

MANAGEMENT'S DISCUSSION AND ANALYSIS

November 30, 2017

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 consolidated financial statements for the year ended October 31, 2017 (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, 2017. 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.

Financial Reporting Method	10	Quarterly Financial Information	34
Financial Disclosure	12	Analysis of the Consolidated Balance Sheet	35
Overview	13	Securitization and Off-Balance-Sheet Arrangements	39
Financial Analysis	18	Additional Financial Disclosure	41
Business Segment Analysis		Capital Management	42
Personal and Commercial	21	Risk Management	51
Wealth Management	24	Critical Accounting Estimates	88
Financial Markets	27	Future Accounting Policy Changes	92
U.S. Specialty Finance and International	30	Additional Financial Information	96
Other	33		

Caution Regarding Forward-Looking Statements

From time to time, the Bank makes written and oral forward-looking statements, such as those contained in the Outlook for National Bank and the Major Economic Trends sections 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 2018 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 2018 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 51 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

The presentation of segment disclosures is consistent with the presentation adopted by the Bank for the fiscal year beginning November 1, 2016. This presentation reflects the fact that the activities of subsidiary Credigy Ltd. (Credigy), which had previously been presented in the Financial Markets segment, and that the activities of subsidiary Advanced Bank of Asia Limited (ABA Bank) and of other international investments, which had previously been presented in the *Other* heading, are now presented in the U.S. Specialty Finance and International (USSF&I) segment. The Bank made this change to better align the monitoring of its activities with its management structure.

The Bank has adjusted certain specified items to make the data from fiscal years 2017 and 2016 comparable. These adjustments are presented in the table below.

Reconciliation of Non-GAAP Financial Measures

Year ended October 31

(millions of Canadian dollars)

						2017	2016
	Personal and Commercial	Wealth Management	Financial Markets	USSF&I	Other		
Net interest income ⁽¹⁾	2,071	431	575	262	(107)	3,232	2,992
Taxable equivalent ⁽²⁾	–	–	207	–	2	209	231
Financing cost related to holding restructured notes ⁽³⁾	–	–	–	–	–	–	9
Net interest income on a taxable equivalent basis and excluding specified items	2,071	431	782	262	(105)	3,441	3,232
Non-interest income ⁽¹⁾	990	1,173	813	279	122	3,377	2,848
Taxable equivalent ⁽²⁾	–	–	35	–	–	35	4
Acquisition-related revenues ⁽⁴⁾	–	9	–	–	2	11	31
Write-off of an equity interest in an associate ⁽⁵⁾	–	–	–	–	–	–	164
Non-interest income on a taxable equivalent basis and excluding specified items	990	1,182	848	279	124	3,423	3,047
Total revenues on a taxable equivalent basis and excluding specified items	3,061	1,613	1,630	541	19	6,864	6,279
Non-interest expenses	1,646	1,036	658	225	292	3,857	3,875
Charges related to acquisitions ⁽⁶⁾	–	(19)	–	–	–	(19)	(22)
Restructuring charge ⁽⁷⁾	–	–	–	–	–	–	(131)
Impairment losses on intangible assets ⁽⁸⁾	–	–	–	–	–	–	(44)
Litigation charges ⁽⁹⁾	–	–	–	–	–	–	(25)
Non-interest expenses excluding specified items	1,646	1,017	658	225	292	3,838	3,653
Contribution on a taxable equivalent basis and excluding specified items	1,415	596	972	316	(273)	3,026	2,626
Provisions for credit losses	153	3	–	48	40	244	484
Income before income taxes on a taxable equivalent basis and excluding specified items	1,262	593	972	268	(313)	2,782	2,142
Income taxes	337	149	18	84	(104)	484	225
Taxable equivalent ⁽²⁾	–	–	242	–	2	244	235
Income taxes on the revenues related to holding restructured notes ⁽³⁾	–	–	–	–	–	–	3
Income taxes on acquisition-related items ⁽⁴⁾⁽⁶⁾	–	5	–	–	–	5	11
Income taxes on the write-off of an equity interest in an associate ⁽⁵⁾	–	–	–	–	–	–	19
Income taxes on the restructuring charge ⁽⁷⁾	–	–	–	–	–	–	35
Income taxes on intangible asset impairment losses ⁽⁸⁾	–	–	–	–	–	–	12
Income taxes on litigation charges ⁽⁹⁾	–	–	–	–	–	–	7
Income taxes on the impact of changes to tax measures ⁽¹⁰⁾	–	–	–	–	–	–	(18)
Income taxes on a taxable equivalent basis and excluding specified items	337	154	260	84	(102)	733	529
Net income excluding specified items	925	439	712	184	(211)	2,049	1,613
Specified items after income taxes⁽¹¹⁾	–	(23)	–	–	(2)	(25)	(357)
Net income	925	416	712	184	(213)	2,024	1,256
Non-controlling interests	–	–	–	29	55	84	75
Net income attributable to the Bank's shareholders	925	416	712	155	(268)	1,940	1,181

(1) On November 1, 2016, the Bank reclassified certain amounts in the Consolidated Statement of Income to better reflect the nature of the income presented in the Personal and Commercial segment. As a result, for the year ended October 31, 2016, an amount of \$36 million 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, 2016, the Bank had recorded \$9 million in financing costs (\$6 million net of income taxes) related to holding restructured notes.

- (4) During the year ended October 31, 2017, the Bank recorded an amount of \$9 million (\$7 million net of income taxes) for its share in the integration costs incurred by Fiera Capital Corporation (Fiera Capital) and an amount of \$2 million (\$2 million net of income taxes) for its share in the integration costs arising from its equity interest in TMX Group Limited (TMX). For the year ended October 31, 2016, the total amount of these costs had been \$31 million (\$24 million net of income taxes) and notably included the Bank's share in goodwill and intangible asset impairment losses related to its equity interest in TMX for an amount of \$18 million (\$13 million net of income taxes).
- (5) During the year ended October 31, 2016, the Bank had written off its equity interest in associate Maple Financial Group Inc. (Maple) in an amount of \$164 million (\$145 million net of income taxes) following the February 6, 2016 event described in the Analysis of the Consolidated Balance Sheet section on page 38 of this MD&A.
- (6) During the year ended October 31, 2017, the Bank recorded \$19 million in charges (\$16 million net of income taxes) related to the Wealth Management acquisitions (2016: \$22 million, \$18 million net of income taxes). These charges consisted mostly of retention bonuses and the amortization of intangible assets.
- (7) During the year ended October 31, 2016, the Bank had recorded a restructuring charge of \$131 million (\$96 million net of income taxes). This charge consisted mostly of severance pay.
- (8) During the year ended October 31, 2016, the Bank had recorded \$44 million (\$32 million net of income taxes) in intangible asset impairment losses on internally developed software.
- (9) During the year ended October 31, 2016, the Bank had recorded \$25 million in litigation charges (\$18 million net of income taxes) related to resolving litigation and other disputes arising from claims, both ongoing and potential, made against the Bank.
- (10) During the year ended October 31, 2016, an \$18 million tax provision had been recorded to reflect the impact of substantively enacted changes to tax measures.
- (11) For the year ended October 31, 2016, the specified items had included a premium of \$3 million, or \$0.01 per share, on the redemption of the Series 20 preferred shares for cancellation.

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 2016 the Bank had recorded a sectoral provision of \$250 million (\$183 million net of income taxes) on non-impaired loans in the oil and gas producer and service company portfolio, reporting it in the Personal and Commercial segment. During fiscal 2017, the Bank reversed this sectoral provision by \$40 million (\$29 million net of income taxes). Given the materiality of the sectoral provision recognized 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.

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 (CFO) and Executive Vice-President of Finance and Treasury. During the year ended October 31, 2017, 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, 2017, 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, 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, 2017, 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, 2017, 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)

	2017	2016	2015	2017-16
				% change
Operating results				
Total revenues	6,609	5,840	5,746	13
Net income	2,024	1,256	1,619	61
Net income attributable to the Bank's shareholders	1,940	1,181	1,549	64
Return on common shareholders' equity	18.1 %	11.7 %	16.9 %	
Dividend payout ratio ⁽¹⁾	42 %	66 %	45 %	
Earnings per share				
Basic	\$ 5.44	\$ 3.31	\$ 4.56	64
Diluted	5.38	3.29	4.51	64
Operating results on a taxable equivalent basis and excluding specified items⁽²⁾				
Total revenues on a taxable equivalent basis and excluding specified items	6,864	6,279	5,982	9
Net income excluding specified items	2,049	1,613	1,682	27
Return on common shareholders' equity excluding specified items	18.3 %	15.5 %	17.6 %	
Dividend payout ratio excluding specified items ⁽¹⁾	41 %	50 %	43 %	
Efficiency ratio on a taxable equivalent basis and excluding specified items	55.9 %	58.2 %	58.6 %	
Earnings per share excluding specified items⁽²⁾				
Basic	\$ 5.52	\$ 4.38	\$ 4.75	26
Diluted	5.45	4.35	4.70	25
Common share information				
Dividends declared	\$ 2.28	\$ 2.18	\$ 2.04	
Book value	31.51	28.52	28.26	
Share price				
High	62.74	47.88	55.06	
Low	46.83	35.83	40.75	
Close	62.61	47.88	43.31	
Number of common shares (<i>thousands</i>)	339,592	338,053	337,236	
Market capitalization	21,262	16,186	14,606	
Balance sheet and off-balance-sheet				
Total assets	245,827	232,206	216,090	6
Loans and acceptances, net of allowances	134,443	126,178	115,238	7
Impaired loans, net of total allowances	(339)	(289)	(112)	
As a % of average loans and acceptances	(0.3) %	(0.2) %	(0.1) %	
Deposits ⁽³⁾	156,671	142,066	130,458	10
Equity attributable to common shareholders	10,700	9,642	9,531	11
Assets under administration and under management	477,358	397,342	357,793	20
Earnings coverage	13.61	7.84	10.49	
Regulatory ratios under Basel III				
Capital ratios ⁽⁴⁾				
Common Equity Tier 1 (CET1)	11.2 %	10.1 %	9.9 %	
Tier 1 ⁽⁵⁾	14.9 %	13.5 %	12.5 %	
Total ⁽⁵⁾⁽⁶⁾	15.1 %	15.3 %	14.0 %	
Leverage ratio ⁽⁴⁾	4.0 %	3.7 %	3.7 %	
Liquidity coverage ratio (LCR)	132 %	134 %	131 %	
Other Information				
Number of employees - Worldwide	21,635	21,770	20,189	(1)
Number of branches in Canada	429	450	452	(5)
Number of banking machines in Canada	931	938	930	(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 amounts of \$2.2 billion and \$1.6 billion classified in *Due to clients, dealers and brokers* on the Consolidated Balance Sheets as at October 31, 2016 and 2015, respectively, are now reported in *Deposits*.

(4) The ratios are calculated using the "all-in" methodology.

(5) Ratios as at October 31, 2017 include the redemption of the Series 28 preferred shares on November 15, 2017, and the ratios as at October 31, 2015 include the redemption of the Series 20 preferred shares on November 15, 2015.

(6) The ratio as at October 31, 2015 includes the \$500 million redemption of medium-term notes on November 2, 2015.

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.

2017 Objectives and 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 2017, the Bank recorded \$2,024 million in net income compared to \$1,256 million in fiscal 2016. Its 2017 diluted earnings per share stood at \$5.38 versus \$3.29 in 2016, and its 2017 return on common shareholders' equity (ROE) was 18.1% in 2017 versus 11.7% in 2016. Net income excluding specified items totalled \$2,049 million in fiscal 2017, up 27%, and diluted earnings per share excluding specified items stood at \$5.45, up 25% from \$4.35. Furthermore, ROE excluding specified items was 18.3% in 2017 versus 15.5% in 2016.

In 2017, the Bank met all of its medium-term objectives, even largely exceeding its growth target for diluted earnings per share excluding specified items. It did so thanks to steady net income growth across all its business segments and also due to the fact that, in 2016, a sectoral provision for credit losses had been recorded for oil and gas producers and service companies.

2017 Medium-Term Objectives and Results

	Medium-term objectives (%)	2017 results (%)
Growth in diluted earnings per share excluding specified items ⁽¹⁾	5-10	25
ROE excluding specified items ⁽¹⁾	15-20	18.3
Dividend payout ratio excluding specified items ⁽¹⁾	40-50	41
CET1 capital ratio	> 10.0	11.2
Leverage ratio	> 3.5	4.0

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

Dividends

For fiscal 2017, the Bank declared \$778 million in dividends to common shareholders (2016: \$736 million), representing 42% of net income attributable to common shareholders (2016: 66%). These dividends represented 41% of net income attributable to common shareholders excluding specified items (2016: 50%).

Annual Dividend⁽¹⁾

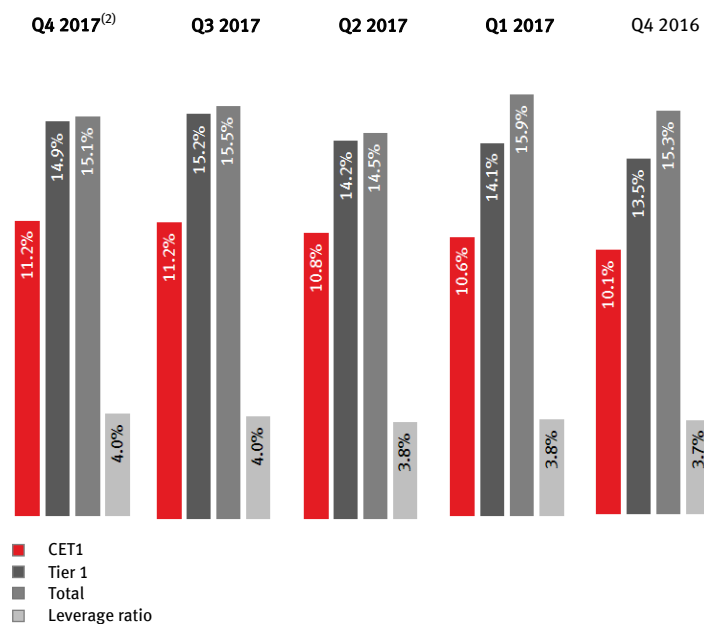


(1) The figures for fiscal years 2014 and 2013 have been adjusted to reflect the stock dividend paid in 2014.

Regulatory Ratios

As at October 31, 2017, the Bank's CET1, Tier 1 and Total capital ratios were, respectively, 11.2%, 14.9% and 15.1%, i.e., above the regulatory requirements, compared to ratios of, respectively, 10.1%, 13.5% and 15.3% a year earlier. The increase in the CET1 capital ratio stems essentially from net income, net of dividends, common share issuances under the Stock Option Plan, remeasurements of pension plans and other post-employment benefit plans, and low growth in risk-weighted assets, partly offset by the common share repurchases during the year ended October 31, 2017. The increase in the Tier 1 capital ratio stems essentially from the same items as well as from the June 13, 2017 issuance of preferred shares for \$400 million, partly offset by the \$200 million redemption of preferred shares on November 15, 2017, which is already excluded from capital ratio calculations as at October 31, 2017. The decrease in the Total capital ratio is a result of the April 11, 2017 redemption of \$1.0 billion in medium-term notes maturing on April 11, 2022. The leverage ratio as at October 31, 2017 was 4.0% compared to 3.7% as at October 31, 2016.

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 include the redemption of the Series 28 preferred shares on November 15, 2017.

High Quality Loan Portfolio

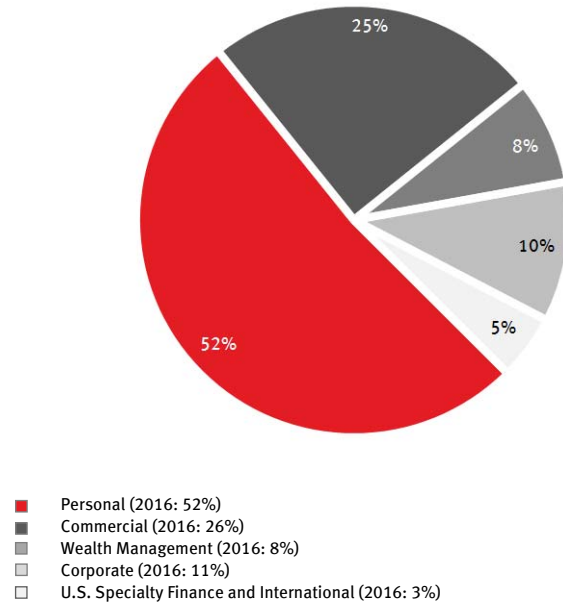
For fiscal 2017, the Bank recorded \$244 million in provisions for credit losses, \$240 million less than the provisions recorded for fiscal 2016. Essentially, the lower credit loss provisions are related to the sectoral provision on non-impaired loans recorded for the oil and gas producer and service company loan portfolio, which was reversed by \$40 million in fiscal 2017 compared to the \$250 million recording of this provision in fiscal 2016. Also, at \$43 million, the provisions for credit losses on Commercial Banking loans were down \$30 million in fiscal 2017. Both of these decreases were partly offset by a \$40 million increase in the collective allowance for credit risk on non-impaired loans recorded to reflect growth in the Bank's overall credit portfolio and by a \$44 million increase in the provisions for credit losses recorded for loans in the U.S. Specialty Finance and International segment and that is essentially attributable to the Credigy subsidiary. The 2017 provisions for credit losses on impaired loans represented 0.19% of average loans and acceptances, unchanged from fiscal 2016. In addition, impaired loans, net of total allowances, were down \$50 million compared to last year given a decline in net impaired loans in the personal and commercial loan portfolios and a \$40 million increase in the collective allowance on non-impaired loans, offset by a lower sectoral allowance on non-impaired loans.

Risk Profile

(millions of Canadian dollars)	2017	2016
Provisions for credit losses ⁽¹⁾	244	484
Provisions for credit losses on impaired loans as a % of average loans and acceptances	0.19 %	0.19 %
Net impaired loans	206	281
Gross impaired loans as a % of tangible capital adjusted for allowances	4.3 %	6.3 %
Individual and collective allowances as a % of impaired loans	45.8 %	42.9 %
Sectoral allowance on non-impaired loans – Oil and gas ⁽¹⁾	139	204
Collective allowance on non-impaired loans ⁽¹⁾	406	366
Impaired loans, net of total allowances	(339)	(289)

(1) During fiscal 2017, the Bank reversed, by \$40 million, the sectoral provision on non-impaired loans for the oil and gas producer and service company loan portfolio. In addition, the 2017 provisions for credit losses include a \$40 million increase in the collective allowance for credit risk on non-impaired loans. For the year ended October 31, 2016, the provisions for credit losses had included the \$250 million recording of the sectoral provision.

Breakdown of the Average Loan and Acceptance Portfolio⁽¹⁾ As at October 31, 2017



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

Business Loans and Acceptances by Borrower Category

As at October 31	2017	2016
	%	%
Agriculture	9.6	9.8
Oil and gas	4.2	4.5
Mining	0.9	1.2
Construction and real estate	23.2	23.0
Manufacturing	8.5	7.7
Wholesale and retail	10.7	10.6
Transportation	5.1	6.5
Telecommunications, media and technology	3.3	3.4
Financial institutions	9.6	8.3
Services	12.1	12.9
Governments and other related services	12.8	12.1

Outlook for National Bank

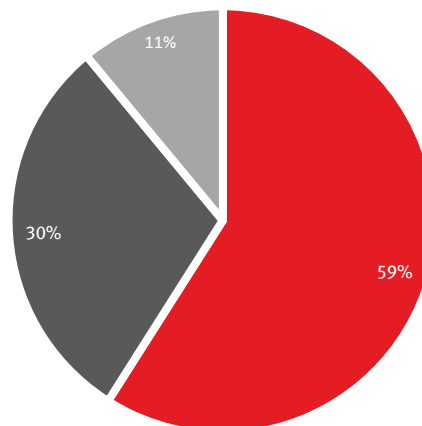
An essential component of the Bank's strategy is to ensure business diversification by supporting growth in its four business segments—Personal and Commercial, Wealth Management, Financial Markets, and U.S. Specialty Finance and International. Through acquisitions, strategic partnerships and organic growth, the Wealth Management and Financial Markets segments have expanded through the years and now generate close to half of the Bank's total revenues and more than half of its net income. Personal and Commercial Banking, the Bank's largest segment, continues to deliver steady revenue and earnings growth. As for the U.S. Specialty Finance and International segment, it is experiencing substantial revenue and net income growth.

While prioritizing growth in its four main business segments, the Bank also focuses on expanding its presence across Canada while continuing to maintain its leadership position in Quebec. The Financial Markets segment is well-positioned nationally and derives most of its revenues outside Quebec. The Wealth Management segment has established a national presence through its investment advisor channel, its business relationships with independent advisors, and its partnerships and now enjoys a wide distribution reach and consistent revenue growth outside Quebec. The Personal and Commercial segment is largely based in central Canada and has a strong presence in other select markets in Canada as well as a large-scale digital presence nationally.

To complement its Canadian operations, the Bank continues to develop international business in specialty consumer finance through its Credigy subsidiary, and its ABA Bank subsidiary continues to achieve growth through a diversified client base in Cambodia. During fiscal 2017, the Bank extended its moratorium on major investments in emerging markets in order to consolidate its existing operations. The Bank's objective is to derive approximately 10% of its net income from international operations in the coming years.

Geographic Distribution of Total Revenues

Year ended October 31, 2017
(taxable equivalent basis)⁽¹⁾



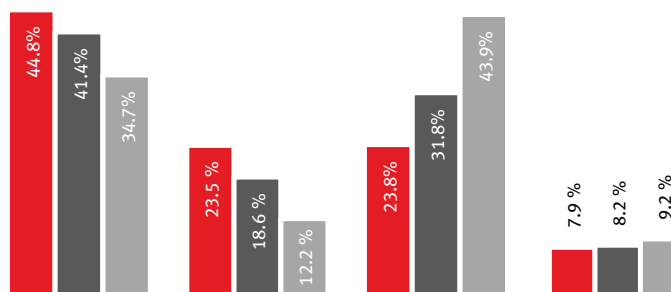
- Quebec (2016: 60%)
- Other provinces (2016: 34%)
- International (2016: 6%)

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

Business Mix⁽¹⁾

Year ended October 31, 2017
(taxable equivalent basis)⁽²⁾

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

Major Economic Trends

Global Economy

The world economy is sending comforting signals with the major regions contributing synchronously to growth. Global consumer confidence is at a cyclical high, stimulated by continuously improving labour markets, a generalized wealth effect (real estate, financial markets) and low energy prices. Inflation remains weak, which is allowing central banks to gradually reduce their accommodative monetary policy. Very good financial conditions lend well to a global rebound in business investment.

Global GDP should grow at its fastest pace since 2011 at an expected rate of 3.7% in 2018 (3.6% in 2017). However, many unknowns loom over the geopolitical situation, notably developments in North Korea and Iran. The rise in commercial protectionism is also a preoccupying phenomenon on the horizon for 2018.

United States

The U.S. economy remains on track to grow roughly 2.2% in 2017 thanks in part to strong performances in the second and third quarters. Reconstruction efforts to address hurricane-related damage will help drive growth in the fourth quarter. The solid labour market is fueling consumer confidence and hence spending. And assuming the debt-ceiling is raised come December and fiscal stimulus is deployed ahead of mid-term congressional elections, another year of above-potential growth can be expected in 2018 (2.4%).

As such, the Bank believes the U.S. Federal Reserve will tighten monetary policy by raising rates in December and twice in 2018.

Canada

Canada's economy remains on track to grow about 3.0% in 2017, well above the consensus expectations among economists at the beginning of the year. Consumption spending has been the major driver of growth this year, benefiting from a confluence of favourable developments, including the best labour market in years, family benefits, low interest rates, and the wealth effects associated with surging home prices. If the Bank is correctly gauging upcoming fiscal stimulus in a pre-electoral context in Quebec, Ontario and possibly British Columbia, 2018 growth will also be strong at 2.5%. So, while the Bank of Canada does not seem inclined to raise rates soon, strong data may eventually force its hand early next year. A less accommodative monetary policy combined with tighter mortgage requirements should cool the residential real estate market, especially in Vancouver and Toronto. The Montreal market is less vulnerable in this respect since housing affordability remains reasonable.

Quebec's economy should expand by 2.0% in 2018, following 2.5% this year. This significantly exceeds its potential growth rate estimated at 1.0%. The province is at full employment, and in the third quarter posted its lowest unemployment rate on record (1976), at 6.0%, and a record participation rate of 75% for people aged 15 to 64. Small business and consumer confidence is among the highest in Canada, a development fostered not only by a favourable cyclical backdrop but also by healthy public finances, which allows for the implementation of sound fiscal policies aimed at improving Quebec's long-term economic growth. Domestic demand continues to drive the province's growth, with Montreal accounting for most of the job creation due to immigration.

