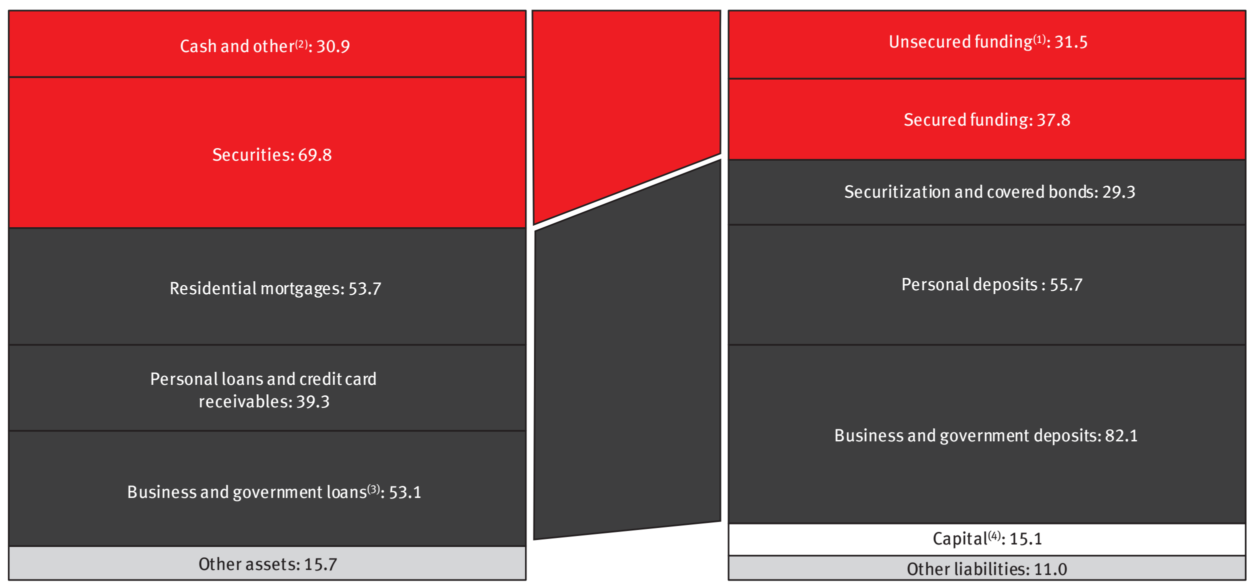
The Bank actively monitors and controls liquidity risk exposures and funding needs within and across entities, business segments and currencies. The process involves evaluating the liquidity position of individual business segments in addition to that of the Bank as a whole as well as the liquidity risk from raising unsecured and secured funding in foreign currencies. The funding strategy is executed through the funding plan.

The Bank's funding framework consists of the following:

- implementing a diversified deposit strategy, including new initiatives, on a regular basis, that will further grow the deposits balance;
- monitoring and controlling exposure to liquidity risk and the funding needs across all the Bank's entities, business segments and currencies, using a well-developed funds transfer pricing system;
- integrating the regulatory framework (OSFI liquidity guidelines and principles, Basel III liquidity framework) in the day-to-day liquidity management and the long-term funding plan.

The Bank's balance sheet is well diversified and is supported by a funding strategy. The Bank continuously monitors and analyzes the possibilities for accessing less expensive funding. The Bank is aiming to fund its core banking activities through personal, commercial and government deposits and through securitization programs. In addition to core deposits, the Bank also receives non-marketable deposits from governments and corporations. Wholesale funding is invested in cash and securities. The chart below shows the Bank's funding structure as at October 31, 2018.

Funding Structure
As at October 31, 2018
(billions of Canadian dollars)



(1) This category comprises term funding products, marketable or non-marketable.
(2) This category comprises securities purchased under reverse repurchase agreements and securities borrowed.
(3) Includes customers' liability under acceptances.
(4) This category comprises subordinated debt and equity.

Diversified Funding Sources

The purpose of diversification by source, geographic location, currency, instrument, maturity and depositor is to mitigate liquidity and funding risk by ensuring that the Bank has in place 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;
- identifies and monitors the main factors that affect the ability to raise funds.

The Bank is active in the following funding platforms:

- Canadian dollar Senior Unsecured Debt;
- U.S. dollar Senior Unsecured Debt;
- 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, 2018
	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]	705	7	8	–	720	–	50	770
Certificates of deposit and commercial paper[3]	641	1,719	4,088	1,377	7,825	197	–	8,022
Senior unsecured medium-term notes[4]	562	1,797	17	2,033	4,409	4,789	4,633	13,831
Senior unsecured structured notes	–	–	–	329	329	908	3,591	4,828
Covered bonds and asset-backed securities								
Mortgage securitization	–	2,244	226	1,404	3,874	3,088	13,138	20,100
Covered bonds	–	1,494	–	–	1,494	–	6,791	8,285
Securitization of credit card receivables	36	–	–	–	36	874	–	910
Subordinated liabilities[5]	–	–	–	–	–	–	747	747
	1,944	7,261	4,339	5,143	18,687	9,856	28,950	57,493
Secured funding	36	3,738	226	1,404	5,404	3,962	19,929	29,295
Unsecured funding	1,908	3,523	4,113	3,739	13,283	5,894	9,021	28,198
	1,944	7,261	4,339	5,143	18,687	9,856	28,950	57,493
As at October 31, 2017	2,198	5,306	5,136	4,332	16,972	8,968	28,789	54,729

(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) Subordinated debt is presented in this table but the Bank does not consider it as part of its wholesale funding.

Operational Risk Management

Operational risk is the risk of loss resulting from an inadequacy or a failure ascribable to people, processes, technology or external events. Operational risk exists for every Bank activity. Theft, fraud, cyber attacks, 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 punitive damages or 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

By identifying, assessing, monitoring, mitigating and reporting on operational risk, business units and corporate units can:

- recognize and understand the inherent and residual risks to which their activities and operations are exposed;
- identify measures for keeping such risks at an acceptable level;
- manage the risks proactively and continuously;
- report significant operating issues and risks to senior management and the Board.

The main tools developed for the purposes of this framework are described below.

Collection and Analysis of Data on Operational Losses Incurred by the Bank

The Operational Risk Unit applies a process, across the Bank and its subsidiaries, for collecting and compiling data on internal operational losses. This data is entered into a centralized database and includes the amount of each loss, the type of risk involved, a description of the event that caused the loss, and the date of the loss, making it possible to better understand the fundamental causes of this type of loss and develop mitigation strategies. During fiscal years 2018 and 2017, there were no material losses resulting from an operational risk event.

Collection and Analysis of Data on External Operational Events Observed in the Financial Industry

The Bank collects and analyzes information reported in the media on significant operational events experienced by other financial institutions in order to assess the effectiveness of its own operational risk management practices and reinforce them, if necessary.

Operational Risk Self-Assessment

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.

Key Risk Indicators

The business units and corporate units define key indicators associated with their main operational risks. The key indicators are used to monitor operational risk profiles and are related to critical thresholds that, once reached, result in action by management. Using key risk indicators, the business units and corporate units can track risks and proactively detect any adverse change in risk exposure.

Specialized Risk Assessment Programs

Certain specialized groups have implemented programs with their own risk-specific policies and standards as well as oversight mechanisms to ensure they are respected. Such specialized programs exist for:

- management of financial reporting risk;
- management of technological and information security risks;
- management of business continuity;
- management of risks related to third parties;
- fraud risk management;
- model risk management;
- sales practice risk management;
- data risk management;
- review and approval of new products and activities;
- information confidentiality.

Operational Risk Reports and Disclosures

The Operational Risk Unit regularly reports to the Operational Risk Management Committee, to the GRC, and to the RMC on the status of operational risk across the Bank, on the measures taken with respect to the risks, and on the significant exposures to losses and emerging risks in order to ensure management accountability and attention is maintained over current and emerging issues. This reporting enhances the transparency and proactive management of major operational risk factors.

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.

Regulatory Compliance Risk Management

Regulatory compliance risk is the risk of the Bank or its employees failing to comply with the regulatory requirements in effect where the Bank does business, both in Canada and internationally. Regulatory 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, fines and sanctions or increased oversight by regulators.

The Bank operates in a highly regulated industry. The diversity of its activities and its geographical reach in Canada and abroad add to this complexity, since its operations are overseen by various regulatory bodies and self-regulatory organizations.

Organizational Structure of Compliance
The Senior Vice-President, Chief Compliance Officer and Chief Anti-Money Laundering Officer oversees the compliance program and the programs aimed at fighting money laundering and terrorist financing activities (MLTFA) for all the Bank's segments.

Regulatory Compliance Framework
To ensure sound management of regulatory compliance, the Bank favours proactive approaches, incorporates regulatory requirements into its day-to-day operations, and communicates regularly with its employees to remind them of the importance of complying with regulations.

Regulatory risk management ensures that events stemming from regulatory non-compliance that could have an impact on the Bank's activities and reputation are proactively identified and understood and that mitigating strategies are implemented. It 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 regulations in effect in all jurisdictions where the Bank and its subsidiaries operate, including regulations related to MLTFA, are in place and operational;
- develop training programs regarding compliance and the fight against MLTFA for employees of the Bank and of its subsidiaries and foreign centres;
- exercise independent evaluation of the compliance of the Bank, its subsidiaries, and its foreign centres with policies and standards;
- report relevant compliance and MLTFA matters to the Bank's Board and inform it of any 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.

Recovery and Resolution Planning
As part of the regulatory measures used to manage systemic risks, D-SIBs are required to have in place recovery and resolution plans. A recovery plan is essentially a road map 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 develops and periodically updates its recovery and resolution plans to prepare for these high-risk, but low-probability events. These plans are presented to its domestic regulatory authorities. The Bank also works on documenting a resolution plan with Canada Deposit Insurance Corporation (CDIC) that would ensure orderly winding down of the Bank's operations.

Liquidity Reforms
To promote a more resilient banking sector, more stringent international rules on liquidity were introduced by the BCBS through Basel III and implemented at a national level. In Canada, the liquidity rules began phasing in during 2015. For additional information, see the Liquidity and Funding Risk Management section of this MD&A.

Increased Regulatory Oversight for D-SIBs
Since six major Canadian banks were designated as D-SIBs in March 2013, regulatory oversight has increased. The regulatory agencies are paying close attention to capital ratio determination approaches, guaranteed mortgage lending, risk data aggregation and risk reporting (RDARR), stress test scenarios, the implementation of MLTFA programs, recovery and resolution planning (living will) and the implementation of effective anti-cyberterrorism measures. The Bank is making every effort to meet the regulatory requirements and is incorporating these initiatives into its day-to-day business management.

Fighting Money Laundering and Terrorist Financing Activities (MLTFA)
In July 2018, amendments to the *Proceeds of Crime (Money Laundering) and Terrorist Financing Regulations* were issued and should take effect in late 2019. They will have a significant impact on clients, particularly with respect to the additional information to be obtained and maintained, and will require major changes to the related systems and processes. The Government of Canada has also launched a consultation process in anticipation of the five-year review of the *Proceeds of Crime (Money Laundering) and Terrorist Financing Act*. Canadian banks, including the Bank, have provided their comments and are awaiting the introduction of the bill.

Cannabis Act
The impacts of the act and regulations surrounding cannabis distribution and possession both on the Bank's employees and on its business relationships with clients were analyzed during the year. Measures reflecting the Bank's position on this topic were put in place during fiscal 2018.

Common Reporting Standard (CRS)
The Common Reporting Standard (CRS), developed by the Organization for Economic Co-operation and Development (OECD), requires participating countries to obtain certain information from their financial institutions and automatically exchange that information with other participating countries on an annual basis. The CRS is used to fight tax evasion and to promote voluntary compliance with tax laws. Over one hundred countries, including Canada, have agreed to exchange information under the CRS.

CRS legislation came into effect in Canada on July 1, 2017. The CRS requires that Canadian financial institutions, including the Bank, collect and disclose to the Canada Revenue Agency (CRA) certain information on financial accounts held by tax residents of countries other than Canada and the United States. The Bank transmits this information through an annual reporting process, and the first return was filed with the CRA on May 1, 2018.

Qualified Intermediary Agreement
The Qualified Intermediary (QI) Agreement is an agreement regarding withholdings on certain U.S.-source income (such as dividends and interest) and the reporting of such income. Through a contractual agreement with the Internal Revenue Service, QI entities can benefit from a reduced administrative burden to enable their clients to receive the advantageous taxation rates allowed under the tax treaties. In January 2017, the terms of the QI Agreement were amended. These new measures were implemented during fiscal 2018.

Section 871(m) – Dividend Equivalent Payments
Section 871(m) of the U.S. Internal Revenue Code 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 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 from January 1, 2019 to January 1, 2021.

Good Practice in the Foreign Exchange Market
The FX Global Code is a voluntary code of good practice that applies to all participants in the wholesale foreign exchange market in all of the world's financial centres. Published in May 2017, the code is the result of nearly two years of collaborative effort among central banks, including the Bank of Canada, and market participants from the world's leading financial centres. The code defines the good practices to be followed by market participants to guarantee a robust, fair and transparent foreign exchange market. It covers such areas as ethics, governance, execution of orders (confirmation and settlement), information sharing, and risk management. The Bank completed implementation of the code of good practice and published a declaration of compliance with the FX Global Code on its website.

Investigation Into Sales Practices
During fiscal 2017, the Financial Consumer Agency of Canada and OSFI launched an industry-wide review of the sales practices of financial institutions in Canada. The reports resulting from the reviews carried out by these two regulatory bodies did not show any systemic risk related to sales practices. With the interests of clients as its priority, the Bank is taking these reports seriously and has quickly addressed the recommendations made by both organizations.

Reputation Risk Management

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 the previously discussed operational risk management initiatives, a variety of mechanisms are in place 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 reputation risk policy, approved by the RMC of the Board, that covers all of the Bank's practices and transactions, including those of the third parties with which it establishes business relationships. The policy sets the reputation risk management principles and rules. 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, Public Relations Department and Investor Relations Department complete the reputation risk management framework.

Strategic Risk Management

Strategic risk is the risk of a loss arising from inappropriate strategic orientations, improper execution or ineffective response to economic or financial 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 according to plan. 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 Risk Management

Environmental risk is the risk of a loss or damage to the Bank's reputation arising from environmental concerns related to the Bank or its clients. Environmental risk is often associated with credit risk and operational risk.

Environmental risk is defined as any impact arising from environmental issues (such as climate change, pollution and waste management) that causes a loss of financial value or operating value or that damages the Bank's reputation. This risk arises from commercial and operating activities. For example, environmental issues related to the purchase or sale of contaminated properties by clients of the Bank or the deployment of large-scale projects could expose the Bank to credit and reputation risk. The Bank has set up a series of eco-responsible measures that allow for better management of greenhouse gas emissions arising from its activities and for a cleaner environment. The Bank is a signatory to the Carbon Disclosure Project, which collects and publishes information disclosed by companies worldwide regarding their management of climate change and their greenhouse gas (GHG) emissions.

The Bank would also be forced to deal with operational risk and the risk related to the legal environment when environmental issues arise in its branches or administrative offices.

In this context, the Risk Management Group develops requirements that are prescribed in its internal policies in order to reveal, assess, control and monitor environmental risk. For their part, the business segments and corporate units must integrate requirements and controls related to the management of environmental risk in their activities. The Risk Management Group monitors its application and regularly reviews the standards. Each year, the Bank publishes its *Social Responsibility Report*, which is available on its website at nbc.ca.

The Bank believes that it has a role to play in the fight against climate change. It supports the global community's efforts to move towards an economy that is more respectful of the environment and towards a sustainable economic development model that is low in GHG emissions. Having given its support to the Financial Stability Board's Task Force on Climate-related Financial Disclosures (TCDF), the Bank has committed to ensuring that its disclosures include relevant information on the various topics addressed by this group. In addition, in collaboration with industry partners, the Bank is working to develop a coherent and useful framework for disclosing climate-change-related financial data.

The Bank continues to identify and measure climate-related risks. It leads by example by focusing on energy efficiency, reducing the intensity of its GHG emissions, and incorporating sustainable building principles into the design and operation of its establishments. The Bank also monitors the leading thinking, coming from provincial and national authorities, on climate issues.

Critical Accounting 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. Some of these accounting policies 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. The critical accounting estimates are as follows.

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.

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. 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.

Fair Value of Financial Instruments

When they are initially recognized, all financial assets and liabilities, including derivative financial instruments, are recorded at fair value on the Consolidated Balance Sheet. In subsequent periods, they are measured at the fair value of financial assets and liabilities measured at amortized cost using the effective interest rate method. 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 take into account in pricing a transaction. Judgment is required in 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's 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 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.

IFRS establishes a fair value hierarchy that classifies the inputs used in financial instrument fair value measurement techniques according to three levels. The fair value 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 as well as 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 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 *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 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 4 and 7 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 8 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, at 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, at 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. The 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 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. The cash shortfall is the difference between all contractual cash flows owed to the Bank and all the cash flows that the Bank expects to receive.

The measurement of ECLs is primarily based on the product of the financial instrument's probability of default (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 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 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: 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 yet 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. 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 12 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 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 will not be 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 24 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 income taxes payable 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 prior to their expiration.

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 25 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 proceeding 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 then approved by the trial courts in each of the five jurisdictions where the action was initiated. The rulings approving the settlement are now the subject of appeal proceedings in multiple jurisdictions.

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 operating income 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 28 to the consolidated financial statements.

Future Accounting Policy Changes

The IASB issues revisions and amendments to a number of standards, some of which have already had an impact on the Bank and others that could have an impact in the future. The Bank is currently assessing the impact that adoption of the following standards will have on its consolidated financial statements. A summary of these amendments and the effective dates applicable to the Bank are presented below.

Effective Date – November 1, 2018
IFRS 15 – *Revenue From Contracts With Customers*
In May 2014, the IASB issued IFRS 15, which replaces the current revenue recognition standards and interpretations. In July 2015, the IASB unanimously confirmed its proposal to defer the IFRS 15 effective date to fiscal years beginning on or after January 1, 2018, which is November 1, 2018 for the Bank. In April 2016, the IASB issued amendments to IFRS 15, providing clarifications on, among other topics, the elements to be considered when determining whether an entity is a principal or agent.

IFRS 15 provides a single comprehensive model to use when accounting for revenue from contracts with customers. The new model applies to all contracts with customers except those that fall within the scope of other IFRS standards such as leases, insurance contracts, and financial instruments. As a result, the majority of the Bank's revenues, including net interest income, will not be affected. According to the core principle of IFRS 15, the method used to recognize revenue from contracts with customers should reflect the moment when the promised goods or services are transferred and reflect the amount of consideration the entity expects to receive in exchange for those goods or services. Consequently, the entity recognizes revenue for a performance obligation as it is satisfied, that is, when control of the goods or services underlying the performance obligation is transferred to the customer.

Transition Impact
For the Bank, the transition to IFRS 15 will not have a significant impact on when revenue from contracts with customers is recognized. However, the presentation of certain revenues and certain non-interest expenses in the Consolidated Statement of Income will change, as gross amounts will have to be presented. At this time, certain revenues are presented net of certain non-interest expenses. This presentation change will not have a significant impact on the Bank. Upon transition, IFRS 15 permits entities to either restate prior periods or to apply the standard on a modified retrospective basis. The Bank has chosen to apply the standard using the modified retrospective basis, recognizing the cumulative effect of initially applying the standard as an adjustment to the opening balance of *Retained earnings* as at November 1, 2018, without restating comparative periods. This adjustment to the opening balance of *Retained earnings* as at November 1, 2018 will not be significant.

Effective Date – November 1, 2019
IFRS 16 – *Leases*
In January 2016, the IASB issued IFRS 16 – *Leases*. The new standard requires lessees to recognize most leases on the balance sheet using a single model, thereby eliminating the distinction between operating and finance leases. Lessor accounting, however, remains similar to current accounting practice, and the distinction between operating and finance leases is retained. Early application is permitted if IFRS 15 – *Revenue From Contracts With Customers* is also applied.

IFRIC Interpretation 23 – *Uncertainty Over Income Tax Treatments*
In June 2017, the IASB issued IFRIC Interpretation 23, which addresses how to reflect tax treatment uncertainty in accounting for income taxes.

Effective Date – November 1, 2020
On March 29, 2018, the IASB issued the revised *Conceptual Framework for Financial Reporting* to replace its 2010 conceptual framework. For the IASB, the revised conceptual framework has been in effect since its publication date. Early application is permitted.

Effective Date – November 1, 2021
IFRS 17 – *Insurance Contracts*
In May 2017, the IASB issued IFRS 17 – *Insurance Contracts*, 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. At its meeting on November 14, 2018, the IASB tentatively decided to defer the IFRS 17 effective date to fiscal years beginning on or after January, 1, 2022.

Additional Financial Information

Table 1 – Quarterly Results

(millions of Canadian dollars, except per share amounts)					2018
	Total	Q4	Q3	Q2	Q1
Statement of income data					
Net interest income[1]	3,382	826	837	885	834
Non-interest income[1]	3,784	988	955	869	972
Total revenues	7,166	1,814	1,792	1,754	1,806
Provisions for credit losses	327	73	76	91	87
Non-interest expenses	4,063	1,036	1,011	992	1,024
Income taxes	544	139	136	124	145
Net income	2,232	566	569	547	550
Non-controlling interests	87	16	23	25	23
Net income attributable to the Bank's shareholders	2,145	550	546	522	527
Earnings per common share					
Basic	$ 6.01	$ 1.53	$ 1.54	$ 1.46	$ 1.48
Diluted	5.94	1.52	1.52	1.44	1.46
Dividends (per share)					
Common	$ 2.44	$ 0.62	$ 0.62	$ 0.60	$ 0.60
Preferred					
Series 28	–	–	–	–	–
Series 30	1.0250	0.2562	0.2563	0.2562	0.2563
Series 32	0.9750	0.2437	0.2438	0.2437	0.2438
Series 34	1.4000	0.3500	0.3500	0.3500	0.3500
Series 36	1.3500	0.3375	0.3375	0.3375	0.3375
Series 38	1.1125	0.2781	0.2781	0.2782	0.2781
Series 40	0.9310	0.2875	0.2875	0.3560	–
Series 42	0.5323	0.5323	–	–	–
Return on common shareholders' equity	18.4 %	17.8 %	18.4 %	18.6 %	18.7 %
Total assets		262,471	257,637	256,259	251,065
Long-term financial liabilities[2]		747	753	755	8
Net impaired loans[3] **under IFRS 9**		404	413	382	371
Net impaired loans under IAS 39					
Number of common shares outstanding *(thousands)*					
Average – Basic	339,372	337,508	339,160	339,885	340,950
Average – Diluted	343,240	341,395	343,280	343,900	345,458
End of period		335,071	337,441	339,348	340,390
Per common share					
Book value		$ 34.40	$ 33.91	$ 32.64	$ 31.75
Share price					
High	$ 65.63	65.63	64.29	64.08	65.35
Low	58.69	58.93	61.26	58.69	62.33
Number of employees		23,450	23,029	22,359	21,868
Number of branches in Canada		428	428	428	429

(1) On November 1, 2017, the Bank changed the presentation of certain Consolidated Balance Sheet items; in particular, the *Purchased receivables* item is now reported in *Loans*. As a result of this change, a $204 million amount (2016: $213 million) reported in *Non-interest income* was reclassified to *Net interest income* for the year ended October 31, 2017. This reclassification had no impact on *Net income*.
(2) Subordinated debt.
(3) Given the adoption of IFRS 9, all loans classified in Stage 3 of the expected credit loss model are impaired loans and do not include POCI 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.

				2017					2016
Total	Q4	Q3	Q2	Q1	Total	Q4	Q3	Q2	Q1
3,436	881	887	815	853	3,205	827	823	763	792
3,173	823	788	782	780	2,635	742	734	662	497
6,609	1,704	1,675	1,597	1,633	5,840	1,569	1,557	1,425	1,289
244	70	58	56	60	484	59	45	317	63
3,857	976	971	941	969	3,875	1,159	937	876	903
484	133	128	116	107	225	44	97	22	62
2,024	525	518	484	497	1,256	307	478	210	261
84	19	24	22	19	75	18	18	17	22
1,940	506	494	462	478	1,181	289	460	193	239
$ 5.44	$ 1.40	$ 1.39	$ 1.30	$ 1.35	$ 3.31	$ 0.79	$ 1.32	$ 0.52	$ 0.68
5.38	1.39	1.37	1.28	1.34	3.29	0.78	1.31	0.52	0.67
$ 2.28	$ 0.58	$ 0.58	$ 0.56	$ 0.56	$ 2.18	$ 0.55	$ 0.55	$ 0.54	$ 0.54
0.9500	0.2375	0.2375	0.2375	0.2375	0.9500	0.2375	0.2375	0.2375	0.2375
1.0250	0.2562	0.2563	0.2562	0.2563	1.0250	0.2562	0.2563	0.2562	0.2563
0.9750	0.2437	0.2438	0.2437	0.2438	0.9750	0.2437	0.2437	0.2438	0.2438
1.4000	0.3500	0.3500	0.3500	0.3500	1.1373	0.3500	0.3500	0.4373	–
1.3500	0.3375	0.3375	0.3375	0.3375	0.5733	0.5733	–	–	–
0.4724	0.4724	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–
18.1 %	17.8 %	18.2 %	17.9 %	18.4 %	11.7 %	11.0 %	18.7 %	7.7 %	9.5 %
	245,827	240,072	239,020	234,119		232,206	229,896	220,734	219,301
	9	9	10	1,009		1,012	1,014	1,015	1,021
	206	240	213	226		281	251	300	234
340,809	341,108	341,555	341,107	339,476	337,460	337,882	337,553	337,329	337,074
344,771	345,507	345,353	345,416	343,270	339,895	341,018	340,196	339,530	339,265
	339,592	341,580	341,524	340,810		338,053	336,826	337,418	337,535
	$ 31.51	$ 30.84	$ 29.97	$ 29.51		$ 28.52	$ 28.39	$ 27.75	$ 27.77
$ 62.74	62.74	56.44	58.75	56.60	$ 47.88	47.88	46.65	45.56	44.11
46.83	55.29	51.77	52.94	46.83	35.83	44.14	40.98	35.95	35.83
	21,635	21,526	21,290	21,295		21,770	21,731	20,105	20,114
	429	443	445	448		450	453	453	453

Table 2 – Overview of Results

Year ended October 31 (taxable equivalent basis)[1] (millions of Canadian dollars)	2018	2017	2016	2015	2014
Net interest income[2]	3,526	3,645	3,436	3,240	3,011
Non-interest income[2]	3,885	3,208	2,639	2,817	2,672
Total revenues	7,411	6,853	6,075	6,057	5,683
Non-interest expenses	4,063	3,857	3,875	3,665	3,423
Contribution	3,348	2,996	2,200	2,392	2,260
Provisions for credit losses	327	244	484	228	208
Income before income taxes	3,021	2,752	1,716	2,164	2,052
Income taxes	789	728	460	545	514
Net income	2,232	2,024	1,256	1,619	1,538
Non-controlling interests	87	84	75	70	69
Net income attributable to the Bank's shareholders	2,145	1,940	1,181	1,549	1,469
Average assets	265,762	248,351	235,913	222,929	206,680

(1) See the Financial Reporting Method section on page 10 for additional information on non-GAAP financial measures.
(2) On November 1, 2017, the Bank changed the presentation of certain Consolidated Balance Sheet items; in particular, the *Purchased receivables* item is now reported in *Loans*. As a result of this change, a $204 million amount (2016: $213 million; 2015: $212 million and 2014: $177 million) reported in *Non-interest income* was reclassified to *Net interest income* for the year ended October 31, 2017. This reclassification had no impact on *Net income*.

Table 3 – Changes in Net Interest Income[1]

Year ended October 31 (taxable equivalent basis)[2] (millions of Canadian dollars)	2018	2017	2016	2015	2014
Personal and Commercial					
Net interest income	2,212	2,069	1,955	1,860	1,770
Average assets	100,619	96,433	92,347	86,977	81,516
Average interest-bearing assets	95,344	91,633	87,266	81,430	75,963
Net interest margin[3]	2.32 %	2.26 %	2.24 %	2.28 %	2.33 %
Wealth Management					
Net interest income	510	431	372	323	312
Average assets	12,551	11,652	11,006	10,388	10,400
Financial Markets					
Net interest income	409	772	938	1,001	825
Average assets	100,721	94,991	87,491	86,466	85,427
U.S. Specialty Finance and International					
Net interest income[4]	584	466	284	205	176
Average assets	9,270	7,519	5,319	2,275	771
Other					
Net interest income	(189)	(93)	(113)	(149)	(72)
Average assets	42,601	37,756	39,750	36,823	28,566
Total					
Net interest income[4]	3,526	3,645	3,436	3,240	3,011
Average assets	265,762	248,351	235,913	222,929	206,680

(1) For years prior to 2018, certain amounts have been reclassified.
(2) See the Financial Reporting Method section on page 10 for additional information on non-GAAP financial measures.
(3) Net interest margin is calculated by dividing net interest income by average interest-bearing assets.
(4) On November 1, 2017, the Bank changed the presentation of certain Consolidated Balance Sheet items; in particular, the *Purchased receivables* item is now reported in *Loans*. As a result of this change, a $204 million amount (2016: $213 million; 2015: $212 million and 2014: $177 million) reported in *Non-interest income* was reclassified to *Net interest income* for the year ended October 31, 2017. This reclassification had no impact on *Net income*.

Table 4 – Non-Interest Income

Year ended October 31 (taxable equivalent basis)[1] (millions of Canadian dollars)	2018	2017	2016	2015	2014
Underwriting and advisory fees	388	349	376	387	388
Securities brokerage commissions	195	216	235	273	333
Mutual fund revenues	438	412	364	320	251
Trust service revenues	587	518	453	446	388
Credit fees	126	130	110	112	98
Revenues from acceptances, letters of credit and guarantee	277	231	236	223	217
Card revenues	159	132	119	128	134
Deposit and payment service charges	280	279	258	238	234
Trading revenues (losses)	941	409	154	209	106
Gains (losses) on available-for-sale securities, net		140	70	82	103
Gains (losses) on non-trading securities, net	77				
Insurance revenues, net	121	117	114	107	108
Foreign exchange revenues, other than trading	95	81	81	88	89
Share in the net income of associates and joint ventures	28	35	15	26	44
Other[2]	173	159	54	178	179
	3,885	3,208	2,639	2,817	2,672
Canada	3,589	3,027	2,434	2,737	2,545
International					
United States	108	136	124	72	126
Other	188	45	81	8	1
Non-interest income on a taxable equivalent basis as a % of total revenues on a taxable equivalent basis[1]	52.4 %	46.8 %	43.4 %	46.5 %	47.0 %
Non-interest income on a taxable equivalent basis and excluding specified items as a % of total revenues on a taxable equivalent basis and excluding specified items[1]	52.5 %	46.9 %	45.1 %	45.5 %	46.3 %

(1) See the Financial Reporting Method section on page 10 for additional information on non-GAAP financial measures.
(2) On November 1, 2017, the Bank changed the presentation of certain Consolidated Balance Sheet items; in particular, the *Purchased receivables* item is now reported in *Loans*. As a result of this change, a $204 million amount (2016: $213 million; 2015: $212 million and 2014: $177 million) reported in *Non-interest income* was reclassified to *Net interest income* for the year ended October 31, 2017. This reclassification had no impact on *Net income*.

