Management's Discussion and Analysis

Management's Discussion and Analysis (MD&A) is provided to enable a reader to assess our results of operations and financial condition for the fiscal year ended October 31, 2015, compared to the preceding two fiscal years. This MD&A should be read in conjunction with our 2015 Annual Consolidated Financial Statements and related notes and is dated December 1, 2015. All amounts are in Canadian dollars, unless otherwise specified, and are based on financial statements prepared in accordance with International Financial Reporting Standards (IFRS) as issued by the International Accounting Standards Board (IASB), unless otherwise noted.

Additional information about us, including our 2015 Annual Information Form, is available free of charge on our website at rbc.com/investorrelations, on the Canadian Securities Administrators' website at sedar.com and on the EDGAR section of the United States (U.S.) Securities and Exchange Commission's (SEC) website at sec.gov.

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See our Glossary for definitions of terms used throughout this document

Caution regarding forward-looking statements

From time to time, we make written or oral forward-looking statements within the meaning of certain securities laws, including the "safe harbour" provisions of the *United States Private Securities Litigation Reform Act of 1995* and any applicable Canadian securities legislation. We may make forward-looking statements in this 2015 Annual Report, in other filings with Canadian regulators or the SEC, in other reports to shareholders and in other communications. Forward-looking statements in this document include, but are not limited to, statements relating to our financial performance objectives, vision and strategic goals, the economic and market review and outlook for Canadian, U.S., European and global economies, the regulatory environment in which we operate, the outlook and priorities for each of our business segments, and the risk environment including our liquidity and funding risk. The forward-looking information contained in this document is presented for the purpose of assisting the holders of our securities and financial analysts in understanding our financial position and results of operations as at and for the periods ended on the dates presented and our financial performance objectives, vision and strategic goals, and may not be appropriate for other purposes. Forward-looking statements are typically identified by words such as "believe", "expect", "foresee", "forecast", "anticipate", "intend", "estimate", "goal", "plan" and "project" and similar expressions of future or conditional verbs such as "will", "may", "should", "could" or "would".

By their very nature, forward-looking statements require us to make assumptions and are subject to inherent risks and uncertainties, which give rise to the possibility that our predictions, forecasts, projections, expectations or conclusions will not prove to be accurate, that our assumptions may not be correct and that our financial performance objectives, vision and strategic goals will not be achieved. We caution readers not to place undue reliance on these statements as a number of risk factors could cause our actual results to differ materially from the expectations expressed in such forward-looking statements. These factors – many of which are beyond our control and the effects of which can be difficult to predict – include: credit, market, liquidity and funding, insurance, operational, regulatory compliance, strategic, reputation, legal and regulatory environment, competitive and systemic risks and other risks discussed in the Risk management and Overview of other risks sections; weak oil and gas prices; the high levels of Canadian household debt; exposure to more volatile sectors; cybersecurity; anti-money laundering; the business and economic conditions in Canada, the U.S. and certain other countries in which we operate; the effects of changes in government fiscal, monetary and other policies; tax risk and transparency; and environmental risk.

We caution that the foregoing list of risk factors is not exhaustive and other factors could also adversely affect our results. When relying on our forward-looking statements to make decisions with respect to us, investors and others should carefully consider the foregoing factors and other uncertainties and potential events. Material economic assumptions underlying the forward-looking statements contained in this 2015 Annual Report are set out in the Overview and outlook section and for each business segment under the heading Outlook and priorities. Except as required by law, we do not undertake to update any forward-looking statement, whether written or oral, that may be made from time to time by us or on our behalf.

Additional information about these and other factors can be found in the Risk management and Overview of other risks sections.

Information contained in or otherwise accessible through the websites mentioned does not form part of this report. All references in this report to websites are inactive textual references and are for your information only.

Selected financial and other highlights

Table 1

(Millions of Canadian dollars, except per share, number of and percentage amounts)	2015	2014	2013	2015 vs. 2014 Increase (decrease)	
Total revenue	$ 35,321	$ 34,108	$ 30,682	$ 1,213	3.6%
Provision for credit losses (PCL)	1,097	1,164	1,237	(67)	(5.8)%
Insurance policyholder benefits, claims and acquisition expense (PBCAE)	2,963	3,573	2,784	(610)	(17.1)%
Non-interest expense	18,638	17,661	16,214	977	5.5%
Net income before income taxes	12,623	11,710	10,447	913	7.8%
Net income	$ 10,026	$ 9,004	$ 8,342	$ 1,022	11.4%
Segments – net income					
Personal & Commercial Banking	$ 5,006	$ 4,475	$ 4,380	$ 531	11.9%
Wealth Management	1,041	1,083	886	(42)	(3.9)%
Insurance	706	781	595	(75)	(9.6)%
Investor & Treasury Services	556	441	339	115	26.1%
Capital Markets	2,319	2,055	1,700	264	12.8%
Corporate Support	398	169	442	229	135.5%
Net income	$ 10,026	$ 9,004	$ 8,342	$ 1,022	11.4%
Selected information					
Earnings per share (EPS) – basic	$ 6.75	$ 6.03	$ 5.53	$ 0.72	11.9%
– diluted	6.73	6.00	5.49	0.73	12.2%
Return on common equity (ROE) (1), (2)	18.6%	19.0%	19.7%	n.m.	(40) bps
PCL on impaired loans as a % of average net loans and acceptances	0.24%	0.27%	0.31%	n.m.	(3) bps
Gross impaired loans (GIL) as a % of loans and acceptances	0.47%	0.44%	0.52%	n.m.	3 bps
Liquidity coverage ratio (3)	127%	n.a.	n.a.	n.a.	n.a.
Capital ratios, Leverage ratio and multiples (4)					
Common Equity Tier 1 (CET1) ratio (4)	10.6%	9.9%	9.6%	n.m.	70 bps
Tier 1 capital ratio (4)	12.2%	11.4%	11.7%	n.m.	80 bps
Total capital ratio (4)	14.0%	13.4%	14.0%	n.m.	60 bps
Assets-to-capital multiple (4)	n.a.	17.0X	16.6X	n.a.	n.a.
Leverage ratio (4)	4.3%	n.a.	n.a.	n.a.	n.a.
Selected balance sheet and other information					
Total assets	$ 1,074,208	$ 940,550	$ 859,745	$ 133,658	14.2%
Securities	215,508	199,148	182,710	16,360	8.2%
Loans (net of allowance for loan losses)	472,223	435,229	408,850	36,994	8.5%
Derivative related assets	105,626	87,402	74,822	18,224	20.9%
Deposits	697,227	614,100	563,079	83,127	13.5%
Common equity	57,048	48,615	43,064	8,433	17.3%
Average common equity (1)	52,300	45,700	40,600	6,600	14.4%
Total capital risk-weighted assets	413,957	372,050	318,981	41,907	11.3%
Assets under management (AUM) (5)	498,400	457,000	391,100	41,400	9.1%
Assets under administration (AUA) (5), (6)	4,609,100	4,647,000	4,050,900	(37,900)	(0.8)%
Common share information					
Shares outstanding (000s) – average basic	1,442,935	1,442,553	1,443,735	382	0.0%
– average diluted	1,449,509	1,452,003	1,466,529	(2,494)	(0.2)%
– end of period	1,443,423	1,442,233	1,441,056	1,190	0.1%
Dividends declared per common share	$ 3.08	$ 2.84	$ 2.53	$ 0.24	8.5%
Dividend yield (7)	4.1%	3.8%	4.0%	n.m.	30 bps
Common share price (RY on TSX) (8)	$ 74.77	$ 80.01	$ 70.02	$ (5.24)	(6.5)%
Market capitalization (TSX) (8)	107,925	115,393	100,903	(7,468)	(6.5)%
Business information (number of)					
Employees (full-time equivalent) (FTE)	72,839	73,498	74,247	(659)	(0.9)%
Bank branches	1,355	1,366	1,372	(11)	(0.8)%
Automated teller machines (ATMs)	4,816	4,929	4,973	(113)	(2.3)%
Period average US$ equivalent of C$1.00 (9)	$ 0.797	$ 0.914	$ 0.977	$ (0.117)	(12.8)%
Period-end US$ equivalent of C$1.00	$ 0.765	$ 0.887	$ 0.959	$ (0.122)	(13.8)%

(1) Average amounts are calculated using methods intended to approximate the average of the daily balances for the period. This includes ROE and Average common equity. For further details, refer to the Key performance and non-GAAP measures section.
(2) These measures may not have a standardized meaning under generally accepted accounting principles (GAAP) and may not be comparable to similar measures disclosed by other financial institutions. For further details, refer to the Key performance and non-GAAP measures section.
(3) Liquidity coverage ratio (LCR) is a new regulatory measure under the Basel III Framework, and is calculated using the Liquidity Adequacy Requirements (LAR) guideline. Effective in the second quarter of 2015, LCR was adopted prospectively, and is not applicable (n.a.) for prior periods. For further details, refer to the Liquidity and funding risk section.
(4) Capital and Leverage ratios presented above are on an "all-in" basis. The Leverage ratio is a regulatory measure under the Basel III framework effective the first quarter of 2015. The Leverage ratio has replaced the Assets-to-capital multiple (ACM), and is n.a. for prior periods. The ACM is presented on a transitional basis for prior periods. For further details, refer to the Capital management section.
(5) Represents period-end spot balances.
(6) AUA includes $21.0 billion and $8.0 billion (2014 – $23.2 billion and $8.0 billion; 2013 – $25.4 billion and $7.2 billion) of securitized residential mortgages and credit card loans, respectively.
(7) Defined as dividends per common share divided by the average of the high and low share price in the relevant period.
(8) Based on TSX closing market price at period-end.
(9) Average amounts are calculated using month-end spot rates for the period.
n.m. not meaningful

About Royal Bank of Canada

Royal Bank of Canada (RY on TSX and NYSE) is Canada's largest bank, and one of the largest banks in the world, based on market capitalization. We are one of North America's leading diversified financial services companies, and provide personal and commercial banking, wealth management services, insurance, investor services and capital markets products and services on a global basis. We employ approximately 78,000 full- and part-time employees who serve more than 16 million personal, business, public sector and institutional clients through offices in Canada, the U.S. and 37 other countries. For more information, please visit rbc.com.

Our business segments are described below.

Personal & Commercial Banking operates in Canada, the Caribbean and the U.S., and comprises our personal and business banking operations, as well as our auto financing and retail investment businesses.

Wealth Management serves affluent, high net worth and ultra-high net worth clients from our offices in key financial centres mainly in Canada, the U.S., the U.K., Channel Islands, and Asia with a comprehensive suite of investment, trust, banking, credit and other wealth management solutions. We also provide asset management products and services directly to institutional and individual clients through our distribution channels and third-party distributors.

Insurance provides a wide range of life, health, home, auto, travel, wealth, group and reinsurance products and solutions. In Canada, we offer insurance products and services through our proprietary distribution channels, comprised of the field sales force which includes retail insurance branches, our field sales representatives, advice centres and online, as well as through independent insurance advisors and affinity relationships. Outside Canada, we operate in reinsurance markets globally offering life, accident and annuity reinsurance products.

Investor & Treasury Services serves the needs of institutional investing clients by providing asset servicing, custodial, advisory, financing and other services to safeguard assets, maximize liquidity and manage risk in multiple jurisdictions around the world. We also provide short-term funding and liquidity management for RBC.

Capital Markets provides public and private companies, institutional investors, governments and central banks with a wide range of products and services. In North America, we offer a full suite of products and services which include corporate and investment banking, equity and debt origination and distribution, and structuring and trading. Outside North America, we offer a diversified set of capabilities in our key sectors of expertise such as energy, mining and infrastructure, and we have expanded into industrial, consumer and health care in Europe.

Our business segments are supported by Corporate Support, which consists of Technology & Operations and Functions. Technology & Operations provides the technological and operational foundation required to effectively deliver products and services to our clients, while Functions includes our finance, human resources, risk management, internal audit and other functional groups.

The following chart presents our business segments and respective lines of business:

ROYAL BANK OF CANADA

Personal & Commercial Banking	Wealth Management	Insurance	Investor & Treasury Services	Capital Markets
○ Canadian Banking ○ Caribbean & U.S. Banking	○ Canadian Wealth Management ○ U.S. & International Wealth Management ○ Global Asset Management	○ Canadian Insurance ○ International Insurance		○ Corporate and Investment Banking ○ Global Markets ○ Other

Corporate Support

○ Technology & Operations ○ Functions

Vision and strategic goals

Our business strategies and actions are guided by our vision, **"To be among the world's most trusted and successful financial institutions."** Our three strategic goals are:

- In Canada, to be the undisputed leader in financial services;
- In the U.S., to be the preferred partner to corporate, institutional and high net worth clients and their businesses; and
- In select global financial centres, to be a leading financial services partner valued for our expertise.

For our progress in 2015 against our business strategies and strategic goals, refer to the Business segment results section.

Economic and market review and outlook – data as at December 1, 2015

The predictions and forecasts in this section are based on information and assumptions from sources we consider reliable. If this information or these assumptions are not accurate, actual economic outcomes may differ materially from the outlook presented in this section. For details on risk factors from general business and economic conditions that may affect our business and financial results, refer to the Overview of other risks section.

Canada

The Canadian economy is expected to grow at an estimated rate of 1.2% during calendar 2015, which is below our estimate of 2.7% as at December 2, 2014 and slightly above our estimate of 1.0% as at August 25, 2015. The first half of the calendar year was impacted by weak investment by the energy sector and slow export activity. Energy production started to recover in the second half of the calendar year, while an increase in manufacturing output combined with stronger U.S. economic growth and a weak Canadian dollar drove exports higher. Housing market activity remained solid through most of calendar 2015, despite a slowdown in oil industry-sensitive markets. Labour markets remained strong during most of the calendar year, although the unemployment rate rose slightly to 7.0% in October 2015 as growth in the labour force outpaced the increase in employment. The Canadian dollar declined in value against the U.S. dollar for most of the calendar year, and reached an 11-year low in September 2015, mostly due to market expectations of a further divergence in monetary policy between the two countries and given the sustained downturn in oil prices. The Bank of Canada (BoC) reduced its overnight rate twice during the calendar year, by 25 bps each time in January 2015 and July 2015, to 0.50%, as lower growth than expected resulted in an increase in excess capacity and created downward risks to the inflation outlook.

In calendar 2016, we expect the Canadian economy to grow at an estimated rate of 2.2%, driven by firm consumer spending and solid net exports. We expect housing market activity to soften slightly in calendar 2016, as increased pressure on affordability in some key markets softens demand. As the pace of economic growth picks up, we expect the core inflation rate to hold above the BoC's target of 2.0%, leading the BoC to reverse the interest rate cuts made in 2015 beginning in the fourth calendar quarter of 2016.

U.S.

The U.S. economy is expected to grow at an estimated rate of 2.5% in calendar 2015, which is below our estimate of 3.3% as at December 2, 2014, and slightly above our estimate of 2.4% as at August 25, 2015. Strong consumer spending, solid housing market activity and modest business investment during the calendar year more than offset the dampening impact of poor weather conditions and a ports strike in the first calendar quarter. Labour markets generally improved during the year, with the unemployment rate at 5.0% in October 2015, which is within the range considered full employment by the Federal Reserve (Fed). Despite this improvement in the labour markets and solid consumer spending, the Fed cited concerns about global developments as well as the low level of inflation at its September 2015 meeting, and maintained its cautious policy stance by holding its funds target range at historically low levels.

In calendar 2016, we expect the U.S. economy to grow at an estimated rate of 2.8%, reflecting continuing firm consumer spending and housing market activity, as well as stronger business investment. Given that global financial markets displayed greater stability in the beginning of the fourth calendar quarter of 2015 compared to the previous calendar quarter, and the U.S. labour market continued to firm, we expect the Fed to begin to raise its key interest rate from the current funds target range of 0.0% to 0.25%, in December 2015.

Europe

The Euro area economy is expected to grow at an estimated rate of 1.5% in calendar 2015, which is above both our estimates of 1.0% as at December 2, 2014 and 1.4% as at August 25, 2015, largely due to the effects of the stimulative monetary policy adopted by the European Central Bank (ECB), and lower oil prices leading to higher consumer spending. The unemployment rate improved to its lowest level since January 2012 and was 10.8% in September 2015 compared to 11.1% in June 2015. The Euro area inflation rate remained below the ECB's target levels for most of the calendar year, and was 0.0% in October 2015, as the decline in energy prices offset increases in price levels in other sectors. The ECB launched its monthly asset purchase program, the Public Sector Purchase Program (PSPP), in March 2015 and committed to monthly purchases of €60 billion of a combination of euro-denominated public sector securities, asset-backed securities, and covered bonds.

In calendar 2016, we expect the Euro area economy to grow at an estimated rate of 1.7%, as the economy benefits from the stimulus undertaken by the ECB, a weaker Euro, and lower oil prices. As a result of increased concerns about headwinds from the global economy and to negate a modest tightening in financial conditions, we expect the ECB to further reduce its deposit rate to (0.4)% from (0.2)%, and to extend the PSPP past its initial September 2016 commitment.

Financial markets

Equity markets in Canada and the U.S. remained volatile throughout our fiscal year, largely related to the effect of low global oil prices, diverging monetary policies amongst global central banks, and a decline in Chinese equity markets. Yields on both Canadian and U.S. long-term government bonds fluctuated during the fiscal year. Credit spreads on corporate bonds in North America generally widened through the fiscal year, before tightening slightly at the end of October 2015. Crude oil prices generally remained low throughout the fiscal year, and reached a 10-year low in August 2015. Prices for non-precious metals declined for most of the fiscal year due to a combination of strong supply and weak demand from emerging economies including China.

Regulatory environment

We continue to monitor and prepare for regulatory developments in a manner that seeks to ensure compliance with new requirements while mitigating any adverse business or economic impacts. Such impacts could result from new or amended regulations and the expectations of those who enforce them. Significant developments include continuing changes to global and domestic standards for capital and liquidity, over-the-counter (OTC) derivatives reform, initiatives to enhance requirements for institutions deemed systemically important to the financial sector, and changes to resolution regimes addressing government bail-in and total loss-absorbing capacity. We also continue to implement reforms enacted under the U.S. *Dodd-Frank Wall Street Reform and Consumer Protection Act* including those related to the Volcker Rule and the Fed's enhanced prudential standards for Bank Holding Companies and Foreign Banking Organizations.

For a discussion on risk factors resulting from these and other regulatory developments which may affect our business and financial results, refer to the Risk management – Top and emerging risks section. For further details on our framework and activities to manage risks, refer to the Risk management and Capital management sections.

Defining and measuring success through Total Shareholder Returns

Our focus is to maximize total shareholder returns (TSR) through the achievement of top half performance compared to our global peer group over the medium term (3-5 years), which we believe reflects a longer-term view of strong and consistent financial performance.

Maximizing TSR is aligned with our three strategic goals discussed earlier and we believe represents the most appropriate measure of shareholder value creation. TSR is a concept used to compare the performance of our common shares over a period of time, reflecting share price appreciation and dividends paid to common shareholders. The absolute size of the TSR will vary depending on market conditions, and the relative position reflects the market's perception of our overall performance relative to our peers over a period of time.

Financial performance objectives are used to measure progress against our medium-term TSR objectives. We review and revise these financial performance objectives as economic, market and regulatory environments change. By focusing on our medium-term objectives in our decision-making, we believe we will be well positioned to provide sustainable earnings growth and solid returns to our common shareholders.

We achieved all our performance objectives in 2015. The following table provides a summary of our performance against our financial performance objectives in 2015:

2015 Financial performance compared to our medium-term objectives — **Table 2**

	2015 results	Achieved
Diluted EPS growth of 7% +	12.2%	✓
ROE of 18% +	18.6%	✓
Strong capital ratios (CET1) (1)	10.6%	✓
Dividend payout ratio 40% – 50%	46%	✓

(1) For further details on the CET1 ratio, refer to the Capital management section.

For 2016, our medium-term financial performance objectives will remain unchanged.

We compare our TSR to that of a global peer group approved by our Board of Directors. The global peer group remains unchanged from last year and consists of the following 10 financial institutions:

- Canadian financial institutions: Bank of Montreal, Canadian Imperial Bank of Commerce, Manulife Financial Corporation, National Bank of Canada, Power Financial Corporation, The Bank of Nova Scotia, and the Toronto-Dominion Bank.
- U.S. banks: JPMorgan Chase & Co. and Wells Fargo & Company.
- International banks: Westpac Banking Corporation.

Medium-term objectives – three and five year TSR vs. peer group average — **Table 3**

	Three year TSR (1)	Five year TSR (1)
Royal Bank of Canada	14% Top half	11% Mid-point
Peer group average (excluding RBC)	15%	12%

(1) The three and the five year average annual TSR are calculated based on our common share price appreciation as per the TSX closing market price plus reinvested dividends for the period October 31, 2012 to October 31, 2015 and October 31, 2010 to October 31, 2015 respectively.

Common share and dividend information — **Table 4**

For the year ended October 31	2015	2014	2013	2012	2011
Common share price (RY on TSX) – close, end of period	$ 74.77	$ 80.01	$ 70.02	$ 56.94	$ 48.62
Dividends paid per share	3.04	2.76	2.46	2.22	2.04
Increase (decrease) in share price	(6.5)%	14.3%	23.0%	17.1%	(10.6)%
Total shareholder return	(3.0)%	19.0%	28.0%	22.0%	(6.7)%

Key corporate events of 2015

City National Corporation

On November 2, 2015, we completed the acquisition of City National Corporation (City National), the holding company of City National Bank. Total consideration of US$5.5 billion was paid with US$2.6 billion in cash and 41.6 million RBC common shares. In addition, we issued RBC first preferred shares with a par value of US$275 million in exchange for all outstanding shares of City National preferred stock. For further details, refer to Notes 11 and 36 of our 2015 Annual Consolidated Financial Statements.

Royal Bank of Canada (Suisse) SA

On August 28, 2015, we completed the sale of Royal Bank of Canada (Suisse) SA, (RBC Suisse), to SYZ Group. As a result of the transaction, we recorded a loss on disposal of $7 million (before- and after-tax), including deal and transaction costs, in Non-interest expense – Other. For further details, refer to Note 11 of our 2015 Annual Consolidated Financial Statements.

RBC Royal Bank (Suriname) N.V.

On July 31, 2015, we completed the sale of RBC Royal Bank (Suriname) N.V. (RBC Suriname). As a result of the transaction, we recorded a total loss on disposal of $19 million (before- and after-tax), including a loss of $23 million in the second quarter in Non-interest expense – Other, and a gain of $4 million in the third quarter including foreign currency translation gains reclassified from Other components of equity. For further details, refer to Note 11 of our 2015 Annual Consolidated Financial Statements.

Certain Caribbean Wealth Management businesses

Subsequent to the end of our fiscal year, we have entered into a purchase and sale agreement on November 4, 2015, to sell our trust, custody and fund administration businesses in the Caribbean to SMP Partners Group, subject to customary closing conditions and regulatory approvals. The transaction is expected to close in early 2016. For further details, refer to Note 36 of our 2015 Annual Consolidated Financial Statements.

Financial performance

Overview

2015 vs. 2014

Net income of $10,026 million was up $1,022 million or 11% from a year ago. Diluted earnings per share (EPS) of $6.73 was up $0.73 and return on common equity (ROE) of 18.6% was down 40 bps from 19.0% last year. Our Common Equity Tier 1 (CET1) ratio was 10.6%.

Our results were driven by higher earnings in Personal & Commercial Banking, Capital Markets and Investor & Treasury Services, partially offset by lower earnings in Insurance and Wealth Management. Our results were also favourably impacted by a lower effective tax rate reflecting favourable income tax adjustments, the positive impact of foreign exchange translation, and a gain of $108 million (before- and after-tax) from the wind-up of a U.S.-based funding subsidiary that resulted in the release of foreign currency translation adjustment (CTA) which was recorded in Corporate Support. Prior year results included a loss of $100 million (before- and after-tax) related to the sale of RBC Jamaica and a provision of $40 million ($32 million after-tax) related to post-employment benefits and restructuring charges in the Caribbean.

Personal & Commercial Banking earnings mainly reflected solid volume growth across most businesses in Canada, strong fee-based revenue growth, and higher earnings in the Caribbean, partially offset by higher costs to support business growth and lower spreads. Capital Markets earnings were driven by growth in our global markets businesses mainly reflecting increased client activity, continued solid performance in our corporate and investment banking businesses, and the positive impact of foreign exchange translation, partially offset by lower results in certain legacy portfolios. Investor & Treasury Services earnings mainly reflected higher earnings due to increased client activity in our foreign exchange forwards business and higher foreign exchange transaction volumes, an additional month of earnings in Investor Services of $42 million ($28 million after-tax), increased custodial fees, and higher earnings from growth in client deposits. These factors were partially offset by lower funding and liquidity results. Wealth Management earnings decreased primarily reflecting higher costs in support of business growth in our Global Asset Management and Canadian Wealth Management businesses, restructuring costs of $122 million ($90 million after-tax) largely related to our U.S. & International Wealth Management business, lower transaction volumes, and higher provision for credit losses (PCL), partly offset by higher earnings from growth in average fee-based client assets. Insurance results decreased mainly due to a change in Canadian tax legislation impacting certain foreign affiliates which became effective November 1, 2014, a lower level of favourable actuarial adjustments, and higher net claims costs, which were partially offset by higher earnings from new U.K. annuity contracts, and a favourable impact of investment-related activities on the Canadian life business.

For further details on our business segment results and CET1 ratio, refer to the Business segment results and Capital management sections, respectively.

2014 vs. 2013

In 2014, net income of $9,004 million was up $662 million or 8% from 2013. Diluted EPS of $6.00 was up $0.51 and ROE of 19.0% was down 70 bps. Our CET1 ratio was 9.9%.

Our results were driven by higher earnings in all business segments, including the positive impact of foreign exchange translation. In addition, our results in 2013 included net favourable income tax adjustments in Corporate Support.

Capital Markets earnings reflected strong equity markets, our continued focus on origination and lending, and increased activity from client-focused strategies, partially offset by higher litigation provisions and related legal costs. Wealth Management results reflected growth in average fee-based client assets, partially offset by higher costs in support of business growth. Our insurance results reflected lower net claims costs, business growth in our European life and U.K. annuity products and favourable actuarial adjustments, partly offset by higher costs in support of business growth. Insurance results in 2013 included a charge of $160 million ($118 million after-tax) as a result of new tax legislation in Canada, which affects the policyholders' tax treatment of certain individual life insurance policies. Personal & Commercial Banking earnings reflected solid volume growth across most of our Canadian Banking businesses, partially offset by higher costs in support of business growth, and a loss of $100 million (before- and after-tax) related to the sale of RBC Royal Bank (Jamaica) Limited and RBTT Securities Jamaica Limited (collectively, RBC Jamaica).

Impact of foreign currency translation

Our foreign currency-denominated results are impacted by exchange rate fluctuations. Revenue, PCL, insurance policyholder benefits, claims and acquisition expense (PBCAE), non-interest expense and net income denominated in foreign currency are translated at the average rate of exchange for the period.

The following table reflects the estimated impact of foreign exchange translation on key income statement items:

Table 5

(Millions of Canadian dollars, except per share amounts)	2015 vs. 2014	2014 vs. 2013
Increase (decrease):		
Total revenue	$ 1,012	$ 818
PCL	11	9
PBCAE	75	75
Non-interest expense	652	510
Income taxes	113	103
Net income	161	121
Impact on EPS:		
Basic	$ 0.11	$ 0.08
Diluted	0.11	0.08

The relevant average exchange rates that impact our business are shown in the following table:

Table 6

(Average foreign currency equivalent of C$1.00) (1)	2015	2014	2013
U.S. dollar	**0.797**	0.914	0.977
British pound	**0.519**	0.551	0.626
Euro	**0.707**	0.680	0.740

(1) Average amounts are calculated using month-end spot rates for the period.

Total revenue

Table 7

(Millions of Canadian dollars, except percentage amounts)	2015	2014	2013
Interest income	**$ 22,729**	$ 22,019	$ 21,148
Interest expense	**7,958**	7,903	7,899
Net interest income	**$ 14,771**	$ 14,116	$ 13,249
Net interest margin (on average earning assets) (1)	**1.71%**	1.86%	1.88%
Investments (2)	**$ 8,095**	$ 7,355	$ 6,408
Insurance (3)	**4,436**	4,957	3,911
Trading (see additional trading information section)	**552**	742	867
Banking (4)	**4,388**	4,090	3,909
Underwriting and other advisory	**1,885**	1,809	1,569
Other (5)	**1,194**	1,039	769
Non-interest income	**$ 20,550**	$ 19,992	$ 17,433
Total revenue	**$ 35,321**	$ 34,108	$ 30,682

(1) Net interest margin (on average earning assets) is calculated as net interest income divided by average earning assets.
(2) Includes securities brokerage commissions, investment management and custodial fees, and mutual fund revenue.
(3) Includes premiums and investment and fee income. Investment income includes the change in fair value of investments backing policyholder liabilities and is largely offset in PBCAE.
(4) Includes service charges, foreign exchange revenue other than trading, card service revenue and credit fees.
(5) Includes other non-interest income, net gain (loss) on available-for-sale (AFS) securities and share of profit in associates.

2015 vs. 2014

Total revenue increased $1,213 million or 4% from last year, which included the positive impact of foreign exchange translation of $1,012 million. The negative change in fair value of investments backing our policyholders liabilities, which was largely offset in PBCAE, decreased total revenue by $463 million.

Net interest income increased $655 million or 5%, mainly due to solid volume growth across most businesses in Canadian Banking, and higher trading-related net interest income and solid lending growth in Capital Markets. The positive impact of foreign exchange translation also contributed to the increase. These factors were partially offset by lower spreads.

Net interest margin was down 15 bps compared to last year, largely due to the low interest rate environment, and competitive pressures.

Investments revenue increased $740 million or 10%, mainly due to growth in average fee-based client assets resulting from capital appreciation and net sales, and the positive impact of foreign exchange translation. Higher securities brokerage commissions in Capital Markets, and higher fee-based revenue primarily attributable to strong mutual funds asset growth resulting in higher mutual fund distribution fees in Canadian Banking also contributed to the increase. These factors were partly offset by lower transaction volumes in Wealth Management.

Insurance revenue decreased $521 million or 11%, mainly due to the change in fair value of investments backing our policyholder liabilities resulting from an increase in long-term interest rates, and a reduction of revenue related to our retrocession contracts, both of which were largely offset in PBCAE. These factors were partially offset by business growth in Canadian and International insurance, and the positive impact of foreign exchange translation.

Banking revenue increased $298 million or 7%, mainly due to higher credit card balances and transaction volumes, and improved spreads. Higher service fee revenue also contributed to the increase.

Underwriting and other advisory revenue increased $76 million or 4%, primarily due to higher debt origination reflecting increased client issuance activity, and strong growth in M&A activity reflecting increased mandates in the U.S. and Europe. These factors were partially offset by lower equity origination reflecting decreased client activity as compared to the strong levels last year.

Other revenue increased $155 million or 15%, mainly due to a gain of $108 million (before- and after-tax) from the wind-up of a U.S.-based funding subsidiary that resulted in the release of CTA, which was recorded in Corporate Support.

2014 vs. 2013

Total revenue increased $3,426 million or 11% as compared to 2013, primarily due to the positive change in fair value of investments backing our policyholder liabilities of $930 million resulting from a decrease in long-term interest rates, largely offset in PBCAE, the positive impact of foreign exchange translation, higher revenue from growth in average fee-based client assets in Wealth Management resulting from capital appreciation and strong net sales, solid volume growth of 5% across most of our businesses in Canadian Banking, and higher trading-related net interest income in Capital Markets. Strong growth in equity origination reflecting increased issuance activity, higher equity trading revenue due to strong market conditions, and higher lending activity in Capital Markets also contributed to the increase. These factors were partially offset by the unfavourable impact of the implementation of funding valuation adjustments.

Additional trading information

Table 8

(Millions of Canadian dollars)	2015	2014	2013
Total trading revenue (1)			
Net interest income	**$ 2,398**	$ 2,029	$ 1,661
Non-interest income	**552**	742	867
Total trading revenue	**$ 2,950**	$ 2,771	$ 2,528
Total trading revenue by product			
Interest rate and credit	**$ 1,400**	$ 1,560	$ 1,611
Equities	**1,045**	814	594
Foreign exchange and commodities	**505**	397	323
Total trading revenue	**$ 2,950**	$ 2,771	$ 2,528
Trading revenue (teb) by product			
Interest rate and credit	**$ 1,400**	$ 1,560	$ 1,611
Equities	**1,614**	1,305	972
Foreign exchange and commodities	**504**	397	323
Total trading revenue (teb)	**$ 3,518**	$ 3,262	$ 2,906
Trading revenue (teb) by product – Capital Markets			
Interest rate and credit	**$ 1,238**	$ 1,293	$ 1,350
Equities	**1,590**	1,244	942
Foreign exchange and commodities	**376**	333	286
Total Capital Markets trading revenue (teb)	**$ 3,204**	$ 2,870	$ 2,578

(1) Includes a gain of $40 million (2014 – $105 million loss; 2013 – nil) related to a funding valuation adjustment on uncollateralized OTC derivatives.

2015 vs. 2014
Total trading revenue of $2,950 million, which comprises trading-related revenue recorded in Net interest income and Non-interest income, was up $179 million, or 6% including the positive impact of foreign exchange translation, mainly due to higher equities trading revenue reflecting increased client activity primarily in the first half of the year. This factor was partially offset by lower revenue in certain legacy portfolios including the exit from certain proprietary trading strategies last year to comply with the Volcker Rule, and lower fixed income trading revenue reflecting challenging market conditions in the second half of the year. In addition, trading revenue in the prior year was unfavourably impacted by the implementation of funding valuation adjustments.

2014 vs. 2013
Total trading revenue of $2,771 million, which comprises trading-related revenue recorded in Net interest income and Non-interest income, was up $243 million, or 10% as compared to 2013, mainly due to higher equity trading revenue reflecting strong market conditions and higher commodities trading revenue. These factors were partially offset by lower fixed income trading revenue largely driven by the unfavourable impact of the implementation of funding valuation adjustments, and the exit from certain proprietary trading strategies to comply with the Volcker Rule.

Provision for credit losses

2015 vs. 2014
Total PCL decreased $67 million or 6% from a year ago, mainly due to lower PCL in Personal & Commercial Banking, partially offset by higher PCL in Capital Markets and Wealth Management.

2014 vs. 2013
Total PCL decreased $73 million or 6% as compared to 2013, mainly due to lower provisions in Capital Markets and Wealth Management, partially offset by higher provisions in Personal & Commercial Banking, primarily in Caribbean Banking.

For further details on PCL, refer to the Credit quality performance section.

Insurance policyholder benefits, claims and acquisition expense

2015 vs. 2014
PBCAE decreased $610 million or 17% from a year ago, mainly due to a reduction of PBCAE related to our retrocession contracts, and the change in fair value of investments backing our policyholder liabilities resulting from the change in long-term interest rates, both of which were largely offset in revenue. These factors were partially offset by business growth in Canadian and International insurance, a lower level of favourable actuarial adjustments in the current year reflecting management actions and assumption changes, and an increase due to the impact of foreign exchange translation.

2014 vs. 2013
PBCAE increased $789 million or 28% from the prior year, mainly due to the change in fair value of investments backing our policyholder liabilities, which was largely offset in revenue, and the impact of foreign exchange translation. These factors were partially offset by lower net claims costs. In addition, our PBCAE in 2013 included the unfavourable impact of the charge of $160 million related to new tax legislation in Canada, which affects the policyholders' tax treatment of certain individual life insurance policies, and a favourable impact from interest and asset-related activities on the Canadian life business.

Non-interest expense

Table 9

(Millions of Canadian dollars, except percentage amounts)	2015	2014	2013
Salaries	$ 5,197	$ 4,834	$ 4,604
Variable compensation	4,533	4,388	3,924
Benefits and retention compensation	1,607	1,561	1,464
Share-based compensation	246	248	256
Human resources	$ 11,583	$ 11,031	$ 10,248
Equipment	1,277	1,147	1,081
Occupancy	1,410	1,330	1,235
Communications (1)	888	847	796
Professional fees	932	763	753
Amortization of other intangibles	712	666	566
Other (1)	1,836	1,877	1,535
Non-interest expense	$ 18,638	$ 17,661	$ 16,214
Efficiency ratio (2)	52.8%	51.8%	52.8%

(1) Amounts have been revised from those previously presented.
(2) Efficiency ratio is calculated as non-interest expense divided by total revenue.

2015 vs. 2014
Non-interest expense increased $977 million or 6% mainly reflecting an increase due to the impact of foreign exchange translation of $652 million and higher costs in support of business growth. Restructuring costs of $122 million ($90 million after-tax) largely related to our U.S. & International Wealth Management business also contributed to the increase. These factors were partially offset by lower litigation provisions and related legal costs in Capital Markets, and continuing benefits from our efficiency management activities. The prior year included the loss of $100 million related to the sale of RBC Jamaica and a provision of $40 million related to post-employment benefits and restructuring charges in the Caribbean.

Our efficiency ratio of 52.8% increased 100 bps from 51.8% last year mainly due to the change in fair value of investments backing our policyholder liabilities, and higher costs in support of business growth, partially offset by continuing benefits from our efficiency management activities.

2014 vs. 2013
Non-interest expense increased $1,447 million or 9%, primarily due to the impact of foreign exchange translation of $510 million, higher costs in support of business growth, and higher variable compensation driven by higher revenue in Wealth Management and higher results in Capital Markets. Increased litigation provisions and related legal costs in Capital Markets, and the loss of $100 million related to the sale of RBC Jamaica also contributed to the increase. These factors were partly offset by continuing benefits from our efficiency management activities.

Our efficiency ratio of 51.8% decreased 100 bps from 52.8% in 2013, mainly due to continuing benefits from our efficiency management activities.

Income and other taxes

Table 10

(Millions of Canadian dollars, except percentage amounts)	2015	2014	2013
Income taxes	$ 2,597	$ 2,706	$ 2,105
Other taxes			
Goods and services sales taxes	$ 426	$ 395	$ 370
Payroll taxes	577	529	497
Capital taxes	100	86	85
Property taxes	121	106	119
Insurance premium taxes	50	51	50
Business taxes	59	8	25
	$ 1,333	$ 1,175	$ 1,146
Total income and other taxes	$ 3,930	$ 3,881	$ 3,251
Net income before income taxes	$ 12,623	$ 11,710	$ 10,447
Canadian statutory income tax rate (1)	26.3%	26.3%	26.2%
Lower average tax rate applicable to subsidiaries	(0.9)%	(2.3)%	(1.8)%
Tax-exempt income from securities	(3.6)%	(3.3)%	(2.8)%
Tax rate change	0.3%	0.0%	0.0%
Effect of previously unrecognized tax loss, tax credit or temporary differences	(0.1)%	(0.1)%	(0.5)%
Other	(1.4)%	2.5%	(1.0)%
Effective income tax rate	20.6%	23.1%	20.1%
Effective total tax rate (2)	28.2%	30.1%	28.0%

(1) Blended Federal and Provincial statutory income tax rate.
(2) Total income and other taxes as a percentage of net income before income taxes and other taxes.

2015 vs. 2014

Income tax expense decreased $109 million or 4% and the effective income tax rate of 20.6% decreased 250 bps from last year mainly due to net favourable tax adjustments in the current year, partially offset by higher earnings before income taxes.

Other taxes increased $158 million or 13%, mainly due to higher business and payroll taxes, as well as higher goods and services sales taxes. In addition to the income and other taxes reported in our Consolidated Statements of Income, we recorded income tax recoveries of $878 million (2014 – $643 million) in shareholders' equity, primarily reflecting foreign currency translation losses from hedging activities.

2014 vs. 2013

Income tax expense increased $601 million or 29% from 2013, mainly due to higher earnings before income taxes. The effective income tax rate of 23.1% increased 300 bps from 20.1% in 2013, mainly due to favourable income tax adjustments in 2013 related to prior years.

Other taxes increased $29 million or 3% from 2013, mainly due to higher payroll taxes and sales taxes which were partially offset by lower business taxes.

Client assets

Assets under administration

Assets under administration (AUA) are assets administered by us which are beneficially owned by our clients. We provide services that are administrative in nature, including safekeeping, collecting investment income, settling purchase and sale transactions, and record keeping. Underlying investment strategies within AUA are determined by our clients and generally do not impact the administrative fees that we receive. Administrative fees can be impacted by factors such as asset valuation level changes from market movements, types of services administered, transaction volumes, geography and client relationship pricing based on volumes or multiple services.

Our Investor & Treasury Services business is the primary business segment that has AUA with approximately 79% of total AUA, as at October 31, 2015, followed by our Wealth Management business with approximately 16% of total AUA.

2015 vs. 2014

AUA decreased $37.9 billion or 1% compared to last year, mainly reflecting changes in client asset mix and unfavourable market conditions, partially offset by the impact of foreign exchange translation, net sales and capital appreciation.