FINANCIAL ANALYSIS

Consolidated Results

Year ended October 31
(millions of Canadian dollars)

	2017	2016	2015	2017-16 % change
Operating results				
Net interest income ⁽¹⁾	3,232	2,992	2,717	8
Non-interest income ⁽¹⁾	3,377	2,848	3,029	19
Total revenues	6,609	5,840	5,746	13
Non-interest expenses	3,857	3,875	3,665	-
Contribution	2,752	1,965	2,081	40
Provisions for credit losses ⁽²⁾	244	484	228	(50)
Income before income taxes	2,508	1,481	1,853	69
Income taxes	484	225	234	115
Net income	2,024	1,256	1,619	61
Diluted earnings per share (<i>dollars</i>)	5.38	3.29	4.51	64
Taxable equivalent⁽³⁾				
Net interest income	209	231	311	
Non-interest income	35	4	-	
Income taxes	244	235	311	
Impact of taxable equivalent basis on net income	-	-	-	
Specified items⁽³⁾				
Items related to holding restructured notes	-	(9)	70	
Acquisition-related items	(30)	(53)	(34)	
Restructuring charge	-	(131)	(86)	
Impairment losses on intangible assets	-	(44)	(46)	
Litigation charges	-	(25)	-	
Write-off of an equity interest in an associate	-	(164)	-	
Gain on disposal of Fiera Capital shares	-	-	29	
Share of current tax asset write-down of an associate	-	-	(18)	
Specified items before income taxes	(30)	(426)	(85)	
Income taxes on specified items ⁽⁴⁾	(5)	(69)	(22)	
Specified items after income taxes	(25)	(357)	(63)	
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⁾	3,441	3,232	3,048	6
Non-interest income on a taxable equivalent basis and excluding specified items ⁽¹⁾	3,423	3,047	2,934	12
Total revenues on a taxable equivalent basis and excluding specified items	6,864	6,279	5,982	9
Non-interest expenses excluding specified items	3,838	3,653	3,505	5
Contribution on a taxable equivalent basis and excluding specified items	3,026	2,626	2,477	15
Provisions for credit losses ⁽²⁾	244	484	228	(50)
Income before income taxes on a taxable equivalent basis and excluding specified items	2,782	2,142	2,249	30
Income taxes on a taxable equivalent basis and excluding specified items	733	529	567	39
Net income excluding specified items	2,049	1,613	1,682	27
Diluted earnings per share excluding specified items (<i>dollars</i>) ⁽⁵⁾	5.45	4.35	4.70	25
Average assets	248,351	235,913	222,929	5
Average loans and acceptances	129,150	121,013	108,740	7
Impaired loans, net of total allowances	(339)	(289)	(112)	
Average deposits ⁽⁶⁾	154,254	142,852	129,468	8
Efficiency ratio on a taxable equivalent basis and excluding specified items ⁽³⁾	55.9 %	58.2 %	58.6 %	

(1) The Bank reclassified certain amounts in the Consolidated Statement of Income to better reflect the nature of the income reported in the Personal and Commercial segment. As a result, for the years ended October 31, 2016 and 2015, certain *Non-interest income* items were reclassified to *Net interest income*. 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 in 2016 for the oil and gas producer and service company loan portfolio. The 2017 provisions for credit losses also included an amount of \$40 million to reflect an increase in the collective allowance for credit risk on non-impaired loans. For 2016, the provisions for credit losses had included a \$250 million sectoral provision on non-impaired loans recorded for the oil and gas producer and service company loan portfolio.
- (3) See the Financial Reporting Method section on page 10 for additional information on non-GAAP financial measures.
- (4) For the year ended October 31, 2016, the income taxes on specified items had included an \$18 million tax provision recorded to reflect the impact of substantively enacted changes to tax measures.
- (5) For the year ended October 31, 2016, the specified items had included a premium of \$3 million, or \$0.01 per share, on the redemption of the Series 20 preferred shares for cancellation.
- (6) On November 1, 2016, the Bank had changed the presentation of certain items on the Consolidated Balance Sheet, and prior year figures were adjusted to reflect those modifications.

Analysis of Consolidated Results

Financial Results

For fiscal 2017, the Bank's net income totalled \$2,024 million compared to \$1,256 million in fiscal 2016, a substantial increase owing to net income growth across all the business segments as well as to the fact that, in 2016, a sectoral provision of \$183 million, net of income taxes, had been recorded for oil and gas producers and service companies. In addition, a greater amount of unfavourable specified items had been recorded in fiscal 2016. In 2017, the specified items, net of income taxes, reduced net income by \$25 million, whereas, in 2016, the specified items had reduced net income by \$357 million. In 2016, these items, net of income taxes, had included a \$145 million write-off of the Bank's equity interest in associate Maple, a \$96 million restructuring charge, \$32 million in intangible asset impairment losses, and \$18 million in litigation charges. For fiscal 2017, the Bank's net income excluding specified items totalled \$2,049 million, up 27% from \$1,613 million in fiscal 2016.

Total Revenues

The Bank's total revenues on a taxable equivalent basis⁽¹⁾ amounted to \$6,853 million in fiscal 2017, a \$778 million year-over-year increase (Table 2, page 98) driven by revenue growth across all of the Bank's business segments. The 2017 total revenues on a taxable equivalent basis and excluding specified items were up \$585 million or 9% year over year. For both 2017 and 2016, the specified items included acquisition-related items, in particular the Bank's share in the goodwill and intangible asset impairment losses arising from its equity interest in TMX in 2016. In 2016, the specified items had also included the Bank's write-off of its equity interest in associate Maple as well as items related to holding restructured notes.

Net Interest Income

For fiscal 2017, the Bank's net interest income on a taxable equivalent basis totalled \$3,441 million, rising \$218 million from \$3,223 million in fiscal 2016 (Table 3, page 98). In the Personal and Commercial segment, the 2017 net interest income totalled \$2,071 million, a \$116 million or 6% year-over-year increase driven by growth in average loan and deposit volumes, which rose 4% and 12%, respectively. The loan growth came mainly from residential mortgages and home equity lines of credit. Another factor contributing to the segment's increase in net interest income was a higher net interest margin, which was 2.26% in 2017 compared to 2.24% in 2016. In the Wealth Management segment, the 2017 net interest income totalled \$431 million, a \$59 million year-over-year increase owing to deposit growth and improved margins. In the U.S. Speciality Finance and International segment, net interest income was up \$191 million year over year given growth in the loan volumes of the Credigy subsidiary and the performance of the ABA Bank subsidiary, whose results have been consolidated into the Bank's results since the third quarter of 2016 and that has experienced sustained loan and deposit growth in 2017. As for the Financial Markets segment, the 2017 net interest income was down \$156 million year over year, mainly due to trading activities, and should be examined together with the other items of trading activity revenues. For the *Other* heading of segment results, the 2017 net interest income posted a year-over-year increase.

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

Non-Interest Income

Non-interest income on a taxable equivalent basis totalled \$3,412 million in fiscal 2017 versus \$2,852 million in fiscal 2016 (Table 4, page 99). The trading revenues recorded in non-interest income amounted to \$409 million compared to \$154 million in 2016. Including the portion recorded in net interest income, trading activity revenues amounted to \$1,006 million in 2017, a \$109 million year-over-year increase (Table 5, page 99) attributable to revenues from equity securities, fixed-income securities, and the other segments, whereas revenues from commodities and foreign exchange activities were down year over year.

As shown in Table 4 on page 99, the 2017 underwriting and advisory fees were down \$27 million year over year, with the 2017 securities brokerage commissions decreasing 8% year over year given a migration of assets from transactional accounts to fee-based accounts in recent years. Mutual fund revenues and trust service revenues totalled \$930 million, a \$113 million year-over-year increase resulting from growth in fee-based revenues and in assets under administration.

Revenues from credit fees and card revenues rose 18% and 11%, respectively, compared to 2016, whereas revenues from acceptances and letters of credit and guarantee were down \$5 million year over year, partly due to a decline in lending activity with oil and gas companies. The net gains on available-for-sale securities item rose \$70 million year over year.

The 2017 deposit and payment service charges rose \$21 million or 8% year over year, essentially as a result of the ABA Bank subsidiary, whose results have been consolidated into the Bank's results since the third quarter of 2016. Insurance revenues were up \$3 million and other-than-trading foreign exchange revenues remained stable compared to 2016. The share in the net income of associates and joint ventures was up, as the Bank's share in its equity interest in TMX recorded in 2016 had included \$18 million in goodwill and intangible asset impairment losses. Other revenues amounted to \$363 million, a \$96 million year-over-year increase that was mainly due to the Bank's \$164 million write-off of its equity interest in associate Maple in 2016, partly offset by a \$41 million non-taxable gain recorded in 2016 upon the revaluation of the previously held equity interest in ABA Bank and by a decrease in the Credigy revenues recorded as non-interest income in 2017.

Provisions for Credit Losses

For fiscal 2017, the Bank recorded \$244 million in provisions for credit losses, \$240 million less than the provisions recorded for fiscal 2016 (Table 6, page 100). Essentially, the lower credit loss provisions are related to the sectoral provision on non-impaired loans recorded for the oil and gas producer and service company loan portfolio, which was reversed by \$40 million in fiscal 2017 compared to the \$250 million recording of this sectoral provision in fiscal 2016. Also, at \$43 million, the provisions for credit losses on Commercial Banking loans were down \$30 million in fiscal 2017. Both of these decreases were partly offset by a \$40 million increase in the collective allowance for credit risk on non-impaired loans, which was recorded to reflect growth in the Bank's overall credit portfolio, and by a \$44 million increase in the provisions for credit losses recorded for loans in the U.S. Specialty Finance and International segment that is essentially attributable to the Credigy subsidiary. The 2017 provisions for credit losses on impaired loans represented 0.19% of average loans and acceptances, unchanged from fiscal 2016.

Non-Interest Expenses

Non-interest expenses stood at \$3,857 million in 2017 (Table 7, page 101), an \$18 million year-over-year decrease resulting in part from a \$131 million restructuring charge, consisting mainly of severance pay, that had been recorded in fiscal 2016. Technology costs, including amortization, were down in 2017, as \$44 million in intangible asset impairment losses had been recorded in 2016, partly offset by higher technology investment expenses in 2017. Professional fees stood at \$254 million in 2017, a \$22 million year-over-year decrease related to servicing fees associated with the business activities of the Credigy subsidiary. Security and theft expense was down year over year, as \$25 million in litigation charges had been recorded in 2016 upon resolution of litigation and other disputes arising from claims made against the Bank. Other expenses were also down when compared to 2016. Compensation and employee benefits stood at \$2,358 million, a 9% year-over-year increase resulting from the higher variable compensation associated with revenue growth and from the cost of pension plans. In addition, the results of the ABA Bank subsidiary, which have been consolidated into the Bank's results since the third quarter of 2016, led to an overall increase in non-interest expenses. For 2017, non-interest expenses excluding specified items rose \$185 million or 5% year over year.

Income Taxes

Detailed information about the Bank's income taxes is provided in Note 25 to the consolidated financial statements. For fiscal 2017, income taxes stood at \$484 million, for an effective tax rate of 19%, compared to \$225 million and an effective tax rate of 15% in 2016. This change in the effective tax rate stems mainly from the tax impact of several items that had been recorded in 2016, particularly the sectoral provision on non-impaired loans recorded for the oil and gas producer and service company loan portfolio, the restructuring charge, the gain realized following the revaluation of the previously held equity interest in ABA Bank, and the write-off of the Bank's equity interest in associate Maple. Also during fiscal 2016, a tax provision had been recorded to reflect the impact of changes to tax measures.

BUSINESS SEGMENT ANALYSIS | Personal and Commercial

OVERVIEW

The Personal and Commercial segment meets the financial needs of some 2.5 million individuals and more than 135,000 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, 429 branches and 931 banking machines across Canada, clients can do their daily banking whenever and wherever they wish.

Economic and Market Review

In 2017, the Canadian economy grew steadily. Consumer spending was the main engine of growth, thanks to a convergence of several favourable factors such as the best labour market performance in years, low interest rates, and the wealth effects associated with rising residential real estate prices. For 2018, growth is expected to be equally steady, although it is important to remember the increased sensitivity of homeowners in certain major urban centres to potential interest rate increases.

2017 Achievements and Highlights

- To support business growth, raise efficiency and improve customer experience, in fiscal 2017 the Bank invested selectively in its digital strategy and deployed several initiatives. In fact, more than 25 enhancements and added features to its digital applications were deployed for retail customers. In addition, the Bank launched its first mobile application for businesses and rolled out a new fleet of ATMs with enhanced functionality.
- The Bank built strong momentum in the digital engagement of customers, which translated into a 40% increase in active retail mobile users in fiscal 2017.
- Process automation and streamlining combined with a simplification of product lines and investment solutions resulted in higher efficiency compared to the previous year.
- Our client relationship management platform was enhanced to provide employees with a richer client profile, thereby helping them offer personalized and timely advice based on a client's goals, current assets and liabilities, and spending patterns.
- Over 90% of our client-facing employees and their supervisors completed a skills certification initiative under our training program by year-end. The goal of this distinctive program is to ensure that our people can meet the changing expectations of our clients.

Priorities and Outlook for 2018

- Continue investing in training and coaching to develop an elite and agile workforce that will be a source of competitive advantage in the age of digital banking.
- Continue deploying initiatives that differentiate the Bank as a simple, easy and fast partner for retail clients.
- Focus on digital origination and straight-through processing for certain key products.
- Launch a new online portal to support our digital strategy.
- Provide clients with a single point of access for all their data and allow them to choose how they receive advice: digital self-service, remote interaction through voice or chat, or in person at a branch or at their chosen location.
- Continue to simplify our product lines and automate processes.
- Position the Bank as the simplest and fastest in terms of origination and service in three major retail banking trips—everyday bank account opening, home financing and payments.
- Increase the use of client information and analytics to anticipate client needs and reach out proactively with relevant solutions.
- Continue transforming the branch network and self-banking channels in line with the digital strategy while achieving an appropriate balance between technology and a human touch.
- Simplify the commercial banking offering and reduce processing time.
- Increase the amount of time Commercial Banking account managers spend with clients by reducing manual paperwork through automation.
- Increase collaboration with other business units—Wealth Management, Private Banking, Financial Markets and Insurance—to serve entrepreneurs.

Segment Results – Personal and Commercial

Year ended October 31

(millions of Canadian dollars)

	2017	2016 ⁽¹⁾	2015 ⁽¹⁾	2017-16 % change
Net interest income	2,071	1,955	1,860	6
Non-interest income	990	945	967	5
Total revenues	3,061	2,900	2,827	6
Non-interest expenses	1,646	1,662	1,630	(1)
Contribution	1,415	1,238	1,197	14
Provisions for credit losses ⁽²⁾	153	475	225	(68)
Income before income taxes	1,262	763	972	65
Income taxes	337	206	261	64
Net income	925	557	711	66
Net income excluding the impact of the sectoral provision⁽²⁾	896	740	711	21
Net interest margin ⁽³⁾	2.26 %	2.24 %	2.28 %	
Average interest-bearing assets	91,461	87,153	81,430	5
Average assets	96,261	92,234	86,977	4
Average loans and acceptances	95,888	91,882	86,583	4
Net impaired loans	199	275	249	(28)
Net impaired loans as a % of average loans and acceptances	0.2 %	0.3 %	0.3 %	
Average deposits	54,302	48,436	44,585	12
Efficiency ratio	53.8 %	57.3 %	57.7 %	

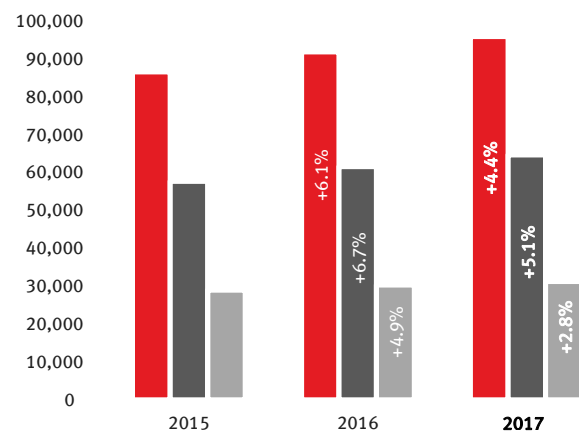
(1) For the years ended October 31, 2016 and 2015, certain amounts have been revised from those previously reported, including a reclassification between *Non-interest income* and *Net interest income* to better reflect the nature of the income. In addition, the restructuring charge recognized in fiscal 2015, which had been allocated among all the Bank's business segments, has been combined into the *Other* heading to reflect the presentation adopted in fiscal 2016.

(2) During the year ended October 31, 2017, the Bank 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 in 2016. 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) on non-impaired loans recorded for the oil and gas producer and service company loan portfolio. Given the materiality of this 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.

(3) Net interest margin is calculated by dividing net interest income by average interest-bearing assets.

Loan and Acceptance Volumes

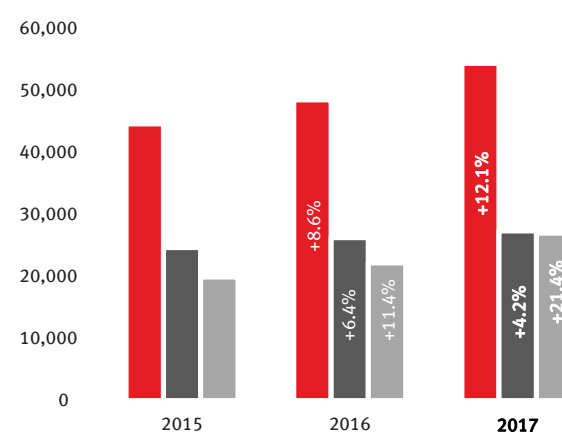
(millions of Canadian dollars)
(% of year-over-year growth)



■ Total Personal and Commercial
■ Personal
■ Commercial

Deposit Volumes

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



■ Total Personal and Commercial
■ Personal
■ Commercial

Financial Results

In the Personal and Commercial segment, net income totalled \$925 million in fiscal 2017, up 66% from \$557 million in 2016. This change is mainly related to the sectoral provision on non-impaired loans for the oil and gas producer and service company loan portfolio, which was reversed by \$29 million, net of income taxes, in 2017 compared to the \$183 million, net of income taxes, recording of this provision in 2016. Net income excluding the impact of the sectoral provision totalled \$896 million in 2017, up 21% year over year. The segment's total revenues rose \$161 million or 6% year over year, as net interest income grew \$116 million while non-interest income was up \$45 million. The higher net interest income came primarily from growth in personal and commercial loan and deposit volumes and from a higher net interest margin, which was 2.26% in 2017 versus 2.24% in 2016.

The segment's 2017 non-interest expenses stood at \$1,646 million, a 1% year-over-year decrease resulting mainly from lower compensation and employee benefits (related to the transformation plan adopted by the Bank to improve operational efficiency) as well as from lower communications costs and operations support charges. These decreases were partly offset by higher technology expenses related to business development. Given these results, the segment's 2017 contribution increased 14% year over year. Furthermore, at 53.8%, the 2017 efficiency ratio improved by 3.5 percentage points from 57.3% in 2016 and from 57.7% in 2015.

For 2017, the segment recorded \$153 million in provisions for credit losses, \$322 million less than the \$475 million recorded in 2016. This decrease is essentially related to the impact of the sectoral provision, which was reversed by \$40 million in 2017 compared to the \$250 million recording of this provision in 2016. Also contributing to this decrease were lower provisions for credit losses recorded for commercial loans.

Personal Banking

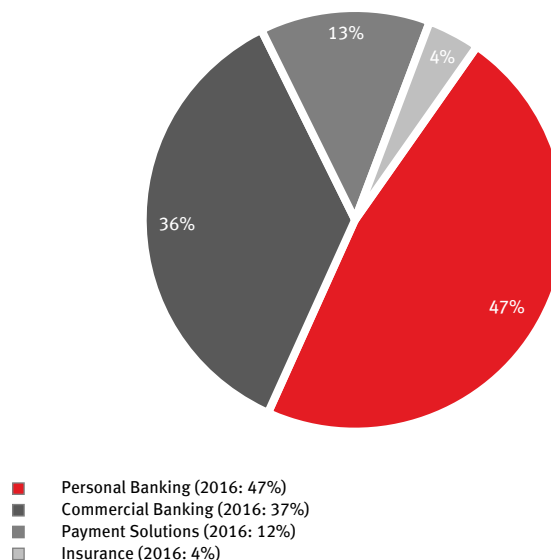
For fiscal 2017, Personal Banking's revenues amounted to \$1,942 million compared to \$1,840 million in fiscal 2016, a 6% year-over-year increase driven mainly by a 5% increase in loan volume (primarily mortgage credit and the credit card balance outstanding) and a 4% increase in deposit volume. The 2017 non-interest income was up \$47 million year over year, essentially due to increases in revenues from deposit and payment services charges, card revenues, internal commission revenues generated by the distribution of Wealth Management products as well as from higher insurance revenues, which in 2017 included a gain realized following a change to the distribution model for property and casualty insurance. At the same time, the 2017 non-interest expenses were down \$10 million year over year, mainly due to lower compensation and employee benefits and to lower communications costs and operations support charges, partly offset by higher technology expenses.

Commercial Banking

For fiscal 2017, Commercial Banking's revenues amounted to \$1,119 million, rising 6% from \$1,060 million in fiscal 2016. Net interest income was up, driven essentially by growth in loan and deposit volumes of 3% and 21%, respectively, and by a higher net interest margin. Non-interest income was down \$2 million as a result of lower revenues from bankers' acceptances due to a decline in lending activity with oil and gas companies, partly offset by higher credit fee revenues and revenues from foreign exchange activities. Non-interest expenses were down \$6 million, mainly due to lower compensation and employee benefits and lower technology costs.

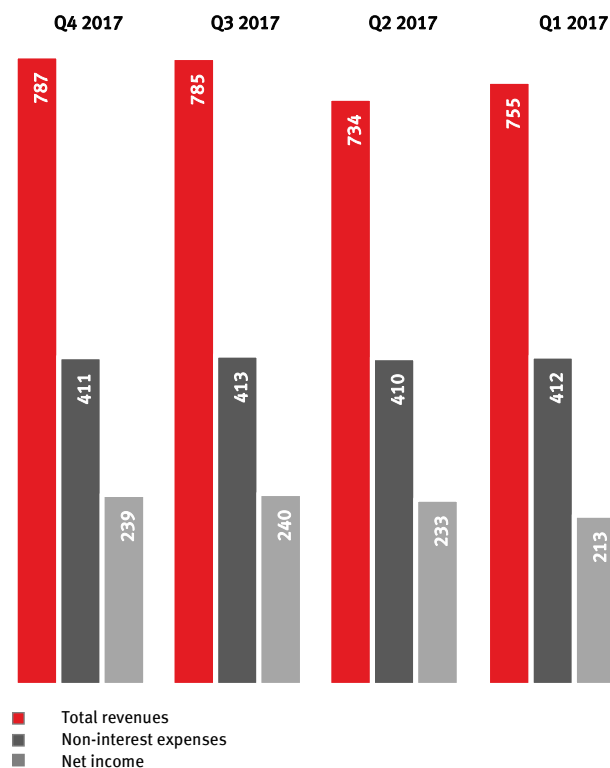
Total Revenues by Category

Year ended October 31, 2017



Quarterly Results

(millions of Canadian dollars)



BUSINESS SEGMENT ANALYSIS | Wealth Management

OVERVIEW

The Wealth Management segment believes that the strength of client relationships is—and will remain—the key factor in its success. Therefore, this segment focuses on hiring and retaining advisors and support staff with a passion for providing outstanding client experience and on providing category-leading products and services.

Wealth Management leverages internal and third-party distribution channels as well as its product manufacturers to maintain leadership in Quebec and to continue growing its market share across Canada. The segment is differentiated by its unique business model and a culture that features a high degree of professionalism.

Economic and Market Review

Global economic expansion continued to advance during the year, as industrial production grew rapidly. The rise in various indicators bolstered investor confidence, which partly explains why the market index calculated by Morgan Stanley Capital International (MSCI World) peaked. The S&P/TSX Index also staged a strong comeback at the end of the year. In this context, there was strong growth in revenues, particularly from fee-based services, in accordance with the business strategies put in place. For 2018, the role of advisory services will make it possible to anticipate continued business growth based on various scenarios for potential market changes.