Table 5 – Trading Activity Revenues[1]

Year ended October 31 (taxable equivalent basis)[2] (millions of Canadian dollars)	2018	2017	2016	2015	2014
Financial markets					
Equities	564	496	438	450	332
Fixed-income	265	294	263	237	207
Commodities and foreign exchange	126	103	116	147	82
	955	893	817	834	621
Other segments	176	97	80	151	122
	1,131	990	897	985	743

(1) Includes net interest income and non-interest income.
(2) See the Financial Reporting Method section on page 10 for additional information on non-GAAP financial measures.

Table 6 – Provisions for Credit Losses[1]

Year ended October 31 (millions of Canadian dollars)	2018	2017	2016	2015	2014
Personal Banking[2]					
Stage 3	156	150	152	162	155
Stages 1 and 2	9	–	–	–	–
	165	150	152	162	155
Commercial Banking					
Stage 3	40	43	73	63	50
Stages 1 and 2[3]	21	(40)	250	–	–
	61	3	323	63	50
Wealth Management					
Stage 3	2	3	5	3	3
Stages 1 and 2	1	–	–	–	–
	3	3	5	3	3
Financial Markets					
Stage 3	–	–	–	–	–
Stages 1 and 2	4	–	–	–	–
	4	–	–	–	–
U.S. Specialty Finance and International					
Stage 3	126	48	4	–	–
Stages 1 and 2	(3)	–	–	–	–
POCI loans	(29)	–	–	–	–
	94	48	4	–	–
Other					
Stage 3	–	–	–	–	–
Stages 1 and 2[4]	–	40	–	–	–
	–	40	–	–	–
Total provisions for credit losses	327	244	484	228	208
Average loans and acceptances	139,887	130,882	122,559	108,740	99,548
Provisions for credit losses on impaired loans[1] as a % of average loans and acceptances	0.23 %	0.19 %	0.19 %	0.21 %	0.21 %
Provisions for credit losses as a % of average loans and acceptances	0.23 %	0.19 %	0.39 %	0.21 %	0.21 %

(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. These impaired loans do not include POCI loans.
(2) Including credit card receivables.
(3) 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. In addition, the fiscal 2016 provisions for credit losses had included a $250 million amount related to the initial recording of this sectoral provision.
(4) 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.

Table 7 – Non-Interest Expenses

Year ended October 31 (millions of Canadian dollars)	2018	2017	2016	2015	2014
Compensation and employee benefits	**2,466**	2,358	2,161	2,160	2,049
Occupancy	**193**	195	195	185	183
Technology	**375**	364	367	352	335
Amortization – Premises and equipment	**43**	41	38	38	39
Amortization – Technology	**245**	204	220	182	178
Communications	**63**	61	67	69	68
Professional fees	**244**	254	276	233	227
Restructuring charge[1]	**–**	–	131	86	–
Advertising and external relations	**91**	87	83	77	80
Stationery	**23**	24	25	24	25
Travel and business development	**37**	35	37	36	34
Security and theft	**26**	26	45	15	43
Capital and payroll taxes	**79**	73	71	69	44
Other	**178**	135	159	139	118
Total	**4,063**	3,857	3,875	3,665	3,423
Canada	**3,750**	3,571	3,601	3,457	3,223
International					
United States	**205**	209	235	192	186
Other	**108**	77	39	16	14
Non-interest expenses as a % of total revenues on a taxable equivalent basis[2]	**54.8 %**	56.3 %	63.8 %	60.5 %	60.2 %
Non-interest expenses as a % of total revenues on a taxable equivalent basis and excluding specified items[2]	**54.6 %**	55.9 %	58.2 %	58.6 %	58.6 %

(1) The 2016 restructuring charge had included $129 million in compensation and employee benefits and $2 million in occupancy expenses, and the 2015 restructuring charge had included $51 million in compensation and employee benefits and $35 million in other charges such as occupancy expenses and professional fees.

(2) See the Financial Reporting Method section on page 10 for additional information on non-GAAP financial measures.

Table 8 – Change in Average Volumes

Year ended October 31 (taxable equivalent basis)[1] (millions of Canadian dollars)	2018		2017[2]		2016[2]		2015[2]		2014[2]	
	Average volume $	Rate %	Average volume $	Rate %	Average volume $	Rate %	Average volume $	Rate %	Average volume $	Rate %
Assets										
Deposits with financial institutions	**16,282**	**1.27**	15,802	0.72	14,079	0.46	11,771	0.26	10,313	0.28
Securities	**78,640**	**1.58**	66,591	1.75	60,784	1.98	57,494	2.25	57,559	2.42
Securities purchased under reverse repurchase agreements and securities borrowed	**17,372**	**1.26**	19,878	1.03	19,038	0.75	25,610	0.79	24,789	0.68
Residential mortgage loans	**51,452**	**2.75**	50,754	2.61	46,213	2.69	41,719	2.85	38,517	3.02
Personal loans	**34,664**	**4.27**	33,048	3.93	32,477	3.84	30,817	3.94	28,714	4.18
Business and government loans	**45,657**	**4.71**	39,994	3.91	34,510	3.20	27,096	3.20	23,498	3.42
Impaired loans, net of allowances	**1,515**	**12.65**	962	19.72	1,368	15.70	1,116	19.14	620	28.91
Interest-bearing assets	**245,582**	**2.81**	227,029	2.58	208,469	2.50	195,623	2.56	184,010	2.68
Other assets	**20,180**		21,322		27,444		27,306		22,670	
Total assets	**265,762**	**2.60**	248,351	2.36	235,913	2.12	222,929	2.15	206,680	2.31
Liabilities and equity										
Personal deposits	**50,499**	**1.12**	48,408	1.01	44,510	1.13	42,480	1.20	43,000	1.31
Deposit-taking institutions	**5,980**	**1.45**	7,567	0.69	12,468	0.39	10,925	0.24	8,685	0.24
Other deposits	**110,697**	**1.62**	98,279	1.20	85,874	1.10	76,063	1.12	63,919	1.22
	167,176	**1.47**	154,254	1.11	142,852	1.04	129,468	1.07	115,604	1.18
Subordinated debt	**564**	**3.20**	423	3.81	1,047	3.16	1,571	3.80	1,906	3.96
Obligations other than deposits	**47,762**	**1.20**	44,204	0.74	38,804	0.31	40,374	0.41	44,230	0.91
Interest-bearing liabilities	**215,502**	**1.57**	198,881	1.11	182,703	0.98	171,413	1.03	161,740	1.19
Other liabilities	**36,314**		36,722		41,627		40,792		35,288	
Equity	**13,946**		12,748		11,583		10,724		9,652	
Liabilities and equity	**265,762**	**1.27**	248,351	0.89	235,913	0.76	222,929	0.79	206,680	0.93
Net interest margin		**1.33**		1.47		1.36		1.36		1.38

(1) See the Financial Reporting Method section on page 10 for additional information on non-GAAP financial measures.
(2) For the years prior to 2018, certain amounts have been reclassified, particularly amounts in *Loans*; *Impaired loans, net of allowances*; and *Deposits*.

Table 9 – Distribution of Gross Loans and Acceptances by Borrower Category Under Basel Asset Classes

As at October 31
(millions of Canadian dollars)

	2018		2017		2016		2015		2014	
	$	%	$	%	$	%	$	%	$	%
Residential mortgage[1][2]	**70,591**	**48.1**	66,398	48.4	58,265	45.2	54,004	46.1	50,011	46.5
Qualifying revolving retail	**4,211**	**2.9**	4,217	3.1	4,178	3.2	4,093	3.6	4,033	3.7
Other retail	**12,246**	**8.3**	12,150	8.9	10,316	8.0	9,512	8.1	9,027	8.4
Agriculture	**5,759**	**3.9**	4,923	3.6	4,599	3.6	4,433	3.8	3,857	3.6
Oil and gas	**2,506**	**1.7**	2,129	1.6	2,102	1.6	3,220	2.7	3,621	3.4
Mining	**1,032**	**0.7**	470	0.3	582	0.5	392	0.3	247	0.2
Utilities	**2,715**	**1.9**	2,347	1.7	1,814	1.4	1,385	1.2	813	0.8
Construction	**2,976**	**2.0**	2,787	2.0	2,419	1.9	2,308	2.0	1,898	1.8
Manufacturing	**5,536**	**3.8**	4,341	3.2	3,597	2.8	3,765	3.2	3,689	3.4
Wholesale trade	**2,163**	**1.5**	2,066	1.5	2,021	1.6	1,908	1.6	2,006	1.9
Retail trade	**3,069**	**2.1**	3,431	2.5	2,911	2.3	2,965	2.5	3,275	3.0
Transportation	**2,770**	**1.9**	2,593	1.9	3,013	2.3	1,956	1.7	1,223	1.1
Communications	**1,597**	**1.1**	1,662	1.2	1,578	1.2	1,254	1.1	1,540	1.4
Finance and insurance	**4,732**	**3.2**	4,932	3.6	3,872	3.0	2,679	2.3	1,482	1.4
Real estate	**9,997**	**6.8**	9,104	6.6	8,310	6.5	8,131	6.9	7,190	6.7
Professional services	**1,582**	**1.1**	1,416	1.0	1,374	1.1	1,214	1.0	1,659	1.5
Education and health care	**2,988**	**2.0**	2,749	2.0	2,623	2.0	2,612	2.2	2,730	2.5
Other services	**4,715**	**3.2**	4,762	3.5	4,647	3.6	4,200	3.6	3,567	3.3
Government	**1,445**	**1.0**	1,452	1.1	1,201	0.9	450	0.4	539	0.5
Other[2]	**2,534**	**1.7**	1,233	0.9	7,537	5.9	5,326	4.5	4,366	4.1
POCI loans	**1,576**	**1.1**	1,990	1.4	1,846	1.4	1,424	1.2	791	0.8
	146,740	**100.0**	137,152	100.0	128,805	100.0	117,231	100.0	107,564	100.0

(1) Includes residential mortgage loans on one- to four-unit dwellings (Basel definition) and home equity lines of credit.
(2) Since November 1, 2016, the loans acquired by the Financial Markets segment for securitization purposes, and reported in the *Other* category, are now being reported in the *Residential mortgage* category. Figures as at October 31, 2016 and from previous years were not adjusted to reflect those modifications.

Table 10 – Impaired Loans[1]

As at October 31
(millions of Canadian dollars)

	2018	2017	2016	2015	2014
Net impaired loans[2]					
Personal	**185**	78	85	92	88
Commercial	**187**	121	190	157	158
Wealth Management	**17**	4	5	5	2
Financial Markets	**–**	–	–	–	–
U.S. Specialty Finance and International	**15**	3	1	–	–
Other	**–**	–	–	–	–
Total net impaired loans	**404**	206	281	254	248
Gross impaired loans	**630**	380	492	457	486
Allowances for credit losses on impaired loans	**226**				
Individual and collective allowances on impaired loans		174	211	203	238
Net impaired loans[2]	**404**	206	281	254	248
Provisioning rate	**35.9 %**	45.8 %	42.9 %	44.4 %	49.0 %
As a % of loans and acceptances	**0.3 %**	0.2 %	0.2 %	0.2 %	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. These impaired loans do not include POCI loans.
(2) Net impaired loans are presented net of allowances for credit losses on Stage 3 loan amounts drawn.

Table 11 – Allowances for Credit Losses[1]

Year ended October 31 (millions of Canadian dollars)	2018	2017	2016	2015	2014
Balance at beginning	735	769	555	605	578
Provisions for credit losses	327	244	484	228	208
Write-offs	(367)	(320)	(282)	(278)	(197)
Disposals	(24)	–	–	–	–
Recoveries	45	13	13	13	15
Exchange and other movements	(2)	(11)	(1)	(13)	1
Balance at end	714	695	769	555	605
Composition of allowances:					
Allowances for credit losses on impaired loans	226	174	211	203	238
Allowances for credit losses on non-impaired loans	498				
Allowances for credit losses on off-balance-sheet commitments and other assets	56				
Allowances for credit losses on POCI loans	(66)	(24)	(12)	(14)	1
Sectoral allowance on non-impaired loans – Oil and gas[2]		139	204	–	–
Collective allowance on non-impaired loans[3]		406	366	366	366

(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. These impaired loans do not include POCI loans.
(2) 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.
(3) 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)	2018		2017[1]		2016[1]		2015[1]		2014[1]	
	$	%	$	%	$	%	$	%	$	%
Personal	55,688	32.6	52,175	33.3	51,163	36.0	47,394	36.3	44,963	37.5
Business and government	110,321	64.6	99,115	63.3	85,263	60.0	76,845	58.9	67,364	56.2
Deposit-taking institutions	4,821	2.8	5,381	3.4	5,640	4.0	6,219	4.8	7,556	6.3
Total	170,830	100.0	156,671	100.0	142,066	100.0	130,458	100.0	119,883	100.0
Canada	156,054	91.4	145,288	92.8	131,869	92.8	116,315	89.2	105,621	88.1
International										
United States	6,048	3.5	5,825	3.7	4,442	3.1	9,655	7.4	12,152	10.1
Other	8,728	5.1	5,558	3.5	5,755	4.1	4,488	3.4	2,110	1.8
Total	170,830	100.0	156,671	100.0	142,066	100.0	130,458	100.0	119,883	100.0
Personal deposits as a % of total assets		21.2		21.2		22.0		21.9		21.9

(1) The Bank changed the classification of certain amounts presented in the *Deposits* item of the Consolidated Balance Sheet. As at October 31, 2017, an amount of $1,544 million ($1,358 million as at October 31, 2016) was reclassified from *Deposits – Personal* to *Deposits – Business and government*. The figures as at October 31, 2015 and 2014 have not been reclassified.

Audited Consolidated Financial Statements

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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 *Regulation 52-109 Respecting Certification of Disclosures 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 were effective as at October 31, 2018 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 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 the 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 on the recommendation of the Board. The auditor has full and unrestricted access to the Audit Committee to discuss audit and financial reporting matters.

Louis Vachon
President and Chief Executive Officer

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

Montreal, Canada, December 4, 2018

Independent Auditor's Report

To the Shareholders of National Bank of Canada,

We have audited the accompanying consolidated financial statements of National Bank of Canada (the Bank), which comprise the consolidated balance sheets as at October 31, 2018 and 2017 and as at November 1, 2017, 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 ended October 31, 2018 and 2017, and a summary of significant accounting policies and other explanatory information.

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

Auditor's Responsibility
Our responsibility is to express an opinion on these consolidated financial statements based on our audits. We conducted our audits in accordance with Canadian generally accepted auditing standards. Those standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the consolidated financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the consolidated financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the consolidated financial statements 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 entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements.

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

Opinion
In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Bank as at October 31, 2018 and 2017 and as at November 1, 2017, and its financial performance and its cash flows for the years ended October 31, 2018 and 2017 in accordance with International Financial Reporting Standards issued by the International Accounting Standards Board.

/s/ Deloitte LLP[1]

Montreal, Canada, December 4, 2018

[1] CPA auditor, CA, public accountancy permit No. A121444

Consolidated Balance Sheets

		As at October 31, 2018[(1)]	As at November 1, 2017[(1)]	As at October 31, 2017
Assets				
Cash and deposits with financial institutions		12,756	8,801	8,802
Securities	Notes 4, 5 and 7			
At fair value through profit or loss		55,817	52,228	47,536
Available-for-sale				8,552
At fair value through other comprehensive income		5,668	6,424	
Held-to-maturity				9,255
At amortized cost		8,298	6,653	
		69,783	65,305	65,343
Securities purchased under reverse repurchase agreements and securities borrowed		18,159	20,789	20,789
Loans	Notes 5 and 8			
Residential mortgage		53,651	51,609	51,634
Personal		37,357	35,590	35,590
Credit card		2,325	2,247	2,247
Business and government		46,606	41,690	41,690
		139,939	131,136	131,161
Customers' liability under acceptances		6,801	5,991	5,991
Allowances for credit losses		(658)	(673)	(695)
		146,082	136,454	136,457
Other				
Derivative financial instruments	Note 17	8,608	8,423	8,423
Investments in associates and joint ventures	Note 10	645	631	631
Premises and equipment	Note 11	601	558	558
Goodwill	Note 12	1,412	1,409	1,409
Intangible assets	Note 12	1,314	1,239	1,239
Other assets	Note 13	3,111	2,226	2,176
		15,691	14,486	14,436
		262,471	245,835	245,827
Liabilities and equity				
Deposits	Notes 5 and 14	170,830	156,787	156,671
Other				
Acceptances		6,801	5,991	5,991
Obligations related to securities sold short		17,780	15,363	15,363
Obligations related to securities sold under repurchase agreements and securities loaned		19,998	21,767	21,767
Derivative financial instruments	Note 17	6,036	6,612	6,612
Liabilities related to transferred receivables	Notes 5 and 9	20,100	20,122	20,098
Other liabilities	Note 15	5,824	5,791	5,758
		76,539	75,646	75,589
Subordinated debt	Note 16	747	9	9
Equity				
Equity attributable to the Bank's shareholders	Notes 19 and 23			
Preferred shares		2,450	2,050	2,050
Common shares		2,822	2,768	2,768
Contributed surplus		57	58	58
Retained earnings		8,472	7,567	7,706
Accumulated other comprehensive income		175	158	168
		13,976	12,601	12,750
Non-controlling interests	Note 20	379	792	808
		14,355	13,393	13,558
		262,471	245,835	245,827

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

(1) The Consolidated Balance Sheets as at October 31, 2018 and as at November 1, 2017 reflect the adoption of IFRS 9 on November 1, 2017. For additional information on IFRS 9 adoption, refer to Notes 1 and 3 to these audited consolidated financial statements. Comparative information has not been restated.

Louis Vachon
President and Chief Executive Officer

Karen Kinsley
Director

Consolidated Statements of Income

Year ended October 31		2018[1]	2017
Interest income			
Loans		5,632	4,715
Securities at fair value through profit or loss		771	598
Available-for-sale securities			227
Securities at fair value through other comprehensive income		152	
Held-to-maturity securities			130
Securities at amortized cost		174	
Deposits with financial institutions		206	114
		6,935	5,784
Interest expense			
Deposits		2,562	1,780
Liabilities related to transferred receivables		414	403
Subordinated debt		18	16
Other		559	149
		3,553	2,348
Net interest income[2]		3,382	3,436
Non-interest income			
Underwriting and advisory fees		388	349
Securities brokerage commissions		195	216
Mutual fund revenues		438	412
Trust service revenues		587	518
Credit fees		403	361
Card revenues		159	132
Deposit and payment service charges		280	279
Trading revenues (losses)	Note 22	840	374
Gains (losses) on available-for-sale securities, net			140
Gains (losses) on non-trading securities, net		77	
Insurance revenues, net		121	117
Foreign exchange revenues, other than trading		95	81
Share in the net income of associates and joint ventures	Note 10	28	35
Other		173	159
		3,784	3,173
Total revenues		7,166	6,609
Provisions for credit losses	Note 8	327	244
		6,839	6,365
Non-interest expenses			
Compensation and employee benefits		2,466	2,358
Occupancy		236	236
Technology		620	568
Communications		63	61
Professional fees		244	254
Other		434	380
		4,063	3,857
Income before income taxes		2,776	2,508
Income taxes	Note 25	544	484
Net income		2,232	2,024
Net income attributable to			
Preferred shareholders		105	85
Common shareholders		2,040	1,855
Bank shareholders		2,145	1,940
Non-controlling interests		87	84
		2,232	2,024
Earnings per share *(dollars)*	Note 26		
Basic		6.01	5.44
Diluted		5.94	5.38
Dividends per common share *(dollars)*	Note 19	2.44	2.28

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

(1) The Consolidated Statement of Income for the year ended October 31, 2018 reflects the adoption of IFRS 9 on November 1, 2017. For additional information on IFRS 9 adoption, refer to Notes 1 and 3 to these audited consolidated financial statements. Comparative information has not been restated.
(2) *Net interest income* includes dividend income. For additional information, see Note 1 to these audited consolidated financial statements.

Consolidated Statements of Comprehensive Income

Year ended October 31	2018[1]	2017
Net income	2,232	2,024
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	41	(64)
Impact of hedging net foreign currency translation gains (losses)	(13)	25
	28	(39)
Net change in available-for-sale securities		
Net unrealized gains (losses) on available-for-sale securities		119
Net (gains) losses on available-for-sale securities reclassified to net income		(131)
		(12)
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	(11)	
Net (gains) losses on debt securities at fair value through other comprehensive income reclassified to net income	(5)	
	(16)	
Net change in cash flow hedges		
Net gains (losses) on derivative financial instruments designated as cash flow hedges	51	33
Net (gains) losses on designated derivative financial instruments reclassified to net income	(46)	(26)
	5	7
Share in the other comprehensive income of associates and joint ventures	1	(10)
Items that will not be subsequently reclassified to net income		
Remeasurements of pension plans and other post-employment benefit plans	103	97
Net gains (losses) on equity securities designated at fair value through other comprehensive income	(2)	
Net fair value change attributable to credit risk on financial liabilities designated at fair value through profit or loss	21	(21)
	122	76
Total other comprehensive income, net of income taxes	140	22
Comprehensive income	2,372	2,046
Comprehensive income attributable to		
Bank shareholders	2,284	1,966
Non-controlling interests	88	80
	2,372	2,046

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

(1) The Consolidated Statement of Comprehensive Income for the year ended October 31, 2018 reflects the adoption of IFRS 9 on November 1, 2017. For additional information on IFRS 9 adoption, refer to Notes 1 and 3 to these audited consolidated financial statements. Comparative information has not been restated.

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	2018[1]	2017
Net foreign currency translation adjustments		
Net unrealized foreign currency translation gains (losses) on investments in foreign operations	1	(2)
Impact of hedging net foreign currency translation gains (losses)	–	1
	1	(1)
Net change in available-for-sale securities		
Net unrealized gains (losses) on available-for-sale securities		46
Net (gains) losses on available-for-sale securities reclassified to net income		(48)
		(2)
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	(4)	
Net (gains) losses on debt securities at fair value through other comprehensive income reclassified to net income	(1)	
	(5)	
Net change in cash flow hedges		
Net gains (losses) on derivative financial instruments designated as cash flow hedges	19	12
Net (gains) losses on designated derivative financial instruments reclassified to net income	(17)	(9)
	2	3
Share in the other comprehensive income of associates and joint ventures	–	(3)
Remeasurements of pension plans and other post-employment benefit plans	37	36
Net gains (losses) on equity securities designated at fair value through other comprehensive income	(1)	
Net fair value change attributable to credit risk on financial liabilities designated at fair value through profit or loss	7	(8)
	41	25

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

(1) The Consolidated Statement of Comprehensive Income for the year ended October 31, 2018 reflects the adoption of IFRS 9 on November 1, 2017. For additional information on IFRS 9 adoption, refer to Notes 1 and 3 to these audited consolidated financial statements. Comparative information has not been restated.

Consolidated Statements of Changes in Equity

Year ended October 31		2018[1]	2017
Preferred shares at beginning	Note 19	2,050	1,650
Issuances of Series 38, 40 and 42 preferred shares		600	400
Redemption of Series 28 preferred shares for cancellation		(200)	–
Preferred shares at end		2,450	2,050
Common shares at beginning	Note 19	2,768	2,645
Issuances of common shares pursuant to the Stock Option Plan		128	179
Repurchases of common shares for cancellation		(64)	(16)
Impact of shares purchased or sold for trading		(10)	(37)
Other		–	(3)
Common shares at end		2,822	2,768
Contributed surplus at beginning		58	73
Stock option expense	Note 23	12	11
Stock options exercised		(15)	(26)
Other		2	–
Contributed surplus at end		57	58
Retained earnings at beginning		7,706	6,706
Impact of adopting IFRS 9 on November 1, 2017		(139)	
Net income attributable to the Bank's shareholders		2,145	1,940
Dividends on preferred shares	Note 19	(105)	(85)
Dividends on common shares	Note 19	(829)	(778)
Premium paid on common shares repurchased for cancellation	Note 19	(403)	(99)
Share issuance expenses, net of income taxes		(12)	(8)
Remeasurements of pension plans and other post-employment benefit plans		103	97
Net gains (losses) on equity securities designated at fair value through other comprehensive income		(2)	
Net fair value change attributable to the credit risk on financial liabilities designated at fair value through profit or loss		21	(21)
Impact of a financial liability resulting from put options written to non-controlling interests		–	(34)
Other		(13)	(12)
Retained earnings at end		8,472	7,706
Accumulated other comprehensive income at beginning		168	218
Impact of adopting IFRS 9 on November 1, 2017		(10)	
Net foreign currency translation adjustments		27	(39)
Net change in unrealized gains (losses) on available-for-sale securities			(12)
Net change in unrealized gains (losses) on debt securities at fair value through other comprehensive income		(16)	
Net change in gains (losses) on cash flow hedges		5	11
Share in the other comprehensive income of associates and joint ventures		1	(10)
Accumulated other comprehensive income at end		175	168
Equity attributable to the Bank's shareholders		13,976	12,750
Non-controlling interests at beginning	Note 20	808	810
Impact of adopting IFRS 9 on November 1, 2017		(16)	
Redemption of trust units issued by NBC Asset Trust		(400)	–
Net income attributable to non-controlling interests		87	84
Other comprehensive income attributable to non-controlling interests		1	(4)
Distributions to non-controlling interests		(101)	(82)
Non-controlling interests at end		379	808
Equity		14,355	13,558

Accumulated Other Comprehensive Income

As at October 31	2018	2017
Accumulated other comprehensive income		
Net foreign currency translation adjustments	14	(13)
Net unrealized gains (losses) on available-for-sale securities		39
Net unrealized gains (losses) on debt securities at fair value through other comprehensive income	13	
Net gains (losses) on instruments designated as cash flow hedges	151	146
Share in the other comprehensive income of associates and joint ventures	(3)	(4)
	175	168

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

(1) The Consolidated Statement of Changes in Equity for the year ended October 31, 2018 reflects the adoption of IFRS 9 on November 1, 2017. For additional information on IFRS 9 adoption, refer to Notes 1 and 3 to these audited consolidated financial statements. Comparative information has not been restated.

Consolidated Statements of Cash Flows

Year ended October 31	2018[1]	2017
Cash flows from operating activities		
Net income	2,232	2,024
Adjustments for		
Provisions for credit losses	327	244
Amortization of premises and equipment and intangible assets	302	351
Gains on disposals of equity interests in joint ventures	(4)	(17)
Deferred taxes	24	(13)
Losses (gains) on sales of available-for-sale securities, net		(140)
Losses (gains) on sales of non-trading securities, net	(77)	
Share in the net income of associates and joint ventures	(28)	(35)
Stock option expense	12	11
Change in operating assets and liabilities		
Securities at fair value through profit or loss	(3,589)	(1,572)
Securities purchased under reverse repurchase agreements and securities borrowed	2,630	(6,841)
Loans and acceptances, net of securitization	(9,160)	(9,138)
Deposits	14,159	14,605
Obligations related to securities sold short	2,417	1,156
Obligations related to securities sold under repurchase agreements and securities loaned	(1,769)	(869)
Derivative financial instruments, net	(761)	880
Interest and dividends receivable and interest payable	53	19
Current tax assets and liabilities	(127)	(73)
Other items	(777)	929
	5,864	1,521
Cash flows from financing activities		
Issuances of preferred shares	600	400
Redemption of preferred shares for cancellation	(200)	–
Issuances of common shares (including the impact of shares purchased for trading)	103	116
Repurchases of common shares for cancellation	(467)	(115)
Issuance of subordinated debt	750	–
Redemption of subordinated debt	–	(1,000)
Redemption of trust units issued by NBC Asset Trust	(400)	–
Share issuance expenses	(12)	(8)
Dividends paid	(918)	(846)
Distributions to non-controlling interests	(101)	(82)
	(645)	(1,535)
Cash flows from investing activities		
Net change in investments in associates and joint ventures	(3)	35
Purchases of securities measured at fair value through other comprehensive income	(5,415)	(4,277)
Maturities of securities measured at fair value through other comprehensive income	25	516
Sales of securities measured at fair value through other comprehensive income	6,039	9,523
Purchases of securities measured at amortized cost	(2,375)	(5,269)
Maturities of securities measured at amortized cost	484	–
Sales of securities measured at amortized cost	134	–
Net change in tangible assets leased under operating leases	69	674
Net change in premises and equipment	(233)	(94)
Net change in intangible assets	(256)	(268)
	(1,531)	840
Impact of currency rate movements on cash and cash equivalents	266	(207)
Increase (decrease) in cash and cash equivalents	3,954	619
Cash and cash equivalents at beginning	8,802	8,183
Cash and cash equivalents at end[2]	12,756	8,802
Supplementary information about cash flows from operating activities		
Interest paid	3,440	2,315
Interest and dividends received	6,875	5,565
Income taxes paid	596	612

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

(1) The Consolidated Statement of Cash Flows for the year ended October 31, 2018 reflects the adoption of IFRS 9 on November 1, 2017. For additional information on IFRS 9 adoption, refer to Notes 1 and 3 to these audited consolidated financial statements. Comparative information has not been restated.

(2) This item is the equivalent of Consolidated Balance Sheet item *Cash and deposits with financial institutions*. It includes an amount of $2.5 billion as at October 31, 2018 ($2.0 billion as at October 31, 2017) for which there are restrictions.

Notes to the Audited Consolidated Financial Statements

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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).

The Bank is an integrated financial group that provides comprehensive financial services to consumers, small- and medium-sized enterprises (SMEs) and large corporations in its national market while also offering specialized services internationally. 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 include banking and investing solutions for individuals and businesses, corporate banking and investment banking services, securities brokerage, insurance and wealth management.

On December 4, 2018, 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, 2018.

Basis of Presentation

The consolidated financial statements of the Bank have been prepared in accordance with section 308(4) of the *Bank Act* (Canada), which states that, except as otherwise specified by OSFI, the financial statements are to be prepared in accordance with the 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.

Unless stated otherwise, the accounting policies described in the Summary of Significant Accounting Policies section have been applied consistently to all periods presented. On November 1, 2017, the Bank adopted IFRS 9 – *Financial Instruments* (IFRS 9). Subsequent to IFRS 9 application, the Bank changed the policies of two key accounting areas, as described in the Accounting Policy Changes section. As permitted by the IFRS 9 transitional provisions, the Bank has elected to not restate the prior period figures, which have been reported using the previous accounting policies.

On November 1, 2017, the Bank changed the presentation of certain items on the Consolidated Balance Sheet and reclassified certain amounts. The former *Personal and credit card* loans item is now presented in two separate items. The *Purchased receivables* item, which had been presented net of allowances for credit losses in an amount of $2,014 million as at October 31, 2017 is now reported in *Residential mortgage* loans ($1,116 million) and in *Personal* loans ($874 million), and the *Allowances for credit losses* item was reduced by $24 million. As a result of this presentation change, for the year ended October 31, 2017, a $204 million amount reported in *Non-interest income – Other* was reclassified to *Interest income – Loans*.

Unless otherwise indicated, all amounts are expressed in Canadian dollars, which is the Bank's functional and presentation currency.