The following table summarizes AUA by geography and asset class:

AUA by geographic mix and asset class — **Table 11**

(Millions of Canadian dollars)	2015	2014
Canada (1)		
Money Market	$ 31,500	$ 31,100
Fixed Income	685,600	736,200
Equity	669,900	711,500
Multi-asset and other	642,400	618,700
Total Canada	$ 2,029,400	$ 2,097,500
U.S. (1)		
Money Market	$ 33,100	$ 28,700
Fixed Income	90,800	82,500
Equity	152,700	138,200
Multi-asset and other	21,800	16,200
Total U.S.	$ 298,400	$ 265,600
Other International (1)		
Money Market	$ 47,500	$ 54,400
Fixed Income	375,400	405,600
Equity	804,000	867,200
Multi-asset and other	1,054,400	956,700
Total International	$ 2,281,300	$ 2,283,900
Total AUA	$ 4,609,100	$ 4,647,000

(1) Geographic information is based on the location from where our clients are serviced.

Assets under management

Assets under management (AUM) are assets managed by us which are beneficially owned by our clients. Management fees are paid by the investment funds for the investment capabilities of an investment manager and can also include administrative services. Management fees may be calculated daily, monthly or quarterly as a percentage of the AUM, depending on the distribution channel, underlying products and investment strategies. In general, equity strategies carry a higher fee rate than fixed income or money market strategies. Fees are also impacted by asset mix and relationship pricing for clients using multiple services. Higher risk assets generally produce higher fees, while clients using multiple services can take advantage of synergies which reduce the fees they are charged. Certain funds may also include performance fee arrangements, which are recorded when certain benchmarks or performance targets are achieved. These factors could lead to differences on fees earned by products and therefore net return by asset class may vary despite similar average AUM. Our Wealth Management segment is the primary business segment that has AUM.

2015 vs. 2014

AUM increased $41.4 billion or 9% compared to last year, primarily reflecting the impact of foreign exchange translation, as well as net sales and capital appreciation.

The following table presents changes in AUM for the years ended October 31, 2015 and October 31, 2014:

Client assets – AUM — **Table 12**

(Millions of Canadian dollars)	2015	2014
AUM, beginning balance	$ 457,000	$ 391,100
Net asset flows:		
Money market	(4,900)	(5,600)
Fixed income	8,800	14,300
Equity	900	4,100
Multi-asset and other	13,400	17,000
Market impact and other	23,200	36,100
AUM, balance at end of year	$ 498,400	$ 457,000

Business segment results

Results by business segment

The following table summarizes our results by business segment:

Table 13

	2015							2014	2013
(Millions of Canadian dollars, except percentage amounts)	Personal & Commercial Banking	Wealth Management	Insurance	Investor & Treasury Services	Capital Markets (1)	Corporate Support (1)	Total	Total	Total
Net interest income	$ 10,004	$ 493	$ –	$ 818	$ 3,970	$ (514)	$ 14,771	$ 14,116	$ 13,249
Non-interest income	4,309	6,282	4,436	1,220	4,093	210	20,550	19,992	17,433
Total revenue	$ 14,313	$ 6,775	$ 4,436	$ 2,038	$ 8,063	$ (304)	$ 35,321	$ 34,108	$ 30,682
PCL	984	46	–	(1)	71	(3)	1,097	1,164	1,237
PBCAE	–	–	2,963	–	–	–	2,963	3,573	2,784
Non-interest expense	6,611	5,292	613	1,301	4,696	125	18,638	17,661	16,214
Net income before income taxes	$ 6,718	$ 1,437	$ 860	$ 738	$ 3,296	$ (426)	$ 12,623	$ 11,710	$ 10,447
Income tax	1,712	396	154	182	977	(824)	2,597	2,706	2,105
Net income	$ 5,006	$ 1,041	$ 706	$ 556	$ 2,319	$ 398	$ 10,026	$ 9,004	$ 8,342
ROE (2)	30.0%	17.4%	44.3%	20.3%	13.6%	n.m.	18.6%	19.0%	19.7%
Average assets	$ 386,100	$ 29,100	$ 13,700	$ 125,300	$ 477,300	$ 21,300	$ 1,052,800	$ 906,500	$852,000

(1) Net interest income, total revenue and net income before income taxes are presented in Capital Markets on a taxable equivalent basis (teb). The teb adjustment is eliminated in the Corporate Support segment. For a further discussion, refer to the How we measure and report our business segments section.
(2) These measures may not have a standardized meaning under GAAP and may not be comparable to similar measures disclosed by other financial institutions. For further details, refer to the Key performance and non-GAAP measures section.

How we measure and report our business segments

Our management reporting framework is intended to measure the performance of each business segment as if it were a stand-alone business and reflects the way that the business segment is managed. This approach is intended to ensure that our business segments' results include all applicable revenue and expenses associated with the conduct of their business and depicts how management views those results. The following highlights the key aspects of how our business segments are managed and reported:

- Personal & Commercial Banking reported results include securitized Canadian residential mortgage and credit card loans and related amounts for income and provisions for credit losses on impaired loans.
- Wealth Management reported results also include disclosure in U.S. dollars as we review and manage the results of certain businesses largely in this currency.
- Capital Markets results are reported on a taxable equivalent basis (teb), which grosses up net interest income from certain tax-advantaged sources (Canadian taxable corporate dividends) to their effective taxable equivalent value with a corresponding offset recorded in the provision for income taxes. We record the elimination of the teb adjustments in Corporate Support. We believe these adjustments are useful and reflect how Capital Markets manages its business, since it enhances the comparability of revenue and related ratios across taxable revenue and our principal tax-advantaged source of revenue. The use of teb adjustments and measures may not be comparable to similar generally accepted accounting principles (GAAP) measures or similarly adjusted amounts disclosed by other financial institutions.
- Corporate Support results include all enterprise-level activities that are undertaken for the benefit of the organization that are not allocated to our five business segments, including residual asset/liability management results, impact from income tax adjustments, net charges associated with unattributed capital and PCL on loans not yet identified as impaired.

Key methodologies
The following outlines the key methodologies and assumptions used in our management reporting framework. These are periodically reviewed by management to ensure they remain valid.

Expense allocation
To ensure that our business segments' results include expenses associated with the conduct of their business, we allocate costs incurred or services provided by Technology & Operations and Functions, which are directly undertaken or provided on the business segments' behalf. For other costs not directly attributable to our business segments, including overhead costs and other indirect expenses, we use our management reporting framework for allocating these costs to each business segment in a manner that is intended to reflect the underlying benefits.

Capital attribution
Our framework also determines the attribution of capital to our business segments in a manner that is intended to consistently measure and align economic costs with the underlying benefits and risks associated with the activities of each business segment. The amount of capital assigned to each business segment is referred to as attributed capital. Unattributed capital and associated net charges are reported in Corporate Support. For further information, refer to the Capital management section.

Funds transfer pricing
Funds transfer pricing refers to the pricing of intra-company borrowing or lending. We employ a funds transfer pricing process that motivates economically sound business decisions by providing risk-adjusted pricing and profitability guidance after taking into consideration interest rate and liquidity risk as well as applicable regulatory requirements. Funds transfer pricing also provides the basis for risk-adjusted profitability measurement for our products and measures.

Provisions for credit losses
PCL are recorded to recognize estimated losses on impaired loans, as well as losses that have been incurred but are not yet identified in our loans portfolio. This portfolio includes on-balance sheet exposures, such as loans and acceptances, and off-balance sheet items such as letters of credit, guarantees and unfunded commitments. PCL on impaired loans are included in the results of each business segment to fully reflect the appropriate expenses related to the conduct of each business segment. PCL on loans not yet identified as impaired are included in Corporate Support, as Group Risk Management (GRM) effectively controls this through its monitoring and oversight of various lending portfolios throughout the enterprise. For details on our accounting policy on Allowance for credit losses, refer to Note 2 of our 2015 Annual Consolidated Financial Statements.

Key performance and non-GAAP measures

Performance measures
Return on common equity
We measure and evaluate the performance of our consolidated operations and each business segment using a number of financial metrics, such as net income and ROE. We use ROE, at both the consolidated and business segment levels, as a measure of return on total capital invested in our business. Management views the business segment ROE measure as a useful measure for supporting investment and resource allocation decisions because it adjusts for certain items that may affect comparability between business segments and certain competitors.

Our consolidated ROE calculation is based on net income available to common shareholders divided by total average common equity for the period. Business segment ROE calculations are based on net income available to common shareholders divided by average attributed capital for the period. For each segment, average attributed capital includes the capital required to underpin various risks as described in the Capital Management section and amounts invested in goodwill and intangibles.

The attribution of capital and risk capital involves the use of assumptions, judgments and methodologies that are regularly reviewed and revised by management as deemed necessary. Changes to such assumptions, judgments and methodologies can have a material effect on the segment ROE information that we report. Other companies that disclose information on similar attributions and related return measures may use different assumptions, judgments and methodologies.

The following table provides a summary of our ROE calculations:

Calculation of ROE **Table 14**

	2015							2014	2013
(Millions of Canadian dollars, except percentage amounts)	Personal & Commercial Banking	Wealth Management	Insurance	Investor & Treasury Services	Capital Markets	Corporate Support	Total	Total	Total
Net income available to common shareholders	$ 4,937	$ 1,021	$ 701	$ 545	$ 2,259	$ 271	$ 9,734	$ 8,697	$ 7,991
Average common equity (1), (2)	16,500	5,900	1,600	2,700	16,550	9,050	52,300	45,700	40,600
ROE (3)	30.0%	17.4%	44.3%	20.3%	13.6%	n.m.	18.6%	19.0%	19.7%

(1) Average common equity represents rounded figures.
(2) The amounts for the segments are referred to as attributed capital.
(3) ROE is based on actual balances of average common equity before rounding.

Embedded value for Insurance operations
Embedded value is a measure of shareholder value embedded in the balance sheet of our Insurance segment, excluding any value from future new sales. We use the change in embedded value between reporting periods as a measure of the value created by the insurance operations during the period.

We define embedded value as the value of equity held in our Insurance segment and the value of in-force business (existing policies). The value of in-force business is calculated as the present value of future expected earnings on in-force business less the cost of capital required to support in-force business. We use discount rates equal to long-term risk free rates plus a spread. Required capital uses the capital frameworks in the jurisdictions in which we operate.

Key drivers affecting the change in embedded value from period to period are new sales, investment performance, claims and policyholder experience, change in actuarial assumptions, changes in foreign exchange rates and changes in shareholder equity arising from transfers in capital.

Embedded value does not have a standardized meaning under GAAP and may not be directly comparable to similar measures disclosed by other companies. Given that this measure is specifically used for our Insurance segment and involves the use of discount rates to present value the future expected earnings and capital required for the in-force business, reconciliation to financial statements information is not applicable.

Non-GAAP measures

We believe that certain non-GAAP measures described below are more reflective of our ongoing operating results, and provide readers with a better understanding of management's perspective on our performance. These measures enhance the comparability of our financial performance for the year ended October 31, 2015 with results from last year as well as, in the case of economic profit, measure relative contribution to shareholder value. Non-GAAP measures do not have a standardized meaning under GAAP and may not be comparable to similar measures disclosed by other financial institutions.

The following discussion describes the non-GAAP measures we use in evaluating our operating results.

Economic profit

Economic profit is net income excluding the after-tax effect of amortization of other intangibles less a capital charge for use of attributed capital. It measures the return generated by our businesses in excess of our cost of capital, thus enabling users to identify relative contributions to shareholder value.

The capital charge includes a charge for common equity and preferred shares. For 2015, our cost of capital was 9.0%.

The following table provides a summary of our Economic profit:

Economic profit **Table 15**

	2015						
(Millions of Canadian dollars)	Personal & Commercial Banking	Wealth Management	Insurance	Investor & Treasury Services	Capital Markets	Corporate Support	Total
Net income	$ 5,006	$ 1,041	$ 706	$ 556	$ 2,319	$ 398	$ 10,026
add: Non-controlling interests	(8)	2	–	(1)	–	(94)	(101)
After-tax effect of amortization of other intangibles	22	69	–	21	–	1	113
Goodwill and intangibles writedown	–	4	–	–	–	–	4
Adjusted net income (loss)	$ 5,020	$ 1,116	$ 706	$ 576	$ 2,319	$ 305	$ 10,042
less: Capital charge	1,544	551	148	251	1,550	852	4,896
Economic profit (loss)	$ 3,476	$ 565	$ 558	$ 325	$ 769	$ (547)	$ 5,146

	2014							2013
(Millions of Canadian dollars)	Personal & Commercial Banking	Wealth Management	Insurance	Investor & Treasury Services	Capital Markets	Corporate Support	Total	Total
Net income	$ 4,475	$ 1,083	$ 781	$ 441	$ 2,055	$ 169	$ 9,004	$ 8,342
add: Non-controlling interests	1	(1)	–	(1)	–	(93)	(94)	(98)
After-tax effect of amortization of other intangibles	27	73	–	21	1	1	123	117
Goodwill and intangibles writedown	–	6	–	–	2	–	8	–
Adjusted net income (loss)	$ 4,503	$ 1,161	$ 781	$ 461	$ 2,058	$ 77	$ 9,041	$ 8,361
less: Capital charge	1,439	521	147	205	1,333	696	4,341	3,702
Economic profit (loss)	$ 3,064	$ 640	$ 634	$ 256	$ 725	$ (619)	$ 4,700	$ 4,659

Results excluding specified items

Our results were impacted by the following specified items:

- For the year ended October 31, 2015, a gain of $108 million (before- and after-tax) from the wind-up of a U.S.-based funding subsidiary that resulted in the release of CTA that was previously booked in other components of equity (OCE), which was recorded in Corporate Support.
- For the year ended October 31, 2014, in our Personal & Commercial Banking segment:
  - A total loss of $100 million (before- and after-tax) related to the sale of RBC Jamaica, comprised of a loss of $60 million (before- and after-tax) in the first quarter of 2014, and a further loss of $40 million (before- and after-tax) in the third quarter of 2014 which includes foreign currency translation related to the closing of the sale of RBC Jamaica; and
  - A provision of $40 million ($32 million after-tax) related to post-employment benefits and restructuring charges in the Caribbean.

The following table provides calculations of our business segment results and measures excluding this specified item for the year ended October 31, 2014:

Personal & Commercial Banking **Table 16**

(Millions of Canadian dollars, except percentage amounts)	2014 As reported	Items excluded: Loss related to the sale of RBC Jamaica	Items excluded: Provision for post-employment benefits and restructuring charges	Adjusted
Total revenue	$ 13,730	$ –	$ –	$ 13,730
PCL	1,103	–	–	1,103
Non-interest expense	6,563	(100)	(40)	6,423
Net income before taxes	6,064	100	40	6,204
Net income	$ 4,475	$ 100	$ 32	$ 4,607
Selected balances and other information				
Non-interest expense	$ 6,563	$ (100)	$ (40)	$ 6,423
Total revenue	13,730			13,730
Efficiency ratio	47.8%			46.8%
Revenue growth rate	5.5%			5.5%
Non-interest expense growth rate	6.4%			4.2%
Operating leverage	(0.9%)			1.3%

Personal & Commercial Banking

Personal & Commercial Banking is comprised of our personal and business banking operations, and our auto financing and retail investment businesses, including our online discount brokerage channel, and operates through two businesses: Canadian Banking and Caribbean & U.S. Banking. We provide services to more than 13.5 million individual, business and institutional clients across Canada, the Caribbean and the U.S. In Canada, we provide a broad suite of financial products and services through our extensive branch, automated teller machine (ATM), online, mobile and telephone banking networks, as well as through a large number of proprietary sales professionals. In the Caribbean, we offer a broad range of financial products and services to individuals and business clients, and public institutions in targeted markets. In the U.S., we serve the cross-border banking needs of Canadian clients within the U.S. through online channels.

In Canada, we compete with other Schedule I banks, independent trust companies, foreign banks, credit unions, caisses populaires, and auto financing companies. We maintain top (#1 or #2) rankings in market share in this competitive environment for all key retail and business financial product categories, and have the largest branch network, the most ATMs and the largest mobile sales network across Canada. In the Caribbean, our competition includes banks, trust companies and investment management companies serving retail and corporate customers and public institutions. We continue to be the second-largest bank as measured by assets in the English Caribbean, with 79 branches in 17 countries and territories. In the U.S., we compete primarily with other Canadian banking institutions with operations in the U.S.

Economic and market review

We continued to see solid volume growth across most of our Canadian banking businesses, despite slowing economic conditions in Canada particularly in the first half of fiscal 2015. The continuing low interest rate environment has driven solid, although slower industry growth compared to last year. Historically low credit loss rates in our business and consumer products reflected a strong labour market in Canada during most of the calendar year. Our businesses continued to be impacted by competitive pressures. In the Caribbean, unfavourable economic conditions continued to negatively impact our results through lower loan volumes, and spread compression.

Highlights

In Canada:

- We achieved solid volume growth across all products, with particular strength in:
  - Home equity supported by the RBC Newcomer Advantage and our Employee Pricing campaigns; and
  - Credit cards through strong account and balance growth in our industry leading Avion® card.
- We achieved improved volume in Business Financial Services as we have focused our attention in certain business segments to strengthen our market share and we have expanded our sales force in the upper end of the market.
- We have continued to invest in digitizing our client experience with a focus on speed of service and simplifying the end-to-end processes:
  - Launched Cheque-Pro™, allowing high cheque volume clients connecting to our online banking channels using an in-office scanner to make deposits;
  - Continued to evolve the branch network for basic service transactions while investing in our digital and mobile platforms. We currently have nearly 5 million active clients on our digital and mobile platforms, with particularly strong growth of 23% in the number of active clients using our mobile platform;
  - Rolled out Host Card Emulation technology allowing RBC clients with Android devices to use RBC Wallet anywhere in the world with any mobile network.

- As a result of our successes, we received external recognition as an industry leader and were named:
  - Best Global Retail Bank (*Retail Banker International*) for the second consecutive year;
  - Best Trade Finance Bank in Canada (*Global Finance Magazine*) for the third consecutive year;
  - Best Private Banking Services Overall in Canada 2015 (*Euromoney*) for the eighth consecutive year;
  - Bank of the Year in Canada (*The Banker*).

In the Caribbean:

- We continued to focus on quality asset growth while reducing our structural costs to minimize the impact of challenging market conditions.
- We launched a new mobile payment solution, RBC EZPay, allowing merchants to capture payment transactions by inserting card reader plugs into a smartphone.
- Completed the sale of RBC Suriname to Republic Bank Ltd. in July 2015.
- As a result of our successes, we were named #1 Bank in the Caribbean and in Trinidad and Tobago (*The Banker*).

Outlook and priorities

Financial conditions in Canada are expected to improve, driven by the continued low interest rate environment, strong labour markets, and higher net exports. We expect continued solid volume growth across most of our products, but anticipate increasing pricing and competitive pressures resulting from slowing banking industry growth and the low interest rate environment.

In the Caribbean, challenging market conditions and slow economic growth continue to temper our outlook. We expect net interest margins to remain challenged due to low interest rates and competitive pressures. However, we expect to strengthen our business performance through efficiency management, increases in fee revenue, and quality asset growth.

For further details on our general economic review and outlook, refer to the Economic and market review and outlook section.

Key strategic priorities for 2016

In Canada, our priorities are to:

- Transform how we serve clients by enabling digital access and providing our clients with advice and solutions, personalized offers and client loyalty rewards.
- Accelerate growth in key segments and increase our presence in underpenetrated areas to achieve industry-leading volume growth.
- Rapidly deliver secure, enhanced payment and mobile solutions to our clients.
- Achieve greater agility and efficiency by simplifying, digitizing and automating processes and the end-to-end client experience.

In the Caribbean, we are focused on targeting markets where we can compete and drive sustainable profitability, with a strategic focus on corporate, business, professional and business owner clientele. In the U.S., we are focused on meeting the banking and borrowing needs of our cross-border clients through an innovative direct banking approach by providing seamless access to their entire RBC relationship.

Personal & Commercial Banking			Table 17
(Millions of Canadian dollars, except number of and percentage amounts and as otherwise noted)	2015	2014	2013
Net interest income	$ 10,004	$ 9,743	$ 9,434
Non-interest income	4,309	3,987	3,585
Total revenue	14,313	13,730	13,019
PCL	984	1,103	995
Non-interest expense	6,611	6,563	6,168
Net income before income taxes	6,718	6,064	5,856
Net income	$ 5,006	$ 4,475	$ 4,380
Revenue by business			
Canadian Banking	$ 13,379	$ 12,869	$ 12,220
Caribbean & U.S. Banking	934	861	799
Key ratios			
ROE	30.0%	29.0%	30.5%
NIM (1)	2.71%	2.77%	2.78%
Efficiency ratio (2)	46.2%	47.8%	47.4%
Efficiency ratio adjusted (2), (3)	n.a.	46.8%	n.a.
Operating leverage	3.5%	(0.9)%	(1.3)%
Operating leverage adjusted (3)	1.3%	1.3%	n.a.
Selected average balance sheet information			
Total assets (4)	$ 386,100	$ 367,900	$ 354,300
Total earning assets (5)	369,000	351,300	338,700
Loans and acceptances (4), (5)	367,500	350,700	336,800
Deposits	298,600	278,800	262,200
Other information			
AUA (6)	$ 223,500	$ 214,200	$ 192,200
AUM	4,800	4,000	3,400
Number of employees (FTE) (4)	35,007	36,113	37,951
Effective income tax rate	25.5%	26.2%	25.2%
Credit information			
Gross impaired loans as a % of average net loans and acceptances (4)	0.49%	0.55%	0.55%
PCL on impaired loans as a % of average net loans and acceptances	0.27%	0.31%	0.30%

Estimated impact of U.S. dollar and Trinidad & Tobago dollar (TTD) translation on key income statement items

(Millions of Canadian dollars, except percentage amounts)	2015 vs. 2014
Increase (decrease):	
Total revenue	$ 72
Non-interest expense	43
Net income	19
Percentage change in average US$ equivalent of C$1.00	(13)%
Percentage change in average TTD$ equivalent of C$1.00	(14)%

(1) NIM is calculated as Net interest income divided by Average total earning assets.
(2) Efficiency ratio is calculated as Non-interest expense divided by Total revenue.
(3) Measures have been adjusted by excluding the Q3 2014 loss of $40 million related to the closing of RBC Jamaica, and the Q1 2014 loss of $60 million related to the sale of RBC Jamaica and the provision of $40 million related to post-employment benefits and restructuring charges in the Caribbean. These are non-GAAP measures. For further details, refer to the Key performance and non-GAAP measures section.
(4) Amounts have been revised from those previously presented.
(5) Average total earning assets and average loans and acceptances include average securitized residential mortgages and credit card loans for the year ended October 31, 2015 of $56.7 billion and $7.8 billion, respectively (2014 – $52.4 billion and $8.0 billion; 2013 – $48.4 billion and $7.2 billion).
(6) AUA represents period-end spot balances and includes securitized residential mortgages and credit card loans as at October 31, 2015 of $21.0 billion and $8.0 billion, respectively (October 31, 2014 – $23.2 billion and $8.0 billion; October 31, 2013 – $25.4 billion and $7.2 billion).

2015 vs. 2014

Net income increased $531 million or 12%. Excluding the loss last year of $100 million (before- and after-tax) related to the sale of RBC Jamaica and a provision of $40 million ($32 million after-tax) related to post-employment benefits and restructuring charges in the Caribbean, net income increased $399 million or 9%, largely reflecting solid volume growth across most businesses in Canada and strong fee-based revenue growth, and higher earnings in the Caribbean. These factors were partially offset by higher costs to support business growth and lower spreads.

Total revenue increased $583 million or 4% reflecting solid volume growth across most businesses in Canada, higher fee-based revenue primarily attributable to strong mutual funds asset growth resulting in higher mutual fund distribution fees, as well as higher balances and higher credit card transaction volumes driving higher card service revenue, and the positive impact of foreign exchange translation. These factors were partially offset by lower spreads.

Net interest margin decreased 6 bps mainly due to the low interest rate environment and competitive pressures.

PCL decreased $119 million, with the PCL ratio improving 4 bps, largely due to lower provisions in our Caribbean portfolios primarily due to provisions of $50 million on our Caribbean impaired residential mortgage portfolio included in the prior year. Lower provisions in the current year in our Canadian commercial lending portfolio also contributed to the decrease. These factors were partially offset by higher write-offs in our Canadian credit card portfolio.

Non-interest expense increased $48 million. Excluding the prior year specified items noted above, non-interest expense increased $188 million or 3%, mainly reflecting an increase due to the impact of foreign exchange translation, and higher technology and staff costs to support business growth, partially offset by continuing benefits from our efficiency management activities.

Average loans and acceptances increased $17 billion or 5%, largely due to strong growth in Canadian residential mortgages and business loans. Average deposits increased $20 billion or 7%, as a result of solid growth in both business and personal deposits.

2014 vs. 2013

Net income was up $95 million or 2% from 2013. Excluding the loss of $100 million (before- and after-tax) related to the sale of RBC Jamaica, and a provision of $40 million ($32 million after-tax) related to post-employment benefits and restructuring charges in the Caribbean in 2014, net income of $4,607 million was up $227 million or 5%, largely reflecting solid volume growth across most of our Canadian businesses, strong fee-based revenue growth primarily attributable to higher mutual fund distribution fees and card service revenue, and results from the full integration of Ally Canada. These factors were partially offset by higher PCL largely in the Caribbean.

Average loans and acceptances increased $14 billion or 4% from 2013, mainly due to growth in Canadian residential mortgages, business loans and personal loans. Average deposits increased $17 billion or 6% from 2013, reflecting solid growth in both personal and business deposits.

Results excluding the specified items noted above are non-GAAP measures. For further details, including a reconciliation, refer to the Key performance and non-GAAP measures section.

In Canada, we operate through three business lines: Personal Financial Services, Business Financial Services and Cards and Payments Solutions. The following provides a discussion of our consolidated Canadian Banking results.

Canadian Banking financial highlights **Table 18**

(Millions of Canadian dollars, except number of and percentage amounts and as otherwise noted)	2015	2014	2013
Net interest income	$ 9,377	$ 9,168	$ 8,875
Non-interest income	4,002	3,701	3,345
Total revenue	13,379	12,869	12,220
PCL	912	928	908
Non-interest expense	5,891	5,687	5,464
Net income before income taxes	6,576	6,254	5,848
Net income	$ 4,877	$ 4,642	$ 4,352
Revenue by business			
Personal Financial Services	$ 7,634	$ 7,285	$ 6,948
Business Financial Services	3,091	3,135	2,990
Cards and Payment Solutions	2,654	2,449	2,282
Key ratios			
ROE	36.4%	37.0%	37.5%
NIM (1)	2.66%	2.71%	2.72%
Efficiency ratio (2)	44.0%	44.2%	44.7%
Operating leverage	0.4%	1.2%	(0.6)%
Selected average balance sheet information			
Total assets (3)	$ 364,900	$ 349,500	$ 337,000
Total earning assets (4)	352,800	337,900	326,400
Loans and acceptances (3), (4)	358,500	343,100	329,400
Deposits	281,200	263,600	248,100
Other information			
AUA (5)	213,700	205,200	183,600
Number of employees (FTE) (3)	30,853	31,381	31,910
Effective income tax rate	25.8%	25.8%	25.6%
Credit information			
Gross impaired loans as a % of average net loans and acceptances	0.30%	0.33%	0.36%
PCL on impaired loans as a % of average net loans and acceptances (3)	0.25%	0.27%	0.28%

(1) NIM is calculated as Net interest income divided by Average total earning assets.
(2) Efficiency ratio is calculated as Non-interest expense divided by Total revenue.
(3) Amounts have been revised from those previously presented.
(4) Average total earning assets and average loans and acceptances include average securitized residential mortgages and credit card loans for the year ended October 31, 2015 of $56.7 billion and $7.8 billion, respectively (2014 – $52.4 billion and $8.0 billion; 2013 – $48.4 billion and $7.2 billion).
(5) AUA represents period-end spot balances and includes securitized residential mortgages and credit card loans as at October 31, 2015 of $21.0 billion and $8.0 billion respectively (October 31, 2014 – $23.2 billion and $8.0 billion; October 31, 2013 – $25.4 billion and $7.2 billion).

2015 vs. 2014

Net income increased $235 million or 5% due to solid volume growth across most businesses and strong fee-based revenue growth, partially offset by higher costs to support business growth, and lower spreads.

Total revenue increased $510 million or 4%, reflecting solid volume growth across most businesses and higher fee-based revenue primarily attributable to strong mutual fund asset growth resulting in higher mutual fund distribution fees, as well as higher credit card balances and transaction volumes driving higher card service revenue. These factors were partially offset by lower spreads.

Net interest margin decreased 5 bps compared to last year mainly due to the low interest rate environment, and competitive pressures.

PCL decreased $16 million, with the PCL ratio improving 2 bps, mostly due to lower provisions in our commercial lending portfolio, partially offset by higher write-offs in our credit card portfolio.

Non-interest expense increased $204 million or 4% mainly due to higher technology and staff costs to support business growth, partially offset by continuing benefits from our efficiency management activities.

Average loans and acceptances increased $15 billion or 4%, mainly due to strong growth in both residential mortgages and business loans. Average deposits increased $18 billion or 7%, primarily reflecting solid growth in both business and personal deposits.

2014 vs. 2013

Net income increased $290 million or 7% from 2013, reflecting solid volume growth of 5% across most businesses, strong fee-based revenue growth primarily attributable to mutual fund asset growth resulting in higher mutual fund distribution fees, as well as higher credit card balances and transaction volumes driving higher card service revenue, and results from the full integration of Ally Canada.

Business line review

Personal Financial Services

Personal Financial Services focuses on meeting the needs of our individual Canadian clients at every stage of their lives through a wide range of financing and investment products and services, including home equity financing, personal lending, deposit accounts, Canadian private banking, indirect lending (including auto financing), mutual funds and self-directed brokerage accounts, and Guaranteed Investment Certificates (GICs). We rank #1 or #2 in market share for all key personal banking products in Canada and our retail banking network is the largest in Canada with 1,275 branches and over 4,500 ATMs.

Financial performance

Total revenue increased $349 million or 5% compared to last year, reflecting solid volume growth across most businesses, and increased fee-based revenue primarily attributable to strong mutual fund asset growth driving higher mutual fund distribution fees.

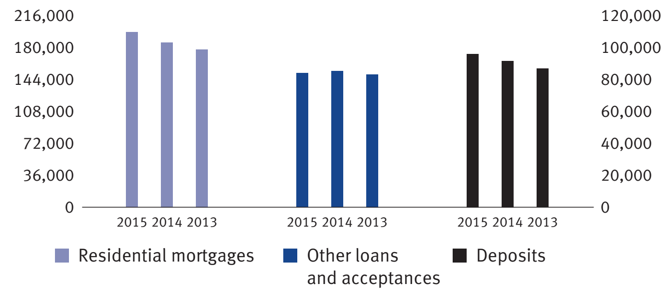
Average residential mortgages increased 6% compared to 2014, resulting from solid housing market activity supported by the continuing low interest rate environment and our targeted marketing strategy. Average other loans and acceptances decreased 2% from last year largely due to lower indirect lending volumes. Average deposits increased 5% from last year as a result of deepening our relationships with existing clients as well as strong new client acquisition.

Selected highlights — Table 19

(Millions of Canadian dollars, except number of)	2015	2014	2013
Total revenue	$ 7,634	$ 7,285	$ 6,948
Other information (average)			
Residential mortgages (1)	197,300	186,000	177,900
Other loans and acceptances (1)	84,100	85,400	83,500
Deposits (1), (2)	173,000	165,100	156,900
Branch mutual fund balances (3)	122,000	111,600	95,300
AUA – Self-directed brokerage (3)	61,400	60,500	53,300
Number of:			
New deposit accounts opened (thousands)	1,420	1,514	1,285
Branches	1,275	1,272	1,255
ATM	4,542	4,620	4,622

(1) Amounts have been revised from those previously presented.
(2) Includes GIC balances.
(3) Represents year-end spot balances.

Average residential mortgages, personal loans and deposits
(Millions of Canadian dollars)



Business Financial Services

Business Financial Services offers a wide range of lending, leasing, deposit, investment, foreign exchange, cash management, auto dealer financing (floor plan), trade products and services to small, medium-sized commercial businesses, as well as agriculture and agribusiness clients across Canada. Our business banking network has the largest team of relationship managers and specialists in the industry. Our strong commitment to our clients has resulted in our leading market share in business loans and deposits.

Financial performance

Total revenue decreased $44 million or 1% compared to last year as strong volume growth was more than offset by spread compression reflecting competitive pressures and the impact of continuing low interest rate environment. The prior year included a favourable cumulative accounting adjustment related to deferred loan fees in our business lending portfolio.

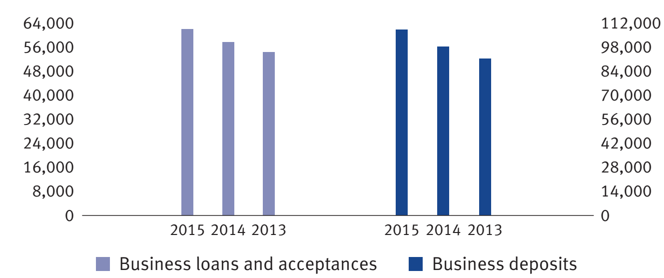
Average loans and acceptances increased 8% and average deposits were up 10%, despite a very competitive environment, due to increased activity from existing and new clients.

Selected highlights — Table 20

(Millions of Canadian dollars)	2015	2014	2013
Total revenue	$ 3,091	$ 3,135	$ 2,990
Other information (average)			
Loans and acceptances (1)	62,000	57,600	54,400
Deposits (1), (2)	108,200	98,500	91,200

(1) Amounts have been revised from those previously presented.
(2) Includes GIC balances.

Average business loans and acceptances and business deposits
(Millions of Canadian dollars)



Cards and Payment Solutions

Cards and Payment Solutions provides a wide array of credit cards with loyalty and reward benefits, and payment products and solutions within Canada. We have over 7 million credit card accounts and have approximately 23% market share of Canada's credit card purchase volume.

In addition, this business line includes our 50% interest in Moneris Solutions, Inc., our merchant card processing joint venture with the Bank of Montreal. Moneris processes approximately $215 billion in annual credit and debit card transaction volumes.

Financial performance

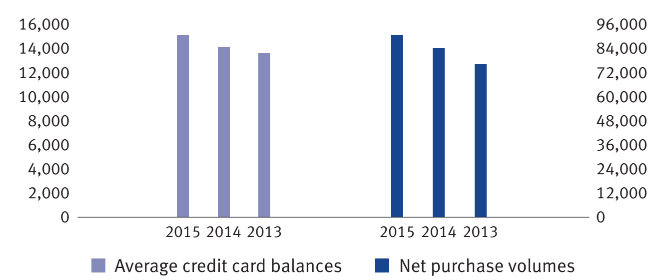
Total revenue increased $205 million or 8%, compared to last year, driven by higher balances and higher credit card transaction volumes, and improved spreads.

Average credit card balances increased 7% and net purchase volumes increased 8% due to higher active accounts driven by strength in new account acquisitions.

Selected highlights — **Table 21**

(Millions of Canadian dollars)	2015	2014	2013
Total revenue	$ 2,654	$ 2,449	$ 2,282
Other information			
Average credit card balances	15,100	14,100	13,600
Net purchase volumes	90,800	84,200	76,200

Average credit card balances and net purchase volumes (Millions of Canadian dollars)



Caribbean & U.S. Banking

Our Caribbean banking business offers a comprehensive suite of banking products and services, as well as international financing and trade promotion services through extensive branch, ATM, online and mobile banking networks.

Our U.S. cross-border banking business serves the needs of our Canadian clients within the U.S. through online and mobile channels, and offers a broad range of financial products and services to individual and business clients across all 50 states. As well, we serve the banking product needs of our U.S. wealth management clients.

Financial performance

Total revenue was up $73 million or 8% from last year, primarily due to the positive impact of foreign exchange translation and the full-year impact of implementation of full service pricing in the Caribbean. These factors were partially offset by lower spreads.

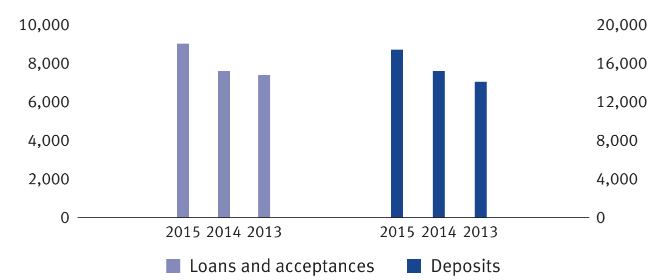
Average loans and acceptances increased 18%, primarily due to the positive impact of foreign exchange translation and modest volume growth. Average deposits increased 14%, mostly due to the positive impact of foreign exchange translation.

Selected highlights — **Table 22**

(Millions of Canadian dollars, number of and percentage amounts)	2015	2014	2013
Total revenue	$ 934	$ 861	$ 799
Other information			
Net interest margin (1)	3.87%	4.29%	4.58%
Average loans and acceptances (1)	$ 9,000	$ 7,600	$ 7,400
Average deposits	17,400	15,200	14,100
AUA	9,800	9,000	8,600
AUM	4,800	4,000	3,400
Number of:			
Branches	79	93	116
ATM	274	309	351

(1) Amounts have been revised from those previously presented.

Average loans and deposits (Millions of Canadian dollars)



Wealth Management

Wealth Management comprises Canadian Wealth Management, U.S. & International Wealth Management and Global Asset Management (GAM). Wealth Management serves individual and institutional clients in target markets around the world. From our offices in key financial centres mainly in Canada, the U.S., the U.K., Channel Islands, and Asia, Wealth Management offers a comprehensive suite of investment, trust, banking, credit and other wealth management solutions to affluent, high net worth (HNW), and ultra-high net worth (UHNW) clients. Our asset management group, Global Asset Management, which includes BlueBay Asset Management (BlueBay), is an established global leader in investment management services, providing investment strategies and fund solutions directly to institutional investors and also to individual clients through our distribution channels and third-party distributors. On November 2, 2015, we completed the acquisition of City National, which will enhance and complement our existing U.S. businesses and product offerings.

Economic and market review

Economic activity in Canada and the U.S. slowed during the early part of fiscal 2015, although the U.S. economy started to recover more quickly than the Canadian economy in the latter part of the year. Despite this stalled economic activity, we continued to see growth in our average fee-based client assets through capital appreciation and net sales. The Euro area economy grew marginally during the fiscal year, leading the ECB to implement a highly stimulative monetary policy to help restore investor confidence and stimulate economic activity in the region. Global capital markets remained volatile throughout the year, leading to lower transaction volumes during the year. In addition, heightened regulation has driven up compliance and technology costs.

Highlights

- Capital appreciation and strong net sales continued to drive client assets higher, which surpassed $1.2 trillion this year.
- We continued to grow and invest in our high-performing asset management business and maintained a leading market share of 14.5% of the Canadian mutual fund asset management industry. We continued to increase BlueBay's distribution footprint with institutional clients and expand our international distribution capabilities to U.S. and international institutional clients and professional buyers.
- In Canada, our full service private wealth business is the industry leader. We continue to extend our leadership amongst HNW clients by focusing on delivering comprehensive value to our clients, leveraging our expertise around business owners, succession and wealth planning.
- In the U.S., our second home market, we are among the top 10 full service brokerage firms in terms of assets and number of advisors, and we continue to focus on improving advisor productivity. Furthermore, our recent acquisition of City National will enhance our U.S. product offering.
- Outside Canada and the U.S., we continued to realign our International Wealth Management business to focus on key client segments, including HNW and UHNW clients in select target markets, while enhancing our product offering and operating environment, creating a scalable and profitable business aligned to a more conservative risk profile.
- The strength of our global capabilities and continued commitment to deliver integrated global wealth management advice, solutions and services to HNW and UHNW clients helped us earn significant industry awards. We were ranked or named:
  - For the second year in a row, we ranked 5th largest global wealth manager by client assets (*Scorpio Partnership's 2015 Global Private Banking KPI Benchmark*)
  - Best Private Banking services overall for an eighth consecutive year in Canada and Best Private Banking services overall for the second year in a row in Jersey (*Euromoney*)
  - A top 50 Global Asset Manager (*Pensions & Investments / Towers Watson*)
  - Best Bank-owned Brokerage Firm in Canada (*International Executive Brokerage Report Card*)
  - Trust Company of the Year (*Society of Trust and Estate Practitioners*)
  - RBC Wealth Management® and RBC Asset Management® brand was recognized as the 8th best banking brand globally (*Brand Finance Banking 500*)

Outlook and priorities

Global market volatility, investor uncertainty and low interest rates are expected to continue into 2016. Despite the overall economic uncertainty and volatile equity markets, we expect global private wealth to continue to grow driven by growth in the HNW client segment. Our revenue is expected to increase mainly due to higher client assets. We will continue to leverage our brand, reputation, and financial strength to increase our market share of HNW and UHNW globally. In addition, changing demographics and rapid advancements in digitization are expected to drive an accelerated pace of change, requiring a greater focus on delivering a digitally-integrated, multi-channel experience for our clients and client-facing professionals.