2017 Achievements and Highlights

- The Bank launched the myWEALTH unified solution for clients seeking a complete discretionary platform tailored to their precise needs.
- Assets under management on the myWEALTH platform increased to \$32.6 billion, driven by an ongoing migration of clients to fee-based services. The Bank's investment advisors provide personalized investment management advice for negotiated annual fees adapted to client needs.
- Through a commercial agreement with Nest Wealth, a Canadian financial technology company, the Bank has added complementary digital tools to help its investment advisors improve service and further deepen client relationships.
- Ottawa and Halifax became the latest Wealth Management offices to offer clients retail banking services, including credit and transactional services. Personal banking personnel are now embedded in eight Wealth Management offices across Canada, providing greater convenience for clients and increasing internal efficiency.
- The Private Wealth 1859 division continued to expand its affluent client base across the country. During the year, the division deployed state-of-the-art productivity and client relationship management tools to sustain its growth and reputation for stellar service.
- The Bank's investment management subsidiary, National Bank Investments Inc. (NBI), simplified and optimized its mutual fund offering through fund mergers, closings, and modifications while delivering benefits to both investors and the financial advisors offering the funds.
- As the only major Canadian bank to delegate all portfolio management of its investment funds to external firms, the Bank continued to introduce innovative investment solutions on our open architecture platform, including the new NBI Unconstrained Fixed Income Fund, managed by Bill Gross, a portfolio manager at Janus Capital Group, Inc.

- National Bank Independent Network (NBIN), previously named National Bank Correspondent Network, which provides state-of-the-art trade execution and custody services to independent investment advisors and portfolio management firms, onboarded one of its largest clients to date, adding some \$23.0 billion in assets under administration. NBIN's assets under administration stood at \$168.7 billion at fiscal year-end.

Priorities and Outlook for 2018

- Through a coordinated strategy with other Bank units, grow the Bank's share of savings in Quebec to become the market leader.
- Support business growth outside Quebec by offering credit and other banking services in additional Wealth Management offices as well as in the offices of financial partners who already offer the Bank's retail banking services to their clients on a white-label basis.
- Leverage the Bank's open architecture model to launch new investment solutions that are relevant to individual investors by partnering with the world's best-performing investment management firms.
- Expand NBIN's market share with independent investment advisors and portfolio management firms by providing efficient clearing and back-office services through our unique Web platform, thereby helping them increase efficiency while maintaining compliance with mounting regulatory requirements.
- Maintain full compliance with new regulatory requirements for point-of-sale client disclosure regarding commissions, other forms of compensation, and investment performance.

Segment Results – Wealth Management

Year ended October 31 (millions of Canadian dollars)	2017	2016 ⁽¹⁾	2015 ⁽¹⁾	2017-16 % change
Net interest income	431	372	323	16
Fee-based revenues	906	803	761	13
Transaction and other revenues	267	266	335	–
Total revenues	1,604	1,441	1,419	11
Non-interest expenses	1,036	999	983	4
Contribution	568	442	436	29
Provisions for credit losses	3	5	3	(40)
Income before income taxes	565	437	433	29
Income taxes	149	116	110	28
Net income	416	321	323	30
Specified items after income taxes ⁽²⁾	23	26	(1)	
Net income excluding specified items⁽²⁾	439	347	322	27
Average assets	11,652	11,006	10,388	6
Average loans and acceptances	9,924	9,379	8,772	6
Net impaired loans	4	5	5	
Average deposits	31,192	28,344	24,895	10
Efficiency ratio excluding specified items ⁽²⁾	63.1 %	67.3 %	68.6 %	

(1) For the years ended October 31, 2016 and 2015, certain amounts have been revised from those previously reported. In addition, the restructuring charge recognized in fiscal 2015, which had been allocated among all the Bank's business segments, has been combined into the *Other* heading to reflect the presentation adopted in fiscal 2016.

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

Assets Under Administration or Under Management – Wealth Management

As at October 31 (millions of Canadian dollars)	2017	2016 ⁽¹⁾	2015 ⁽¹⁾	2017-16 % change
Assets under administration	411,817	341,047	308,396	21
Assets under management				
Individual	33,349	27,589	23,614	21
Mutual funds	32,192	28,706	25,783	12
	65,541	56,295	49,397	16
Assets under administration and under management	477,358	397,342	357,793	20

(1) For the years ended October 31, 2016 and 2015, certain amounts have been revised from those previously reported.

Financial Results

In the Wealth Management segment, net income totalled \$416 million in fiscal 2017, up \$95 million or 30% from \$321 million in fiscal 2016. Net income excluding specified items (with the specified items including the acquisition-related charges of recent years) totalled \$439 million for fiscal 2017, up \$92 million or 27% from \$347 million in 2016.

The segment's total revenues amounted to \$1,604 million in fiscal 2017 compared to \$1,441 million in fiscal 2016, a \$163 million year-over-year increase driven mainly by 16% growth in net interest income, attributable to deposit growth and improved margins, as well as by 13% growth in fee-based revenues given net inflows across all solutions and a steady rise in stock market performance during fiscal 2017. Transaction-based and other revenues, particularly brokerage commissions on share and bond transactions, remained essentially unchanged from 2016.

The segment's non-interest expenses stood at \$1,036 million in fiscal 2017 compared to \$999 million in fiscal 2016, a 4% year-over-year increase mainly attributable to the higher variable compensation and external management fees associated with the revenue growth arising from the segment's greater business volume. In addition, there were year-over-year increases in both operations support charges and in the costs incurred to develop affluent client services in Western Canada. The 2017 efficiency ratio excluding specified items was 63.1% compared to 67.3% in 2016 and 68.6% in 2015.

The segment recorded \$3 million in provisions for credit losses in 2017, \$2 million less than in 2016.

Assets Under Administration and Under Management

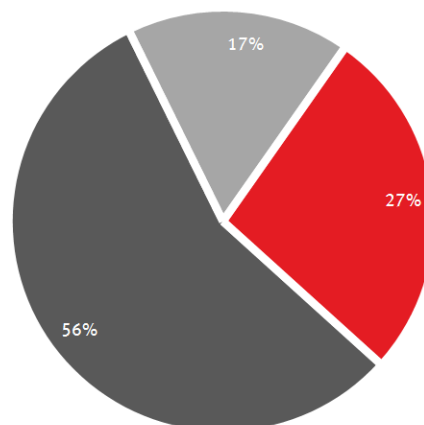
As at October 31, 2017, total assets under administration and under management amounted to \$477.4 billion, rising \$80.0 billion or 20% since October 31, 2016 and 33% since October 31, 2015.

Assets under administration amounted to \$411.8 billion as at October 31, 2017, a \$70.8 billion or 21% increase since October 31, 2016 that came from net inflows to various solutions and from a stock market recovery.

In the individuals category, assets under management amounted to \$33.3 billion as at October 31, 2017 compared to \$27.6 billion as at October 31, 2016. Mutual funds totalled \$32.2 billion as at October 31, 2017, rising 12% since October 31, 2016 given excellent net inflows to the various distribution networks.

Total Revenues by Category

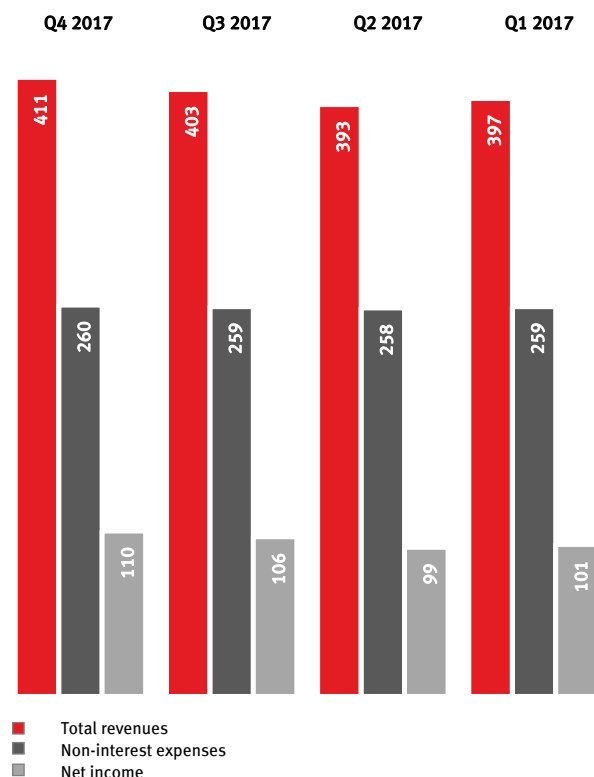
Year ended October 31, 2017



- Net interest income (2016: 26%)
- Fee-based services (2016: 56%)
- Transaction-based and other revenues (2016: 18%)

Quarterly Results

(millions of Canadian dollars)



BUSINESS SEGMENT ANALYSIS | Financial Markets

OVERVIEW

The Financial Markets segment offers a full suite of financial solutions, from debt and equity underwriting to bank credit and risk management products. This segment also delivers comprehensive advisory services in the areas of mergers and acquisitions and financing. Access to the Canadian capital markets is provided through its fixed-income, equities and derivatives business lines. The segment's clients consist of large and mid-sized corporations, public sector clients and institutions across Canada.

Financial Markets is an investment banking leader across Canada and the overall top-ranked franchise in Quebec. In fixed-income and equities, it is a market leader, providing origination, underwriting, distribution, and liquidity through secondary market activities as well as macroeconomic and issuer-focused research.

Through offices in New York, London (UK), and Hong Kong, this segment markets Canadian debt and equity securities to institutional investors in the United States, Europe and Asia. Through its Dublin subsidiary, it engages in trading activities with large European-based institutions in local equity and equity-linked securities exchanges.

Economic and Market Review

The fiscal 2017 environment was conducive to strong capital markets results, with trading revenue supported by volatility and the rising markets in the U.S. following the presidential election. As volatility decreased in the second half, there was a pick-up in underwriting and advisory revenues and strong M&A volumes.

2017 Achievements and Highlights

The Financial Markets segment has prioritized servicing Canadian corporate clients through capital raising, advisory services and risk management solutions. Among its key transactions in 2017, the segment:

- Advised Alimentation Couche-Tard Inc. on a US\$4.4 billion acquisition of CST Brands, Inc., including acting as joint bookrunner on the related bank financing and co-bookrunner on a \$700 million Canadian tranche of a \$3.8 billion multi-tranche cross-border bond financing.
- Advised an investor group led by J.C. Flowers & Co. and Vårde Partners on a \$2.5 billion acquisition of Fairstone Financial Inc. (previously CitiFinancial Canada) and led the structuring, hedging and financing of securitization transactions to close the acquisition.
- Acted as financial advisor to Parkland Fuel Corporation on a \$1.6 billion acquisition of Chevron Canada's downstream fuel business, including serving as joint bookrunner on a \$660 million bought deal private placement of Parkland shares, on a \$500 million senior unsecured note offering, and on \$1 billion in new credit facilities. In addition, it provided risk management solutions to Parkland.
- Served as one of the advisors to Osisko Gold Royalties on a \$1.1 billion acquisition of a royalty portfolio from Orion Mine Finance, providing risk management solutions in conjunction with the transaction. The segment subsequently acted as joint bookrunner on a \$300 million convertible debenture offering and as sole lead arranger and bookrunner on a \$350 million credit facility.
- Acted as joint bookrunner on two preferred share issuances raising \$300 million and on a \$425 million issuance of senior unsecured notes for Intact Financial Corporation, as part of the acquisition of OneBeacon Insurance Group, Ltd; acted as co-manager on a \$414 million bought deal equity issuance and acted as co-lead arranger and joint bookrunner on a \$750 million bank financing.

- Acted as financial advisor to The Jean Coutu Group (PIC) Inc. on its announced \$4.5 billion sale to METRO INC. In addition, it supported METRO INC. in its financing of the acquisition by acting as co-lead arranger and as joint bookrunner on a \$3.4 billion bank commitment at announcement for the cash portion of the transaction consideration and as joint bookrunner on the subsequent \$650 million secondary equity bought deal offering of a portion of METRO INC.'s holding in Alimentation Couche-Tard Inc.
- Continued to leverage its derivatives trading and structuring expertise to reach a broader group of clients. Its innovative risk management solutions, which help clients manage risks across all asset classes, have expanded to cover an additional 32% of clients over the last five years, with most of them using multiple risk management products.

Financial Markets has long been a leader in fixed income:

- The segment ranked first in Canada for debt underwriting, excluding self-funded deals, in the first nine months of 2017. It raised a total of \$16.5 billion during this period, leading the market in all debt raised. This included acting as joint bookrunner for Bell Canada on \$3 billion of senior unsecured notes through two transactions.
- It has maintained its leadership position in government debt financing, leading two five-year fixed-rate Canada Mortgage Bond issuances aggregating \$10.25 billion and winning inaugural lead mandates for the City of Ottawa and the City of Toronto.

Financial Markets is one of the leading infrastructure finance firms:

- It acted as financial advisor to the Rideau Transit Group consortium with respect to certain elements of the \$3.0 billion Ottawa Light Rail Transit Stage 2 expansion, involving 40 km of new rail line and 23 new stations.
- It acted as financial advisor and sole underwriter for the Link 427 consortium, in connection with the \$480 million Highway 427 Expansion project in Ontario, involving the design, construction, financing and maintenance of an expansion to an existing highway in the Toronto area.

Other notable highlights included:

- In fiscal 2017, the Bank raised \$1.9 billion through equity, equity-linked, and preferred share issuances for corporate and institutional clients. Corporate transactions included NBF's role as co-lead in CIBC's \$800 million issuance of preferred shares. In the managed retail product space, the Bank also raised approximately \$500 million for funds managed by Quadvest Capital Management Inc.
- Investment in our research team was rewarded, notably by our 3rd overall ranking and 11 top analysts in the latest Thomson Reuters Analyst Awards.

Priorities and Outlook for 2018

- Focus on corporate clients by providing a complete suite of capital raising, advisory and risk management services.
- Continue to expand corporate client coverage, benefiting from the expansion of investment banking and M&A advisory teams.
- Expand the range of products and services offered to Canadian and international clients through the segment's activities in New York, London, Dublin and Hong Kong.
- Realize the benefits of ongoing investments in technologies that support the segment's client-facing businesses.

Segment Results – Financial Markets

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

	2017	2016 ⁽²⁾	2015 ⁽²⁾	2017-16 % change
Trading activity revenues				
Equities	496	438	450	13
Fixed-income	304	263	237	16
Commodities and foreign exchange	103	116	147	(11)
	903	817	834	11
Financial market fees	305	288	286	6
Gains on available-for-sale securities, net	60	16	1	
Banking services	338	322	286	5
Other	24	(130)	79	
Total revenues on a taxable equivalent basis	1,630	1,313	1,486	24
Non-interest expenses	658	615	599	7
Contribution on a taxable equivalent basis	972	698	887	39
Provisions for credit losses	–	–	–	
Income before income taxes on a taxable equivalent basis	972	698	887	39
Income taxes on a taxable equivalent basis	260	213	236	22
Net income	712	485	651	47
Specified items after income taxes ⁽¹⁾	–	145	16	
Net income excluding specified items⁽¹⁾	712	630	667	13
Average assets	95,004	87,504	86,466	9
Average loans and acceptances (Corporate Banking only)	13,118	12,552	10,057	5
Average deposits	20,926	15,201	13,550	38
Efficiency ratio on a taxable equivalent basis and excluding specified items ⁽¹⁾	40.4 %	41.6 %	39.8 %	

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

(2) For the years ended October 31, 2016 and 2015, certain amounts have been revised from those previously reported, notably amounts related to the Credigy subsidiary, which are now reported in the USSF&I segment. In addition, the restructuring charge recognized in fiscal 2015, which had been allocated among all the Bank's business segments, has been combined into the *Other* heading to reflect the presentation adopted in fiscal 2016.

Financial Results

In the Financial Markets segment, net income totalled \$712 million in fiscal 2017, up \$227 million or 47% from fiscal 2016. The segment's total revenues on a taxable equivalent basis amounted to \$1,630 million compared to \$1,313 million in fiscal 2016, a \$317 million year-over-year increase that was driven by all of the segment's revenue categories, in particular the Other revenue category, which in 2016 had included the \$164 million write-off of the Bank's equity interest in associate Maple. Given favourable market conditions, the 2017 trading activity revenues increased 11% year over year owing to growth in revenues from equity securities and from fixed-income securities, which were up 13% and 16%, respectively. As for revenues from financial market fees and revenues from banking services, they increased by 6% and 5%, respectively. Furthermore, the 2017 gains on available-for-sale securities were higher than those recorded in 2016.

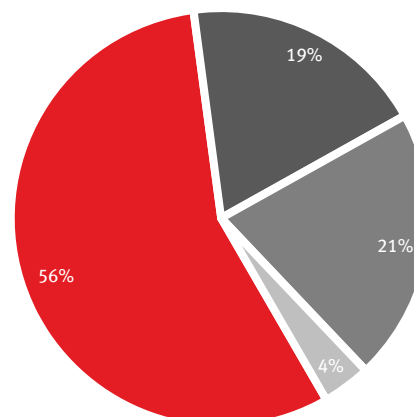
For the year ended October 31, 2017, the segment's non-interest expenses increased 7% year over year, mainly due to the higher variable compensation associated with revenue growth as well as to higher operations support charges. At 40.4%, the 2017 efficiency ratio on a taxable equivalent basis and excluding specified items improved by 1.2 percentage points when compared to 41.6% in 2016 and compares to 39.8% in 2015.

The segment did not record any provisions for credit losses for fiscal years 2017, 2016 and 2015.

Excluding the write-off of the Bank's equity interest in associate Maple recorded in 2016, the segment's 2017 net income excluding specified items rose 13% when compared to 2016.

Total Revenues by Category⁽¹⁾

Year ended October 31, 2017
(taxable equivalent basis)⁽²⁾

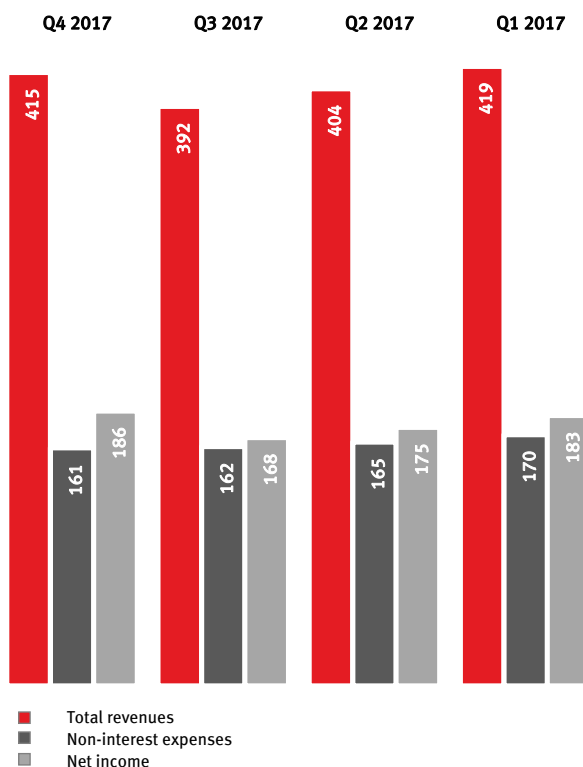


- Trading activity revenues (2016: 57%)
- Financial market fees (2016: 20%)
- Banking services (2016: 22%)
- Gains on available-for-sale securities (2016: 1%)

- (1) Excluding revenues from other activities.
- (2) 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)



- (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

OVERVIEW

The Bank has an 80% ownership interest in Credigy, a subsidiary specialized in consumer finance investment. Credigy acquires portfolios of consumer receivables from different categories of lenders and seeks to realize the assets through collections to achieve expected returns. The company also provides financing to the consumer receivables market. Purchase and financing decisions are assessed by experienced personnel using proprietary models and analytics expertise. Based in Atlanta, U.S.A., Credigy is primarily active in performing assets covering a broad range of asset classes, mostly in the U.S. market.

The Bank has a 90% ownership interest in ABA Bank, a rapidly growing commercial bank with a diversified client base in Cambodia. ABA Bank was founded in 1996. The Bank also has minority positions in financial groups active in francophone Africa and in Africa-Asia trade. At the end of fiscal 2017, the Bank's investments in emerging markets totalled \$433 million.

Economic and Market Review

The U.S. consumer finance industry sustained a strong growth trajectory in 2017, fueled by a rebounding U.S. economy. Increases in consumer and investment spending resulted in real GDP growth. In response to the strengthening economy, the U.S. Federal Reserve gradually raised interest rates during the year.

Cambodia's GDP continued to grow rapidly in 2017. The country continues to benefit from its membership in the dynamic Association of Southeast Asian Nations (ASEAN) trade association, low oil prices, growth of the tourism industry and expansionary fiscal policy.

CREDIGY

2017 Achievements and Highlights

- Invested US\$3.4 billion during 2017, a 70% increase from 2016.
- Performing consumer receivables represent more than 96% of Credigy's income-producing assets.
- Achieved a 3.6% return on assets, exceeding the minimum target of 2.5%.
- Selected as one of the 2017 Top Workplaces by the *Atlanta Journal-Constitution*.
- Developed several initiatives to promote employee development.

Priorities and Outlook for 2018

- Continue to build the Credigy brand as the go-to business partner in the U.S. consumer receivables market to access the best opportunities.
- Focus on creative structures within consumer finance.
- Maintain a diversified business book and continue to search for new investments at the best risk-adjusted returns.
- Continue the trajectory of disciplined growth.

ABA BANK

2017 Achievements and Highlights

- Opened seven new branches, bringing the total to 49.
- Increased the number of clients to more than 35,000 borrowers and 214,000 depositors.
- Achieved a 29% return on equity.
- Maintained credit quality with non-performing loans at 0.5%.
- Named Best Bank in Cambodia by *Global Finance* and *Euromoney* magazines in 2017 for the third straight year.

Priorities and Outlook for 2018

- Continue to target micro-businesses and SMEs by opening six new branches in rural areas.
- Drive deposit growth by increasing digital banking and self-banking penetration through innovation: best-in-class mobile banking, remote account opening, quick-response code-based (QR Code) payments, and other functionalities.
- Continue to strengthen the risk management, internal audit and compliance functions.

Segment Results – U.S. Specialty Finance and International

Year ended October 31 (millions of Canadian dollars)	2017	2016 ⁽¹⁾	2015 ⁽¹⁾	2017-16 % change
Operating results				
Net interest income	262	71	(7)	269
Non-interest income	279	340	233	(18)
Total revenues	541	411	226	32
Credigy	409	324	216	26
ABA Bank and International	132	87	10	52
Non-interest expenses	225	207	147	9
Credigy	163	182	144	(10)
ABA Bank and International	62	25	3	148
Contribution	316	204	79	55
Provisions for credit losses	48	4	–	
Income before income taxes	268	200	79	34
Income taxes	84	53	25	58
Net income	184	147	54	25
Non-controlling interests	29	20	13	45
Net income attributable to the Bank's shareholders	155	127	41	22
Average assets	7,519	5,319	2,275	41
Average loans and receivables	6,062	3,499	1,302	73
Average other revenue-bearing assets	449	1,162	646	(61)
Average deposits	1,265	487	–	
Efficiency ratio	41.6 %	50.4 %	65.0 %	

(1) The amounts presented for the years ended October 31, 2016 and 2015 are consistent with the segment disclosure presentation adopted by the Bank for the fiscal year that began on November 1, 2016.

Financial Results

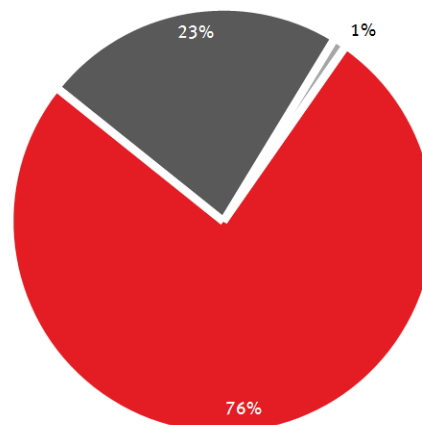
In the U.S. Specialty Finance and International segment, net income totalled \$184 million for the year ended October 31, 2017 compared to \$147 million in fiscal 2016. The segment's 2017 total revenues amounted to \$541 million versus \$411 million in fiscal 2016; this revenue growth was driven partly by a 26% increase in Credigy's revenues, particularly due to growth in loan volumes, and partly by the revenues from the ABA Bank subsidiary, consolidated into the Bank's results since the third quarter of 2016, which increased steadily due to growth in loan and deposit volumes. These increases more than made up for the fiscal 2016 recognition of a \$41 million non-taxable gain realized on the revaluation of the previously held equity interest in ABA Bank.