Accounting Policy Changes

On January 9, 2015, OSFI issued a final version of *Early Adoption of IFRS 9 – Financial Instruments for Domestic Systemically Important Banks* and stated therein that it expected Domestic Systemically Important Banks (D-SIBs), a group that includes the Bank, to early adopt IFRS 9 as of November 1, 2017. As permitted by the IASB, the Bank early adopted IFRS 9 on November 1, 2017. IFRS 9 replaces the guidance in IAS 39 – *Financial Instruments: Recognition and Measurement* (IAS 39). It sets out requirements for the classification and measurement of financial assets and financial liabilities, for the impairment of financial assets, and for general hedge accounting. As a result of IFRS 9, consequential amendments were made to IFRS 7 – *Financial Instruments: Disclosures*, requiring additional qualitative and quantitative disclosures that were adopted at the same time as IFRS 9.

As permitted by IFRS 9, the Bank did not restate comparative period financial statements. The Bank applied IFRS 9 on a retrospective basis. Adjustments to the carrying amounts of financial assets and liabilities at the date of initial application have been accounted for in the opening balances of *Retained earnings*, *Accumulated other comprehensive income* and *Non-controlling interests* as at November 1, 2017. Note 3 to these consolidated financial statements presents the impacts of IFRS 9 adoption on the Bank's Consolidated Balance Sheet as at November 1, 2017.

The adoption of IFRS 9 on November 1, 2017 gave rise to accounting policy changes in two key areas: classification and measurement as well as impairment. These new policies have been applied since November 1, 2017. As permitted by IFRS 9, the Bank had adopted the own credit risk provisions of IFRS 9 effective February 1, 2016. The Bank has elected, as permitted under IFRS 9, to continue applying the hedge accounting requirements of IAS 39. The accounting policy changes arising from IFRS 9 adoption on November 1, 2017 are described hereafter.

Classification and Measurement

IFRS 9 provides a single model for financial asset classification and measurement that is based on both the business model for managing financial assets and the contractual cash flow characteristics of the financial assets. These factors determine whether the financial assets are measured at amortized cost, fair value through other comprehensive income, or fair value through profit or loss.

The following summarizes the key changes resulting from IFRS 9 adoption:

- The "held-to-maturity" and "available-for-sale" financial asset categories were removed.
- A new "measured at amortized cost" financial asset category was introduced. It applies to debt instruments whose contractual cash flow characteristics are solely payments of principal and interest and that are held in a business model whose objective is to hold assets to collect contractual cash flows.
- A new "measured at fair value through other comprehensive income" financial asset category was introduced. It applies to debt instruments whose contractual cash flow characteristics are solely payments of principal and interest and that are held in a business model whose objective is achieved both by collecting contractual cash flows and selling financial assets.
- A new financial asset category for non-trading equity investments measured at fair value through other comprehensive income was introduced.

The classification and measurement of financial liabilities remain essentially unchanged under IFRS 9, except for financial liabilities designated as measured at fair value through profit or loss. Once the fair value election is made, changes in fair value attributable to changes in an entity's own credit risk must be recognized in *Other comprehensive income* rather than in net income. On February 1, 2016, the Bank early adopted, on a prospective basis, the own credit risk provisions of IFRS 9.

Impairment

IFRS 9 introduces a new, single impairment model for financial assets that requires the recognition of expected credit losses (ECL) rather than the incurred credit losses applied under IAS 39. Under IAS 39, impairment losses were recognized if, and only if, there was objective evidence of impairment as a result of one or more loss events that had occurred after initial recognition of the asset and that loss event had a detrimental impact on the estimated future cash flows of the asset that could be reliably estimated. If there was no objective evidence of impairment for an individual financial asset, that financial asset was included in a group of assets with similar credit risk characteristics and collectively assessed for impairment losses incurred but not yet identified. Under IFRS 9, ECLs are recognized in profit or loss before a loss event has occurred.

Under IAS 39, incurred credit losses were measured by incorporating reasonable and supportable information about past events and current conditions. Under IFRS 9, the ECL model, which is forward-looking, also requires that forecasts of future events and economic conditions be used when determining significant increases in credit risk and when measuring expected losses. Forward-looking macroeconomic factors such as unemployment rates, housing price indices, interest rates, and gross domestic product (GDP) are incorporated into the risk parameters. Estimating forward-looking information requires significant judgment.

Note 1 – Basis of Presentation and Summary of Significant Accounting Policies (cont.)

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 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, consolidation of structured entities and classification of debt instruments under IFRS 9. Descriptions of these judgments and estimates are provided in each of the related notes to the consolidated financial statements. Actual results could differ from these estimates, in which case the impact is 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.

Basis of Consolidation

Subsidiaries

The consolidated financial statements include all of the assets, liabilities, operating results and cash flows of the Bank and its subsidiaries, after elimination of intercompany transactions and balances. The 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, many factors are taken into account, 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 there are changes to one or more of the three conditions of control.

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 of third parties in the Bank's subsidiaries and are presented in total *Equity,* separately from *Equity attributable to the Bank's shareholders.* The non-controlling interests' proportionate share in the net income and other comprehensive income of the Bank's subsidiaries are presented in total net income and total 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*.

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 over an entity when there's a contractually agreed sharing of control of an entity that 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 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.

Foreign Currencies

The consolidated financial statements are presented in Canadian dollars, which is the Bank's functional and presentation currency. Each entity in the group determines its own functional currency, and the items reported in the financial statements of each entity are measured using that currency.

Monetary assets and liabilities denominated in foreign currencies are translated into the functional currency using the rates in effect on the date of the Consolidated Balance Sheet. Translation gains and losses are recognized in *Non-interest income* in the Consolidated Statement of Income. Revenues and expenses denominated in foreign currencies are translated at the average exchange rates for the period. Non-monetary assets and liabilities are translated into the functional currency at historical rates. Non-monetary items denominated in foreign currencies measured at fair value are translated using the exchange rates in effect on the date fair value is determined, and the translation gains or losses are recognized in the Consolidated Statement of Income. Under IAS 39, translation gains or losses on non-monetary items classified as available for sale are recognized in *Other comprehensive income.* Under IFRS 9, translation gains or losses on equity securities designated at fair value through other comprehensive income are also recognized in *Other comprehensive income*. Under IAS 39, upon disposal or due to impairment of a non-monetary item classified as available for sale, the deferred translation gains or losses are reclassified, in whole or in part, from *Accumulated other comprehensive income* to *Non-interest income* of the Consolidated Statement of Income. Under IFRS 9, deferred translation gains or losses on equity securities designated at fair value through other comprehensive income are not 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 using the rates in effect on 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 using the rates in effect on the Consolidated Balance Sheet date. Gains and losses on translating the financial statements of foreign operations, along with related hedge and tax effects, are presented in *Other comprehensive income.* Upon disposal of a foreign operation, the deferred cumulative amount recognized in *Accumulated other comprehensive income* relating to that particular operation is reclassified to *Non-interest income* of the Consolidated Statement of Income.

Classification and Measurement of Financial Instruments for the Year Ended October 31, 2018

The Bank applied the IFRS 9 classification and measurement requirements applicable to financial instruments for the year ended October 31, 2018. The 2017 comparative period has not been restated, and the IAS 39 requirements have been applied.

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 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. 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.

Note 1 – Basis of Presentation and Summary of Significant Accounting Policies (cont.)

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 offset the amounts recognized 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 the measurement or recognition mismatch of measuring financial assets or liabilities on a different basis, 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

It is permitted to irrevocably designate, at initial recognition, an investment in an equity instrument that is neither held for trading nor a contingent consideration recognized in a business combination 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.

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 the 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, and any transaction costs are recognized directly in the Consolidated Statement of Income. Interest income 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 cash consideration is paid by the Bank.

Note 1 – Basis of Presentation and Summary of Significant Accounting Policies (cont.)

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.

Classification and Measurement of Financial Instruments for the Year Ended October 31, 2017
The Bank applied the IFRS 9 classification and measurement requirements applicable to financial instruments for the year ended October 31, 2018. The 2017 comparative period has not been restated, and the IAS 39 requirements have been applied.

In accordance with the accounting framework for financial instruments, all financial assets and liabilities must be classified based on their characteristics, management's intention, or choice of category in certain circumstances. When initially recognized, all financial assets are classified as at fair value through profit or loss, held to maturity, available for sale, or loans and receivables, while financial liabilities are classified as at fair value through profit or loss or as financial liabilities at amortized cost. Certain debt securities that are not quoted in an active market may be classified as loans and receivables, and impairment is determined using the same model as for loans. Loans and receivables that the Bank intends to sell immediately or in the near term must be classified as at fair value through profit or loss, whereas loans and receivables for which the Bank may not recover substantially all of its initial investment, for reasons other than credit deterioration, must be classified as available for sale.

When initially recognized, all financial assets and liabilities are recorded at fair value on the Consolidated Balance Sheet. In subsequent periods, they are measured at fair value, except for items classified in the following categories, which are measured at amortized cost using the effective interest rate method: financial assets held to maturity, loans and receivables, and financial liabilities at amortized cost.

Financial Instruments Designated at Fair Value Through Profit or Loss
A financial asset or liability may be irrevocably designated at fair value through profit or loss when it is initially recognized. 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. 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 offset the amounts recognized 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 income and expenses arising from these financial instruments designated at fair value through profit or loss are 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 the measurement or recognition mismatch of measuring financial assets or liabilities on a different basis, 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.

Securities at Fair Value Through Profit or Loss

Securities at fair value through profit or loss are generally purchased for sale in the near term or are part of portfolios of identified financial instruments that are managed together and for which there is evidence of a recent actual pattern of short-term profit-taking. The Bank accounts for 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 included in *Non-interest income* in the Consolidated Statement of Income.

Securities at fair value through profit or loss are recognized at fair value, and transaction fees are recognized directly in the Consolidated Statement of Income. Interest income as well as realized and unrealized gains and losses on such securities are recorded in *Non-interest income* in the Consolidated Statement of Income. Dividend income is recorded in *Interest income* in the Consolidated Statement of Income.

Available-for-Sale Securities

Securities that are neither classified as at fair value through profit or loss nor as held to maturity nor in the loans and receivables category are classified as available-for-sale securities. The Bank accounts for available-for-sale securities transactions on the trade date, and the related transaction costs are capitalized.

Available-for-sale securities are recognized at fair value. Unrealized gains and losses are recognized, net of impairment losses and income taxes, provided they are not hedged by derivative financial instruments in a fair value hedging relationship, in *Other comprehensive income.* When the securities are sold, the realized gains or losses, determined on an average cost basis, are reclassified to *Non-interest income* in the Consolidated Statement of Income on the transaction date.

The amortization of premiums and discounts, calculated using the effective interest rate method, as well as dividend and interest income, are recognized in *Interest income* in the Consolidated Statement of Income.

Held-to-Maturity Securities

Held-to-maturity securities are financial assets with fixed or determinable payments and a fixed maturity that the Bank intends and is able to hold until maturity. The Bank accounts for held-to-maturity securities transactions on the trade date, and the related transaction costs are capitalized. These securities are initially recognized at fair value. In subsequent periods, they are recognized at amortized cost using the effective interest rate method, less any impairment loss measured using the same impairment model used for loans. Interest income and the amortization of premiums and discounts on these securities are recognized in *Net 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. 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, including transaction costs directly attributable to the granting of the loans, other than loans classified or designated as measured at fair value through profit or loss, are presented on the Consolidated Balance Sheet at amortized cost using the effective interest rate method. Loans classified or designated as measured at fair value through profit or loss are recognized at fair value.

Purchased Receivables

On the acquisition date, purchased receivables are measured at fair value, which incorporates incurred and expected credit losses estimated on the acquisition date and the interest rate differential between the contractual interest rate of the receivable and the current market rates for the remaining term. As a result, no allowances for credit losses are recorded on the Consolidated Balance Sheet on the acquisition date. Discounts related to incurred credit losses are not amortized.

Purchased performing receivables are subsequently accounted for at amortized cost based on their contractual cash flows, and any discount or premium is considered an adjustment to the loan yield and is amortized over the expected life of the receivable using the effective interest rate method and recorded in the Consolidated Statement of Income.

Note 1 – Basis of Presentation and Summary of Significant Accounting Policies (cont.)

When receivables are acquired with objective evidence of incurred credit loss, where the timely collection of contractual principal and interest is not reasonably assured, these receivables are subsequently accounted for at amortized cost based on the present value of expected future cash flows discounted at the initial effective interest rate. At the end of each reporting period, the Bank re-evaluates the expected future cash flows and adjusts the carrying amount of the receivables to reflect the revised expected future cash flows discounted at the initial effective interest rate. This adjustment is immediately recorded in the Consolidated Statement of Income.

Reclassification of Financial Instruments
A financial asset, other than a derivative financial instrument or a financial asset that, upon initial recognition, was designated as measured at fair value through profit or loss, may be reclassified out of the fair value through profit or loss category in rare circumstances if the financial asset is no longer held for the purpose of selling it in the near term. The financial asset must be reclassified at its fair value on the date of reclassification, and this fair value becomes its new amortized cost, as applicable. No gain or loss previously recognized in the Consolidated Statement of Income may be reversed.

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 take into account in 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.

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.

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 derivatives.

Impairment of Financial Assets for the Year Ended October 31, 2018
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.

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, at 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, at 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. The 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 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. The cash shortfall is the difference between all contractual cash flows owed to the Bank and all the 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 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 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: when a notice of bankruptcy is received, a settlement proposal is made, or contractual payments are 180 days past due.

Note 1 – Basis of Presentation and Summary of Significant Accounting Policies (cont.)

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 Financial Assets for the Year Ended October 31, 2017
At the end of each reporting period, the Bank determines whether there is objective evidence of impairment of a financial asset or group of financial assets. There is objective evidence of impairment when one or more loss events occur after the initial recognition of the asset and prior to or on the balance sheet date and these events adversely affect the estimated future cash flows of the financial assets in question. Management must exercise judgment to determine whether certain events or circumstances constitute objective evidence of impairment and to estimate the timing of future cash flows.

Available-for-Sale Securities
Available-for-sale securities are reviewed for objective evidence of impairment at the end of each reporting period. The Bank considers all available objective evidence of impairment, including observable data about loss events such as: a significant financial difficulty of the issuer, a breach of contract such as a default, and situations involving bankruptcy or other financial reorganization. In addition to these loss events, objective evidence of impairment for an equity security also includes information about significant changes with an adverse effect that have taken place in the technological, market, economic, or legal environment in which the issuer operates, and indicates that the cost of the investment in the equity security may not be recovered. For equity securities, a significant or prolonged decline in fair value below cost is also considered objective evidence of impairment.

If there is objective evidence of impairment, any amount previously recognized in *Accumulated other comprehensive income* is reclassified to *Non-interest income* in the Consolidated Statement of Income. This amount is determined as the difference between the acquisition cost (net of any capital repayments and amortization) and the current fair value of the asset less any impairment loss on that investment previously recognized in the Consolidated Statement of Income.

Once an impairment loss has been recognized for an available-for-sale security, the subsequent accounting treatment differs depending on whether the instrument is a debt or equity security.

- For an available-for-sale debt security, a subsequent decrease in fair value is accounted for in *Non-interest income* in the Consolidated Statement of Income when there is further objective evidence of impairment as a result of further decreases in the estimated future cash flows of the debt security. Impairment losses recognized in income related to an available-for-sale debt security must be reversed in the Consolidated Statement of Income when, in a subsequent period, the fair value of the security increases and the increase can be objectively associated with an event occurring after the loss was recognized.
- For an available-for-sale equity security, subsequent decreases in fair value are accounted for in the Consolidated Statement of Income. Recognized impairment losses are not reversed through the Consolidated Statement of Income. All subsequent increases in fair value are accounted for in *Other comprehensive income* in the Consolidated Statement of Comprehensive Income.

Impaired Loans
A loan, except credit card receivables, is considered impaired if there is objective evidence of impairment and, in management's best estimate, the timely collection of principal and interest is no longer reasonably assured, or when a payment is contractually 90 days past due, unless the loan is fully secured and collection efforts are reasonably expected to result in repayment of the debt within 180 days. For credit card receivables, they are written off when payment is 180 days in arrears. Loans that are insured or fully guaranteed by a Canadian government (federal or provincial) or by a Canadian government agency are considered impaired when more than 365 days in arrears.

When a counterparty to a loan fails to make the payment when contractually due, that loan is considered past due but not impaired.

When a loan is deemed impaired, interest recognition ceases and the carrying amount of the loan is reduced to its estimated realizable amount by writing off all or part of the loan or by taking an allowance for credit losses. The impairment loss is calculated by comparing the present value of expected future cash flows, discounted at the initial effective interest rate of the loan, to its current carrying amount including accrued interest. The losses are recorded in *Provisions for credit losses* in the Consolidated Statement of Income.

A loan is returned to performing status when the timely collection of future interest and principal is reasonably assured and when all principal and interest payments in arrears have been collected.

A loan 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.

Situations where a retail, commercial or government borrower begin showing clear signs of potential insolvency are managed on a case-by-case basis and require the use of judgment. In these situations, the Bank may grant a concession to the borrower regarding the original terms and conditions of the loan, for example by reducing the rate, granting a forgiveness of principal or extending the term despite the Bank's credit policies. Once the terms of the loan have been renegotiated and agreed upon with the borrower, the loan is considered a restructured loan. As of the restructuring date, the current carrying amount of the loan, including accrued interest, is reduced to the present value of expected cash flows under the modified terms, discounted at the original effective interest rate of the loan. The reduction in the carrying value is recorded in *Provisions for credit losses* in the Consolidated Statement of Income.

Allowances for Credit Losses

Allowances for credit losses are management's best estimate of losses in its credit portfolio as at the balance sheet date. They relate primarily to loans but may also cover the credit risk associated with deposits with financial institutions, loan substitute securities, credit instruments such as acceptances, and off-balance-sheet items such as commitments to extend credit, letters of guarantee and letters of credit.

Changes in allowances for credit losses attributable to the passage of time are recorded in *Interest income* in the Consolidated Statement of Income, whereas changes attributable to a revision of expected payments are recorded in *Provisions for credit losses* in the Consolidated Statement of Income.

If, in a subsequent period, the amount of the impairment loss decreases and the decrease can be related objectively to an event occurring after the allowances were recognized, the previously recognized impairment loss is reversed directly in *Provisions for credit losses* in the Consolidated Statement of Income.

The allowances for credit losses on impaired loans are calculated on a loan-by-loan basis and assessed either individually or collectively based on the portfolio's historical net loss experience. The allowance for credit losses on non-impaired loans is assessed collectively.

Allowances on Impaired Loans

Impairment allowances are recorded for all individually identified impaired loans to reduce their carrying amount to the estimated realizable amount. For each impaired loan, the Bank records an individual allowance, when the credit loss assessment is based on a detailed analysis of the borrower's file, or a collective allowance, when the credit loss assessment is based on the portfolio's historical net loss experience.

For all individually significant impaired loans, namely business and government loans, and for certain impaired loans that are not individually significant, namely residential mortgages, the Bank records an individual allowance since the credit loss assessment is based on a detailed analysis of the borrower's file. For all other impaired loans that are not individually significant but have been individually identified as impaired, the Bank records for each such loan a collective allowance based on historical net loss experience.

Allowances on Non-Impaired Loans

When the credit risk of a portfolio of loans that have similar credit risk characteristics increases significantly, such as a group of loans of a specific industry, but the loans have yet to be individually identified as impaired, a sectoral allowance is established collectively for the entire loan portfolio. The sectoral allowance is determined using an approach similar to the collective allowance measurement on non-impaired loans, i.e., an approach based on expected default and loss factors determined by statistical analysis of historical loss data by loan type, and on an analysis of the industry-specific market factors such as market liquidity, credit spreads, and risk factor levels.

All loans that have not been individually identified as impaired, and that are not covered by a sectoral allowance, are grouped according to their credit risk characteristics for the purpose of calculating a collective allowance on non-impaired loans. The collective allowance on non-impaired loans includes two components for credit risk: the allocated collective allowance and the unallocated collective allowance.

The allocated collective allowance for the business and government loan portfolio is based on expected default and loss factors determined by statistical analysis of historical loss data, delineated by loan type, to which is added an amount that takes into account the discovery period and migration risk. For personal loans, the allocated collective allowance is calculated based on specific parameters by product, and no discovery period is calculated. Losses are determined by the application of loss ratios established through statistical analysis of historical loss data.

The unallocated collective allowance reflects management's assessment of probable portfolio losses that have not been captured by the allocated collective allowance. This assessment takes into account general economic and business conditions, recent credit loss data, and credit quality and concentration trends when the collective allowance is determined at the Consolidated Balance Sheet date. This allowance also reflects model and estimation risks. The unallocated collective allowance does not represent future losses or serve as a substitute for the allocated collective allowance.

The sectoral allowance and collective allowance on non-impaired loans are collectively established and reflect the impairment losses that the Bank has incurred as a result of events that have occurred but where the individual loss has not been identified.

Note 1 – Basis of Presentation and Summary of Significant Accounting Policies (cont.)

Purchased Receivables

On the acquisition date, purchased receivables are measured at fair value, which incorporates incurred and expected credit losses estimated on the acquisition date and the interest rate differential between the receivable's contractual interest rate and the current market rates for the remaining term. As a result, no allowances for credit losses are recorded on the Consolidated Balance Sheet on the acquisition date. Discounts related to incurred credit losses are not amortized.

Purchased performing receivables are subsequently accounted for at amortized cost based on their contractual cash flows, and any discount or premium is considered an adjustment to the loan yield and is amortized over the expected life of the receivable using the effective interest rate method and recorded in the Consolidated Statement of Income.

When receivables are acquired with objective evidence of incurred credit loss, where the timely collection of contractual principal and interest is not reasonably assured, these receivables are subsequently accounted for at amortized cost based on the present value of expected future cash flows discounted at the initial effective interest rate. At the end of each reporting period, the Bank re-evaluates the expected future cash flows and adjusts the carrying amount of the receivables to reflect the revised expected future cash flows discounted at the initial effective interest rate. This adjustment is immediately recorded in the Consolidated Statement of Income.

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 of 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 of 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 of 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 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. 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.

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 recorded 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.

Embedded Derivative Financial Instruments

An embedded derivative is a component of a hybrid contract that also includes a non-derivative host contract, which causes some of the cash flows of the combined instrument to vary in a way similar to a standalone derivative. The 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 that, in the case of a non-financial variable, the variable is not specific to one of the parties to the contract.

Embedded derivatives are bifurcated and accounted for separately 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, and the hybrid contract is not measured at fair value through profit or loss. For the year ended October 31, 2018, these conditions continue to apply to hybrid contracts that contain a host contract that is not a financial asset within the scope of IFRS 9. Where a hybrid contract contains a host contract that is a financial asset within the scope of IFRS 9, the entire hybrid contract, including all embedded features, is measured for classification under IFRS 9.

Embedded derivatives that must be bifurcated and separately accounted for are recorded at fair value on the Consolidated Balance Sheet. Realized and unrealized gains and losses 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 bifurcated from the host contract are presented in *Derivative financial instruments* on the Consolidated Balance Sheet.

Held-for-Trading Derivative Financial Instruments

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.

Derivative Financial Instruments Designated as Hedging Instruments

Policy

As permitted by IFRS 9, the Bank elected to continue applying the hedge accounting requirements of IAS 39, which are described hereafter.

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.

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 to the effective portion of gains and losses attributable to the hedged risk are immediately recorded in the Consolidated Statement of Income.

Note 1 – Basis of Presentation and Summary of Significant Accounting Policies (cont.)

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.

Premises and Equipment
Premises and equipment, except for land, are recognized at cost less accumulated amortization and accumulated impairment losses. Land is recorded at cost net of any impairment losses.

Premises and equipment and the significant components of a building that have different useful lives or that provide economic benefits at a different pace are systematically amortized over their useful lives. Amortization methods and useful lives are reviewed on an annual basis. The amortization expense is recorded in *Non-interest expenses* in the Consolidated Statement of Income.

	Methods	Useful life
Significant components of a building		
Exterior design	Straight-line	20 years
Interior design, roofing and electromechanical system	Straight-line	30 years
Structure	Straight-line	75 years
Other buildings	5% declining balance	
Computer equipment	Straight-line	3-4 years
Other equipment and furniture	Straight-line	1-8 years
Leasehold improvements	Straight-line	(1)

(1) The average amortization period is 15 years, determined using the lesser of the useful life or the lease term plus the first renewal option.

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 identifiable net assets of the acquiree. If the fair value of identifiable net assets exceeds the purchase consideration and all previously held interests, the difference is immediately recognized 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 the 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 combination.

Intangible Assets

Intangible Assets With Finite Useful Lives

Software and certain other intangible assets are recognized at cost net of 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 events 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 yet 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 from 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 is compared with the carrying amount of this CGU or group of CGUs.

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, as 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.

Leases

A lease is an agreement whereby the lessor conveys to the lessee the right to use an asset for an agreed period of time in return for a payment or series of payments. A finance lease is a lease that transfers substantially all the risks and rewards incidental to ownership of the leased asset to the lessee. Title may or may not eventually be transferred. An operating lease is a lease other than a finance lease. The Bank primarily enters into operating leases.

When the Bank is the lessee under an operating lease, the rental expense is recognized on a straight-line basis over the lease term in *Non-interest expenses* in the Consolidated Statement of Income. When the Bank is the lessor, the lease 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.

Note 1 – Basis of Presentation and Summary of Significant Accounting Policies (cont.)

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. The provisions are reviewed at the end of each reporting period. Provisions are presented in *Other liabilities* on the Consolidated Balance Sheet.

Revenue Recognition
The Bank's revenues are recognized in the Consolidated Statement of Income as they are earned.

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 rate method.

Under IFRS 9, 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 the expected cash flows by considering all the contractual terms of the financial instrument but does not consider the 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 the 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.

Under IAS 39, the effective interest rate is the rate that discounts estimated future cash inflows and outflows through the expected life of the financial instrument (or, when appropriate, a shorter period) to the net carrying amount of the instrument. When calculating the effective interest rate, the Bank estimates cash flows considering all contractual terms of the financial instrument but without considering future credit losses and also includes all fees paid or received related to the contract that are an integral part of the effective interest rate, transaction costs, and all other premiums or discounts.

Commission Revenues
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 rate 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.

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 were 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 of 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.

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 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 will 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 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 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 the 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.

Moreover, the Bank is subject to the jurisdiction 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 an adjustment to the provision needs to be recognized at a future date 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 the 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, under IFRS 9, 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 income recognized. Under IAS 39, the Bank must measure financial guarantee contracts at the higher of the amount needed to settle the financial obligation under the guarantee and the amount initially recognized less, where applicable, the cumulative amount of income recognized. This revenue is recognized in *Credit fees* in the Consolidated Statement of Income.

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 other post-employment benefit plans include post-employment medical, dental and life insurance coverage. While pension plans are funded, the other plans are not.

Note 1 – Basis of Presentation and Summary of Significant Accounting Policies (cont.)

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.

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 common shares for 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. This is based on the total shareholder return (TSR) achieved by the Bank compared to that of the S&P/TSX Banks adjusted sub-index.

The Bank's contributions to the employee share ownership plan are expensed as incurred.

Note 2 – Future Accounting Policy Changes

The IASB issues revisions and amendments to a number of standards, some of which have already had an impact on the Bank and others that could have an impact in the future. The Bank is currently assessing the impact that adoption of the following standards will have on its consolidated financial statements. A summary of these amendments and the effective dates applicable to the Bank are presented below.

Effective Date – November 1, 2018
IFRS 15 – *Revenue From Contracts With Customers*
In May 2014, the IASB issued IFRS 15, which replaces the current revenue recognition standards and interpretations. In July 2015, the IASB unanimously confirmed its proposal to defer the IFRS 15 effective date to fiscal years beginning on or after January 1, 2018, which is November 1, 2018 for the Bank. In April 2016, the IASB issued amendments to IFRS 15, providing clarifications on, among other topics, the elements to be considered when determining whether an entity is a principal or agent.

IFRS 15 provides a single comprehensive model to use when accounting for revenue from contracts with customers. The new model applies to all contracts with customers except those that fall within the scope of other IFRS standards such as leases, insurance contracts, and financial instruments. As a result, the majority of the Bank's revenues, including net interest income, will not be affected. According to the core principle of IFRS 15, the method used to recognize revenue from contracts with customers should reflect the moment when the promised goods or services are transferred and reflect the amount of consideration the entity expects to receive in exchange for those goods or services. Consequently, the entity recognizes revenue for a performance obligation as it is satisfied, that is, when control of the goods or services underlying the performance obligation is transferred to the customer.

Transition Impact
For the Bank, the transition to IFRS 15 will not have a significant impact on when revenue from contracts with customers is recognized. However, the presentation of certain revenues and certain non-interest expenses in the Consolidated Statement of Income will change, as gross amounts will have to be presented. At this time, certain revenues are presented net of certain non-interest expenses. This presentation change will not have a significant impact on the Bank. Upon transition, IFRS 15 permits entities to either restate prior periods or to apply the standard on a modified retrospective basis. The Bank has chosen to apply the standard using the modified retrospective basis, recognizing the cumulative effect of initially applying the standard as an adjustment to the opening balance of *Retained earnings* as at November 1, 2018, without restating comparative periods. This adjustment to the opening balance of *Retained earnings* as at November 1, 2018 will not be significant.

Effective Date – November 1, 2019
IFRS 16 – *Leases*
In January 2016, the IASB issued IFRS 16 – *Leases*. The new standard requires lessees to recognize most leases on the balance sheet using a single model, thereby eliminating the distinction between operating and finance leases. Lessor accounting, however, remains similar to current accounting practice, and the distinction between operating and finance leases is retained. Early application is permitted if IFRS 15 – *Revenue From Contracts With Customers* is also applied.

IFRIC Interpretation 23 – *Uncertainty Over Income Tax Treatments*
In June 2017, the IASB issued IFRIC Interpretation 23, which addresses how to reflect tax treatment uncertainty in accounting for income taxes.

Effective Date – November 1, 2020
On March 29, 2018, the IASB issued the revised *Conceptual Framework for Financial Reporting* to replace its 2010 conceptual framework. For the IASB, the revised conceptual framework has been in effect since its publication date. Early application is permitted.

Effective Date – November 1, 2021
IFRS 17 – *Insurance Contracts*
In May 2017, the IASB issued IFRS 17 – *Insurance Contracts*, 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. At its meeting on November 14, 2018, the IASB tentatively decided to defer the IFRS 17 effective date to fiscal years beginning on or after January, 1, 2022.

Note 3 – Impacts of IFRS 9 Adoption

The IFRS 9 classification and measurement requirements as well as the impairment requirements have been applied retrospectively through adjustments to Consolidated Balance Sheet amounts on the date of initial application, i.e., November 1, 2017, with no restatement of comparative periods. The impacts of IFRS 9 adoption were recognized through adjustments to *Retained earnings*, *Accumulated other comprehensive income,* and *Non-controlling interests* on November 1, 2017.

The following information presents the Consolidated Balance Sheet impacts as at November 1, 2017.

Note 3 – Impacts of IFRS 9 Adoption (cont.)

Classifications and Measurements of Financial Instruments at the Date of Initial Application of IFRS 9

The following table presents the classifications and carrying amounts of the Bank's financial assets and financial liabilities, as previously established in accordance with IAS 39 as at October 31, 2017, as well as the new classifications and new carrying amounts established in accordance with IFRS 9 as at November 1, 2017, where applicable. With respect to financial instruments for which the measurement method has changed, additional information is provided hereafter. Refer to the letter indicated in the reference column.