For further details on our general economic review and outlook, refer to the Economic and market review and outlook section.

Key strategic priorities for 2016

- Leverage and grow our high performing asset management business globally.
- Deepen client relationships by bringing the best of RBC to our clients, leveraging the RBC enterprise brand, capabilities and competitive strengths.
- Focus on developing a differentiated client experience tailored to key HNW and UHNW client segments in our priority markets, with a greater emphasis on digital enablement.
- Drive sustainable growth in our international wealth business by enhancing our solution offering and achieving a more scalable and streamlined operating model.
- Leverage the combined strengths of City National and RBC U.S. Wealth Management to create a powerful and scalable engine for growth in the U.S.

Wealth Management — Table 23

(Millions of Canadian dollars, except number of and percentage amounts and as otherwise noted)	2015	2014	2013
Net interest income	$ 493	$ 469	$ 396
Non-interest income			
Fee-based revenue	4,699	4,185	3,463
Transactional and other revenue	1,583	1,659	1,628
Total revenue	6,775	6,313	5,487
PCL	46	19	51
Non-interest expense	5,292	4,800	4,219
Net income before income taxes	1,437	1,494	1,217
Net income	$ 1,041	$ 1,083	$ 886
Revenue by business			
Canadian Wealth Management	$ 2,226	$ 2,186	$ 1,889
U.S. & International Wealth Management	2,729	2,430	2,225
U.S. & International Wealth Management (US$ millions)	2,181	2,221	2,174
Global Asset Management (1)	1,820	1,697	1,373
Key ratios			
ROE	17.4%	19.2%	15.8%
Pre-tax margin (2)	21.2%	23.7%	22.2%
Selected average balance sheet information			
Total assets	$ 29,100	$ 25,800	$ 21,600
Loans and acceptances	17,700	15,700	12,100
Deposits	39,500	36,200	31,900
Attributed capital	5,900	5,500	5,400
Other information			
Revenue per advisor (000s) (3)	$ 1,089	$ 983	$ 862
AUA (4)	749,700	717,500	639,200
AUM (4)	492,800	452,300	387,200
Average AUA	755,600	690,500	609,500
Average AUM	484,700	427,800	367,600
Number of employees (FTE)	12,598	12,919	12,462
Number of advisors (5)	3,954	4,245	4,216

Estimated impact of U.S. dollar, British pound and Euro translation on key income statement items

(Millions of Canadian dollars, except percentage amounts)	2015 vs. 2014
Increase (decrease):	
Total revenue	$ 301
Non-interest expense	263
Net income	19
Percentage change in average US$ equivalent of C$1.00	(13)%
Percentage change in average British pound equivalent of C$1.00	(6)%
Percentage change in average Euro equivalent of C$1.00	4%

(1) Effective the first quarter of 2014, we have aligned the reporting period of BlueBay, which resulted in an additional month of earnings being included in 2014.
(2) Pre-tax margin is defined as net income before income taxes divided by Total revenue.
(3) Represents investment advisors and financial consultants of our Canadian and U.S. full-service wealth businesses.
(4) Represents year-end spot balances.
(5) Represents client-facing advisors across all our wealth management businesses.

Client assets – AUA — Table 24

(Millions of Canadian dollars)	2015	2014
AUA, beginning balance	$ 717,500	$ 639,200
Net asset flows	(30,600)	16,300
Market impact and other	62,800	62,000
AUA, balance at end of year	$ 749,700	$ 717,500

Client assets – AUM — Table 25

(Millions of Canadian dollars)	2015	2014
AUM, beginning balance	$ 452,300	$ 387,200
Net asset flows:		
Money market	(4,900)	(5,600)
Fixed income	8,800	14,000
Equity	900	4,100
Multi-asset and other	13,400	16,900
Market impact and other	22,300	35,700
AUM, balance at end of year	$ 492,800	$ 452,300

AUA by geographic mix and asset class		Table 26
(Millions of Canadian dollars)	2015	2014
Canada (1)		
Money Market	$ 21,500	$ 21,600
Fixed Income	34,900	38,700
Equity	79,800	83,200
Multi-asset and other	157,400	147,300
Total Canada	$ 293,600	$ 290,800
U.S. (1)		
Money Market	$ 32,900	$ 28,500
Fixed Income	90,800	82,500
Equity	152,700	138,200
Multi-asset and other	6,400	3,900
Total U.S.	$ 282,800	$ 253,100
Other International (1)		
Money Market	$ 24,500	$ 25,900
Fixed Income	26,500	33,800
Equity	93,300	89,200
Multi-asset and other	29,000	24,700
Total International	$ 173,300	$ 173,600
Total AUA	$ 749,700	$ 717,500

(1) Geographic information is based on the location from where our clients are serviced.

Financial performance
2015 vs. 2014
Net income decreased $42 million or 4% compared to last year, primarily reflecting higher costs in support of business growth in our Global Asset Management and Canadian Wealth Management businesses, restructuring costs of $122 million ($90 million after-tax) largely related to our U.S. & International Wealth Management business, lower transaction volumes, and higher PCL. These factors were partly offset by higher earnings from growth in average fee-based client assets.

Total revenue increased $462 million or 7%, mainly due to growth in average fee-based client assets resulting from capital appreciation and net sales, and the positive impact of foreign exchange translation. These factors were partly offset by lower transaction volumes.

PCL increased $27 million mainly due to provisions related to our U.S. & International Wealth Management business.

Non-interest expense increased $492 million or 10%, mainly reflecting an increase due to the impact of foreign exchange translation, higher costs in support of business growth in our Global Asset Management and Canadian Wealth Management businesses, and the restructuring costs noted above.

2014 vs. 2013
Net income increased $197 million or 22% from 2013, mainly due to higher earnings from growth in average fee-based client assets resulting from capital appreciation and strong net sales, and lower PCL.

Business line review

Canadian Wealth Management

Canadian Wealth Management includes our full-service Canadian wealth advisory business, which is the largest in Canada as measured by AUA, with over 1,600 investment advisors providing comprehensive advice-based financial solutions to affluent, HNW and UHNW clients. Additionally, we provide discretionary investment management and estate and trust services to our clients through approximately 65 investment counsellors and 91 trust professionals across Canada.

We compete with domestic banks and trust companies, investment counselling firms, bank-owned full service brokerages and boutique brokerages, mutual fund companies and global private banks. In Canada, bank-owned wealth managers continue to be the major players.

Financial performance

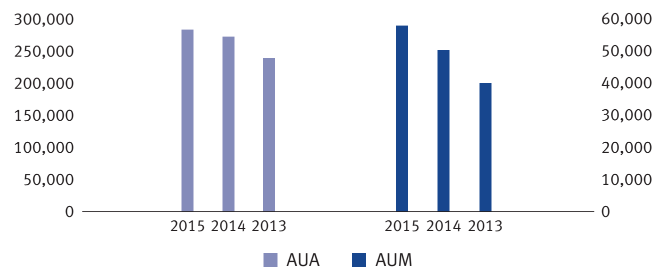
Revenue increased $40 million or 2% from a year ago, mainly due to higher fee-based client assets reflecting net sales and capital appreciation, partly offset by lower transaction volumes, reflecting challenging market conditions in the second half of the year.

Selected highlights — **Table 27**

(Millions of Canadian dollars)	2015	2014	2013
Total revenue	$ 2,226	$ 2,186	$ 1,889
Other information			
Total loans and acceptances (1)	1,500	3,000	2,500
Total deposits (1)	13,600	15,300	13,400
AUA	287,800	285,100	251,400
AUM	60,800	55,400	43,600
Average AUA	284,300	272,900	239,100
Average AUM	58,100	50,400	40,000
Total assets under fee-based programs	182,000	166,700	139,400

(1) Represents an average amount, which is calculated using methods intended to approximate the average of the daily balances for the period.

Average AUA and AUM (1) (Millions of Canadian dollars)



(1) Represents average balances, which are more representative of the impact client balances have upon our revenue.

U.S. & International Wealth Management

U.S. Wealth Management includes our private client group, which is the 8th largest full service wealth advisory firm in the U.S., as measured by number of advisors, with over 1,800 financial advisors. Additionally, our correspondent and advisor services businesses deliver clearing and execution services for small to mid-sized independent broker-dealers and registered investment advisor firms. In the U.S., we operate in a fragmented and extremely competitive industry. There are approximately 4,000 registered broker-dealers in the U.S., comprising independent, regional and global players. As previously announced, we completed the acquisition of City National on November 2, 2015, and we are combining U.S. Wealth Management and City National into one line of business effective the first quarter of 2016.

International Wealth Management includes Wealth Management – International and Wealth Management – Asia. We provide customized and integrated trust, banking, credit and investment solutions to HNW and UHNW clients and corporate clients with over 1,400 employees located in 16 countries around the world. Competitors to our International Wealth Management business comprise global wealth managers, traditional offshore private banks, domestic wealth managers and U.S. investment-led private client operations. In the fourth quarter of 2014, we announced a restructuring program designed to transform our global businesses into sustainable and profitable businesses aligned with a conservative risk profile.

Financial performance

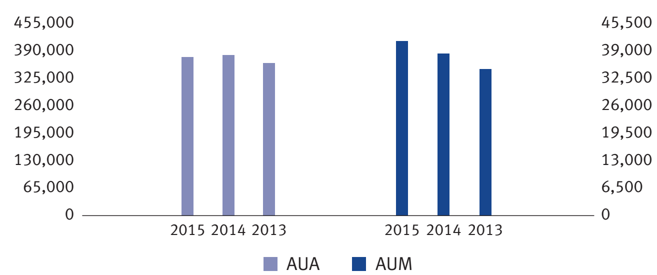
Revenue increased $299 million or 12% from a year ago. In U.S. dollars, revenue decreased $40 million or 2%, mainly reflecting the impact of the restructuring of our U.S. & International Wealth Management business, lower transaction volumes, and a change in the fair value of our U.S. share-based compensation plan.

Selected highlights — **Table 28**

(Millions of Canadian dollars, except otherwise noted)	2015	2014	2013
Total revenue	$ 2,729	$ 2,430	$ 2,225
Other information (Millions of U.S. dollars)			
Total revenue	2,181	2,221	2,174
Total loans, guarantees and letters of credit (1)	15,100	14,500	12,100
Total deposits (1)	20,700	19,100	18,000
AUA	353,500	383,700	371,900
AUM	38,500	41,100	35,600
Average AUA	376,500	382,000	361,800
Average AUM	41,500	38,400	34,700
Total assets under fee-based programs (2)	94,500	94,500	83,200

(1) Represents an average amount, which is calculated using methods intended to approximate the average of the daily balances for the period.
(2) Represents amounts related to our U.S. wealth management businesses.

Average AUA and AUM (1) (Millions of U.S. dollars)



(1) Represents average balances, which are more representative of the impact client balances have upon our revenue.

Global Asset Management

Global Asset Management provides global investment management services and solutions for individual and institutional investors in Canada, the U.S., the U.K., Europe and Asia. We provide a broad range of investment management services through mutual, pooled and private funds, fee-based accounts and separately managed portfolios. We distribute our investment solutions through a broad network of bank branches, our self-directed and full service wealth advisory businesses, independent third-party advisors and private banks, and directly to individual clients. We also provide investment solutions directly to institutional clients, including pension plans, insurance companies, corporations, and endowments and foundations.

We are the largest retail fund company in Canada as well as a leading institutional asset manager. We face competition in Canada from banks, insurance companies, asset management organizations and boutique firms. The Canadian fund management industry is large and mature, but still a relatively fragmented industry.

In the U.S., our asset management business offers investment management solutions and services primarily to institutional investors and competes with independent asset management firms, as well as those that are part of national and international banks, and insurance companies.

Internationally, through our leading global capabilities of BlueBay and RBC Global Asset Management®, we offer investment management solutions for institutions and, through private banks including RBC Wealth Management, to HNW and UHNW investors. We face competition from asset managers that are part of international banks as well as national, regional and boutique asset managers in the geographies where we serve clients.

Financial performance

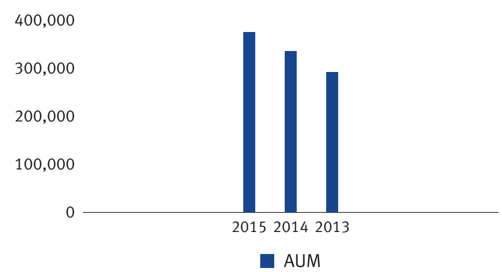
Revenue increased $123 million or 7% from a year ago, mainly due to an increase of 9% in AUM reflecting strong net sales and capital appreciation, and the positive impact of foreign exchange translation, partly offset by net redemptions in our emerging markets funds.

Selected highlights **Table 29**

(Millions of Canadian dollars)	2015	2014	2013
Total revenue (1)	$ 1,820	$ 1,697	$ 1,373
Other information			
Canadian net long-term mutual fund sales (2)	9,857	10,982	8,064
Canadian net money market mutual fund (redemptions) sales (2)	(605)	(1,229)	(1,348)
AUM	381,700	350,600	306,500
Average AUM	374,700	335,300	292,100

(1) Effective the first quarter of 2014, we have aligned the reporting period of BlueBay, which resulted in an additional month of earnings being included in 2014.
(2) As reported to the Investment Funds Institute of Canada. Includes all prospectus-based mutual funds across our Canadian Global Asset Management businesses.

Average AUM (1) (Millions of Canadian dollars)



(1) Represents average balances, which are more representative of the impact client balances have upon our revenue.

Insurance

Insurance comprises our operations in Canada and globally and operates under two business lines: Canadian Insurance and International Insurance, providing a wide range of life, health, home, auto, travel, wealth, group and reinsurance products and solutions. In Canada, we offer our products and services through our proprietary distribution channels, comprised of the field sales force which includes retail insurance stores, our field sales representatives, advice centres and online, as well as through independent insurance advisors and affinity relationships. Outside Canada, we operate in reinsurance markets globally offering life, accident and annuity reinsurance products. Our competitive environment is discussed below in each business.

Economic and market review

The global insurance industry has adjusted to the effects of the economic crisis such as slow economic growth rates, persistently low interest rates and low inflation rates, and continues to stabilize. The approach of many insurance companies has been to review product features/pricing, conserve capital and reduce expenses. Although these factors continue to put strain on our businesses, product and pricing actions we have taken in recent years, a migration to lower-cost proprietary distribution channels, conservative investment practices and diversified product lines have allowed us to continue to navigate this challenging environment. In addition, recent tax legislation impacting certain foreign affiliates, which became effective on November 1, 2014, has had a negative effect on our financial results.

Highlights

- Ranked as the #1 Banking-based Insurance brand globally, according to the 2015 Brand Finance Banking 500. The annual study, conducted by Brand Finance, ranks the world's biggest banks by their brand value, which reflects the premium generated by the brand in the industry.
- We introduced Pension Plan De-Risking Solutions. Our first offering, Group Annuities, will help employers simplify the management of their defined benefit pension plans. We are leveraging the strengths of partners across RBC to deliver the solution, bringing the best of RBC to our clients.
- Our Reinsurance business has achieved steady growth, ranking us as the 3rd largest life retrocessionaire and we continue to be active in the U.K. annuity longevity reinsurance market.

Outlook and priorities

Overall, moderate growth in the industry is projected over the short to medium term. We expect continued organic business growth as a result of the product and pricing actions taken during the last few years, including increasing volumes through our growing proprietary channels and through our ongoing focus on expense efficiency.

For further details on our general economic review and outlook, refer to the Economic and market review and outlook section.

Key strategic priorities for 2016

- Deepen client relationships through cross-selling by continuing to provide our customers with a comprehensive suite of insurance products and services based on their unique family needs.
- Continue to improve our proprietary channels distribution efficiency through enhancements to performance management processes, a proactive sales culture and enhanced cross-selling initiatives.
- Continue to simplify the way we do business by streamlining all business processes while diligently managing our expenses.
- Pursue select international opportunities, within our risk appetite, with the aim of continuing to grow our core reinsurance business.

Insurance — Table 30

(Millions of Canadian dollars, except percentage amounts and as otherwise noted)	2015	2014	2013
Non-interest income			
Net earned premiums	$ 3,507	$ 3,742	$ 3,674
Investment income (1)	445	938	(17)
Fee income	484	284	271
Total revenue	4,436	4,964	3,928
Insurance policyholder benefits and claims (1)	2,741	3,194	2,326
Insurance policyholder acquisition expense	222	379	458
Non-interest expense	613	579	551
Net income before income taxes	860	812	593
Net income	$ 706	$ 781	$ 595
Revenue by business			
Canadian Insurance	$ 2,725	$ 2,911	$ 1,962
International Insurance	1,711	2,053	1,966
Key ratios			
ROE	44.3%	49.7%	41.4%
Selected average balance sheet information			
Total assets	$ 13,700	$ 12,000	$ 11,900
Attributed capital	1,600	1,550	1,400
Other information			
Premiums and deposits (2)	$ 5,016	$ 5,164	$ 4,924
Canadian Insurance	2,725	2,419	2,344
International Insurance	2,291	2,745	2,580
Insurance claims and policy benefit liabilities	9,110	8,564	$ 8,034
Fair value changes on investments backing policyholder liabilities (1)	(24)	439	(491)
Embedded value (3)	6,952	6,239	6,302
AUM	800	700	500
Number of employees (FTE)	3,163	3,126	2,965

Estimated impact of U.S. dollar and British pound translation on key income statement items

(Millions of Canadian dollars, except percentage amounts)	2015 vs. 2014
Increase (decrease):	
Total revenue	$ 68
PBCAE	75
Non-interest expense	–
Net income	(7)
Percentage change in average US$ equivalent of C$1.00	(13)%
Percentage change in average British pound equivalent of C$1.00	(6)%

(1) Investment income can experience volatility arising from fluctuation of fair value through profit or loss (FVTPL) assets. The investments which support actuarial liabilities are predominantly fixed income assets designated as at FVTPL. Consequently, changes in the fair values of these assets are recorded in investment income in the consolidated statement of income and are largely offset by changes in the fair value of the actuarial liabilities, the impact of which is reflected in insurance policyholder benefits and claims.
(2) Premiums and deposits include premiums on risk-based insurance and annuity products, and individual and group segregated fund deposits, consistent with insurance industry practices.
(3) Embedded value is defined as the sum of value of equity held in our Insurance segment and the value of in-force business (existing policies). For further details, refer to the Key performance and non-GAAP measures section.

Financial performance
2015 vs. 2014

Net income decreased $75 million or 10%, mainly due to a change in Canadian tax legislation impacting certain foreign affiliates which became effective November 1, 2014, a lower level of favourable actuarial adjustments in the current year, and higher net claims costs. These factors were partially offset by higher earnings from new U.K. annuity contracts, and a favourable impact of investment-related activities on the Canadian life business.

Total revenue decreased $528 million or 11%, mainly due to a reduction of $463 million related to the change in fair value of investments backing our policyholder liabilities resulting from changes in long-term interest rates, and a reduction of revenue related to our retrocession contracts, both of which were largely offset in PBCAE. These factors were partially offset by business growth in Canadian and International insurance, and the positive impact of foreign exchange translation.

PBCAE decreased $610 million or 17%, mainly due to a reduction of PBCAE related to our retrocession contracts, and the change in fair value of investments backing our policyholder liabilities, both of which were largely offset in revenue. These factors were partially offset by business growth as noted above, a lower level of favourable actuarial adjustments reflecting management actions and assumption changes, and an increase due to the impact of foreign exchange translation.

Non-interest expense increased $34 million or 6%, mainly due to higher costs to support business growth as well as increased costs related to strategic initiatives.

Premiums and deposits were down $148 million or 3%, as the reduction related to our retrocession contracts was partly offset by business growth in International and Canadian Insurance.

Embedded value increased $713 million, reflecting business growth mainly in International Insurance, a favourable change in interest rate assumptions, and the impact of foreign exchange translation. In addition, the transfer of capital through dividend payments from our insurance businesses was lower compared to the prior year. For further details, refer to the Key performance and non-GAAP measures section.

2014 vs. 2013

Net income increased $186 million or 31% from 2013, mainly due to lower net claims costs, business growth in our European life and U.K. annuity products, and favourable actuarial adjustments reflecting management actions and assumption changes. Our results in 2013 included a charge of $160 million ($118 million after-tax) as a result of new tax legislation in Canada, which affects the policyholders' tax treatment of certain individual life insurance policies, and a favourable impact from investment-related activities on the Canadian life business.

Business line review

Canadian Insurance

We offer life, health, property and casualty insurance products, as well as wealth accumulation solutions, to individual and group clients across Canada. Our life and health portfolio includes universal life, term life, critical illness, disability, long-term care insurance and group benefits. We offer a wide range of property and casualty products including home, auto and travel insurance. Our travel products include out of province/ country medical coverage, and trip cancellation and interruption insurance.

In Canada, we compete against over 200 insurance companies, with the majority of the organizations specializing in either life and health, or property and casualty products. We hold a leading market position in disability insurance products, have a significant presence in life and travel products, and have a growing presence in the home, auto and wealth markets.

Financial performance

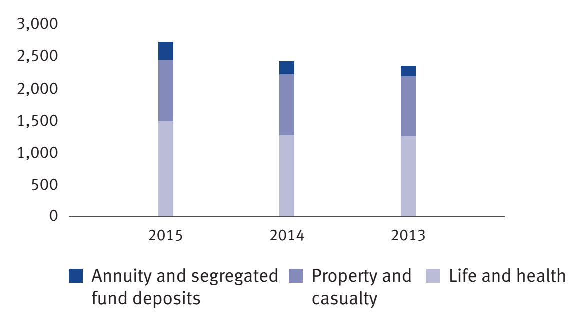
Total revenue decreased $186 million or 6% from last year, mainly due to the change in fair value of investments backing our policyholder liabilities resulting from changes in long-term interest rates, largely offset in PBCAE. This factor was partially offset by business growth in our life, health, home and auto insurance businesses.

Premiums and deposits increased $306 million or 13% reflecting business growth.

Selected highlights — Table 31

(Millions of Canadian dollars)	2015	2014	2013
Total revenue	$ 2,725	$ 2,911	$ 1,962
Other information			
Premiums and deposits			
Life and health	1,484	1,266	1,245
Property and casualty	958	951	942
Annuity and segregated fund deposits	283	202	157
Fair value changes on investments backing policyholder liabilities	54	490	(510)

Premiums and deposits (Millions of Canadian dollars)



International Insurance

International Insurance is primarily comprised of our reinsurance businesses which insure risks of other insurance and reinsurance companies. We offer life and health, accident and annuity reinsurance products.

The global reinsurance market is dominated by a few large players, with significant presence in the U.S., the U.K. and the Euro area. The reinsurance industry is competitive but barriers to entry remain high.

Financial performance

Total revenue decreased $342 million or 17%, mainly due to a reduction of revenue related to our retrocession contracts, largely offset in PBCAE. These factors were partially offset by business growth in our International life and U.K. annuity products and a positive impact of foreign exchange translation.

Premiums and deposits decreased $454 million, or 17% driven by the reduction related to our retrocession contracts, partially offset by business growth.

Selected highlights — Table 32

(Millions of Canadian dollars)	2015	2014	2013
Total revenue	$ 1,711	$ 2,053	$ 1,966
Other information			
Premiums and deposits			
Life and health	1,483	2,128	2,069
Property and casualty	(4)	6	50
Annuity	812	611	461

Investor & Treasury Services

Investor & Treasury Services is a specialist provider of asset and treasury services, custody, payments, and transaction banking for financial institutions and other institutional investors worldwide. We deliver custodial, fund accounting, financing and other services to safeguard client assets, maximize liquidity and manage risk across multiple jurisdictions. We also provide short-term funding and liquidity management for RBC. We are a global custodian with a network of offices across North America, Europe and Asia-Pacific. While we compete against the world's largest global custodians, we remain a specialist provider with a focus on asset managers. Our transaction banking business competes primarily with major Canadian banks.

Economic and market review

The highly competitive environment in the global custody industry continued to pressure margins. Low to negative interest rates globally have reduced deposit rates, leading to margin compression from deposit-gathering. Moreover, heightened regulation has driven up compliance and technology costs. However, in the first nine months of the fiscal year, increased client activity and heightened market volatility benefited our foreign exchange forwards business, drove higher transaction volumes, grew our core fees and benefited deposit growth.

Highlights

- Rated by our clients the #1 global custodian for five consecutive years *(Global Custody Survey, Global Investor ISF)*.
- Leading offshore provider in Luxembourg and Dublin, and rated UCITS Fund Administrator of the Year. *(Custody Risk, European Awards, 2015)*.
- Canada's leading asset management provider with number one ratings across client service, custody, fund administration and Canadian dollar transactions *(Global Custody Survey, Global Investor ISF, 2015)*.
- High level of investment in client-focused technology solutions.

Outlook and priorities

In 2016, our aim is to continue to be the leading provider of custody, asset services and cash management in Canada and a leading provider of fund services in select offshore markets. Our focus is on driving top-line growth by leveraging our leadership position in Canada and capabilities in Luxembourg and Ireland to win new business and deepen relationships with existing clients. We are continuing to execute on strategic, transformational initiatives to deliver and enhance client experience. While we expect the global custody industry to remain challenging in the near-term, we are well-positioned to compete in the continuously changing operating environment.

For further details on our general economic review and outlook, refer to the Economic and market review and outlook section.

Key strategic priorities for 2016

- Maintain our leadership position in Canada.
- Leverage the strength of our leading offshore service offering in Luxembourg and Ireland.
- Increase investment in client-focused technology solutions.
- Evolve our business model to enhance client service and improve efficiency.
- Maintain prudent risk management, exercise sound judgment, and awareness of key issues.
- Continue to invest in talent management and employee training and development.
- Leverage Investor & Treasury Services expertise in liquidity management in support of our growth strategies.

Investor & Treasury Services — Table 33

(Millions of Canadian dollars, except percentage amounts and as otherwise noted)	2015	2014	2013
Net interest income	$ 818	$ 732	$ 671
Non-interest income	1,220	1,152	1,133
Total revenue (1)	2,038	1,884	1,804
Non-interest expense	1,300	1,286	1,348
Net income before income taxes	738	598	456
Net income	$ 556	$ 441	$ 339
Key Ratios			
ROE	20.3%	19.8%	16.5%
Selected average balance sheet information			
Total assets	$ 125,300	$ 94,200	$ 83,100
Deposits	139,600	112,100	104,300
Client deposits	50,400	42,700	36,100
Wholesale funding deposits	89,200	69,400	68,200
Attributed capital	2,700	2,150	2,000
Other Information			
AUA (2)	3,620,300	3,702,800	3,208,800
Average AUA	3,793,000	3,463,000	3,052,600
Number of employees (FTE)	4,774	4,963	5,208

Estimated impact of U.S. dollar, British pound and Euro translation on key income statement items

(Millions of Canadian dollars, except percentage amounts)	2015 vs. 2014
Increase (decrease):	
Total revenue	$ (9)
Non-interest expense	(9)
Net income	(1)
Percentage change in average US$ equivalent of C$1.00	(13)%
Percentage change in average British pound equivalent of C$1.00	(6)%
Percentage change in average Euro equivalent of C$1.00	4%

(1) Effective the third quarter of 2015, we have aligned the reporting period of Investor Services, which resulted in an additional month of earnings being included in 2015. The net impact of the additional month was recorded in revenue.

(2) Represents period-end spot balances.

Financial performance

2015 vs. 2014

Net income increased $115 million or 26%, primarily due to increased client activity in our foreign exchange forwards business and higher foreign exchange transaction volumes, an additional month of earnings in Investor Services of $42 million ($28 million after-tax), increased custodial fees, and higher earnings from growth in client deposits. These factors were partially offset by lower funding and liquidity results.

Total revenue increased $154 million or 8%, mainly related to higher revenue from our foreign exchange forwards business and higher foreign exchange transaction volumes reflecting increased client activity through the first nine months of the year primarily due to market volatility, an additional month of revenue in Investor Services as noted above, higher custodial fees, and higher net interest income reflecting growth in client deposits. These factors were partially offset by lower funding and liquidity results due to widening credit spreads and unfavourable market conditions.

Non-interest expense increased $14 million or 1%, largely reflecting continuing benefits from our efficiency management activities.

2014 vs. 2013

Net income was up $102 million from 2013, largely due to benefits from our efficiency management activities and higher earnings from growth in client deposits. In addition, results in 2013 included a restructuring charge of $44 million ($31 million after-tax) related to the integration of Investor Services.

Capital Markets

Capital Markets provides public and private companies, institutional investors, governments and central banks globally with a wide range of capital markets products and services across our two main business lines, Corporate and Investment Banking and Global Markets. Our legacy portfolio is grouped under Other.

In North America, we offer a full suite of products and services which include corporate and investment banking, equity and debt origination and distribution, and structuring and trading. In Canada, we compete mainly with Canadian banks where we are the premier global investment bank and market leader with a strategic presence in all lines of capital markets businesses. In the U.S., we have full industry sector coverage and investment banking product range and compete with large U.S. and global investment banks as well as smaller regional firms. Outside North America, we have a select presence in the U.K. and Europe, and Other international, where we offer a diversified set of capabilities in our key sectors of expertise such as energy, mining and infrastructure and we have expanded into industrial, consumer and health care in Europe. In the U.K. and Europe, we compete in our key sectors of expertise with global and regional investment banks. In Other international, we compete with global and regional investment banks in select products, consisting of fixed income distribution and currencies trading and corporate and investment banking in Australia, Asia, and the Caribbean.

Economic and market review

Global capital markets improved in the first half of fiscal 2015, which contributed to solid Global Markets and Corporate and Investment Banking results. However, market conditions deteriorated throughout the latter half of fiscal 2015, reflecting increased market volatility, primarily due to the effect of low global oil and commodity prices and diverging monetary policies amongst global central banks, which led to decreased levels of client activity and volumes. Our corporate and investment banking businesses performed well, reflecting economic growth, particularly in the U.S., the low interest rate environment, and our continued focus on origination and increased activity from client-focused strategies. Our equity and fixed income trading businesses performed well, largely reflecting strong results in the first half of fiscal 2015, although markets were challenged throughout the latter half of the year due to increased market volatility.

Highlights

- We continued to focus on the efficient deployment of our capital and growth in our corporate and investment banking businesses, particularly in the U.S. and Europe. We re-allocated capital from trading to corporate and investment banking businesses and managed risks by narrowing the focus of our trading products.
- In Canada, we maintained our market leadership by deepening our existing client relationships despite challenges in both the energy and commodity sectors, gaining new clients by leveraging our strong cross-border capabilities and improving collaboration with Wealth Management to drive operational efficiencies, and offering a full suite of global capabilities. We continued to win significant mandates including acting as exclusive financial advisor to Enbridge Inc. on the transfer of its Canadian liquids pipeline and renewable energy assets, valued at $30.4 billion, to its partially owned, publicly traded subsidiary Enbridge Income Fund.
- In the U.S., we continued to leverage our key strategic investments made in recent years to expand our corporate and investment banking businesses. We successfully positioned our lending relationships as we continued to focus on origination and increased activity from client-focused strategies. We exited certain proprietary trading strategies in 2014 and continue to ensure that any remaining strategies comply with the Volcker Rule. We continued growing our businesses and won several significant mandates including acting as joint bookrunner on the acquisition financing supporting Permira Advisers Ltd. and the Canadian Pension Plan Investment Board's US$5.3 billion acquisition of Informatica Corporation, as well as acting as lead financial advisor to Raytheon, one of the world's largest global defense contractors, on its announced definitive agreement with Vista Equity Partners to form a new, jointly owned entity valued at US$2.3 billion.
- In the U.K. and Europe, we continued to expand our corporate and investment banking businesses. We won new mandates including acting as advisor to the Bazalgette Consortium on the Group's successful bid to provide funding for the £4.2 billion Thames Tideway Tunnel project.
- In Other international, we continued to focus on our corporate and investment banking, fixed income trading distribution and foreign exchange trading capabilities.
- As a result of our successes in each of our regions, we received external recognition as an industry leader and were named or ranked:
  - Best Investment Bank in Canada (*Euromoney Magazine*) for the eighth consecutive year.
  - The largest investment bank in Canada by fees for the first nine months of 2015 (*Dealogic)*.
  - The 10th largest investment bank globally and in the Americas (*Thomson Reuters*) by fees for the first nine months of 2015.

Outlook and priorities

In 2016, as a result of strategic investments in our investment banking businesses in recent years, particularly in the U.S. and Europe, we anticipate growth in our investment banking businesses reflecting our focus on client activities. However, we expect that marginal growth in our lending revenue will be impacted by narrower spreads reflecting increased competition, as well as the risk of higher PCL.

Overall we anticipate net improvements in our global markets businesses driven by growth in our fixed income, currencies and commodities businesses as compared to the challenging market conditions in 2015. However, improvements in our businesses will be dependent on growth in the global economy, and stabilizing market conditions. We also anticipate that several tax changes in Canada could negatively impact our earnings, and heightened regulations will unfavourably impact growth in our businesses.

For further details, refer to our Risk management – Top and emerging risks section. For further details on our general economic outlook, refer to the Economic and market review and outlook section.

Key strategic priorities for 2016

- Maintain our leadership position in Canada by focusing on long-term client relationships, leveraging our global capabilities, and continuing to improve collaboration with Wealth Management.
- Expand and strengthen client relationships in the U.S. by building on our momentum through expanded origination, advisory and distribution activity, and driving cross-selling through our diversified loan book.
- Build on our core strengths in Europe in both Corporate and Investment Banking and Global Markets by continuing to grow and deepen client relationships, and in Asia by optimizing the performance of our existing footprint.
- Optimize capital use to earn high risk-adjusted returns by maintaining both a balanced approach between investment banking and trading revenue and a disciplined approach to managing the risks and costs of our business.
- Manage through the significant changes in the regulatory environment.

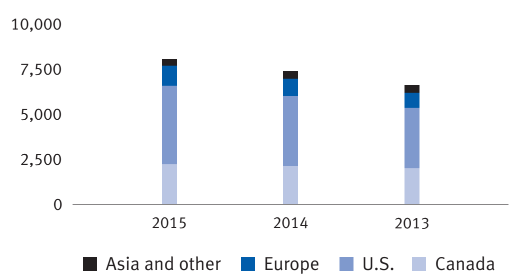
Capital Markets financial highlights			Table 34
(Millions of Canadian dollars, except percentage amounts and as otherwise noted)	**2015**	2014	2013
Net interest income (1)	**$ 3,970**	$ 3,485	$ 2,872
Non-interest income	**4,093**	3,881	3,708
Total revenue (1)	**8,063**	7,366	6,580
PCL	**71**	44	188
Non-interest expense	**4,696**	4,344	3,856
Net income before income taxes	**3,296**	2,978	2,536
Net income	**$ 2,319**	$ 2,055	$ 1,700
Revenue by business			
Corporate and Investment Banking	**$ 3,697**	$ 3,437	$ 3,014
Global Markets (2)	**4,477**	3,896	3,314
Other (2)	**(111)**	33	252
Key ratios			
ROE	**13.6%**	14.1%	14.1%
Selected average balance sheet information			
Total assets	**$ 477,300**	$ 392,300	$ 368,300
Trading securities	**116,200**	103,800	100,800
Loans and acceptances	**79,700**	64,800	54,700
Deposits	**60,300**	47,600	38,400
Attributed capital	**16,550**	14,100	11,500
Other information			
Number of employees (FTE)	**3,996**	3,917	3,718
Credit information			
Gross impaired loans as a % of average net loans and acceptances	**0.37%**	0.08%	0.42%
PCL on impaired loans as a % of average net loans and acceptances	**0.09%**	0.07%	0.34%

Estimated impact of U.S. dollar, British pound and Euro translation on key income statement items

(Millions of Canadian dollars, except percentage amounts)	**2015 vs. 2014**
Increase (decrease):	
Total revenue	**$ 602**
Non-interest expense	**364**
Net income	**145**
Percentage change in average US$ equivalent of C$1.00	**(13)%**
Percentage change in average British pound equivalent of C$1.00	**(6)%**
Percentage change in average Euro equivalent of C$1.00	**4%**

(1) The taxable equivalent basis (teb) adjustment for 2015 was $570 million (2014 – $492 million, 2013 – $380 million). For further discussion, refer to the How we measure and report our business segments section of our 2015 Annual Report.
(2) Effective the first quarter of 2015, we reclassified amounts from Global Markets to Other related to certain proprietary trading strategies which we exited in the fourth quarter of 2014 to comply with the Volcker Rule. Prior period amounts have been revised from those previously presented.

Revenue by region (Millions of Canadian dollars)



Financial performance

2015 vs. 2014

Net income increased $264 million or 13%, driven by growth in our global markets businesses mainly reflecting increased client activity, continued solid performance in our corporate and investment banking businesses, and the positive impact of foreign exchange translation. These factors were partially offset by lower results in certain legacy portfolios.

Total revenue increased $697 million or 9%, largely due to the positive impact of foreign exchange translation, growth in our global markets businesses reflecting increased client activity and more favourable market conditions in the first half of the year, and continued solid performance in our corporate and investment banking businesses. These factors were partially offset by lower revenue in certain legacy portfolios. In addition, our prior year trading revenue was unfavourably impacted by the implementation of funding valuation adjustments, and the exit from certain proprietary trading strategies to comply with the Volcker Rule.

PCL increased $27 million or 61%, primarily due to provisions taken on several accounts. For further details, refer to the Credit quality performance section.

Non-interest expense increased $352 million or 8%, reflecting an increase due to the impact of foreign exchange translation. Lower variable compensation and lower litigation provisions and related legal costs were mostly offset by higher costs to support business growth.

2014 vs. 2013

Net income increased $355 million or 21% from 2013, primarily due to higher equity trading revenue reflecting strong market conditions, strong growth in most of our investment banking businesses and higher lending revenue. Lower PCL and the positive impact of foreign exchange translation also contributed to the increase. These factors were partially offset by higher litigation provisions and related legal costs, and higher variable compensation on improved results. In addition, our 2014 results were unfavourably impacted by lower fixed income trading revenue largely driven by the unfavourable impact of the implementation of funding valuation adjustments, and the exit from certain proprietary trading strategies to comply with the Volcker Rule.

Business line review

Corporate and Investment Banking

Corporate and Investment Banking comprises our corporate lending, loan syndications, debt and equity origination, M&A advisory services, private equity, research, client securitization and the global credit businesses. For debt and equity origination, revenue is allocated between Corporate and Investment Banking and Global Markets based on the contribution of each group in accordance with an established agreement.

Financial performance

Corporate and Investment Banking revenue of $3,697 million increased $260 million or 8% including the positive impact of foreign exchange translation, as compared to last year.

Investment banking revenue increased $97 million or 6%, primarily due to strong growth in M&A activity reflecting increased mandates in the U.S. and Europe, and higher debt origination as a result of increased issuance activity mainly in the U.S. Higher loan syndication activity in Europe also contributed to the increase. These factors were partially offset by lower equity origination reflecting decreased client activity in all regions as compared to the strong levels last year, and lower distributions on private equity investments.

Lending and other revenue increased $163 million or 10%, due to solid lending growth in the U.S and Europe, and strong performance in our securitization businesses.

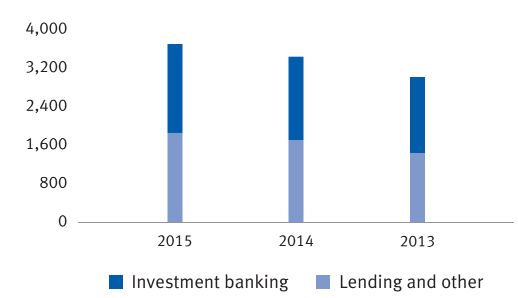
Selected highlights — Table 35

(Millions of Canadian dollars)	2015	2014	2013
Total revenue (1)	$ 3,697	$ 3,437	$ 3,014
Breakdown of revenue (1)			
Investment banking	1,833	1,736	1,574
Lending and other (2)	1,864	1,701	1,440
Other information			
Average assets	63,900	49,500	40,000
Average loans and acceptances	56,200	42,500	34,400

(1) The teb adjustment for 2015 was $25 million (2014 – $13 million, 2013 – $2 million). For further discussion, refer to the How we measure and report our business segments section.

(2) Comprises our corporate lending, client securitization, and global credit businesses.

Breakdown of total revenue (Millions of Canadian dollars)



Global Markets

Global Markets comprises our fixed income, foreign exchange, equity sales and trading, repos and secured financing and commodities businesses.

Financial performance

Total revenue of $4,477 million increased $581 million or 15%, including the positive impact of foreign exchange translation, as compared to last year.