For the year ended October 31, 2017, the segment's non-interest expenses stood at \$225 million, an \$18 million year-over-year increase attributable essentially to all of the non-interest expenses of the ABA Bank subsidiary, which have been consolidated into the Bank's results since the third quarter of 2016. As for the non-interest expenses of the Credigy subsidiary, they were down 10% year over year, primarily as a result of lower servicing fees.

For fiscal 2017, the segment's provisions for credit losses stood at \$48 million and were essentially attributable to the provisions recorded for the Credigy subsidiary as a result of its business growth.

Total Revenues by Category

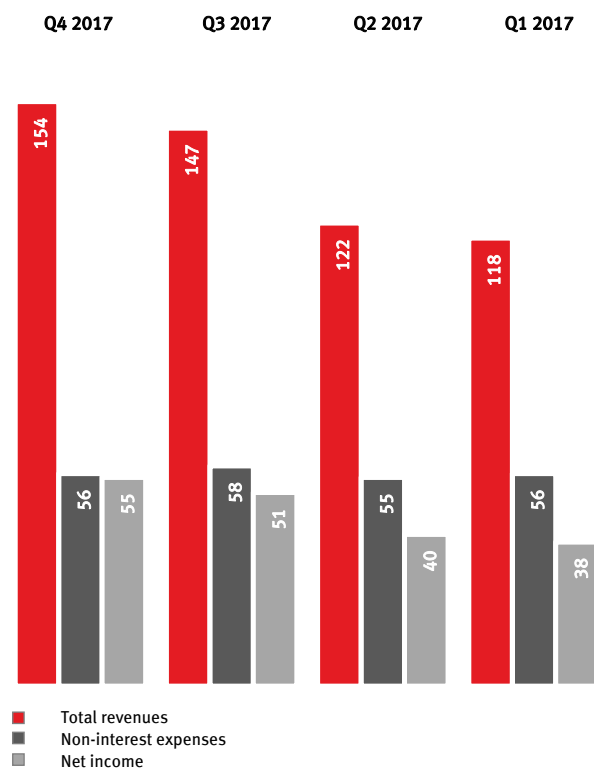
Year ended October 31, 2017



- Credigy (2016: 79%)
- ABA Bank (2016: 10%)
- International (2016: 11%)

Quarterly Results

(millions of Canadian dollars)



BUSINESS SEGMENT ANALYSIS | Other

OVERVIEW

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 and Strategic Initiatives Office, Risk Management, Operations, Human Resources and Corporate Affairs, and Finance and Treasury. 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)

	2017	2016 ⁽²⁾	2015 ⁽²⁾
Net interest income	(105)	(113)	(149)
Non-interest income	122	123	248
Total revenues on a taxable equivalent basis	17	10	99
Non-interest expenses	292	392	306
Contribution on a taxable equivalent basis	(275)	(382)	(207)
Provisions for credit losses ⁽³⁾	40	–	–
Income before income taxes on a taxable equivalent basis	(315)	(382)	(207)
Income taxes (recovery) on a taxable equivalent basis	(102)	(128)	(87)
Net loss	(213)	(254)	(120)
Non-controlling interests	55	55	57
Net loss attributable to the Bank's shareholders	(268)	(309)	(177)
Specified items after income taxes ⁽¹⁾	2	186	48
Net loss excluding specified items⁽¹⁾	(211)	(68)	(72)
Average assets	37,915	39,850	36,823

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

(2) For the years ended October 31, 2016 and 2015, certain amounts have been revised from those previously reported, notably amounts related to the ABA Bank subsidiary and the other international investments that are now reported in the USSF&I segment. In addition, the restructuring charge recognized in fiscal 2015, which had been allocated among all the Bank's business segments, has been combined into the *Other* heading to reflect the presentation adopted in fiscal 2016.

(3) The \$40 million in provisions for credit losses in fiscal 2017 reflects 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 \$213 million in fiscal 2017 compared to a net loss of \$254 million in fiscal 2016. The 2016 results had been affected by the following specified items, net of income taxes: \$6 million in financing costs related to holding restructured notes; a \$96 million restructuring charge; \$18 million in litigation charges; \$32 million in intangible asset impairment losses; and the Bank's \$16 million share in the charges related to its equity interest in TMX. Also in fiscal 2016, an \$18 million tax provision had been recorded to reflect the impact of changes in tax measures. For fiscal 2017, the *Other* heading's net loss was affected by specified items of \$2 million, net of income taxes, related to the Bank's share in TMX.

For the year ended October 31, 2017, net loss excluding specified items stood at \$211 million compared to a net loss of \$68 million in fiscal 2016. The higher net loss excluding specified items was mainly a result of several factors: the increase of \$40 million (\$29 million net of income taxes) in the collective allowance for credit risk on non-impaired loans to reflect growth in the Bank's overall credit portfolio; an increase in non-interest expenses arising from compensation and employee benefits, in particular the cost of pension plans and variable compensation; and technology costs resulting from the digital transformation.

QUARTERLY FINANCIAL INFORMATION

Several trends and factors have an impact on the Bank's quarterly net income, revenues, non-interest expenses and provisions for credit losses. The following table presents a summary of results for the past eight quarters. Furthermore, a summary of results for the past 12 quarters is provided in Table 1 on pages 96 and 97.

Quarterly Results Summary⁽¹⁾

(millions of Canadian dollars)	2017				2016			
	Q4	Q3	Q2	Q1	Q4	Q3	Q2	Q1
Statement of income data								
Net interest income	841	831	762	798	778	783	715	716
Non-interest income	863	844	835	835	791	774	710	573
Total revenues	1,704	1,675	1,597	1,633	1,569	1,557	1,425	1,289
Provisions for credit losses	70	58	56	60	59	45	317	63
Non-interest expenses	976	971	941	969	1,159	937	876	903
Income taxes	133	128	116	107	44	97	22	62
Net income	525	518	484	497	307	478	210	261

(1) For additional information about the 2017 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 2017*, published on December 1, 2017.

The analysis below 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. Given the net income growth across all of the Bank's main business segments, and due to certain specified items recorded in fiscal 2016, the net income for each quarter of 2017 was up year over year. Conversely, for fiscal 2016, the net income for each quarter but the third quarter was down year over year, mainly due to the specified items recorded in fiscal 2016, as described in the Financial Reporting Method section on page 10 and that provides additional information on non-GAAP financial measures.

For the first quarter of 2017, the year-over-year increase in net income was partly due to a write-off of \$145 million, net of income taxes, of the Bank's equity interest in associate Maple in the first quarter of 2016.

For the second quarter of 2017, the year-over-year increase in net income was substantial given that, in the second quarter of 2016, the Bank had recorded a sectoral provision for credit losses for oil and gas producers and service companies of \$183 million, net of income taxes.

For the third quarter of 2017, the year-over-year increase in net income was driven by solid performance in the main business segments, which more than made up for the \$41 million non-taxable gain recorded in 2016 following a revaluation of the previously held equity interest in ABA Bank.

For the fourth quarter of 2017, the year-over-year increase in net income was substantial, as there was net income growth across all the business segments combined with the fact that, in the fourth quarter of 2016, the following items, net of income taxes, had been recorded: a \$96 million restructuring charge, \$32 million in intangible asset impairment losses, and \$18 million in litigation charges.

As for net interest income, this item posted year-over-year growth in every quarter of 2017 and 2016. These increases were driven by growth in personal and commercial loan and deposit volumes, the net interest income growth at Wealth Management (notably due to deposit growth and improved margins), the net interest income growth at Credigy, and the contributions made by the ABA Bank subsidiary since the third quarter of 2016. These increases more than offset the decrease in net interest income within the Financial Markets segment.

The non-interest income results for every quarter of 2017 and for the fourth quarter of 2016 were up year over year owing to sustained growth by the business segments. For three of the four quarters of 2016, non-interest income was down year over year, particularly because the equity interest in associate Maple was written off in the first quarter of 2016 and, in 2015, revenues related to holding restructured notes and a gain on the disposal of Fiera Capital shares had been recorded.

Over the past eight quarters, the Bank's provisions for credit losses were affected by several items. In the second quarter of 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, whereas this sectoral provision had initially been recorded, in an amount of \$250 million, in the second quarter of 2016. The 2017 second-quarter provisions for credit losses also included a \$40 million increase in the collective allowance for credit risk on non-impaired loans. For the fourth quarter of 2017, the year-over-year increase in the provisions for credit losses came essentially from the Credigy subsidiary.

Over most of the past eight quarters, non-interest expenses posted year-over-year increases, mainly as a result of compensation and employee benefits (including the variable compensation associated with revenue growth in the business segments), technology investments, business development expenses, and the acquisition of the ABA Bank subsidiary. For the fourth quarter of 2017, non-interest expenses were down year over year, essentially because a restructuring charge, intangible asset impairment losses, and litigation charges had been recorded in the fourth quarter of 2016.

The effective tax rate was up for three of the four quarters in 2017, whereas the second and fourth quarters of 2016 had posted lower rates. The change in the effective tax rate between the second quarters of 2017 and 2016 came mainly from the tax impact of recording the sectoral provision in the second quarter of 2016 as well as from lower tax-exempt dividend income in the second quarter of 2017. Lastly, during the second quarter of 2016, a tax provision had been recorded to reflect the impact of changes to tax measures.

ANALYSIS OF THE CONSOLIDATED BALANCE SHEET

Consolidated Balance Sheet Summary

As at October 31

(millions of Canadian dollars)

	2017	2016 ⁽¹⁾	% change
Assets			
Cash and deposits with financial institutions	8,802	8,183	8
Securities	65,343	64,541	1
Securities purchased under reverse repurchase agreements and securities borrowed	20,789	13,948	49
Loans and acceptances (net of allowances for credit losses)	134,443	126,178	7
Other	16,450	19,356	(15)
	245,827	232,206	6
Liabilities and equity			
Deposits	156,671	142,066	10
Other	75,589	77,026	(2)
Subordinated debt	9	1,012	(99)
Equity attributable to the Bank's shareholders	12,750	11,292	13
Non-controlling interests	808	810	–
	245,827	232,206	6

(1) On November 1, 2016, the Bank changed the presentation of certain items on the Consolidated Balance Sheet, and the October 31, 2016 figures were adjusted to reflect these modifications.

As at October 31, 2017, the Bank's total assets amounted to \$245.8 billion compared to \$232.2 billion at year-end 2016, a 6% increase owing mainly to a \$6.9 billion increase in securities purchased under reverse repurchase agreements and securities borrowed and an \$8.2 billion increase in loans and acceptances.

Cash and Deposits With Financial Institutions

At \$8.8 billion as at October 31, 2017, cash and deposits with financial institutions rose \$0.6 billion since the same date last year, mainly due to deposits with financial institutions. 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, 2017, securities totalled \$65.3 billion (27% of total assets), rising \$0.8 billion during the year from \$64.5 billion as at October 31, 2016. Available-for-sale securities decreased by \$6.0 billion, essentially due to a decrease in securities issued or guaranteed by the Canadian government and Canadian provincial and municipal governments. This decrease was offset by held-to-maturity securities and securities at fair value through profit or loss, which rose \$5.3 billion and \$1.5 billion, respectively, mainly due to securities issued or guaranteed by the Canadian government and equity securities. Securities purchased under reverse repurchase agreements and securities borrowed totalled \$20.8 billion as at October 31, 2017, a \$6.9 billion increase since year-end 2016 that is mainly related to the business activities of the Financial Markets segment. The Bank's market risk management policies are described on pages 68 to 75 of this MD&A.

Master Asset Vehicles (MAV)

As at October 31, 2017, the carrying value of the restructured notes of the MAV conduits and of the other restructured notes held by the Bank was nil (\$619 million as at October 31, 2016). The change in the carrying value of the restructured notes of the MAV conduits during the year ended October 31, 2017 was mainly attributable to capital repayments.

Loans and Acceptances

As at October 31, 2017, loans and acceptances, net of allowances for credit losses, totalled \$134.4 billion, up \$8.2 billion or 7%, and accounted for 55% of total assets.

Residential mortgage loans outstanding totalled \$50.5 billion as at October 31, 2017, rising \$1.6 billion or 3% since year-end 2016. This growth was driven by sustained demand for mortgage credit.

Personal loans and credit card receivables totalled \$37.0 billion at year-end 2017, a \$3.0 billion or 9% increase from \$34.0 billion at year-end 2016. This increase came from growth in Credigy and ABA Bank lending activities and from Personal Banking's operations.

At \$47.7 billion as at October 31, 2017, loans and acceptances to businesses and government increased \$3.6 billion or 8% since October 31, 2016. This increase came mainly from the activities of the Credigy subsidiary and from Commercial Banking. The customers' liability under acceptances decreased by \$0.4 billion since last year due to a decline in lending activity with oil and gas companies.

Table 9 (page 103) shows gross loans and acceptances by borrower category as at October 31, 2017. At \$66.4 billion, residential mortgages (including home equity lines of credit) have posted strong growth since 2013 and account for 49% of total loans and acceptances. This growth was driven by sustained demand for mortgage credit. Retail loans also increased, totalling \$16.4 billion as at October 31, 2017. With respect to commercial loans, there was growth mainly in the financial institutions category, manufacturing category, construction and real estate category, and wholesale and retail category, whereas there were decreases in the transportation category and mining category.

Impaired Loans

As at October 31, 2017, gross impaired loans stood at \$380 million, declining \$112 million since October 31, 2016, mainly due to decreases in the personal and commercial loan portfolios (Table 10, page 104). Impaired loans represented 4.3% of the tangible capital adjusted for allowances compared to 6.3% as at October 31, 2016. Gross impaired loans, net of individual and collective allowances, decreased \$75 million from a year ago, as a result of the decreases in impaired personal and commercial loans.

A detailed description of the Bank's credit risk management practices is provided on pages 60 to 67 of this MD&A as well as in Note 7 to the consolidated financial statements.

Other Assets

As at October 31, 2017, other assets totalled \$16.5 billion compared to \$19.4 billion as at October 31, 2016. This \$2.9 billion decrease in other assets can essentially be traced to a \$2.0 billion decrease in derivative financial instruments and a \$0.7 billion decrease in premises and equipment. Purchased receivables, investments in associates and joint ventures, goodwill, intangible assets, and the other item of *Other assets* remained relatively stable compared to last year.

Deposit Liability

At \$156.7 billion as at October 31, 2017, deposits increased by \$14.6 billion or 10% since year-end 2016. At \$53.7 billion, personal deposits, as presented in Table 11 (page 105), increased \$1.2 billion since October 31, 2016, accounting for 34.3% of all deposits. This increase was driven by Bank initiatives to grow this type of deposit. A summary of total personal savings is provided in the following table.

As shown in Table 11, business and government deposits totalled \$97.6 billion, up \$13.7 billion or 16% from \$83.9 billion at year-end 2016. This increase came from banking and governmental activities and term deposits. Deposits from deposit-taking institutions were down \$0.2 billion from the same date last year.

As at October 31, 2017, total personal savings amounted to \$210.5 billion, rising 6% from \$199.0 billion since October 31, 2016. Overall, off-balance-sheet personal savings stood at \$156.8 billion, rising \$10.3 billion or 7% since year-end 2016 and driven by excellent net inflows to mutual funds and by a stock market recovery.

Total Personal Savings

As at October 31 (millions of Canadian dollars)			
	2017	2016 ⁽¹⁾	% change
Balance sheet			
Deposits	53,719	52,521	2
Off-balance-sheet			
Brokerage	124,212	117,298	6
Mutual funds	32,192	28,706	12
Other	408	463	(12)
	156,812	146,467	7
Total	210,531	198,988	6

(1) Certain amounts have been revised from those previously reported.

Other Liabilities

Other liabilities stood at \$75.6 billion as at October 31, 2017 and consisted of the following items: acceptances, obligations related to securities sold short, obligations related to securities sold under repurchase agreements and securities loaned, derivative financial instruments, liabilities related to transferred receivables, and other liability items. Other liabilities were down \$1.4 billion since October 31, 2016, mainly due to a \$0.8 billion decrease in obligations related to securities sold under repurchase agreements and securities loaned and a \$1.1 billion decrease in derivative financial instruments, partly offset by a \$1.2 billion increase in obligations related to securities sold short.

Subordinated Debt and Other Contractual Obligations

Subordinated debt decreased by \$1.0 billion since October 31, 2016 as the result of an early redemption, in April 2017, of medium-term notes maturing on April 11, 2022.

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

Equity

As at October 31, 2017, equity attributable to the Bank's shareholders was \$12.8 billion, up \$1.5 billion from \$11.3 billion as at October 31, 2016. This increase was essentially driven by an increase in retained earnings, attributable to net income net of dividends, and by common share issuances under the stock option plan, partly offset by common share repurchases for cancellation and by the \$400 million issuance of Series 38 preferred shares. The Consolidated Statements of Changes in Equity on page 113 of this Annual Report present the items of equity.

As at October 31, 2017, the Bank had 339.6 million common shares issued and outstanding compared to 338.1 million a year earlier. This increase was mainly due to the issuance of shares under the Stock Option Plan. The Bank repurchased 2 million common shares and issued 16 million Series 38 First Preferred Shares. See Note 19 to the consolidated financial statements. An analysis of the Bank's regulatory capital is presented in the Capital Management section of this MD&A.

Shares and Stock Options

	As at October 31, 2017	
	Number of shares	\$ million
First preferred shares		
Series 28 ⁽¹⁾	8,000,000	200
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
	82,000,000	2,050
Common shares ⁽²⁾	339,591,965	2,768
Stock options ⁽²⁾	14,575,894	

- (1) 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.
- (2) As at November 24, 2017, there were 340,190,181 common shares and 14,526,844 stock options outstanding.

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.

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, to a maximum of \$200,000, are granted for a three-year term at the posted rate less 2% and, for a five-year term, at the posted rate less 2.5% limited to half of the posted rate. Any amount over the \$200,000 maximum is financed at the preferential employee rate;
- home equity lines of credit bear interest at Canadian prime less 1%, 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 1%, but never lower than Canadian prime divided by two.

For personal lines of credit, employees may not borrow more than 50% of their annual gross base salary at the reduced rate. The Canadian prime rate is applied to the remainder.

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.

Furthermore, the Bank 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 9, 28 and 29 to the consolidated financial statements.

Acquisition

Advanced Bank of Asia Limited

On May 16, 2016, the Bank completed the acquisition of Advanced Bank of Asia Limited (ABA Bank), a major Cambodian financial institution that offers financial products and services to individuals and businesses. This acquisition is part of the Bank's international growth strategy and, upon completion, brings the Bank's common share equity interest in ABA Bank to 90%. The sum of the \$119 million cash purchase price, of the fair value of the previously held interest, and of the estimated value of the non-controlling interest established at the acquisition date exceeded the fair value of the net assets acquired by \$129 million. This excess amount was recorded on the Consolidated Balance Sheet as goodwill and mainly represents ABA Bank's expected business growth in Cambodia. The goodwill from this acquisition was not deductible for tax purposes. The acquired receivables, consisting mainly of personal and commercial loans, had an estimated acquisition-date fair value of \$754 million. This amount also represents the gross contractual amounts receivable that the Bank expects to fully recover.

During the year ended October 31, 2016, the Bank also recognized a \$41 million non-taxable gain on the revaluation of its previously held equity interest in ABA Bank in the *Non-interest income – Other* item of the Consolidated Statement of Income. For business segment disclosure purposes, this gain and ABA Bank's financial results have been included in the USSF&I segment. ABA Bank's results have been consolidated in the Bank's financial statements as of May 17, 2016.

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 receiver 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.

Income Taxes

In March 2017, the Canada Revenue Agency (CRA) issued a proposed reassessment to the Bank for the 2011 and 2012 taxation years. In May 2017, the CRA reassessed the Bank for the 2012 taxation year. The transactions to which the proposed reassessment and the actual reassessment relate are similar to those prospectively addressed by the synthetic equity arrangement rules introduced in the 2015 Canadian federal budget. The proposed reassessment and the actual reassessment (including estimated provincial income taxes and interest) total approximately \$173 million. The CRA may issue reassessments to the Bank in respect of similar activities for fiscal years subsequent to 2012. The Bank is 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, 2017.

Event After the Consolidated Balance Sheet Date

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 will reduce *Preferred share capital*.

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, 2017, the outstanding amount of NHA securities issued by the Bank and sold to CHT was \$16.7 billion. The mortgage loans sold consist of fixed- or variable-rate residential loans that are insured against potential losses by a loan insurer. In accordance with the NHA-MBS Program, the Bank advances the funds required to cover late payments and, if necessary, obtains reimbursement from the insurer that insured the loan. The NHA-MBS and CMB programs do not use liquidity guarantee arrangements. The Bank uses these securitization programs mainly to diversify its funding sources. In accordance with IFRS, because the Bank retains substantially all of the risks and rewards of ownership of the mortgage loans transferred to CHT, the derecognition criteria are not met. Therefore, the insured mortgage loans securitized under the CMB program continue to be recognized in *Loans* on the Bank's Consolidated Balance Sheet and the liabilities for the considerations received from the transfer are recognized in *Liabilities related to transferred receivables* on the Consolidated Balance Sheet. For additional information, see Note 8 to the consolidated financial statements.

Credit Card Receivables

In April 2015, the Bank set up Canadian Credit Card Trust II (CCCT II) to continue its program of securitizing credit card receivables on a revolving basis. The Bank uses this entity for capital management and funding purposes. The Bank acts as the servicer of the receivables sold and maintains a relationship with the clients. 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, 2017, 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 (Series 2015-1 and 2016-1), 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 foreign exchange, interest, and credit rate 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.

ADDITIONAL FINANCIAL DISCLOSURE

The Financial Stability Board (FSB) is an international financial group established at the London G20 Summit in April 2009 as a successor to the Financial Stability Forum (FSF) founded in 1999 at the initiative of the G7. It brings together several national financial authorities (central banks, finance ministries, etc.) as well as several international organizations and groups working to develop financial stability standards. Its objective is to promote cooperation in the oversight and monitoring of financial institutions.

In April 2008, the FSF published a report at the request of the G7 Finance Ministers and Central Bank Governors. OSFI then asked Canadian banks to apply certain recommendations set out in the report.

The 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. Subprime loans are generally defined as loans granted to borrowers with a higher credit risk profile than prime borrowers, and the Bank does not grant this type of loan. Alt-A loans are granted to borrowers who cannot provide standard proof of income. The Bank's Alt-A loan volume was \$408 million as at October 31, 2017 (\$483 million as at October 31, 2016).

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 Disclosure* report, which is available on the Bank's website at nbc.ca.

Leveraged financing structures are defined by the Bank as loans granted to large corporate and financial sponsor-backed companies that are typically non-investment grade with much higher levels of debt relative to other companies in the same industry. 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, 2017, total commitments for this type of loan stood at \$3,269 million (\$2,694 million as at October 31, 2016). Details about other exposures are provided in the table concerning structured entities in Note 28 to the consolidated financial statements.

In May 2012, the 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. On October 29, 2012, the EDTF published a report entitled *Enhancing the Risk Disclosures of Banks*, which contains 32 recommendations. The Bank continues to make 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 documents entitled *Supplementary Regulatory Capital Disclosure* and *Supplementary Financial Information*, which are available on the Bank's website at nbc.ca. In addition, on page 8 of this Annual Report is a table of contents that readers can use to locate information relative to the 32 recommendations.

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 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 Asset/Liability 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 available-for-sale securities in the form of equity securities. This method requires proactive management of the capital allocated to portfolios with 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.

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 loan loss allowances. 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. The Bank will disclose its capital ratios calculated according to both methodologies for each quarter until the start of 2019. However, OSFI requires Canadian banks to meet the minimum "all-in" thresholds rather than the minimum thresholds calculated using the "transitional" method.

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).