	As at October 31, 2017	As at November 1, 2017			
	Carrying value under IAS 39	Carrying value under IFRS 9	Classification under IAS 39	Classification under IFRS 9	Reference
Financial assets					
Cash and deposits with financial institutions	8,802	8,801	Loans and receivables	At amortized cost	
Securities					
Debt and equity securities	46,780	46,780	At fair value through profit or loss	At fair value through profit or loss	
Debt securities	56	56	Designated at fair value through profit or loss under fair value option	Designated at fair value through profit or loss under fair value option	
Equity securities	45	45	Designated at fair value through profit or loss under fair value option	At fair value through profit or loss	(a)
Debt securities	655	655	Designated at fair value through profit or loss under fair value option	At fair value through other comprehensive income	(b)
	5,489	5,489	Available-for-sale	At fair value through other comprehensive income	
	32	25	Available-for-sale	At amortized cost	(c)
	2,359	2,359	Available-for-sale	Designated at fair value through profit or loss under fair value option	(d)
Equity securities	280	280	Available-for-sale	Designated at fair value through other comprehensive income with no subsequent reclassification of gains and losses to net income	(e)
	392	392	Available-for-sale	At fair value through profit or loss	(f)
Debt securities	6,628	6,628	Held-to-maturity	At amortized cost	
	2,627	2,596	Held-to-maturity	Designated at fair value through profit or loss under fair value option	(g)
	65,343	65,305			
Securities purchased under reverse repurchase agreements and securities borrowed	20,132	20,132	Loans and receivables	At amortized cost	
	657	657	Designated at fair value through profit or loss under fair value option	Designated at fair value through profit or loss under fair value option	
	20,789	20,789			
Loans					
Residential mortgage	45,658	45,658	Loans and receivables	At amortized cost	
	5,523	5,523	At fair value through profit or loss	At fair value through profit or loss	
	453	428	Loans and receivables	At fair value through profit or loss	(h)
Personal	35,590	35,590	Loans and receivables	At amortized cost	
Credit card	2,247	2,247	Loans and receivables	At amortized cost	
Business and government	41,269	41,269	Loans and receivables	At amortized cost	
	306	306	Loans and receivables	At fair value through profit or loss	(h)
	115	115	Designated at fair value through profit or loss under fair value option	At fair value through profit or loss	(i)
Customers' liability under acceptances	5,991	5,991	Loans and receivables	At amortized cost	
	137,152	137,127			
Derivative financial instruments	8,423	8,423	At fair value through profit or loss	At fair value through profit or loss	
Other assets	994	994	Loans and receivables	At amortized cost	

	As at October 31, 2017	As at November 1, 2017			
	Carrying value under IAS 39	**Carrying value under IFRS 9**	Classification under IAS 39	**Classification under IFRS 9**	Reference
Financial liabilities					
Deposits	148,169	**148,169**	At amortized cost	**At amortized cost**	
	3,001	**3,117**	At amortized cost	**Designated at fair value through profit or loss under fair value option**	(j)
	5,501	**5,501**	Designated at fair value through profit or loss under fair value option	**Designated at fair value through profit or loss under fair value option**	
	156,671	**156,787**			
Acceptances	5,991	**5,991**	At amortized cost	**At amortized cost**	
Obligations related to securities sold short	15,363	**15,363**	At fair value through profit or loss	**At fair value through profit or loss**	
Obligations related to securities sold under repurchase agreements and securities loaned	21,233	**21,233**	At amortized cost	**At amortized cost**	
	534	**534**	Designated at fair value through profit or loss under fair value option	**Designated at fair value through profit or loss under fair value option**	
	21,767	**21,767**			
Derivative financial instruments	6,612	**6,612**	At fair value through profit or loss	**At fair value through profit or loss**	
Liabilities related to transferred receivables	11,568	**11,568**	At amortized cost	**At amortized cost**	
	2,321	**2,345**	At amortized cost	**Designated at fair value through profit or loss under fair value option**	(j)
	6,209	**6,209**	Designated at fair value through profit or loss under fair value option	**Designated at fair value through profit or loss under fair value option**	
	20,098	**20,122**			
Other liabilities	2,902	**2,902**	At amortized cost	**At amortized cost**	
	15	**15**	At fair value through profit or loss	**At fair value through profit or loss**	
Subordinated debt	9	**9**	At amortized cost	**At amortized cost**	

(a) As at October 31, 2017, these equity securities were designated at fair value through profit or loss under the fair value option. On November 1, 2017, these equity securities were classified as at fair value through profit or loss since, under IFRS 9, all investments in equity instruments, other than those designated at fair value through other comprehensive income with no subsequent reclassification of gains and losses to net income, must be classified as at fair value through profit or loss.

(b) As at October 31, 2017, these debt securities were designated at fair value through profit or loss under the fair value option. On November 1, 2017, as permitted by the IFRS 9 transitional provisions, the Bank decided to revoke this designation and classified these securities as at fair value through other comprehensive income since (1) the financial assets are held within a business model whose objective is achieved by both collecting contractual cash flows and selling financial assets and (2) the contractual terms of these debt securities give rise to cash flows that are solely payments of principal and interest on the principal amount outstanding.

(c) As at October 31, 2017, these debt securities were classified as available for sale. They were being recognized at fair value with changes in fair value being recorded in *Other comprehensive income*. On November 1, 2017, under IFRS 9, the Bank reclassified these debt securities as at amortized cost, since (1) the financial assets are held within a business model whose objective is achieved by collecting contractual cash flows and (2) the contractual terms of these debt securities give rise to cash flows that are solely payments of principal and interest on the principal amount outstanding.

(d) As at October 31, 2017, these debt securities were classified as available for sale. They were being recognized at fair value with changes in fair value being recorded in *Other comprehensive income*. On November 1, 2017, and as permitted by the IFRS 9 transitional provisions, the Bank made an irrevocable election to designate these debt securities at fair value through profit or loss under the fair value option.

(e) As at October 31, 2017, these equity securities were classified as available for sale. They were being recognized at fair value with changes in fair value being recorded in *Other comprehensive income.* On November 1, 2017, and as permitted by the IFRS 9 transitional provisions, the Bank made an irrevocable election to designate these equity securities held in non-trading portfolios at fair value through other comprehensive income with no subsequent reclassification of gains and losses to net income.

(f) As at October 31, 2017, these equity securities were classified as available for sale. They were being recognized at fair value with changes in fair value being recorded in *Other comprehensive income*. On November 1, 2017, these equity securities were classified as at fair value through profit or loss, since, under IFRS 9, all investments in equity instruments, other than those designated at fair value through other comprehensive income with no subsequent reclassification of gains and losses to net income, must be classified as at fair value through profit or loss.

(g) As at October 31, 2017, these debt securities were classified as held to maturity and accounted for at amortized cost. On November 1, 2017, and as permitted by the IFRS 9 transitional provisions, the Bank made an irrevocable election to designate certain debt securities at fair value through profit or loss under the fair value option.

(h) As at October 31, 2017, these loans were classified as loans and receivables and accounted for at amortized cost. On November 1, 2017, under IFRS 9, these loans had to be classified as at fair value through profit or loss, since the contractual terms of these financial assets give rise to cash flows that are not solely payments of principal and interest on the principal amount outstanding.

(i) As at October 31, 2017, these loans were designated at fair value through profit or loss, since IAS 39 had allowed for the full amount of a hybrid financial instrument containing one or more embedded derivatives that would be bifurcated and accounted for separately to be irrevocably designated at fair value through profit or loss under the fair value option. On November 1, 2017, the Bank revoked this designation. Under IFRS 9, the full amount of such hybrid financial instruments is classified as at fair value through profit or loss, since the contractual terms of these financial assets give rise to cash flows that are not solely payments of principal and interest on the principal amount outstanding.

(j) As at October 31, 2017, these financial liabilities were accounted for at amortized cost. On November 1, 2017, and as permitted by the IFRS 9 transitional provisions, the Bank made an irrevocable election to designate certain deposits and certain liabilities related to transferred receivables at fair value through profit or loss under the fair value option.

Note 3 – Impacts of IFRS 9 Adoption (cont.)

The following table presents a reconciliation of the financial asset and liability carrying values established in accordance with IAS 39 as at October 31, 2017 with the new carrying values established in accordance with IFRS 9 as at November 1, 2017 (where applicable) as well as the impact of IFRS 9 adoption on income tax assets and liabilities.

Reconciliation of New Carrying Values Under IFRS 9 as at November 1, 2017

	IFRS 9 adjustments			Reconciliation of new carrying values under IFRS 9
	Classification	Measurement	Impairment	
Cash and deposits with financial institutions				
Under IAS 39 as at October 31, 2017				8,802
Allowances for credit losses	–	–	(1)	(1)
Under IFRS 9 as at November 1, 2017	**–**	**–**	**(1)**	**8,801**
Securities at fair value through profit or loss				
Under IAS 39 as at October 31, 2017				47,536
Reclassification into:				
Debt securities at fair value through other comprehensive income	(655)	–	–	(655)
Reclassification from:				
Available-for-sale debt securities	2,359	–	–	2,359
Available-for-sale equity securities	392	–	–	392
Held-to-maturity debt securities	2,627	(31)	–	2,596
Under IFRS 9 as at November 1, 2017	**4,723**	**(31)**	**–**	**52,228**
Available-for-sale securities				
Under IAS 39 as at October 31, 2017				8,552
Reclassification into:				
Equity securities designated at fair value through other comprehensive income with no subsequent reclassification of gains and losses to net income	(280)	–	–	(280)
Equity securities at fair value through profit or loss	(392)	–	–	(392)
Debt securities designated at fair value through profit or loss under fair value option	(2,359)	–	–	(2,359)
Debt securities at amortized cost	(32)	–	–	(32)
Debt securities at fair value through other comprehensive income	(5,489)	–	–	(5,489)
Under IFRS 9 as at November 1, 2017	**(8,552)**	**–**	**–**	**–**
Securities at fair value through other comprehensive income				
Under IAS 39 as at October 31, 2017				–
Reclassification from:				
Available-for-sale debt securities	5,489	–	–	5,489
Available-for-sale equity securities	280	–	–	280
Debt securities designated at fair value through profit or loss under fair value option	655	–	–	655
Under IFRS 9 as at November 1, 2017	**6,424**	**–**	**–**	**6,424**
Held-to-maturity securities				
Under IAS 39 as at October 31, 2017				9,255
Reclassification into:				
Debt securities designated at fair value through profit or loss under fair value option	(2,627)	–	–	(2,627)
Debt securities at amortized cost	(6,628)	–	–	(6,628)
Under IFRS 9 as at November 1, 2017	**(9,255)**	**–**	**–**	**–**
Securities at amortized cost				
Under IAS 39 as at October 31, 2017				–
Reclassification from:				
Available-for-sale debt securities	32	(4)	(3)	25
Held-to-maturity debt securities	6,628	–	–	6,628
Under IFRS 9 as at November 1, 2017	**6,660**	**(4)**	**(3)**	**6,653**

Reconciliation of New Carrying Values Under IFRS 9 as at November 1, 2017 (cont.)

	IFRS 9 adjustments			Reconciliation of new carrying values under IFRS 9
	Classification	Measurement	Impairment	
Residential mortgage loans				
Under IAS 39 as at October 31, 2017				51,634
Adjustments related to classification and measurement	–	(25)	–	(25)
Under IFRS 9 as at November 1, 2017	**–**	**(25)**	**–**	**51,609**
Allowances for credit losses				
Under IAS 39 as at October 31, 2017				(695)
Impairment adjustments related to loans at amortized cost	–	–	22	22
Under IFRS 9 as at November 1, 2017	**–**	**–**	**22**	**(673)**
Other assets				
As at October 31, 2017				2,176
Tax assets — Adjustments related to measurement and impairment	–	56	(6)	50
As at November 1, 2017	**–**	**56**	**(6)**	**2,226**
Deposits				
Under IAS 39 as at October 31, 2017				156,671
Designated at fair value through profit or loss under fair value option	–	116	–	116
Under IFRS 9 as at November 1, 2017	**–**	**116**	**–**	**156,787**
Liabilities related to transferred receivables				
Under IAS 39 as at October 31, 2017				20,098
Designated at fair value through profit or loss under fair value option	–	24	–	24
Under IFRS 9 as at November 1, 2017	**–**	**24**	**–**	**20,122**
Other liabilities				
As at October 31, 2017				5,758
Allowances for credit losses — Off-balance-sheet commitments	–	–	58	58
Tax liabilities — Adjustments related to impairment	–	–	(25)	(25)
As at November 1, 2017	**–**	**–**	**33**	**5,791**
Impact of IFRS 9 adjustments on equity as at November 1, 2017	**–**	**(144)**	**(21)**	

The following table presents a reconciliation of the *Retained earnings*, *Accumulated other comprehensive income* and *Non-controlling interests* amounts established in accordance with IAS 39 as at October 31, 2017 with those established in accordance with IFRS 9 as at November 1, 2017.

	Retained earnings	Accumulated other comprehensive income	Non-controlling interests	**Impact on equity as at November 1, 2017**
Under IAS 39 as at October 31, 2017	7,706	168	808	
Adjustments related to measurement, net of income taxes	(131)	(10)	(3)	**(144)**
Adjustments related to impairment, net of income taxes	(8)	–	(13)	**(21)**
Impact of IFRS 9 adjustments	(139)	(10)	(16)	**(165)**
Under IFRS 9 as at November 1, 2017	**7,567**	**158**	**792**	

Note 3 – Impacts of IFRS 9 Adoption (cont.)

On November 1, 2017, the Bank classified certain debt securities that were being recognized at fair value through other comprehensive income as at October 31, 2017 as measured at amortized cost. As at October 31, 2018, the fair value of these debt securities was $7 million, and the change in fair value that would have been recognized in *Other comprehensive income* for the year ended October 31, 2018 would have been negligible.

On November 1, 2017, the Bank classified certain debt securities that were being recognized at fair value through profit or loss under the fair value option as at October 31, 2017 as measured at fair value through other comprehensive income. During the year ended October 31, 2018, the Bank sold all of those debt securities.

The following table presents a reconciliation of the *Allowances for credit losses* amounts established in accordance with IAS 39 as at October 31, 2017 with those established in accordance with IFRS 9 as at November 1, 2017.

	Allowances for credit losses under IAS 39 as at October 31, 2017[1]	Classification adjustments	Impairment remeasurement adjustments	**Allowances for credit losses under IFRS 9 as at November 1, 2017**
Cash and deposits with financial institutions	–	–	1	**1**
Securities				
At fair value through other comprehensive income	–	–	–	**–**
At amortized cost	–	3	–	**3**
Securities purchased under reverse repurchase agreements and securities borrowed	–	–	–	**–**
Loans				
Residential mortgage	11	–	7	**18**
Personal	142	–	119	**261**
Credit card	92	–	36	**128**
Business and government	439	–	(189)	**250**
Customers' liability under acceptances	11	–	5	**16**
	695	–	(22)	**673**
Other assets	–	–	–	**–**
Other liabilities[2]	–	–	58	**58**
	695	3	37	**735**

(1) On November 1, 2017, the Bank changed the presentation of certain Consolidated Balance Sheet items and reclassified certain amounts. As at October 31, 2017, the *Purchased receivables* item had been presented net of allowances for credit losses. This item is now reported in *Loans* and in *Allowances for credit losses* on the Consolidated Balance Sheet. As a result, the *Allowances for credit losses* item as at October 31, 2017 was reduced by $24 million.

(2) Impairment remeasurement adjustments include an amount of $58 million in allowances for credit losses recorded for off-balance-sheet commitments such as letters of guarantee and documentary letters of credit, undrawn commitments, and backstop liquidity and credit enhancement facilities. As at October 31, 2017, these allowances had been reported in *Allowances for credit losses*.

Note 4 – 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, 2018
	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	–	–	–	–	12,756	12,756	12,756	12,756
Securities	51,927	3,890	5,317	351	8,298	8,237	69,783	69,722
Securities purchased under reverse repurchase agreements and securities borrowed	–	479	–	–	17,680	17,680	18,159	18,159
Loans and acceptances, net of allowances	6,108	–	–	–	139,974	139,551	146,082	145,659
Other								
Derivative financial instruments	8,608	–	–	–	–	–	8,608	8,608
Other assets	–	–	–	–	1,804	1,804	1,804	1,804
Financial liabilities								
Deposits	–	10,126			160,704 (1)	160,938	170,830	171,064
Other								
Acceptances	–	–			6,801	6,801	6,801	6,801
Obligations related to securities sold short	17,780	–			–	–	17,780	17,780
Obligations related to securities sold under repurchase agreements and securities loaned	–	–			19,998	19,998	19,998	19,998
Derivative financial instruments	6,036	–			–	–	6,036	6,036
Liabilities related to transferred receivables	–	7,714			12,386	12,361	20,100	20,075
Other liabilities	21	–			3,163	3,152	3,184	3,173
Subordinated debt	–	–			747	734	747	734

(1) Includes embedded derivative financial instruments.

Note 4 – Fair Value of Financial Instruments (cont.)

As at October 31, 2017

	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	Available-for-sale financial instruments measured at fair value	Financial instruments at amortized cost	Financial instruments at amortized cost	Total carrying value	Total fair value
Financial assets							
Cash and deposits with financial institutions	–	–	–	8,802	8,802	8,802	8,802
Securities	46,780	756	8,552	9,255	9,229	65,343	65,317
Securities purchased under reverse repurchase agreements and securities borrowed	–	657	–	20,132	20,132	20,789	20,789
Loans and acceptances, net of allowances[1]	5,523	115	–	130,819	130,958	136,457	136,596
Other							
Derivative financial instruments	8,423	–	–	–	–	8,423	8,423
Other assets	–	–	–	994	994	994	994
Financial liabilities							
Deposits	–	5,501		151,170 [2]	151,571	156,671	157,072
Other							
Acceptances	–	–		5,991	5,991	5,991	5,991
Obligations related to securities sold short	15,363	–		–	–	15,363	15,363
Obligations related to securities sold under repurchase agreements and securities loaned	–	534		21,233	21,233	21,767	21,767
Derivative financial instruments	6,612	–		–	–	6,612	6,612
Liabilities related to transferred receivables	–	6,209		13,889	13,940	20,098	20,149
Other liabilities	15	–		2,902	2,904	2,917	2,919
Subordinated debt	–	–		9	6	9	6

(1) The *Purchased receivables* amount of $2,014 million, which was presented separately on the Consolidated Balance Sheet as at October 31, 2017, is now reported in *Loans and acceptances, net of allowances*.
(2) 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, 2018 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 classification policies to determine the hierarchy, 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 based on 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 on the basis of internal estimates and data that consider the valuation policies in effect at the Bank, economic conditions, the specific characteristics of the financial asset or liability and other relevant factors.

Securities Issued or Guaranteed by Governments

Securities issued or guaranteed 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 4 – 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 the quoted price in an active market, i.e., bid prices for financial assets or offered prices for financial liabilities.

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.

Debit Valuation Adjustment (DVA)

The DVA reflects the Bank's own credit risk in the valuation of derivative financial instruments. The DVA is based on the expected negative exposure and probabilities of default of the Bank over 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 market implied spreads of the Bank are used in the calculation of the DVA.

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 and DVA 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 specific characteristics of 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 DVA, which reflects the Bank's own credit risk. In calculating DVA, 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

IFRS establishes a fair value 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 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 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 2018, $324 million in securities classified as at fair value through profit or loss and $33 million in obligations related to securities sold short were transferred from Level 2 to Level 1 resulting from changing market conditions ($358 million in securities classified as at fair value through profit or loss and $17 million in obligations related to securities sold short in fiscal 2017). In addition, during fiscal 2018, $37 million in securities classified as at fair value through profit or loss and $3 million in obligations related to securities sold short were transferred from Level 1 to Level 2 (for fiscal 2017, $103 million in securities classified as at fair value through profit or loss and $53 million in obligations related to securities sold short).

During fiscal years 2018 and 2017, financial instruments were transferred to (or from) Level 3 due to changes in the availability of observable market inputs resulting from changing market conditions.

Note 4 – 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, 2018
	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	5,469	9,130	–	14,599
Canadian provincial and municipal governments	–	10,628	–	10,628
U.S. Treasury, other U.S. agencies and other foreign governments	314	249	–	563
Other debt securities	–	3,391	25	3,416
Equity securities	25,928	395	288	26,611
	31,711	23,793	313	55,817
At fair value through other comprehensive income				
Securities issued or guaranteed by				
Canadian government	265	2,320	–	2,585
Canadian provincial and municipal governments	–	2,184	–	2,184
U.S. Treasury, other U.S. agencies and other foreign governments	123	–	–	123
Other debt securities	–	425	–	425
Equity securities	–	118	233	351
	388	5,047	233	5,668
Securities purchased under reverse repurchase agreements and securities borrowed	–	479	–	479
Loans	–	5,722	386	6,108
Other				
Derivative financial instruments	97	8,491	20	8,608
	32,196	43,532	952	76,680
Financial liabilities				
Deposits	–	10,210	11	10,221
Other				
Obligations related to securities sold short	12,524	5,256	–	17,780
Derivative financial instruments	211	5,798	27	6,036
Liabilities related to transferred receivables	–	7,714	–	7,714
Other liabilities	–	21	–	21
	12,735	28,999	38	41,772

				As at October 31, 2017
	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	2,506	6,156	–	8,662
Canadian provincial and municipal governments	–	7,770	–	7,770
U.S. Treasury, other U.S. agencies and other foreign governments	1,916	212	–	2,128
Other debt securities	–	2,599	–	2,599
Equity securities	25,751	610	16	26,377
	30,173	17,347	16	47,536
Available-for-sale				
Securities issued or guaranteed by				
Canadian government	66	4,215	–	4,281
Canadian provincial and municipal governments	–	2,584	–	2,584
U.S. Treasury, other U.S. agencies and other foreign governments	519	2	–	521
Other debt securities	–	494	–	494
Equity securities	109	237	326	672
	694	7,532	326	8,552
Securities purchased under reverse repurchase agreements and securities borrowed	–	657	–	657
Loans	–	5,638	–	5,638
Other				
Derivative financial instruments	68	8,284	71	8,423
	30,935	39,458	413	70,806
Financial liabilities				
Deposits	–	5,708	1	5,709
Other				
Obligations related to securities sold short	10,515	4,848	–	15,363
Obligations related to securities sold under repurchase agreements	–	534	–	534
Derivative financial instruments	118	6,443	51	6,612
Liabilities related to transferred receivables	–	6,209	–	6,209
Other liabilities	–	15	–	15
	10,633	23,757	52	34,442

Note 4 – 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, 2018

	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	546	Net asset value	Net asset value	100 %	100 %
		Market comparable	EV/EBITDA[1] multiple	11 x	16 x
		Discounted cash flows	Credit spread	460 Bps[2]	690 Bps[2]
Loans					
Loans at fair value through profit or loss	386	Discounted cash flows	Discount rate	5.81 %	8.92 %
		Discounted cash flows	Liquidity premium	2.68 %	5.80 %
Other					
Derivative financial instruments					
Equity contracts	20	Option pricing model	Long-term volatility	7 %	21 %
	952				
Financial liabilities					
Deposits					
Structured deposit notes	11	Option pricing model	Long-term volatility	3 %	52 %
			Market correlation	(36) %	82 %
Other					
Derivative financial instruments					
Interest rate contracts	2	Discounted cash flows	Discount rate	2.20 %	2.20 %
Equity contracts	25	Option pricing model	Long-term volatility	7 %	70 %
			Market correlation	(34) %	83 %
	38				

As at October 31, 2017

	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	342	Net asset value	Net asset value	100 %	100 %
		Market comparable	EV/EBITDA[1] multiple	11 x	14 x
		Discounted cash flows	Credit spread	455 Bps[2]	705 Bps[2]
Other					
Derivative financial instruments					
Interest rate contracts	1	Discounted cash flows	Discount rate	2.20 %	2.20 %
Equity contracts	70	Option pricing model	Long-term volatility	7 %	23 %
			Market correlation	(42) %	(42) %
	413				
Financial liabilities					
Deposits					
Structured deposit notes	1	Option pricing model	Long-term volatility	8 %	39 %
			Market correlation	(37) %	83 %
Other					
Derivative financial instruments					
Interest rate contracts	1	Discounted cash flows	Discount rate	2.20 %	2.20 %
Equity contracts	50	Option pricing model	Long-term volatility	8 %	41 %
			Market correlation	(42) %	83 %
	52				

(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%.

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 the 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.

Discount Rate

When discounted cash flow methods are used, 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.

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 $70 million increase or decrease in the fair value recorded as at October 31, 2018 (a $40 million increase or decrease as at October 31, 2017).

For the loans, the Bank varies unobservable inputs such as a liquidity premium and establishes a reasonable fair value range that could result in a $43 million increase or decrease in the fair value recorded as at October 31, 2018. As at October 31, 2017, there were no sensitivity analyses as no loans had been classified in Level 3.

For derivative financial instruments and embedded derivatives related to structured deposit notes, the Bank varies long-term volatility and market correlation inputs and establishes a reasonable fair value range. As at October 31, 2018, for derivative financial instruments, the net fair value could result in a $5 million increase or decrease ($3 million increase or decrease as at October 31, 2017), whereas for structured deposit notes, the fair value could result in a $1 million increase or decrease ($1 million increase or decrease as at October 31, 2017).

Note 4 – 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, 2018				
	Securities at fair value through profit or loss	Securities at fair value through other comprehensive income	Loans	Derivative financial instruments[1]	Deposits
Fair value as at November 1, 2017	184	158	428	20	(1)
Total realized and unrealized gains (losses) included in *Net income*[2]	29	–	16	–	–
Total realized and unrealized gains (losses) included in *Other comprehensive income*	–	–	–	–	–
Purchases	117	75	–	–	–
Sales	(21)	–	–	–	–
Issuances	–	–	8	–	(8)
Settlements and other	–	–	(66)	(8)	–
Financial instruments transferred into Level 3	4	–	–	(1)	(3)
Financial instruments transferred out of Level 3	–	–	–	(18)	1
Fair value as at October 31, 2018	313	233	386	(7)	(11)
Change in unrealized gains and losses included in *Net income* with respect to financial assets and financial liabilities held as at October 31, 2018[3]	7	–	16	–	–

	Year ended October 31, 2017			
	Securities at fair value through profit or loss	Available-for-sale securities	Derivative financial instruments[1]	Deposits
Fair value as at October 31, 2016	18	305	15	(7)
Total realized and unrealized gains (losses) included in *Net income*[4]	2	24	(9)	–
Total realized and unrealized gains (losses) included in *Other comprehensive income*	–	(28)	–	–
Purchases	4	85	–	–
Sales	(10)	(57)	–	–
Issuances	–	–	–	(10)
Settlements and other	–	(3)	18	1
Financial instruments transferred into Level 3	2	–	–	(1)
Financial instruments transferred out of Level 3	–	–	(4)	16
Fair value as at October 31, 2017	16	326	20	(1)
Change in unrealized gains and losses included in *Net income* with respect to financial assets and financial liabilities held as at October 31, 2017[5]	1	–	(9)	–

(1) The derivative financial instruments include assets and liabilities presented on a net basis.
(2) Total gains (losses) included in *Non-interest income* was a gain of $45 million.
(3) Total unrealized gains (losses) included in *Non-interest income* was a gain of $23 million.
(4) Total gains (losses) included in *Non-interest income* was a gain of $17 million.
(5) Total unrealized gains (losses) included in *Non-interest income* was a loss of $8 million.

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, 2018
	Level 1	Level 2	Level 3	Total
Financial assets				
Securities at amortized cost				
Securities issued or guaranteed by				
Canadian government	–	4,914	–	4,914
Canadian provincial and municipal governments	–	1,667	–	1,667
U.S. Treasury, other U.S. agencies and other foreign governments	–	21	–	21
Other debt securities	–	1,635	–	1,635
	–	8,237	–	8,237
Loans, net of allowances	–	56,938	75,812	132,750
Financial liabilities				
Deposits	–	160,938	–	160,938
Other				
Liabilities related to transferred receivables	–	12,361	–	12,361
Other liabilities	–	899	–	899
Subordinated debt	–	734	–	734
	–	174,932	–	174,932

				As at October 31, 2017
	Level 1	Level 2	Level 3	Total
Financial assets				
Held-to-maturity securities				
Securities issued or guaranteed by				
Canadian government	–	5,368	–	5,368
Canadian provincial and municipal governments	–	2,086	–	2,086
U.S. Treasury, other U.S. agencies and other foreign governments	–	20	–	20
Other debt securities	–	1,755	–	1,755
	–	9,229	–	9,229
Loans, net of allowances	–	50,665	72,288	122,953
Financial liabilities				
Deposits	–	151,571	–	151,571
Other				
Liabilities related to transferred receivables	–	13,940	–	13,940
Other liabilities	–	947	–	947
Subordinated debt	–	6	–	6
	–	166,464	–	166,464

Note 5 – 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, certain securities purchased under reverse repurchase agreements, certain obligations related to securities sold under repurchase agreements, 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. There is no exposure to credit risk on the loans to the extent that they are fully collateralized. 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, 2018	**Unrealized gains (losses) for the year ended October 31, 2018**	**Unrealized gains (losses) since the initial recognition of the instrument**
Financial assets designated at fair value through profit or loss			
Securities	3,890	(55)	(92)
Securities purchased under reverse repurchase agreements	479	–	–
	4,369	(55)	(92)
Financial liabilities designated at fair value through profit or loss			
Deposits[(1)(2)]	10,126	518	551
Liabilities related to transferred receivables	7,714	172	87
	17,840	690	638

	Carrying value as at October 31, 2017	Unrealized gains (losses) for the year ended October 31, 2017	Unrealized gains (losses) since the initial recognition of the instrument
Financial assets designated at fair value through profit or loss			
Securities	756	(4)	16
Securities purchased under reverse repurchase agreements	657	–	–
Loans	115	(11)	(32)
	1,528	(15)	(16)
Financial liabilities designated at fair value through profit or loss			
Deposits[(1)(2)]	5,501	(113)	34
Securities sold under repurchase agreements	534	–	–
Liabilities related to transferred receivables	6,209	158	(52)
	12,244	45	(18)

(1) For the year ended October 31, 2018, 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 $28 million gain (net loss of $29 million for the year ended October 31, 2017).
(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.

Note 6 – 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 since they confer 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, 2018		
				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)]	Net amounts
Financial assets						
Securities purchased under reverse repurchase agreements and securities borrowed	18,446	287	18,159	3,156	14,943	60
Derivative financial instruments	10,923	2,315	8,608	3,151	3,748	1,709
	29,369	2,602	26,767	6,307	18,691	1,769
Financial liabilities						
Obligations related to securities sold under repurchase agreements and securities loaned	20,285	287	19,998	3,156	16,752	90
Derivative financial instruments	8,351	2,315	6,036	3,151	1,381	1,504
	28,636	2,602	26,034	6,307	18,133	1,594

				As at October 31, 2017		
				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)]	Net amounts
Financial assets						
Securities purchased under reverse repurchase agreements and securities borrowed	24,939	4,150	20,789	3,304	17,403	82
Derivative financial instruments	9,848	1,425	8,423	3,931	2,688	1,804
	34,787	5,575	29,212	7,235	20,091	1,886
Financial liabilities						
Obligations related to securities sold under repurchase agreements and securities loaned	25,917	4,150	21,767	3,304	18,385	78
Derivative financial instruments	8,037	1,425	6,612	3,931	1,187	1,494
	33,954	5,575	28,379	7,235	19,572	1,572

(1) Carrying amount of financial instruments that are subject to a master netting agreement or similar agreement but that do not satisfy offsetting criteria.
(2) Excluding non-financial instruments collateral.