Revenue in our Fixed income, currencies and commodities business increased $121 million or 7%, mainly due to higher debt origination reflecting increased client issuance activity in all regions, and higher currencies and commodities trading revenue. These factors were partially offset by lower fixed income trading revenue reflecting challenging market conditions in the second half of the year. In addition, our prior year trading revenue was unfavourably impacted by the implementation of funding valuation adjustments.

Revenue in our Equities business increased $218 million or 19%, primarily due to higher equities trading revenue reflecting increased client activity primarily in the first half of the year, and volume growth in our cash equities businesses. These factors were partially offset by lower equity origination as compared to the strong levels last year.

Revenue in our Repo and secured financing business increased $242 million or 24%, mainly reflecting higher client volumes and the positive impact of foreign exchange translation.

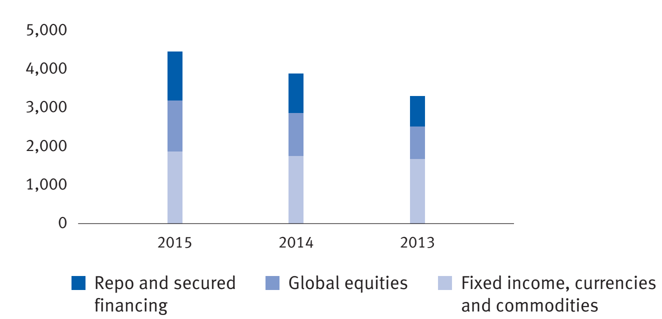
Selected highlights — Table 36

(Millions of Canadian dollars)	2015	2014	2013
Total revenue (1)	$ 4,477	$ 3,896	$ 3,314
Breakdown of revenue (1)			
Fixed income, currencies and commodities	1,881	1,760	1,680
Equities	1,336	1,118	856
Repo and secured financing (2)	1,260	1,018	778
Other information			
Average assets	494,400	366,000	343,700

(1) The teb adjustment for 2015 was $545 million (2014 – $470 million, 2013 – $357 million). For further discussion, refer to the How we measure and report our business segments section.

(2) Comprises our secured funding businesses for internal businesses and external clients.

Breakdown of total revenue (Millions of Canadian dollars)



Other

Other includes our legacy portfolio which consists of our bank-owned life insurance (BOLI) stable value products, U.S. commercial mortgage-backed securities, U.S. auction rate securities (ARS), structured rates in Asia, and certain proprietary trading strategies. In recent years, in order to optimize our capital employed to improve our risk-adjusted returns and reduce our liquidity risk on various products, we have significantly reduced several of our legacy portfolios. Our legacy portfolios decreased by 37% as compared to last year.

Financial performance
Revenue decreased $144 million as compared to last year, mainly in certain legacy portfolios, including the exit of certain proprietary trading strategies last year to comply with the Volcker Rule.

Corporate Support

Corporate Support — Table 37

(Millions of Canadian dollars)	2015	2014	2013
Net interest income (loss) (1)	$ (514)	$ (313)	$ (124)
Non-interest income (loss)	210	164	(12)
Total revenue (1)	(304)	(149)	(136)
PCL	(3)	(2)	3
Non-interest expense	125	89	72
Net income (loss) before income taxes (1)	(426)	(236)	(211)
Income taxes (recoveries) (1)	(824)	(405)	(653)
Net income (2)	$ 398	$ 169	$ 442
Other information			
Number of employees (FTE)	13,301	12,460	11,943

(1) Teb adjusted.
(2) Net income reflects income attributable to both shareholders and Non-Controlling Interests (NCI). Net income attributable to NCI for the year ended October 31, 2015 was $94 million (October 31, 2014 – $93 million; October 31, 2013 – $93 million).

Due to the nature of activities and consolidation adjustments reported in this segment, we believe that a comparative period analysis is not relevant. The following identifies material items affecting the reported results in each period.

Net interest income (loss) and income taxes (recoveries) in each period in Corporate Support include the deduction of the teb adjustments related to the gross-up of income from Canadian taxable corporate dividends recorded in Capital Markets. The amount deducted from net interest income (loss) was offset by an equivalent increase in income taxes (recoveries). The teb amount for the year ended October 31, 2015 was $570 million as compared to $492 million last year and $380 million for the year ended October 31, 2013.

In addition to the teb impacts noted above, the following identifies the other material items affecting the reported results in each period.

2015
Net income was $398 million, largely reflecting net favourable tax adjustments, asset/liability management activities, a gain of $108 million (before- and after-tax) from the wind-up of a U.S.-based funding subsidiary that resulted in the release of CTA, and a gain on sale of a real estate asset. These factors were partially offset by transaction costs related to our acquisition of City National.

2014
Net income was $169 million largely reflecting asset/liability management activities and gains on private equity investments mainly related to the sale of a legacy portfolio, partially offset by net unfavourable tax adjustments.

2013
Net income was $442 million largely reflecting net favourable tax adjustments, including $214 million of income tax adjustments related to previous years, and asset/liability management activities.

Results by geographic segment (1)

For geographic reporting, our segments are grouped into the following: Canada, U.S., and Other International. Transactions are primarily recorded in the location that best reflects the risk due to negative changes in economic conditions and prospects for growth due to positive economic changes. The following table summarizes our financial results by geographic region.

Table 38

	2015				2014 (2)				2013 (2)			
(Millions of Canadian dollars)	Canada	U.S.	Other International	Total	Canada	U.S.	Other International	Total	Canada	U.S.	Other International	Total
Net interest income	$ 11,538	$ 1,977	$ 1,256	$ 14,771	$ 11,128	$ 1,697	$ 1,291	$ 14,116	$ 10,961	$ 1,448	$ 840	$ 13,249
Non-interest income	10,889	4,619	5,042	20,550	10,488	4,257	5,247	19,992	8,601	3,810	5,022	17,433
Total revenue	$ 22,427	$ 6,596	$ 6,298	$ 35,321	$ 21,616	$ 5,954	$ 6,538	$ 34,108	$ 19,562	$ 5,258	$ 5,862	$ 30,682
PCL	933	98	66	1,097	922	52	190	1,164	892	78	267	1,237
PBCAE	1,976	–	987	2,963	2,188	1	1,384	3,573	1,425	10	1,349	2,784
Non-interest expense	10,139	4,762	3,737	18,638	9,650	4,199	3,812	17,661	9,210	3,663	3,341	16,214
Income taxes	1,727	649	221	2,597	1,983	660	63	2,706	1,710	370	25	2,105
Net income	$ 7,652	$ 1,087	$ 1,287	$ 10,026	$ 6,873	$ 1,042	$ 1,089	$ 9,004	$ 6,325	$ 1,137	$ 880	$ 8,342

(1) For further details, refer to Note 30 of our audited 2015 Annual Consolidated Financial Statements.
(2) Amounts have been revised from those previously presented.

2015 vs. 2014

Net income in Canada was up $779 million or 11% from the prior year, mainly due to solid volume growth and strong fee-based revenue growth across most businesses in Canadian Banking, a lower effective tax rate reflecting net favourable income tax adjustments, and higher earnings in Investor & Treasury Services. A gain of $108 million (before- and after-tax) from the wind-up of a U.S.-based funding subsidiary that resulted in the release of CTA also contributed to the increase. These factors were partially offset by higher costs in support of business growth, and lower spreads.

U.S. net income increased $45 million or 4% compared to last year, primarily due to the positive impact of foreign exchange translation, growth in our global markets businesses reflecting increased client activity and more favourable market conditions in the first half of the year, and higher results in most corporate and investment banking businesses. Lower litigation provisions and related legal costs in Capital Markets also contributed to the increase. These factors were partially offset by higher costs in support of business growth.

Other International net income was up $198 million or 18% from the prior year, mainly due to lower provisions in our Caribbean portfolios, and higher lending activity in Europe. These factors were partially offset by restructuring costs related to our U.S. & International Wealth Management business. In addition, our results last year were unfavourably impacted by a loss of $100 million (before- and after-tax) related to the sale of RBC Jamaica and a provision of $40 million ($32 million after-tax) related to post-employment benefits and restructuring charges in the Caribbean.

2014 vs. 2013

Net income in Canada was up $548 million or 9% as compared to 2013, mainly due to solid volume growth across most of our businesses in Canadian Banking, and higher earnings from growth in average fee-based client assets resulting from capital appreciation and strong net sales in Wealth Management. Strong fee-based revenue growth primarily attributable to higher mutual fund distribution fees and card services revenue in Canadian Banking also contributed to the increase. These factors were partially offset by higher costs in support of business growth including higher staff and marketing costs, and the unfavourable impact of the implementation of the funding valuation adjustments. In addition, results in 2013 benefited from net favourable tax adjustments. Our results in 2013 were also unfavourably impacted by a charge of $160 million ($118 million after-tax) as a result of new tax legislation in Canada, which affects the policyholders' tax treatment of certain individual life insurance policies.

U.S. net income was down $95 million or 8% as compared to 2013, as 2013 benefited from favourable income tax adjustments, including $214 million related to prior years. Strong growth in our lending portfolio, strong equity markets and our continued focus on equity origination and increased activity from client-focused strategies were partly offset by higher litigation provisions and related legal costs in Capital Markets.

Other International net income was up $209 million or 24% as compared to 2013, largely due to lower PCL in Capital Markets, higher trading revenue in Europe, and higher lending in Capital Markets. These factors were partially offset by a loss of $100 million (before- and after-tax) related to the sale of RBC Jamaica, and a provision of $40 million ($32 million after-tax) related to post-employment benefits and restructuring charges in the Caribbean. In addition, our results in 2013 were unfavourably impacted by a restructuring charge of $44 million related to the integration of Investor Services, primarily in Europe.

Quarterly financial information

Fourth quarter 2015 performance

Q4 2015 vs. Q4 2014

Fourth quarter net income of $2,593 million was up $260 million or 11%, from last year. Diluted EPS of $1.74 was up $0.17 and ROE of 17.9% was down 110 bps. Our fourth quarter earnings reflected solid earnings growth in our Capital Markets and Personal & Commercial Banking segments, a lower effective tax rate due to net favourable tax adjustments, lower PCL, and the impact of foreign exchange translation. These factors were partially offset by lower funding and liquidity results in Investor & Treasury Services due to widening credit spreads and unfavourable market conditions, and restructuring costs and lower transaction volumes in Wealth Management.

Total revenue decreased $363 million or 4%, mainly due to a change in the fair value of investments backing our policyholder liabilities, and a reduction in revenue related to our retrocession contracts, both of which were largely offset in PBCAE, in our Insurance segment. Lower equity origination revenue reflecting decreased client issuance activity, and lower fixed income trading revenue primarily due to unfavourable market conditions which negatively impacted Capital Markets revenue, while lower transaction volumes in Wealth Management, and lower spreads in Personal & Commercial Banking also contributed to the decrease in revenue. These factors were partly offset by the positive impact of foreign exchange translation, and business growth primarily in our life, annuity, home and auto insurance businesses, higher equity trading revenue in Capital Markets reflecting increased client activity, and solid volume growth across most businesses in Canadian Banking. In addition, our prior year revenue was unfavourably impacted by the implementation of funding valuation adjustments, and the exit from certain proprietary trading strategies to comply with the Volcker Rule in Capital Markets, as well as favourable net cumulative accounting adjustments in Canadian Banking.

Total PCL decreased $70 million from last year, mainly reflecting lower provisions in our Caribbean portfolios due to provisions of $50 million on our Caribbean impaired residential mortgage portfolio included in the prior year. Lower provisions in our Canadian commercial lending portfolio also contributed to the decrease. The PCL ratio of 23 bps decreased 8 bps from last year.

PBCAE decreased $460 million or 61%, largely reflecting a change in fair value of investments backing our policyholder liabilities, and a reduction of PBCAE related to our retrocession contracts, both of which were largely offset in revenue. These factors were partially offset by business growth as noted above.

Non-interest expense increased $307 million or 7%, primarily reflecting the impact of foreign exchange translation, higher costs in support of business growth, and restructuring costs of $46 million ($38 million after-tax) largely related to our U.S. & International Wealth Management business, including the sale of RBC Suisse.

Income tax expense decreased $400 million or 65% from last year, and the effective income tax rate decreased from 20.8% last year to 7.6%, primarily due to net favourable tax adjustments in Corporate Support and Capital Markets.

Q4 2015 vs. Q3 2015

Net income of $2,593 million increased $118 million, or 5% compared to the prior quarter, largely due to a lower effective tax rate reflecting net favourable tax adjustments, and higher earnings in Insurance and Capital Markets. These factors were partly offset by lower funding and liquidity results in Investor & Treasury Services, and restructuring costs in Wealth Management as noted above.

Quarterly results and trend analysis

Our quarterly results are impacted by a number of trends and recurring factors, which include seasonality of certain businesses, general economic and market conditions, and fluctuations in the Canadian dollar relative to other currencies. The following table summarizes our results for the last eight quarters (the period):

Quarterly results (1) **Table 39**

	2015				2014			
(Millions of Canadian dollars, except per share and percentage amounts)	Q4	Q3	Q2	Q1	Q4	Q3	Q2	Q1
Net interest income	$ 3,800	$ 3,783	$ 3,557	$ 3,631	$ 3,560	$ 3,647	$ 3,449	$ 3,460
Non-interest income	4,219	5,045	5,273	6,013	4,822	5,343	4,827	5,000
Total revenue	$ 8,019	$ 8,828	$ 8,830	$ 9,644	$ 8,382	$ 8,990	$ 8,276	$ 8,460
PCL	275	270	282	270	345	283	244	292
PBCAE	292	656	493	1,522	752	1,009	830	982
Non-interest expense	4,647	4,635	4,736	4,620	4,340	4,602	4,332	4,387
Net income before income taxes	$ 2,805	$ 3,267	$ 3,319	$ 3,232	$ 2,945	$ 3,096	$ 2,870	$ 2,799
Income taxes	212	792	817	776	612	718	669	707
Net income	$ 2,593	$ 2,475	$ 2,502	$ 2,456	$ 2,333	$ 2,378	$ 2,201	$ 2,092
EPS – basic	$ 1.74	$ 1.66	$ 1.68	$ 1.66	$ 1.57	$ 1.59	$ 1.47	$ 1.39
– diluted	1.74	1.66	1.68	1.65	1.57	1.59	1.47	1.38
Segments – net income (loss)								
Personal & Commercial Banking	$ 1,270	$ 1,281	$ 1,200	$ 1,255	$ 1,151	$ 1,138	$ 1,115	$ 1,071
Wealth Management	255	285	271	230	285	285	278	235
Insurance	225	173	123	185	256	214	154	157
Investor & Treasury Services	88	167	159	142	113	110	112	106
Capital Markets	555	545	625	594	402	641	507	505
Corporate Support	200	24	124	50	126	(10)	35	18
Net income	$ 2,593	$ 2,475	$ 2,502	$ 2,456	$ 2,333	$ 2,378	$ 2,201	$ 2,092
Effective income tax rate	7.6%	24.2%	24.6%	24.0%	20.8%	23.2%	23.3%	25.3%
Period average US$ equivalent of C$1.00	$ 0.758	$ 0.789	$ 0.806	$ 0.839	$ 0.900	$ 0.925	$ 0.907	$ 0.926

(1) Fluctuations in the Canadian dollar relative to other foreign currencies have affected our consolidated results over the period.

Seasonality

Seasonal factors may impact our results in certain quarters. The first quarter has historically been seasonally stronger for our capital markets businesses. The second quarter has fewer days than the other quarters, which generally results in a decrease in net interest income and certain expense items. The third quarter results for Investor & Treasury Services are generally favourably impacted by higher securities lending as a result of the European dividend season. The third and fourth quarters include the summer months during which market activity generally tends to slow, negatively impacting the results of our capital markets, brokerage and investment management businesses.

Specified items affecting our consolidated results

- In the second quarter of 2015, our results included a gain of $108 million (before- and after-tax) from the wind-up of a U.S.-based funding subsidiary that resulted in the release of foreign currency translation adjustment that was previously booked in other components of equity.
- In the third quarter of 2014, our results included a loss of $40 million (before- and after-tax) which includes foreign currency translation related to the closing of the sale of RBC Jamaica.
- In the first quarter of 2014, our results included a loss of $60 million (before- and after-tax) related to the announced sale of RBC Jamaica, as well as a provision of $40 million ($32 million after-tax) related to post-employment benefits and restructuring charges in the Caribbean.

Trend analysis

The Canadian and U.S. economies have generally improved over the period, reflecting solid consumer spending, stronger labour markets and firm housing market activity. Since the third quarter of 2014, growth in Canada has moderated with growth contracting in the first half of calendar 2015 due to the sharp decline in global oil prices, and slow export activity. Global equity indices experienced volatility throughout the period resulting from the possibility of Euro area recession, the lower global oil prices, and diverging monetary policies amongst global central banks. For further details, refer to the Economic and market review and outlook section.

Earnings have generally trended upwards over the period, driven by solid volume growth and higher fee-based revenue growth in our Canadian Banking businesses, and higher earnings from growth in average fee-based client assets reflecting capital appreciation and strong net sales in Wealth Management. Capital Markets results have generally trended upwards since the first quarter of 2014, and were negatively impacted in the fourth quarter of 2014 by the exit from certain proprietary trading strategies to comply with the Volcker Rule and the implementation of funding valuation adjustments. Results in our Insurance segment have fluctuated in 2015, as they were impacted by an unfavourable change in Canadian tax legislation impacting certain foreign affiliates, which became effective November 1, 2014. Investor & Treasury Services results have generally trended upwards over the period largely due to increased client activity in our foreign exchange business and higher foreign exchange transaction volumes. Investor & Treasury Services results in the third quarter of 2015 benefited from an additional month of earnings as a result of aligning the reporting periods, while results in the fourth quarter of 2015 were impacted by lower funding and liquidity results due to widening credit spreads and unfavourable market conditions.

Revenue has generally fluctuated over the period mostly due to the change in fair value of investments backing our policyholder liabilities, which is largely offset in PBCAE. Solid volume growth and higher fee-based revenue growth in our Canadian Banking businesses, and growth in average fee-based client assets in Wealth Management have increased revenue over the period. Trading revenue has generally trended upwards since the first quarter of 2014, and was unfavourably impacted in the fourth quarter of 2014 by the exit of certain proprietary trading strategies and the implementation of funding valuation adjustments. Trading revenue in the second half of 2015 was negatively impacted due to widening credit spreads. Net interest income has trended upwards over the period, largely due to solid volume growth across our Canadian Banking businesses, and higher trading-related net interest income and solid lending activity in Capital Markets. Starting in the first quarter of 2014, the positive impact of foreign exchange translation due to a generally weaker Canadian dollar has also contributed to the increase in revenue. Insurance revenue is primarily impacted by changes in the fair value of investments backing our policyholder liabilities, which is largely offset in PBCAE.

Asset quality remained strong over the period despite increased lending activity, with PCL remaining relatively stable over the period. The fourth quarter of 2014 included additional provisions in Personal & Commercial Banking related to our impaired residential mortgages portfolio in the Caribbean. Wealth Management had provisions related to our U.S. & International Wealth Management business starting in the first quarter of 2014. PCL in Capital Markets has fluctuated over the period.

PBCAE has fluctuated quarterly as it includes the changes to the fair value of investments backing our policyholder liabilities, which is largely offset in revenue. PBCAE has also increased due to business growth in our Insurance businesses, as well as actuarial liability adjustments and generally lower claims costs over the period.

While we continue to focus on efficiency management activities, non-interest expense has generally trended upwards over the period, mostly to support business growth. Restructuring costs related to our U.S. & International Wealth Management business have increased non-interest expense since the fourth quarter of 2014. Non-interest expense in 2014 was impacted by the loss related to the sale of RBC Jamaica and a provision in the Caribbean. Since the first quarter of 2014, non-interest expense has increased due to the impact of foreign exchange translation generally reflecting the weaker Canadian dollar.

Our effective income tax rate has fluctuated over the period, mostly due to varying levels of income being reported in jurisdictions with different tax rates, as well as fluctuating levels of income from tax-advantaged sources such as Canadian taxable corporate dividends. Our effective income tax rate has generally been impacted over the period by higher earnings before income taxes, increased earnings in higher tax jurisdictions, and by net favourable tax adjustments.

Financial condition

Condensed balance sheets

The following table shows our condensed balance sheet:

Table 40

(Millions of Canadian dollars)	2015	2014	2013
Assets (1)			
Cash and due from banks	$ 12,452	$ 17,421	$ 15,550
Interest-bearing deposits with banks	22,690	8,399	9,039
Securities	215,508	199,148	182,710
Assets purchased under reverse repurchase agreements and securities borrowed	174,723	135,580	117,517
Loans			
Retail	348,183	334,269	320,666
Wholesale	126,069	102,954	90,143
Allowance for loan losses	(2,029)	(1,994)	(1,959)
Segregated fund net assets	830	675	513
Other – Derivatives	105,626	87,402	74,822
– Other	70,156	56,696	50,744
Total assets	$ 1,074,208	$ 940,550	$ 859,745
Liabilities (1)			
Deposits	$ 697,227	$ 614,100	$ 563,079
Segregated fund liabilities	830	675	513
Other – Derivatives	107,860	88,982	76,745
– Other	196,985	174,431	162,505
Subordinated debentures	7,362	7,859	7,443
Total liabilities	1,010,264	886,047	810,285
Equity attributable to shareholders	62,146	52,690	47,665
Non-controlling interests	1,798	1,813	1,795
Total equity	63,944	54,503	49,460
Total liabilities and equity	$ 1,074,208	$ 940,550	$ 859,745

(1) Foreign currency-denominated assets and liabilities are translated to Canadian dollars.

2015 vs. 2014

Total assets were up $134 billion or 14% from last year, primarily reflecting an increase of $96 billion due to the impact of foreign exchange translation as a result of the weaker Canadian dollar.

Interest-bearing deposits with banks increased $14 billion, largely reflecting higher deposits with central banks.

Securities were up $16 billion or 8% compared to last year, primarily reflecting an increase due to the impact of foreign exchange translation, and an increase in government debt securities largely reflecting our management of interest rate risk, partially offset by a decrease in equity trading positions mainly due to regulatory requirements and market conditions.

Assets purchased under reverse repurchase agreements (reverse repos) and securities borrowed increased $39 billion or 29%, mainly attributable to an increase due to the impact of foreign exchange translation and increased client and business activities.

Loans were up $37 billion or 8%, largely due to volume growth in wholesale loans and residential mortgages, and an increase due to the impact of foreign exchange translation.

Derivative assets were up $18 billion or 21%, mainly attributable to the increase due to the impact of foreign exchange translation and higher fair values on interest rate swaps. These factors were partially offset by lower fair values on foreign exchange cross-currency interest rate contracts and increased financial netting.

Other assets were up $13 billion or 24%, largely reflecting higher cash collateral requirements and an increase due to the impact of foreign exchange translation.

Total liabilities were up $124 billion or 14% from last year, primarily reflecting an increase of $96 billion due to the impact of foreign exchange translation as a result of the weaker Canadian dollar.

Deposits increased $83 billion or 14%, mainly reflecting an increase due to the impact of foreign exchange translation and the issuances of fixed term notes and covered bonds to satisfy our funding requirements. Growth in business and retail deposits also contributed to the increase.

Derivative liabilities were up $19 billion or 21%, mainly attributable to the increase due to the impact of foreign exchange translation and higher fair values on interest rate swaps. These factors were partially offset by lower fair values on foreign exchange cross-currency interest rate contracts and increased financial netting.

Other liabilities increased $23 billion or 13%, mainly reflecting an increase due to the impact of foreign exchange translation, higher obligations related to repurchase agreements largely reflecting increased client and business activities, and an increase in cash collateral requirements. These factors were partly offset by lower obligations related to securities sold short.

Total equity increased $9 billion or 17%, largely reflecting earnings, net of dividends.

Off-balance sheet arrangements

In the normal course of business, we engage in a variety of financial transactions that, for accounting purposes, are not recorded on our Consolidated Balance Sheets. Off-balance sheet transactions are generally undertaken for risk, capital and funding management purposes which benefit us and our clients. These include transactions with structured entities and may also include the issuance of guarantees. These transactions give rise to, among other risks, varying degrees of market, credit, liquidity and funding risk, which are discussed in the Risk management section.

We use structured entities to securitize our financial assets as well as assist our clients in securitizing their financial assets. These entities are not operating entities, typically have no employees, and may or may not be recorded on our Consolidated Balance Sheets.

In the normal course of business, we engage in a variety of financial transactions that may qualify for derecognition. We apply the derecognition rules to determine whether we have effectively transferred substantially all the risks and rewards or control associated with the financial assets to a third party. If the transaction meets specific criteria, it may qualify for full or partial derecognition from our Consolidated Balance Sheets.

Securitizations of our financial assets

We periodically securitize our credit card receivables, residential and commercial mortgage loans and bond participation certificates primarily to diversify our funding sources, to enhance our liquidity position and for capital purposes. We also securitize residential and commercial mortgage loans for sales and trading activities.

We securitize our credit card receivables, on a revolving basis, through a consolidated structured entity. We securitize single and multiple-family residential mortgages through the National Housing Act Mortgage-Backed Securities (NHA MBS) program. The majority of our securitization activities are recorded on our Consolidated Balance Sheets as we do not meet the derecognition criteria. During 2015, we derecognized $967 million of purchased mortgages where both the NHA MBS and the residual interests in the mortgages were sold to third parties resulting in the transfer of substantially all of the risks and rewards (2014 – $nil). For additional details of our securitization activities, refer to Note 6 and Note 7 of our audited 2015 Annual Consolidated Financial Statements.

We periodically securitize residential mortgage loans for the Canadian social housing program through the NHA MBS program, which are derecognized from our Consolidated Balance Sheets when sold to third party investors. During 2015, we securitized $112 million of residential mortgage loans for the Canadian social housing program (2014 – $158 million).

We also periodically securitize commercial mortgages by selling them in collateral pools, which meet certain diversification, leverage and debt coverage criteria, to structured entities, one of which is sponsored by us. Securitized commercial mortgage loans are derecognized from our Consolidated Balance Sheets as we have transferred substantially all of the risk and rewards of ownership of the securitized assets. Our continuing involvement with the transferred assets is limited to servicing the underlying commercial mortgages sold to our sponsored structured entity. As at October 31, 2015, there were $1.1 billion of commercial mortgages outstanding related to these securitization activities (October 31, 2014 – $1.3 billion). During 2015, we securitized $195 million of commercial mortgages which were sold to our sponsored entity (2014 – $173 million).

In prior years, we participated in bond securitization activities where we purchased government, government related and corporate bonds and repackaged those bonds in trusts that issue participation certificates, which were sold to third party investors. Securitized bonds are derecognized from our Consolidated Balance Sheets as we have transferred substantially all of the risk and rewards of ownership of the securitized assets. Our continuing involvement with the transferred assets is limited to servicing the underlying bonds. As at October 31, 2015, there were $138 million of bond participation certificates outstanding related to these prior period securitization activities (October 31, 2014 – $356 million). We did not securitize bond participation certificates during 2015 or 2014.

Involvement with unconsolidated structured entities

In the normal course of business, we engage in a variety of financial transactions with structured entities to support our customers' financing and investing needs, including securitization of client financial assets, creation of investment products, and other types of structured financing.

We have the ability to use credit mitigation tools such as third party guarantees, credit default swaps, and collateral to mitigate risks assumed through securitization and re-securitization exposures. The process in place to monitor the credit quality of our securitization and re-securitization exposures involves, among other things, reviewing the performance of the underlying assets. We affirm our ratings each quarter and formally confirm or assign a new rating at least annually. For further details on our activities to manage risks, refer to the Risk management section.

Below is a description of our activities with respect to certain significant unconsolidated structured entities. For a complete discussion of our interests in consolidated and unconsolidated structured entities, refer to Note 7 of our audited 2015 Annual Consolidated Financial Statements.

RBC-administered multi-seller conduits

We administer multi-seller conduits which are used primarily for the securitization of our clients' financial assets. We are involved in these conduit markets because our clients value these transactions. Our clients primarily use multi-seller conduits to diversify their financing sources and to reduce funding costs by leveraging the value of high-quality collateral. The conduits offer us a favourable revenue stream, risk-adjusted return and cross-selling opportunities.

We provide services such as transaction structuring, administration, backstop liquidity facilities and partial credit enhancements to the multi-seller conduits. Fee revenue for all such services amounted to $213 million during the year (2014 – $168 million). We do not maintain any ownership or retained interests in these multi-seller conduits and have no rights to, or control of, their assets.

Our total commitment to the conduits in the form of backstop liquidity and credit enhancement facilities is shown below. The total committed amount of these facilities exceeds the total amount of the maximum assets that may have to be purchased by the conduits under the purchase agreements. As a result, the maximum exposure to loss attributable to our backstop liquidity and credit enhancement facilities is less than the total committed amounts of these facilities.

Liquidity and credit enhancement facilities **Table 41**

As at October 31 (Millions of Canadian dollars)	2015 Notional of committed amounts (1)	2015 Allocable notional amounts	2015 Outstanding loans (2)	2015 Maximum exposure to loss (3)	2014 (4) Notional of committed amounts (1)	2014 (4) Allocable notional amounts	2014 (4) Outstanding loans (2)	2014 (4) Maximum exposure to loss (3)
Backstop liquidity facilities	$ 37,770	$ 34,163	$ 764	$ 34,927	$ 31,019	$ 28,056	$ 864	$ 28,920
Credit enhancement facilities	2,974	2,843	–	2,843	2,177	2,099	–	2,099
Total	$ 40,744	$ 37,006	$ 764	$ 37,770	$ 33,196	$ 30,155	$ 864	$ 31,019

(1) Based on total committed financing limit.
(2) Net of allowance for loan losses and write-offs.
(3) Not presented in the table above are derivative assets with a fair value of $19 million (2014 – $nil) which are a component of our total maximum exposure to loss from our interests in the multi-seller conduits. Refer to Note 7 of our audited 2015 Annual Consolidated Financial Statements for more details.
(4) Certain amounts have been revised from those previously reported.

As at October 31, 2015, the notional amount of backstop liquidity facilities we provide increased by $6,751 million or 22% from last year. Total loans extended to the multi-seller conduits under the backstop liquidity facilities decreased by $100 million from last year primarily due to principal repayments which were offset by exchange rate fluctuations. The partial credit enhancement facilities we provide increased by $797 million from last year. The changes in both the amount of backstop liquidity facilities and credit enhancement facilities provided to the multi-seller conduits as compared to last year primarily reflect increases related to exchange rate fluctuations and the outstanding securitized assets of the multi-seller conduits.

Maximum exposure to loss by client type **Table 42**

As at October 31 (Millions)	2015 (US$)	2015 (C$)	2015 Total (C$)	2014 (US$)	2014 (C$)	2014 Total (C$)
Outstanding securitized assets						
Credit cards	$ 4,679	$ 510	$ 6,628	$ 5,768	$ 510	$ 7,011
Auto loans and leases	8,606	2,352	13,604	8,154	1,793	10,983
Student loans	3,473	–	4,541	2,536	–	2,858
Trade receivables	2,175	112	2,956	2,094	112	2,472
Asset-backed securities	584	–	764	767	–	864
Equipment receivables	1,362	–	1,781	1,301	–	1,466
Consumer loans	706	–	923	–	–	–
Dealer floor plan receivables	1,261	903	2,552	1,053	771	1,958
Fleet finance receivables	441	377	954	436	377	869
Insurance premiums	128	153	320	127	–	144
Residential mortgages	–	1,020	1,020	–	1,275	1,275
Transportation finance	1,204	153	1,727	857	153	1,119
Total	$ 24,619	$ 5,580	$ 37,770	$ 23,093	$ 4,991	$ 31,019
Canadian equivalent	$ 32,190	$ 5,580	$ 37,770	$ 26,028	$ 4,991	$ 31,019

Our overall exposure increased by 22% compared to last year reflecting an increase in the outstanding securitized assets of the multi-seller conduits and exchange rate fluctuations. Correspondingly, total assets of the multi-seller conduits increased by $6,616 million or 22% over last year, primarily due to increases in the Auto loans and leases, Student loans, Consumer loans, Transportation finance, Dealer floor plan and Trade receivables asset classes, which were partially offset by decreases in Credit cards and Residential mortgages asset classes. 100% of multi-seller conduits assets were internally rated A or above, consistent with last year. All transactions funded by the unconsolidated multi-seller conduits are internally rated using a rating system which is largely consistent with that of the external rating agencies.

Multiple independent debt rating agencies review all of the transactions in the multi-seller conduits. Transactions financed in two U.S. multi-seller conduits are reviewed by Moody's Investors Service (Moody's), Standard & Poor's (S&P) and Fitch Ratings (Fitch). One U.S. multi-seller conduit is reviewed by S&P. Transactions in the Canadian multi-seller conduits are reviewed by Dominion Bond Rating Services (DBRS) and Moody's. Each applicable rating agency also reviews ongoing transaction performance on a monthly basis and may publish reports detailing portfolio and program information related to the conduits.

As at October 31, 2015, the total asset-backed commercial paper (ABCP) issued by the conduits amounted to $25.5 billion, an increase of $5.7 billion or 29% from last year. The increase in the amount of ABCP issued by the multi-seller conduits compared to last year is primarily due to an increase in the outstanding securitized assets of the multi-seller conduits and exchange rate fluctuations. The rating agencies that rate the ABCP rated 71% (October 31, 2014 – 73%) of the total amount issued within the top ratings category and the remaining amount in the second highest ratings category.

We sometimes purchase ABCP issued by the multi-seller conduits in our capacity as a placement agent in order to facilitate overall program liquidity. As at October 31, 2015, the fair value of our inventory was $17 million, a decrease of $25 million from last year. The fluctuations in inventory held reflect normal trading activity. This inventory is classified as Securities – Trading on our Consolidated Balance Sheets.

Structured finance

We invest in ARS of trusts which fund their long-term investments in student loans by issuing short-term senior and subordinated notes. Our maximum exposure to loss in these ARS trusts as at October 31, 2015 was $546 million (October 31, 2014 – $913 million). The decrease in our maximum exposure to loss is primarily related to the sale of ARS. Interest income from the ARS investments, which is reported in Net-interest income was, $6.9 million during the year (2014 – $7.2 million).

We also provide liquidity facilities to certain municipal bond Tender Option Bond (TOB) trusts in which we have an interest but do not consolidate because the residual certificates issued by the TOB trusts are held by third parties. As at October 31, 2015, our maximum exposure to loss from these unconsolidated municipal bond TOB trusts was $856 million (October 31, 2014 – $749 million). The increase in our maximum exposure to loss relative to last year is primarily due to exchange rate differences. Fee revenue from provision of liquidity facilities to these entities reported in Non-interest income was $3.7 million during the year (2014 – $2.8 million).

We provide senior warehouse financing to unaffiliated structured entities that are established by third parties to acquire loans and issue a term collateralized loan obligation transaction. A portion of the proceeds from the sale of the term collateralized loan obligations certificates is used to fully repay the senior warehouse financing that we provide. As at October 31, 2015 our maximum exposure to loss associated with the outstanding senior warehouse financing facilities was $444 million (October 31, 2014 – $nil). The increase in our maximum exposure to loss relative to the prior year is related to an increase in the outstanding drawings on certain financing facilities.

Investment funds
We enter into fee-based equity derivative transactions with third parties including mutual funds, unit investment trusts and other investment funds. These transactions provide their investors with the desired exposure to the reference funds, and we economically hedge our exposure from these derivatives by investing in those third party managed reference funds. Our maximum exposure as at October 31, 2015, which is primarily related to our investments in such reference funds, was $2.6 billion (October 31, 2014 – $3.4 billion). The decrease in our maximum exposure compared to last year is primarily due to the liquidation of certain reference funds in response to new regulatory requirements in the U.S.

We also provide liquidity facilities to certain third party investment funds. The funds issue unsecured variable-rate preferred shares and invest in portfolios of tax exempt bonds. As at October 31, 2015, our maximum exposure to these funds was $744 million (October 31, 2014 – $641 million). The increase in our maximum exposure compared to last year is primarily due to exchange rate differences.

Third-party securitization vehicles
We hold interests in certain unconsolidated third-party securitization vehicles, which are structured entities. We, as well as other financial institutions, are obligated to provide funding to these entities up to our maximum commitment level and are exposed to credit losses on the underlying assets after various credit enhancements. As at October 31, 2015, our maximum exposure to loss in these entities was $9.7 billion (October 31, 2014 – $2.4 billion). The increase in our maximum exposure compared to last year reflects additional securitized assets in these vehicles and exchange rate fluctuations. Interest and non-interest income earned in respect of these investments was $56 million (2014 – $20 million).

Guarantees, retail and commercial commitments
We provide guarantees and commitments to our clients that expose us to liquidity and funding risks. Our maximum potential amount of future payments in relation to our commitments and guarantee products as at October 31, 2015 amounted to $315 billion compared to $259 billion last year. The increase compared to last year relates primarily to business growth and the impact of exchange rate fluctuations in other credit-related commitments and securities lending indemnifications. Refer to Liquidity and funding risk and Note 26 to our audited 2015 Annual Consolidated Financial Statements for details regarding our guarantees and commitments.

Risk management

Overview

The ability to manage risk well is a core competency at RBC, and is supported by strong Risk Conduct and Culture, and an effective risk management approach. RBC defines risk as the potential for loss or an undesirable outcome with respect to volatility of actual earnings in relation to expected earnings, capital adequacy or liquidity. Organizational design and governance processes ensure that our Group Risk Management (GRM) function is independent from the businesses it supports.

We manage our risks by seeking to ensure that business activities and transactions provide an appropriate balance of return for the risks assumed and remain within our Risk Appetite, which is collectively managed throughout RBC, through adherence to our Enterprise Risk Appetite Framework. Our major risk categories include credit, market, liquidity, insurance, operational, regulatory compliance, strategic, reputation, legal and regulatory environment, competitive, and systemic risk. In order to avoid excessive concentration of risks, we strive to diversify our business lines, products and sector exposures. Our objectives and the corresponding priorities are guided by GRM's mission statement, which is to build shareholder value through leadership in the strategic management of risk, as shown below.

Mission Statement

Build shareholder value through leadership in strategic management of risk

Objectives

Provide independent and objective oversight of the management of significant risks arising from the bank's businesses and operations	Maintain an effective enterprise-wide risk management process through working in partnership with all areas of RBC	Ensure the continuous improvement in risk management processes, tools and practices	Promote strong risk conduct and culture

Risk Priorities

Keeping Risk Profile within Risk Appetite	Embed the Risk Culture and Conduct	Identify and Mitigate Emerging Risks	Effectively Manage the Risk Function	Ensure Strong Compliance Standards	Successfully Integrate City National

2015 Accomplishments

Throughout 2015, we have continued to take a prudent approach to risk management, as evidenced by the fact that we:

- Kept our Risk Profile within Risk Appetite despite economic challenges
- Maintained strong credit quality with a PCL as a percentage of average net loans and acceptances ratio of 24 bps, lower than in 2014 and 2013
- Maintained strong credit ratings
- Avoided major operational risk events
- Ensured sound management of regulatory compliance risk
- Further enhanced stress-testing capabilities
- Increased focus on Risk Conduct and Culture

Risk management principles

The following general principles apply to the management of risk at RBC:

1. **Effective balancing of risk and reward** by aligning business strategy with Risk Appetite, avoiding excessive concentration of risk through diversification, pricing appropriately for risk, mitigating risk through preventive and detective controls and transferring risk to third parties.
2. **Shared responsibility for risk management** as business segments are responsible for active management of their risks, with direction and oversight provided by GRM and other corporate functions groups.
3. **Business decisions are based on an understanding of risk** as we perform rigorous assessment of risks in relationships, products, transactions and other business activities.
4. **Avoid activities that are not consistent with our values, Code of Conduct or policies**, which contributes to the protection of our reputation.
5. **Proper focus on clients reduces our risks** by knowing our clients and ensuring that all products and transactions are suitable for and understood by our clients.
6. **Use of judgment and common sense** in order to manage risk throughout the organization.
7. **Be operationally prepared for a potential crisis** in order to maintain agility and readiness to respond to potential disruptors to the financial industry.

Top and emerging risks

Our view of risks is not static. An important component of our enterprise risk management approach is to ensure that top risks which are evolving or emerging risks are appropriately identified, managed, and incorporated into existing enterprise risk management assessment, measurement, monitoring and escalation processes.

These practices ensure management is forward-looking in its assessment of risks to the organization. Identification of top and emerging risks occurs in the course of businesses developing and pursuing approved strategies and as part of the execution of risk oversight responsibilities by GRM, Finance, Corporate Treasury, Global Compliance and other control functions.

Top and emerging risks occur as a result of exogenous factors, such as changes in the macroeconomic or regulatory environment, or endogenous factors, such as changes to our strategic imperatives, or failure to adapt to an evolving competitive or operational environment.

A top risk is an existing, significant risk that can potentially affect our earnings or capital within a one-year time horizon.

An emerging risk has a lower probability of occurring within a one-year horizon, but, in the event it materializes, can have a significant adverse impact on our ability to achieve our goals.