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 2017, only 72%, 77% and 81% of total CVA were applied, respectively, to the calculation of the CET1, Tier 1 and Total capital ratios. These percentages will increase to 80%, 83% and 86%, respectively, in 2018, and reach 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 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

	2017	2018	2019	2020	2021	2022
BCBS transitional ratios						
Capital conservation buffer	1.25 %	1.875 %	2.5 %	2.5 %	2.5 %	2.5 %
CET1 capital ratio	5.75 %	6.375 %	7.0 %	7.0 %	7.0 %	7.0 %
Tier 1 capital ratio	7.25 %	7.875 %	8.5 %	8.5 %	8.5 %	8.5 %
Total capital ratio	9.25 %	9.875 %	10.5 %	10.5 %	10.5 %	10.5 %
Phase-in of regulatory capital adjustments	80 %	100 %	100 %	100 %	100 %	100 %
Phase-out of non-qualifying capital instruments	50 %	40 %	30 %	20 %	10 %	– %
OSFI's "all-in" ratios						
Capital conservation buffer	2.5 %	2.5 %	2.5 %	2.5 %	2.5 %	2.5 %
D-SIB surcharge	1.0 %	1.0 %	1.0 %	1.0 %	1.0 %	1.0 %
CET1 capital ratio	8.0 %	8.0 %	8.0 %	8.0 %	8.0 %	8.0 %
Tier 1 capital ratio	9.5 %	9.5 %	9.5 %	9.5 %	9.5 %	9.5 %
Total capital ratio	11.5 %	11.5 %	11.5 %	11.5 %	11.5 %	11.5 %
Phase-out of non-qualifying capital instruments	50 %	40 %	30 %	20 %	10 %	– %
Leverage ratio	3.0 %	3.0 %	3.0 %	3.0 %	3.0 %	3.0 %

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). On August 21, 2017, OSFI announced its intention to bring these rules into force as of the first quarter of 2019. However, it will require institutions to start reporting amounts as of the first quarter of 2018.

In December 2014, the BCBS issued two consultative papers, *Capital Floors: The Design of a Framework Based on Standardised Approaches and Revisions to the Standardised Approach for Credit Risk*, the latter having been reviewed a second time in December 2015. The capital floor is meant to mitigate risk related to internal credit risk calculation models and enhance the comparability of risk across banks. The new floor will replace the current one, which is still based on Basel I. The new standardized approach for credit risk aims to reduce reliance on credit rating agencies and improve sensitivity to certain risks.

In July 2015, the BCBS issued a consultative paper, *Review of the Credit Valuation Adjustment Risk Framework*, with the aim of ensuring that all important drivers of CVA are considered in calculating capital, aligning the various accounting frameworks and ensuring consistency with the market risk framework. No date has been set for the implementation of these new rules, which will increase the level of capital the Bank is required to maintain.

On November 9, 2015, the FSB issued a standard entitled *Total Loss-Absorbing Capacity (TLAC) Standard for Global Systemically Important Banks (G-SIBs)*, which aims to implement a resolution strategy to determine whether global systemically important banks (G-SIBs) have sufficient loss-absorbing capacity to minimize impacts on financial stability and maintain the continuity of critical economic functions. On October 12, 2016, the BCBS issued the final version of the document, *TLAC Holdings*, which provides a framework for the standard. It sets out the regulatory capital treatment applicable to loss-absorbing instruments held by internationally active banks. This prudential treatment is intended to reduce contagion in the financial system should a G-SIB go into resolution. On June 16, 2017, OSFI released for comment a draft guideline entitled *Total Loss-Absorbing Capacity (TLAC)*. The draft guideline requires D-SIBS to maintain a minimum capacity to absorb losses as required under the *Bank Act* (Canada) and is part of the bank recapitalization (bail-in) regime. D-SIBS will have until November 1, 2021 to comply. Also on June 16, 2017, the Government of Canada released for comment bank bail-in regulations that set out the main features of the regime, including the types of debt instruments that will be subject to the regulations. Eligible shares and liabilities issued before the bail-in regulations come into force would not be subject to conversion. In addition, the regulations officially designate the Canada Deposit Insurance Corporation (CDIC) as the resolution authority for Canada's largest banks and requires D-SIBS to submit resolution plans to the CDIC.

On January 14, 2016, the BCBS issued the final rules for calculating market risk in *Minimum Capital Requirements for Market Risk*, a document that aims to remedy structural weaknesses in the trading portfolio that had not been addressed in previous market risk revisions. On June 29, 2017, the BCBS proposed a simplified alternative to the standardized approach rules set out in the consultative document, *Simplified Alternative to the Standardised Approach to Market Risk Capital Requirements*. On July 20, 2017, OSFI issued a letter indicating its intention to extend, by at least one year, the implementation timeline for the rules on minimum capital requirements for market risk. Consequently, the first regulatory declaration period will not be before the first quarter of 2021.

On March 4, 2016, the BCBS issued *Standardised Measurement Approach for Operational Risk*, a consultative document that proposes a new standardized method for calculating operational risk.

On March 24, 2016, the BCBS issued *Reducing Variation in Credit Risk-Weighted Assets – Constraints on the Use of Internal Model Approaches*, a consultative document that aims to limit the use of advanced credit risk calculation models. On April 6, 2016, the BCBS also issued *Revisions to the Basel III Leverage Ratio Framework*, a consultative document that proposes, in particular, revisions to the treatment of derivative exposures.

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, which have to be implemented by 2018, 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. However, in April 2017, OSFI informed Canadian banks of its intention to postpone application until 2019.

On July 11, 2016, the BCBS revised the final securitization framework rules issued on December 11, 2014 in the document entitled *Revisions to the Securitisation Framework*. This document was amended to include *Criteria for Identifying Simple, Transparent and Comparable Securitizations*, a document issued in July 2015, as well as *Capital Treatment for 'Simple, Transparent and Comparable' Securitizations*, a consultative paper issued in November 2015. The aim of this new document is to address some shortcomings in the current securitization framework while allowing a more favourable capital treatment for transactions meeting the requirements of simplicity, transparency and comparability. On July 6, 2017, the BCBS issued a consultative paper, *Capital Treatment for 'Simple, Transparent and Comparable' Short-Term Securitizations*, which defines short-term securitization rules to supplement the July 2016 document. On August 21, 2017, OSFI announced its intention to implement a new securitization framework in the first quarter of 2019.

In December 2016, OSFI released an update to the *Capital Adequacy Requirements Guideline*. The guideline notably clarifies the rules for recognizing equity investments in funds and for calculating countercyclical buffers. In the Bank's opinion, countercyclical buffers will have a minimal impact on its capital ratios given that it does not have significant exposures in countries affected by the buffer.

On March 29, 2017, the BCBS issued *Pillar 3 Disclosure Requirements – Consolidated and Enhanced Framework*, which sets out the final disclosure rules under Pillar 3. This document incorporates the document issued on January 28, 2015 for phase 1 and the one issued on March 11, 2016 for phase 2. A third phase will be defined later. The new requirements are intended to improve transparency, consistency and comparability of results across banks. On April 20, 2017, OSFI issued the final version of the guideline entitled *Pillar 3 Disclosure Requirements*, specifying therein that D-SIBs will have to meet the BCBS's requirements for the two first phases as of October 31, 2018. This guideline will replace OSFI's November 2007 advisory, *Pillar 3 Disclosure Requirements*.

Also on March 29, 2017, the BCBS issued the final version of *Regulatory Treatment of Accounting Provisions – Interim Approach and Transitional Arrangements*. This document results from the November 1, 2017 adoption of IFRS 9, which requires provisions to be recognized according to expected credit losses rather than incurred losses, as required by the current standard. The BCBS will retain the current Basel Accord regulatory treatment for provisions during a transition period. Jurisdictions may adopt transitional measures to phase in any potential significant negative impacts on regulatory capital arising from the new expected credit loss impairment model under IFRS 9. On August 21, 2017, OSFI released for comment a new, revised version of the *Capital Adequacy Requirements Guideline*. This new version, which applies the same principles set forth by the BCBS, addresses the treatment of allowances following the adoption of IFRS 9. However, on November 29, 2017, OSFI has announced that no transitional measure will be allowed following IFRS 9 adoption.

On October 25, 2017, the BCBS issued the final version of *Identification and Measurement of Step-In Risk*, which measures the risk of the Bank providing support to an unconsolidated entity, should that entity experience financial stress, and do so beyond or in the absence of any contractual obligation, in order to mitigate the impact of the shadow banking system. This rule will come into effect between now and 2020.

Capital Management in 2017

Management Activities

On April 11, 2017, the Bank redeemed \$1.0 billion of medium-term notes maturing on April 11, 2022 at a price equal to their nominal value plus accrued interest.

On June 5, 2017, the Bank began a normal course issuer bid to repurchase for cancellation up to 6,000,000 common shares over the 12-month period ending no later than June 4, 2018. During the fiscal year ended October 31, 2017, the Bank repurchased 2,000,000 common shares for \$115 million, which reduced *Common share capital* by \$16 million and *Retained earnings* by \$99 million.

On June 13, 2017, the Bank issued 16,000,000 Non-Cumulative 5-Year Rate-Reset Series 38 First Preferred Shares at a per-share price of \$25.00 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.

On November 15, 2017, after year-end, 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 First Preferred Shares for a total amount of \$200 million. These instruments were excluded from the capital ratio calculations as at October 31, 2017.

Regulatory Capital Ratios

As at October 31, 2017, the Bank's CET1, Tier 1 and Total capital ratios were, respectively, 11.2%, 14.9% and 15.1%, i.e., above the regulatory requirements, compared to ratios of, respectively, 10.1%, 13.5% and 15.3% a year earlier. The increase in the CET1 capital ratio stems essentially from net income, net of dividends, common share issuances under the Stock Option Plan, remeasurements of pension plans and other post-employment benefit plans, and low growth in risk-weighted assets, partly offset by common share repurchases during the year ended October 31, 2017. The increase in the Tier 1 capital ratio stems essentially from the same items as well as from the June 13, 2017 issuance of preferred shares for \$400 million, partly offset by the \$200 million redemption of preferred shares on November 15, 2017, which is already excluded from the capital ratio calculations as at October 31, 2017. The decrease in the Total capital ratio is a result of the April 11, 2017 redemption of \$1.0 billion in medium-term notes maturing on April 11, 2022. The leverage ratio as at October 31, 2017 was 4.0%, compared to 3.7% as at October 31, 2016.

Regulatory Capital and Ratios Under Basel III⁽¹⁾

As at October 31 (millions of Canadian dollars)	2017	2016
Capital		
CET1	7,856	6,865
Tier 1 ⁽²⁾	10,457	9,265
Total ⁽²⁾	10,661	10,506
Risk-weighted assets		
CET1 capital	70,173	68,205
Tier 1 capital	70,327	68,430
Total capital	70,451	68,623
Total exposure	262,539	253,097
Capital ratios		
CET1	11.2 %	10.1 %
Tier 1 ⁽²⁾	14.9 %	13.5 %
Total ⁽²⁾	15.1 %	15.3 %
Leverage ratio	4.0 %	3.7 %

(1) Figures are presented on an "all-in" basis.

(2) Figures as at October 31, 2017 include the redemption of the Series 28 preferred shares on November 15, 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 2017, the Bank declared \$778 million in dividends to common shareholders, which represents 42% of net income attributable to common shareholders (2016: 66%). These dividends represented 41% of net income attributable to common shareholders excluding specified items (2016: 50%). 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.

Movement in Regulatory Capital⁽¹⁾

Year ended October 31

(millions of Canadian dollars)

	2017	2016
Common Equity Tier 1 (CET1) capital		
Balance at beginning	6,865	6,801
Issuance of common shares (including Stock Option Plan)	179	43
Impact of shares purchased or sold for trading	(37)	(12)
Repurchase of common shares	(115)	–
Common share capital issued by subsidiaries and held by third parties	1	7
Contributed surplus	(15)	6
Dividends on preferred and common shares	(863)	(797)
Net income attributable to the Bank's shareholders	1,940	1,181
Removal of own credit spread net of income taxes	25	19
Other	19	(380)
Movements in accumulated other comprehensive income		
Translation adjustments	(39)	22
Available-for-sale securities	(12)	39
Other	(10)	1
Change in goodwill and intangible assets (net of related tax liability)	(81)	(210)
Other, including regulatory adjustments and transitional arrangements		
Change in defined benefit pension plan asset (net of related tax liability)	3	147
Change in amount exceeding 15% threshold		
Deferred tax assets	–	–
Significant investment in common shares of financial institutions	–	–
Change in other regulatory adjustments ⁽²⁾	(4)	(2)
Balance at end	7,856	6,865
Additional Tier 1 capital		
Balance at beginning	2,400	1,825
New Tier 1 eligible capital issuances	400	800
Redeemed capital ⁽³⁾	(200)	–
Change in non-qualifying Additional Tier 1 subject to phase-out	–	(225)
Other, including regulatory adjustments and transitional arrangements	1	–
Balance at end	2,601	2,400
Total Tier 1 capital	10,457	9,265
Tier 2 capital		
Balance at beginning	1,241	1,052
New Tier 2 eligible capital issuances	–	–
Redeemed capital ⁽⁴⁾	(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 loan loss allowances	(37)	186
Other, including regulatory adjustments and transitional arrangements	–	1
Balance at end	204	1,241
Total regulatory capital	10,661	10,506

(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 include the redemption of the Series 28 preferred shares on November 15, 2017. Figures for the year ended October 31, 2016 do not include the November 15, 2015 redemption of Series 20 preferred shares that had been excluded from the calculation of capital as at October 31, 2015.

(4) Figures for the year ended October 31, 2016 do not include the \$500 million redemption of notes on November 2, 2015 that had been excluded from the calculation of capital as at October 31, 2015.

RWA by Key Risk Drivers

CET1 RWA amounted to \$70.2 billion as at October 31, 2017, rising \$2.0 billion from \$68.2 billion as at October 31, 2016. This organic growth in RWA was partly offset by the 2017 first-quarter repayment of the restructured notes of the master asset vehicle (MAV) conduits and by foreign exchange movements. The Bank's CET1 risk-weighted assets are presented in the following table.

Capital Adequacy Under Basel III⁽¹⁾

As at October 31

(millions of Canadian dollars)

	Exposure at default	Risk-weighted assets				2017	2016
		Standardized Approach	AIRB Approach	Other Approach	Total	Capital requirement ⁽²⁾	Risk-weighted assets
						Total	
Credit risk							
Retail							
Residential mortgages	49,028	911	4,644	–	5,555	444	5,455
Qualifying revolving retail	6,196	–	1,275	–	1,275	102	1,178
Other retail	16,635	2,357	5,254	–	7,611	609	6,823
Non-retail							
Corporate	63,492	1,700	25,844	–	27,544	2,204	27,393
Sovereign	28,493	282	703	–	985	79	875
Financial institutions	5,339	408	1,123	–	1,531	123	1,574
Banking book equities ⁽³⁾	910	–	910	–	910	73	875
Securitization	4,740	–	390	–	390	31	831
Other assets	24,376	–	–	3,645	3,645	292	3,176
Counterparty credit risk							
Corporate	16,567	47	150	–	197	16	347
Sovereign	35,603	–	43	–	43	3	34
Financial institutions	53,169	–	366	–	366	29	402
Trading portfolio	8,309	161	2,017	–	2,178	174	2,345
Credit valuation adjustment charge ⁽⁴⁾		2,227	–	–	2,227	178	2,055
Regulatory scaling factor		–	2,580	–	2,580	206	2,540
Total – Credit risk	312,857	8,093	45,299	3,645	57,037	4,563	55,903
Market risk							
VaR		–	867	–	867	69	1,014
Stressed VaR		–	1,324	–	1,324	106	1,067
Interest-rate-specific risk		906	–	–	906	73	726
Total – Market risk		906	2,191	–	3,097	248	2,807
Operational risk		10,039	–	–	10,039	803	9,495
Total	312,857	19,038	47,490	3,645	70,173	5,614	68,205

(1) Figures are presented on an "all-in" basis.

(2) The capital requirement is equal to 8% of risk-weighted assets.

(3) Calculated using the simple risk-weighted method.

(4) Calculated based on CET1 RWA.

Risk-Weighted Assets Movement by Key Drivers⁽¹⁾

Quarter ended (millions of Canadian dollars)	October 31, 2017	July 31, 2017	April 30, 2017	January 31, 2017	October 31, 2016
	Total	Total	Total	Total	Total
Credit risk – Risk-weighted assets at beginning	56,066	56,855	55,148	55,903	55,848
Book size	833	453	889	455	640
Book quality	141	(143)	176	(832)	68
Model updates	(426)	–	–	–	(954)
Methodology and policy	–	–	–	–	–
Acquisitions and disposals	–	–	–	–	–
Foreign exchange movements	423	(1,099)	642	(378)	301
Credit risk – Risk-weighted assets at end	57,037	56,066	56,855	55,148	55,903
Market risk – Risk-weighted assets at beginning	3,263	2,768	3,815	2,807	3,291
Movement in risk levels ⁽²⁾	(166)	353	(1,047)	1,008	(484)
Model updates	–	142	–	–	–
Methodology and policy	–	–	–	–	–
Acquisitions and disposals	–	–	–	–	–
Market risk – Risk-weighted assets at end	3,097	3,263	2,768	3,815	2,807
Operational risk – Risk-weighted assets at beginning	9,827	9,760	9,611	9,495	9,391
Movement in risk levels	212	67	149	116	104
Acquisitions and disposals	–	–	–	–	–
Operational risk – Risk-weighted assets at end	10,039	9,827	9,760	9,611	9,495
Risk-weighted assets at end	70,173	69,156	69,383	68,574	68,205

(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.

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, 2017
(millions of Canadian dollars)

NATIONAL BANK OF CANADA					
Business segments	Personal and Commercial	Wealth Management	Financial Markets	U.S. Specialty Finance and International	Other
Major activities	Banking services Credit services Financing Investment solutions Insurance	Investment solutions Trust services Banking services Credit services Wealth management solutions	Banking services Investment banking services Financing solutions to institutional clients Trading and investment solutions	Credigy ABA Bank International investment activities	Treasury operations Liquidity management Bank funding Asset and liability management Corporate units
Economic capital by type of risk	Credit 1,562 Market - Operational 357 Other risks 188 Total 2,107	Credit 154 Market - Operational 212 Other risks 379 Total 745	Credit 1,947 Market 199 Operational 239 Other risks 281 Total 2,666	Credit 432 Market 49 Operational 45 Other risks 33 Total 559	Credit (72) Market (36) Operational (26) Other risks 293 Total 159
Risk-weighted assets	Credit 28,287 Market - Operational 4,304 Total 32,591	Credit 2,548 Market - Operational 2,580 Total 5,128	Credit 18,988 Market 3,047 Operational 2,932 Total 24,967	Credit 4,993 Market - Operational 546 Total 5,539	Credit 2,221 Market 50 Operational (323) Total 1,948

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 and 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
<p>Global economic risks</p>		<p>Currently, the main global risks consist of slowing economic growth in certain emerging countries, geopolitical tensions—in particular the rapid militarization of North Korea—and the adoption of protectionist measures that are undermining international trade. The coming into power of the new U.S. administration brings its share of concerns about future policies that might affect the Canadian and Quebec economies. Excessive protectionism could adversely affect certain industries and slow international trade, negatively affecting our export clients in turn. Furthermore, the rise of nationalism, the waves of migration to western Europe, and geopolitical tensions have also intensified uncertainty in the economic system.</p> <p>In addition, given exceptional monetary measures taken by central banks combined with mild economic growth and low inflation, long-term interest rates continue to be historically low in the major advanced economies. Such a situation may 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 United States. 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.</p>
<p>Economic risks in Canada</p>		<p>The domestic energy sector struggled in the wake of the global oil supply shock but is gradually adapting to the new environment. The fossil fuel-producing provinces are back on track to growth but their unemployment rates remain high. Fortunately, stable economic and financial conditions in the three largest provinces (Ontario, Quebec, British Columbia) continue to support a credit environment that is favourable for the Bank's loan portfolio. 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. A housing price correction is therefore representing an added source of risk for the Canadian economy should the central banks continue to reduce monetary stimulus. The Bank maintains sound credit practices, but tighter mortgage rules remain an issue for Canadian households.</p> <p>The Bank also closely monitors international developments that may affect the Canadian economy. The renegotiation of agreements such as NAFTA has cast substantial uncertainty over the trade relationship between Canada and the United States and other economic partners. These uncertainties have significantly destabilized the industry, and the Bank has responded by continuing to monitor market developments and remaining vigilant in line with its risk tolerance policy.</p>

Risk	Trend	Description
Low oil and gas prices		<p>Low oil and gas prices have had a direct impact on the energy sector, challenging many energy companies to implement a broad range of measures to address the situation. Should oil and gas prices continue to fall or remain depressed for an extended period of time, the obstacles to be overcome by these companies will only become more daunting and will affect their repayment capacity and credit quality. The potential impact of a prolonged decrease on the Bank's operating results depends on how long oil prices remain low and how businesses deploy measures to increase efficiency, reduce outflows of funds, and sell assets in order to raise capital to cover operating costs. The Bank is actively managing this portfolio, and several measures have already been taken with our clients to limit the risk of loss.</p>
Information system disruptions and security breaches		<p>Technology has become a major part of the banking industry's operations, in particular the ever-increasing use of information technologies such as 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.</p> <p>Disruptions to or malfunctions in the physical infrastructure or operating systems that support the Bank and its clients, or cyber-threats 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 measure, 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.</p> <p>To protect its clients, the Bank closely monitors and actively manages its control environment. It also monitors the changing global environment and continues to improve the processes and practices used to prevent, identify and manage cybersecurity threats to ensure continuous effectiveness and protection. The Bank continually assesses the effectiveness of key controls through testing, measuring its own practices against best practices, and via external benchmarking. The Bank also invests in projects designed to constantly update and improve its information technology infrastructure, controls, internal resources and technological capabilities. The Board's Risk Management Committee is regularly informed of cybersecurity trends and developments to gain a better understanding of potential cybersecurity risks.</p>

Risk	Trend	Description
<p>Reliance on technology and third parties</p>		<p>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 the products and services require substantial data processing. 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.</p> <p>Third parties provide essential components of the Bank's commercial infrastructure such as Internet connections and access to network and other communications services. The Bank is also party to outsourcing agreements for IT support and for cash management and processing. Interruptions in these services could adversely affect the Bank's ability to provide products and services to its clients and conduct its business. To mitigate this risk, the Bank has an outsourcing risk management framework that includes business continuity plans that are tested periodically to ensure their effectiveness in times of crisis. Despite these preventative measures, it is possible that these third parties may not anticipate or implement effective measures against all of the risks related to technology and information security.</p> <p>Third-party cloud computing solutions could raise the risks related to data security and breaches if security control protocols involving these third parties are overridden. As such, the Bank's practices for managing procurement processes and suppliers must also continue to evolve so it can appropriately manage the related risks.</p>
<p>Technological innovation</p>		<p>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.</p>

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. 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 related to managing international sanctions and to combat money laundering and terrorist financing (MLTF), the Bank performs audits of country risk. This control may have restrictions, the scope of which can vary based on current sanctions and on the MLTF risk classification of the country in question. MLTF risk is a financial, regulatory and reputation risk. The Bank complies with requirements in Canada and those in the countries where it does business. It has implemented internal policies, standards and controls for sound management of prevention, detection, reporting and information exchange. The Bank maintains an infrastructure through which it can respond effectively to this risk and ensure that its employees, officers and directors take part in training. The Bank is committed to complying with regulatory requirements and addressing this risk by taking steps to discourage MLTF through its products and services.

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, which are based on a percentage of the Bank's regulatory capital, are proportionate to 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 per se, 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 when or under what conditions, if any, approval will be granted. 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.