Note 7 – Securities

Residual Contractual Maturities of Securities

As at October 31					2018	2017
	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	3,781	9,172	1,646	–	14,599	8,662
Canadian provincial and municipal governments	2,571	5,220	2,837	–	10,628	7,770
U.S. Treasury, other U.S. agencies and other foreign governments	278	200	85	–	563	2,128
Other debt securities	973	1,543	875	25	3,416	2,599
Equity securities	22	30	1	26,558	26,611	26,377
	7,625	16,165	5,444	26,583	55,817	47,536
Securities at fair value through other comprehensive income (Available-for-sale securities as at October 31, 2017)						
Securities issued or guaranteed by						
Canadian government	88	1,916	581	–	2,585	4,281
Canadian provincial and municipal governments	–	466	1,718	–	2,184	2,584
U.S. Treasury, other U.S. agencies and other foreign governments	119	–	4	–	123	521
Other debt securities	86	140	199	–	425	494
Equity securities	34	84	–	233	351	672
	327	2,606	2,502	233	5,668	8,552
Securities at amortized cost[(1)] (Held-to-maturity securities as at October 31, 2017)						
Securities issued or guaranteed by						
Canadian government	83	4,863	6	–	4,952	5,391
Canadian provincial and municipal governments	5	1,239	436	–	1,680	2,092
U.S. Treasury, other U.S. agencies and other foreign governments	–	20	1	–	21	20
Other debt securities	661	854	130	–	1,645	1,752
	749	6,976	573	–	8,298	9,255

(1) Securities at amortized cost are presented net of $1 million in allowances for credit losses.

Credit Quality

As at October 31, 2018, securities at fair value through other comprehensive income and securities at amortized cost are classified in Stage 1, with their credit quality falling mainly 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 8 to these consolidated financial statements.

Gross Gains (Losses) on Securities at Fair Value Through Other Comprehensive Income

				As at October 31, 2018
	Amortized cost	Gross unrealized gains	Gross unrealized losses	Carrying value[(1)]
Securities issued or guaranteed by				
Canadian government	2,624	1	(40)	2,585
Canadian provincial and municipal governments	2,196	22	(34)	2,184
U.S. Treasury, other U.S. agencies and other foreign governments	123	–	–	123
Other debt securities	434	1	(10)	425
Equity securities	356	–	(5)	351
	5,733	24	(89)	5,668

(1) The allowances for credit losses on securities at fair value through other comprehensive income, representing a negligible amount as at October 31, 2018, are reported in *Other comprehensive income*. For additional information, see Note 8 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, 2018, an amount of $17 million in dividend income was recognized for these investments, including a negligible amount for investments that were sold during the year ended October 31, 2018.

	Year ended October 31, 2018		
	Equity securities of private companies	Equity securities of public companies	Total
Fair value as at November 1, 2017	158	122	280
Change in fair value	–	(2)	(2)
Designated at fair value through other comprehensive income	75	34	109
Sales[(1)]	–	(36)	(36)
Fair value as at October 31, 2018	**233**	**118**	**351**

(1) The Bank disposed of public company equity securities for economic reasons.

Gross Gains (Losses) on Available-for-Sale Securities

	As at October 31, 2017			
	Amortized cost	Gross unrealized gains	Gross unrealized losses	Carrying value
Securities issued or guaranteed by				
Canadian government	4,308	6	(33)	4,281
Canadian provincial and municipal governments	2,502	87	(5)	2,584
U.S. Treasury, other U.S. agencies and other foreign governments	536	–	(15)	521
Other debt securities	487	9	(2)	494
Equity securities	633	64	(25)	672
	8,466	166	(80)	8,552

Impairment Losses Recognized

During the year ended October 31, 2017, a negligible amount of impairment charges had been recognized in *Gains (losses) on available-for-sale securities, net* in the Consolidated Statement of Income, and no amounts were reversed in the Consolidated Statement of Income to recognize subsequent increases in the fair value of previously impaired debt securities.

Gross Unrealized Losses

As at October 31, 2017, the Bank had concluded that the gross unrealized losses on available-for-sale securities were mainly due to market price fluctuations and to changes in foreign exchange rates and that there was no objective evidence of impairment requiring an impairment charge to be recognized in the Consolidated Statement of Income.

Gains (Losses) on Disposals of Securities at Amortized Cost

During the year ended October 31, 2018, the Bank sold certain debt securities measured at amortized cost given an increase in their credit risk. The carrying value of these securities upon disposal was $134 million, and the Bank recognized a negligible gain in *Non-interest income – Gains (losses) on non-trading securities, net* in the Consolidated Statement of Income.

Held-to-Maturity Securities

As at October 31, 2017, the Bank had concluded that there was no objective evidence of impairment on held-to-maturity securities.

Note 8 – Loans and Allowances for Credit Losses

As at October 31, 2018, loans are recognized on the Consolidated Balance Sheet either at fair value through profit or loss or at amortized cost using the financial asset classification criteria defined in IFRS 9.

The information provided in the tables on the following pages is presented in accordance with IFRS 9 as at October 31, 2018 and in accordance with IAS 39 as at October 31, 2017 and reflects the presentation changes applied to certain Consolidated Balance Sheet items. For additional information, see Note 1 to these consolidated financial statements.

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.

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.

These elements are explained on the following page.

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 LDG 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 is a series of relative and absolute thresholds, and a backstop is also applied. All financial instruments that are 30 days past 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 table presents the gross carrying amounts of loans as at October 31, 2018, 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 "Credit Risk Management" section of the MD&A for the year ended October 31, 2018.

Note 8 – Loans and Allowances for Credit Losses (cont.)

	As at October 31, 2018					
	Non-impaired loans		Impaired loans		Loans at fair value through profit or loss[2]	
	Stage 1	Stage 2	Stage 3[1]	POCI		Total
Residential mortgage						
Excellent	19,035	–	–	–	–	19,035
Good	14,928	10	–	–	–	14,938
Satisfactory	8,838	348	–	–	–	9,186
Special mention	421	621	–	–	–	1,042
Substandard	81	300	–	–	–	381
Default	–	–	128	–	–	128
AIRB approach	43,303	1,279	128	–	–	44,710
Standardized approach	2,546	27	23	487	5,858	8,941
Gross carrying amount	45,849	1,306	151	487	5,858	53,651
Allowances for credit losses[3]	31	13	21	(64)	–	1
Carrying amount	45,818	1,293	130	551	5,858	53,650
Personal						
Excellent	13,625	2	–	–	–	13,627
Good	10,089	52	–	–	–	10,141
Satisfactory	5,430	902	–	–	–	6,332
Special mention	456	694	–	–	–	1,150
Substandard	91	204	–	–	–	295
Default	–	–	137	–	–	137
AIRB approach	29,691	1,854	137	–	–	31,682
Standardized approach	4,421	140	27	1,087	–	5,675
Gross carrying amount	34,112	1,994	164	1,087	–	37,357
Allowances for credit losses[3]	71	120	71	(3)	–	259
Carrying amount	34,041	1,874	93	1,090	–	37,098
Credit card						
Excellent	416	–	–	–	–	416
Good	306	–	–	–	–	306
Satisfactory	888	37	–	–	–	925
Special mention	294	249	–	–	–	543
Substandard	12	96	–	–	–	108
Default	–	–	–	–	–	–
AIRB approach	1,916	382	–	–	–	2,298
Standardized approach	27	–	–	–	–	27
Gross carrying amount	1,943	382	–	–	–	2,325
Allowances for credit losses[3]	24	105	–	–	–	129
Carrying amount	1,919	277	–	–	–	2,196
Business and government[4]						
Excellent	4,736	–	–	–	111	4,847
Good	24,005	6	–	–	55	24,066
Satisfactory	18,986	1,068	–	–	84	20,138
Special mention	493	758	–	–	–	1,251
Substandard	55	121	–	–	–	176
Default	–	–	276	–	–	276
AIRB approach	48,275	1,953	276	–	250	50,754
Standardized approach	2,611	1	39	2	–	2,653
Gross carrying amount	50,886	1,954	315	2	250	53,407
Allowances for credit losses[3]	48	86	134	1	–	269
Carrying amount	50,838	1,868	181	1	250	53,138
Total loans						
Gross carrying amount	132,790	5,636	630	1,576	6,108	146,740
Allowances for credit losses[3]	174	324	226	(66)	–	658
Carrying amount	132,616	5,312	404	1,642	6,108	146,082

(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.
(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.

The following table presents the credit risk exposures of off-balance-sheet commitments as at October 31, 2018 according to credit quality and ECL impairment stage.

				As at October 31, 2018
	Stage 1	Stage 2	Stage 3	Total
Off-balance-sheet commitments[1]				
Retail				
Excellent	11,440	9	–	11,449
Good	2,450	13	–	2,463
Satisfactory	969	117	–	1,086
Special mention	79	77	–	156
Substandard	2	13	–	15
Default	–	–	2	2
Non-retail				
Excellent	5,881	–	–	5,881
Good	13,570	–	–	13,570
Satisfactory	4,302	353	–	4,655
Special mention	133	142	–	275
Substandard	3	6	–	9
Default	–	–	4	4
AIRB approach	38,829	730	6	39,565
Standardized approach	6,434	–	5	6,439
Total exposure	45,263	730	11	46,004
Allowances for credit losses	38	15	1	54
Total exposure, net of allowances	45,225	715	10	45,950

(1) Represent letters of guarantee and documentary letters of credit, undrawn commitments, and backstop liquidity and credit enhancement facilities.

The following table presents comparative figures showing the credit quality of loans as at October 31, 2017 in accordance with IAS 39.

					As at October 31, 2017
	Residential mortgage	Personal	Credit card	Business and government[1][2]	Total
Neither past due[3] nor impaired	50,232	34,305	2,193	47,369	134,099
Past due[3] but not impaired	220	331	54	78	683
Impaired	66	80	–	234	380
POCI[4]	1,116	874	–	–	1,990
Gross loans	51,634	35,590	2,247	47,681	137,152
Less: Allowances on impaired loans					
Individual allowances	13	22	–	119	154
Collective allowances	–	18	–	2	20
Allowances on POCI loans[4]	(31)	7	–	–	(24)
Allowances on impaired loans	(18)	47	–	121	150
	51,652	35,543	2,247	47,560	137,002
Less:					
Sectoral allowance on non-impaired loans – Oil and gas[5]					139
Collective allowance on non-impaired loans[6]					406
					545
Loans and acceptances, net of allowances					136,457

(1) Business credit portfolios are closely monitored and a monthly watchlist of problem commitments is produced. The watchlist is analyzed by the loan portfolio managers concerned, who must then submit a report to Credit Risk Management.
(2) Includes customers' liability under acceptances.
(3) A loan is past due when the counterparty has not made a payment by the contractual due date.
(4) The *Purchased receivables* line item, which was presented net of allowances for credit losses in an amount of $2,014 million as at October 31, 2017, is now presented in the *Loans* item for an amount of $1,990 million, and the *Allowances for credit losses* item was reduced by $24 million.
(5) The sectoral allowance on non-impaired loans was established collectively for the portfolio of loans to producers and service companies in the oil and gas sector.
(6) 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.

Note 8 – Loans and Allowances for Credit Losses (cont.)

Loans Past Due But Not Impaired[1]

	As at October 31, 2018				As at October 31, 2017			
	Residential mortgage	Personal	Credit card	Business and government[2]	Residential mortgage	Personal	Credit card	Business and government[2]
Past due but not impaired								
31 to 60 days	105	102	27	36	111	88	22	30
61 to 90 days	41	59	13	41	40	39	11	15
Over 90 days[3]	–	–	27	–	69	204	21	33
	146	161	67	77	220	331	54	78

(1) Loans less than 31 days past due are not presented as they are not considered past due from an administrative standpoint.
(2) Includes customers' liability under acceptances.
(3) Given the adoption of IFRS 9, loans more than 90 days past due, except for credit card receivables, are considered impaired (Stage 3).

Impaired Loans[1]

	As at October 31, 2018			As at October 31, 2017		
	Gross	Allowances for credit losses	Net	Gross	Allowances for credit losses	Net
Loans						
Residential mortgage	151	21	130	66	13	53
Personal	164	71	93	80	40	40
Credit card[2]	–	–	–	–	–	–
Business and government[3]	315	134	181	234	121	113
	630	226	404	380	174	206

(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. These loans do not include POCI loans.
(2) Credit card receivables are considered impaired, at the latest, when payment is 180 days past due, and they are written off at that time.
(3) 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, 2018		
	Gross impaired loans[1]	Percentage covered by guarantees[2]	Types of collateral and guarantees
Loans			
Residential mortgage	151	100 %	Residential buildings
Personal	164	44 %	Buildings and automobiles
Business and government[3]	315	54 %	Buildings, equipment, government guarantees and bank guarantees

(1) As a result of IFRS 9 adoption, all loans classified in Stage 3 of the expected credit loss model are impaired loans. These loans do not include POCI loans.
(2) 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%.
(3) Includes customers' liability under acceptances.

Allowances for Credit Losses

The table below presents 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, 2018					
	Allowances for credit losses as at November 1, 2017	Provisions for credit losses	Write-offs[1]	Disposals	Recoveries and other	Allowances for credit losses as at October 31, 2018
Balance sheet						
Cash and deposits with financial institutions[2][3]	1	–	–	–	–	1
Securities[3]						
At fair value through other comprehensive income[4]	–	–	–	–	–	–
At amortized cost[2]	3	(2)	–	–	–	1
Securities purchased under reverse repurchase agreements and securities borrowed[2][3]	–	–	–	–	–	–
Loans[5]						
Residential mortgage	18	(3)	(9)	(6)	1	1
Personal	261	179	(196)	(5)	20	259
Credit card	128	91	(98)	–	8	129
Business and government	250	68	(64)	(13)	8	249
Customers' liability under acceptances	16	4	–	–	–	20
	673	339	(367)	(24)	37	658
Other assets[2][3]	–	–	–	–	–	–
Off-balance-sheet commitments[6]						
Letters of guarantee and documentary letters of credit	3	–	–	–	–	3
Undrawn commitments	54	(11)	–	–	6	49
Backstop liquidity and credit enhancement facilities	1	1	–	–	–	2
	58	(10)	–	–	6	54
	735	327	(367)	(24)	43	714

(1) The contractual amount outstanding on financial assets that were written off during the year ended October 31, 2018 and that are still subject to enforcement activity was $152 million.
(2) These financial assets are presented net of the allowances for credit losses on the Consolidated Balance Sheet.
(3) As at October 31, 2018, these financial assets were mainly classified in Stage 1 and their credit quality fell 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.

Note 8 – Loans and Allowances for Credit Losses (cont.)

The following table presents the reconciliation of allowances for credit losses for each loan category at amortized cost according to ECL impairment stage.

					Year ended October 31, 2018
	Allowances for credit losses on non-impaired loans		Allowances for credit losses on impaired loans		
	Stage 1	Stage 2	Stage 3	POCI[1]	Total
Residential mortgage					
Balance as at November 1, 2017	22	10	17	(31)	18
Originations or purchases	14	–	–	–	14
Transfers[2]:					
to Stage 1	12	(10)	(2)	–	–
to Stage 2	–	2	(2)	–	–
to Stage 3	–	(4)	4	–	–
Net remeasurement of loss allowances[3]	(15)	17	14	(26)	(10)
Derecognitions[4]	(1)	(2)	(4)	–	(7)
Changes to models	–	–	–	–	–
Provisions for credit losses	10	3	10	(26)	(3)
Write-offs	–	–	(9)	–	(9)
Disposals	–	–	–	(6)	(6)
Recoveries	–	–	4	–	4
Foreign exchange movements and other	(1)	–	(1)	(1)	(3)
Balance as at October 31, 2018	31	13	21	(64)	1
Includes:					
Amounts drawn	31	13	21	(64)	1
Undrawn commitments[5]	–	–	–	–	–
Personal					
Balance as at November 1, 2017	91	107	59	7	264
Originations or purchases	48	–	–	–	48
Transfers[2]:					
to Stage 1	80	(76)	(4)	–	–
to Stage 2	(29)	35	(6)	–	–
to Stage 3	(8)	(123)	131	–	–
Net remeasurement of loss allowances[3]	(100)	203	71	(4)	170
Derecognitions[4]	(15)	(14)	(2)	–	(31)
Changes to models	4	(13)	–	–	(9)
Provisions for credit losses	(20)	12	190	(4)	178
Write-offs	–	–	(196)	–	(196)
Disposals	–	–	–	(5)	(5)
Recoveries	–	–	20	–	20
Foreign exchange movements and other	1	2	(2)	(1)	–
Balance as at October 31, 2018	72	121	71	(3)	261
Includes:					
Amounts drawn	71	120	71	(3)	259
Undrawn commitments[5]	1	1	–	–	2

(1) The total amount of undiscounted initially expected credit losses on the POCI loans acquired during the year ended October 31, 2018 was $258 million. The expected credit losses reflected in the purchase price were 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.

					Year ended October 31, 2018
	Allowances for credit losses on non-impaired loans		Allowances for credit losses on impaired loans		
	Stage 1	Stage 2	Stage 3	POCI[1]	Total
Credit card					
Balance as at November 1, 2017	41	112	–	–	153
Originations or purchases	8	–	–	–	8
Transfers[2]:					
to Stage 1	95	(95)	–	–	–
to Stage 2	(14)	14	–	–	–
to Stage 3	–	(53)	53	–	–
Net remeasurement of loss allowances[3]	(89)	172	31	–	114
Derecognitions[4]	(1)	(35)	–	–	(36)
Changes to models	–	–	–	–	–
Provisions for credit losses	(1)	3	84	–	86
Write-offs	–	–	(98)	–	(98)
Disposals	–	–	–	–	–
Recoveries	–	–	14	–	14
Foreign exchange movements and other	–	–	–	–	–
Balance as at October 31, 2018	40	115	–	–	155
Includes:					
Amounts drawn	24	105	–	–	129
Undrawn commitments[5]	16	10	–	–	26
Business and government[6]					
Balance as at November 1, 2017	53	74	165	–	292
Originations or purchases	32	–	–	–	32
Transfers[2]:					
to Stage 1	21	(16)	(5)	–	–
to Stage 2	(4)	7	(3)	–	–
to Stage 3	–	(2)	2	–	–
Net remeasurement of loss allowances[3]	(26)	30	55	1	60
Derecognitions[4]	(12)	(4)	(9)	–	(25)
Changes to models	–	–	–	–	–
Provisions for credit losses	11	15	40	1	67
Write-offs	–	–	(64)	–	(64)
Disposals	–	–	(13)	–	(13)
Recoveries	–	–	7	–	7
Foreign exchange movements and other	1	–	–	–	1
Balance as at October 31, 2018	65	89	135	1	290
Includes:					
Amounts drawn	48	86	134	1	269
Undrawn commitments[5]	17	3	1	–	21
Total allowances for credit losses as at October 31, 2018[7]	208	338	227	(66)	707
Includes:					
Amounts drawn	174	324	226	(66)	658
Undrawn commitments[5]	34	14	1	–	49

(1) The total amount of undiscounted initially expected credit losses on the POCI loans acquired during the year ended October 31, 2018 was $258 million. The expected credit losses reflected in the purchase price were 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.

Note 8 – Loans and Allowances for Credit Losses (cont.)

The following table presents the reconciliation of allowances for credit losses for each loan category for the year ended October 31, 2017 according to IAS 39.

						Year ended October 31, 2017
	Balance at beginning	Provisions for credit losses	Write-offs	Recoveries and other[1]	Transfers[2]	Balance at end
Allowances on impaired loans						
Residential mortgage						
Individual allowances	13	13	(14)	1	–	13
Collective allowances	–	–	–	–	–	–
Allowances on POCI loans	(11)	–	–	(20)	–	(31)
Personal						
Individual allowances	20	81	(80)	1	–	22
Collective allowances	19	27	(37)	9	–	18
Allowances on POCI loans	(1)	–	–	8	–	7
Credit card						
Individual allowances	–	82	(82)	–	–	–
Collective allowances	–	–	–	–	–	–
Business and government						
Individual allowances	156	39	(104)	3	25	119
Collective allowances	3	2	(3)	–	–	2
Individual allowances	189	215	(280)	5	25	154
Collective allowances	22	29	(40)	9	–	20
Allowances on POCI loans	(12)	–	–	(12)	–	(24)
	199	244	(320)	2	25	150
Sectoral allowance on non-impaired loans – Oil and gas[3]	204	(40)	–	–	(25)	139
Collective allowance on non-impaired loans[4]	366	40	–	–	–	406
	570	–	–	–	(25)	545
	769	244	(320)	2	–	695

(1) Includes foreign exchange movements as well as changes in the allowances for credit losses on POCI loans that had been recorded in *Non-interest income.*
(2) When a loan covered by the *Sectoral allowance on non-impaired loans – Oil and gas* item became impaired, the sectoral allowance related to that loan was transferred to the individual allowances on impaired loans.
(3) The sectoral allowance on non-impaired loans 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 that had been covered by the sectoral allowance and POCI loans.

Distribution of Gross and Impaired Loans by Borrower Category Under the Basel Asset Classes

					2018
			As at October 31	Year ended October 31	
	Gross loans[1]	Impaired loans[1][2]	Allowances for credit losses on impaired loans[1][3]	Provisions for credit losses	Write-offs
Retail					
Residential mortgage[4]	70,591	190	22	10	9
Qualifying revolving retail[5]	4,211	23	14	108	123
Other retail[6]	12,246	91	53	165	171
	87,048	304	89	283	303
Non-retail					
Agriculture	5,759	63	7	1	–
Oil and gas	2,506	97	53	12	12
Mining	1,032	–	–	–	–
Utilities	2,715	–	–	–	3
Construction[7]	2,976	8	4	(3)	15
Manufacturing	5,536	48	22	11	2
Wholesale	2,163	13	6	–	1
Retail	3,069	11	4	11	22
Transportation	2,770	2	1	1	2
Communications	1,597	19	12	3	–
Finance and insurance	4,732	19	1	–	–
Real estate	9,997	11	2	–	1
Professional services	1,582	6	3	1	1
Education and health care	2,988	4	4	3	–
Other services	4,715	24	17	5	3
Government	1,445	–	–	–	–
Other	2,534	1	1	(4)	2
	58,116	326	137	41	64
Stages 1 and 2[8]			554	32	
POCI	1,576		(66)	(29)	
	146,740	630	714	327	367

(1) Includes customers' liability under acceptances.
(2) Given the adoption of IFRS 9, all loans classified in Stage 3 of the expected credit loss model are impaired loans. These loans do not include POCI loans.
(3) Does not include allowances for credit losses on POCI loans.
(4) Includes residential mortgages on one-to-four-unit dwellings (Basel definition) and home equity lines of credit.
(5) Includes lines of credit and credit card receivables.
(6) Includes consumer loans and other retail loans but excludes SME loans.
(7) Includes non-residential mortgages.
(8) Includes other financial assets at amortized cost and off-balance-sheet commitments.

Note 8 – Loans and Allowances for Credit Losses (cont.)

					2017
			As at October 31		Year ended October 31
	Gross loans[1]	Impaired loans[1][2]	Allowances for credit losses on impaired loans[1]	Provisions for credit losses	Write-offs
Retail					
Residential mortgage[3]	66,398	68	13	13	14
Qualifying revolving retail[4]	4,217	17	10	104	109
Other retail[5]	12,150	53	29	86	90
	82,765	138	52	203	213
Non-retail[6]					
Agriculture	4,923	7	3	(1)	3
Oil and gas	2,129	93	34	(40)	56
Mining	470	–	–	–	–
Utilities	2,347	4	4	–	–
Construction[7]	2,787	29	17	15	4
Manufacturing	4,341	16	14	–	12
Wholesale	2,066	12	7	–	1
Retail	3,431	32	15	10	7
Transportation	2,593	3	2	–	6
Communications	1,662	13	8	3	2
Finance and insurance	4,932	–	–	–	–
Real estate	9,104	12	3	1	–
Professional services	1,416	3	1	1	–
Education and health care	2,749	1	1	–	12
Other services	4,762	15	11	6	4
Governments	1,452	–	–	5	–
Other	1,233	2	2	41	–
	52,397	242	122	41	107
POCI[8]	1,990		(24)		
	137,152	380	150	244	320

(1) Includes customers' liability under acceptances.
(2) These loans do not include POCI loans.
(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) The presentation of borrower categories is more detailed than that previously presented.
(7) Includes non-residential mortgages.
(8) Changes in allowances for credit losses on POCI loans were recorded in *Non-interest income*.

Main Macroeconomic Factors

The following table shows the main macroeconomic factors used to estimate the allowances for credit losses on loans. For each scenario, namely, the base case, upside scenario and downside scenario, the average values of the 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, 2018
		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]	1.9 %	1.5 %	2.5 %	2.0 %	(2.3) %	1.5 %
Unemployment rate	5.7 %	5.5 %	5.6 %	5.3 %	7.0 %	7.8 %
Housing price index growth[2]	2.8 %	0.8 %	3.4 %	2.1 %	(10.6) %	(0.3) %
BBB spread[3]	1.6 %	1.5 %	1.4 %	1.2 %	2.6 %	2.6 %
S&P/TSX growth[2][4]	3.5 %	2.4 %	6.4 %	3.8 %	(18.5) %	6.9 %
WTI oil price[5] *(US$ per barrel)*	71	68	75	81	46	36

(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) oil pricing index is commonly used as a benchmark.

The main macroeconomic factors used for the personal credit portfolio are unemployment rate and housing price index. The main macroeconomic factors used for the business and government credit portfolio are GDP growth, BBB spread, 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 growth, S&P/TSX growth, housing price index, and WTI oil price) will generally correlate with lower allowances for credit losses.

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) under IFRS 9 as at October 31, 2018 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
Under IFRS 9	546
Simulations	
100% upside scenario	486
100% base scenario	513
100% downside scenario	759

Migration

The following table shows a comparison of the Bank's allowances for credit losses on non-impaired loans (Stages 1 and 2) under IFRS 9 as at October 31, 2018 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
Under IFRS 9	546
Simulations	
Non-impaired loans if they were all in Stage 1	423

Note 9 – 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	2018	2017
Carrying value of financial assets transferred but not derecognized		
Securities[1]	44,125	42,014
Residential mortgages	20,064	19,080
	64,189	61,094
Carrying value of associated liabilities[2]	32,834	33,330
Fair value of financial assets transferred but not derecognized		
Securities[1]	44,125	42,014
Residential mortgages	19,993	19,169
	64,118	61,183
Fair value of associated liabilities[2]	32,809	33,356

(1) The amount related to the securities loaned is the maximum amount of Bank securities that can be lent. For the obligations related to securities sold under repurchase agreements, the amount includes the Bank's own financial assets as well as those of third parties.
(2) Associated liabilities include obligations related to securities sold under repurchase agreements before the offsetting impact of $287 million as at October 31, 2018 ($1,621 million as at October 31, 2017) and liabilities related to transferred receivables. 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 were $7,550 million as at October 31, 2018 ($10,156 million as at October 31, 2017).

The following table specifies the nature of the transactions related to financial assets transferred but not derecognized.

As at October 31	2018	2017
Carrying value of financial assets transferred but not derecognized		
Securities backed by insured residential mortgages and other securities sold to CHT	20,576	20,012
Securities sold under repurchase agreements	12,927	13,544
Securities loaned	30,686	27,538
	64,189	61,094

Note 10 – Investments in Associates and Joint Ventures

As at October 31			2018	2017
	Business segment	Ownership percentage	Carrying value	Carrying value
Listed associates[1]				
TMX Group Limited[2]	Other	8.5 %	264	241
Fiera Capital Corporation	Wealth Management	18.0 %	140	152
			404	393
Unlisted associates				
Maple Financial Group Inc.[3]	Financial Markets	24.9 %	–	–
Other			241	229
			241	229
Unlisted joint venture[4]			–	9
			645	631

(1) The fair value of investments in associates based on quoted prices in an active market was $611 million as at October 31, 2018 ($581 million as at October 31, 2017).
(2) The Bank exercises significant influence over TMX Group Limited mainly because of its equity interest, debt financing, and presence on TMX Group's board of directors.
(3) During fiscal 2016, the Bank had written off the carrying value of its equity interest in Maple Financial Group Inc. For additional information, see the text below.
(4) During fiscal 2018, the Bank disposed of its entire investment.

As at October 31, 2018 and 2017, there were no significant restrictions limiting the ability of associates and joint ventures 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 or joint ventures.

TMX Group Limited

TMX Group Limited 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, 2018, TMX Group Limited paid $10 million in dividends to the Bank ($9 million for the year ended October 31, 2017).

Fiera Capital Corporation

Fiera Capital Corporation is an independent Canadian investment management firm. During the year ended October 31, 2018, Fiera Capital Corporation paid $13 million in dividends to the Bank ($12 million for the year ended October 31, 2017).

Maple Financial Group Inc.

The Bank has a 24.9% equity interest in Maple Financial Group Inc. (Maple), a privately owned Canadian company that operated through direct and indirect wholly owned subsidiaries in Canada, Germany, the United Kingdom and the United States. In August 2016, Maple filed for bankruptcy under applicable Canadian laws, and a trustee was appointed to administer the company. Similar proceedings were initiated for each of Maple's other material subsidiaries in their home jurisdictions.

Maple Bank GmbH, an indirect wholly owned subsidiary of Maple, has been the subject of an investigation into alleged tax irregularities by German prosecutors since September 2015 and, to the Bank's knowledge, that investigation is ongoing. The Bank understands that the investigation is focusing on selected trading activities by Maple Bank GmbH and some of its current and former employees during taxation years 2006 to 2010, although the Bank has been advised that the investigation may also extend to subsequent taxation years. The German authorities have alleged that these trading activities violated German tax laws. Neither the Bank nor its employees were involved in these trading activities and, to the Bank's knowledge, are not the subject of this investigation.

On February 6, 2016, the German Federal Financial Supervisory Authority, BaFin, placed a moratorium on the business activities of Maple Bank GmbH, preventing it from carrying out its normal business activities. In light of the situation, the Bank wrote off the carrying value of its equity interest in Maple in an amount of $164 million ($145 million net of income taxes) during the first quarter of 2016. The $164 million write-off of the equity interest in this associate was recognized in the *Non-interest income – Other* item of the Consolidated Statement of Income for the year ended October 31, 2016 and was reported in the Financial Markets segment.

The Bank has advised the German authorities that if it is determined that portions of dividends received from Maple could be reasonably attributable to tax fraud by Maple Bank GmbH, arrangements will be made to repay those amounts to the relevant authority. If any repayments are required, they are not expected to be material to the Bank's financial position.

Note 10 – Investments in Associates and Joint Ventures (cont.)

The following table provides summarized financial information on the Bank's listed associates.