Top risks	Emerging risks
Weak oil and gas prices	Financial instability arising from the growth of the shadow banking system
High levels of Canadian household debt	Increased exposure to central clearing counterparties
Cybersecurity	Disruptive financial technology companies
Fraud	Conduct risk
Anti-Money Laundering	Litigation risk
Processing and execution risk	Increasing complexity of regulation
Exposure to more volatile sectors	

Details of the more pressing top and emerging risks we are facing are discussed below.

Weak oil and gas prices

Oil prices have continued to be low throughout 2015 and are forecast to remain depressed in the near future. This has had a severe, direct impact on the energy sector and has led, indirectly, to a softening of the housing market in Alberta. We have performed a number of low oil price stress tests, which focus specifically on the impact to our retail and wholesale portfolios. While we could see a rise in PCL, the overall magnitude depends upon how long oil prices stay low and how our corporate clients undertake management actions of their own. In our view, our exposure to weak oil and gas prices remains within our risk appetite.

High levels of Canadian household debt

Canadian household debt remains elevated as persistently low interest rates continue to fuel strong home sales, supporting home prices and contributing to an upward trend in mortgage credit growth. The risks surrounding elevated credit balances largely stem from households' continued ability to manage existing debt repayments when interest rates rise and a greater share of disposable income is needed to make payments. Additional risk stems from the potential for high household debt to amplify the impact of an external shock to the Canadian economy and/or extended downturn in domestic activity. The combination of increasing unemployment, rising interest rates, and a downturn in real estate markets would pose a risk to the credit quality of our retail lending portfolio. We actively manage our lending portfolios and stress test them against various scenarios. Our stress testing shows that the vast majority of our mortgage clients have sufficient capacity to absorb interest rate increases in the ranges currently forecasted. For further discussion relating to our retail portfolio, refer to the Credit risk section.

Cybersecurity

Cybersecurity has become an increasingly problematic issue, not only for the financial services sector, but for other industries in Canada and around the globe. Cyber-attacks in the industry are increasing in sophistication and are often focused on compromising sensitive data for inappropriate use or disrupting business operations. Such an attack could compromise our confidential information as well as that of our clients and third parties with whom we interact and may result in negative consequences, including remediation costs, loss of revenue, additional regulatory scrutiny, litigation and reputational damage. As a result, RBC continually monitors for malicious threats and adapts accordingly in an effort to ensure we maintain high privacy and security standards. The bank leverages and invests in advancements in cyber defense technologies to support our business model, protect our systems and enhance the experience of our clients on a global basis by employing industry best practices and provide our customers with confidence in their financial transactions. Our investments continue to manage the risks we face today and position the bank for the evolving threat landscape.

Anti-Money Laundering

RBC is subject to a dynamic set of anti-money laundering/anti-terrorist financing, economic sanctions and anti-bribery/anti-corruption (AML) laws and regulations across the multiple jurisdictions in which we operate. As the scope of criminal activities such as tax evasion, human trafficking, bribery and corruption continues to expand, regulators worldwide are intensifying regulatory requirements and increasing enforcement actions and penalties for those who fail to comply. As a consequence, money laundering, terrorist financing, economic sanctions violations, bribery and corruption (Money Laundering) pose significant legal, regulatory, financial and reputational risk to RBC. We are committed to the management of AML risk and have implemented advanced and evolving AML policies, processes and controls (Global AML Program) to mitigate the risk of Money Laundering activities and meet our regulatory obligations to deter, detect and report such activities. RBC has appointed a Senior Vice President, Financial Crimes and Chief Anti-Money Laundering Officer who is responsible for the independent oversight and implementation of the Global AML Program. The Global AML Program addresses our changing business activities, regulatory requirements and international best practices. RBC continuously enhances transaction monitoring, client due diligence and risk assessment processes and practices to prevent or detect activities that pose potential risk to RBC. Internally, annual AML training is mandatory for all applicable employees, including senior management and the Board of Directors, to help ensure compliance and to educate on emerging AML trends. We meet our regulatory obligation to perform independent effectiveness testing by conducting regular assessments on the adequacy of the Global AML Program.

Exposure to more volatile sectors
Our wholesale loan growth has been strong in recent years, largely driven by Capital Markets. Demand for lending related to commercial real estate and leveraged financing has been particularly strong. To manage risks associated with this increase, we focus on diversification, driven by limits on single name, country and industry exposures across all businesses, portfolios and transactions. We continue to adhere to strict lending standards as we grow our wholesale credit portfolio. We also stress test our portfolio to assist in evaluating the potential impact of severe economic conditions.

Enterprise risk management

Under the oversight of the Board of Directors and Senior Management, the Enterprise Risk Management Framework provides an overview of our enterprise-wide programs for managing risk, including identifying, assessing, measuring, controlling, monitoring and reporting on the significant risks that face the organization. While Risk Appetite encompasses "what" risks RBC is able and willing to take, Risk Conduct and Culture articulates "how" we expect to take those risks.

Risk governance
The Risk Governance model at RBC is well-established. The Board of Directors oversees the implementation of our risk management framework, establishes the tone at the top, approves our Risk Appetite, provides oversight and carries out its risk management mandate primarily through its committees which include the Risk Committee, the Audit Committee, the Governance Committee and the Human Resources Committee.

The purpose of the Risk Committee is to oversee our risk management program. The Risk Committee's oversight role is designed to ensure that the risk management function is adequately independent from the businesses whose activities it reviews, and that the policies, procedures and controls used by management are sufficient to keep risks within our Risk Appetite.

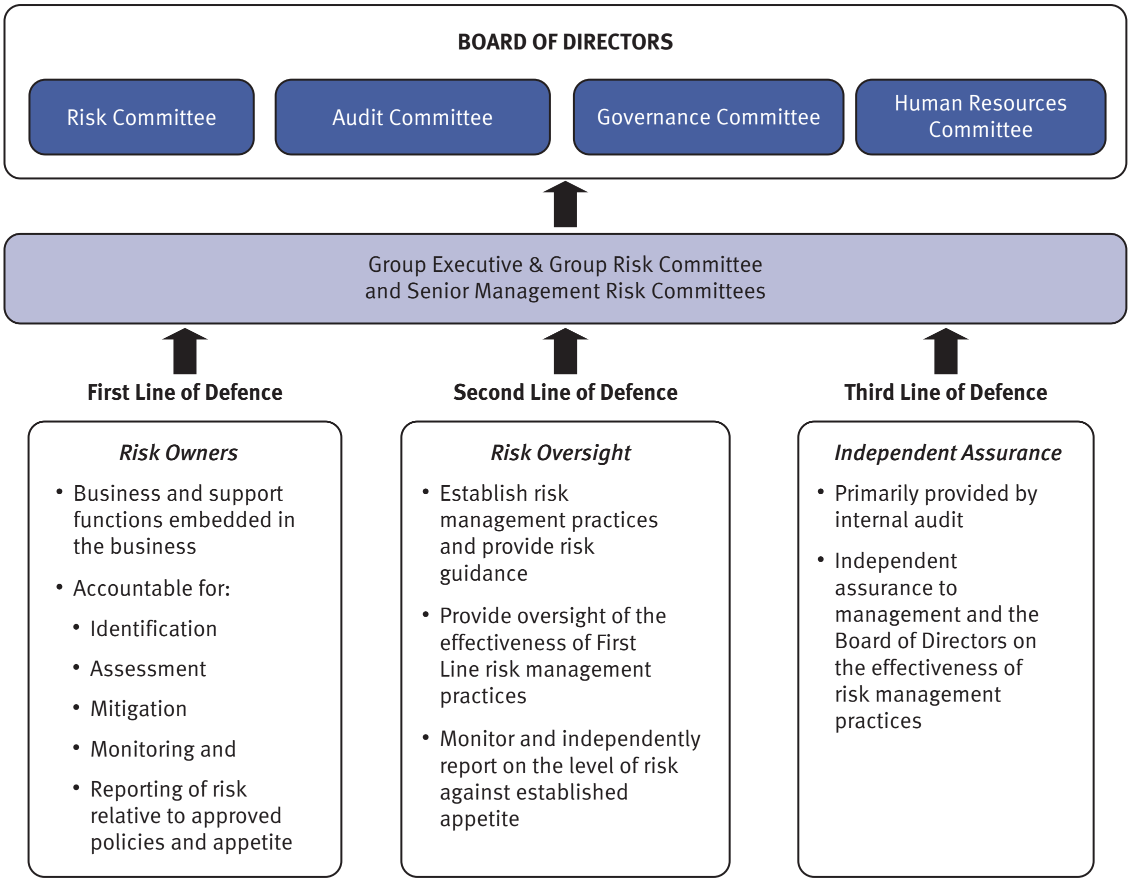
The Audit Committee also has a risk oversight role through its responsibilities to review our internal controls and the control environment, and to ensure that policies related to capital management and adequacy are in place and effective. The Audit Committee regularly reviews reporting on legal and regulatory compliance risks, including significant litigation issues.

The Governance Committee monitors the effectiveness of our corporate governance, reviews policies and programs, is responsible for the Code of Conduct, reviews our efforts to understand and meet changing public values and expectations, and identifies, assesses and advises management on public affairs issues related to our image and reputation.

The Human Resources Committee, along with the Risk Committee, actively oversees the design and operation of our compensation system.

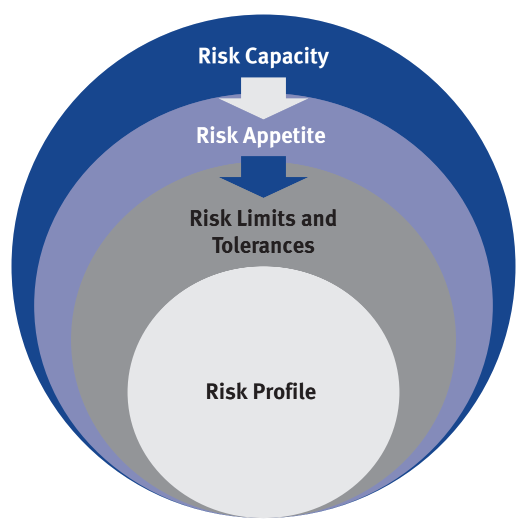
The Group Executive (GE) is comprised of our senior management team and is led by the President & Chief Executive Officer (CEO) and includes the Chief Risk Officer (CRO) and Chief Administrative Officer & Chief Financial Officer (CAO & CFO). The GE is responsible for our strategy and its execution. The GE actively shapes and recommends our Risk Appetite for approval by the Board of Directors. The GE's risk oversight role is executed primarily through the mandate of the Group Risk Committee (GRC). The GRC, with the assistance of its supporting senior management risk committees, is responsible for ensuring that our overall Risk Profile is consistent with our strategic objectives and remains within our Risk Appetite and that there are ongoing, appropriate and effective risk management processes.

Employees at all levels of the organization are responsible for managing the day-to-day risks that arise in the context of their mandate. As shown below, RBC uses a Three Lines of Defence Governance Model to manage risks across the enterprise.



Risk Appetite
Our Risk Appetite is the amount and type of risk we are able and willing to accept in the pursuit of our business objectives. Our approach to articulating Risk Appetite is focused around three key concepts:
- The amount of Earnings at Risk that is determined to be acceptable over an economic cycle, using an expected future loss lens;
- The amount of Capital at Risk that is determined to be acceptable under stress, using an unexpected future loss lens; and
- Ensuring adequate liquidity throughout times of stress.

Our Risk Appetite Framework has several major components as follows:
- Define our Risk Capacity by identifying regulatory constraints that restrict our ability to accept risk.
- Establish and regularly confirm our Risk Appetite, comprised of drivers that are the business objectives which include risks we must accept to generate desired financial returns, and self-imposed constraints that limit or otherwise influence the amount of risk undertaken. Our self-imposed constraints include:
  - Manage exposure to future losses
  - Manage volatility of earnings
  - Avoid excessive concentrations of risk
  - Low exposure to stress events
  - Ensure sound management of liquidity and funding risk
  - Ensure sound management of regulatory compliance risk and operational risk
  - Ensure capital adequacy by maintaining capital ratios in excess of rating agencies' and regulatory expectations
  - Maintain strong credit ratings
  - Maintain Risk Profile that is in the top half of our peer group
- Set Risk Limits and Tolerances to ensure that risk-taking activities are within Risk Appetite.
- Assess our Risk Posture to confirm whether our strategic priorities entail taking on more risk over a one year time frame, using a scale of contracting, stable or expanding.
- Regularly measure and evaluate our Risk Profile, representing the risks we are exposed to, relative to our Risk Appetite, and ensure appropriate action is taken to prevent Risk Profile from surpassing Risk Appetite.



The Enterprise Risk Appetite Framework is structured in such a way that it can be applied at the enterprise, business segment, business unit, and legal entity levels. Risk Appetite is integrated into our business strategies and capital plan. We also ensure that the business strategy aligns with the enterprise and business segment level Risk Appetite.

Risk Conduct and Culture
We define Risk Conduct and Culture as a shared set of behavioural norms that sustain our core values, protect our clients, safeguard our shareholders' value, and support market integrity and stability from undue risk.

The following elements are foundational to our effective Risk Conduct and Culture:
- Communicate expectations in a highly visible, clear, consistent and ongoing manner – "Tone from the top"
- Hold people accountable across all businesses in accordance with the Three Lines of Defence governance model – "Accountability"
- Enable the right motivations by rewarding individuals and groups for taking the right risks in an informed manner – "Incentives"
- Effective communication of risk issues – "Constructive challenge"
- Provide escalation paths
- Take the right risks in order to keep Risk Profile within Risk Appetite

The desired Risk Conduct and Culture flows from RBC Values, Code of Conduct and Risk Management Principles, which include:
- Integrity
- Accountability for risk management
- Compliance with risk policies
- Integration of risk in decision-making
- Timely escalation and reporting of risk issues
- Communication of risk issues

Our enterprise risk management practices have led to the integration of risk disciplines into decision-making and all other key business processes. For example, our compensation programs and practices are risk-based and designed to reinforce desired risk behaviours and disincent risk-taking outside of risk limits. Compensation programs align with sound risk management principles and sustainable performance.

Risk metrics are increasingly integrated into how employees are compensated, assessed and developed:
- Risk-adjusted performance metrics are in place for senior management through to all direct reports of business line heads and business unit heads.
- Talent management and succession planning at senior levels consider risk competencies and experience.
- The approach to considering Risk Conduct and Culture as one of the criteria for promotion continues to evolve across individual businesses.
- Proportionate consequences and disciplinary actions are used to address compliance violations or policy breaches quickly and consistently across the organization, with an enterprise-wide, global approach established via the Code of Conduct governance requirements.

Risk measurement
Our ability to measure risks is a key component of our enterprise-wide risk and capital management processes. Certain measurement methodologies are common to a number of risk types, while others only apply to a single risk type. While quantitative risk measurement is important, we also place reliance on qualitative factors. Our measurement models and techniques are continually subject to independent assessment for appropriateness and reliability. For those risk types that are difficult to quantify, we place greater emphasis on qualitative risk factors and assessment of activities to gauge the overall level of risk to ensure that they are within our Risk Appetite. In addition, judgmental risk measures can still be developed, and techniques such as stress testing, and scenario and sensitivity analyses can also be used to assess and measure risks.

Quantifying expected loss
Expected loss is used to assess earnings at risk and is a representation of losses that are statistically expected to occur in the normal course of business in a given period of time. For credit risk, the key parameters used to measure our exposure to expected loss are probability of default, loss given default, and exposure at default. For market risk, a statistical technique known as Value-at-Risk (VaR) is used to measure losses under normal market conditions.

Quantifying unexpected loss
Unexpected loss is used to assess capital at risk and is a statistical estimate of the amount by which actual losses can exceed expected loss over a specified time horizon, measured at a specified level of confidence. We hold capital to withstand these unexpected losses, should they occur. For further details, refer to the Capital management section.

Stress testing
Stress testing examines potential impacts arising from exceptional but plausible adverse events, and is an important component of our risk management framework. Stress testing results are used in:
- Monitoring our Risk Profile relative to Risk Appetite in terms of earnings and capital at risk;
- Setting limits;
- Identifying key risks to and potential shifts in our capital and liquidity levels, and our financial position;
- Enhancing our understanding of available mitigating actions in response to adverse events; and
- Assessing the adequacy of our target capital levels.

Our enterprise-wide stress tests evaluate key balance sheet, income statement, leverage, capital, and liquidity impacts arising from risk exposures and changes in earnings. The results are used by the GRC, the Board of Directors and senior management risk committees to understand our performance drivers under stress, and review stressed capital, leverage, and liquidity ratios against regulatory thresholds and internal targets. The results are also incorporated into our Internal Capital Adequacy Assessment Process (ICAAP) and Capital Plan analyses.

We annually evaluate a number of enterprise-wide stress scenarios over a multi-year horizon, featuring a range of severities. Our Board of Directors reviews the recommended scenarios, and GRM leads the scenario assessment process. Results from across the organization are integrated to develop an enterprise-wide view of the impacts, with input from subject matter experts in GRM, Corporate Treasury, Finance, and Economics. Recent scenarios evaluated include global recessions, Canadian recessions, and energy price shocks.

Ongoing stress testing and scenario analyses within specific risk types such as market risk, liquidity risk, structural interest rate risk, retail and wholesale credit risk, operational risk, and insurance risk supplement and support our enterprise-wide analyses. Results from these risk-specific programs are used in a variety of decision-making processes including risk limit setting, portfolio composition evaluation, Risk Appetite articulation, and business strategy implementation.

In addition to ongoing enterprise-wide and risk specific stress testing programs, we also use ad-hoc and reverse stress testing to deepen our knowledge of the risks we face. Ad-hoc stress tests are one-off analyses used to investigate developing conditions or stress a particular portfolio in more depth. Reverse stress tests, starting with a severe outcome and aiming to reverse-engineer scenarios that might lead to it, are used in risk identification and understanding of risk/return boundaries.

In addition to internal stress tests, we participate in a number of regulator-required stress test exercises at both the consolidated and subsidiary levels.

Back-testing

We back-test many market and credit risk parameters, including Probability of default, Loss given default, and Usage given default. Back-testing is performed on a quarterly basis by comparing the realized values to the parameter estimates that are currently used to ensure the parameters remain appropriate for regulatory and economic capital calculations.

Validation of measurement models

We widely use models for many purposes, including valuation of financial products and the measurement and management of different types of risk. Models are subject to validation by qualified employees that are sufficiently independent of the model design and development, or by approved external parties. Model validation is a comprehensive independent review of a model that evaluates the applicability of the model's logic, its assumptions and theoretical underpinnings, the appropriateness of input data sources, the interpretation of the model results, and the strategic use of the model outputs. By reviewing and evaluating a model's assumptions and limitations, initial and ongoing model validation helps ensure the model incorporates current market developments and industry trends. Our model validation process is designed to ensure that all material underlying model risk factors are identified and successfully mitigated.

Risk control

Our enterprise-wide risk management approach is supported by a comprehensive set of risk controls. The controls are anchored by our Enterprise Risk Management and Risk-Specific Frameworks. These frameworks lay the foundation for the development and communication of policies, establishment of formal risk review and approval processes, and the establishment of delegated authorities and limits. The implementation of robust risk controls enables the optimization of risk and return on both a portfolio and a transactional basis.

Our risk management frameworks and policies are organized into the following five levels:

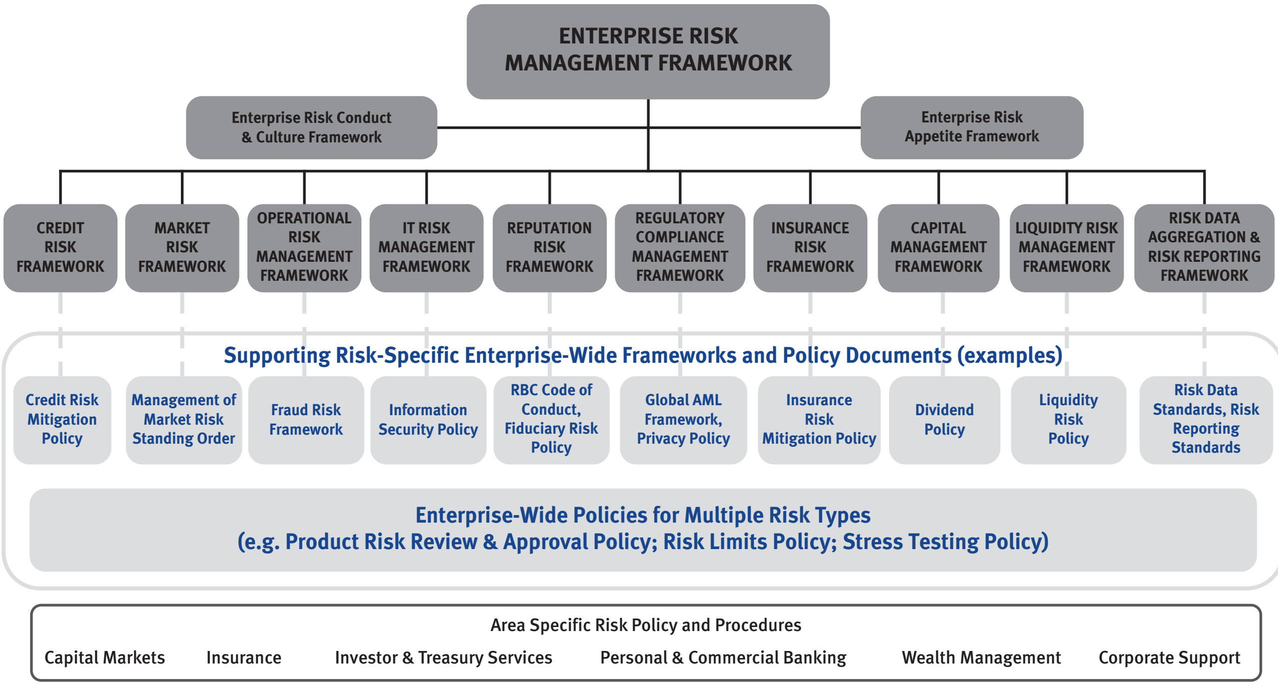
Level 1: Enterprise Risk Management Framework provides an overview of our enterprise-wide program for identifying, assessing, measuring, controlling, monitoring and reporting on the significant risks we face. This framework is underpinned by our Risk Appetite Framework and Risk Conduct and Culture Framework.

Level 2: Risk-Specific Frameworks elaborate on each specific risk type and the mechanisms for identifying, measuring, monitoring and reporting of our principal risks; key policies; and roles and responsibilities.

Level 3: Enterprise Risk Policies articulate minimum requirements, within which businesses and employees must operate.

Level 4: "Multi-risk" Enterprise Risk Policies govern activities such as product risk review and approval, stress testing, risk limits, risk approval authorities and model risk management.

Level 5: Business Segments and Corporate Support – Specific Policies and Procedures are established to manage the risks that are unique to their operations.



The approval hierarchy for risk frameworks and policy documents is as follows:

Board of Directors or Board Committees

Senior Management Committees (e.g. Policy Review Committee, Ethics & Compliance Committee, Asset Liability Committee) for most other frameworks and policies. Board or Board Committee approval is required in some instances (e.g. RBC Code of Conduct, Dividend Policy, and AML Framework)

Generally within businesses or Corporate Support committees. GRM approval required if there are significant risk implications

Risk review and approval processes

Risk review and approval processes are established by GRM based on the nature, size and complexity of the risk involved. In general, the risk review and approval process involves a formal review and approval by an individual, group or committee that is independent from the originator. The approval responsibilities are governed by delegated authorities based on the following categories: transactions, structured credit, projects and initiatives, and new products and services.

Authorities and limits

The Risk Committee of the Board of Directors delegates credit, market and insurance risk authorities to the President & CEO and the CRO. The delegated authorities allow these officers to approve single name, geographic (country and region) and industry sector exposures within defined parameters to manage concentration risk, establish underwriting and inventory limits for trading and investment banking activities and set market risk tolerances.

The Board of Directors also delegates liquidity risk authorities to the President & CEO, CAO & CFO, and CRO. These limits act as a key risk control designed to ensure that reliable and cost-effective sources of cash or its equivalent are available to satisfy our current and prospective commitments.

Reporting

Enterprise and business segment level risk monitoring and reporting are critical components of our enterprise risk management program and support the ability of senior management and the Board of Directors to effectively perform their risk management and oversight responsibilities. On a quarterly basis, we provide to senior management and the Board of Directors the Enterprise Risk Report which includes a comprehensive review of our Risk Profile relative to our Risk Appetite and focuses on the range of risks we face along with an analysis of the related issues and trends. In addition to our regular risk monitoring, other risk specific presentations are provided to and discussed with senior management and the Board of Directors on top and emerging risks or changes in our Risk Profile.

Risk Pyramid

We use a pyramid to identify and categorize our principal risks. The Risk Pyramid provides a common language and discipline for the identification and assessment of risk in existing businesses, new businesses, products or initiatives, and acquisitions and alliances. It is maintained by GRM and reviewed regularly to ensure all key risks are reflected and ranked appropriately.

The placement of the principal risks within the Risk Pyramid is a function of two primary criteria:

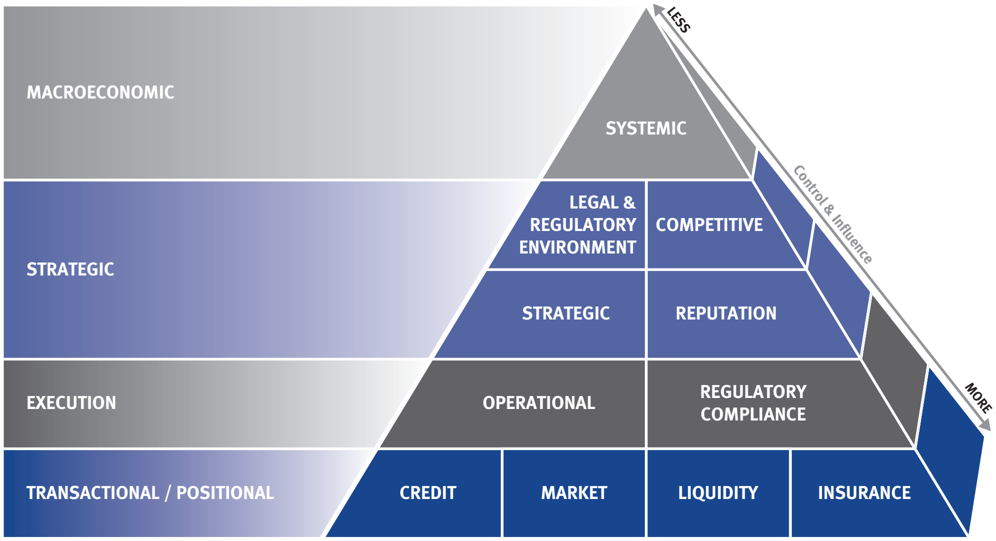
- *Risk Drivers* – Key factors that would have a strong influence on whether or not one or more of our risks will materialize. We have identified four key risk drivers: Macroeconomic, Strategic, Execution and Transactional / Positional; and
- *Control and Influence* – The risk types are organized vertically from the top of the pyramid to its base according to the relative degree of control and influence RBC is considered to have over each risk type.

Risk Drivers

- Macroeconomic: Adverse changes in the macroeconomic environment in which we operate can lead to a partial or total collapse of the real economy or the financial system in any of the regions in which we have a presence. Examples include a rapid deterioration in the Canadian housing market, a severe North American recession, and a downturn in China.
- Strategic: The strategic choices we make in terms of business mix will determine how our risk profile changes. Examples include credit portfolio mix, acquisitions, responding to the threats posed by non-traditional competitors, and responding to proposed changes in the regulatory framework.
- Execution: The complexity and scope of our operations across the globe exposes us to operational and regulatory compliance risks, including fraud, anti-money laundering, cybersecurity and conduct/fiduciary risk.
- Transactional/Positional: This driver of risk presents a more traditional risk perspective. This involves the risk of credit or market losses arising from the lending transactions and balance sheet positions we undertake every day.

The base of the pyramid – The risk categories along the base of the Risk Pyramid are those over which we have the greatest level of control and influence. We understand these risks and earn revenue by taking them. These are credit, market, liquidity and insurance risks. Operational risk and regulatory compliance risk, while still viewed as risks over which we have greater level of control and influence, are ranked higher on the pyramid than the other highly controllable risks. This ranking acknowledges the level of controllability associated with people, systems and external events.

The top of the pyramid – Systemic risk is placed at the top of the Risk Pyramid, and is generally considered the least controllable type of risk arising from the business environment impacting us. However, we have in place measures for mitigating the impacts of systemic risk such as stress testing programs and diversification. We are diversified across various business models, funding sources, products and geographies. Legal and regulatory environment and competitive risks, which can be viewed as somewhat controllable, can be influenced through our role as a corporate entity, and as an active participant in the Canadian and global financial services industry.



The shaded text along with the tables specifically marked with an asterisk(*) in the following sections of the MD&A represent our disclosures on credit, market and liquidity and funding risks in accordance with IFRS 7*, Financial Instruments: Disclosures*, and include discussion on how we measure our risks and the objectives, policies and methodologies for managing these risks. Therefore, these shaded text and tables represent an integral part of our 2015 Annual Consolidated Financial Statements.

Credit risk

Credit risk is the risk of loss associated with an obligor's potential inability or unwillingness to fulfill its contractual obligations. Credit risk may arise directly from the risk of default of a primary obligor (e.g. issuer, debtor, counterparty, borrower or policyholder), or indirectly from a secondary obligor (e.g. guarantor or reinsurer). Credit risk includes counterparty credit risk from both trading and non-trading activities.

The failure to effectively manage credit risk across all our products, services and activities can have a direct, immediate and material impact on our earnings and reputation.

We balance our risk and return by:
- Ensuring credit quality is not compromised for growth;
- Diversifying credit risks in transactions, relationships and portfolios;
- Using our credit risk rating and scoring systems or other approved credit risk assessment or rating methodologies, policies and tools;
- Pricing appropriately for the credit risk taken;
- Applying consistent credit risk exposure measurements;
- Mitigating credit risk through preventive and detective controls;
- Transferring credit risk to third parties, where appropriate, through approved credit risk mitigation techniques, including hedging activities and insurance coverage; and
- Ongoing credit risk monitoring and administration.

Risk measurement – Credit risk

We quantify credit risk, at both the individual obligor and portfolio levels, to manage expected credit losses in order to limit earnings volatility and minimize unexpected losses.

We employ different risk measurement processes for our wholesale and retail credit portfolios. The wholesale portfolio comprises businesses, sovereigns, public sector entities, banks and other financial institutions, and certain individuals and small businesses that are managed on an individual client basis. The retail portfolio is comprised of residential mortgages, personal, credit card, and small business loans, which are managed on a pooled basis. Credit risk rating systems are designed to assess and quantify the risk inherent in credit activities in an accurate and consistent manner.

In measuring credit risk and setting regulatory capital, two principal approaches are available: Internal Ratings Based Approach (IRB) and Standardized Approach. Most of our credit risk exposure is measured under the IRB.

Economic capital, which is our internal quantification of risks, is used extensively for performance measurement, limit setting and internal capital adequacy.

The key parameters that form the basis of our credit risk measures for both regulatory and economic capital are:
- Probability of default (PD): An estimated percentage that represents the likelihood of default within a given time period of an obligor for a specific rating grade or for a particular pool of exposure.
- Exposure at default (EAD): An amount expected to be owed by an obligor at the time of default.
- Loss given default (LGD): An estimated percentage of EAD that is not expected to be recovered during the collections and recovery process.

These parameters are determined based primarily on historical experience from internal credit risk rating systems in accordance with supervisory standards, and are independently validated and updated on a regular basis.

Under the Standardized Approach, used primarily for Investor Services and our Caribbean and U.S. banking operations, risk-weights prescribed by the Office of the Superintendent of Financial Institutions (OSFI) are used to calculate risk-weighted assets (RWA) for credit risk exposure.

Wholesale credit risk

The wholesale credit risk rating system is designed to measure the credit risk inherent in our wholesale credit activities.

Each obligor is assigned a borrower risk rating (BRR), reflecting an assessment of the credit quality of the obligor. Each BRR has a PD assigned to it. The BRR differentiates the riskiness of obligors and represents our evaluation of the obligor's ability and willingness to meet its contractual obligations on time over a three year time horizon. The assignment of BRRs is based on the evaluation of the obligor's business risk and financial risk and is based on fundamental credit analysis. The determination of the PD associated with each BRR relies primarily on internal default history since the early 2000s augmented where necessary with reference to external data. PD estimates are designed to be a conservative reflection of our experience across the economic cycle including periods of stress or economic downturn.

Our rating system is designed to stratify obligors into 22 grades, consistent with the external rating agencies. The following table aligns the relative rankings of our 22-grade internal risk ratings with the ratings used by S&P and Moody's.

Internal ratings map* **Table 43**

Ratings	BRR	S&P	Moody's	Description
1	1+	AAA	Aaa	Investment Grade
2	1H	AA+	Aa1	
3	1M	AA	Aa2	
4	1L	AA-	Aa3	
5	2+H	A+	A1	
6	2+M	A	A2	
7	2+L	A-	A3	
8	2H	BBB+	Baa1	
9	2M	BBB	Baa2	
10	2L	BBB-	Baa3	
11	2-H	BB+	Ba1	Non-investment Grade
12	2-M	BB	Ba2	
13	2-L	BB-	Ba3	
14	3+H	B+	B1	
15	3+M	B	B2	
16	3+L	B-	B3	
17	3H	CCC+	Caa1	
18	3M	CCC	Caa2	
19	3L	CCC-	Caa3	
20	4	CC	Ca	
21	5	C	C	Impaired
22	6	Bankruptcy	Bankruptcy	

* This table represents an integral part of our 2015 Annual Consolidated Financial Statements.

Each credit facility is assigned an LGD rate. LGD rates are largely driven by factors that will impact the extent of any losses in the event the obligor defaults including seniority of debt, collateral security, and the industry sector in which the obligor operates. Estimated LGD rates draw primarily on internal loss experience since the late 1990s. Where we have limited internal loss data we also look to external data to inform the estimation. LGD rates are estimated to reflect conditions that might be expected to prevail in a period of an economic downturn, with additional conservatism added to reflect data limitations and judgments made in the estimation process.

EAD is estimated based on the current exposure to the obligor and the possible future changes in that exposure driven by factors such as the nature of the credit commitment and the type of obligor. As with LGD, rates are estimated to reflect downturn conditions, with added conservatism to reflect data and modeling uncertainty.

Estimates of PD, LGD and EAD are updated, and then validated and back-tested by an independent team within the bank, on an annual basis. In addition, quarterly monitoring and back-testing is performed by the estimation team. These ratings and risk measurements are used in the determination of our expected losses as well as economic and regulatory capital, setting of risk limits, portfolio management and product pricing.

Counterparty credit risk

Counterparty credit risk is the risk that a party with whom the bank has entered into a financial or non-financial contract will fail to fulfill its contractual agreement and default on the obligation. It is measured not only by its current value, but also by how this value can move as market conditions change. Counterparty credit risk usually occurs in trading-related derivative and repo-style transactions.

Derivative transactions include financial (e.g. forwards, futures, swaps and options) and non-financial derivatives (e.g. precious metal and commodities). For further details on our derivative instruments and credit risk mitigation, refer to Note 8 of our 2015 Annual Consolidated Financial Statements.

Retail credit risk

Credit scoring is the primary risk rating system for assessing obligor and transaction risk for retail (scored) exposures. Credit scores along with decision strategies are employed in the acquisition of new clients and management of existing clients.

Retail exposures are managed on a pooled basis, with each pool consisting of a group or segment of exposures that possess similar homogeneous characteristics. Criteria used to pool exposures for risk quantification include behavioural score, product type (mortgages, credit cards, lines of credit and instalment loans), collateral type (chattel, liquid assets and real estate), utilization rate, loan-to-value, and the delinquency status (performing, delinquent and default) of the exposure. Regular monitoring and periodic adjustments & alignments are conducted to ensure that this process provides for a meaningful differentiation of risk.

The pools are also assessed based on credit risk parameters (PD and EAD) which consider borrower and transaction characteristics, including behavioural credit score, product type, utilization rate and delinquency status. LGD estimation is based on transaction specific factors, including product, loan-to-value and collateral types. All parameters are determined based on over 10 years of historical economic losses with the highest degree of granularity and sufficient margins of conservatism. Parameters are back-tested regularly and validated by an independent team within the bank.

The following table maps PD bands to various risk levels:

Internal ratings map* **Table 44**

PD bands	Description
0.000% – 1.718%	Low risk
1.719% – 6.430%	Medium risk
6.431% – 99.99%	High risk
100%	Impaired/Default

* This table represents an integral part of our 2015 Annual Consolidated Financial Statements.

Risk control – Credit risk

The Board of Directors and its committees, the GE, the GRC and other senior management risk committees work together to ensure a Credit Risk Management Framework and supporting policies, processes and procedures exist to manage credit risk and approve related credit risk limits. Reports are distributed to the Board of Directors, the GRC, and senior executives to keep them informed of our Risk Profile, including trending information and significant credit risk issues and shifts in exposures to ensure appropriate actions can be taken where necessary. Our enterprise-wide credit risk policies set out the minimum requirements for the management of credit risk in a variety of borrower, transactional and portfolio management contexts.

Credit policies are an integral component of our Credit Risk Management Framework and set out the minimum requirements for the management of credit risk as follows:

Credit risk assessment
- Mandatory use of credit risk rating and scoring systems.
- Consistent credit risk assessment criteria.
- Standard content requirements in credit application documents.

Credit risk mitigation
Structuring of transactions
- Specific credit policies and procedures set out the requirements for structuring transactions. Risk mitigants include the use of guarantees, collateral, seniority, loan-to-value requirements and covenants. Product-specific guidelines set out appropriate product structuring as well as client and guarantor criteria.

Collateral
- We often require obligors to pledge collateral as security when we advance credit. The extent of risk mitigation provided by collateral depends on the amount, type and quality of the collateral taken. Specific requirements relating to collateral valuation and management are documented in our credit risk management policies. The types of collateral used to secure credit or trading facilities within the bank are varied. For example, the majority of our Securities Finance and over-the-counter (OTC) derivatives activities are secured by cash and liquid Organisation for Economic Co-operation and Development (OECD) government securities. Wholesale lending is often secured by pledges of the assets of a business, such as accounts receivable, inventory, operating assets and commercial real estate. In our Canadian Banking business and Wealth Management segment, collateral typically consists of a pledge over a real estate property, or a portfolio of debt securities and equities trading on a recognized exchange.
- We are compliant with regulatory requirements that govern residential mortgage underwriting practices, including loan-to-value parameters and property valuation requirements. For further information regarding the quality of collateral used to secure residential mortgages, refer to table 53.

Credit derivatives
- Used as a tool to mitigate industry sector concentration and single-name exposure. For a more detailed description of the types of credit derivatives we enter into and how we manage related credit risk, refer to Note 8 of our 2015 Annual Consolidated Financial Statements.

Loan forbearance
In our overall management of borrower relationships, economic or legal reasons may necessitate forbearance to certain clients with respect to the original terms and conditions of their loans. We strive to identify borrowers in financial difficulty early and modify their loan terms in order to maximize collection and to avoid foreclosure, repossession, or other legal remedies. In these circumstances, a borrower may be granted concessions that would not otherwise be considered. We have specialized groups and formalized policies that direct the management of delinquent or defaulted borrowers. Examples of such concessions to retail borrowers may include rate reduction, principal forgiveness, and term extensions. Concessions to wholesale borrowers may include restructuring the agreements, modifying the original terms of the agreement and/or relaxation of covenants. For both retail and wholesale loans, the appropriate remediation techniques are based on the individual borrower's situation, the Bank's policy and the customer's willingness and capacity to meet the new arrangement. When a loan is restructured, the recorded investment in the loan is reduced as of the date of restructuring to the amount of the net cash flows receivable under the modified terms, discounted at the effective interest rate inherent in the loan (prior to restructuring). During 2015, the amount of loans restructured was not significant.

Product approval
- Proposals for credit products and services are comprehensively reviewed and approved under a risk assessment framework.

Credit portfolio management

- Concentration risk is defined as the risk arising from an over-concentration on single names, industry sectors, countries or credit products within the portfolio. Concentration risk results from large exposure to similar risks that are positively correlated such that their ability to meet contractual obligations could be similarly affected by changes in economic, political or other conditions.
- We manage credit exposures and limits to ensure alignment with Risk Appetite, to maintain our target business mix and to ensure that there is no undue risk concentration. Credit concentration limits are reviewed on a regular basis taking into account the business, economic, financial and regulatory environments.
- Our credit limits are established at the following levels: single name limits (notional and economic capital), underwriting risk limits, leveraged lending limits, geographic (country and region) limits (notional and economic capital), industry sector limits (notional and economic capital), and product and portfolio limits, where deemed necessary.

Gross credit risk exposure

Gross credit risk exposure is calculated based on the definitions provided under the Basel III framework. Under this method, risk exposure is calculated before taking into account any collateral and is inclusive of an estimate of potential future changes to that credit exposure. Gross credit risk is categorized into lending-related and other, and trading-related.