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 net income and damage 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 financial results. The resulting reputational damage could also affect the Bank's future business prospects. For additional information on this topic, 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 may 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
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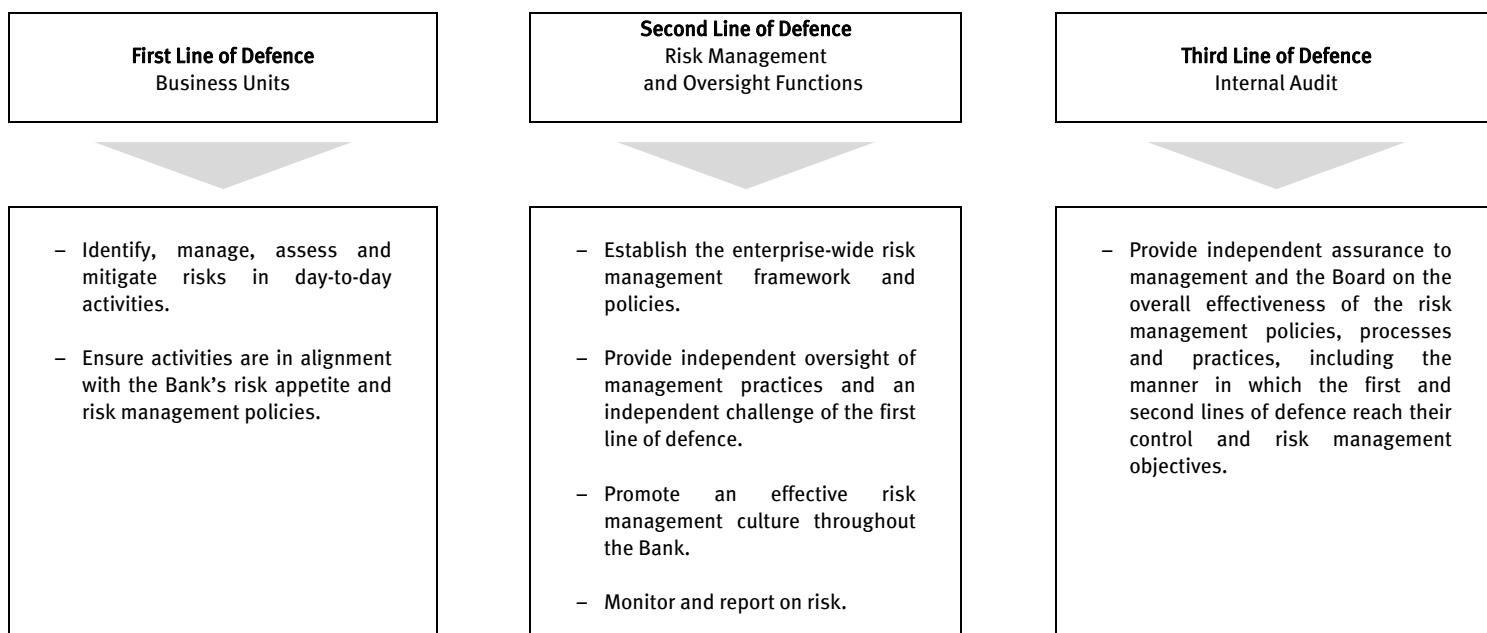
To achieve its risk management objectives, the Bank relies on a risk management framework that combines the following components:

- 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 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, all employees must complete mandatory annual regulatory compliance training focused on the Bank's Code of Conduct and Ethics and anti-money laundering and anti-terrorism financing efforts. 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.



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 our 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 target risk rating of at least A+ or the equivalent;
- 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;
- operational and information systems stability in both normal circumstances and crisis.

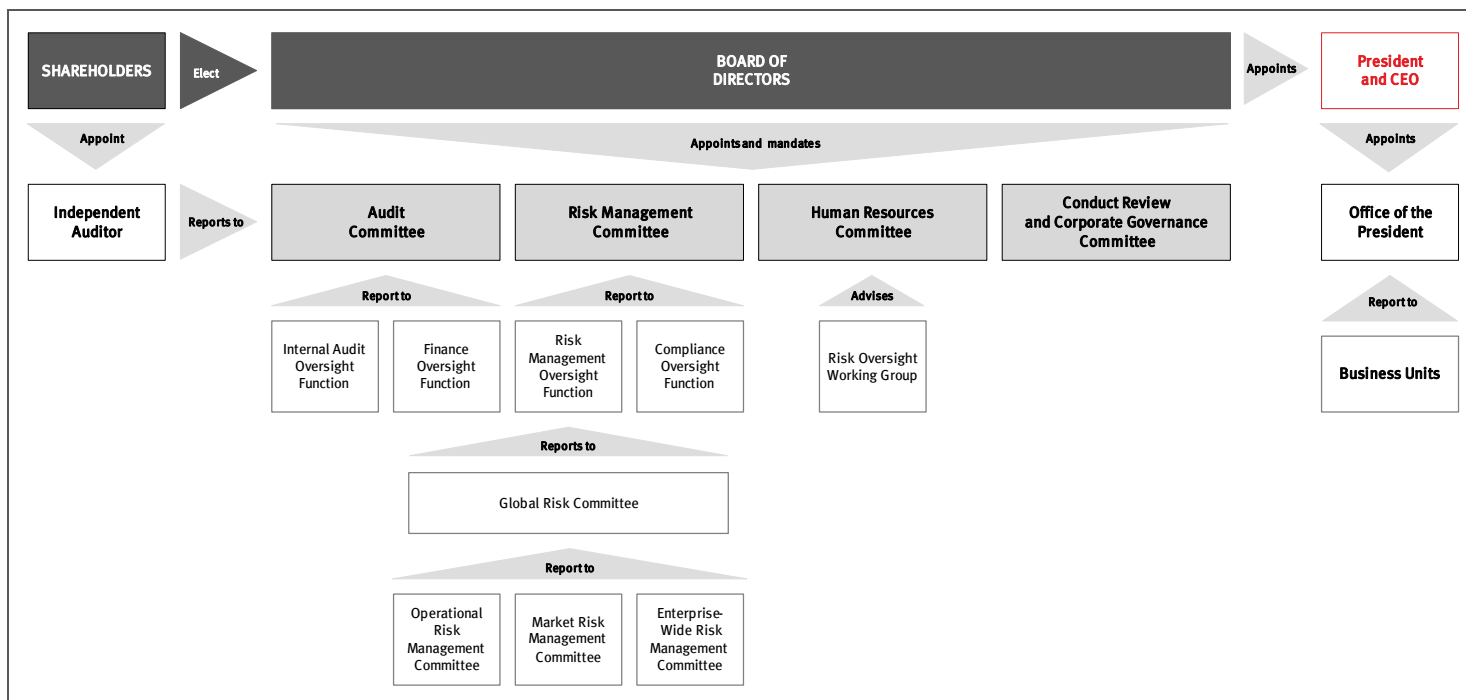
The Bank's management and business units are involved in the process for setting the risk appetite and are responsible for adequately monitoring the chosen key risk indicators. These needs are assessed by means of the enterprise strategic planning process. The risk indicators are reported on a regular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

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 headings of the credit, market and liquidity risk sections.

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 2018 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 of the compliance of the Bank and its subsidiaries with policies and procedures on regulatory compliance risk.

The 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 of Risk Management, the Chief Financial Officer and Executive Vice-President of Finance and Treasury, and the Executive Vice-President of Human Resources and Corporate Affairs. 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 above 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, the Models Oversight Committee, and the model vetting group. The policies set the rules and guidelines 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.

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 and Chief Compliance Officer meets regularly 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 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 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, available-for-sale 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 guidelines 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 application;
- credit risk rating and assessment;
- economic capital assessment;
- stress testing and crisis scenarios;
- credit granting process;
- risk mitigation;
- follow-up of monitored accounts and recovery;
- counterparty risk assessment;
- settlement risk assessment.

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 2014	1996-1998, 2000-2002 October 2008 – December 2009	LGD based on the Bank's historical recoveries and losses
Corporate	The Bank's internal historical data from 2000 to 2014	2000-2003 and 2008-2009	LGD based on the Bank's historical recoveries and losses
Sovereign	Moody's observed default price of bonds, from 1983 to 2010 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. The Bank uses AIRB tools and models to assess credit risk. 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. Personal credit risk assessments are based on a group of debtors with similar credit histories and behaviour profiles.

The credit scoring models are also used to grant new 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.

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 nine sectors: business/commercial, large business, banks-brokerage, sovereigns, investment funds, energy, real estate, agriculture and insurance.

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 complete default risk-rating scale comprised of 19 grades is presented in the Supplementary Regulatory Capital Disclosure report, which is available on the Bank's website at nbc.ca. 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 Special
7–7.5	5.625–15.283	6.276–20.098	B- to CCC+	B3 to Caa1	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 the table on page 63.

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 are 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. New models are validated by a unit that is independent of both the specialists who developed the model and the concerned business units, and 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 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.

Personal Credit Portfolio Subject to the AIRB Approach *

The following table presents the credit quality of the personal credit portfolio subject to the AIRB Approach, according to the internal risk-rating categories assigned to debtors.

As at October 31

(millions of Canadian dollars)

	Probability of default (%)	Residential mortgage ⁽¹⁾	Qualifying revolving retail ⁽²⁾	Other retail ⁽³⁾	Exposure at default	
					2017	2016
					Total	Total
Excellent	0.000-0.144	25,477	3,200	2,390	31,067	26,743
Good	0.145-0.506	14,136	1,160	2,896	18,192	19,784
Satisfactory	0.507-2.681	5,753	1,305	4,250	11,308	10,939
Special mention	2.682-9.348	804	422	846	2,072	2,090
Substandard	9.349-99.999	297	88	225	610	593
Default	100	136	21	103	260	260
		46,603	6,196	10,710	63,509	60,409

(1) Includes home equity lines of credit.

(2) Includes lines of credit and credit card receivables.

(3) Includes consumer loans, credit card receivables, certain SME loans, and other personal loans.

Business and Government Credit Portfolio Subject to the AIRB Approach *

The following table presents the credit quality of the business and government credit portfolio subject to the AIRB Approach, according to the internal risk-rating categories assigned to debtors, as defined in the table on page 62.

As at October 31

(millions of Canadian dollars)

	Drawn ⁽¹⁾	Undrawn commitments ⁽²⁾	Other exposures ⁽³⁾	Exposure at default	
				2017	2016
				Total	Total
Excellent	26,759	5,820	65,399	97,978	81,105
Good	21,590	10,036	26,391	58,017	52,838
Satisfactory	20,778	3,973	12,750	37,501	30,535
Special mention	1,065	174	43	1,282	1,307
Substandard	85	6	2	93	101
Default	282	1	–	283	345
	70,559	20,010	104,585	195,154	166,231

(1) Amounts drawn represent certain deposits with financial institutions, available-for-sale debt securities, gross loans, customers' liability under acceptances and certain other assets.

(2) Undrawn commitments represent unused portions of authorized credit facilities in the form of loans, acceptances, letters of guarantee and documentary letters of credit, excluding investment banking activities.

(3) Other exposures represent securities purchased under reverse repurchase agreements and securities borrowed as well as securities sold under repurchase agreements and securities loaned, forwards, futures, swaps and options and also include letters of guarantee, documentary letters of credit, and securitized assets that represent the Bank's commitment to make payments in the event a client cannot meet its financial obligations to third parties.

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;
- estimated amount potentially drawn at the time of the obligor's default;
- loss in the event of default;
- the default probability correlation among obligors;
- the residual term of credit commitments;
- 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, the Bank takes a prudent approach to client qualification by using, for example, a higher interest rate for terms less than five years 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 loan 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.

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 internal policies 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 in that respect. 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 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 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 are presented in Note 1 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 2017 and 2016, 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 and 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, 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, 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	52,811	358	641	58,508
	73,384	20,219	104,653	686	3,721	202,663
Trading portfolio	–	–	–	8,309	–	8,309
Securitization	–	–	–	–	4,740	4,740
Total – Gross credit risk	132,695	32,753	104,653	8,995	8,475	287,571
Standardized Approach	11,154	230	4,101	189	366	16,040
AIRB Approach	121,541	32,523	100,552	8,806	8,109	271,531
Total – Gross credit risk	132,695	32,753	104,653	8,995	8,475	287,571

(millions of Canadian dollars)		As at October 31, 2016				
	Drawn	Undrawn commitments	Repo-style transactions ⁽¹⁾	OTC derivatives	Other off-balance-sheet items ⁽²⁾	Total
Retail						
Residential mortgage	40,600	5,978	–	–	–	46,578
Qualifying revolving retail	2,795	2,921	–	–	–	5,716
Other retail	13,980	1,301	–	–	93	15,374
	57,375	10,200	–	–	93	67,668
Non-retail						
Corporate	40,956	14,416	14,418	27	2,890	72,707
Sovereign	23,068	3,623	30,559	328	135	57,713
Financial institutions	4,074	252	36,835	324	609	42,094
	68,098	18,291	81,812	679	3,634	172,514
Trading portfolio	–	–	–	9,623	–	9,623
Securitization	616	–	–	–	3,452	4,068
Total – Gross credit risk	126,089	28,491	81,812	10,302	7,179	253,873
Standardized Approach	10,458	277	2,294	282	491	13,802
AIRB Approach	115,631	28,214	79,518	10,020	6,688	240,071
Total – Gross credit risk	126,089	28,491	81,812	10,302	7,179	253,873

(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, investing 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 portfolios and its short-term funding 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 of interest rates of financial instruments such as bonds, money market instruments and derivative financial instruments;
- foreign exchange risk: relates to changes in foreign exchange rates of 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) for financial instruments such as common shares and options;
- commodity risk: relates to changes in 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) relating mainly to the Bank's portfolios of debt securities and credit derivatives, whose value could be adversely affected by changes in credit spreads, by credit migration or by 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, trading, proprietary trading, liquidating positions for clients or selling financial products to clients.

Non-trading portfolios include all financial instruments held to maturity or until conditions are more advantageous to invest in other investments or held strictly for liquidity management, short-term funding and asset/liability management purposes.

Governance

The Board 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 monitors market risk across the Bank 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), stop loss limit) allocated by portfolio, trading unit, unit manager and officer, 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, 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, net of allowances	128,452	5,638	122,814	–	Interest rate ⁽³⁾
Customers' liability under acceptances	5,991	–	5,991	–	Interest rate ⁽³⁾
Derivative financial instruments	8,423	7,508	915	–	Interest rate ⁽⁶⁾ and exchange rate
Purchased receivables	2,014	–	2,014	–	Interest rate
Defined benefit asset	56	–	56	–	Other ⁽⁷⁾
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 ⁽⁶⁾ and exchange rate
Liabilities related to transferred receivables	20,098	4,452	15,646	–	Interest rate ⁽³⁾
Defined benefit liability	252	–	252	–	Other ⁽⁷⁾
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. 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) 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 3 and 6 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) See Notes 17 and 18 to the consolidated financial statements.
- (7) See Note 24 to the consolidated financial statements.

(millions of Canadian dollars)

As at October 31, 2016

	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	8,183	181	7,580	422	Interest rate ⁽³⁾
Securities					
At fair value through profit or loss	45,964	44,545	1,419	–	Interest rate ⁽³⁾ and other ⁽⁴⁾
Available-for-sale	14,608	–	14,608	–	Interest rate ⁽³⁾ and equity ⁽⁵⁾
Held-to-maturity	3,969	–	3,969	–	Interest rate ⁽³⁾
Securities purchased under reverse repurchase agreements and securities borrowed	13,948	–	13,948	–	Interest rate ⁽³⁾⁽⁶⁾
Loans, net of allowances	119,747	6,454	113,293	–	Interest rate ⁽³⁾
Customers' liability under acceptances, net of allowances	6,431	–	6,431	–	Interest rate ⁽³⁾
Derivative financial instruments	10,416	9,195	1,221	–	Interest rate ⁽⁷⁾ and exchange rate
Purchased receivables	1,858	–	1,858	–	Interest rate
Defined benefit asset	48	–	48	–	Other ⁽⁸⁾
Other	7,034	–	–	7,034	
	232,206	60,375	164,375	7,456	
Liabilities					
Deposits ⁽⁹⁾	142,066	4,826	137,240	–	Interest rate ⁽³⁾
Acceptances	6,441	–	6,441	–	Interest rate ⁽³⁾
Obligations related to securities sold short	14,207	14,207	–	–	
Obligations related to securities sold under repurchase agreements and securities loaned	22,636	–	22,636	–	Interest rate ⁽³⁾⁽⁶⁾
Derivative financial instruments	7,725	6,818	907	–	Interest rate ⁽⁷⁾ and exchange rate
Liabilities related to transferred receivables	20,131	4,378	15,753	–	Interest rate ⁽³⁾
Defined benefit liability	314	–	314	–	Other ⁽⁸⁾
Other ⁽⁹⁾	5,572	43	1,346	4,183	Interest rate ⁽³⁾
Subordinated debt	1,012	–	1,012	–	Interest rate ⁽³⁾
	220,104	30,272	185,649	4,183	

(1) Trading positions whose risk measures are VaR and SVaR. 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) 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) See the Master Asset Vehicles section in Note 6 to the consolidated financial statements.

(5) The fair value of equity securities classified as available-for-sale is presented in Notes 3 and 6 to the consolidated financial statements.

(6) These instruments are recorded at amortized cost and are subject to credit risk for capital management purposes. For 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) See Notes 17 and 18 to the consolidated financial statements.

(8) See Note 24 to the consolidated financial statements.

(9) An amount of \$2,159 million representing amounts due to clients, dealers and brokers, classified in *Liabilities – Other* in this table as at October 31, 2016, is now reported in *Deposits*.

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 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, on a scale ranging from one trading unit to another, 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. The Bank uses a historical price distribution to compute the probable loss levels at the 99% confidence level, using a two-year 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 horizon for regulatory capital purposes. This assumption is used to combine the VaR of various portfolios and provides an estimate of the daily market risk incurred by the Bank. 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 (one-day holding period for risk management purposes and 10-day horizon for regulatory capital purposes) but uses, instead of the variable two-year history of market risk data input, 12-month historical data 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, 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)

(millions of Canadian dollars)	Year ended October 31, 2016			
	Low	High	Average	Period end
Interest rate	(2.2)	(6.0)	(3.9)	(3.6)
Foreign exchange	(2.0)	(5.3)	(3.1)	(2.8)
Equity	(2.3)	(5.6)	(3.7)	(3.0)
Commodity	(0.6)	(2.6)	(1.1)	(0.9)
Correlation effect ⁽²⁾	n.m.	n.m.	5.8	5.3
Total trading VaR	(4.1)	(8.4)	(6.0)	(5.0)

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, 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)

(millions of Canadian dollars)	Year ended October 31, 2016			
	Low	High	Average	Period end
Interest rate	(4.2)	(10.1)	(7.1)	(6.0)
Foreign exchange	(1.9)	(9.6)	(3.9)	(3.7)
Equity	(2.2)	(7.2)	(4.5)	(3.3)
Commodity	(0.6)	(4.0)	(1.4)	(1.0)
Correlation effect ⁽²⁾	n.m.	n.m.	9.0	8.2
Total trading SVaR	(4.5)	(11.8)	(7.9)	(5.8)

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.

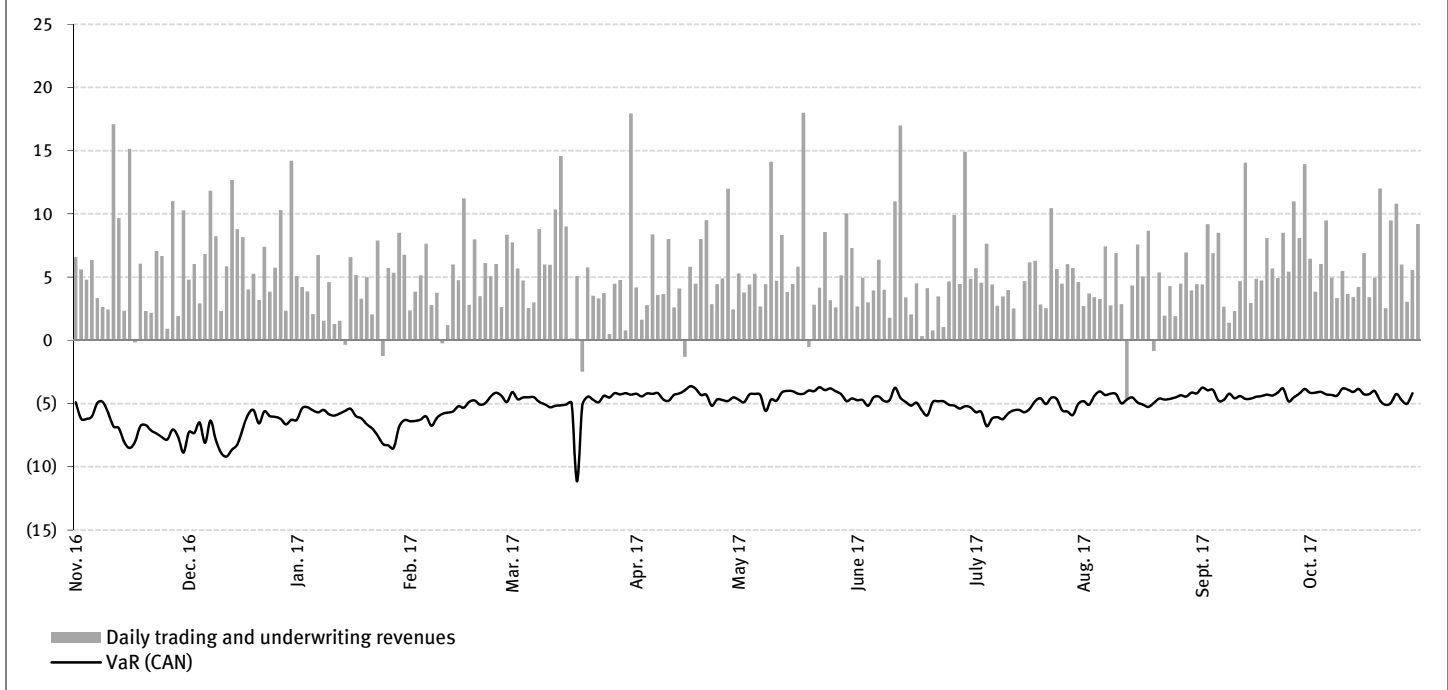
- (1) Amounts are presented on a pre-tax basis and represent one-day SVaR using a 99% confidence level.
- (2) The total trading SVaR is less than the sum of the individual risk factor SVaR results due to the correlation effect.

The average total trading VaR was \$5.2 million for fiscal 2017, down slightly from \$6.0 million in fiscal 2016, as higher interest rate VaR was more than offset by lower foreign exchange VaR and lower commodity VaR. The average total trading SVaR stood at \$7.1 million for fiscal 2017 compared to \$7.9 million the previous fiscal year. This decrease was essentially caused by lower foreign exchange SVaR.

The table below shows daily trading and underwriting revenues and VaR. Daily trading and underwriting revenues were positive on 96% of the days for the year ended October 31, 2017. Daily trading and underwriting losses in excess of \$1 million were recorded on 4 days. None of these losses exceeded the VaR.

Daily Trading and Underwriting Revenues

(millions of Canadian dollars)



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. Comprehensive stress testing scenarios include the following:

- changes in all relevant market rates;
- potential political shifts;
- market illiquidity;
- the interplay between market and credit risk.

These stress tests and sensitivity analyses 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 a 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 page 50 in the Capital Management section of this MD&A.

Separate policies govern 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.

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 Environment

In April 2016, the BCBS issued the final version of *Interest Rate Risk in the Banking Book*, a document that addresses risk management, capital treatment, and supervision of interest rate risk in the banking book. This document replaces *Principles for the Management and Supervision of Interest Rate Risk* published by the BCBS in 2004. Two objectives are behind the document:

- ensure that banks have enough capital to cover potential banking book losses stemming from changes in interest rates;
- limit capital arbitrage between the trading book and the banking book.

Presently, the Bank is fully compliant with the 2004 principles and is progressing towards compliance with the final BCBS rules, the application of which will be mandatory starting in 2018. However, in April 2017, OSFI informed Canadian banks of its intention to postpone application until 2019.

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, 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)

(millions of Canadian dollars)	As at October 31, 2016		
	Canadian dollar	Other currencies	Total
Impact on equity			
100-basis-point increase in the interest rate	(210)	26	(184)
100-basis-point decrease in the interest rate	169	(33)	136
Impact on net interest income			
100-basis-point increase in the interest rate	(10)	33	23
100-basis-point decrease in the interest rate	18	(37)	(19)

Investment Governance

The Bank has created available-for-sale securities and held-to-maturity 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 available-for-sale and held-to-maturity 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 available-for-sale 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 ratio 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 March 6, 2017, OSFI notified Canadian deposit-taking institutions of its intention to extend the implementation timeline of the NSFR to January 1, 2019.

Furthermore, on April 20, 2016, the federal government introduced a bill to implement bank recapitalization measures, and, on June 22, 2016, a law was adopted. The law amends the *Canada Deposit Insurance Corporation Act* (CDICA) to, among other things, permit the Canada Deposit Insurance Corporation (CDIC) to be appointed receiver of a D-SIB and to convert certain shares and certain eligible liabilities of a D-SIB into common shares of the concerned bank if OSFI considers that the bank has ceased, or is about to cease, to be viable. On June 16, 2017, OSFI released for comment a draft guideline entitled *Total Loss-Absorbing Capacity* (TLAC). The draft guideline requires D-SIBs to maintain a minimum capacity to absorb losses as required under the *Bank Act* (Canada) and is part of the bank recapitalization (bail-in) regime. D-SIBs will have until November 1, 2021 to comply. On June 16, 2017, the Government of Canada released for comment bank bail-in regulations. In addition, the regulations officially designate CDIC as the resolution authority for Canada's largest banks and requires D-SIBs to submit resolution plans to the CDIC. The Bank continues to monitor bail-in regime developments, as additional details on implementation, scope and timing are expected to follow through regulations.