As at October 31			2018[1]	2017[1]
	TMX Group Limited	Fiera Capital Corporation	Total	Total
Balance sheet				
Current assets	20,433	210	20,643	14,907
Non-current assets	5,160	1,201	6,361	5,410
Current liabilities	20,653	138	20,791	14,725
Non-current liabilities	1,624	634	2,258	2,031
Income statement				
Total revenues	780	524	1,304	1,170
Net income	419	(2)	417	233
Other comprehensive income (loss)	(23)	21	(2)	(14)
Comprehensive income	396	19	415	219

(1) The balance sheet amounts are the balances reported in the unaudited financial statements as at September 30, 2018 and 2017, which are the most recent available, and the income statement amounts are based on the cumulative balances for the 12-month periods ended September 30, 2018 and 2017.

The table below provides summarized financial information related to the Bank's share of associates (and the joint venture for the year ended October 31, 2017) that are not individually significant.

Year ended October 31		2018[1]	2017[1]
	Unlisted associates	Total	Total
Net income	6	6	12
Other comprehensive income	–	–	(10)
Comprehensive income	6	6	2

(1) The amounts are based on the cumulative balances for the 12-month periods ended September 30, 2018 and 2017.

Note 11 – Premises and Equipment

	Land	Buildings	Computer equipment	Equipment and furniture	Leasehold improvements	Total
Cost						
As at October 31, 2016	14	253	224	1,087	296	1,874
Acquisitions	3	7	38	16	32	96
Disposals	–	(4)	–	(818)	(6)	(828)
Fully amortized assets		(1)	(27)	(7)	(30)	(65)
As at October 31, 2017	17	255	235	278	292	1,077
Acquisitions	66	6	90	18	59	239
Disposals	(4)	(2)	(4)	(170)	(1)	(181)
Fully amortized assets		(3)	(1)	(8)	(10)	(22)
As at October 31, 2018	**79**	**256**	**320**	**118**	**340**	**1,113**
Accumulated amortization						
As at October 31, 2016		153	73	172	138	536
Amortization for the year		5	46	106	25	182
Disposals		(3)	–	(125)	(6)	(134)
Fully amortized assets		(1)	(27)	(7)	(30)	(65)
As at October 31, 2017		154	92	146	127	519
Amortization for the year		5	74	16	26	121
Disposals		(1)	(5)	(99)	(1)	(106)
Fully amortized assets		(3)	(1)	(8)	(10)	(22)
As at October 31, 2018		**155**	**160**	**55**	**142**	**512**
Carrying value as at October 31, 2017	17	101	143	132	165	558
Carrying value as at October 31, 2018	**79**	**101**	**160**	**63**	**198**	**601**

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.

	As at October 31, 2018
1 year or less	10
Over 1 year to 5 years	34
Over 5 years	7
	51

Note 12 – Goodwill and Intangible Assets

Goodwill

The following table presents the change in the carrying amount of goodwill by cash-generating unit (CGU) and by business segment for the years ended October 31, 2018 and 2017.

	Personal and Commercial[1]				Wealth Management	Financial Markets[1]			USSF&I	Total
		Third-Party Solutions[1]	Securities Brokerage[1]	Managed Solutions[1]	Total		Credigy Ltd.[1]	Advanced Bank of Asia Limited[1]	Total	
Balance as at October 31, 2016	51	256	434	269	959	235	33	134	167	1,412
Acquisition of Groupe Financier Abi-Témi inc.[2]	3	–	–	–	–	–	–	–	–	3
Impact of foreign currency translation	–	–	–	–	–	–	(1)	(5)	(6)	(6)
Balance as at October 31, 2017	54	256	434	269	959	235	32	129	161	1,409
Impact of foreign currency translation	–	–	–	–	–	–	1	2	3	3
Balance as at October 31, 2018	**54**	**256**	**434**	**269**	**959**	**235**	**33**	**131**	**164**	**1,412**

(1) Constitutes a CGU.
(2) During the year ended October 31, 2017, the Bank, through one of its wholly owned subsidiaries, acquired Groupe Financier Abi-Témi inc. located in Rouyn-Noranda, Canada.

Goodwill Impairment Testing and Significant Assumptions
For impairment testing purposes, from the acquisition date, goodwill resulting from a business combination must be allocated to a CGU or a 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, 2018 and 2017, 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, 2018, for each CGU or CGU group, the discount rate used was 12.8% (13.2% as at October 31, 2017) and the long-term growth rate was between 2.0% and 5.0% depending on the CGU as at October 31, 2018 and 2017.

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 down 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, 2016	161	11	172	1,038	126	106	1,270	1,442
Acquisitions	–	–	–	245	21	2	268	268
Fully amortized intangible assets				(16)	(32)	–	(48)	(48)
As at October 31, 2017	161	11	172	1,267	115	108	1,490	1,662
Acquisitions	–	–	–	242	13	1	256	256
Fully amortized intangible assets				–	(2)	(6)	(8)	(8)
As at October 31, 2018	**161**	**11**	**172**	**1,509**	**126**	**103**	**1,738**	**1,910**
Accumulated amortization								
As at October 31, 2016				176	68	58	302	302
Amortization for the year				135	25	9	169	169
Fully amortized intangible assets				(16)	(32)	–	(48)	(48)
As at October 31, 2017				295	61	67	423	423
Amortization for the year				149	23	9	181	181
Fully amortized intangible assets				–	(2)	(6)	(8)	(8)
As at October 31, 2018				**444**	**82**	**70**	**596**	**596**
Carrying value as at October 31, 2017	161	11	172	972	54	41	1,067	1,239
Carrying value as at October 31, 2018	**161**	**11**	**172**	**1,065**	**44**	**33**	**1,142**	**1,314**

(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.

Note 13 – Other Assets

As at October 31	2018	2017
Receivables, prepaid expenses and other items	775	690
Interest and dividends receivable	549	489
Due from clients, dealers and brokers	1,255	505
Defined benefit asset (Note 24)	64	56
Deferred tax assets (Note 25)	324	374
Current tax assets	113	31
Reinsurance assets	31	31
	3,111	2,176

Note 14 – Deposits

As at October 31			2018	2017[1]
	On demand or after notice[2]	Fixed term[3]	Total	Total
Personal	27,808	27,880	55,688	52,175
Business and government	54,894	55,427	110,321	99,115
Deposit-taking institutions	2,803	2,018	4,821	5,381
	85,505	85,325	170,830	156,671

(1) The Bank reclassified certain amounts presented in the *Deposits* item of the Consolidated Balance Sheet. As at October 31, 2017, a $1,544 million amount was reclassified from *Deposits – Personal* into *Deposits – Business and government.*
(2) 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. Notice deposits are deposits for which the Bank may legally require 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, the covered bonds, as described below.

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, 2018, an amount of US$750 million in covered bonds matured, and the Bank issued covered bonds in an amount of 1.5 billion euros (150 million pounds sterling issued during the year ended October 31, 2017). The covered bonds totalled $8.3 billion as at October 31, 2018 ($7.0 billion as at October 31, 2017). For additional information, see Note 28 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 $13.2 billion as at October 31, 2018 ($15.9 billion as at October 31, 2017), of which $12.9 billion ($15.6 billion as at October 31, 2017) is presented in *Residential mortgage* loans on the Bank's Consolidated Balance Sheet.

Note 15 – Other Liabilities

As at October 31	2018	2017
Accounts payable and accrued expenses	1,790	1,797
Subsidiaries' debts to third parties	1,033	1,075
Interest and dividends payable	1,012	883
Due to clients, dealers and brokers	796	647
Defined benefit liability (Note 24)	186	252
Allowances for credit losses — off-balance-sheet commitments[1] (Note 8)	54	–
Deferred tax liabilities (Note 25)	25	35
Current tax liabilities	48	93
Insurance liabilities	50	60
Other items[2][3]	830	916
	5,824	5,758

(1) Upon IFRS 9 adoption on November 1, 2017, allowances for credit losses on off-balance-sheet commitments are now reported in the *Other liabilities* item of the Consolidated Balance Sheet.
(2) As at October 31, 2018, *Other items* included a $14 million restructuring provision ($46 million as at October 31, 2017).
(3) As at October 31, 2018, *Other items* included a $9 million litigation provision ($12 million as at October 31, 2017).

Note 16 – 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.

On February 1, 2018, the Bank issued medium-term notes for a total amount of $750 million, bearing interest at 3.183% and maturing on February 1, 2028.

As at October 31				2018	2017
Maturity date		**Interest rate**	**Characteristics**		
February	2028	3.183%[1]	Redeemable[2]	750	–
February	2087	Variable[3]	Redeemable at the Bank's option since February 28, 1993	9	9
				759	9
Fair value hedge adjustment				(10)	–
Unamortized issuance costs[4]				(2)	–
Total				747	9

(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 rate on three-month CDOR 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, 2018 (2017: 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 17 – 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.

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 a benchmark interest rate.
- 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.

Note 17 – Derivative Financial Instruments (cont.)

Notional Amounts[1]

As at October 31								2018	2017
	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	1,256	324	100	–	1,680	1,680	–	795
Settled by central counterparties	–	2,172	–	–	2,172	2,172	–	948
Swaps								
Not settled by central counterparties	6,423	13,802	66,747	42,229	129,201	125,292	3,909	124,951
Settled by central counterparties	135,508	73,177	144,258	55,786	408,729	381,200	27,529	359,021
Options purchased	1,520	396	3,039	483	5,438	5,158	280	2,806
Options written	251	199	922	646	2,018	844	1,174	1,824
	144,958	90,070	215,066	99,144	549,238	516,346	32,892	490,345
Exchange-traded contracts								
Futures								
Long positions	9,301	10,649	7,548	–	27,498	27,498	–	43,073
Short positions	2,634	16,276	7,646	–	26,556	26,556	–	45,931
Options purchased	19,189	7,000	–	–	26,189	26,189	–	18,100
Options written	–	–	–	–	–	–	–	2,581
	31,124	33,925	15,194	–	80,243	80,243	–	109,685
Foreign exchange contracts								
OTC contracts								
Forwards	18,099	7,653	5,078	1,348	32,178	32,178	–	31,613
Swaps	75,165	28,750	66,505	29,491	199,911	186,864	13,047	179,861
Options purchased	5,224	5,745	1,353	–	12,322	12,322	–	9,683
Options written	4,326	5,976	813	–	11,115	11,115	–	8,960
	102,814	48,124	73,749	30,839	255,526	242,479	13,047	230,117
Exchange-traded contracts								
Futures								
Long positions	59	–	–	–	59	59	–	45
Short positions	235	3	–	–	238	238	–	424
	294	3	–	–	297	297	–	469
Equity, commodity and credit derivative contracts[2]								
OTC contracts								
Forwards	37	72	1,672	195	1,976	1,976	–	2,242
Swaps								
Not settled by central counterparties	19,629	15,552	11,293	400	46,874	46,765	109	25,106
Settled by central counterparties	160	225	686	1,367	2,438	2,438	–	8,882
Options purchased	653	116	677	77	1,523	1,523	–	2,209
Options written	158	328	726	224	1,436	1,436	–	1,576
	20,637	16,293	15,054	2,263	54,247	54,138	109	40,015
Exchange-traded contracts								
Futures								
Long positions	7,168	208	252	71	7,699	7,699	–	5,111
Short positions	8,678	1,789	1,183	41	11,691	11,691	–	10,847
Options purchased	1,615	292	336	–	2,243	2,243	–	1,993
Options written	1,391	658	1,370	49	3,468	3,468	–	2,830
	18,852	2,947	3,141	161	25,101	25,101	–	20,781
	318,679	191,362	322,204	132,407	964,652	918,604	46,048	891,412

(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.

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 monitoring standards as those applied to the Bank's other credit transactions. Consequently, the Bank evaluates the creditworthiness of counterparties and monitors 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 for certain 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 over-the-counter 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			2018			2017
	Replacement cost[1]	**Credit risk equivalent**	**Risk-weighted amount**	Replacement cost[1]	Credit risk equivalent	Risk-weighted amount
Interest rate contracts	**1,943**	**7,961**	**649**	2,214	8,598	821
Foreign exchange contracts	**3,533**	**11,043**	**1,853**	4,465	11,373	1,901
Equity, commodity and credit derivative contracts	**3,034**	**6,919**	**673**	1,677	4,816	305
	8,510	**25,923**	**3,175**	8,356	24,787	3,027
Impact of master netting agreements	**(3,151)**	**(8,300)**	**(863)**	(3,931)	(10,445)	(756)
	5,359	**17,623**	**2,312**	4,425	14,342	2,271

(1) As at October 31, 2018, the total positive fair value of exchange-traded contracts, which amounted to $98 million ($67 million as at October 31, 2017), was excluded.

Credit Risk Exposure of the Derivative Financial Instrument Portfolio by Counterparty

As at October 31		2018		2017
	Replacement cost	**Credit risk equivalent**	Replacement cost	Credit risk equivalent
OECD[1] governments	**1,051**	**1,855**	956	1,761
Banks of OECD member countries	**816**	**4,197**	969	3,809
Other	**3,492**	**11,571**	2,500	8,772
	5,359	**17,623**	4,425	14,342

(1) Organization for Economic Co-operation and Development.

Note 17 – Derivative Financial Instruments (cont.)

Fair Value of Derivative Financial Instruments

As at October 31			2018			2017
	Positive	Negative	Net	Positive	Negative	Net
Contracts held for trading purposes						
Interest rate contracts						
Forwards	16	10	6	5	1	4
Swaps	1,392	1,486	(94)	1,713	1,362	351
Options	61	41	20	36	7	29
	1,469	1,537	(68)	1,754	1,370	384
Foreign exchange contracts						
Forwards	428	243	185	573	423	150
Swaps	2,892	1,956	936	3,531	2,498	1,033
Options	157	139	18	141	146	(5)
	3,477	2,338	1,139	4,245	3,067	1,178
Equity, commodity and credit derivative contracts						
Forwards	854	62	792	773	159	614
Swaps	1,929	997	932	626	1,163	(537)
Options	336	431	(95)	336	416	(80)
	3,119	1,490	1,629	1,735	1,738	(3)
Total – Contracts held for trading purposes	8,065	5,365	2,700	7,734	6,175	1,559
Contracts designated as hedges						
Interest rate contracts						
Forwards	–	–	–	–	–	–
Swaps	487	403	84	468	342	126
Options	–	81	(81)	1	6	(5)
	487	484	3	469	348	121
Foreign exchange contracts						
Forwards	–	–	–	–	–	–
Swaps	56	187	(131)	220	89	131
Options	–	–	–	–	–	–
	56	187	(131)	220	89	131
Equity, commodity and credit derivative contracts						
Forwards	–	–	–	–	–	–
Swaps	–	–	–	–	–	–
Options	–	–	–	–	–	–
	–	–	–	–	–	–
Total – Contracts designated as hedges	543	671	(128)	689	437	252
Designated as fair value hedges	197	476	(279)	246	217	29
Designated as cash flow hedges	346	195	151	442	220	222
Designated as a hedge of a net investment in a foreign operation	–	–	–	1	–	1
Total fair value	8,608	6,036	2,572	8,423	6,612	1,811
Impact of master netting agreements	(3,151)	(3,151)	–	(3,931)	(3,931)	–
	5,457	2,885	2,572	4,492	2,681	1,811

Note 18 – 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, 2018.

The Bank has elected, as permitted under IFRS 9, to continue applying the hedge accounting requirements of IAS 39. However, the information provided in the following tables for the year ended October 31, 2018 reflects the new disclosure requirements of IFRS 7 – *Financial Instruments: Disclosures*. Some of the tables present information on currencies, specifically, the Canadian dollar (CAD), the Chinese yuan renminbi (CNH), the Hong Kong dollar (HKD), the U.S. dollar (USD), the euro (EUR), the pound sterling (GBP) and the Brazilian real (BRL). As for the tables for the year ended October 31, 2017, they have been prepared in accordance with the previous disclosure requirements of IFRS 7. For additional information, see Note 1 to these consolidated financial statements.

The following table 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, 2018
	Term to maturity					Fair value	
	1 year or less	Over 1 year to 2 years	Over 2 years to 5 years	Over 5 years	Total	Assets	Liabilities
Fair value hedges							
Interest rate risk							
Interest rate swaps							
Notional amount	474	1,305	5,834	6,406	14,019	193	357
Average fixed interest rate – Pay fixed	0.5 %	0.5 %	1.9 %	2.3 %	1.8 %		
Average fixed interest rate – Receive fixed	2.3 %	1.3 %	2.0 %	2.7 %	2.2 %		
Cross-currency swaps							
Notional amount	–	773	115	–	888	4	38
Average CAD-CNH exchange rate	–	$ 0.1955	–	–	$ 0.1955		
Average CAD-HKD exchange rate	–	–	$ 0.1621	–	$ 0.1621		
Options							
Notional amount	88	315	97	954	1,454	–	81
Average fixed interest rate – Purchased	(0.2) %	0.1 %	(0.6) %	– %	– %		
Average fixed interest rate – Written	3.7 %	2.4 %	2.6 %	2.7 %	2.7 %		
	562	2,393	6,046	7,360	16,361	197	476
Cash flow hedges							
Interest rate risk							
Interest rate swaps							
Notional amount	–	3,052	11,155	3,212	17,419	294	46
Average fixed interest rate – Pay fixed	–	2.1 %	2.0 %	2.5 %	2.1 %		
Average fixed interest rate – Receive fixed	–	1.9 %	0.2 %	1.4 %	0.8 %		
Cross-currency swaps							
Notional amount	–	3,094	6,730	2,320	12,144	52	149
Average CAD-USD exchange rate	–	$ 1.3072	$ 1.2970	$ 1.2838	$ 1.2976		
Average USD-EUR exchange rate	–	$ 1.2278	$ 1.1378	$ 1.2295	$ 1.1742		
Average USD-GBP exchange rate	–	–	$ 1.3012	–	$ 1.3012		
Equity price risk							
Equity swaps							
Notional amount	109	–	–	–	109	–	–
Average price	$ 62.42	–	–	–	$ 62.42		
	109	6,146	17,885	5,532	29,672	346	195
Hedges of net investments in foreign operations[(1)]							
Foreign exchange risk							
Cross-currency swaps							
Notional amount	15	–	–	–	15	–	–
Average CAD-USD exchange rate	$ 1.2929	–	–	–	$ 1.2929		
Average USD-BRL exchange rate	$ 0.2508	–	–	–	$ 0.2508		
Average USD-HKD exchange rate	$ 0.1281	–	–	–	$ 0.1281		
	15	–	–	–	15	–	–
	686	8,539	23,931	12,892	46,048	543	671

(1) As at October 31, 2018, the Bank also designated $1,035 million in foreign currency deposits denominated in U.S. dollars and euros as net investment hedging instruments.

Note 18 – Hedging Activities (cont.)

Derivative and Non-Derivative Financial Instruments Designated as Hedges

			As at October 31, 2017
	Fair value hedges	Cash flow hedges	Hedges of net investments in foreign operations
Assets			
Derivative financial instruments	246	442	1
Liabilities			
Derivative financial instruments	217	220	–
Carrying value of non-derivative financial instruments	–	–	841
Notional amounts of designated derivative financial instruments	18,878	29,955	48

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 item. The Bank applies this strategy mainly to portfolios of securities measured at fair value through other comprehensive income, 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, 2018			Year ended October 31, 2018		
	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	3,315	(78)	(11)	(144)	144	–
Deposits	6,367	(258)	20	264	(262)	2
Liabilities related to transferred receivables	4,482	(89)	50	123	(122)	1
Subordinated debt	737	(10)	–	10	(10)	–
				253	(250)	3

(1) Amounts are presented on a pre-tax basis.

	Year ended October 31, 2017
Gains (losses) on hedging instruments	(150)
Gains (losses) on hedged items attributable to the hedged risk	147
Hedge ineffectiveness	4

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.

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, 2018		Year ended October 31, 2018				
	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	(16)	(26)	54	(53)	–	(53)	(36)
Deposits	138	19	(84)	86	–	78	(10)
Acceptances	54	37	(70)	68	1	68	(17)
	176	30	(100)	101	1	93	(63)
Equity price risk							
Other liabilities	(3)	7	23	(23)	–	(23)	–
	173	37	(77)	78	1	70	(63)

(1) Amounts are presented on a pre-tax basis.

	Year ended October 31, 2017
Unrealized gains (losses) included in *Other comprehensive income* as the effective portion of the hedging instrument	45
Losses (gains) reclassified to *Net interest income* in the Consolidated Statement of Income	(35)
Hedge ineffectiveness	1

The following table shows the periods during which the Bank expected the hedged cash flows to occur and have an impact on net income.

As at October 31, 2017	1 year or less	Over 1 year to 2 years	Over 2 years to 5 years	Over 5 years
Expected cash flows from hedged assets	41	41	127	51
Expected cash flows from hedged liabilities	147	119	208	80
Net exposure	(106)	(78)	(81)	(29)

Note 18 – Hedging Activities (cont.)

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 table presents the amounts related to hedged items as well as the results of the net investment hedges.

	As at October 31, 2018		Year ended October 31, 2018				
	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	(2)	(187)	17	(17)	–	(17)	–
EUR	1	(4)	(1)	1	–	1	–
BRL	(1)	37	(3)	3	–	3	–
Other currencies	–	–	–	–	–	–	–
	(2)	(154)	13	(13)	–	(13)	–

(1) Amounts are presented on a pre-tax basis.

For the year ended October 31, 2017, a negligible amount representing the ineffective portion was recognized in *Non-interest income* in the Consolidated Statement of Income.

Reconciliation of Equity Components

The following table presents a reconciliation by risk category of *Accumulated other comprehensive income* attributable to hedge accounting.

	Net gains (losses) on cash flow hedges	Net foreign currency translation adjustments
As at October 31, 2017	146	(13)
Hedges of net investments in foreign operations[1]		
Gains (losses) included as the effective portion		(13)
Foreign currency translation gains (losses) on investments in foreign operations		42
Cash flow hedges[1]		
Gains (losses) included as the effective portion		
Interest rate risk	93	
Equity price risk	(23)	
Losses (gains) reclassified to the Consolidated Statement of Income		
Interest rate risk	(63)	
Equity price risk	–	
Other comprehensive income attributable to non-controlling interests	–	(1)
Income taxes	(2)	(1)
As at October 31, 2018	**151**	**14**

(1) Amounts are presented on a pre-tax basis.

Note 19 – Share Capital

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

As at October 31, 2018

	Redemption and conversion date in effect as of [1][2]	Redemption price per share ($)[1]	Convertible into preferred shares[2]	Dividend per share ($)[3]	Reset premium
First preferred shares issued and outstanding					
Series 30[4]	May 15, 2019 [5][6]	25.00	Series 31	0.25625 [7]	2.40 %
Series 32[4]	February 15, 2020 [5][6]	25.00	Series 33	0.24375 [7]	2.25 %
Series 34[4]	May 15, 2021 [5][6]	25.00	Series 35	0.35000 [7]	4.90 %
Series 36[4]	August 15, 2021 [5][6]	25.00	Series 37	0.33750 [7]	4.66 %
Series 38[4]	November 15, 2022 [5][6]	25.00	Series 39	0.27813 [7]	3.43 %
Series 40[4]	May 15, 2023 [5][6]	25.00	Series 41	0.28750 [7]	2.58 %
Series 42[4]	November 15, 2023 [5][6]	25.00	Series 43	0.30938 [7]	2.77 %
First preferred shares authorized but not issued					
Series 23[8]	July 31, 2013	25.00	n.a.	0.75000	n.a.
Series 31[4]	May 15, 2019 [5]	25.50 [9]	n.a.	Floating rate [10]	2.40 %
Series 33[4]	February 15, 2020 [5]	25.50 [9]	n.a.	Floating rate [10]	2.25 %
Series 35[4]	May 15, 2021 [5]	25.50 [9]	n.a.	Floating rate [10]	4.90 %
Series 37[4]	August 15, 2021 [5]	25.50 [9]	n.a.	Floating rate [10]	4.66 %
Series 39[4]	November 15, 2022 [5]	25.50 [9]	n.a.	Floating rate [10]	3.43 %
Series 41[4]	May 15, 2023 [5]	25.50 [9]	n.a.	Floating rate [10]	2.58 %
Series 43[4]	November 15, 2023 [5]	25.50 [9]	n.a.	Floating rate [10]	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. Redemption prices are increased by all the declared and unpaid dividends on the preferred shares to the date fixed for redemption.

(2) Convertible at the option of the holders of first preferred shares, subject to certain conditions.

(3) The dividends are non-cumulative and payable quarterly, except for Series 23, for which the dividends are 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 common shares of the Bank 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) Redeemable as of the date fixed for redemption and on the same date every five years thereafter.

(6) Convertible as of 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 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 5-year Government of Canada bond yield on the applicable fixed-rate calculation date by $25.00, plus the reset premium.

(8) For additional information, see Note 20 to these consolidated financial statements.

(9) 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.

(10) The dividend period begins as of the date fixed for redemption. The amount of the floating quarterly non-cumulative dividend is determined by multiplying the rate of interest equal to the sum of the 90-day Government of Canada treasury bill yield on the floating rate calculation date by $25.00, plus the reset premium.

Second Preferred Shares

15 million shares without par value, issuable for a total maximum consideration of $300 million. As at October 31, 2018, no shares had been issued or traded.

Note 19 – Share Capital (cont.)

Shares Outstanding

As at October 31	2018		2017	
	Number of shares	Shares $	Number of shares	Shares $
First Preferred Shares				
Series 28	–	–	8,000,000	200
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	16,000,000	400
Series 36	16,000,000	400	16,000,000	400
Series 38	16,000,000	400	16,000,000	400
Series 40	12,000,000	300	–	–
Series 42	12,000,000	300	–	–
	98,000,000	2,450	82,000,000	2,050
Common shares at beginning of the fiscal year	339,591,965	2,768	338,053,054	2,645
Issued pursuant to the Stock Option Plan	3,129,313	128	4,239,095	179
Repurchase of common shares for cancellation	(7,500,000)	(64)	(2,000,000)	(16)
Impact of shares purchased or sold for trading[1]	(149,430)	(10)	(591,843)	(37)
Other	(1,206)	–	(108,341)	(3)
Common shares at end of year	335,070,642	2,822	339,591,965	2,768

(1) As at October 31, 2018, 703,410 shares were held for trading, representing a total amount of $45 million (553,980 shares held for trading representing $35 million as at October 31, 2017).

Dividends Declared

Year ended October 31	2018		2017	
	Dividends $	Dividends per share	Dividends $	Dividends per share
First Preferred Shares				
Series 28	–	–	8	0.9500
Series 30	14	1.0250	14	1.0250
Series 32	12	0.9750	12	0.9750
Series 34	22	1.4000	22	1.4000
Series 36	22	1.3500	22	1.3500
Series 38	18	1.1125	7	0.4724
Series 40	11	0.9310	–	–
Series 42	6	0.5323	–	–
	105		85	
Common shares	829	2.4400	778	2.2800
	934		863	

Issuances of Preferred Shares

On June 11, 2018, the Bank issued 12,000,000 Non-Cumulative 5-Year Rate-Reset Series 42 First Preferred Shares at a price equal to $25.00 per share for gross proceeds of $300 million. Given that the Series 42 preferred shares satisfy the non-viability contingent capital requirements, they qualify for the purposes of calculating regulatory capital under Basel III.

On January 22, 2018, the Bank issued 12,000,000 Non-Cumulative 5-Year Rate-Reset Series 40 First Preferred Shares at a price equal to $25.00 per share for gross proceeds of $300 million. Given that the Series 40 preferred shares satisfy the non-viability contingent capital requirements, they qualify for the purposes of calculating regulatory capital under Basel III.

On June 13, 2017, the Bank had issued 16,000,000 Non-Cumulative 5-Year Rate-Reset Series 38 First Preferred Shares at a price equal to $25.00 per share for gross proceeds of $400 million. Given that the Series 38 preferred shares satisfy the non-viability contingent capital requirements, they qualify for the purposes of calculating regulatory capital under Basel III.

Redemption of Preferred Shares

On November 15, 2017, the Bank redeemed all the issued and outstanding Non-Cumulative 5-Year Rate-Reset Series 28 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 8,000,000 Series 28 preferred shares for a total amount of $200 million, which reduced *Preferred share capital*.

Repurchases of Common Shares

On June 6, 2018, the Bank began a normal course issuer bid to repurchase for cancellation up to 8,000,000 common shares (representing approximately 2.36% of its outstanding common shares) over the 12-month period ending no later than June 5, 2019. On June 5, 2017, the Bank had begun a normal course issuer bid to repurchase for cancellation up to 6,000,000 common shares (representing approximately 1.76% of its outstanding common shares) over the 12-month period ended June 4, 2018. 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 prices. The amounts that will be paid above the average book value of the common shares will be charged to *Retained earnings.* During the year ended October 31, 2018, the Bank repurchased 7,500,000 common shares for $467 million, which reduced *Common share capital* by $64 million and *Retained earnings* by $403 million.

Reserved Common Shares

As at October 31, 2018 and 2017, 15,507,568 common shares were reserved under the Dividend Reinvestment and Share Purchase Plan. As at October 31, 2018, 22,894,802 common shares (25,764,866 as at October 31, 2017) were 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. In December 2016, 799,563 of these shares were released to shareholders, and 108,341 shares were cancelled, mainly upon the settlement of certain indemnifications guaranteed by those shares. During the year ended October 31, 2018, 3,778 of these shares were released to shareholders and 1,206 shares were cancelled. As at October 31, 2018, the number of common shares held in escrow was 23,897 (28,881 as at October 31, 2017). The Bank expects that the remaining shares in escrow will be settled by the end of calendar year 2019.

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. Moreover, if NBC Asset Trust were unable to pay the full amount of distributions on the trust units, the Bank would withhold from declaring dividends on any of its preferred and common shares during a determined period. For additional information, see Notes 20 and 28 to these consolidated financial statements.

Dividend Reinvestment Plan

The Bank has a dividend reinvestment plan for common and preferred shareholders. Participation in the plan is optional. Under the terms and conditions of the plan, participants acquire shares through the reinvestment of cash dividends paid on the shares they hold or through optional cash payments. 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 ten business days immediately following the dividend payment date.

Note 20 – Non-Controlling Interests

As at October 31	**2018**	2017
Trust units issued by NBC Asset Trust (NBC CapS II)		
Series 1[1]	–	410
Series 2[2]	359	359
Other	20	39
	379	808

(1) On June 30, 2018, NBC Asset Trust redeemed all of the outstanding 400,000 NBC CapS II – Series 1 at a per-unit price of $1,000 for gross proceeds of $400 million. As at October 31, 2017, the balance included $10 million in accrued interest.
(2) Includes $9 million in accrued interest ($9 million as at October 31, 2017).

Trust Units Issued by NBC Asset Trust

Through structured entity NBC Asset Trust (the Trust), a closed-end trust established under the laws of the Province of Ontario, the Bank issued transferable non-voting trust units called "Trust Capital Securities" or "NBC CapS II." These securities are not redeemable or exchangeable for Bank preferred shares at the option of the holder. The gross proceeds from the issuance were used by the Trust to finance the acquisition of mortgage loans from the Bank. For additional information, see Note 28 to these consolidated financial statements.

The main terms and characteristics of the NBC CapS II trust units outstanding as at October 31, 2018 are presented below.

	Number	Issuance date	Annual yield	Distribution dates	Semi-annual distribution by NBC CapS II[1]
Series 2	350,000	June 30, 2008	7.447 %	June 30, December 31	$37.235[2]

(1) For each unit with a face value of $1,000.
(2) For each distribution date after June 30, 2020, the distribution will be paid at a rate equal to one-half the sum of the 180-day bankers' acceptance rate in effect plus 4.09%.