Lending-related and other includes:

- Loans and acceptances outstanding, undrawn commitments, and other exposures including contingent liabilities such as letters of credit and guarantees, available-for-sale (AFS) debt securities and deposits with financial institutions. Undrawn commitments represent an estimate of the contractual amount that may be drawn upon at the time of default of an obligor.

Trading-related credit includes:

- Repo-style transactions which include repurchase and reverse repurchase agreements and securities lending and borrowing transactions. For repo-style transactions, gross exposure represents the amount at which securities were initially financed, before taking into account collateral.
- Derivative amount which represents the credit equivalent amount, which is defined by OSFI as the replacement cost plus an add-on amount for potential future credit exposure.

Gross credit risk exposure by portfolio and sector* **Table 45**

	As at											
	October 31 2015						October 31 2014					
	Lending-related and other			Trading-related			Lending-related and other			Trading-related		
	Loans and acceptances						Loans and acceptances					
(Millions of Canadian dollars)	Outstanding	Undrawn commitments (1)	Other (2)	Repo-style transactions	Derivatives (3)	Total exposure (4)	Outstanding	Undrawn commitments (1)	Other (2)	Repo-style transactions	Derivatives (3)	Total exposure (4)
Residential mortgages	$ 233,975	$ –	$ 206	$ –	$ –	$ 234,181	$ 219,257	$ –	$ 197	$ –	$ –	$ 219,454
Personal	94,346	78,885	154	–	–	173,385	96,021	83,965	154	–	–	180,140
Credit cards	15,859	24,827	–	–	–	40,686	14,924	21,689	–	–	–	36,613
Small business (5)	4,003	5,370	9	–	–	9,382	4,067	4,631	9	–	–	8,707
Retail	$ 348,183	$ 109,082	$ 369	$ –	$ –	$ 457,634	$ 334,269	$ 110,285	$ 360	$ –	$ –	$ 444,914
Business (5)												
Agriculture	$ 6,057	$ 1,279	$ 80	$ –	$ 86	$ 7,502	$ 5,694	$ 1,079	$ 55	$ –	$ 51	$ 6,879
Automotive	6,614	5,104	407	–	984	13,109	6,209	4,880	299	–	697	12,085
Consumer goods	7,146	7,093	594	–	470	15,303	7,172	6,189	547	–	281	14,189
Energy												
Oil & Gas	7,691	13,274	1,330	–	839	23,134	5,849	10,921	1,410	–	409	18,589
Utilities	5,162	13,389	3,149	60	1,482	23,242	3,766	11,240	1,943	–	1,169	18,118
Non-bank financial services	6,428	13,060	18,002	201,845	29,769	269,104	5,688	9,775	13,414	160,514	23,290	212,681
Forest products	1,169	535	108	–	40	1,852	979	452	108	–	18	1,557
Industrial products	4,725	5,418	513	–	538	11,194	4,665	4,753	441	–	462	10,321
Mining & metals	1,402	3,883	906	–	255	6,446	1,320	2,870	876	–	174	5,240
Real estate & related	33,802	9,210	1,910	63	373	45,358	30,387	7,791	1,699	22	286	40,185
Technology & media	6,599	14,182	574	6	1,703	23,064	4,822	8,705	511	2	955	14,995
Transportation & environment	5,907	4,300	2,960	–	1,474	14,641	5,432	3,624	1,702	–	810	11,568
Other	35,133	17,166	15,620	4,915	15,386	88,220	26,604	13,345	8,379	3,490	13,800	65,618
Sovereign (5)	9,887	5,614	57,413	30,871	10,162	113,947	4,628	5,303	47,798	25,863	8,170	91,762
Bank (5)	1,800	1,015	86,106	102,371	27,221	218,513	1,201	710	73,365	94,824	22,724	192,824
Wholesale	$ 139,522	$ 114,522	$ 189,672	$ 340,131	$ 90,782	$ 874,629	$ 114,416	$ 91,637	$ 152,547	$ 284,715	$ 73,296	$ 716,611
Total exposure	$ 487,705	$ 223,604	$ 190,041	$ 340,131	$ 90,782	$ 1,332,263	$ 448,685	$ 201,922	$ 152,907	$ 284,715	$ 73,296	$ 1,161,525

* This table represents an integral part of our 2015 audited Annual Consolidated Financial Statements.

(1) Undrawn commitments represent an estimate of the contractual amount that may be drawn upon at the time of default of an obligor.

(2) Includes credit equivalent amounts for contingent liabilities such as letters of credit and guarantees, outstanding amounts for AFS debt securities, deposits with financial institutions and other assets.

(3) Credit equivalent amount after factoring in master netting agreements.

(4) Gross credit risk exposure is before allowance for loan losses. Exposures under Basel III asset classes of qualifying revolving retail and other retail are largely included within Personal and Credit cards, while HELOC are included in Personal.

(5) Refer to Note 5 of our audited 2015 Annual Consolidated Financial Statements for the definitions of these terms.

2015 vs. 2014

Total gross credit risk exposure increased $171 billion or 15% from last year, primarily reflecting an increase in repo-style transactions and growth in loans and acceptances.

Retail exposure increased $13 billion or 3%, mainly due to volume growth in Canadian residential mortgages and credit cards, partly offset by a decrease in personal loans and acceptances. Wholesale exposure increased $158 billion or 22%, primarily attributable to an increase in repo-style transactions, higher loans and acceptances reflecting growth across various industry sectors, and an increase in Other exposure related to letters of credit and guarantees, AFS securities and deposits with central banks. The impact of foreign exchange translation also contributed to the increase. Wholesale loan utilization was 37% which remained unchanged from last year.

Gross credit risk exposure by geography* (1) **Table 46**

	As at											
	October 31 2015						October 31 2014					
	Lending-related and other			Trading-related			Lending-related and other			Trading-related		
	Loans and acceptances						Loans and acceptances					
(Millions of Canadian dollars)	Outstanding	Undrawn commitments	Other	Repo-style transactions	Derivatives	Total exposure	Outstanding	Undrawn commitments	Other	Repo-style transactions	Derivatives	Total exposure
Canada	$ 414,427	$ 144,352	$ 70,774	$ 64,855	$ 27,272	$ 721,680	$ 390,221	$ 142,841	$ 63,060	$ 56,308	$ 21,649	$ 674,079
U.S.	40,186	60,031	50,915	179,021	14,023	344,176	28,325	43,270	23,487	150,549	12,536	258,167
Europe	17,706	15,574	52,294	58,900	44,480	188,954	15,348	13,091	47,904	52,501	34,222	163,066
Other International	15,386	3,647	16,058	37,355	5,007	77,453	14,791	2,720	18,456	25,357	4,889	66,213
Total Exposure	$ 487,705	$ 223,604	$ 190,041	$ 340,131	$ 90,782	$ 1,332,263	$ 448,685	$ 201,922	$ 152,907	$ 284,715	$ 73,296	$ 1,161,525

* This table represents an integral part of our 2015 audited Annual Consolidated Financial Statements.

(1) Geographic profile is based on country of residence of the borrower.

2015 vs. 2014

Total gross credit risk exposure increased $171 billion or 15% from last year, primarily reflecting an increase in repo-style transactions and the impact of foreign exchange translation.

Canada exposure increased $48 billion or 7% compared to the prior year, primarily due to higher loans and acceptances and growth in repo-style transactions.

U.S. exposure increased $86 billion or 33% compared to the prior year, mainly due to growth in repo-style transactions, an increase in other exposure, and the impact of foreign exchange translation.

Europe exposure increased $26 billion or 16% compared to the prior year, mainly due to growth in derivatives, repo-style transactions, and the impact of foreign exchange translation.

Other International increased $11 billion or 17% compared to the prior year, mainly reflecting growth in repo-style transactions, and the impact of foreign exchange translation.

Loans and acceptances outstanding and undrawn commitments* (1), (2) **Table 47**

	As at									
	October 31 2015					October 31 2014				
(Millions of Canadian dollars)	Low risk	Medium risk	High risk	Impaired	Total	Low risk	Medium risk	High risk	Impaired	Total
Retail (3)										
Residential mortgages	$ 218,151	$ 13,080	$ 2,098	$ 646	$ 233,975	$ 206,699	$ 9,452	$ 2,428	$ 678	$ 219,257
Personal	157,996	12,020	2,916	299	173,231	158,530	17,309	3,847	300	179,986
Credit cards	34,547	4,772	1,367	–	40,686	29,900	5,403	1,310	–	36,613
Small business	6,878	1,047	1,403	45	9,373	6,542	1,519	1,308	47	9,416
Total	$ 417,572	$ 30,919	$ 7,784	$ 990	$ 457,265	$ 401,671	$ 33,683	$ 8,893	$ 1,025	$ 445,272

	As at							
	October 31 2015				October 31 2014			
(Millions of Canadian dollars)	Investment grade	Non-Investment grade	Impaired	Total	Investment grade	Non-investment grade	Impaired	Total
Wholesale (4)								
Business	$ 105,871	$ 128,564	$ 1,293	$ 235,728	$ 82,714	$ 109,829	$ 950	$193,493
Sovereign	14,704	797	–	15,501	9,476	455	–	9,931
Bank	2,475	338	2	2,815	1,440	469	2	1,911
Total	$ 123,050	$ 129,699	$ 1,295	$ 254,044	$ 93,630	$ 110,753	$ 952	$205,335

* This table represents an integral part of our audited 2015 Annual Consolidated Financial Statements.

(1) This table represents our retail and wholesale loans and acceptances outstanding and undrawn commitments by portfolio and risk category.

(2) The amounts in the table are before allowance for impaired loans.

(3) Includes undrawn commitments of $nil, $78.9 billion, $24.8 billion, and $5.4 billion for Residential mortgages, Personal, Credit cards and Small business, respectively.

(4) Includes undrawn commitments of $107.9 billion, $5.6 billion, and $1.0 billion for Business, Sovereign and Bank, respectively.

2015 vs. 2014

Growth in retail exposures was largely attributable to the low risk category primarily reflecting growth in residential mortgages and credit cards. Growth in wholesale exposures was mainly due to loan growth in both the investment grade and non-investment grade categories.

European exposure Table 48

(Millions of Canadian dollars)	As at October 31 2015 Loans and acceptances Outstanding	Undrawn commitments (1)	Other Securities (2)	Letters of credit and guarantees	Repo-style transactions	Derivatives	Total European exposure	October 31 2014 Total European exposure
Gross exposure to Europe	$ 17,706	$ 15,574	$ 24,480	$ 27,814	$ 58,900	$ 44,480	$ 188,954	$ 163,066
Less: Collateral held against repo-style transactions	–	–	–	–	57,674	–	57,674	51,386
Potential future credit exposure add-on amount	–	–	–	–	–	29,875	29,875	22,403
Undrawn commitments	–	15,574	–	27,814	–	–	43,388	38,079
Gross drawn exposure to Europe	$ 17,706	$ –	$ 24,480	$ –	$ 1,226	$ 14,605	$ 58,017	$ 51,198
Less: Collateral applied against derivatives	–	–	–	–	–	10,721	10,721	8,249
Add: Trading securities	–	–	12,797	–	–	–	12,797	15,471
Net exposure to Europe (3)	$ 17,706	$ –	$ 37,277	$ –	$ 1,226	$ 3,884	$ 60,093	$ 58,420

(1) These amounts are comprised of $12.3 billion to corporate entities, $2.6 billion to financial entities and $0.5 billion to sovereign entities. On a country basis, exposure is comprised of $7.0 billion to the U.K., $2.5 billion to France, $1.9 billion to Germany, $0.6 billion to Ireland, $0.3 billion to Spain, and $0.1 billion to Italy, with the remaining $3.1 billion related to Other Europe. Of the undrawn commitments, over 80% are to investment grade entities.
(2) Securities include $12.8 billion of trading securities (2014 – $15.5 billion), $11.5 billion of deposits (2014 – $11.9 billion), and $13.0 billion of AFS securities (2014 – $11.0 billion).
(3) Excludes $2.6 billion (2014 – $2.8 billion) of exposures to supranational agencies.

Our gross credit risk exposure is calculated based on the definitions provided under the Basel III framework whereby risk exposure is calculated before taking into account any collateral and inclusive of an estimate of potential future changes to that credit exposure. On that basis, our total European exposure as at October 31, 2015 was $189 billion. Our gross drawn exposure to Europe was $58 billion, after taking into account collateral held against repo-style transactions of $58 billion, letters of credit and guarantees, and undrawn commitments for loans of $43 billion and potential future credit exposure to derivatives of $30 billion. Our net exposure to Europe was $60 billion, after taking into account $11 billion of collateral, primarily in cash, we hold against derivatives and the addition of trading securities of $13 billion held in our trading book. Our net exposure to Europe also reflected $1.8 billion of mitigation through credit default swaps, which are largely used to hedge single name exposures and market risk.

Net European exposure by country (1) Table 49

(Millions of Canadian dollars)	As at October 31 2015 Loans outstanding	Securities	Repo-style transactions	Derivatives	Total	October 31 2014 Total
U.K.	$ 10,330	$ 8,372	$ 867	$ 1,395	$ 20,964	$ 24,033
Germany	1,142	7,789	4	561	9,496	10,172
France	446	3,426	56	605	4,533	4,284
Total U.K., Germany, France	$ 11,918	$ 19,587	$ 927	$ 2,561	$ 34,993	$ 38,489
Greece	$ –	$ –	$ –	$ –	$ –	$ –
Ireland	1,138	66	47	68	1,319	883
Italy	45	42	–	13	100	150
Portugal	8	1	–	–	9	9
Spain	337	60	–	42	439	476
Total Peripheral (2)	$ 1,528	$ 169	$ 47	$ 123	$ 1,867	$ 1,518
Luxembourg	$ 586	$ 4,250	$ 3	$ 51	$ 4,890	$ 1,909
Netherlands	1,014	3,211	30	728	4,983	4,260
Norway	427	4,431	–	28	4,886	3,011
Sweden	273	3,012	79	12	3,376	2,731
Switzerland	523	1,007	98	125	1,753	3,557
Other	1,437	1,610	42	256	3,345	2,945
Total Other Europe	$ 4,260	$ 17,521	$ 252	$ 1,200	$ 23,233	$ 18,413
Total exposure to Europe	$ 17,706	$ 37,277	$ 1,226	$ 3,884	$ 60,093	$ 58,420

(1) Geographic profile is based on country of risk, which reflects our assessment of the geographic risk associated with a given exposure. Typically, this is the residence of the borrower.
(2) Gross credit risk exposure to peripheral Europe is comprised of Greece $nil (2014 – $nil), Ireland $11.7 billion (2014 – $2.5 billion), Italy $0.3 billion (2014 – $0.2 billion), Portugal $nil (2014 – $nil), and Spain $1.2 billion (2014 – $0.9 billion).

2015 vs. 2014

Net credit risk exposure to Europe increased $1.7 billion from last year, largely driven by increased exposure in Luxembourg, Norway and the Netherlands, partially offset by a decrease in the U.K., Switzerland and Germany. Our net exposure to peripheral Europe, which includes Greece, Ireland, Italy, Portugal and Spain, remained minimal, with total outstanding exposure increasing $0.3 billion during the year to $1.9 billion.

Our exposure was predominantly investment grade. Our net exposure to larger European countries, including the U.K., Germany and France, was primarily related to our capital markets, wealth management, and investor services businesses, particularly in fixed income, treasury services, derivatives, and corporate and individual lending. These are predominantly client-driven businesses where we transact with a range of European financial institutions, corporations, and individuals. In addition, we engage in primary dealer activities in the U.K., where we participate in auctions of government debt and act as a market maker and provide liquidity to clients. Exposures to other European countries are largely related to securities which include trading securities, deposits, and AFS securities.

Our trading securities are related to both client market-making activities and our funding and liquidity management needs. All of our trading securities are marked-to-market on a daily basis. Deposits are primarily related to deposits with central banks or financial institutions and also included deposits related to our wealth management business in the Channel Islands. AFS securities are largely comprised of OECD government and corporate debt. Our European corporate loan book is managed on a global basis and the underwriting standards for this loan book reflect the same approach to the use of our balance sheet as we have applied in both Canada and the U.S. Our PCL on this portfolio was nominal for this year. The gross impaired loans ratio of this loan book was 0.6%, up from 0.12% from last year.

Net European exposure by client type **Table 50**

	As at												
	October 31 2015												October 31 2014
(Millions of Canadian dollars)	U.K.	Germany	France	Total U.K., Germany, France	Greece	Ireland	Italy	Portugal	Spain	Total Peripheral	Other Europe	Total Europe	Total Europe
Financials	$ 7,453	$ 6,853	$ 813	$ 15,119	$ –	$ 148	$ 65	$ –	$ 31	$ 244	$ 12,472	$ 27,835	$ 24,641
Sovereign	4,347	837	3,125	8,309	–	3	–	–	103	106	6,400	14,815	17,527
Corporate	9,164	1,806	595	11,565	–	1,168	35	9	305	1,517	4,361	17.443	16,252
Total	$ 20,964	$ 9,496	$ 4,533	$ 34,993	$ –	$ 1,319	$ 100	$ 9	$ 439	$ 1,867	$ 23,233	$ 60,093	$ 58,420

2015 vs. 2014

Our net exposure to Financials increased $3.2 billion mainly due to increases in the U.K. and Other Europe, partially offset by a decrease in France. The net exposure to Sovereign decreased $2.7 billion, mainly due to decreases in U.K. and Germany, partially offset by increases in Other Europe and France. The increase in Corporate of $1.2 billion was largely in Other Europe and Ireland.

Residential mortgages and home equity lines of credit (insured vs. uninsured)

Residential mortgages and home equity lines of credit are secured by residential properties. The following table presents a breakdown by geographic region:

Residential mortgages and home equity lines of credit **Table 51**

(Millions of Canadian dollars, except percentage amounts)	As at October 31, 2015					
	Residential mortgages (1)					Home equity lines of credit (2)
	Insured (3)		Uninsured		Total	Total
Region (4)						
Canada						
Atlantic provinces	$ 6,856	55%	$ 5,586	45%	$ 12,442	$ 2,060
Quebec	12,414	46	14,621	54	27,035	4,157
Ontario	36,555	39	58,036	61	94,591	16,785
Prairie provinces	27,562	53	24,597	47	52,159	9,940
B.C. and territories	15,755	36	27,555	64	43,310	9,085
Total Canada (5)	$ 99,142	43%	$ 130,395	57%	$ 229,537	$ 42,027
U.S.	(1)	–	773	100	772	334
Other International	14	–	3,202	100	3,216	3,107
Total International	$ 13	–%	$ 3,975	100%	$ 3,988	$ 3,441
Total	$ 99,155	42%	$ 134,370	58%	$ 233,525	$ 45,468

(Millions of Canadian dollars, except percentage amounts)	As at October 31, 2014					
	Residential mortgages (1)					Home equity lines of credit (2)
	Insured (3)		Uninsured		Total	Total
Region (4)						
Canada						
Atlantic provinces	$ 6,411	55%	$ 5,169	45%	$ 11,580	$ 2,068
Quebec	13,006	50	13,248	50	26,254	4,163
Ontario	35,354	40	51,974	60	87,328	17,104
Prairie provinces	25,813	53	22,826	47	48,639	10,310
B.C. and territories	15,585	38	25,887	62	41,472	9,768
Total Canada (5)	$ 96,169	45%	$ 119,104	55%	$ 215,273	$ 43,413
U.S.	4	1	535	99	539	332
Other International	13	–	3,081	100	3,094	2,691
Total International	$ 17	–%	$ 3,616	100%	$ 3,633	$ 3,023
Total	$ 96,186	44%	$ 122,720	56%	$ 218,906	$ 46,436

(1) The residential mortgages amounts exclude our third-party mortgage-backed securities (MBS) of $450 million (2014 – $351 million).
(2) Home equity lines of credit includes revolving and non-revolving loans.
(3) Insured residential mortgages are mortgages whereby our exposure to default is mitigated by insurance through the Canada Mortgage and Housing Corporation (CMHC) or other private mortgage default insurers.
(4) Region is based upon address of the property mortgaged. The Atlantic provinces are comprised of Newfoundland and Labrador, Prince Edward Island, Nova Scotia and New Brunswick, the Prairie provinces are comprised of Manitoba, Saskatchewan and Alberta, and B.C. and territories are comprised of British Columbia, Nunavut, Northwest Territories and Yukon.
(5) Total consolidated residential mortgages in Canada of $230 billion (2014 – $215 billion) is largely comprised of $205 billion (2014 – $192 billion) of residential mortgages and $5 billion (2014 – $5 billion) of mortgages with commercial clients of which $3 billion (2014 – $3 billion) are insured mortgages, both in Canadian Banking, and $19 billion (2014 – $18 billion) of residential mortgages in Capital Markets held for securitization purposes.

Home equity lines of credit are uninsured and reported within the personal loan category. As at October 31, 2015, home equity lines of credit in Canadian Banking were $42 billion (2014 – $43 billion). Approximately 98% of these home equity lines of credit (2014 – 97%) are secured by a first lien on real estate, and 8% (2014 – 8%) of the total homeline clients pay the scheduled interest payment only.

Residential mortgages portfolio by amortization period

The following table provides a summary of the percentage of residential mortgages that fall within the remaining amortization periods based upon current customer payment amounts, which incorporate payments larger than the minimum contractual amount and/or higher frequency of payments:

Residential mortgages portfolio by amortization period **Table 52**

	As at					
	October 31 2015			October 31 2014		
	Canada	**U.S. and Other International**	**Total**	Canada	U.S. and Other International	Total
Amortization period						
≤ 25 years	**75%**	**77%**	**75%**	71%	74%	71%
> 25 years ≤ 30 years	**23**	**23**	**23**	23	26	23
> 30 years ≤ 35 years	**2**	**–**	**2**	5	–	5
> 35 years	**–**	**–**	**–**	1	–	1
Total	**100%**	**100%**	**100%**	100%	100%	100%

Average loan-to-value (LTV) ratio for newly originated and acquired uninsured residential mortgages and homeline products

The following table provides a summary of our average LTV ratio for newly originated and acquired uninsured residential mortgages and homeline products by geographic region:

Average LTV ratio **Table 53**

	2015		2014	
	Uninsured		Uninsured	
	Residential mortgages (1)	**Homeline products** (2)	Residential mortgages (1)	Homeline products (2)
Region (3)				
Atlantic provinces	**74%**	**75%**	74%	74%
Quebec	**71**	**73**	71	73
Ontario	**70**	**70**	71	71
Prairie provinces	**73**	**74**	74	73
B.C. and territories	**69**	**66**	69	67
U.S.	**72**	**n.m.**	71	n.m.
Other International	**61**	**n.m.**	60	n.m.
Average of newly originated and acquired for the year (4), (5)	**71%**	**70%**	72%	71%
Total Canadian Banking residential mortgages portfolio	**55%**	**54%**	55%	55%

(1) Residential mortgages excludes residential mortgages within the homeline products.
(2) Homeline products are comprised of both residential mortgages and home equity lines of credit.
(3) Region is based upon address of the property mortgaged. The Atlantic provinces are comprised of Newfoundland and Labrador, Prince Edward Island, Nova Scotia and New Brunswick, the Prairie provinces are comprised of Manitoba, Saskatchewan and Alberta, and B.C. and territories are comprised of British Columbia, Nunavut, Northwest Territories and Yukon.
(4) The average LTV ratio for newly originated and acquired uninsured residential mortgages and homeline products is calculated on a weighted basis by mortgage amounts at origination.
(5) For newly originated mortgages and homeline products, LTV is calculated based on the total facility amount for the residential mortgage and homeline product divided by the value of the related residential property.
n.m. not meaningful

While the above table provides the LTV ratios for the current year originations, the LTV ratio on our outstanding balances of the entire Canadian Banking uninsured residential mortgages, including homeline products, is 54% as at October 31, 2015 (2014 – 55%). This calculation is weighted by mortgage balances and adjusted for property values based on the Teranet – National Bank National Composite House Price Index.

We employ a risk-based approach to property valuation. Property valuation methods include automated valuation models (AVM) and appraisals. An AVM is a tool that estimates the value of a property by reference to market data including sales of comparable properties and price trends specific to the Metropolitan Statistical Area in which the property being valued is located. Using a risk-based approach, we also employ appraisals which can include drive-by or full on-site appraisals.

We continue to actively manage our entire mortgage portfolio and perform stress testing, based on a combination of increasing unemployment, rising interest rates, and a downturn in real estate markets. Our stress test results indicate the vast majority of our residential mortgage and homeline clients have sufficient capacity to continue making payments in the event of a shock to one of the above noted parameters.

Credit quality performance

Provision for (recovery of) credit losses — Table 54

(Millions of Canadian dollars, except percentage amounts)	2015	2014
Personal & Commercial Banking	$ 984	$ 1,103
Wealth Management	46	19
Capital Markets	71	44
Corporate Support and Other (1)	(4)	(2)
Total PCL	$ 1,097	$ 1,164
Canada (2)		
Residential mortgages	$ 27	$ 27
Personal	393	393
Credit cards	371	345
Small business	32	44
Retail	823	809
Wholesale	116	123
PCL on impaired loans	939	932
U.S. (2)		
Retail	$ 1	$ 2
Wholesale	40	40
PCL on impaired loans	41	42
Other International (2)		
Retail	$ 21	$ 121
Wholesale	96	69
PCL on impaired loans	117	190
Total PCL	$ 1,097	$ 1,164
PCL ratio (3)		
Total PCL ratio	0.24%	0.27%
Personal & Commercial Banking	0.27%	0.31%
Canadian Banking	0.25%	0.27%
Caribbean Banking	0.85%	2.44%
Wealth Management	0.26%	0.12%
Capital Markets	0.09%	0.07%

(1) PCL in Corporate Support and Other primarily comprised of PCL for loans not yet identified as impaired. For further information, refer to the How we measure and report our business segments section.
(2) Geographic information is based on residence of borrower.
(3) PCL on impaired loans as a % of average net loans and acceptances.

2015 vs. 2014

Total PCL decreased $67 million, or 6%, from a year ago. The PCL ratio of 24 bps decreased 3 bps.

PCL in Personal & Commercial Banking decreased $119 million or 11%, and the PCL ratio of 27 bps decreased 4 bps, mainly due to lower provisions in our Caribbean portfolios partially due to provisions of $50 million in the prior year on our Caribbean impaired residential mortgage portfolio. Lower provisions in the current year related to our commercial lending portfolios also contributed to the decrease. These factors were partially offset by higher write-offs in our credit cards portfolio.

PCL in Wealth Management increased $27 million, mainly due to provisions related to our U.S. & International Wealth Management business.

PCL in Capital Markets increased $27 million or 61%, mainly due to provisions in the oil and gas, consumer goods, and utilities sectors.

Gross impaired loans (GIL)		Table 55
(Millions of Canadian dollars, except percentage amounts)	2015	2014
Personal & Commercial Banking	$ 1,809	$ 1,913
Wealth Management	178	11
Capital Markets	296	50
Investor & Treasury Services	2	2
Corporate Support and Other	–	1
Total GIL	**$ 2,285**	**$ 1,977**
Canada (1)		
Retail	$ 624	$ 659
Wholesale	512	487
GIL	1,136	1,146
U.S. (1)		
Retail	$ 10	$ 13
Wholesale	204	18
GIL	214	31
Other International (1)		
Retail	$ 356	$ 353
Wholesale	579	447
GIL	935	800
Total GIL	**$ 2,285**	**$ 1,977**
Impaired loans, beginning balance	1,977	2,201
Classified as impaired during the year (new impaired) (2)	1,709	1,317
Net repayments (2)	(158)	(228)
Amounts written off	(1,338)	(1,329)
Other (2), (3)	95	16
Impaired loans, balance at end of year	**2,285**	**1,977**
GIL ratio (4)		
Total GIL ratio	0.47%	0.44%
Personal & Commercial Banking	0.49%	0.55%
Canadian Banking	0.30%	0.33%
Caribbean Banking	9.13%	11.05%
Wealth Management	1.01%	0.07%
Capital Markets	0.37%	0.08%

(1) Geographic information is based on residence of borrower.
(2) Certain GIL movements for Canadian Banking retail and wholesale portfolios are generally allocated to New Impaired, as Return to performing status, Net repayments, Sold, and Exchange and other movements amounts are not reasonably determinable. Certain GIL movements for Caribbean Banking retail and wholesale portfolios are generally allocated to repayments and new Impaired, as Return to performing status, Sold, and Exchange and other movements amounts are not reasonably determinable.
(3) Includes Return to performing status during the year, Recoveries of loans and advances previously written off, Sold, and Exchange and other movements.
(4) GIL as a % of loans and acceptances.

2015 vs. 2014
Total GIL increased $308 million or 16% from a year ago. The GIL ratio of 47 bps increased 3 bps.

GIL in Personal & Commercial Banking decreased $104 million or 5%, mainly due to lower impaired loans in our commercial lending and residential mortgages portfolios.

GIL in Wealth Management increased $167 million, mainly due to higher impaired loans in the U.S. & International Wealth Management business.

GIL in Capital Markets increased $246 million, primarily due to higher impaired loans in the oil and gas, utilities, and consumer goods sectors.

Allowance for credit losses (ACL)		Table 56
(Millions of Canadian dollars)	2015	2014
Allowance for impaired loans		
Personal & Commercial Banking	$ 548	$ 602
Wealth Management	43	10
Capital Markets	61	18
Investor & Treasury Services	2	2
Total allowance for impaired loans	654	632
Canada (1)		
Retail	$ 142	$ 143
Wholesale	111	160
Allowance for impaired loans	253	303
U.S. (1)		
Retail	$ 1	$ 1
Wholesale	47	16
Allowance for impaired loans	48	17
Other International (1)		
Retail	$ 169	$ 172
Wholesale	184	140
Allowance for impaired loans	353	312
Total allowance for impaired loans	654	632
Allowance for loans not yet identified as impaired	1,466	1,453
Total ACL	$ 2,120	$ 2,085

(1) Geographic information is based on residence of borrower.

2015 vs. 2014
Total ACL increased $35 million or 2% from a year ago, mainly related to higher ACL in Capital Markets and Wealth Management consistent with higher PCL recorded in the current year. This was partially offset by lower ACL in Personal & Commercial Banking consistent with lower PCL recorded in the current year.

Market risk

Market risk is defined to be the impact of market prices upon our financial condition. This includes potential gains or losses due to changes in market determined variables such as interest rates, credit spreads, equity prices, commodity prices, foreign exchange rates and implied volatilities.

The measures of financial condition impacted by market risk are as follows:

1. Positions whose revaluation gains and losses are reported in Revenue, which includes:
   a) Changes in the fair value of instruments classified or designated as at fair value through profit and loss (FVTPL),
   b) Impairment on AFS securities, and
   c) Hedge ineffectiveness.
2. CET1 capital, which includes:
   a) All of the above, plus
   b) Changes in the fair value of AFS securities where revaluation gains and losses are reported as other comprehensive income,
   c) Changes in the Canadian dollar value of investments in foreign subsidiaries, net of hedges, due to foreign exchange translation, and
   d) Remeasurements of employee benefit plans, including pension fund assets underperforming in the market resulting in a deficit and volatility between the pension liabilities and the fund assets, and/or, estimated actuarial parameters not being realized such that pension liabilities exceed pension fund assets.
3. CET1 ratio, which includes:
   a) All of the above, plus
   b) Changes in risk-weighted assets (RWA) resulting from changes in traded market risk factors, and
   c) Changes in the Canadian dollar value of RWA due to foreign exchange translation.
4. The economic value of the Bank, which includes:
   a) Points 1 and 2 above, plus
   b) Changes in the value of other non-trading positions whose value is a function of market risk factors.

Market risk controls – FVTPL positions
As an element of the Enterprise Risk Appetite Framework, the Board of Directors approves the overall market risk constraints for RBC. GRM creates and manages the control structure for FVTPL positions that ensures that business is conducted consistent with Board requirements. The Market and Trading Credit Risk function within GRM is responsible for creating and managing the controls and governance procedures

that ensure that risk taken is consistent with risk appetite constraints set by the Board. These controls include limits on probabilistic measures of potential loss such as Value-at-Risk and Stressed Value-at-Risk as defined below:

Value-at-Risk (VaR) – is a statistical measure of potential loss for a financial portfolio computed at a given level of confidence and over a defined holding period. We measure VaR at the 99th percentile confidence level for price movements over a one day holding period using historic simulation of the last two years of equally weighted historic market data. These calculations are updated daily with current risk positions with the exception of certain positions which are updated weekly.

Stressed Value-at-Risk (SVaR) – is calculated in an identical manner as VaR with the exception that it is computed using a fixed historical one year period of extreme volatility and its inverse rather than the most recent two year history. The stress period used is the interval from September 2008 through August 2009. Stressed VaR is calculated weekly for all portfolios.

These measures are computed on all positions that are FVTPL for financial reporting purposes, with the exception of those in a designated hedging relationship and those in our insurance businesses.

Market risk measures – FVTPL positions

VaR and SVaR

The following table presents our Market risk VaR and Market risk SVaR figures for 2015 and 2014.

Market Risk VaR* **Table 57**

	2015				2014			
		For the year ended October 31				For the year ended October 31		
(Millions of Canadian dollars)	As at Oct. 31	Average	High	Low	As at Oct. 31	Average	High	Low
Equity	$ 20	$ 12	$ 31	$ 6	$ 9	$ 10	$ 17	$ 4
Foreign exchange	4	4	8	3	3	2	5	1
Commodities	3	3	6	2	2	3	7	2
Interest rate	26	28	34	23	24	27	36	18
Credit specific (1)	6	8	9	6	8	9	11	6
Diversification (2)	(18)	(22)	(34)	(15)	(18)	(21)	(30)	(15)
Market risk VaR	$ 41	$ 33	$ 45	$ 26	$ 28	$ 30	$ 39	$ 19
Market risk Stressed VaR	$ 109	$ 104	$ 157	$ 73	$ 83	$ 92	$ 121	$ 69

* This table represents an integral part of our audited 2015 Annual Consolidated Financial Statements.
(1) General credit spread risk is measured under interest rate VaR while credit specific risk captures issuer-specific credit spread volatility.
(2) Market risk VaR is less than the sum of the individual risk factor VaR results due to portfolio diversification.

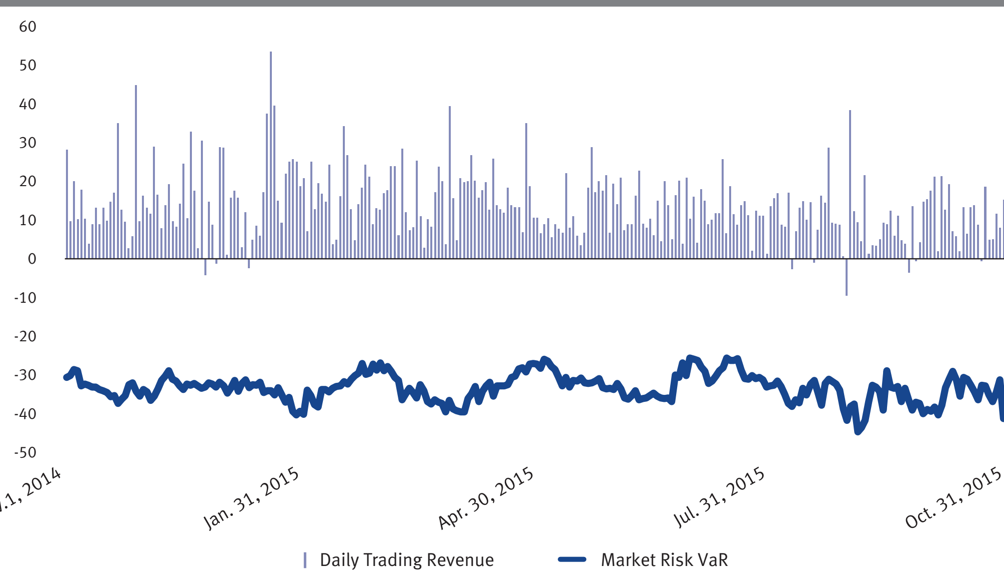
2015 vs. 2014

Average market risk VaR of $33 million was up $3 million compared to the prior year, mainly reflecting an increase due to the impact of foreign exchange translation and higher exposure to our credit risk resulting from the implementation of funding valuation adjustments at the end of the fourth quarter of 2014, and by higher equity market volatility.

Average SVaR of $104 million was up $12 million compared to the prior year, largely due to the implementation of funding valuation adjustments as noted above and the impact of foreign exchange translation.

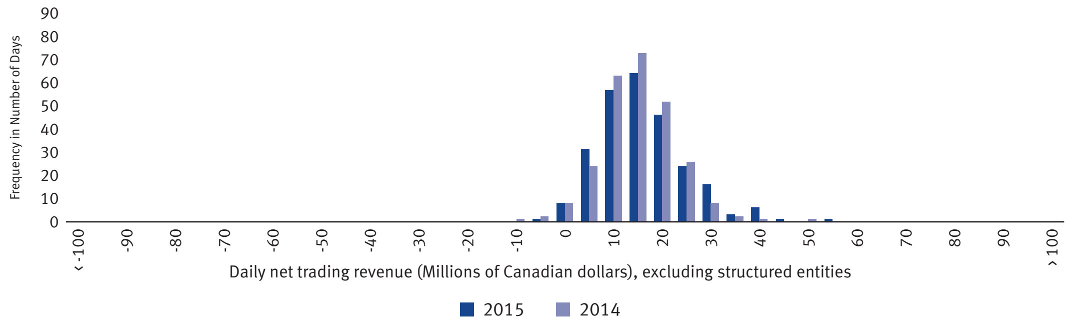
The following chart graphically displays a bar chart of our daily trading profit and loss and a line chart of our daily Market risk VaR. We incurred net trading losses on nine days in the year totalling $25 million, as compared to 11 days of losses totalling $46 million in 2014, with none of the losses exceeding VaR.

Trading Revenue and VaR (Millions of Canadian dollars)



The following chart displays the distribution of daily trading profit and loss in 2015. The largest daily reported loss of $9.4 million on September 1, 2015 was primarily driven by market volatility. Of the nine loss days in fiscal 2015, six occurred within Q4. These loss days were driven by market volatility as a result of uncertainty over China's economy and U.S. federal rate increases in the fourth quarter. The largest reported profit was $53.4 million with an average daily profit of $13.6 million.

Trading Revenue for the year ended October 31, 2015 (teb)



Market risk measures for other FVTPL positions – Assets and liabilities of RBC Insurance

We offer a range of insurance products to clients and hold investments to meet the future obligations to policyholders. The investments which support actuarial liabilities are predominantly fixed income assets designated as at FVTPL. Consequently, changes in the fair values of these assets are recorded in investment income in the consolidated statements of income and are largely offset by changes in the fair value of the actuarial liabilities, the impact of which is reflected in insurance policyholder benefits and claims. As at October 31, 2015, we had liabilities with respect to insurance obligations of $9.1 billion and trading securities of $7.1 billion in support of the liabilities.

Market risk controls – Structural Interest Rate Risk (SIRR) positions (1)

The interest rate risk arising from non-trading positions is referred to as SIRR, and is subject to a separate set of limits and controls. Non-trading positions in the bank mostly include the Bank's personal and business lending and deposit activities. Factors contributing to SIRR include the mismatch between future asset and liability repricing dates, relative changes in asset and liability rates, and product features that could affect the expected timing of cash flows, such as options to pre-pay loans or redeem term deposits prior to contractual maturity.

The Board of Directors approves the risk appetite for SIRR, and the Asset Liability Committee (ALCO), along with GRM, provides ongoing oversight of SIRR through risk policies, limits, operating standards and other controls. SIRR reports are reviewed regularly by GRM, ALCO, the Group Risk Committee, the Risk Committee of the Board and the Board of Directors.

Details on the non-trading risks included in SIRR are outlined in Table 59.

Structural Interest Rate Risk measurement

To monitor and control SIRR, the Bank assesses two primary financial metrics, 12-month NII (NII risk) and Economic Value of Equity (EVE risk), under a range of market shocks and scenarios. Market scenarios include currency-specific parallel and non-parallel yield curve changes and interest rate volatility shocks.

In measuring NII risk, detailed non-trading balance sheets and income statements are dynamically simulated to determine the impact of market stress scenarios on projected NII. Assets, liabilities and off-balance sheet positions are simulated using monthly time steps over a one-year horizon. The simulations incorporate product maturities, renewals and growth along with prepayment and redemption behaviour. Product pricing and volumes are calibrated from past experience and projected consistent with expectations for a given market stress scenario. EVE risk captures the market value sensitivity of structural positions to changes in longer-term rates. In measuring EVE risk, deterministic (single-scenario) and stochastic (multiple-scenario) valuation techniques are applied to detailed spot position data. NII and EVE risks are measured for a range of market risk stress scenarios which include extreme but plausible market rate changes, across interest rate curves and interest rate volatilities.