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 and Treasury 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. These scenarios were developed to assess sensitivity to a Bank-specific 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 combines a significant limitation in the access to its funding channels and a significant decrease of its assets' marketability.

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 following assumptions underlie the scenarios:

- 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. See the Regulatory Compliance Risk Management section for additional information.

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)	2017					2016
	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	8,802	–	8,802	1,957	6,845	6,201
Securities						
Issued or guaranteed by the Canadian government, U.S. Treasury, other U.S. agencies and other foreign governments	21,003	30,422	51,425	32,104	19,321	15,356
Issued or guaranteed by Canadian provincial and municipal governments	12,446	13,056	25,502	20,797	4,705	7,553
Other debt securities	4,845	1,816	6,661	3,176	3,485	3,488
Equity securities	27,049	46,915	73,964	54,301	19,663	9,349
Loans						
Securities backed by insured residential mortgages	9,505	–	9,505	4,113	5,392	4,236
As at October 31, 2017	83,650	92,209	175,859	116,448	59,411	
As at October 31, 2016	80,541	71,292	151,833	105,650		46,183

As at October 31

(millions of Canadian dollars)	2017	2016
Unencumbered liquid assets by entity		
National Bank (parent)	27,769	25,951
Domestic subsidiaries	9,871	8,185
Foreign subsidiaries and branches	21,771	12,047
	59,411	46,183

As at October 31

(millions of Canadian dollars)	2017	2016
Unencumbered liquid assets by currency		
Canadian dollar	31,146	28,629
U.S. dollar	21,260	13,829
Other currencies	7,005	3,725
	59,411	46,183

Liquid Asset Portfolio – Average⁽⁴⁾

Year ended October 31

(millions of Canadian dollars)	2017					2016
	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	10,838	–	10,838	1,955	8,883	6,057
Securities						
Issued or guaranteed by the Canadian government, U.S. Treasury, other U.S. agencies and other foreign governments	21,184	22,335	43,519	28,244	15,275	12,842
Issued or guaranteed by Canadian provincial and municipal governments	14,583	13,558	28,141	22,264	5,877	7,462
Other debt securities	4,778	1,386	6,164	2,478	3,686	3,065
Equity securities	25,259	48,728	73,987	59,082	14,905	11,711
Loans						
Securities backed by insured residential mortgages	10,315	–	10,315	3,511	6,804	3,125
As at October 31, 2017	86,957	86,007	172,964	117,534	55,430	
As at October 31, 2016	72,709	68,216	140,925	96,663		44,262

(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, 2017					
	Encumbered assets ⁽¹⁾		Unencumbered assets		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, net of allowances	40,415	–	5,392	82,645	128,452	16.5
Customers' liability under acceptances	–	–	–	5,991	5,991	–
Derivative financial instruments	–	–	–	8,423	8,423	–
Purchased receivables	–	–	–	2,014	2,014	–
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	–
	64,086	17,244	59,411	105,086	245,827	33.1

(millions of Canadian dollars)

	As at October 31, 2016					
	Encumbered assets ⁽¹⁾		Unencumbered assets		Encumbered assets as % of total assets	
	Pledged as collateral	Other ⁽²⁾	Available as collateral	Other ⁽³⁾		
Cash and deposits with financial institutions	94	1,888	6,201	–	8,183	0.9
Securities	28,176	–	35,746	619	64,541	12.1
Securities purchased under reverse repurchase agreements and securities borrowed	–	13,948	–	–	13,948	6.0
Loans, net of allowances	36,151	–	4,236	79,360	119,747	15.6
Customers' liability under acceptances, net of allowances	–	–	–	6,431	6,431	–
Derivative financial instruments	–	–	–	10,416	10,416	–
Purchased receivables	–	–	–	1,858	1,858	–
Investments in associates and joint ventures	–	–	–	645	645	–
Premises and equipment	–	–	–	1,338	1,338	–
Goodwill	–	–	–	1,412	1,412	–
Intangible assets	–	–	–	1,140	1,140	–
Other assets ⁽⁴⁾	–	–	–	2,547	2,547	–
	64,421	15,836	46,183	105,766	232,206	34.6

(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) The *Due from clients, dealers and brokers* amount of \$843 million presented separately on the Consolidated Balance Sheet as at October 31, 2016 is now reported in *Other assets*.

Liquidity Coverage Ratio (LCR)

The LCR was introduced 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, 2017, the Bank's average LCR was 132%, 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, 2017	July 31, 2017
	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.	44,413	44,293
Cash outflows			
2 Retail deposits and deposits from small business customers, of which:	38,431	2,535	2,529
3 Stable deposits	18,691	561	552
4 Less stable deposits	19,740	1,974	1,977
5 Unsecured wholesale funding, of which:	58,086	30,193	30,791
6 Operational deposits (all counterparties)	12,111	2,913	2,674
7 Non-operational deposits (all counterparties)	38,695	20,000	21,171
8 Unsecured debt	7,280	7,280	6,946
9 Secured wholesale funding	n.a.	15,442	13,708
10 Additional requirements, of which:	32,958	8,406	8,837
11 Outflows related to derivative exposures and other collateral requirements	7,030	3,747	4,203
12 Outflows related to loss of funding on secured debt securities	1,139	1,139	932
13 Backstop liquidity and credit enhancement facilities and commitments to extend credit	24,789	3,520	3,702
14 Other contractual commitments to extend credit	1,486	406	272
15 Other contingent commitments to extend credit	79,015	1,081	963
16 Total cash outflows	n.a.	58,063	57,100
Cash inflows			
17 Secured lending (e.g., reverse repos)	67,687	14,446	13,552
18 Inflows from fully performing exposures	7,749	4,414	4,416
19 Other cash inflows	5,635	5,635	6,142
20 Total cash inflows	81,071	24,495	24,110
		Total adjusted value ⁽⁴⁾	Total adjusted value ⁽⁴⁾
21 Total HQLA	n.a.	44,413	44,293
22 Total net cash outflows	n.a.	33,568	32,990
23 Liquidity coverage ratio (%) ⁽⁵⁾	n.a.	132 %	134 %

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 89% 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, 2017 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 the optimal balance between the deposit-liability of the Bank's retail network, secured funding and unsecured funding. This brings optimal stability to the funding and reduces vulnerability to unpredictable events.

The Bank's retail 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 macro-economic factors or on 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. The following table presents the Bank's credit ratings according to four rating agencies as at October 31, 2017. Funding and liquidity levels remained sound and robust, and the Bank continues to enjoy excellent access to the market for its funding needs.

	Moody's ⁽¹⁾	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			AA(low)	
Long-term senior debt	A1	A	AA(low)	A+
Subordinated debt	Baa2	BBB+	A(high)	A
Preferred shares	Ba1(hyb)	P-2(low)	Pfd-2	BBB-
NVCC preferred shares	Ba1(hyb)	P-3(high)	Pfd-2(low)	
Rating outlook	Negative ⁽²⁾	Stable	Negative ⁽³⁾	Stable

- (1) On May 10, 2017, Moody's credit rating agency lowered the credit ratings for long-term debt of all Canadian D-SIBs by one notch. The credit ratings for the Bank's long-term senior debt therefore moved to A1 from Aa3. The credit rating for short-term senior debt remained stable at P-1.
- (2) Credit rating agency Moody's maintained the "negative" outlook for all Canadian D-SIBs due to the pending *Regulations to Implement the Bank Recapitalization (Bail-in) Regime*.
- (3) Credit rating agency DBRS maintained the "negative" outlook for many Canadian D-SIBs due to the pending *Regulations to Implement the Bank Recapitalization (Bail-in) Regime*. The "negative" outlook applies to long-term deposits, long-term senior debt and non-NVCC subordinated debt.

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, 2017	
	One-notch downgrade	Three-notch downgrade
Derivatives ⁽¹⁾	1	15

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

Funding Strategy

The key objectives of the funding strategy are to:

- support the organic growth of the Bank through prudent liquidity and funding management to withstand severe stresses;
- fund core banking activities with deposits and securitizations;
- limit short-term wholesale funding.

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

The Bank's funding framework consists of the following:

- maintaining a diversified deposit strategy;
- maintaining active access to wholesale funding markets and ensuring diversification by depositor, funding vehicle type, geographic location, currency, and tenor of funding in the secured and unsecured markets;
- monitoring and controlling liquidity risk exposure and funding needs across all the Bank's entities, business segments and currencies using a well-developed funds transfer pricing system that includes a liquidity premium and using effective liquidity monitoring tools;
- having funding centres in the Montreal, Toronto, New York and London offices;
- investing in infrastructure to ensure quality and timeliness in data transmission;
- integrating the regulatory framework in day-to-day liquidity management and the long-term funding plan.

The Bank's balance sheet is diversified and is supported by a funding strategy. The core banking activities are funded entirely through personal and commercial 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, 2017.

Funding Structure

As at October 31, 2017

(billions of Canadian dollars)



Assets: 245.8



Liabilities and equity: 245.8

(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) 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 programs:

- 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, 2017							
	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⁾	706	6	10	–	722	–	–	722
Certificates of deposit and commercial paper ⁽³⁾	1,242	2,499	3,685	1,571	8,997	626	–	9,623
Asset-backed commercial paper	–	–	–	–	–	–	–	–
Senior unsecured medium-term notes ⁽⁴⁾	250	928	26	1,667	2,871	2,998	5,718	11,587
Senior unsecured structured notes	–	–	–	13	13	330	4,428	4,771
Covered bonds and asset-backed securities								
Mortgage securitization	–	1,873	448	1,081	3,402	3,486	13,210	20,098
Covered bonds	–	–	967	–	967	1,492	4,551	7,010
Securitization of credit card receivables	–	–	–	–	–	36	873	909
Subordinated liabilities ⁽⁵⁾	–	–	–	–	–	–	9	9
Other ⁽⁶⁾	6,296	3	10	–	6,309	–	–	6,309
	8,494	5,309	5,146	4,332	23,281	8,968	28,789	61,038
Secured funding	–	1,873	1,415	1,081	4,369	5,014	18,634	28,017
Unsecured funding	8,494	3,436	3,731	3,251	18,912	3,954	10,155	33,021
	8,494	5,309	5,146	4,332	23,281	8,968	28,789	61,038
As at October 31, 2016	6,207	3,880	4,854	5,850	20,791	7,250	29,549	57,590

(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.

(6) The *Other* item includes non-negotiable term deposits from non-bank financial institutions such as broker-dealers, pension funds and trust companies.

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 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 and monitoring 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.

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 2017 and 2016, 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 procedures 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;
- 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 and Chief Compliance Officer acts as the Chief Anti-Money Laundering Officer and oversees the compliance program and the anti-money laundering and anti-terrorism financing (AML/ATF) program 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 procedures that ensure compliance with the regulations in effect in all territories where the Bank and its subsidiaries operate, including regulations related to AML/ATF activities, are in place and operational;
- develop compliance training and information programs for employees of the Bank and of its subsidiaries and foreign centres;
- exercise independent oversight of the compliance of the Bank, its subsidiaries, and its foreign centres with policies and procedures;
- report relevant compliance and AML/ATF 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 AML/ATF 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.

Over-The-Counter (OTC) Derivative Financial Instrument Reforms

The Canadian Securities Administrators (CSA) and OSFI are piloting the implementation of the regulatory framework stemming from the G20 commitments related to over-the-counter derivatives markets. The main components of the regulatory reform are:

- reporting of derivatives data;
- clearing of certain transactions through central counterparties;
- capital and margin requirements for transactions that are exempted from mandatory clearing;
- trading of derivatives on electronic platforms, registration of market participants and protection of customer positions and collateral.

This reform is being implemented gradually, and the Bank is closely monitoring the implementation of these regulatory initiatives in Canada, the United States and Europe in order to ensure that the necessary measures are adopted to achieve compliance with the new requirements applicable to its activities on over-the-counter markets.

Anti-Money Laundering and Anti-Terrorism Financing (AML/ATF)

In June 2017, amendments to the *Proceeds of Crime (Money Laundering) and Terrorist Financing Regulations* came into force. They provide a regulatory framework for governing the treatment of politically exposed domestic persons and provide additional components to be considered in risk assessments. The transition period for implementing the new client identity verification methods has been extended until January 23, 2018.

Common Reporting Standard (CRS)

The Standard for Automatic Exchange of Financial Account Information, known as the Common Reporting Standard (CRS), was developed by the Organization for Economic Co-operation and Development (OECD) at the request of the G8 and G20 in order to fight tax evasion. About 100 jurisdictions, including Canada, have confirmed their membership.

The CRS came into effect in Canada on July 1, 2017. It requires financial institutions, including the Bank, to collect and disclose, to the Canada Revenue Agency (CRA), certain information about mandatorily reportable accounts whose holders are tax residents of a jurisdiction other than Canada. The information is sent to the CRA via an annual reporting process and, as of 2018, the information will be exchanged with the tax authorities of other jurisdictions participating in the CRS. Information is exchanged reciprocally, so similar information about accounts held outside Canada by tax residents of Canada will be provided to the CRA.

Qualified Intermediary Agreement

The Qualified Intermediary Agreement (QIA) is an agreement concerning withholdings on certain U.S.-source income (such as dividends and interest) and the reporting of such income. Through a contractual agreement with the U.S. tax authorities, qualified intermediary 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 QIA were amended by the U.S. tax authorities. These new measures are currently being implemented.

Taxation of U.S. dividend-equivalent income

Subsection 871(m) of the *US Internal Revenue Code* is intended to guarantee that investors who are not U.S. residents pay tax on dividends paid on instruments related to U.S. equities. Transactions entered into as of January 1, 2017 and related to derivative instruments whose underlying securities are U.S. shares or "ineligible indexes" are subject to withholding and reporting requirements. Following the implementation of these new measures, other requirements set out in this legislation and that were to apply in January 2018 have, however, been postponed by one year.

Good practice in the foreign exchange market

The *FX Global Code of Conduct* 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 that should 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 has launched a project to implement this new framework, which should be put in place gradually between November 2017 and May 2018.

Investigation into sales practices

During fiscal 2017, the Financial Consumer Agency of Canada and the Office of the Superintendent of Financial Institutions launched an industry-wide review, which is ongoing, into the sales practices of financial institutions in Canada. The Bank is participating and will continue to monitor the related developments.

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 policy, approved by the Board, that covers reputation risk stemming from complex structured financing transactions and other transactions that may give rise to reputation issues. The policy sets the reputation risk management rules and practices applicable to these transactions. 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 implemented a process that examines supplier practices in order to assess their impact on the environment and consider this aspect more thoroughly in its decision-making. 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. It is also the first Canadian company to obtain Carbon Care Certification from Enviro-access for its greenhouse gas reduction efforts over the last five years. It is working with firms of experts to create an environmental strategy that will allow it to contribute more to sustainable development. 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 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 performance objectives and results in its *Social Responsibility Report*, which is available on its website at nbc.ca. This year again, it is one of the 20 greenest banks in the world and it continues to work to improve its environmental strategies.

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.

Impairment of Financial Assets

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, which is an exercise that requires the use of judgment and estimates. 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 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.

This accounting estimate has an impact, across all business segments, on *Available-for-sale securities* on the Consolidated Balance Sheet, on *Other comprehensive income* in the Consolidated Statement of Comprehensive Income, and on *Non-interest income* in the Consolidated Statement of Income.

Allowances for Credit Losses

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 they are more than 365 days in arrears.

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. Management reviews portfolio credit quality on an ongoing basis to ensure that the amount of the allowance for credit losses is adequate.

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 taking into account the Bank's overall credit portfolio.

When assessing allowances for credit losses, management must use its judgment in establishing reasonable assumptions and subjective and critical estimates concerning the probability of default, probable losses in the event of default, the amount at risk in the event of default, the amount and dates of future cash flows, the value of the underlying collateral and realization costs. Any changes in these estimates and assumptions, as well as the use of different, but equally reasonable, estimates and assumptions, could have an impact on the allowances for credit losses and, consequently, on the provisions for credit losses for the year. A description of the methods used to calculate the allowances for credit losses can be found in Note 1 to the consolidated financial statements. All business segments are affected by this accounting estimate.

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 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. 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 restructured notes, 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, Available-for-sale securities, Obligations related to securities sold short, Derivative financial instruments*, and financial instruments designated at fair value through profit or loss on the Consolidated Balance Sheet. This estimate also has an impact on *Non-interest income* in the Consolidated Statement of Income of the Financial Markets segment and of the *Other* heading. Lastly, this estimate has an impact on *Other comprehensive income* in the Consolidated Statement of Comprehensive Income. For additional information on the fair value determination of financial instruments, see Notes 3 and 6 to the consolidated financial statements.

Impairment of 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 11 to the consolidated financial statements.

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

Employee Benefits – Pension Plans and Other Post-Employment Benefits

Pension plan and other post-employment 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. 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), MasterCard International Incorporated (MasterCard) as well as National Bank and a number of other financial institutions. The plaintiff is alleging that the credit card networks and financial institutions engaged in a price-fixing system to increase or maintain the fees paid by merchants on Visa and MasterCard transactions. In so doing, they would have been in breach of the *Competition Act*. An unspecified amount of compensatory and punitive damages is being claimed. During the year ended October 31, 2017, the Bank entered into an agreement-in-principle with the plaintiffs in order to settle this dispute in the five jurisdictions where the class action was filed. This agreement is subject to the approval of the Court in each of those 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 (pages 39 and 40) 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 – Early Adoption on November 1, 2017

IFRS 9 – *Financial Instruments*

In July 2014, the IASB issued a complete and final version of IFRS 9, which replaces the guidance in IAS 39 – *Financial Instruments: Recognition and Measurement*. IFRS 9 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. Macro hedge accounting has been decoupled from IFRS 9 and will be considered and issued as a separate standard. As a result of IFRS 9, consequential amendments have been made to IFRS 7 – *Financial Instruments: Disclosures*, requiring additional qualitative and quantitative disclosures that must be adopted at the same time as IFRS 9. In December 2015, the Basel Committee on Banking Supervision issued *Guidance on Credit Risk and Accounting for Expected Credit Losses*. In June 2016, OSFI issued the final guideline on IFRS 9 *Financial Instruments and Disclosures*, setting out its expectations regarding IFRS 9 application.

For the Bank, the IFRS 9 effective date is November 1, 2018 with early adoption permitted. However, 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 expects Domestic Systemically Important Banks (D-SIBs), a group that includes the Bank, to adopt IFRS 9 as of November 1, 2017. The Bank will therefore adopt IFRS 9 as of November 1, 2017. Its first financial statements presented in accordance with IFRS 9 will be its unaudited interim condensed consolidated financial statements for the quarter ending January 31, 2018. In general, IFRS 9 is to be applied retrospectively. As permitted by IFRS 9, the Bank will not restate the comparative period financial statements. The retrospective impact of applying IFRS 9 will be accounted for through adjustments to the opening balances of *Retained earnings*, *Accumulated other comprehensive income* and *Non-controlling interests* as at November 1, 2017.

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.

IFRS 9 requires that all debt instrument financial assets, including loans, that do not meet a “solely payment of principal and interest” (SPPI) condition, including those that contain embedded derivatives, be classified as at fair value through profit or loss. For those that meet the SPPI condition, classification at initial recognition will be determined based on the business model under which these assets are managed. Upon transition, the business model test will be based on the facts and circumstances as at November 1, 2017. Debt instruments that are being managed on a “held for trading” or fair value basis will be classified as at fair value through profit or loss. Debt instruments that are managed on a “hold to collect and for sale” basis will be classified as at fair value through other comprehensive income. Finally, debt instruments that are managed on a “hold to collect” basis will be classified as at amortized cost. In addition, IFRS 9 also includes an option to irrevocably designate, at initial recognition, a debt instrument as measured at fair value through profit or loss if doing so eliminates or significantly reduces an accounting mismatch and if OSFI requirements are also met. This designation is also available for existing financial assets and liabilities at the date of IFRS 9 adoption.

Under IFRS 9, all equity instrument financial assets must be classified as at fair value through profit or loss. However, the Bank may, at initial recognition of a non-trading equity instrument, irrevocably elect to designate the instrument as at fair value through other comprehensive income with no subsequent reclassification of gains and losses to net income. Dividends will continue to be recognized in net income. This designation is also available for existing non-trading equity instruments at the date of IFRS 9 adoption. Derivative financial instruments will continue to be measured at fair value through profit or loss.

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 under the fair value option. 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

Overall Comparison of the New Impairment Model and the Current Model

IFRS 9 introduces a new, single impairment model for financial assets that requires the recognition of expected credit losses (ECL) rather than incurred losses as applied under the current standard. Currently, impairment losses are recognized if, and only if, there is objective evidence of impairment as a result of one or more loss events that occurred after initial recognition of the asset and that loss event has a detrimental impact on the estimated future cash flows of the asset that can be reliably estimated. If there is no objective evidence of impairment for an individual financial asset, that financial asset is 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 will be recognized in profit or loss before a loss event has occurred, which could result in earlier recognition of credit losses compared to the current model.

Under the current standard, incurred losses are measured by incorporating reasonable and supportable information about past events and current conditions. Under IFRS 9, the ECL model, which is forward-looking, in addition 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 will be incorporated into the risk parameters. Estimating forward-looking information will require significant judgment and must be consistent with the forward-looking information used by the Bank for other purposes, such as forecasting and budgeting.

Scope

The impairment model applies to all financial assets not measured at fair value through profit or loss. The ECL model also applies to loan commitments and financial guarantees that are not measured at fair value through profit or loss.

Measurement of Expected Credit Losses

ECLs are measured as the probability-weighted present value of expected cash shortfalls over the remaining expected life of the financial instrument. The measurement of ECLs will be based primarily on the product of the instrument's probability of default (PD), loss given default (LGD), and exposure at default (EAD). IFRS 9 requires the estimate of expected credit losses to reflect an unbiased and probability-weighted amount that is determined by evaluating a range of possible outcomes. The Bank will incorporate three forward-looking macroeconomic scenarios in its ECL calculation process: a base scenario, an upside scenario, and a downside scenario. Probability-weights will be attributed to each scenario. The scenarios and probability weights will be reassessed quarterly and subject to management review.

The ECL model contains a three-stage approach that is based on the change in the credit quality of 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 a loss allowance 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 a loss allowance 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 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 equal to lifetime expected losses continues to be recorded or the financial asset is written off.

Interest income is calculated on the gross carrying amount of the financial assets in Stages 1 and 2 and on the net carrying amount of the financial assets in Stage 3.

Assessment of Significant Increase in Credit Risk

To assess whether the credit risk of a financial instrument has increased significantly, the PD occurring over its expected life as at the reporting date is compared with the PD occurring over its expected life on the date of initial recognition, and reasonable and supportable information indicative of significant increases in credit risk since initial recognition is considered. The Bank has included 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.

Definition of Default

IFRS 9 does not define default but requires the definition to be consistent with the definition used for internal credit risk management purposes. However, IFRS 9 contains a rebuttable presumption that default does not occur later than when a financial asset is 90 days past due. Under IFRS 9, the Bank will consider a financial asset, other than a credit card receivable, as credit-impaired when one or more events that have a detrimental impact on the estimated future cash flows of a financial asset have occurred or when contractual payments are 90 days past due. The backstop for credit card receivables will be 180 days past due. The Bank's write-off policy under IAS 39 is not expected to be materially different under IFRS 9.

Comparison of Regulatory Expected Credit Loss Model and IFRS 9 Expected Credit Loss Model

The IFRS 9 ECL calculation has leveraged, where appropriate, the expected credit loss model parameters used by the Bank for regulatory purposes, namely: PD, LGD and EAD. Adjustments to these parameters were made to comply with IFRS 9 requirements. After the adoption of IFRS 9, an ECL model will be used for both regulatory and accounting purposes. However, there are key differences, which are summarized below.

Regulatory Capital

On March 29, 2017, the Basel Committee on Banking Supervision (BCBS) released details on the interim regulatory treatment for accounting provisions as well as standards for transitional arrangements. Given the coming into effect of IFRS 9, the BCBS will retain the current Basel Accord regulatory treatment for provisions during a transition period.

Jurisdictions may adopt transitional measures to phase in any potential significant negative impacts on regulatory capital arising from the new expected credit loss impairment model under IFRS 9. On August 21, 2017, OSFI released for comment a new, revised version of the *Capital Adequacy Requirements (CAR) Guideline* to be implemented in the first quarter of 2018. Consistent with the BCBS position, the proposed CAR Guideline retains the current regulatory treatment of accounting provisions. As for transitional measures to phase-in any potential negative impacts on regulatory capital, on November 29, 2017, OSFI has announced that no mitigation measure will be allowed for banks whose capital position could be significantly affected by IFRS 9 adoption.