Distribution

No cash distributions will be payable by the Trust on NBC CapS II if the Bank fails to declare regular dividends on its preferred shares or, if no preferred shares are then outstanding, on its outstanding common shares. In this case, the net distributable funds of the Trust will be paid to the Bank as the sole holder of the special trust securities, representing the residual interest in the Trust. Should the Trust fail to pay the semi-annual distributions in full on the NBC CapS II, the Bank will withhold from declaring dividends on any of its preferred and common shares during a determined period.

Automatic Exchange

Each NBC CapS II – Series 2 can be exchanged automatically, without the consent of the holders, for 40 Series 23 First Preferred Shares of the Bank upon the occurrence of one of the following events: (i) proceedings are commenced for the winding-up of the Bank; (ii) OSFI takes control of the Bank; (iii) the Bank posts a Tier 1 capital ratio of less than 5% or a Total capital ratio of less than 8%; or (iv) OSFI has directed the Bank to increase its capital or to provide additional liquidity and the Bank elects such automatic exchange or the Bank fails to comply with such direction to the satisfaction of OSFI. On an automatic exchange, the Bank will hold all outstanding trust capital securities of the Trust.

Redemption at the Option of the Trust

On any distribution date, the Trust may, subject to prior written notice and OSFI approval, redeem, at its option, the NBC CapS II – Series 2, in whole but not in part, without the consent of the holders.

Purchase for Cancellation

The Trust may, with OSFI approval, purchase NBC CapS II – Series 2, in whole or in part, on the open market or by tender or private contract at any price. The NBC CapS II purchased by the Trust, if any, will be cancelled and will not be reissued.

Regulatory Capital

The NBC CapS II – Series 2 qualify as innovative capital instruments and are eligible as additional Tier 1 capital, but because these instruments do not satisfy the non-viability contingent capital requirements, they are to be phased out at a rate of 10% per year between 2013 and 2022.

Note 21 – 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 regulatory capital by risk-weighted assets and are expressed as a percentage. 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 capital deductions. The Additional Tier 1 instruments comprise eligible non-cumulative preferred shares and the eligible amount of innovative instruments. The sum of CET1 and Additional Tier 1 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 Basel III regulatory framework sets out transitional arrangements for the period of 2013 to 2019. However, OSFI is requiring Canadian banks to meet the 2019 minimum "all-in" requirements rather than the minimum ratios calculated using the transitional methodology. The "all-in" methodology includes all of the regulatory adjustments that will be required by 2019 while retaining the phase-out rules for non-qualifying capital instruments. Consequently, the Bank and all other major Canadian banks have had to maintain, on an "all-in" basis, a CET1 capital ratio of at least 8.0%, a Tier 1 capital ratio of at least 9.5%, and a Total capital ratio of at least 11.5%. All of these ratios are to include a capital conservation buffer of 2.5% and a 1% surcharge applicable to Domestic Systemically Important Banks (DSIBs). The banks also have to meet the revised 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 75% of the capital requirements as calculated under Basel II, the difference is added to risk-weighted assets. In addition, during the year ended October 31, 2018, OSFI introduced a domestic stability buffer of 1.5% that must be maintained by the DSIBs. This buffer is exclusively made up of CET1 capital.

OSFI has also been 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, 2018 and 2017, the Bank was in compliance with all of OSFI's regulatory capital requirements.

Note 21 – Capital Disclosure (cont.)

Regulatory Capital and Ratios Under Basel III[1]

As at October 31	2018	2017
Capital		
CET1	8,608	7,856
Tier 1[2]	11,410	10,457
Total[2]	12,352	10,661
Risk-weighted assets		
CET1 capital	73,654	70,173
Tier 1 capital	73,670	70,327
Total capital	73,685	70,451
Total exposure	284,337	262,539
Capital ratios		
CET1	11.7 %	11.2 %
Tier 1[2]	15.5 %	14.9 %
Total[2]	16.8 %	15.1 %
Leverage ratio	4.0 %	4.0 %

(1) Figures are presented on an "all-in" basis.
(2) Figures as at October 31, 2017 included the redemption of the Series 28 preferred shares on November 15, 2017.

Note 22 – Trading Activity Revenues

Trading activity revenues consist of the net interest income from trading activities and of trading revenues recognized in *Non-interest income* in the Consolidated Statement of Income.

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, and changes in the fair value of financial instruments designated at fair value through profit or loss.

Year ended October 31	2018	2017
Net interest income	52	376
Non-interest income	840	374
	892	750

Note 23 – 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 22,894,802 as at October 31, 2018 (25,764,866 as at October 31, 2017). 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	2018		2017	
	Number of options	Weighted average exercise price	Number of options	Weighted average exercise price
Stock Option Plan				
Outstanding at beginning	**14,575,894**	**$ 40.46**	17,302,322	$ 38.05
Awarded	**1,836,348**	**$ 64.14**	1,804,016	$ 54.69
Exercised	**(3,129,313)**	**$ 35.75**	(4,239,095)	$ 36.31
Cancelled(1)	**(218,183)**	**$ 48.85**	(291,349)	$ 45.90
Outstanding at end	**13,064,746**	**$ 44.78**	14,575,894	$ 40.46
Exercisable at end	**8,378,530**	**$ 39.17**	9,250,560	$ 36.03

(1) Includes 13,784 expired options during the year ended October 31, 2018 (10,728 expired options during the year ended October 31, 2017).

Exercise price	Options outstanding	Options exercisable	Expiry date
$17.44	502,406	502,406	December 2018
$29.25	706,605	706,605	December 2019
$34.34	878,110	878,110	December 2020
$34.09	1,030,956	1,030,956	December 2021
$38.36	1,330,891	1,330,891	December 2022
$44.96	1,471,790	1,471,790	December 2023
$47.93	2,048,089	1,394,261	December 2024
$42.17	1,656,478	699,838	December 2025
$54.69	1,640,341	363,673	December 2026
$64.14	1,799,080	–	December 2027
	13,064,746	8,378,530	

During the year ended October 31, 2018, the Bank awarded 1,836,348 stock options (1,804,016 during the year ended October 31, 2017) with an average fair value of $7.42 per option ($5.75 for the year ended October 31, 2017).

The average fair value of options awarded was estimated on the award date using the Black-Scholes model as well as the following assumptions.

As at October 31	2018	2017
Risk-free interest rate	**2.11%**	1.59%
Expected life of options	**7 years**	7 years
Expected volatility	**18.87%**	20.53%
Expected dividend yield	**3.80%**	4.41%

Note 23 – 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.

The compensation expense recorded for this plan for the year ended October 31, 2018 was $12 million ($11 million for the year ended October 31, 2017).

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 compensation expense of $1 million was recognized for the year ended October 31, 2018 with respect to this plan ($4 million for the year ended October 31, 2017).

As at October 31		2018		2017
	Number of SARs	**Weighted average exercise price**	Number of SARs	Weighted average exercise price
SAR Plan[1]				
Outstanding at beginning	**395,334**	**$ 42.29**	349,856	$ 39.59
Awarded	**62,820**	**$ 64.14**	63,356	$ 54.69
Exercised	**(125,943)**	**$ 41.13**	(17,878)	$ 33.34
Outstanding at end	**332,211**	**$ 46.86**	395,334	$ 42.29
Exercisable at end	**163,971**	**$ 38.91**	225,637	$ 37.69

(1) No SARs cancelled or expired during the years ended October 31, 2018 and 2017.

Exercise price	SARs outstanding	SARs exercisable	Expiry date
$17.44	–	–	December 2018
$29.25	26,974	26,974	December 2019
$34.34	21,060	21,060	December 2020
$34.09	24,608	24,608	December 2021
$38.36	24,216	24,216	December 2022
$44.96	29,480	29,480	December 2023
$47.93	44,492	23,679	December 2024
$42.17	46,964	9,874	December 2025
$54.69	51,597	4,080	December 2026
$64.14	62,820	–	December 2027
	332,211	163,971	

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 participant's account equal in amount to the dividends paid on common shares of the Bank and vest evenly over the same period as the reference DSUs. DSUs may only be cashed when participants retire or leave the Bank, or for directors, when their term ends. The DSU Plan contains provisions for retiring employees that allow the participant's units to continue vesting in accordance with the stated terms of the grant agreement.

During the year ended October 31, 2018, the Bank awarded 44,713 DSUs at a weighted average price of $63.68 (74,436 DSUs at a weighted average price of $54.69 for the year ended October 31, 2017). A total of 591,360 DSUs were outstanding as at October 31, 2018 (637,989 DSUs as at October 31, 2017). A compensation expense of $7 million was recognized for the year ended October 31, 2018 with respect to these plans ($14 million for the year ended October 31, 2017).

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 participant's account equal in amount to the dividends declared on the common shares of the Bank and vest evenly over the same period as the reference RSUs. The RSU Plan contains provisions for retiring employees that allow the participant's units to continue vesting in accordance with the stated terms of the award agreement.

During the year ended October 31, 2018, the Bank awarded 2,158,594 RSUs at a weighted average price of $63.57 (2,411,016 RSUs at a weighted average price of $51.21 for the year ended October 31, 2017). As at October 31, 2018, a total of 5,072,615 RSUs were outstanding (5,156,316 RSUs as at October 31, 2017). A compensation expense of $140 million was recognized for the year ended October 31, 2018 with respect to this plan ($174 million for the year ended October 31, 2017).

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 total shareholder return (TSR) over three years achieved by the Bank compared to that of the S&P/TSX Banks adjusted sub-index. 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 participant's account in an amount equal to the dividends declared on the Bank's common shares and vest evenly over the same period as the reference PSUs. The PSU Plan contains provisions for retiring employees that allow the participant's units to continue vesting in accordance with the stated terms of the award agreement.

During the year ended October 31, 2018, the Bank awarded 287,206 PSUs at a weighted average price of $63.57 (345,237 PSUs at a weighted average price of $51.21 for the year ended October 31, 2017). As at October 31, 2018, a total of 969,322 PSUs were outstanding (881,701 PSUs as at October 31, 2017). A compensation expense of $21 million was recognized for the year ended October 31, 2018 with respect to this plan ($24 million for the year ended October 31, 2017).

Deferred Compensation Plan of National Bank Financial (NBF)

This plan is exclusively for key employees of NBF Wealth Management. 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 Wealth Management. Under this plan, participants can defer a portion of their annual compensation and NBF may pay a contribution to key employees when certain financial objectives are met. Amounts awarded by NBF and the compensation deferred by participants are invested in, among others, 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 participant's account equal in amount to the dividends declared on the Bank's common shares. Share units representing the amounts awarded by NBF vest evenly over four years. When a participant retires, or in certain cases when the participant's employment is terminated, the participant receives a cash amount representing the value of the vested share units.

During the year ended October 31, 2018, NBF awarded 132,544 share units at a weighted average price of $63.63 (132,226 share units at a weighted average price of $55.36 for the year ended October 31, 2017). As at October 31, 2018, 1,618,166 share units were outstanding (1,598,966 share units as at October 31, 2017). During the year ended October 31, 2018, a $3 million compensation expense reversal related to a decline in share value was recognized for this plan ($24 million compensation expense for the year ended October 31, 2017).

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 $9 million for the year ended October 31, 2018 ($10 million for the year ended October 31, 2017), were charged to *Compensation and employee benefits* when paid. As at October 31, 2018, a total of 5,718,242 common shares were held for this plan (5,961,203 common shares as at October 31, 2017).

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 $494 million as at October 31, 2018 ($511 million as at October 31, 2017). The intrinsic value of these liabilities that had vested as at October 31, 2018 was $182 million ($223 million as at October 31, 2017).

Note 24 – 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. The other post-employment benefit plans include post-retirement medical, dental and life insurance coverage. The pension plans are funded whereas the other plans are not funded. The fair value of plan assets and the present value of the defined benefit obligation 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 plans' financial status 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	
	2018	2017	**2018**	2017
Defined benefit obligation				
Balance at beginning	**3,984**	3,843	**191**	199
Current service cost	**114**	114	**5**	5
Interest cost	**148**	142	**7**	7
Remeasurements				
Actuarial (gains) losses arising from changes in demographic assumptions	**37**	–	**–**	–
Actuarial (gains) losses arising from changes in financial assumptions	**(276)**	(77)	**(16)**	(3)
Actuarial (gains) losses arising from experience adjustments	**–**	92	**(1)**	(7)
Employee contributions	**47**	49		
Benefits paid	**(190)**	(179)	**(10)**	(10)
Balance at end	**3,864**	3,984	**176**	191
Plan assets				
Fair value at beginning	**3,979**	3,776		
Interest income	**144**	135		
Administration cost	**(4)**	(3)		
Remeasurements				
Return on plan assets (excluding interest income)	**(116)**	138		
Bank contributions(1)	**58**	63		
Employee contributions	**47**	49		
Benefits paid	**(190)**	(179)		
Fair value at end	**3,918**	3,979		
Defined benefit asset (liability) at end	**54**	(5)	**(176)**	(191)

(1) For fiscal 2019, the Bank expects to pay an employer contribution of $60 million to the defined benefit pension plans.

Defined Benefit Asset (Liability)

As at October 31

	Pension plans		Other post-employment benefit plans	
	2018	2017	**2018**	2017
Defined benefit asset included in *Other assets*	**64**	56		
Defined benefit liability included in *Other liabilities*	**(10)**	(61)	**(176)**	(191)
	54	(5)	**(176)**	(191)

Cost for Pension Plans and Other Post-Employment Benefits

Year ended October 31

	Pension plans		Other post-employment benefit plans	
	2018	2017	**2018**	2017
Current service cost	**114**	114	**5**	5
Interest expense (income), net	**4**	7	**7**	7
Administration costs	**4**	3		
Expense recognized in *Net income*	**122**	124	**12**	12
Remeasurements[1]				
Actuarial (gains) losses on defined benefit obligation	**(239)**	15	**(17)**	(10)
Return on plan assets[2]	**116**	(138)		
Remeasurements recognized in *Other comprehensive income*	**(123)**	(123)	**(17)**	(10)
	(1)	1	**(5)**	2

(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) Excluding interest income.

Allocation of the Fair Value of Pension Plan Assets

As at October 31			**2018**			2017
	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	**–**	**91**	**91**	–	108	108
Equity securities	**1,482**	**482**	**1,964**	1,693	390	2,083
Debt securities						
Canadian government	**223**	**–**	**223**	244	–	244
Canadian provincial and municipal governments	**–**	**1,115**	**1,115**	–	1,038	1,038
Other issuers	**–**	**383**	**383**	–	395	395
Other	**–**	**142**	**142**	–	111	111
	1,705	**2,213**	**3,918**	1,937	2,042	3,979

(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, 2018 and 2017, the pension plan assets do not include any securities issued by the Bank.

During the year ended October 31, 2018, the Bank sold $30 million in units of a private investment fund that it was holding to the pension plan. These units are reported in the *Equity securities not quoted in an active market* category.

For fiscal 2018, the Bank and its related entities received $5 million ($6 million in fiscal 2017) in fees from the pension plans for related management, administration and custodial services.

Note 24 – 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	
	2018	2017	**2018**	2017
Active employees	**45 %**	46 %	**31 %**	31 %
Retirees	**51 %**	50 %	**69 %**	69 %
Participants with deferred vested benefits	**4 %**	4 %		
	100 %	100 %	**100 %**	100 %
Weighted average duration of the defined benefit obligation *(in years)*	**16**	17	**14**	15

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.

In order 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 5.23% in 2018 (5.28% in 2017). Based on the assumption retained, this rate is expected to decrease gradually to 3.50% in 2038 and remain steady thereafter.

The mortality assumption is 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	
	2018	2017	**2018**	2017
Defined benefit obligation				
Discount rate	**4.05 %**	3.65 %	**4.05 %**	3.65 %
Rate of compensation increase	**3.00 %**	3.00 %	**3.00 %**	3.00 %
Health care cost trend rate			**5.23 %**	5.28 %
Life expectancy *(in years)* at 65 for a participant currently at				
Age 65				
Men	**21.2**	21.2	**21.2**	21.2
Women	**23.6**	23.5	**23.6**	23.5
Age 45				
Men	**22.3**	22.2	**22.3**	22.2
Women	**24.5**	24.5	**24.5**	24.5

Year ended October 31

	Pension plans		Other post-employment benefit plans	
	2018	2017	**2018**	2017
Pension plan expense				
Discount rate – Current service	**3.75 %**	3.75 %	**3.75 %**	3.75 %
Discount rate – Interest expense (income), net	**3.65 %**	3.60 %	**3.65 %**	3.60 %
Rate of compensation increase	**3.00 %**	3.00 %	**3.00 %**	3.00 %
Health care cost trend rate			**5.28 %**	5.77 %
Life expectancy *(in years)* at 65 for a participant currently at				
Age 65				
Men	**21.2**	21.1	**21.2**	21.1
Women	**23.5**	23.5	**23.5**	23.5
Age 45				
Men	**22.2**	22.2	**22.2**	22.2
Women	**24.5**	24.5	**24.5**	24.5

Note 24 – Employee Benefits – Pension Plans and Other Post-Employment Benefits (cont.)

Sensitivity of Significant Assumptions for 2018

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, 2018. These impacts are hypothetical and should be interpreted with caution as changes in each significant assumption may not be linear.

	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	(153)	(6)
Impact of a 0.25% decrease in the discount rate	163	7
Impact of a 0.25% increase in the rate of compensation increase	37	1
Impact of a 0.25% decrease in the rate of compensation increase	(36)	(1)
Impact of a 1.00% increase in the health care cost trend rate		8
Impact of a 1.00% decrease in the health care cost trend rate		(7)
Impact of an increase in the age of participants by one year	(94)	(2)
Impact of a decrease in the age of participants by one year	92	2

Projected Benefit Payments

Year ended October 31	Pension plans	Other post-employment benefit plans
2019	196	9
2020	202	9
2021	208	9
2022	214	9
2023	221	9
2024 to 2028	1,208	41

Note 25 – Income Taxes

The Bank's income tax expense reported in the consolidated financial statements is as follows.

Year ended October 31	2018	2017
Consolidated Statement of Income		
Current taxes		
Current year	504	508
Prior period adjustments	16	(11)
	520	497
Deferred taxes		
Origination and reversal of temporary differences	15	(8)
Prior period adjustments	9	(5)
	24	(13)
	544	484
Consolidated Statement of Changes in Equity		
Share issuance expense and other	(5)	8
Consolidated Statement of Comprehensive Income		
Remeasurements of pension plans and other post-employment benefit plans	37	36
Other	4	(11)
	41	25
Income taxes	580	517

The breakdown of the income tax expense is as follows.

Year ended October 31	2018	2017
Current taxes	523	505
Deferred taxes	57	12
	580	517

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	
	2018	2017	2018	2017	2018	2017
Deferred tax assets						
Allowances for credit losses[(1)]	143	151	(16)	(8)	–	–
Deferred charges	233	246	(13)	5	–	–
Defined benefit liability – Pension plans	36	69	–	–	(33)	(33)
Defined benefit liability – Other post-employment benefit plans	54	56	–	–	(2)	(2)
Deferred revenue	38	38	–	5	–	–
Tax loss carryforwards	26	24	2	6	–	–
Other items[(2)(3)]	26	61	(49)	(4)	–	8
	556	645	(76)	4	(35)	(27)
Deferred tax liabilities						
Premises and equipment and intangible assets	(207)	(199)	(8)	(22)	–	–
Defined benefit asset – Pension plans	(41)	(55)	16	16	(2)	(1)
Investments in associates	(31)	(25)	(6)	18	–	–
Other items	22	(27)	50	(3)	(1)	–
	(257)	(306)	52	9	(3)	(1)
Net deferred tax assets (liabilities)	299	339	(24)	13	(38)	(28)

(1) As at November 1, 2017, as a result of impairment remeasurement adjustments upon IFRS 9 adoption, the *Deferred tax assets* related to allowances for credit losses and *Retained earnings* increased by $8 million.
(2) As at November 1, 2017, as a result of classification adjustments upon IFRS 9 adoption, the *Deferred tax assets* related to certain loans and *Retained earnings* increased by $9 million.
(3) As at October 31, 2018, the Consolidated Balance Sheet amount includes $5 million in deferred tax assets related to share issuance costs ($3 million as at October 31, 2017) reported in *Retained earnings* on the Consolidated Statement of Changes in Equity.

Note 25 – Income Taxes (cont.)

Net deferred tax assets are included in *Other assets* and net deferred tax liabilities are included in *Other liabilities*.

As at October 31	2018	2017
Deferred tax assets	324	374
Deferred tax liabilities	(25)	(35)
	299	339

According to forecasts, which are based on information available on October 31, 2018, 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, 2018, the total amount of temporary differences, unused tax loss carryforwards and unused tax credits for which no deferred tax asset has been recognized was $369 million ($383 million as at October 31, 2017).

As at October 31, 2018, 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 $1,972 million ($1,057 million as at October 31, 2017).

The following table provides a reconciliation of the Bank's income tax rate.

Year ended October 31	2018		2017	
	$	%	$	%
Income before income taxes	2,776	100.0	2,508	100.0
Income taxes at Canadian statutory income tax rate	741	26.7	670	26.7
Reduction in income tax rate due to				
Tax-exempt income from securities	(161)	(5.8)	(178)	(7.1)
Non-taxable portion of capital gains	(6)	(0.2)	(2)	(0.1)
Tax rates of subsidiaries, foreign entities and associates	(36)	(1.3)	1	0.1
Other items	6	0.2	(7)	(0.3)
	(197)	(7.1)	(186)	(7.4)
Income taxes reported in the Consolidated Statement of Income and effective income tax rate	544	19.6	484	19.3

Notice of Assessment

In September 2018, the Bank was reassessed by the Canada Revenue Agency (CRA) for additional income tax and interest of approximately $130 million (including estimated provincial tax and interest) in respect of certain Canadian dividends received by the Bank during 2013.

In May 2017, the Bank had been reassessed for additional income tax and interest of approximately $77 million (including provincial tax and interest) in respect of certain Canadian dividends received by the Bank during 2012.

The transactions to which these reassessments relate are similar to those prospectively addressed by the synthetic equity arrangement rules introduced in the 2015 Canadian federal budget.

Also in July 2018, the CRA confirmed in writing that, except for the above-mentioned reassessment for 2012, it would not pursue the proposed reassessment in respect of 2011 and 2012 that had been communicated to the Bank in March 2017.

The CRA may issue reassessments to the Bank for taxation years subsequent to 2013 in regard to activities similar to those that were the subject of the 2013 and 2012 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, 2018.

Note 26 – 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	2018	2017
Basic earnings per share		
Net income attributable to the Bank's shareholders	2,145	1,940
Dividends on preferred shares	105	85
Net income attributable to common shareholders	2,040	1,855
Weighted average basic number of common shares outstanding *(thousands)*	339,372	340,809
Basic earnings per share *(dollars)*	6.01	5.44
Diluted earnings per share		
Net income attributable to common shareholders	2,040	1,855
Weighted average basic number of common shares outstanding *(thousands)*	339,372	340,809
Adjustment to average number of common shares *(thousands)*		
Stock options[(1)]	3,868	3,962
Weighted average diluted number of common shares outstanding *(thousands)*	343,240	344,771
Diluted earnings per share *(dollars)*	5.94	5.38

(1) For the year ended October 31, 2018, the calculation of the diluted earnings per share excluded an average number of 1,621,740 options outstanding with a weighted average exercise price of $64.14, as the exercise price of these options was greater than the average price of the Bank's common shares. For the year ended October 31, 2017, as the exercise price of the options was lower than the average price of the Bank's common shares, no option was excluded from the diluted earnings per share calculation.

Note 27 – 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	2018	2017
Letters of guarantee[(1)]	4,353	3,847
Backstop liquidity, credit enhancement facilities and other[(1)]	4,878	5,049
Securities lending	227	1,293

(1) For additional information on allowances for credit losses related to off-balance-sheet commitments, refer to Note 8 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 financial 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, 2018, the notional amount of the global-style backstop liquidity facilities totalled $2.6 billion ($2.7 billion as at October 31, 2017), representing the total amount of the 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.

Note 27 – Guarantees, Commitments and Contingent Liabilities (cont.)

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, 2018 and 2017, 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., $2.6 billion as at October 31, 2018 ($2.7 billion as at October 31, 2017). As at October 31, 2018, the Bank held $7 million ($6 million as at October 31, 2017) of this commercial paper and, consequently, the maximum potential amount of future payments was $2.6 billion ($2.7 billion as at October 31, 2017).

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, 2018 and 2017, the notional amount of the overnight uncommitted liquidity facility amounted to $2.3 billion. As at October 31, 2018 and 2017, 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, 2018 and 2017, 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 recorded 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	**2018**	2017
Letters of guarantee[1]	**4,353**	3,847
Documentary letters of credit[2]	**142**	137
Credit card receivables[3]	**7,874**	7,688
Commitments to extend credit[3]	**57,794**	52,391

(1) See the *Letters of Guarantee* heading on page 195.
(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, 2018, the fair value of financial assets received as collateral that the Bank was authorized to sell or repledge was $57.5 billion ($58.3 billion as at October 31, 2017). 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.

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 $99 million as at October 31, 2018 ($77 million as at October 31, 2017).

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	2018	2017
Assets pledged to		
Bank of Canada	502	502
Direct clearing organizations[(1)]	1,130	1,358
Assets pledged in relation to		
Derivative financial instrument transactions	1,652	1,330
Borrowing, securities lending and securities sold under reverse repurchase agreements	41,378	40,693
Securitization transactions	22,083	23,151
Covered bonds[(2)]	8,995	7,668
Other	125	126
Total	75,865	74,828

(1) Includes assets pledged as collateral for Large Value Transfer System (LVTS) activities.
(2) The Bank has a covered bond program. For additional information, see Notes 14 and 28 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 proceeding 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 then approved by the trial courts in each of the five jurisdictions where the action was initiated. The rulings approving the settlement are now the subject of appeal proceedings in multiple jurisdictions.

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 operating income for a particular period, it would not have a material adverse impact on the Bank's consolidated financial position.

Note 28 – 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. 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.

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 27. 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 as 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.

Asset-Backed Structured Entities

The Bank invested in certain asset-backed structured entities. The underlying assets consist of residential mortgages, consumer loans, equipment loans and leases. 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.

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 9 to these consolidated financial statements.

	As at October 31, 2018			
	Multi-seller conduits[1]	Investment funds[2]	Private investments[3]	Asset-backed structured entities[4]
Assets on the Consolidated Balance Sheet				
Securities at fair value through profit or loss	7	139	86	–
Securities at amortized cost	–	–	–	1,450
	7	139	86	1,450
As at October 31, 2017	6	58	70	1,306
Liabilities on the Consolidated Balance Sheet				
Derivative financial instruments	26	–	–	–
As at October 31, 2017	13	–	–	–
Maximum exposure to loss				
Securities	7	139	86	1,450
Liquidity, credit enhancement facilities and commitments	2,550	–	–	102
	2,557	139	86	1,552
As at October 31, 2017	2,727	58	70	1,522
Total assets of the structured entities	2,589	1,054	492	3,612
As at October 31, 2017	2,768	277	437	3,201

(1) The main underlying assets, located in Canada, are residential mortgages, automobile loans, automobile inventory financings, and other receivables. As at October 31, 2018, the notional committed amount of the global-style liquidity facilities totalled $2.6 billion ($2.7 billion as at October 31, 2017), 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, 2017). The maximum exposure to loss cannot exceed the amount of commercial paper outstanding. As at October 31, 2018, the Bank held $7 million in commercial paper ($6 million as at October 31, 2017) and, consequently, the maximum potential amount of future payments as at October 31, 2018 is limited to $2.6 billion ($2.7 billion as at October 31, 2017), 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 and leases.

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.

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 these funds through its involvement as an investor and its significant exposure to their variable returns. Therefore, the Bank consolidates these funds.

Note 28 – Structured Entities (cont.)

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.

NBC Asset Trust

The Bank created NBC Asset Trust for its funding and capital management needs. The securities issued by this trust constitute innovative capital instruments and are eligible as additional Tier 1 capital, but because these instruments do not satisfy the non-viability contingent capital requirements, they are to be phased out at a rate of 10% per year between 2013 and 2022. For additional information, see Note 20 to these consolidated financial statements. The issuance proceeds were used to acquire, from the Bank, residential mortgage loans. The Bank continues to administer these loans and is committed to repurchase from NBC Asset Trust the capital balance and unpaid accrued interest on any loan that is more than 90 days past due. The Bank also manages day-to-day operations and holds the special voting securities of the trust. After the distribution has been paid to the holders of the trust capital securities, the Bank, as the sole holder of the special trust securities, is entitled to receive the balance of net residual funds. Therefore, the Bank has the ability to direct the relevant activities of NBC Asset Trust and can use its power to affect the amount of returns it obtains. Consequently, the Bank controls this trust and consolidates it.

Third-Party Structured Entities

In 2015, the Bank, through one of its subsidiaries, acquired interests in portions of a third-party structured entity. Each portion of the structured entity is a deemed separate entity since all of the following criteria are met: 1) specified assets of the entity are the only source of payment for specified liabilities of (or specified other interests in) the entity; 2) parties other than those with the specified liabilities do not have rights or obligations related to the specified assets or to residual cash flows from those assets. The Bank controls and therefore consolidates the deemed separate entities, as it has the ability to direct their relevant activities through its kick-out rights over the servicer of their assets and because it is also exposed to the variability of their returns.

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		2018		2017
	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]	**898**	**2,053**	863	1,784
Investment funds[4]	**289**	**310**	205	217
Covered bonds[5]	**12,886**	**13,153**	15,605	15,891
Building[6]	**61**	**54**	61	54
NBC Asset Trust[7]	**700**	**1,060**	1,350	2,122
Third-party structured entities[8]	**305**	**305**	74	74
	15,139	**16,935**	18,158	20,142

(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 are various financial instruments and are presented on a net asset basis. Certain investment funds are in a trading portfolio.
(5) 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, 2018, the total amount of transferred mortgage loans was $12.9 billion ($15.6 billion as at October 31, 2017), and the total amount of covered bonds of $8.3 billion was recognized in *Deposits* on the Consolidated Balance Sheet ($7.0 billion as at October 31, 2017). For additional information, see Note 14 to these consolidated financial statements.
(6) The underlying asset is a building located in Canada.
(7) The underlying assets are insured and uninsured residential mortgage loans of the Bank. As at October 31, 2018, insured loans amounted to $18 million ($82 million as at October 31, 2017). The average maturity of the underlying assets is two years. For additional information, see Note 20 to these consolidated financial statements.
(8) The underlying assets consist of equipment leased under operating leases as well as a loan portfolio.

Note 29 – 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 24 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	
	2018	2017	**2018**	2017
Assets				
Mortgage loans and other loans	**36**	30	**298** [2]	364 [2]
Other	**–**	–	**8**	21
Liabilities				
Deposits	**59**	43	**246** [3]	789 [3]
Other	**–**	–	**16**	23

(1) As at October 31, 2018, key officers, directors and their immediate family members were holding $67 million of the Bank's common and preferred shares ($46 million as at October 31, 2017).
(2) As at October 31, 2018, mortgage loans and other loans consisted of: (i) no loans to the Bank's associates and joint ventures ($28 million as at October 31, 2017), and (ii) $298 million in loans to entities over which the Bank's key officers, directors and their immediate family members exercise control or significant influence through significant voting power ($336 million as at October 31, 2017).
(3) As at October 31, 2018, deposits consisted of: (i) $41 million in deposits from the Bank's associates and joint ventures ($285 million as at October 31, 2017) and (ii) $205 million in deposits from entities over which the Bank's key officers, directors and their immediate family members exercise control or significant influence through significant voting power ($504 million as at October 31, 2017).