The management of NII and EVE risks is complementary and supports efforts by the Bank to generate a sustainable high quality NII stream. NII and EVE risks are measured daily, weekly or monthly depending on the size, complexity and hedge strategy applicable to a balance sheet or business activity.

A number of assumptions affecting cash flows, product re-pricing and the administration of rates underlie the models used to measure NII and EVE risks. The key assumptions pertain to the expected funding profiles for retail mortgage rate commitments, prepayment behaviour for fixed-rate loans, term deposit redemption behaviour, and the treatment of non-maturity deposits. All assumptions are derived empirically from historical client and product experience and consider future product pricing and customer needs. All models and assumptions used to measure SIRR are subject to independent oversight by GRM.

Market risk measures – Structural Interest Rate Positions

The following table shows the potential before-tax impact of an immediate and sustained 100 bps and 200 bps increase or decrease in interest rates on projected 12-month NII and EVE for the Bank's non-trading balance sheet, assuming no subsequent hedging. Rate floors are applied within the declining rates scenarios, with floor levels set based on global rate movement experience. Interest rate risk measures are based upon interest rate exposures at a specific time and continuously change as a result of business activities and risk management actions.

(1) SIRR positions include impact of derivatives in hedge accounting relationships and AFS securities used for interest rate risk management.

Market risk measures – Non-trading banking activities* **Table 58**

(Millions of Canadian dollars)	2015 Economic value of equity risk: Canadian dollar impact	2015 Economic value of equity risk: U.S. dollar impact (1)	2015 Economic value of equity risk: Total	2015 Net interest income risk (2): Canadian dollar impact	2015 Net interest income risk (2): U.S. dollar impact (1)	2015 Net interest income risk (2): Total	2014 Economic value of equity risk	2014 Net interest income risk (2)	2013 Economic value of equity risk	2013 Net interest income risk (2)
Before-tax impact of:										
100bps increase in rates	$ (1,069)	$ (3)	$(1,072)	$ 280	$ 9	$ 289	$ (916)	$ 414	$ (540)	$ 391
100bps decrease in rates	836	(7)	829	(364)	(6)	(370)	754	(348)	446	(303)
Before-tax impact of:										
200bps increase in rates	(2,208)	(13)	(2,221)	451	21	472	(1,910)	763	(1,160)	758
200bps decrease in rates	929	(4)	925	(372)	(7)	(379)	1,259	(434)	799	(398)

* This table represents an integral part of our audited 2015 Annual Consolidated Financial Statements.
(1) Represents the impact on the non-trading portfolios held in our U.S. banking operations.
(2) Represents the 12-month Net interest income exposure to an instantaneous and sustained shift in interest rates.

At the end of fiscal 2015, an immediate and sustained -100 bps shock would have had a negative impact to the Bank's NII of $370 million, up from $348 million at the end of 2014. An immediate and sustained +100bps shock at the end of fiscal 2015 would have had a negative impact to the Bank's EVE of $1,072 million, up from $916 million in 2014. The year-over-year increases in NII and EVE risks are primarily attributed to balance sheet growth. A larger fixed-rate asset position contributed to higher EVE risk, but also dampened the increase in NII risk. During fiscal 2015, NII and EVE risks were maintained well within approved limits.

Market risk measures for other material non-trading portfolios

AFS securities

We held $48 billion of securities classified as AFS as at October 31, 2015, compared to $46 billion as at October 31, 2014. We hold debt securities designated as AFS primarily as investments and to manage liquidity and interest rate risk in our non-trading banking activity. Certain legacy debt portfolios are also classified as AFS. As at October 31, 2015, our portfolio of AFS securities exposes us to interest rate risk of a pre-tax loss of $5.4 million as measured by the change in the value of the securities for a one basis point parallel increase in yields. The portfolio also exposes us to credit spread risk of a pre-tax loss of $14.7 million, as measured by the change in value for a one basis point widening of credit spreads. Changes in the value of these securities are reported in other comprehensive income. The value of the AFS securities included in our Structural Interest Rate Risk measure as at October 31, 2015 was $34.9 billion. Our AFS securities also include equity exposures of $1.8 billion as at October 31, 2015, up from $1.7 billion as at October 31, 2014.

Derivatives related to non-trading activity

Derivatives are also used to hedge market risk exposures unrelated to our trading activity. In aggregate, derivative assets not related to trading activity of $6.4 billion as at October 31, 2015 were up from $3.4 billion as at October 31, 2014, and derivative liabilities of $4.5 billion as at October 31, 2015 were up from $1.8 billion as at October 31, 2014.

Non-trading derivatives in hedge accounting relationships

The derivative assets and liabilities described above include derivative assets in a designated hedge accounting relationship of $2.8 billion as at October 31, 2015, up from $2.0 billion as at October 31, 2014, and derivative liabilities of $2.0 billion as at October 31, 2015, up from $837 million last year. These derivative assets and liabilities are included in our Structural Interest Rate Risk measure and other internal non-trading market risk measures. We use interest rate swaps to manage our AFS securities and structural interest rate risk, as described above. To the extent these swaps are considered effective hedges, changes in their fair value are recognized in other comprehensive income. The interest rate risk for the designated cash flow hedges, measured as the change in the fair value of the derivatives for a one basis point parallel increase in yields, was $5.5 million as of October 31, 2015.

Interest rate swaps are also used to hedge changes in the fair value of certain fixed-rate instruments. Changes in fair value of the interest rate swaps and the hedged instruments that are related to interest rate movements are reflected in income.

We also use foreign exchange derivatives to manage our exposure to equity investments in subsidiaries that are denominated in foreign currencies, particularly the U.S. dollar and British pound. Changes in the fair value of these hedges and the cumulative translation adjustment related to our structural foreign exchange risk are reported in other comprehensive income.

Other non-trading derivatives

Derivatives including interest rate swaps and foreign exchange derivatives that are not in designated hedge accounting relationships are used to manage other non-trading exposures. These derivatives have been designated as fair value through profit and loss with changes in the fair value of these derivatives reflected in income. Derivative assets of $3.6 billion as at October 31, 2015 on these trades were up from $1.4 billion as at October 31, 2014, and derivative liabilities of $2.5 billion as at October 31, 2015 were up from $1.0 billion last year.

Non-trading foreign exchange rate risk

Foreign exchange rate risk is the potential adverse impact on earnings and economic value due to changes in foreign currency rates. Our revenue, expenses and income denominated in currencies other than the Canadian dollar are subject to fluctuations as a result of changes in the value of the average Canadian dollar relative to the average value of those currencies. Our most significant exposure is to the U.S. dollar, due to our level of operations in the U.S. and other activities conducted in U.S. dollars. Other significant exposures are to the British pound and the Euro, due to our activities conducted internationally in these currencies. A strengthening or weakening of the Canadian dollar compared to the U.S. dollar, British pound and the Euro could reduce or increase, as applicable, the translated value of our foreign currency denominated revenue, expenses and earnings and could have a significant effect on the results of our operations. We are also exposed to foreign exchange rate risk arising from our investments in foreign operations. For un-hedged equity investments, when the Canadian dollar appreciates against other currencies, the unrealized translation losses on net foreign investments decreases our shareholders' equity through the other components of equity and decreases the translated value of the RWA of the foreign currency-denominated asset. The reverse is true when the Canadian dollar depreciates against other currencies. Consequently, we consider these impacts in selecting an appropriate level of our investments in foreign operations to be hedged.

Our overall trading and non-trading market risk objectives, policies and methodologies have not changed significantly from 2014.

Linkage of market risk to selected balance sheet items

The following table provides the linkages between selected balance sheet items with positions included in our trading market risk and non-trading market risk disclosures, which illustrates how we manage market risk for our assets and liabilities through different risk measures.

Linkage of market risk to selected balance sheet items **Table 59**

	As at October 31, 2015			
		Market risk measure		
(Millions of Canadian dollars)	Balance sheet amount	Traded risk (1)	Non-traded risk (2)	Non-traded risk primary risk sensitivity
Assets subject to market risk				
Cash and due from banks (3)	$ 12,452	$ 5,720	$ 6,732	Interest rate
Interest-bearing deposits with banks (4)	22,690	15,764	6,926	Interest rate
Securities				
Trading (5)	158,703	151,420	7,283	Interest rate, credit spread
Available-for-sale (6)	56,805	–	56,805	Interest rate, credit spread, equity
Assets purchased under reverse repurchase agreements and securities borrowed (7)	174,723	174,594	129	Interest rate
Loans				
Retail (8)	348,183	16,337	331,846	Interest rate
Wholesale (9)	126,069	140	125,929	Interest rate
Allowance for loan losses	(2,029)	–	(2,029)	Interest rate
Segregated fund net assets (10)	830	–	830	Interest rate
Derivatives	105,626	99,233	6,393	Interest rate, foreign exchange
Other assets (11)	64,082	24,578	39,504	Interest rate
Assets not subject to market risk (12)	6,074			
Total assets	$ 1,074,208	$ 487,786	$ 580,348	
Liabilities subject to market risk				
Deposits (13)	$ 697,227	$ 151,776	$ 545,451	Interest rate
Segregated fund liabilities (14)	830	–	830	Interest rate
Other				
Obligations related to securities sold short	47,658	47,658	–	
Obligations related to assets sold under repurchase agreements and securities loaned (15)	83,288	83,165	123	Interest rate
Derivatives	107,860	103,348	4,512	Interest rate, foreign exchange
Other liabilities (16)	58,184	19,757	38,427	Interest rate
Subordinated debentures	7,362	–	7,362	Interest rate
Liabilities not subject to market risk (17)	7,855			
Total liabilities	$ 1,010,264	$ 405,704	$ 596,705	
Total equity	$ 63,944			
Total liabilities and equity	$ 1,074,208			

(1) Traded risk includes FVTPL positions whose revaluation gains and losses are reported in revenue. Market risk measures of VaR, SVaR and Stress testing are used as risk controls for traded risk.
(2) Non-traded risk includes positions used in the management of the SIRR and other non-trading portfolios. Other material non-trading portfolios include positions from our Insurance business and AFS securities not included in SIRR.
The following footnotes provide additional information on the Non-traded risk amounts:
(3) Cash and due from banks includes $5,829 million included in SIRR. An additional $903 million is included in other risk controls.
(4) Interest-bearing deposits with banks of $6,926 million are included in SIRR.
(5) Trading securities include $7,283 million in securities used in the management of the SIRR of RBC Insurance, which is not included in our disclosed SIRR measure.
(6) Includes available-for-sale securities of $48,164 million and held-to-maturity securities of $8,641 million. $43,528 million of the total securities are included in SIRR. An additional $1,917 million are held by our insurance businesses that do not contribute to our disclosed SIRR measures. The remaining $11,360 million are captured in other internal non-trading market risk reporting.
(7) Assets purchased under reverse repurchase agreements include $129 million reflected in SIRR.
(8) Retail loans include $331,846 million reflected in SIRR.
(9) Wholesale loans include $124,701 million reflected in SIRR. An additional $1,228 million is used in the management of the SIRR of RBC Insurance.
(10) Investments for the account of segregated fund holders are included in the management of the SIRR of RBC Insurance.
(11) Other assets include $36,728 million reflected in SIRR. An additional $2,776 million is used in the management of the SIRR of RBC Insurance.
(12) Assets not subject to market risk include $6,074 million of physical and other assets.
(13) Deposits include $545,451 million reflected in SIRR.
(14) Insurance and investment contracts for the account of segregated fund holders are included in the management of the SIRR of RBC Insurance.
(15) Obligations related to assets sold under repurchase agreements include $123 million reflected in SIRR.
(16) Other liabilities include $28,408 million used in the management of the SIRR of RBC Insurance, and $10,019 million contribute to our SIRR measure.
(17) Liabilities not subject to market risk include $7,855 million of payroll related and other liabilities.

(Millions of Canadian dollars)	As at October 31, 2014 Balance sheet amount	Market risk measure Traded risk (1)	Market risk measure Non-traded risk (2)	Non-traded risk primary risk sensitivity
Assets subject to market risk				
Cash and due from banks (3)	$ 17,421	$ 10,840	$ 6,581	Interest rate
Interest-bearing deposits with banks (4)	8,399	5,642	2,757	Interest rate
Securities				
Trading (5)	151,380	144,607	6,773	Interest rate, credit spread
Available-for-sale (6)	47,768	–	47,768	Interest rate, credit spread, equity
Assets purchased under reverse repurchase agreements and securities borrowed (7)	135,580	135,444	136	Interest rate
Loans				
Retail (8)	334,269	16,614	317,655	Interest rate
Wholesale (9)	102,954	427	102,527	Interest rate
Allowance for loan losses	(1,994)	–	(1,994)	Interest rate
Segregated fund net assets (10)	675	–	675	Interest rate
Derivatives	87,402	83,981	3,421	Interest rate, foreign exchange
Other assets (11)	49,878	14,098	35,780	Interest rate
Assets not subject to market risk (12)	6,818			
Total assets	$ 940,550	$ 411,653	$ 522,079	
Liabilities subject to market risk				
Deposits (13)	$ 614,100	$ 116,348	$ 497,752	Interest rate
Segregated fund liabilities (14)	675	–	675	Interest rate
Other				
Obligations related to securities sold short	50,345	50,345	–	
Obligations related to assets sold under repurchase agreements and securities loaned (15)	64,331	64,210	121	Interest rate
Derivatives	88,982	87,145	1,837	Interest rate, foreign exchange
Other liabilities (16)	51,190	14,756	36,434	Interest rate
Subordinated debentures	7,859	–	7,859	Interest rate
Liabilities not subject to market risk (17)	8,565			
Total liabilities	$ 886,047	$ 332,804	$ 544,678	
Total equity	$ 54,503			
Total liabilities and equity	$ 940,550			

(1) Traded risk includes FVTPL positions whose revaluation gains and losses are reported in revenue. Market risk measures of VaR, SVaR and Stress testing are used as risk controls for traded risk.
(2) Non-traded risk includes positions used in the management of the SIRR and other non-trading portfolios. Other material non-trading portfolios include positions from our Insurance business and AFS securities not included in SIRR.
The following footnotes provide additional information on the Non-traded risk amounts:
(3) Cash and due from banks includes $5,494 million included in SIRR. An additional $1,087 million is included in other risk controls.
(4) Interest-bearing deposits with banks of $2,757 million are included in SIRR.
(5) Trading securities include $6,761 million in securities used in the management of the SIRR of RBC Insurance, which is not included in our disclosed SIRR measure.
(6) Available-for-sale securities of $44,403 million are included in SIRR. An additional $3,365 million are held by our insurance businesses that do not contribute to our disclosed SIRR measures and certain legacy assets.
(7) Assets purchased under reverse repurchase agreements include $136 million reflected in SIRR.
(8) Retail loans include $317,655 million reflected in SIRR.
(9) Wholesale loans include $101,364 million reflected in SIRR. An additional $1,163 million is used in the management of the SIRR of RBC Insurance.
(10) Investments for the account of segregated fund holders are included in the management of the SIRR of RBC Insurance.
(11) Other assets include $33.309 million reflected in SIRR. An additional $2,471 million is used in the management of the SIRR of RBC Insurance.
(12) Assets not subject to market risk include $6,818 million of physical and other assets.
(13) Deposits include $497,747 million reflected in SIRR.
(14) Insurance and investment contracts for the account of segregated fund holders are included in the management of the SIRR of RBC Insurance.
(15) Obligations related to assets sold under repurchase agreements include $121 million reflected in SIRR.
(16) Other liabilities include $9,324 million used in the management of the SIRR of RBC Insurance, and $27,110 million contribute to our SIRR measure.
(17) Liabilities not subject to market risk include $8,565 million of payroll related and other liabilities.

Liquidity and funding risk

Liquidity and funding risk (liquidity risk) is the risk that we may be unable to generate sufficient cash or its equivalents in a timely and cost-effective manner to meet our commitments as they come due. Liquidity risk arises from mismatches in the timing and value of on-balance sheet and off-balance sheet cash flows that result from banking activities.

Our liquidity profile is structured to ensure that we have sufficient liquidity to satisfy our current and prospective commitments in normal business conditions and in stressed liquidity environments. To achieve these goals, we operate under a comprehensive Liquidity Risk Management Framework (LRMF) and employ several liquidity risk mitigation strategies that include:

- An appropriate balance between the level of exposure allowed under our risk appetite and the cost of risk mitigation;
- Broad funding access, including preserving and promoting a reliable base of core client deposits, ongoing access to diversified sources of wholesale funding and demonstrated capacities to monetize specific asset classes;
- A comprehensive enterprise-wide liquidity stress testing program, contingency planning and status monitoring process that is supported by unencumbered marketable securities;
- Timely and granular risk measurement information;
- Transparent liquidity transfer pricing and cost allocation; and,
- A rigorous first and second line of defense governance model.

Our liquidity management policies, practices and processes reinforce these risk mitigation strategies. In managing liquidity risk, we favour a centralized management approach to the extent possible given the various considerations outlined in this section.

Our liquidity risk objectives, policies and methodologies are regularly reviewed and modified to reflect changing market conditions and business mix, to align with local regulatory developments and to position ourselves for the phasing in of Basel III regulatory liquidity standards. We continue to maintain liquidity and funding that is appropriate for the execution of our strategy. Liquidity risk remains well within our risk appetite.

Regulatory environment

We continue to monitor and, as appropriate, modify our risk policies, practices and processes to align with regulatory developments and to position ourselves for prospective implementation of regulatory reforms in the jurisdictions we operate. In May 2014, OSFI issued the final version of the "Liquidity Adequacy Requirements (LAR)" guideline. OSFI's LAR guideline converts the Basel Committee on Banking Supervision's (BCBS) liquidity requirements, including the Liquidity Coverage Ratio (LCR) and Net Stable Funding Ratio (NSFR) liquidity metrics together with monitoring tools, into OSFI guidance and formalizes the use of the OSFI-designed Net Cumulative Cash Flow (NCCF) as a supervisory monitoring tool. Consistent with these requirements, we are submitting monthly LCR and NCCF reports and quarterly NSFR results to OSFI as well as Quantitative Impact Study reports on LCR and NSFR for OSFI and BCBS twice a year.

In August 2014, the Government of Canada's Department of Finance released its bail-in consultation paper "Taxpayer Protection and Bank Recapitalization Regime". Bail-in regimes are being implemented in a number of jurisdictions following the 2008 financial crisis in an effort to limit taxpayer exposure to potential losses of a failing institution and ensure the institution's shareholders and creditors remain responsible for bearing such losses. The proposed Canadian regime applies only to domestic systemically important banks (D-SIBs) and focuses on a specific range of liabilities, which excludes deposits. In its April 21, 2015 Federal Budget announcement, the Government of Canada confirmed its intention to move forward with the Taxpayer Protection and Bank Recapitalization Regime, although no firm timeline was provided. For further details, refer to the Legal and regulatory environment risk section.

In October 2014, the BCBS issued the final standard for the NSFR and banks are required to meet the minimum standard by January 1, 2018. The final "Net stable funding ratio disclosure standard" was issued by the BCBS in June 2015 and banks will be required to comply from the date of the first reporting period after January 1, 2018.

Risk measurement

Liquidity risk is measured by applying scenario based assumptions against our assets and liabilities and off-balance sheet commitments to derive expected cash flow profiles over varying time horizons. For instance, government bonds can be quickly and reliably monetized to generate cash inflow prior to their contractual maturity, and similarly, relationship demand deposits can be deemed as having little short-term cash outflow although having the contractual right to redeem on demand. Risk methodologies and underlying assumptions such as these are periodically reviewed and validated to ensure alignment with our operating environment, expected economic and market conditions, rating agency preferences, regulatory requirements and accepted practices.

To control liquidity risk within our liquidity risk appetite, we set limits on various metrics reflecting a range of time horizons and severity of stress conditions. Our liquidity risk measurement and control activities are divided into three categories as follows:

Structural (longer-term) liquidity risk

We use an internal metric, derived from the cash capital methodology, which focuses on the structural alignment between long-term illiquid assets and longer-term funding sourced from wholesale investors and core relationship deposits. This metric informs our secured and unsecured wholesale term funding strategy.

Tactical (shorter-term) liquidity risk

We use net cash flow limits in conjunction with stress testing to contain risk within the risk appetite at branch, subsidiary and currency levels. Net cash flow positions are derived from the application of internally generated risk assumptions and parameters to known and anticipated cash flows for all material unencumbered assets, liabilities and off-balance sheet activities. Encumbered assets are not considered a source of available liquidity. We also control tactical liquidity by adhering to group-wide and unit-specific prescribed regulatory standards, such as LCR.

Contingency liquidity risk

Contingency liquidity risk planning assesses the impact of and our intended responses to sudden stressful events. Our Liquidity Contingency Plan, maintained and administered by Corporate Treasury, guides our actions and responses to liquidity crises. This plan establishes a Liquidity Crisis Team, consisting of senior representatives with relevant subject matter expertise from key business segments and Corporate Support. This team contributes to the development of stress tests and funding plans and meets regularly to assess our liquidity status, conduct stress tests and review liquidity contingency preparedness.

Our stress tests, which include elements of scenario and sensitivity analyses, measure our prospective exposure to global, country-specific and RBC-specific events over a period of several weeks. Different levels of severity are considered for each type of crisis with some scenarios reflecting multiple notch downgrades to our credit ratings.

The contingency liquidity risk planning process informs requirements for our earmarked contingent unencumbered liquid asset pools and identifies contingent funding needs (e.g. draws on committed credit and liquidity lines, demands for more collateral and deposit run-off) and sources (e.g. contingent liquid asset sales and incremental wholesale funding capacity) under various stress scenarios. As described in our Liquidity Contingency Plan, in a particularly acute short-term crisis or if a crisis was extended over a prolonged period, actions would be taken to supplement liquidity available from our earmarked contingency liquid asset pools by limiting cash and collateral outflows and by accessing new sources of liquidity and funding; for example, through sales of liquid assets and securitization and, in extraordinary circumstances, sales of core assets. As well, in light of our current credit ratings and well-developed market relationships and access, it is expected that even under extreme but plausible scenarios, we would continue to be able to access wholesale funding markets, albeit possibly at reduced overall capacity, higher costs and for shorter average maturities.

While we also have potential access to various normal course and emergency central bank lending facilities in Canada, the U.S. and Europe, such facilities are not considered a source of funding in our contingency planning for scenarios identified as extreme but plausible.

Our contingent liquid assets consist primarily of a diversified pool of highly rated and liquid marketable securities and include segregated portfolios (in both Canadian and U.S. dollars) of contingency liquidity assets to address potential on- and off-balance sheet liquidity exposures (such as deposit erosion, loan drawdowns and higher collateral demands), that have been sized through models we have developed or by the scenario analyses and stress tests we conduct periodically. These portfolios are subject to minimum asset quality levels and, as appropriate, other strict eligibility guidelines (e.g. maturity, diversification and eligibility for central bank advances) to maximize ready access to cash in emergencies. In addition to our pools of unencumbered contingent liquid assets, liquid securities held for daily management of short-term tactical cash management or other investment or trading activities, would also be available during times of crisis as sources of liquidity, either via outright sale or to obtain secured funding and meet pledging obligations.

Risk profile

As at October 31, 2015, relationship-based deposits as internally defined, which are the primary source of funding for retail loans and mortgages, were $422 billion or 51% of our total funding (October 31, 2014 – $394 billion or 54%). Highly liquid assets were funded primarily by short-term wholesale funding that reflects the expected monetization period of these assets. Wholesale funding is comprised of unsecured short-term liabilities of $110 billion and secured (repos and short sales) liabilities of $149 billion, and represented 13% and 18% of total funding as at October 31, 2015, respectively (October 31, 2014 – $74 billion and $126 billion or 10% and 17% of total funding, respectively). Long-term wholesale funding is mostly used to fund less liquid wholesale assets. Additional quantitative information is provided in the Funding section below.

As at October 31, 2015, we held earmarked contingency liquidity assets of $16 billion, of which $10 billion was in U.S. currency and $6 billion was in Canadian currency (October 31, 2014 – $12 billion of which $7 billion was in U.S. currency and $5 billion was in Canadian currency). During the year ended October 31, 2015, we held on average $13 billion, of which $8 billion was in U.S. currency and $5 billion was in Canadian currency (October 31, 2014 – $12 billion of which $7 billion was in U.S. currency and $5 billion was in Canadian currency). We also held a derivatives pledging liquid asset buffer of US$4 billion as at October 31, 2015 to mitigate the volatility of our net pledging requirements for derivatives trading (October 31, 2014 – US$4 billion). This buffer averaged US$4 billion during the year ended October 31, 2015 (October 31, 2014 – US$4 billion). These assets are included in our high-quality liquid asset (HQLA) pool, which is discussed below.

Liquidity Coverage Ratio

The Liquidity Coverage Ratio is a Basel III metric that measures the sufficiency of HQLA available to meet liquidity needs over a 30 day period in an acute stress scenario. The BCBS regulatory minimum coverage level for LCR is currently 60%, increasing each year to 100% by January 2019. In May 2014, OSFI released the final LAR guideline and adopted a minimum LCR requirement of 100% for Canadian banks, effective January 1, 2015.

In July 2014, OSFI released the final guideline on *"Public Disclosure Requirements for Domestic Systemically Important Banks on Liquidity Coverage Ratio (LCR)"*, implementing without change the BCBS LCR Disclosure Standards. OSFI required Canadian banks to disclose the LCR beginning in the second quarter of 2015. LCR is disclosed using the standard Basel disclosure template and is calculated using the average of month-end positions during the quarter.

Liquidity coverage ratio common disclosure template (1) — Table 60

(Millions of Canadian dollars, except percentage amounts)	As at October 31 2015		As at July 31 2015	
	Total unweighted value (average)	**Total weighted value (average)**	Total unweighted value (average)	Total weighted value (average)
High-quality liquid assets				
Total high-quality liquid assets (HQLA)		**194,785**		176,928
Cash outflows				
Retail deposits and deposits from small business customers, of which: (2)	**180,831**	**13,856**	175,522	13,368
Stable deposits (3)	**60,399**	**1,813**	59,784	1,794
Less stable deposits	**120,432**	**12,043**	115,738	11,574
Unsecured wholesale funding, of which:	**217,592**	**97,305**	212,854	94,770
Operational deposits (all counterparties) and deposits (4) *in networks of cooperative banks*	**97,255**	**23,342**	93,469	22,417
Non-operational deposits	**101,632**	**55,258**	105,075	58,043
Unsecured debt	**18,705**	**18,705**	14,310	14,310
Secured wholesale funding		**26,709**		26,428
Additional requirements, of which:	**195,694**	**51,288**	173,249	40,123
Outflows related to derivative exposures and other collateral requirements	**43,709**	**17,747**	31,333	8,433
Outflows related to loss of funding on debt products	**4,893**	**4,893**	4,828	4,828
Credit and liquidity facilities	**147,092**	**28,648**	137,088	26,862
Other contractual funding obligations (5)	**28,056**	**28,056**	29,652	29,652
Other contingent funding obligations (6)	**433,181**	**6,224**	426,680	6,325
Total cash outflows		**223,438**		210,666
Cash inflows				
Secured lending (e.g. reverse repos)	**119,274**	**32,982**	114,680	31,963
Inflows from fully performing exposures	**11,709**	**8,013**	10,138	6,824
Other cash inflows	**29,309**	**29,309**	21,018	21,018
Total cash inflows		**70,304**		59,805
		Total adjusted value		Total adjusted value
Total HQLA		**194,785**		176,928
Total net cash outflows		**153,134**		150,861
Liquidity coverage ratio		**127%**		117%

(1) LCR is calculated using OSFI LAR and BCBS liquidity coverage ratio requirements.
(2) Excludes deposits with 0% cash outflow rates.
(3) As defined by BCBS, stable deposits from retail and small business customers are deposits that are insured and are either held in transactional accounts or the bank has an established relationship with the client making the withdrawal unlikely.
(4) Operational deposits from non-retail and non-small and medium-sized enterprise customers are deposits which clients need to keep with the bank in order to facilitate their access and ability to use payment and settlement systems primarily for clearing, custody and cash management activities.
(5) Other contractual funding obligations primarily include outflows from unsettled securities trades and outflows from obligations related to securities sold short.
(6) Other contingent funding obligations include outflows related to other off-balance sheet facilities that carry low LCR runoff factors (0% – 5%).

We manage our LCR position within a target range that reflects management's liquidity risk tolerance and takes into account business mix, asset composition and funding capabilities. The range is subject to periodic review in light of changes to internal requirements and external developments.

We maintain HQLAs in major currencies with dependable market depth and breadth. Our treasury management practices ensure that the levels of HQLA are actively managed, including contingency and cash management liquid assets, to meet our target LCR objectives. Our Level 1 assets, as calculated according to OSFI LAR and the BCBS LCR requirements, represent 78% of total HQLA. These assets consist of cash, placements with central banks and highly rated securities issued or guaranteed by governments, central banks and supra-national entities.

LCR captures cash flows from on- and off-balance sheet activities that are either expected or could potentially occur within 30 days in an acute stress scenario. Cash outflows result from application of withdrawal and non-renewal factors to demand and term deposits which are differentiated by client type (wholesale, retail and small- and medium-sized enterprises). Cash outflows also arise from business activities that create contingent funding and collateral requirements, such as repo funding, derivatives, short sales of securities and the extension of credit and liquidity commitments to client. Cash inflows arise primarily from maturing secured loans, interbank loans and non-HQLA securities.

LCR does not reflect any market funding capacity that management believes would be available to the Bank in a stress situation. All maturing wholesale debt is assigned 100% outflow in the LCR calculation.

Q4 2015 vs. Q3 2015

LCR of 127% increased from 117% in the prior quarter, primarily due to higher HQLA, and growth in client deposits and wholesale term funding.

Liquidity reserve and asset encumbrance

As recommended by the Enhanced Disclosure Task Force (EDTF), the following tables provide summaries of our liquidity reserve and asset encumbrance. In both tables, unencumbered assets represent, for the most part, a ready source of funding that can be accessed quickly, when required. For the purpose of constructing the following tables, encumbered assets include: (i) bank-owned liquid assets that are either pledged as collateral (e.g. repo financing and derivative pledging) or not freely available due to regulatory or internal policy requirements (e.g. earmarked to satisfy mandatory reserve or local capital adequacy requirements and to maintain continuous access to payment and settlement systems);

(ii) securities received as collateral from securities financing and derivative transactions which have either been re-hypothecated where permissible (e.g. to obtain financing through repos or to cover securities sold short) or have no liquidity value since re-hypothecation is prohibited; and (iii) illiquid assets that have been securitized and sold into the market or that have been pledged as collateral in support of structured term funding vehicles. We do not include encumbered assets as a source of available liquidity in measuring liquidity risk. Unencumbered assets are the difference between total and encumbered assets from both on- and off-balance sheet sources.

Liquidity reserve

In the liquidity reserve table, available liquid assets consist of on-balance sheet cash and securities holdings as well as securities received as collateral from securities financing (reverse repos and off-balance sheet collateral swaps) and derivative transactions and constitute the preferred source for quickly accessing liquidity. The other component of our liquidity reserve consists primarily of uncommitted and undrawn central bank credit facilities that could be accessed under exceptional circumstances provided certain pre-conditions could be met and where advances could be supported by eligible assets (e.g. certain unencumbered loans) not included in the liquid assets category.

Liquidity reserve (1) **Table 61**

	As at October 31, 2015				
(Millions of Canadian dollars)	Bank-owned liquid assets	Securities received as collateral from securities financing and derivative transactions	Total liquid assets	Encumbered liquid assets	Unencumbered liquid assets
Cash and holding at central banks	$ 25,075	$ –	$ 25,075	$ 1,719	$ 23,356
Deposits in other banks available overnight	2,298	–	2,298	1	2,297
Securities issued or guaranteed by sovereigns, central banks or multilateral development banks (2), (3)	257,338	21,216	278,554	127,702	150,852
Other (2)	142,713	31,751	174,464	80,349	94,115
Liquidity assets eligible at central banks (not included above) (4)	63	–	63	–	63
Undrawn credit lines granted by central banks (5)	11,844	–	11,844	–	11,844
Other assets eligible as collateral for discount (6)	128,401	–	128,401	–	128,401
Other liquid assets (7)	21,675	–	21,675	21,675	–
Total liquid assets	$ 589,407	$ 52,967	$ 642,374	$ 231,446	$ 410,928

	As at October 31, 2014				
(Millions of Canadian dollars)	Bank-owned liquid assets	Securities received as collateral from securities financing and derivative transactions	Total liquid assets	Encumbered liquid assets	Unencumbered liquid assets
Cash and holding at central banks	$ 18,656	$ –	$ 18,656	$ 1,054	$ 17,602
Deposits in other banks available overnight	3,855	–	3,855	333	3,522
Securities issued or guaranteed by sovereigns, central banks or multilateral development banks (2), (3)	204,409	16,626	221,035	104,335	116,700
Other (2)	112,878	21,346	134,224	59,345	74,879
Liquidity assets eligible at central banks (not included above) (4)	62	–	62	–	62
Undrawn credit lines granted by central banks (5)	8,372	–	8,372	–	8,372
Other assets eligible as collateral for discount (6)	125,627	–	125,627	–	125,627
Other liquid assets (7)	11,887	–	11,887	11,887	–
Total liquid assets	$ 485,746	$ 37,972	$ 523,718	$ 176,954	$ 346,764

	As at	
(Millions of Canadian dollars)	**October 31 2015**	October 31 2014
Royal Bank of Canada	$ 252,052	$ 221,007
Foreign branches	64,684	47,570
Subsidiaries	94,192	78,187
Total unencumbered liquid assets	$ 410,928	$ 346,764

(1) Information is provided from an enterprise-wide perspective and amounts shown are based on face value. In managing liquidity risk, we consider legal, regulatory, tax and other constraints that may impede transferability of liquidity among RBC units.
(2) The Bank-owned liquid assets amount includes securities owned outright by the Bank or acquired via on-balance sheet securities finance transactions.
(3) Includes liquid securities issued by provincial governments and U.S. government sponsored entities working under U.S. Federal government's conservatorship (e.g. Federal National Mortgage Association and Federal Home Loan Mortgage Corporation).
(4) Includes Auction Rate Securities.
(5) Includes loans that qualify as eligible collateral for the discount window facility available to us at the Federal Reserve Bank of New York. Amounts are face value and would be subject to collateral margin requirements applied by the Federal Reserve Bank to determine collateral value/borrowing capacity. Access to the discount window borrowing program is conditional on meeting requirements set by the Federal Reserve Bank and borrowings are typically expected to be infrequent and due to uncommon occurrences requiring temporary accommodation.
(6) Represents our unencumbered Canadian dollar non-mortgage loan book (at face value) that could, subject to satisfying conditions precedent to borrowing and application of prescribed collateral margin requirements, be pledged to the Bank of Canada for advances under its Emergency Lending Assistance (ELA) program. ELA and other central bank facilities are not considered sources of available liquidity in our normal liquidity risk profile but could in extraordinary circumstances, where normal market liquidity is seriously impaired, allow us and other banks to monetize assets eligible as central bank collateral to meet requirements and mitigate further market liquidity disruption.
(7) Represents pledges related to OTC and exchange-traded derivative transactions.

2015 vs. 2014
Total liquid assets increased $119 billion or 23%, reflecting growth in our balance sheet, mainly due to an increase in reverse repo style transactions and securities lending, as well as the impact of foreign exchange translation due to the weaker Canadian dollar.

Asset encumbrance
The Asset encumbrance table provides a comprehensive view of the assets available to the Bank, not just the liquidity reserve, and identifies assets already pledged as well as those available for use as collateral (including unencumbered assets from the Liquidity reserve table) for secured funding purposes. Less liquid assets such as mortgages and credit card receivables can in part be monetized although require more lead time relative to liquid assets. As at October 31, 2015, our assets available as collateral comprised 64% of our total liquid assets.

Asset encumbrance (1) **Table 62**

	As at									
	October 31, 2015					October 31, 2014				
	Encumbered		**Unencumbered**			Encumbered		Unencumbered		
(Millions of Canadian dollars)	**Pledged as collateral**	**Other** (2)	**Available as collateral** (3)	**Other** (4)	**Total** (5)	Pledged as collateral	Other (2)	Available as collateral (3)	Other (4)	Total (5)
Cash and due from banks	$ –	$ 1,719	$ 10,733	$ –	$ 12,452	$ 243	$ 1,054	$ 15,839	$ 285	$ 17,421
Interest-bearing deposits with banks	1	–	22,689	–	22,690	90	–	8,309	–	8,399
Securities										
Trading	66,752	–	90,551	1,400	158,703	64,467	–	85,698	1,215	151,380
Available-for-sale	7,800	669	45,548	2,788	56,805	7,781	57	37,802	2,128	47,768
Assets purchased under reverse repurchase agreements and securities borrowed	148,117	–	89,929	18,398	256,444	111,056	–	68,044	8,432	187,532
Loans										
Retail										
Mortgage securities (6)	35,889	–	33,921	–	69,810	37,441	–	29,042	–	66,483
Mortgage loans (6)	36,422	–	–	127,743	164,165	26,589	–	–	126,185	152,774
Non-mortgage loans	8,314	–	100,040	5,854	114,208	8,915	–	97,223	8,874	115,012
Wholesale	3,376	–	40,867	81,826	126,069	–	–	36,777	66,177	102,954
Allowance for loan losses	–	–	–	(2,029)	(2,029)	–	–	–	(1,994)	(1,994)
Segregated fund net assets	–	–	–	830	830	–	–	–	675	675
Other – Derivatives	–	–	–	105,626	105,626	–	–	–	87,402	87,402
– Others (7)	22,286	–	–	47,870	70,156	11,887	–	–	44,809	56,696
Total assets	**$328,957**	**$ 2,388**	**$ 434,278**	**$390,306**	**$1,155,929**	$268,469	$ 1,111	$ 378,734	$344,188	$992,502

(1) Information is provided from an enterprise-wide perspective and amounts shown are based on face value. In managing liquidity risk, we consider legal, regulatory, tax and other constraints that may impede transferability of liquidity among RBC units.
(2) Includes assets restricted from use to generate secured funding due to legal or other constraints.
(3) Includes loans that could be used to collateralize central bank advances. Our unencumbered Canadian dollar non-mortgage loan book (at face value) could, subject to satisfying conditions precedent to borrowing and application of prescribed collateral margin requirements, be pledged to the Bank of Canada for advances under its ELA program. We also lodge loans that qualify as eligible collateral for the discount window facility available to us at the Federal Reserve Bank of New York. ELA and other central bank facilities are not considered sources of available liquidity in our normal liquidity risk profile but could in extraordinary circumstances, where normal market liquidity is seriously disrupted, allow us and other banks to monetize assets eligible as central bank collateral to meet requirements and mitigate market liquidity dislocations.
(4) Other unencumbered assets are not subject to any restrictions on their use to secure funding or as collateral but would not be considered readily available since they may not be acceptable at central banks or for other lending programs.
(5) Includes bank-owned liquid assets and securities received as collateral from off-balance sheet securities financing and derivative transactions.
(6) Amounts have been revised from those previously disclosed.
(7) The Pledged as collateral amounts relate to OTC and exchange traded derivative transactions.

Other sources of liquidity that could be available to mitigate stressed conditions include: (i) our unused wholesale funding capacity, which is regularly assessed using an established methodology that is periodically reviewed and, as necessary, revised, and (ii) central bank borrowing facilities if, in extraordinary circumstances, market sources were not sufficient to allow us to monetize our assets available as collateral to meet our requirements (e.g. Bank of Canada, Federal Reserve Bank, Bank of England, and Bank of France).

Risk control

The Board of Directors annually approves the delegation of liquidity risk authorities to senior management. The Risk Committee of the Board annually approves the LRMF and the Pledging Policy and is responsible for their oversight. The Board of Directors, the Risk Committee, GRC and ALCO review, on a regular basis, reporting on our enterprise-wide liquidity position and status. The GRC, the Policy Review Committee (PRC) and/or ALCO also review liquidity documents prepared for the Board of Directors or its committees.

The PRC under GRM annually approves the Liquidity Risk Policy (LRP), which establishes minimum risk control elements in accordance with the Board-approved risk appetite and LRMF.

The ALCO annually approves the Liquidity Contingency Plan and provides strategic direction and oversight to Corporate Treasury, other functions, and business segments on the management of liquidity.

The LRMF and LRP are supported by operational, desk and product-level policies that implement risk control elements, such as parameters, methodologies, management limits and authorities that govern the measurement and management of liquidity. Stress testing is also employed to assess the robustness of the control framework and inform liquidity contingency plans.

Funding

Funding strategy

Core funding, comprising capital, longer-term wholesale liabilities and a diversified pool of personal and, to a lesser extent, commercial and institutional deposits, is the foundation of our structural liquidity position.