Hedge Accounting

IFRS 9 introduces a new general hedge accounting model that better aligns hedge accounting with risk management activities. However, the current hedge accounting requirements under IAS 39 may continue to be applied until the IASB finalizes its macro hedge accounting project. As permitted, the Bank elected not to adopt the IFRS 9 hedge accounting requirements and instead will continue applying the IAS 39 hedge accounting requirements. The Bank will, however, comply with the revised hedge accounting disclosures required by the consequential amendments made to IFRS 7.

Transition Impact

As at October 31, 2017, the Bank's best estimate of the impact of transitioning to IFRS 9 is a decrease of approximately \$165 million, net of income taxes, in equity as at November 1, 2017, and a decrease of approximately 16 basis points in the Common Equity Tier 1 (CET1) capital ratio. The estimate of the impact for the Bank relates primarily to the classification and measurement requirements, in particular the election to irrevocably designate certain financial assets and financial liabilities at fair value through profit or loss under the fair value option, as permitted by the IFRS 9 transitional provisions.

The estimate of the impact of applying the new impairment model for financial assets is not significant. The Bank continues to refine and validate the new impairment models leading up to the disclosure of its 2018 first quarter results.

	Regulatory Capital	IFRS 9
PD	Through-the-cycle 12-month PD calibrated on a long run average PD throughout a full economic cycle. The default backstop is generally 90 days past due.	Point-in-time 12-month or lifetime PD based on past experience, current conditions and relevant forward-looking information. The default backstop is generally 90 days past due.
LGD	Downturn LGD based on losses that would be expected in an economic downturn and subject to certain regulatory floors. All collection costs are included.	Expected LGD based on past experience, current conditions and relevant forward-looking information. The value of collateral and other credit risk mitigants are incorporated as appropriate and undue conservatism and floors are excluded.
EAD	Based on the drawn balance plus expected utilization of any undrawn portion prior to default, and cannot be lower than the current balance.	Represents the expected balance at default across the lifetime horizon on forward-looking expectations.
Other		ECLs are discounted from the default date to the reporting date.

Effective Date – November 1, 2018

IFRS 15 – Revenue From Contracts With Customers

In May 2014, the IASB issued a new standard, IFRS 15, which replaces the current revenue recognition standards and interpretations. IFRS 15 provides a single comprehensive model to use when accounting for revenue arising from contracts with customers. The new model applies to all contracts with customers except those that are within the scope of other IFRS standards such as leases, insurance contracts and financial instruments. As a result, the majority of the Bank's revenue, including net interest income, will not be impacted.

At its meeting on July 22, 2015, the IASB unanimously confirmed its proposal to defer the effective date of IFRS 15 to fiscal years beginning on or after January 1, 2018, which will be November 1, 2018 for the Bank. In April 2016, the IASB issued amendments to IFRS 15, clarifying some requirements and providing additional transitional relief at the date of initial application.

On transition, IFRS 15 permits to either restate prior periods or to apply the standard on a modified retrospective basis. The Bank plans to use 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.

While the impact assessment is not complete, the Bank does not currently expect the adoption of IFRS 15 to have a significant impact on its consolidated financial statements. The Bank is continuing to review its revenue contracts that fall within the scope of IFRS 15 and to assess the impact of the new standard on its consolidated financial statements, including the additional disclosure requirements.

Effective Date – November 1, 2019

IFRS 16 – Leases

In January 2016, the IASB issued a new standard, 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, 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.

ADDITIONAL FINANCIAL INFORMATION

TABLE 1 – QUARTERLY RESULTS

(millions of Canadian dollars, except per share amounts)

					2017
	Total	Q4	Q3	Q2	Q1
Statement of income data					
Net interest income ⁽¹⁾	3,232	841	831	762	798
Non-interest income ⁽¹⁾	3,377	863	844	835	835
Total revenues	6,609	1,704	1,675	1,597	1,633
Provisions for credit losses	244	70	58	56	60
Non-interest expenses	3,857	976	971	941	969
Income taxes	484	133	128	116	107
Net income	2,024	525	518	484	497
Non-controlling interests	84	19	24	22	19
Net income attributable to the Bank's shareholders	1,940	506	494	462	478
Earnings per common share					
Basic	\$ 5.44	\$ 1.40	\$ 1.39	\$ 1.30	\$ 1.35
Diluted	5.38	1.39	1.37	1.28	1.34
Dividends (per share)					
Common	\$ 2.28	\$ 0.58	\$ 0.58	\$ 0.56	\$ 0.56
Preferred					
Series 20	–	–	–	–	–
Series 28	0.9500	0.2375	0.2375	0.2375	0.2375
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	0.4724	0.4724	–	–	–
Return on common shareholders' equity	18.1 %	17.8 %	18.2 %	17.9 %	18.4 %
Total assets		245,827	240,072	239,020	234,119
Long-term financial liabilities⁽²⁾		9	9	10	1,009
Net impaired loans		206	240	213	226
Number of common shares outstanding (thousands)					
Average – Basic	340,809	341,108	341,555	341,107	339,476
Average – Diluted	344,771	345,507	345,353	345,416	343,270
End of period		339,592	341,580	341,524	340,810
Per common share					
Book value		\$ 31.51	\$ 30.84	\$ 29.97	\$ 29.51
Share price					
High	\$ 62.74	62.74	56.44	58.75	56.60
Low	46.83	55.29	51.77	52.94	46.83
Number of employees		21,635	21,526	21,290	21,295
Number of branches in Canada		429	443	445	448

(1) The prior year figures have been adjusted to reflect a reclassification of certain amounts between the *Non-interest income – Credit fees* item and the *Net interest income* item in order to better reflect the nature of the income reported in the Personal and Commercial segment.

(2) Subordinated debt.

					2016					2015							
Total		Q4	Q3	Q2	Q1	Total		Q4	Q3	Q2	Q1	Total		Q4	Q3	Q2	Q1
2,992		778	783	715	716	2,717		703	686	657	671	3,029		702	824	764	739
2,848		791	774	710	573	3,029		702	824	764	739	5,746		1,405	1,510	1,421	1,410
5,840		1,569	1,557	1,425	1,289	5,746		1,405	1,510	1,421	1,410	484		59	45	317	63
484		59	45	317	63	228		61	56	57	54	3,875		1,159	937	876	903
3,875		1,159	937	876	903	3,665		960	906	936	863	225		44	97	22	62
225		44	97	22	62	234		37	95	24	78	1,256		307	478	210	261
1,256		307	478	210	261	1,619		347	453	404	415	75		18	18	17	22
75		18	18	17	22	70		19	17	16	18	1,181		289	460	193	239
1,181		289	460	193	239	1,549		328	436	388	397						
\$ 3.31		\$ 0.79	\$ 1.32	\$ 0.52	\$ 0.68	\$ 4.56		\$ 0.96	\$ 1.29	\$ 1.14	\$ 1.17						
3.29		0.78	1.31	0.52	0.67	4.51		0.95	1.28	1.13	1.16						
\$ 2.18		\$ 0.55	\$ 0.55	\$ 0.54	\$ 0.54	\$ 2.04		\$ 0.52	\$ 0.52	\$ 0.50	\$ 0.50						
-		-	-	-	-	1.5000		0.3750	0.3750	0.3750	0.3750						
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	0.2437	0.2438	0.2438	1.0760		0.2438	0.2438	0.2438	0.3446						
1.1373		0.3500	0.3500	0.4373	-			-	-	-	-						
0.5733		0.5733	-	-	-			-	-	-	-						
-		-	-	-	-			-	-	-	-						
11.7 %		11.0 %	18.7 %	7.7 %	9.5 %	16.9 %		13.6 %	18.8 %	17.6 %	17.8 %						
232,206		229,896	220,734	219,301		216,090		215,560	207,123	214,474							
1,012		1,014	1,015	1,021		1,522		1,530	1,529	1,539							
281		251	300	234		254		254	249	194							
337,460		337,882	337,553	337,329	337,074	329,790		331,459	329,527	329,275	328,880						
339,895		341,018	340,196	339,530	339,265	333,139		334,138	333,127	332,849	332,925						
338,053		336,826	337,418	337,535		337,236		330,001	330,141	329,860							
		\$ 28.52	\$ 28.39	\$ 27.75	\$ 27.77			\$ 28.26	\$ 27.60	\$ 27.01	\$ 26.33						
\$ 47.88		47.88	46.65	45.56	44.11	\$ 55.06		46.33	50.01	49.15	55.06						
35.83		44.14	40.98	35.95	35.83	40.75		40.75	43.78	45.02	44.21						
		21,770	21,731	20,105	20,114			20,189	20,502	20,659	20,691						
		450	453	453	453			452	452	452	452						

TABLE 2 – OVERVIEW OF RESULTS

Year ended October 31

(taxable equivalent basis)⁽¹⁾

(millions of Canadian dollars)

	2017	2016	2015	2014	2013 ⁽²⁾
Net interest income ⁽³⁾	3,441	3,223	3,028	2,834	2,721
Non-interest income ⁽³⁾	3,412	2,852	3,029	2,849	2,639
Total revenues	6,853	6,075	6,057	5,683	5,360
Non-interest expenses	3,857	3,875	3,665	3,423	3,206
Contribution	2,996	2,200	2,392	2,260	2,154
Provisions for credit losses	244	484	228	208	181
Income before income taxes	2,752	1,716	2,164	2,052	1,973
Income taxes	728	460	545	514	461
Net income	2,024	1,256	1,619	1,538	1,512
Non-controlling interests	84	75	70	69	63
Net income attributable to the Bank's shareholders	1,940	1,181	1,549	1,469	1,449
Average assets	248,351	235,913	222,929	206,680	193,509

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

(2) Certain amounts have been adjusted to reflect accounting standard changes in 2014.

(3) The prior year figures have been adjusted to reflect a reclassification of certain amounts between the *Non-interest income* item and the *Net interest income* item in order to better reflect the nature of the income reported in the Personal and Commercial segment.

TABLE 3 – CHANGES IN NET INTEREST INCOME

Year ended October 31

(taxable equivalent basis)⁽¹⁾

(millions of Canadian dollars)

	2017	2016	2015	2014	2013 ⁽²⁾
Personal and Commercial					
Net interest income ⁽³⁾	2,071	1,955	1,860	1,770	1,690
Average assets	96,261	92,234	86,977	81,516	76,696
Average interest-bearing assets	91,461	87,153	81,430	75,963	70,718
Net interest margin ⁽³⁾⁽⁴⁾	2.26 %	2.24 %	2.28 %	2.33 %	2.39 %
Wealth Management					
Net interest income	431	372	323	312	272
Average assets	11,652	11,006	10,388	10,400	9,080
Financial Markets					
Net interest income	782	938	1,001	825	781
Average assets	95,004	87,504	86,466	85,427	86,573
U.S. Specialty Finance and International					
Net interest income	262	71	(7)	(1)	3
Average assets	7,519	5,319	2,275	771	490
Other					
Net interest income	(105)	(113)	(149)	(72)	(25)
Average assets	37,915	39,850	36,823	28,566	20,670
Total					
Net interest income ⁽³⁾	3,441	3,223	3,028	2,834	2,721
Average assets	248,351	235,913	222,929	206,680	193,509

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

(2) Certain amounts have been adjusted to reflect accounting standard changes in 2014.

(3) The prior year figures have been adjusted to reflect a reclassification of certain amounts between the *Non-interest income* item and the *Net interest income* item in order to better reflect the nature of the income reported in the Personal and Commercial segment.

(4) Net interest margin is calculated by dividing net interest income by average interest-bearing assets.

TABLE 4 – NON-INTEREST INCOME

Year ended October 31 (taxable equivalent basis) ⁽¹⁾ (millions of Canadian dollars)	2017	2016	2015	2014	2013
Underwriting and advisory fees	349	376	387	388	301
Securities brokerage commissions	216	235	273	333	335
Mutual fund revenues	412	364	320	251	219
Trust service revenues	518	453	446	388	314
Credit fees ⁽²⁾	130	110	112	98	90
Revenues from acceptances, letters of credit and guarantee	231	236	223	217	226
Card revenues	132	119	128	134	121
Deposit and payment service charges	279	258	238	234	235
Trading revenues (losses)	409	154	209	106	186
Gains (losses) on available-for-sale securities, net	140	70	82	103	82
Insurance revenues, net	117	114	107	108	118
Foreign exchange revenues, other than trading	81	81	88	89	90
Share in the net income of associates and joint ventures	35	15	26	44	26
Other	363	267	390	356	296
	3,412	2,852	3,029	2,849	2,639
Domestic	3,027	2,434	2,737	2,545	2,358
International					
United States	340	337	284	303	227
Other	45	81	8	1	54
Non-interest income as a % of total revenues on a taxable equivalent basis ⁽¹⁾	49.8 %	46.9 %	50.0 %	50.1 %	49.2 %
Non-interest income as a % of total revenues on a taxable equivalent basis and excluding specified items ⁽¹⁾	49.9 %	48.5 %	49.0 %	49.4 %	47.9 %

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

(2) The prior year figures have been adjusted to reflect a reclassification of certain amounts between the *Non-interest income – Credit fees* item and the *Net interest income* item in order to better reflect the nature of the income reported in the Personal and Commercial segment.

TABLE 5 – TRADING ACTIVITY REVENUES⁽¹⁾

Year ended October 31 (taxable equivalent basis) ⁽²⁾ (millions of Canadian dollars)	2017	2016	2015	2014	2013
Financial markets					
Equities	496	438	450	332	288
Fixed-income	304	263	237	207	237
Commodities and foreign exchange	103	116	147	82	88
	903	817	834	621	613
Other segments	103	80	151	122	212
	1,006	897	985	743	825

(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

Year ended October 31 (millions of Canadian dollars)	2017	2016	2015	2014	2013
Provisions for credit losses on impaired loans					
Personal	150	152	162	155	148
Commercial	43	73	63	50	44
Wealth Management	3	5	3	3	3
Financial Markets	–	–	–	–	(14)
U.S. Specialty Finance and International	48	4	–	–	–
Total	244	234	228	208	181
Sectoral allowance on non-impaired loans – Oil and gas ⁽¹⁾	(40)	250	–	–	–
Collective allowance on non-impaired loans ⁽²⁾	40	–	–	–	–
Total provisions for credit losses	244	484	228	208	181
Average loans and acceptances	129,150	121,013	108,740	99,548	92,398
Provisions for credit losses on impaired loans as a % of average loans and acceptances	0.19 %	0.19 %	0.21 %	0.21 %	0.20 %
Provisions for credit losses on impaired and non-impaired loans as a % of average loans and acceptances	0.19 %	0.40 %	0.21 %	0.21 %	0.20 %
Allowances for credit losses					
Balance at beginning	781	569	604	578	577
Provisions for credit losses	244	484	228	208	181
Write-offs	(238)	(201)	(197)	(118)	(112)
Write-offs on credit cards	(82)	(81)	(81)	(79)	(78)
Recoveries and other ⁽³⁾	14	10	15	15	10
Balance at end	719	781	569	604	578
Composition of allowances:					
Individual and collective allowances on impaired loans	174	211	203	238	212
Sectoral allowance on non-impaired loans – Oil and gas ⁽¹⁾	139	204	–	–	–
Collective allowance on non-impaired loans ⁽²⁾	406	366	366	366	366

(1) 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.

(2) 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.

(3) Includes foreign exchange and other movements.

TABLE 7 – NON-INTEREST EXPENSES

Year ended October 31 (millions of Canadian dollars)	2017	2016	2015	2014	2013 ⁽¹⁾
Compensation and employee benefits ⁽²⁾	2,358	2,161	2,160	2,049	1,899
Occupancy	195	195	185	183	194
Technology	364	367	352	335	319
Amortization – Premises and equipment	41	38	38	39	43
Amortization – Technology	204	220	182	178	139
Communications	61	67	69	68	68
Professional fees	254	276	233	227	221
Restructuring charge ⁽³⁾	–	131	86	–	–
Advertising and external relations	87	83	77	80	71
Stationery	24	25	24	25	22
Travel and business development	35	37	36	34	30
Security and theft	26	45	15	43	26
Capital and payroll taxes	73	71	69	44	46
Other	135	159	139	118	128
Total	3,857	3,875	3,665	3,423	3,206
Domestic	3,571	3,601	3,457	3,223	3,006
International					
United States	209	235	192	186	183
Other	77	39	16	14	17
Non-interest expenses as a % of total revenues on a taxable equivalent basis ⁽⁴⁾	56.3 %	63.8 %	60.5 %	60.2 %	59.8 %
Non-interest expenses as a % of total revenues on a taxable equivalent basis and excluding specified items ⁽⁴⁾	55.9 %	58.2 %	58.6 %	58.6 %	60.2 %

(1) Certain amounts have been adjusted to reflect accounting standard changes in 2014.

(2) Compensation and employee benefits included an amount of \$12 million in severance pay in 2013.

(3) 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.

(4) 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)

	2017		2016		2015		2014		2013 ⁽²⁾	
	Average volume \$	Rate %	Average volume \$	Rate %	Average volume \$	Rate %	Average volume \$	Rate %	Average volume \$	Rate %
Assets										
Deposits with financial institutions	15,802	0.72	14,079	0.46	11,771	0.26	10,313	0.28	7,051	0.27
Securities	66,591	1.75	60,784	1.98	57,494	2.25	57,559	2.42	58,094	2.33
Securities purchased under reverse repurchase agreements and securities borrowed	19,878	1.03	19,038	0.75	25,610	0.79	24,789	0.68	21,271	0.79
Residential mortgage loans	49,264	2.62	46,213	2.69	41,719	2.85	38,517	3.02	35,590	3.13
Personal loans and credit card receivables	34,044	3.86	32,480	3.84	30,817	3.94	28,714	4.18	26,917	4.21
Business and government loans	39,993	3.91	34,510	3.20	27,096	3.20	23,498	3.42	21,126	3.60
Impaired loans, net of total allowances	(276)	(0.61)	(177)	(0.97)	(88)	(1.78)	(119)	(1.89)	(161)	(0.78)
Interest-bearing assets	225,296	2.51	206,927	2.42	194,419	2.47	183,271	2.60	169,888	2.68
Other assets	23,055		28,986		28,510		23,409		23,621	
Total assets	248,351	2.28	235,913	2.12	222,929	2.15	206,680	2.31	193,509	2.35
Liabilities and equity										
Personal deposits	49,435	0.99	44,510	1.13	42,480	1.20	43,000	1.31	40,156	1.45
Deposit-taking institutions	7,567	0.69	12,468	0.39	10,925	0.24	8,685	0.24	7,237	0.32
Other deposits	97,252	1.21	85,874	1.10	76,063	1.12	63,919	1.22	54,636	1.12
	154,254	1.11	142,852	1.04	129,468	1.07	115,604	1.18	102,029	1.19
Subordinated debt	423	3.81	1,047	3.16	1,571	3.80	1,906	3.96	2,381	4.30
Obligations other than deposits	44,204	0.74	38,804	0.31	40,374	0.41	44,230	0.91	45,156	1.07
Interest-bearing liabilities	198,881	1.11	182,703	0.98	171,413	1.03	161,740	1.19	149,566	1.22
Other liabilities	36,599		41,561		40,792		35,288		35,180	
Equity	12,871		11,649		10,724		9,652		8,763	
Liabilities and equity	248,351	0.89	235,913	0.76	222,929	0.79	206,680	0.93	193,509	0.95
Net interest margin		1.39		1.36		1.36		1.38		1.40

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

(2) Certain amounts have been adjusted to reflect accounting standard changes in 2014.

TABLE 9 – DISTRIBUTION OF GROSS LOANS AND ACCEPTANCES BY BORROWER CATEGORY UNDER BASEL ASSET CLASSES

As at October 31

(millions of Canadian dollars)	2017		2016		2015		2014		2013	
	\$	%	\$	%	\$	%	\$	%	\$	%
Residential mortgage ⁽¹⁾⁽²⁾	66,398	49.1	58,265	45.9	54,004	46.6	50,011	46.8	46,836	47.8
Qualifying revolving retail	4,217	3.1	4,178	3.3	4,093	3.6	4,033	3.8	3,962	4.1
Other retail	12,150	9.0	10,316	8.1	9,512	8.2	9,027	8.5	8,801	9.0
Agriculture	4,923	3.6	4,599	3.6	4,433	3.8	3,857	3.6	3,553	3.6
Financial institutions	4,932	3.7	3,872	3.0	2,679	2.3	1,482	1.4	1,693	1.7
Manufacturing	4,341	3.2	3,597	2.8	3,765	3.3	3,689	3.5	3,286	3.4
Construction and real estate	11,891	8.8	10,729	8.5	10,439	9.0	9,088	8.5	7,562	7.7
Transportation	2,593	1.9	3,013	2.4	1,956	1.7	1,223	1.1	1,202	1.2
Telecommunications, media and technology	1,662	1.2	1,578	1.2	1,254	1.1	1,540	1.4	1,471	1.5
Oil and gas	2,129	1.6	2,102	1.7	3,220	2.8	3,621	3.4	3,552	3.6
Mining	470	0.4	582	0.5	392	0.3	247	0.2	211	0.2
Wholesale and retail	5,497	4.1	4,932	3.9	4,873	4.2	5,281	5.0	4,587	4.7
Services	12,726	9.4	11,659	9.2	9,861	8.5	9,308	8.7	8,512	8.7
Other ⁽²⁾	1,233	0.9	7,537	5.9	5,326	4.6	4,366	4.1	2,688	2.8
	135,162	100.0	126,959	100.0	115,807	100.0	106,773	100.0	97,916	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

As at October 31 (millions of Canadian dollars)	2017	2016	2015	2014	2013
Net impaired loans					
Personal ⁽¹⁾	78	85	92	88	70
Commercial	121	190	157	158	111
Wealth Management	4	5	5	2	2
Financial Markets	–	–	–	–	–
U.S. Specialty Finance and International	3	1	–	–	–
Other	–	–	–	–	–
Total net impaired loans	206	281	254	248	183
Gross impaired loans	380	492	457	486	395
Individual and collective allowances on impaired loans	174	211	203	238	212
Net impaired loans	206	281	254	248	183
Provisioning rate	45.8 %	42.9 %	44.4 %	49.0 %	53.7 %
As a % of average loans and acceptances	0.2 %	0.2 %	0.2 %	0.2 %	0.2 %
As a % of common shareholders' equity	1.9 %	2.9 %	2.7 %	2.9 %	2.4 %
As a % of tangible capital adjusted for allowances	4.3 %	6.3 %	5.9 %	7.1 %	6.5 %

(1) Includes \$39 million in net consumer loans in 2017 (2016: \$40 million; 2015: \$42 million; 2014: \$46 million; 2013: \$37 million).

TABLE 11 – DEPOSITS

As at October 31

(millions of Canadian dollars)	2017		2016 ⁽¹⁾		2015 ⁽¹⁾		2014 ⁽¹⁾		2013 ⁽¹⁾⁽²⁾	
	\$	%	\$	%	\$	%	\$	%	\$	%
Personal	53,719	34.3	52,521	37.0	47,394	36.3	44,963	37.5	42,652	41.8
Business and government	97,571	62.3	83,905	59.0	76,845	58.9	67,364	56.2	57,103	55.9
Deposit-taking institutions	5,381	3.4	5,640	4.0	6,219	4.8	7,556	6.3	2,356	2.3
Total	156,671	100.0	142,066	100.0	130,458	100.0	119,883	100.0	102,111	100.0
Domestic	145,288	92.8	131,869	92.8	116,315	89.2	105,621	88.1	94,647	92.6
International										
United States	5,825	3.7	4,442	3.1	9,655	7.4	12,152	10.1	6,893	6.8
Other	5,558	3.5	5,755	4.1	4,488	3.4	2,110	1.8	571	0.6
Total	156,671	100.0	142,066	100.0	130,458	100.0	119,883	100.0	102,111	100.0
Personal deposits as a % of total assets		21.9		22.6		21.9		21.9		22.7

(1) Certain amounts have been revised from those previously reported, particularly an amount of \$2,159 million classified in *Due to clients, dealers and brokers* on the Consolidated Balance Sheet as at October 31, 2016 that is now reported in *Deposits* (\$1,628 million as at October 31, 2015). Figures as at October 31, 2014 and 2013 were not adjusted to reflect those changes.

(2) Certain amounts have been adjusted to reflect accounting standard changes in 2014.