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 10, 23 and 28 to these consolidated financial statements.

Compensation of Key Officers and Directors

Year ended October 31	**2018**	2017
Compensation and other short-term and long-term benefits	**22**	24
Share-based payments	**25**	21

Note 29 – Related Party Disclosures (cont.)

Principal Subsidiaries of the Bank[1]

Name	Business activity	Principal office address	Voting shares[2]	Investment at cost
				As at October 31, 2018
Canada and United States				
National Bank Acquisition Holding Inc.	Holding company	Montreal, Canada	100%	1,429
National Bank Financial Inc.	Investment dealer	Montreal, Canada	100%	
NBF International Holdings Inc.	Holding company	Montreal, Canada	100%	
Credigy International Holdings Inc.	Holding company	Montreal, Canada	80%	
National Bank of Canada Financial Group Inc.	Holding company	New York, NY, United States	100%	
Credigy Ltd.	Holding company	Atlanta, GA, United States	80%	
National Bank of Canada Financial Inc.	Investment dealer	New York, NY, United States	100%	
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
National Bank Investments Inc.	Mutual funds dealer	Montreal, Canada	100%	585
NatBC Holding Corporation	Holding company	Hollywood, FL, United States	100%	31
Natbank, National Association	Banking	Hollywood, FL, United States	100%	
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	90%	280
ATA IT Ltd.	Information technology	Bangkok, Thailand	100%	3

(1) Excluding consolidated structured entities. For additional information, see Note 28 to these consolidated financial statements.
(2) The Bank's percentage of voting rights in these subsidiaries.

Note 30 – Management of the Risks Associated With Financial Instruments

The Bank is exposed to credit risk, market risk, liquidity risk and financing 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, 2018. 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, 2018 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, 2018 and 2017. 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 in the assessment of liquid assets or in 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 for other contracts, mainly contracts for outsourced information technology services. Most of the lease commitments are related to operating leases.

									As at October 31, 2018
	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	9,544	790	41	1	19	10	–	–	2,351	12,756
Securities										
At fair value through profit or loss	1,982	1,713	1,043	1,430	1,457	5,638	10,527	5,444	26,583	55,817
At fair value through other comprehensive income	3	183	7	66	68	714	1,892	2,502	233	5,668
At amortized cost	–	10	9	–	730	814	6,162	573	–	8,298
	1,985	1,906	1,059	1,496	2,255	7,166	18,581	8,519	26,816	69,783
Securities purchased under reverse repurchase agreements and securities borrowed	7,759	1,242	2,154	271	790	2,151	–	–	3,792	18,159
Loans[1]										
Residential mortgage	724	950	1,583	2,653	2,105	10,124	32,675	2,085	752	53,651
Personal	365	395	622	1,070	762	3,914	10,509	3,116	16,604	37,357
Credit card	–	–	–	–	–	–	–	–	2,325	2,325
Business and government	7,557	2,454	2,246	3,672	2,206	4,244	12,838	2,402	8,987	46,606
Customers' liability under acceptances	6,019	670	112	–	–	–	–	–	–	6,801
Allowances for credit losses									(658)	(658)
	14,665	4,469	4,563	7,395	5,073	18,282	56,022	7,603	28,010	146,082
Other										
Derivative financial instruments	642	884	718	375	287	951	2,005	2,746	–	8,608
Investments in associates and joint ventures									645	645
Premises and equipment									601	601
Goodwill									1,412	1,412
Intangible assets									1,314	1,314
Other assets[1]	574	108	66	61	131	119	31	54	1,967	3,111
	1,216	992	784	436	418	1,070	2,036	2,800	5,939	15,691
	35,169	9,399	8,601	9,599	8,555	28,679	76,639	18,922	66,908	262,471

(1) Amounts collectible on demand are considered to have no specified maturity.

Note 30 – Management of the Risks Associated With Financial Instruments (cont.)

										As at October 31, 2018
	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	1,630	2,324	2,631	2,033	2,785	5,156	8,994	2,327	27,808	55,688
Business and government	12,082	9,725	5,587	2,953	1,988	7,017	11,050	5,025	54,894	110,321
Deposit-taking institutions	949	541	200	15	263	–	–	50	2,803	4,821
	14,661	12,590	8,418	5,001	5,036	12,173	20,044	7,402	85,505	170,830
Other										
Acceptances	6,019	670	112	–	–	–	–	–	–	6,801
Obligations related to securities sold short[3]	1,061	362	201	33	311	1,753	3,729	5,946	4,384	17,780
Obligations related to securities sold under repurchase agreements and securities loaned	6,912	1,981	3,826	1,607	–	–	–	–	5,672	19,998
Derivative financial instruments	427	668	288	245	181	856	1,485	1,886	–	6,036
Liabilities related to transferred receivables[4]	–	2,244	226	867	537	3,088	10,072	3,066	–	20,100
Securitization – Credit card[5]	36	–	–	–	–	874	–	–	–	910
Other liabilities – Other items[1][5]	548	241	56	20	59	66	63	207	3,654	4,914
	15,003	6,166	4,709	2,772	1,088	6,637	15,349	11,105	13,710	76,539
Subordinated debt	–	–	–	–	–	–	–	747	–	747
Equity									14,355	14,355
	29,664	18,756	13,127	7,773	6,124	18,810	35,393	19,254	113,570	262,471
Off-balance-sheet commitments										
Letters of guarantee and documentary letters of credit	78	1,269	540	1,296	688	566	58	–	–	4,495
Credit card receivables[6]									7,874	7,874
Backstop liquidity and credit enhancement facilities[7]	–	15	2,298	15	–	–	–	–	2,550	4,878
Commitments to extend credit[8]	2,394	4,161	3,886	4,988	4,737	3,839	6,777	304	26,708	57,794
Lease commitments and other contracts	31	38	58	55	71	247	470	412	–	1,382

(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 remaining 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 $2.3 billion.
(8) These amounts include $42.9 billion that is unconditionally revocable at the Bank's discretion at any time.

As at October 31, 2017

	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	6,181	534	23	1	1	4	–	–	2,058	8,802
Securities										
At fair value through profit or loss	467	1,182	931	1,623	909	3,413	8,166	4,502	26,343	47,536
Available-for-sale	–	67	19	29	30	419	3,973	3,496	519	8,552
Held-to-maturity	25	–	–	–	603	388	7,181	1,058	–	9,255
	492	1,249	950	1,652	1,542	4,220	19,320	9,056	26,862	65,343
Securities purchased under reverse repurchase agreements and securities borrowed	8,235	2,717	1,534	129	19	3,677	770	–	3,708	20,789
Loans[(1)(2)]										
Residential mortgage	758	1,039	1,428	2,735	2,046	8,014	33,603	1,544	467	51,634
Personal	227	345	563	1,318	813	2,893	9,838	2,779	16,814	35,590
Credit card	–	–	–	–	–	–	–	–	2,247	2,247
Business and government	7,576	2,493	2,014	2,192	1,840	4,636	9,946	2,718	8,275	41,690
Customers' liability under acceptances	5,030	865	96	–	–	–	–	–	–	5,991
Allowances for credit losses									(695)	(695)
	13,591	4,742	4,101	6,245	4,699	15,543	53,387	7,041	27,108	136,457
Other										
Derivative financial instruments	562	872	403	255	180	904	2,070	3,177	–	8,423
Investments in associates and joint ventures									631	631
Premises and equipment									558	558
Goodwill									1,409	1,409
Intangible assets									1,239	1,239
Other assets[(1)]	381	109	71	85	36	83	79	109	1,223	2,176
	943	981	474	340	216	987	2,149	3,286	5,060	14,436
	29,442	10,223	7,082	8,367	6,477	24,431	75,626	19,383	64,796	245,827

(1) Amounts collectible on demand are considered to have no specified maturity.
(2) The *Purchased receivables* amount of $2,014 million presented separately on the Consolidated Balance Sheet as at October 31, 2017 is now reported in *Loans*.

Note 30 – Management of the Risks Associated With Financial Instruments (cont.)

As at October 31, 2017

	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	944	1,829	2,410	2,083	2,578	4,641	8,463	2,255	26,972	52,175
Business and government	10,689	5,744	6,423	2,539	2,032	7,762	10,601	4,843	48,482	99,115
Deposit-taking institutions	2,252	495	134	–	–	–	–	53	2,447	5,381
	13,885	8,068	8,967	4,622	4,610	12,403	19,064	7,151	77,901	156,671
Other										
Acceptances	5,030	865	96	–	–	–	–	–	–	5,991
Obligations related to securities sold short[3]	1,243	472	259	118	99	578	6,147	4,553	1,894	15,363
Obligations related to securities sold under repurchase agreements and securities loaned	5,652	932	3,049	3,315	–	–	–	–	8,819	21,767
Derivative financial instruments	410	922	449	303	255	826	1,542	1,905	–	6,612
Liabilities related to transferred receivables[4]	–	1,873	448	1,081	–	3,486	9,272	3,938	–	20,098
Securitization – Credit card[5]	–	–	–	–	–	36	873	–	–	909
Other liabilities – Other items[1][5]	327	85	231	55	51	75	130	163	3,732	4,849
	12,662	5,149	4,532	4,872	405	5,001	17,964	10,559	14,445	75,589
Subordinated debt	–	–	–	–	–	–	–	9	–	9
Equity									13,558	13,558
	26,547	13,217	13,499	9,494	5,015	17,404	37,028	17,719	105,904	245,827
Off-balance-sheet commitments										
Letters of guarantee and documentary letters of credit	240	848	648	906	408	892	40	2	–	3,984
Credit card receivables[6]									7,688	7,688
Backstop liquidity and credit enhancement facilities[7]	–	2,736	2,298	15	–	–	–	–	–	5,049
Commitments to extend credit[8]	3,841	3,532	3,214	4,100	3,303	3,584	6,730	124	23,963	52,391
Lease commitments and other contracts[9]	34	33	50	50	50	201	471	466	–	1,355

(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 and the Bank reclassified certain amounts presented in the *Deposits* item of the Consolidated Balance Sheet. As at October 31, 2017, a $1,544 million amount was reclassified from *Deposits – Personal* into *Deposits – Business and government.*
(3) Amounts have been disclosed according to the remaining 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 $2.3 billion.
(8) These amounts include $39.6 billion that is unconditionally revocable at the Bank's discretion at any time.
(9) After refining the process used to identify lease commitments and other contracts, certain amounts have been modified from those previously reported as at October 31, 2017.

Note 31 – 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 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. The segment is also active in proprietary trading and investment activities for the Bank.

U.S. Specialty Finance and International (USSF&I)
The USSF&I segment encompasses the specialty finance expertise provided by subsidiary Credigy; the activities of subsidiary ABA Bank, 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, including the Bank's asset and liability management, liquidity management and funding operations, certain non-recurring items and the unallocated portion of corporate services.

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. 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	
	2018	2017	**2018**	2017	**2018**	2017	**2018**	2017	**2018**	2017	**2018**	2017
Net interest income[2]	**2,212**	2,069	**510**	431	**409**	772	**584**	466	**(333)**	(302)	**3,382**	3,436
Non-interest income[2]	**1,027**	988	**1,249**	1,173	**1,334**	846	**55**	75	**119**	91	**3,784**	3,173
Total revenues	**3,239**	3,057	**1,759**	1,604	**1,743**	1,618	**639**	541	**(214)**	(211)	**7,166**	6,609
Non-interest expenses	**1,720**	1,672	**1,092**	1,046	**697**	665	**251**	225	**303**	249	**4,063**	3,857
Contribution	**1,519**	1,385	**667**	558	**1,046**	953	**388**	316	**(517)**	(460)	**3,103**	2,752
Provisions for credit losses[3]	**226**	153	**3**	3	**4**	–	**94**	48	**–**	40	**327**	244
Income before income taxes (recovery)	**1,293**	1,232	**664**	555	**1,042**	953	**294**	268	**(517)**	(500)	**2,776**	2,508
Income taxes (recovery)[2]	**345**	329	**175**	147	**278**	255	**72**	84	**(326)**	(331)	**544**	484
Net income	**948**	903	**489**	408	**764**	698	**222**	184	**(191)**	(169)	**2,232**	2,024
Non-controlling interests	**–**	–	**–**	–	**–**	–	**38**	29	**49**	55	**87**	84
Net income attributable to the Bank's shareholders	**948**	903	**489**	408	**764**	698	**184**	155	**(240)**	(224)	**2,145**	1,940
Average assets	**100,619**	96,433	**12,551**	11,652	**100,721**	94,991	**9,270**	7,519	**42,601**	37,756	**265,762**	248,351

(1) For the year ended October 31, 2017, certain amounts have been reclassified, particularly in the USSF&I segment, where an amount of $204 million reported in *Non-interest income* was reclassified to *Net interest income*.
(2) For the year ended October 31, 2018, *Net interest income* was grossed up by $144 million ($209 million in 2017), *Non-interest income* was grossed up by $101 million ($35 million in 2017), and an equivalent amount was recognized in *Income taxes (recovery)*. The effect of these adjustments is reversed under the *Other* heading.
(3) Given the adoption of IFRS 9 on November 1, 2017, the Bank accounts for all provisions for credit losses within the business segments. For the fiscal year ended October 31, 2017, only provisions for credit losses on impaired loans had been recognized in the business segments, whereas provisions for credit losses on non-impaired loans had been recognized in the *Other* heading. During the year ended October 31, 2017, the Bank had reversed, by $40 million, the sectoral provision on non-impaired loans recorded for the oil and gas producer and service company loan portfolio presented in the Personal and Commercial segment, and the $40 million in provisions for credit losses in the *Other* heading had reflected an increase in the collective allowance for credit risk on non-impaired loans.

Note 31 – Segment Disclosures (cont.)

Results by Geographic Segment

Year ended October 31

	Canada		United States		Other		Total	
	2018	2017	**2018**	2017	**2018**	2017	**2018**	2017
Net interest income[1]	**2,531**	2,748	**469**	459	**382**	229	**3,382**	3,436
Non-interest income[1]	**3,488**	2,992	**108**	136	**188**	45	**3,784**	3,173
Total revenues	**6,019**	5,740	**577**	595	**570**	274	**7,166**	6,609
Non-interest expenses	**3,750**	3,571	**205**	209	**108**	77	**4,063**	3,857
Contribution	**2,269**	2,169	**372**	386	**462**	197	**3,103**	2,752
Provisions for credit losses	**233**	196	**81**	44	**13**	4	**327**	244
Income before income taxes	**2,036**	1,973	**291**	342	**449**	193	**2,776**	2,508
Income taxes	**412**	354	**85**	107	**47**	23	**544**	484
Net income	**1,624**	1,619	**206**	235	**402**	170	**2,232**	2,024
Non-controlling interests	**54**	61	**33**	23	**–**	–	**87**	84
Net income attributable to the Bank's shareholders	**1,570**	1,558	**173**	212	**402**	170	**2,145**	1,940
Average assets	**218,469**	212,946	**20,503**	18,479	**26,790**	16,926	**265,762**	248,351

(1) For the year ended October 31, 2017, certain amounts have been reclassified; in particular, an amount of $204 million reported in *Non-interest income* was reclassified to *Net interest income*.

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Statistical Review

As at October 31[1] (millions of Canadian dollars)	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
Consolidated Balance Sheet data										
Cash and deposits with financial institutions	**12,756**	8,802	8,183	7,567	8,086	3,596	3,249	2,851	2,274	2,228
Securities	**69,783**	65,343	64,541	56,040	52,953	53,744	54,898	56,592	54,268	50,233
Securities purchased under reverse repurchase agreements and securities borrowed	**18,159**	20,789	13,948	17,702	24,525	21,449	15,529	12,507	10,878	7,637
Loans[2]	**146,082**	136,457	128,036	116,676	106,959	97,338	90,922	80,758	63,134	58,370
Other assets[2]	**15,691**	14,436	17,498	18,105	12,906	12,092	13,305	14,146	14,748	13,670
Total assets	**262,471**	245,827	232,206	216,090	205,429	188,219	177,903	166,854	145,302	132,138
Deposits	**170,830**	156,671	142,066	130,458	119,883	102,111	93,474	85,787	81,785	75,170
Other liabilities	**76,539**	75,589	77,026	72,755	73,163	74,729	73,948	71,791	53,059	47,259
Non-controlling interests									1,217	1,215
Subordinated debt	**747**	9	1,012	1,522	1,881	2,426	2,470	2,000	2,033	2,017
Share capital										
Preferred	**2,450**	2,050	1,650	1,023	1,223	677	762	762	1,089	1,089
Common	**2,822**	2,768	2,645	2,614	2,293	2,160	2,054	1,970	1,804	1,729
Contributed surplus	**57**	58	73	67	52	58	58	46	66	48
Retained earnings	**8,472**	7,706	6,706	6,705	5,850	5,055	4,091	3,366	4,081	3,515
Accumulated other comprehensive income	**175**	168	218	145	289	214	255	337	168	96
Non-controlling interests	**379**	808	810	801	795	789	791	795		
Total liabilities and equity	**262,471**	245,827	232,206	216,090	205,429	188,219	177,903	166,854	145,302	132,138
Average assets	**265,762**	248,351	235,913	222,929	206,680	193,509	181,344	165,942	140,360	140,978
Net impaired loans[3][4] under IFRS 9	**404**									
Net impaired loans[4] under IAS 39		206	281	254	248	183	179	175	162	223
Consolidated Statement of Income data										
Net interest income[5]	**3,382**	3,436	3,205	2,929	2,761	2,478	2,365	2,318	1,933	1,961
Non-interest income[5]	**3,784**	3,173	2,635	2,817	2,703	2,673	2,936	2,336	2,351	2,172
Total revenues	**7,166**	6,609	5,840	5,746	5,464	5,151	5,301	4,654	4,284	4,133
Provisions for credit losses	**327**	244	484	228	208	181	180	184	144	305
Non-interest expenses	**4,063**	3,857	3,875	3,665	3,423	3,206	3,207	2,952	2,822	2,662
Income taxes	**544**	484	225	234	295	252	317	264	221	252
Non-controlling interests									63	60
Net income	**2,232**	2,024	1,256	1,619	1,538	1,512	1,597	1,254	1,034	854
Non-controlling interests	**87**	84	75	70	69	63	61	60		
Net income attributable to the Bank's shareholders	**2,145**	1,940	1,181	1,549	1,469	1,449	1,536	1,194		

(1) The figures for 2010 and 2009 are presented in accordance with previous Canadian GAAP, and certain amounts from fiscal years 2013, 2012 and 2011 have been adjusted to reflect changes to the accounting standards in 2014.

(2) Certain amounts have been reclassified; in particular, a *Purchased receivables* amount of $2,014 million, which had been classified in *Other assets* in this table as at October 31, 2017, is now reported in *Loans and acceptances* (2016: $1,858 million; 2015: $1,438 million; 2014: $790 million). Figures as at October 31, 2013 and previous years were not adjusted to reflect those modifications.

(3) Given the adoption of IFRS 9, all loans classified in Stage 3 of the expected credit loss model are impaired loans. POCI loans have been excluded. 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.

(4) Includes customers' liability under acceptances.

(5) The figures for fiscal years 2014 to 2017 have been adjusted to reflect the reclassification of certain amounts between the *Non-interest income* and the *Net interest income* items to reflect the change in the presentation of certain Consolidated Balance Sheet items; in particular, the *Purchased receivables* item, which had been classified in *Other assets* as at October 31, 2017, is now reported in *Loans*.

As at October 31[1]	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
Number of common shares[2] *(thousands)*	335,071	339,592	338,053	337,236	329,297	325,983	322,617	320,948	325,544	322,402
Number of common shareholders on record	21,325	21,542	21,966	22,152	22,394	22,737	23,180	23,588	23,598	23,970
Basic earnings per share[2]	$ 6.01	$ 5.44	$ 3.31	$ 4.56	$ 4.36	$ 4.34	$ 4.63	$ 3.41	$ 3.00	$ 2.48
Diluted earnings per share[2]	$ 5.94	$ 5.38	$ 3.29	$ 4.51	$ 4.32	$ 4.31	$ 4.58	$ 3.37	$ 2.97	$ 2.47
Dividend per share[2]	$ 2.44	$ 2.28	$ 2.18	$ 2.04	$ 1.88	$ 1.70	$ 1.54	$ 1.37	$ 1.24	$ 1.24
Share price[2]										
High	$ 65.63	$ 62.74	$ 47.88	$ 55.06	$ 53.88	$ 45.24	$ 40.64	$ 40.72	$ 33.94	$ 31.04
Low	$ 58.69	$ 46.83	$ 35.83	$ 40.75	$ 41.60	$ 36.18	$ 31.64	$ 32.43	$ 27.23	$ 12.81
Close	$ 59.76	$ 62.61	$ 47.88	$ 43.31	$ 52.68	$ 45.24	$ 38.59	$ 35.57	$ 33.57	$ 28.20
Book value[2]	$ 34.40	$ 31.51	$ 28.52	$ 28.26	$ 25.76	$ 22.97	$ 20.02	$ 17.82	$ 18.80	$ 16.72
Dividends on preferred shares										
Series 15	–	–	–	–	–	$ 0.2444	$ 1.4625	$ 1.4625	$ 1.4625	$ 1.4625
Series 16	–	–	–	–	$ 1.2125	$ 1.2125	$ 1.2125	$ 1.2125	$ 1.2125	$ 1.2125
Series 20	–	–	–	$ 1.5000	$ 1.5000	$ 1.5000	$ 1.5000	$ 1.5000	$ 1.5000	$ 1.5000
Series 21	–	–	–	–	–	$ 1.0078	$ 1.3438	$ 1.3438	$ 1.3438	$ 1.3438
Series 24	–	–	–	–	$ 0.4125	$ 1.6500	$ 1.6500	$ 1.6500	$ 1.6500	$ 1.3765
Series 26	–	–	–	–	$ 0.4125	$ 1.6500	$ 1.6500	$ 1.6500	$ 1.6500	$ 1.3042
Series 28	–	$ 0.9500	$ 0.9500	$ 0.9500	$ 0.9500	$ 0.9728	–	–	–	–
Series 30	$ 1.0250	$ 1.0250	$ 1.0250	$ 1.0250	$ 0.7849	–	–	–	–	–
Series 32	$ 0.9750	$ 0.9750	$ 0.9750	$ 1.0760	–	–	–	–	–	–
Series 34	$ 1.4000	$ 1.4000	$ 1.1373	–	–	–	–	–	–	–
Series 36	$ 1.3500	$ 1.3500	$ 0.5733	–	–	–	–	–	–	–
Series 38	$ 1.1125	$ 0.4724	–	–	–	–	–	–	–	–
Series 40	$ 0.9310	–	–	–	–	–	–	–	–	–
Series 42	$ 0.5323	–	–	–	–	–	–	–	–	–
Financial ratios										
Return on common shareholders' equity	18.4 %	18.1 %	11.7 %	16.9 %	17.9 %	20.1 %	24.1 %	19.8 %	17.0 %	15.6 %
Return on average assets	0.84 %	0.81 %	0.53 %	0.73 %	0.74 %	0.78 %	0.88 %	0.76 %	0.74 %	0.61 %
Regulatory ratios under Basel III										
Capital ratios[3]										
CET1[4]	11.7 %	11.2 %	10.1 %	9.9 %	9.2 %	8.7 %	7.3 %	7.6 %		
Tier 1[4]	15.5 %	14.9 %[5]	13.5 %	12.5 %[6]	12.3 %[7]	11.4 %	10.1 %	10.8 %	14.0 %	10.7 %
Total[4]	16.8 %	15.1 %[5]	15.3 %	14.0 %[8]	15.1 %[7]	15.0 %	14.1 %	14.3 %	17.5 %	14.3 %
Leverage ratio[4]	4.0 %	4.0 %	3.7 %	3.7 %						
Other information										
Number of employees[9][10]	22,426	20,584	20,600	19,026	18,725	16,675	16,636	16,217	15,298	14,851
Branches in Canada	428	429	450	452	452	453	451	448	442	445
Banking machines in Canada	937	931	938	930	935	937	923	893	869	866

(1) The figures for 2010 and 2009 are presented in accordance with previous Canadian GAAP, and certain amounts from fiscal years 2013, 2012 and 2011 have been adjusted to reflect changes to the accounting standards in 2014.
(2) The figures for 2014 and prior years have been adjusted to reflect the stock dividend paid in 2014.
(3) The October 31, 2013, 2012 and 2011 ratios have not been adjusted to reflect changes in accounting standards.
(4) Since October 31, 2013, the capital ratios were calculated using the "all-in" methodology and the October 31, 2012 and 2011 ratios are presented on a pro forma basis.
(5) Taking into account the redemption of the Series 28 preferred shares on November 15, 2017.
(6) Taking into account the redemption of the Series 20 preferred shares on November 15, 2015.
(7) Taking into account the redemption of the Series 16 preferred shares on November 15, 2014.
(8) 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.
(9) Full-time equivalent.
(10) Including employees from Credigy Ltd. and Advanced Bank of Asia Limited for fiscal years 2014 to 2018.

Glossary of Financial Terms

Acceptances
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.

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.

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 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 financial institution's balance sheet.

Average interest-bearing assets
Average interest-bearing assets include deposits with financial institutions, certain interest-bearing cash items, securities, securities purchased under reverse repurchase agreements and securities borrowed, and loans but excludes other assets. The average is calculated based on the daily averages for the year.

Basis point
Unit of measure equal to one one-hundredth of a percentage point (0.01%).

Common Equity Tier 1 (CET1) capital ratio
Common Equity Tier 1 capital consists of common shareholders' equity less goodwill, intangible assets and other capital deductions. Common Equity Tier 1 capital ratio is calculated by dividing Common Equity Tier 1 capital by the corresponding risk-weighted assets.

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.

Dividend payout ratio
Common dividends as a percentage of net income after preferred share dividends.

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
Non-interest expenses as a percentage of total revenue, the efficiency ratio measures the efficiency of the Bank's operations.

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).

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: 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 exposures and securities financing transaction exposures) and off-balance-sheet items.

Liquidity coverage ratio
The liquidity coverage ratio 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.

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 interest margin
Net interest income as a percentage of average interest-bearing assets.

Office of the Superintendent of Financial Institutions (Canada) (OSFI)
The mandate of the Office of the Superintendent of Financial Institutions (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 is the difference between the growth rate for total revenues and the growth rate for non-interest expenses.

Provisions for credit losses
The amount charged to income necessary to bring the allowances for credit losses to a level determined appropriate by management.

Return on common shareholders' equity (ROE)
Net income, less dividends on preferred shares, expressed as a percentage of the average value of common shareholders' equity.

Risk-weighted assets
Assets are risk weighted according to the guidelines established by OSFI. In the Standardized calculation approach, 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.

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 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 by the amount of income tax that would have otherwise been payable.

Tier 1 capital ratio
Tier 1 capital ratio consists of Common Equity Tier 1 capital and Additional Tier 1 instruments, namely, eligible 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
The total shareholder return (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.

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.

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, 2018, the Bank had a total of 335,070,642 common shares and 98,000,000 first preferred shares issued and outstanding.

Stock Exchange Listings

The Bank's common shares and Series 30, 32, 34, 36, 38, 40 and 42 First Preferred Shares are listed on the Toronto Stock Exchange in Canada.

Issue or class	Ticker symbol	Newspaper abbreviation
Common shares	NA	Nat Bk or Natl Bk
First Preferred Shares		
Series 30	NA.PR.S	Nat Bk s30 or Natl Bk s30
Series 32	NA.PR.W	Nat Bk s32 or Natl Bk s32
Series 34	NA.PR.X	Nat Bk s34 or Natl Bk s34
Series 36	NA.PR.A	Nat Bk s36 or Natl Bk s36
Series 38	NA.PR.C	Nat Bk s38 or Natl Bk s38
Series 40	NA.PR.E	Nat Bk s40 or Natl Bk s40
Series 42	NA.PR.G	Nat Bk s42 or Natl Bk s42

Number of Registered Shareholders

As at October 31, 2018, there were 21,325 common shareholders recorded in the Bank's common share register.

Dividends

Dividend Dates in Fiscal 2019
(subject to approval by the Board of Directors of the Bank)

Record date	Payment date
Common shares	
December 31, 2018	February 1, 2019
March 25, 2019	May 1, 2019
June 25, 2019	August 1, 2019
September 30, 2019	November 1, 2019
Preferred shares,	
Series 30, 32, 34, 36, 38, 40 and 42	
January 7, 2019	February 15, 2019
April 5, 2019	May 15, 2019
July 8, 2019	August 15, 2019
October 7, 2019	November 15, 2019

Dividends Declared on Common Shares During Fiscal 2018

Record date	Payment date	Dividend per share ($)
December 27, 2017	February 1, 2018	0.60
March 26, 2018	May 1, 2018	0.60
June 26, 2018	August 1, 2018	0.62
September 24, 2018	November 1, 2018	0.62

Dividends Declared on Preferred Shares During Fiscal 2018

		Dividend per share ($)						
Record date	Payment date	Series 30	Series 32	Series 34	Series 36	Series 38	Series 40	Series 42
Jan. 5, 18	Feb. 15, 18	0.2563	0.2438	0.3500	0.3375	0.2781	–	–
Apr. 9, 18	May 15, 18	0.2562	0.2437	0.3500	0.3375	0.2782	0.3560	–
Jul. 9, 18	Aug. 15, 18	0.2563	0.2438	0.3500	0.3375	0.2781	0.2875	–
Oct. 9, 18	Nov. 15, 18	0.2562	0.2437	0.3500	0.3375	0.2781	0.2875	0.5323

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 Canadian holders of its common and preferred shares under which they can acquire common shares of the Bank without paying commissions or administration fees. Canadian participants acquire common shares through the reinvestment of cash dividends paid on the shares they hold or through optional cash payments of at least $500 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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National Bank of Canada
National Bank Tower
600 De La Gauchetière Street West, 4th Floor
Montreal, Quebec H3B 4L2 Canada

Telephone: 514-394-5000
Website: nbc.ca

Annual Meeting
The Annual Meeting of Holders of Common Shares of the Bank will be held on Wednesday, April 24, 2019, at Fairmont Le Château Frontenac, in Quebec City, Quebec, Canada.

Public Accountability Statement
The 2018 Social Responsibility Report will be available in March 2019 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
1500 Robert-Bourassa Boulevard, 7th Floor
Montreal, Quebec H3A 3S8 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

Normal Course Issuer Bid
The Bank began a normal course issuer bid (NCIB) to repurchase for cancellation up to 8,000,000 common shares for the period starting June 6, 2018 and ending June 5, 2019. Shareholders may obtain, free of charge, a copy of the notice of intent regarding this NCIB, which was approved by the Toronto Stock Exchange, by writing to the Corporate Secretary, National Bank of Canada, 600 De La Gauchetière Street West, 4th floor, Montreal, Quebec, Canada H3B 4L2.

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 9 of this Annual Report.

Trademarks
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