Deposit profile

During 2015, we continued to focus on building our core deposit base. Our relationship-based deposits, including our personal deposit franchise and our commercial and institutional client groups, maintain balances with relatively low volatility profiles and constitute our principal source of reliable funding. Reflecting deposit insurance and at times, exclusive relationships with us, these balances represent a highly stable source of core deposits in most circumstances as they are typically less reactive to market developments than those from transactional lenders and investors. Core deposits consist of our own statistically derived liquidity adjusted estimates of the highly stable portions of our relationship-based balances (demand, notice and fixed-term) together with wholesale funds maturing beyond one year and as at October 31, 2015 represented 64% of our total deposits (2014 – 69%). Over the past year, core deposit balances grew by approximately $28 billion or 7%. This increase was mainly attributable to growth in relationship-based personal and business and commercial deposits of $21 billion, of which $9 billion is due to changes in foreign exchange rates, and to a lesser degree by issuance of longer-term wholesale funding. For further details on the gross dollar amounts of our relationship-based deposits and our wholesale funding maturity schedule, refer to the Risk profile section and the following Composition of wholesale funding table, respectively.

Long-term debt issuance

During 2015, we continued to experience more favourable unsecured wholesale funding access and pricing compared to many of our global peers. As demonstrated in the following table, we also continued to expand our unsecured long-term funding base by selectively issuing, either directly or through our subsidiaries, $29 billion of term funding in various currencies and markets. Total unsecured long-term funding outstanding increased by $20 billion.

We primarily use residential mortgage and credit card securitization programs as alternative sources of funding and for liquidity and asset/liability management purposes. Our total secured long-term funding includes outstanding mortgage-backed securities (MBS) sold, covered bonds that are collateralized with residential mortgages, and securities backed by credit card and auto receivables.

Compared to 2014, our outstanding MBS sold decreased $642 million. Our covered bonds and securitized credit card receivables increased $10.7 billion and $556 million, respectively, while auto receivables decreased $408 million. Notes backed by auto receivables were fully repaid as at October 31, 2015.

For further details, refer to the Off-balance sheet arrangements section.

Long-term funding sources* **Table 63**

	As at	
(Millions of Canadian dollars)	**October 31 2015**	October 31 2014
Unsecured long-term funding	**$ 102,081**	$ 82,033
Secured long-term funding	**68,228**	57,996
Commercial mortgage-backed securities sold	**1,080**	1,330
Subordinated debentures	**7,227**	7,832
	$ 178,616	$ 149,191

* This table represents an integral part of our 2015 Annual Consolidated Financial Statements.

Our wholesale funding activities are well-diversified by geography, investor segment, instrument, currency, structure and maturity. We maintain an ongoing presence in different funding markets, which allows us to continuously monitor market developments and trends, identify opportunities and risks, and take appropriate and timely actions. We operate longer-term debt issuance registered programs. The following table summarizes these programs with their authorized limits by geography.

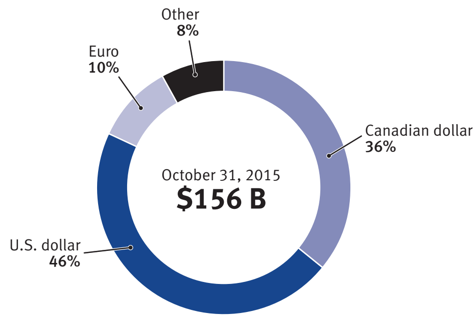
Programs by geography **Table 64**

Canada	U.S.	Europe/Asia
• Canadian Shelf – $15 billion	• SEC Registered Medium Term Note Program – US$40 billion • SEC Registered Covered Bond Program – US$15 billion (1)	• European Debt Issuance Program– US$40 billion • Global Covered Bond Program– €32 billion • Japanese Issuance Programs – ¥1 trillion

(1) Subject to the €32 billion Global Covered Bond Program limit.

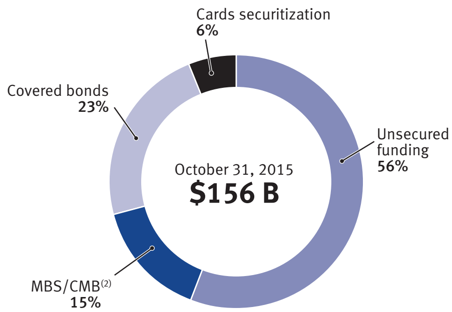
We also raise long-term funding using Canadian Deposit Notes, Canadian NHA MBS, Canada Mortgage Bonds, credit card receivable-backed securities, Kangaroo Bonds (issued in the Australian domestic market by foreign firms) and Yankee Certificates of Deposit (issued in the U.S. domestic market by foreign firms). We continuously evaluate expansion into new markets and untapped investor segments against relative issuance costs since diversification expands our wholesale funding flexibility and minimizes funding concentration and dependency, and generally reduces financing costs. As presented in the following charts, our current long-term debt profile is well diversified by currency as well as by type of long-term funding products. Maintaining competitive credit ratings is also critical to cost-effective funding.

Long-term debt(1) – funding mix by currency of issuance



(1) Based on original term to maturity greater than 1 year.

Long-term debt(1) – funding mix by product



(1) Based on original term to maturity greater than 1 year.
(2) Mortgage-backed securities and Canada Mortgage Bonds.

The following table provides our composition of wholesale funding based on remaining term to maturity and represents our enhanced disclosure in response to EDTF recommendations.

Composition of wholesale funding (1) **Table 65**

(Millions of Canadian dollars)	As at October 31, 2015							
	Less than 1 month	1 to 3 months	3 to 6 months	6 to 12 months	Less than 1 year sub-total	1 year to 2 years	2 years and greater	Total
Deposits from banks (2)	$ 5,107	$ 62	$ 13	$ 30	$ 5,212	$ –	$ –	$ 5,212
Certificates of deposit and commercial paper	9,355	9,648	18,591	10,071	47,665	451	207	48,323
Asset-backed commercial paper (3)	883	2,317	6,989	1,572	11,761	–	–	11,761
Senior unsecured medium-term notes (4)	944	6,403	4,165	11,348	22,860	17,670	42,520	83,050
Senior unsecured structured notes (5)	151	535	376	577	1,639	679	6,070	8,388
Mortgage securitization	41	1,088	673	2,139	3,941	2,656	16,049	22,646
Covered bonds/asset-backed securities (6)	–	1,490	509	4,799	6,798	5,999	28,707	41,504
Subordinated liabilities	1,500	–	–	–	1,500	108	5,619	7,227
Other (7)	4,126	3,283	252	1,318	8,979	12	4,408	13,399
Total	**$ 22,107**	**$ 24,826**	**$ 31,568**	**$ 31,854**	**$110,355**	**$ 27,575**	**$103,580**	**$ 241,510**
Of which:								
– Secured	$ 4,952	$ 7,035	$ 8,171	$ 8,510	$ 28,668	$ 8,655	$ 44,756	$ 82,079
– Unsecured	17,155	17,791	23,397	23,344	81,687	18,920	58,824	159,431

(Millions of Canadian dollars)	As at October 31, 2014							
	Less than 1 month	1 to 3 months	3 to 6 months	6 to 12 months	Less than 1 year sub-total	1 year to 2 years	2 years and greater	Total
Deposits from banks (2)	$ 3,034	$ 277	$ 11	$ 19	$ 3,341	$ –	$ –	$ 3,341
Certificates of deposit and commercial paper	859	4,411	10,880	12,873	29,023	2,746	–	31,769
Asset-backed commercial paper (3)	518	1,320	1,835	4,114	7,787	–	–	7,787
Senior unsecured medium-term notes (4)	592	4,573	3,341	3,970	12,476	16,809	38,254	67,539
Senior unsecured structured notes (5)	336	578	458	1,058	2,430	597	4,729	7,756
Mortgage securitization	58	699	950	1,435	3,142	3,751	16,395	23,288
Covered bonds/asset-backed securities (6)	761	22	2,391	2,635	5,809	6,934	20,246	32,989
Subordinated liabilities	200	–	–	1,500	1,700	1,500	4,632	7,832
Other (7)	3,203	51	596	1,111	4,961	42	3,963	8,966
Total	$ 9,561	$ 11,931	$ 20,462	$ 28,715	$ 70,669	$ 32,379	$ 88,219	$ 191,267
Of which:								
– Secured	$ 4,455	$ 2,041	$ 5,176	$ 8,184	$ 19,856	$ 10,685	$ 36,641	$ 67,182
– Unsecured	5,106	9,890	15,286	20,531	50,813	21,694	51,578	124,085

(1) Excludes bankers' acceptances.
(2) Only includes deposits raised by treasury. Excludes deposits associated with services we provide to these banks (e.g. custody, cash management).
(3) Only includes consolidated liabilities, including our collateralized commercial paper program.
(4) Includes deposit notes.
(5) Includes notes where the payout is tied to movements in foreign exchange, commodities and equities.
(6) Includes credit card, auto and mortgage loans.
(7) Includes tender option bonds (secured) of $6,088 million (October 31, 2014 – $3,118 million), bearer deposit notes (unsecured) of $3,186 million (October 31, 2014 – $2,215 million) and other long-term structured deposits (unsecured) of $4,125 million (October 31, 2014 – $3,633 million).

2015 vs. 2014

Wholesale funding increased $50.2 billion or 26%. During the year, we issued certificates of deposit and commercial paper, unsecured medium-term notes, and covered bonds in various currencies and markets. The impact of foreign exchange translation as a result of the weaker Canadian dollar also contributed to the increase in wholesale funding.

Contractual maturities of financial assets, financial liabilities and off-balance sheet items

The following tables provide remaining contractual maturity profiles of all our assets, liabilities, and off-balance sheet items at their carrying value (e.g. amortized cost or fair value) at the balance sheet date and have been enhanced in response to EDTF recommendations. Off-balance sheet items are allocated based on the expiry date of the contract.

Details of contractual maturities and commitments to extend funds are a source of information for the management of liquidity risk. Among other purposes, these details form a basis for modelling a behavioural balance sheet with effective maturities to calculate liquidity risk measures. For further details, refer to the Risk measurement section.

Contractual maturities of financial assets, financial liabilities and off-balance sheet items **Table 66**

	As at October 31, 2015									
(Millions of Canadian dollars)	Less than 1 month	1 to 3 months	3 to 6 months	6 to 9 months	9 to 12 months	1 year to 2 years	2 years to 5 years	5 years and greater	With no specific maturity	Total
Assets										
Cash and deposits with banks	$ 31,355	$ 56	$ 17	$ 530	$ –	$ –	$ –	$ –	$ 3,184	$ 35,142
Securities										
Trading (1)	103,718	21	26	77	51	188	552	5,580	48,490	158,703
Available-for-sale	2,947	3,682	1,345	3,259	988	4,778	20,154	17,802	1,850	56,805
Assets purchased under reverse repurchase agreements and securities borrowed	82,017	30,851	27,871	16,570	7,320	2,601	–	–	7,493	174,723
Loans (net of allowance for loan losses)	15,020	11,828	23,196	22,295	18,234	89,179	184,249	22,833	85,389	472,223
Other										
Customers' liability under acceptances	10,343	3,032	71	–	–	6	1	–	–	13,453
Derivatives	7,492	8,129	3,747	3,074	2,479	10,639	25,244	44,811	11	105,626
Other financial assets	29,187	624	711	169	33	83	26	525	966	32,324
Total financial assets	$ 282,079	$ 58,223	$ 56,984	$ 45,974	$ 29,105	$107,474	$ 230,226	$ 91,551	$ 147,383	$ 1,048,999
Other non-financial assets	1,792	1,506	526	374	60	866	1,573	2,425	16,087	25,209
Total assets	$ 283,871	$ 59,729	$ 57,510	$ 46,348	$ 29,165	$108,340	$ 231,799	$ 93,976	$ 163,470	$ 1,074,208
Liabilities and equity										
Deposits (2)										
Unsecured borrowing	$ 40,992	$ 29,994	$ 41,298	$ 20,175	$ 27,220	$ 30,697	$ 53,403	$ 14,479	$ 338,378	$ 596,636
Secured borrowing	970	4,818	8,602	7,567	2,676	9,708	19,318	9,736	–	63,395
Covered bonds	–	1,961	–	2,293	1,165	3,269	24,064	4,444	–	37,196
Other										
Acceptances	10,343	3,032	71	–	–	6	1	–	–	13,453
Obligations related to securities sold short	47,658	–	–	–	–	–	–	–	–	47,658
Obligations related to assets sold under repurchase agreements and securities loaned	66,099	7,580	1,419	422	800	780	10	–	6,178	83,288
Derivatives	5,376	8,481	4,146	4,205	3,884	12,240	28,140	41,383	5	107,860
Other financial liabilities	23,210	1,236	391	120	198	72	239	4,188	349	30,003
Subordinated debentures	–	–	–	–	–	–	–	7,362	–	7,362
Total financial liabilities	$ 194,648	$ 57,102	$ 55,927	$ 34,782	$ 35,943	$ 56,772	$ 125,175	$ 81,592	$ 344,910	$ 986,851
Other non-financial liabilities	990	3,291	170	142	169	894	2,564	8,522	6,671	23,413
Equity	–	–	–	–	–	–	–	–	63,944	63,944
Total liabilities and equity	$ 195,638	$ 60,393	$ 56,097	$ 34,924	$ 36,112	$ 57,666	$ 127,739	$ 90,114	$ 415,525	$ 1,074,208
Off-balance sheet items										
Financial guarantees	$ 828	$ 2,798	$ 1,348	$ 2,115	$ 1,552	$ 2,861	$ 5,813	$ 147	$ 32	$ 17,494
Lease commitments	62	123	180	175	177	602	1,293	1,808	–	4,420
Commitments to extend credit	3,801	6,005	9,854	10,976	8,281	32,971	127,747	14,127	3,113	216,875
Other credit-related commitments	623	828	1,172	1,169	1,014	343	834	272	74,247	80,502
Other commitments	353	–	–	–	–	–	–	–	–	353
Total off-balance sheet items	$ 5,667	$ 9,754	$ 12,554	$ 14,435	$ 11,024	$ 36,777	$ 135,687	$ 16,354	$ 77,392	$ 319,644

(1) Trading debt securities classified as fair value through profit or loss have been included in the less than 1 month category as there is no expectation to hold these assets to their contractual maturity.

(2) A major portion of relationship-based deposits are repayable on demand or at short notice on a contractual basis while, in practice, these customer balances form a core base, as explained in the preceding Deposit profile section, for our operations and liquidity needs.

	As at October 31, 2014									
(Millions of Canadian dollars)	Less than 1 month	1 to 3 months	3 to 6 months	6 to 9 months	9 to 12 months	1 year to 2 years	2 years to 5 years	5 years and greater	With no specific maturity	Total
Assets										
Cash and deposits with banks	$ 22,871	$ 218	$ –	$ –	$ –	$ –	$ –	$ –	$ 2,731	$ 25,820
Securities										
Trading (1)	94,025	13	65	55	48	229	558	5,236	51,151	151,380
Available-for-sale	4,450	3,739	2,528	433	1,113	3,417	18,307	11,959	1,822	47,768
Assets purchased under reverse repurchase agreements and securities borrowed	54,860	24,728	28,241	8,261	10,361	2,142	–	–	6,987	135,580
Loans (net of allowance for loan losses) (2)	15,445	10,483	15,242	16,794	18,975	99,098	156,873	17,767	84,552	435,229
Other										
Customers' liability under acceptances	8,812	2,498	88	49	9	–	6	–	–	11,462
Derivatives	4,145	7,275	3,483	2,673	1,909	8,507	21,331	38,071	8	87,402
Other financial assets	18,729	672	585	169	106	245	281	828	828	22,443
Total financial assets	$ 223,337	$ 49,626	$ 50,232	$ 28,434	$ 32,521	$ 113,638	$ 197,356	$ 73,861	$ 148,079	$ 917,084
Other non-financial assets	1,847	779	679	409	52	589	1,637	2,302	15,172	23,466
Total assets	$ 225,184	$ 50,405	$ 50,911	$ 28,843	$ 32,573	$ 114,227	$ 198,993	$ 76,163	$ 163,251	$ 940,550
Liabilities and equity										
Deposits (3)										
Unsecured borrowing	$ 31,190	$ 22,626	$ 27,372	$ 18,602	$ 21,581	$ 39,693	$ 49,523	$ 9,727	$ 310,045	$ 530,359
Secured borrowing	561	2,715	2,950	5,331	4,786	9,753	21,099	10,135	–	57,330
Covered bonds	748	–	2,558	–	–	4,908	14,556	3,641	–	26,411
Other										
Acceptances	8,812	2,498	88	49	9	–	6	–	–	11,462
Obligations related to securities sold short	50,345	–	–	–	–	–	–	–	–	50,345
Obligations related to assets sold under repurchase agreements and securities loaned	58,208	1,252	1,306	1,051	574	–	–	–	1,940	64,331
Derivatives	3,745	6,997	3,845	3,351	2,042	10,345	22,295	36,359	3	88,982
Other financial liabilities	18,094	1,121	492	170	298	309	530	4,033	357	25,404
Subordinated debentures	200	–	–	–	–	–	–	7,659	–	7,859
Total financial liabilities	$ 171,903	$ 37,209	$ 38,611	$ 28,554	$ 29,290	$ 65,008	$ 108,009	$ 71,554	$ 312,345	$ 862,483
Other non-financial liabilities	1,454	2,970	674	57	78	917	2,456	7,956	7,002	23,564
Equity	–	–	–	–	–	–	–	–	54,503	54,503
Total liabilities and equity	$ 173,357	$ 40,179	$ 39,285	$ 28,611	$ 29,368	$ 65,925	$ 110,465	$ 79,510	$ 373,850	$ 940,550
Off-balance sheet items										
Financial guarantees (2)	$ 705	$ 2,638	$ 2,590	$ 2,064	$ 2,151	$ 1,345	$ 5,410	$ 244	$ 61	$ 17,208
Lease commitments	58	114	167	165	161	634	1,220	1,291	–	3,810
Commitments to extend credit	1,670	6,345	7,336	6,779	8,562	19,942	107,868	11,708	2,306	172,516
Other credit-related commitments	503	782	966	1,232	1,183	315	996	242	62,325	68,544
Other commitments	246	450	413	–	–	–	–	–	–	1,109
Total off-balance sheet items	$ 3,182	$ 10,329	$ 11,472	$ 10,240	$ 12,057	$ 22,236	$ 115,494	$ 13,485	$ 64,692	$ 263,187

(1) Trading debt securities classified as fair value through profit or loss have been included in the less than 1 month category as there is no expectation to hold these assets to their contractual maturity.
(2) Amounts have been revised from those previously presented.
(3) A major portion of relationship-based deposits are repayable on demand or at short notice on a contractual basis while, in practice, these customer balances form a core base, as explained in the preceding Deposit profile section, for our operations and liquidity needs.

Contractual maturities of financial liabilities and off-balance sheet items – undiscounted basis
The following tables provide remaining contractual maturity analysis of our financial liabilities and off-balance sheet items. The amounts disclosed in the following table are the contractual undiscounted cash flows of all financial liabilities (e.g. par value or amount payable upon maturity). The amounts do not reconcile directly with those in our consolidated balance sheets as the table only incorporates cash flows relating to payments on maturity of the instrument and do not recognize premiums, discounts or mark-to-market adjustments recognized in the instruments' carrying value as at the balance sheet date. Financial liabilities are based upon the earliest period in which they are required to be paid. For off-balance sheet items, the undiscounted cash flows potentially payable under financial guarantees and commitments to extend credit are classified on the basis of the earliest date they can be called.

Contractual maturities of financial liabilities and off-balance sheet items – undiscounted basis * — Table 67

	As at October 31, 2015					
(Millions of Canadian dollars)	On demand	Within 1 year	1 year to 2 years	2 years to 5 years	5 years and greater	Total
Financial liabilities						
Deposits (1)	$ 311,743	$ 216,876	$ 43,631	$ 96,104	$ 28,539	$ 696,893
Other						
Acceptances	–	13,446	6	1	–	13,453
Obligations related to securities sold short	–	47,658	–	–	–	47,658
Obligations related to assets sold under repurchase agreements and securities loaned	6,179	76,320	780	10	–	83,289
Other liabilities	334	25,174	72	237	4,139	29,956
Subordinated debentures	–	–	–	–	7,227	7,227
	318,256	379,474	44,489	96,352	39,905	878,476
Off-balance sheet items						
Financial guarantees (2)	7,079	10,399	11	4	1	17,494
Operating leases	–	717	602	1,293	1,808	4,420
Commitments to extend credit (2)	172,927	43,929	4	2	13	216,875
	180,006	55,045	617	1,299	1,822	238,789
Total financial liabilities and off-balance sheet items	$ 498,262	$ 434,519	$ 45,106	$ 97,651	$ 41,727	$ 1,117,265

	As at October 31, 2014					
(Millions of Canadian dollars)	On demand	Within 1 year	1 year to 2 years	2 years to 5 years	5 years and greater	Total
Financial liabilities						
Deposits (1)	$ 289,204	$ 161,953	$ 54,385	$ 84,609	$ 22,967	$ 613,118
Other						
Acceptances	–	11,456	–	6	–	11,462
Obligations related to securities sold short	–	50,345	–	–	–	50,345
Obligations related to assets sold under repurchase agreements and securities loaned	1,941	62,391	–	–	–	64,332
Other liabilities	358	20,174	309	530	4,013	25,384
Subordinated debentures	–	200	–	–	7,632	7,832
	291,503	306,519	54,694	85,145	34,612	772,473
Off-balance sheet items						
Financial guarantees (2)	5,883	11,206	111	7	1	17,208
Operating leases	–	665	634	1,220	1,291	3,810
Commitments to extend credit (2)	137,696	34,819	1	–	–	172,516
	143,579	46,690	746	1,227	1,292	193,534
Total financial liabilities and off-balance sheet items	$ 435,082	$ 353,209	$ 55,440	$ 86,372	$ 35,904	$ 966,007

* This table represents an integral part of our 2015 Annual Consolidated Financial Statements.

(1) A major portion of relationship-based deposits are repayable on demand or at short notice on a contractual basis while, in practice, these customer balances form a core base, as explained in the preceding Deposit profile section, for our operations and liquidity needs.

(2) We believe that it is highly unlikely that all or substantially all of these guarantees and commitments will be drawn or settled within one year, and contracts may expire without being drawn or settled. The management of the liquidity risk associated with potential extensions of funds is outlined in the preceding Risk measurement section.

Credit ratings

Our ability to access unsecured funding markets and to engage in certain collateralized business activities on a cost-effective basis are primarily dependent upon maintaining competitive credit ratings. Credit ratings and outlooks provided by rating agencies reflect their views and are based on their methodologies. Ratings are subject to change from time to time, based on a number of factors including, but not limited to, our financial strength, competitive position and liquidity and other factors not completely within our control.

On January 23, 2015, Fitch Ratings affirmed our ratings with a stable outlook along with the ratings of the other five largest Canadian banks.

On May 20, 2015, Dominion Bond Rating Services (DBRS) revised the outlook on our senior and subordinated debt ratings from stable to negative, along with the outlook of the other five largest Canadian banks. The outlook revision is linked to DBRS' view that expected changes in Canadian legislation and regulation imply that the potential for timely systemic support for D-SIBs is declining.

On July 16, 2015, DBRS affirmed our ratings with a negative outlook along with the ratings of the other five largest Canadian banks.

On October 9, 2015, Standard & Poor's affirmed our ratings with a negative outlook.

On November 3, 2015, Moody's affirmed our ratings with a negative outlook along with the ratings of the other five largest Canadian banks.

The following table presents our major credit ratings[(1)] and outlooks as at December 1, 2015:

Credit ratings — **Table 68**

	As at December 1, 2015		
	Short-term debt	Senior long-term debt	Outlook
Moody's	P-1	Aa3	negative
Standard & Poor's	A-1+	AA-	negative
Fitch Ratings	F1+	AA	stable
Dominion Bond Rating Services	R-1(high)	AA	negative

(1) Credit ratings are not recommendations to purchase, sell or hold a financial obligation inasmuch as they do not comment on market price or suitability for a particular investor. Ratings are determined by the rating agencies based on criteria established from time to time by them, and are subject to revision or withdrawal at any time by the rating organization.

Additional contractual obligations for rating downgrades

A lowering of our credit rating may have potentially adverse consequences for our funding capacity or access to the capital markets, may also affect our ability, and the cost, to enter into normal course derivative or hedging transactions and may require us to post additional collateral under certain contracts. However, we estimate, based on periodic reviews of ratings triggers embedded in our existing businesses and of our funding capacity sensitivity, that a minor downgrade would not significantly influence our liability composition, funding access, collateral usage and associated costs. The following table presents the additional collateral obligations required at the reporting date in the event of a one-, two- or three-notch downgrade to our credit ratings. These additional collateral obligations are incremental requirements for each successive downgrade and do not represent the cumulative impact of multiple downgrades. The amounts reported change periodically as a result of several factors, including the transfer of trading activity to centrally cleared financial market infrastructures and exchanges, the expiration of transactions with downgrade triggers, the imposition of internal limitations on new agreements to exclude downgrade triggers, as well as normal course mark to market of positions with collateralized counterparties moving from a negative to a positive position. There is no outstanding senior debt issued in the market that contains rating triggers which would lead to early prepayment of principal.

Additional contractual obligations for rating downgrades — **Table 69**

	As at					
	October 31 2015			October 31 2014		
(Millions of Canadian dollars)	One-notch downgrade	Two-notch downgrade	Three-notch downgrade	One-notch downgrade	Two-notch downgrade	Three-notch downgrade
Contractual derivatives funding or margin requirements	$ 760	$ 132	$ 972	$ 518	$ 143	$ 790
Other contractual funding or margin requirements (1)	421	88	–	396	62	–

(1) Includes GICs issued by our municipal markets business out of New York and London.

Insurance risk

Insurance risk refers to the potential financial loss that may arise where the amount, timing and/or frequency of benefit payments under insurance and reinsurance contracts are different than expected. Insurance risk is distinct from those risks covered by other parts of our risk management framework (e.g. credit, market and operational risk) where those risks are ancillary to, or accompany the risk transfer.

We have implemented an Insurance Risk Framework that provides an overview of our processes and tools for identifying, assessing, managing and reporting on the insurance risks that face the organization. Key insurance-specific processes and tools include: risk appetite, delegated authorities and risk limits, capital management, Own Risk and Solvency Assessment (ORSA), Comprehensive Identification and Assessment of Risk (CIAR) process, stress testing, insurance product and project risk review and approval, insurance product pricing, reinsurance, insurance underwriting, insurance claims management, experience study analysis, actuarial liabilities, and embedded value.

Operational risk

Operational risk is the risk of loss or harm resulting from inadequate or failed internal processes, people and systems or from external events.

Operational risk is embedded in all our activities, including the practices and controls used to manage other risks. Failure to manage operational risk can result in direct or indirect financial loss, reputational impact, regulatory censure, or failure in the management of other risks such as credit or market risk.

Three Lines of Defence

Operational risk follows our established Three Lines of Defence governance model. This model encompasses the organizational roles and responsibilities for a co-ordinated enterprise-wide approach for the management of operational risk. For further details, refer to the Risk management – Enterprise risk management section.

Operational Risk Framework

We have put in place an Operational Risk Framework which is founded on the principles of our Enterprise Risk Management Framework and sets out the processes to identify, assess and monitor operational risk. The processes are established through the following core programs:

- Internal events – Internal events are specific instances where operational risk leads to or could have led to an unintended, identifiable impact. The internal events program provides a structured and consistent approach for collecting and analyzing internal event data to facilitate the analysis of the operational risk events affecting RBC.
- External events – External events are operational risk events that affect institutions other than RBC. External event monitoring and analysis is critical to gain awareness of operational risk experience within the industry and to identify emerging industry trends.

- Business Environment and Internal Control Factors (BEICF) Assessments – BEICF Assessments are conducted to improve business decision-making by gaining awareness of the key risks and the strengths and vulnerabilities of internal controls. Key BEICF Assessment processes include: Risk and Control Assessments conducted at both enterprise and business levels; and Change Initiatives and New/Amended Product Assessments conducted to ensure understanding of the risk and reward trade-off for business initiatives (e.g. new products, acquisitions, changes in business processes, implementation of new technology, etc.).
- Scenario analysis – Scenario analysis is a structured and disciplined process for making reasonable assessments of infrequent, yet plausible, severe operational risk events. Understanding how vulnerable RBC is to such "tail risks" identifies mitigating actions and informs the determination of related operational risk thresholds as part of the articulation of operational risk appetite.
- BEICF monitoring – BEICF monitoring is conducted on an ongoing basis through Key Risk Indicators (KRIs) and other assurance/monitoring programs (e.g. Business Unit monitoring, Second line of Defence monitoring, audit results, etc.).

Conclusions from the operational risk programs enable learning based on "what has happened to us, could it happen again elsewhere in RBC and what controls do we need to amend or implement", support the articulation of operational risk appetite and are used to inform the overall level of exposure to operational risk, which defines our operational risk profile. The profile includes significant operational risk exposures, potential new and emerging exposures and trends, and overall conclusions on the control environment and risk outlook. We proactively identify and investigate corporate insurance opportunities to mitigate and reduce potential future impacts of operational risk.

We consider risk/reward decisions in striking the balance between accepting potential losses versus incurring costs of mitigation, the expression of which is in the form of our operational risk appetite. Our operational risk appetite is established at the board level and cascaded throughout each of our business segments.

Management reports have been implemented at various levels of RBC in order to support proactive management of operational risk and transparency of risk exposures. Reports are provided on a regular basis and provide detail on the main drivers of the risk status and trend for each of our business segments and RBC overall. In addition, changes to the operational risk profile that are not aligned to our business strategy or operational risk appetite are identified and discussed.

Our operations expose us to many different risks, which may adversely affect our businesses and financial results. The following list is not exhaustive, as other factors could also adversely affect our results.

Ability to attract and to retain employees
Competition for qualified employees is intense within the financial services industry and from non-financial industries looking to recruit. Although our goal is to attract and retain qualified employees, there is no assurance that we will be able to do so.

Accuracy and completeness of information on clients and counterparties
When deciding to extend credit or enter into other transactions with clients and counterparties, we may rely on information provided by or on behalf of clients and counterparties, including audited financial statements and other financial information. We may also rely on representations of clients and counterparties as to the completeness and accuracy of that information. Our financial results could be adversely impacted if the financial statements and other financial information relating to clients and counterparties on whom we rely do not comply with GAAP or are materially misleading.

Development and integration of our distribution networks
We regularly explore opportunities to expand our distribution networks, either through acquisitions or organically by adding, for example, new bank branches, insurance offices, online savings accounts and ATMs in high-growth, receptive markets. However, if we are not able to develop or integrate these distribution networks effectively, our results of operations and financial condition may be negatively affected.

Model risk
The use of models plays an important role in many of our business activities. We use a variety of models for many purposes, including the valuation of financial products, risk measurement and management of different types of risk. Model risk is the risk of error in the design, development, implementation or subsequent use of models. We have established an enterprise-wide Model Risk Management Framework, including principles, policies and procedures, roles and responsibilities to manage model risk. One of the key factors in the framework to mitigate model risk is independent validation.

Information technology risk
We use information technology for business operations and the enablement of strategic business goals and objectives. Information technology risk is the risk to our business associated with the use, ownership, operation, involvement, influence and adoption of information technology within the enterprise. It consists of information technology related events (e.g. cybersecurity incidents) that could potentially have an adverse impact on our business. Such events could result in business interruption, service disruptions, theft of intellectual property and confidential information, additional regulatory scrutiny, litigation and reputational damage. To manage our information technology risk, we have established an enterprise-wide Information Technology Risk Management Framework.

Information management risk
Information management risk is the risk of loss or harm resulting from the failure to manage information appropriately throughout its lifecycle. Exposure to this risk exists when information is acquired or created, processed, used, shared, accessed, retained or disposed. With respect to personal information, the failure to manage information appropriately can result in the misuse of personal information or privacy breaches. With respect to client information, the inability to process information accurately and on a timely basis can result in service disruptions. With respect to corporate and proprietary information, the mismanagement of information can result in the disclosure of confidential information, the unavailability of information when it is required and the reliance on inaccurate information for decision-making purposes. Such events could lead to legal and regulatory consequences, reputational damage and financial loss.

Processing and execution risk
Processing and execution risk is the risk of failure to effectively design, implement and execute a process. Exposure to this risk is global, existing in every RBC location and operation, and in every RBC employee's actions. Examples of processing and execution events range from selecting the wrong interest rates, duplicating wire payment instructions, transposing figures, processing a foreign exchange transaction incorrectly, underinsuring a property and incorrectly investing funds. The potential impacts of such events include financial loss, legal and regulatory consequences and reputational damage. When identified, these situations are assessed, analyzed and mitigating actions are undertaken.

Social media risk
The scale and profile of social media has grown to present a number of risks. These risks include brand and reputational damage, information leaks, non-compliance with regulatory requirements and governance risk. To manage the risks associated with social media, we have implemented an enterprise-wide policy as well as business unit policies on the usage of external social media, which sets out the requirements for the business and corporate use of social media and is part of our larger Social Media Governance Framework.

Third party and outsourcing risk
Failing to effectively manage our service providers may expose RBC to service disruptions, regulatory action, financial loss, litigation or reputational damage. Third party and outsourcing risk has received increased oversight from regulators and attention from the media. We formalized and standardized our expectations of our suppliers with a principles-based Supplier Code of Conduct to ensure their behaviour aligns with our standards in the following key areas: business integrity, responsible business practices, responsible treatment of individuals, and the environment.

Operational risk capital
We currently use the Standardized Approach to calculate operational risk capital requirements and the allocation of capital amongst our business units. We are in the process of attaining accreditation towards the Basel II Advanced Measurement Approach (AMA) as the approved regulatory capital methodology. We have submitted our full AMA Application to the OSFI and, until approval is received, we are performing parallel runs of the capital model. Output from capital modeling will provide further transparency around the materiality of key risks by quantifying the expected losses and unexpected losses.

Operational risk loss events
During 2015, we did not experience any material operational risk loss event. For further details on our contingencies, including litigation, refer to Notes 26 and 27 of our 2015 Annual Consolidated Financial Statements.

Regulatory compliance risk

Regulatory compliance risk is the risk of potential non-conformance with laws, rules, regulations and prescribed practices in any jurisdiction in which we operate. Issues regarding compliance with laws and regulations can arise in a number of areas in a large complex financial institution such as RBC, and are often the result of inadequate or failed internal processes, people or systems.

Laws and regulations are in place to protect the financial and other interests of our clients, investors and the public. As a large-scale global financial institution, we are subject to numerous laws and to extensive and evolving regulation by governmental agencies, supervisory authorities and self-regulatory organizations in Canada, the U.S., Europe and other jurisdictions in which we operate. In recent years, such regulation has become increasingly extensive and complex. In addition, the enforcement of regulatory matters has intensified. Recent resolution of such matters involving other global financial institutions have involved the payment of substantial penalties, agreements with respect to future operation of their business, actions with respect to relevant personnel and guilty pleas with respect to criminal charges.

Operating in this increasingly complex regulatory environment and intense regulatory enforcement environment, we are and have been subject to a variety of legal proceedings, including civil claims and lawsuits, criminal charges, regulatory examinations, investigations, audits and requests for information by various governmental regulatory agencies and law enforcement authorities in various jurisdictions, and we anticipate that our ongoing business activities will give rise to such matters in the future. Changes to laws, including tax laws, regulations or regulatory policies, as well as the changes in how they are interpreted, implemented or enforced, could adversely affect us, for example, by lowering barriers to entry in the businesses in which we operate, increasing our costs of compliance or limiting our activities and ability to execute our strategic plans. Further, there is no assurance that we always will be or will be deemed to be in compliance with laws, regulations or regulatory policies. Accordingly, it is possible that we could receive a judicial or regulatory judgment or decision that results in fines, damages, penalties, and other costs or injunctions, criminal convictions or loss of licences or registrations that would damage our reputation and negatively impact our earnings. In addition, we are subject to litigation arising in the ordinary course of our business and the adverse resolution of any litigation could have a significant adverse effect on our results or could give rise to significant reputational damage, which in turn could impact our future business prospects.

Global compliance has developed a Regulatory Compliance Management Framework consistent with regulatory expectations from OSFI and other regulators. The framework is designed to manage and mitigate the regulatory compliance risks associated with failing to comply with, or adapt to, current and changing laws and regulations in the jurisdictions in which we operate.

Regulatory compliance risk has been further defined as risks associated with financial crime (which includes, but is not limited to, money laundering, bribery and sanctions), privacy, market conduct, consumer protection, business conduct and prudential requirements. Specific compliance policies, procedures and supporting frameworks have been developed to support the minimum requirements for the prudent management of regulatory compliance risk. Within the framework there are five elements that form a cycle by which all regulatory compliance risk management programs are developed, implemented and maintained.

- The first element is intended to ensure our regulatory compliance programs evolve alongside our business activities and operations.
- The second element is intended to ensure regulatory compliance risks are identified and assessed appropriately so regulatory compliance programs are designed in a manner to most effectively meet regulatory requirements.
- The third element relates to the design and implementation of specific controls.
- The fourth element is intended to ensure appropriate monitoring and oversight of the effectiveness of the controls.
- Lastly, the fifth element is intended to ensure the timely escalation and resolution of issues, and clear and transparent reporting. This is a critical step in enabling senior management and the Board of Directors to effectively perform their management and oversight responsibilities.

Strategic risk

Strategic risk is the risk that the enterprise or particular business areas will make inappropriate strategic choices, or will be unable to successfully implement selected strategies or related plans and decisions. Business strategy is the major driver of our risk profile and consequently the strategic choices we make in terms of business mix determine how our risk profile changes.

Responsibility for selecting and successfully implementing business strategies is mandated to the individual heads of the businesses. Oversight of strategic risk is the responsibility of the heads of the business segments and their operating committees, the Enterprise Strategy Office, Group Executive, and the Board of Directors. The Enterprise Strategy group supports the management of strategic risk through the strategic planning process (articulated within our Enterprise Strategic Planning Policy) ensuring alignment across our business, financial, capital and risk planning.

For details on the key strategic priorities for our business segments, refer to the Business segment results section.

Reputation risk

Reputation risk is the risk that an activity undertaken by an organization or its representatives will impair its image in the community or lower public confidence in it, resulting in the loss of business, legal action or increased regulatory oversight.

Reputation risk can arise from a number of events and primarily occurs in connection with credit risk, regulatory, legal and operational risks and failure to maintain strong risk conduct. Operational failures and non-compliance with laws and regulations can have a significant reputational impact on us.

We have put in place a Reputation Risk Framework which provides an overview of our approach to the management of this risk. It focuses on our organizational responsibilities, and controls in place to mitigate reputation risks.

The following principles guide our management of reputation risk:

- We must operate with integrity at all times in order to sustain a strong and positive reputation.
- Protecting our reputation is the responsibility of all our employees, including senior management, and extends to all members of the Board of Directors.

Legal and regulatory environment risk

Certain regulatory reforms will impact the way in which we operate, both in Canada and abroad, and the full impact of some of these reforms on our business will not be known until final rules are implemented and market practices have developed in response. We continue to respond to these and other developments and are working to minimize any potential adverse business or economic impact. The following regulatory reforms have potential to increase our operational, compliance, and technology costs and adversely affect our profitability.

Basel Committee on Banking Supervision global standards for capital and liquidity

The Basel Committee's standards for capital and liquidity (commonly referred to as "Basel III") establish minimum requirements for common equity, increased capital requirements for counterparty credit exposures, a new global leverage ratio and measures to promote the build-up of capital that can be drawn down in periods of stress. Banks around the world continue to adopt the new standards in accordance with domestic implementation.

In January 2013, the BCBS released final rules for the short-term liquidity standard, the LCR, with implementation commencing in 2015. Subsequently in October 2014, the BCBS released final rules for the long-term liquidity standard, the NSFR, with implementation commencing in 2018. For further details on how our business may be impacted, refer to the Liquidity and funding risk section.

In January 2014, the BCBS released final rules for the global leverage requirement, which takes effect as a 3% minimum supplemental capital requirement on January 1, 2018. For further details on how our business may be impacted, refer to the Capital management section.

In September 2014, U.S. regulators approved final rules to apply a U.S.-based supplemental leverage requirement and LCR requirement to large banking organizations operating in the U.S. The Fed has indicated that future rulemakings likely will establish single counterparty credit limits, early remediation requirements, and an LCR for U.S. Intermediate Holding Companies (IHCs) as well as Foreign Banking Organization branches and agencies. IHCs may be subject in whole or in part to additional rules regarding capital, liquidity, and other enhanced standards, including the NSFR.

Basel III requirements have been implemented in the European Union (EU) through a revised Capital Requirements Directive (CRD IV) and accompanying Capital Requirements Regulation (CRR), both of which became effective January 1, 2014 and are to be phased-in gradually through 2019. CRD IV/CRR also introduces improvements to the transparency of activities of banks and investment funds in different countries, adds a host of governance standards (including standards for executive compensation and bonuses, board oversight of risk and board diversity), and implements a common reporting framework for regulatory reporting. These changes have not had a significant impact on capital requirements for our European subsidiaries. The LCR has now been implemented in the EU, while the reporting phase of the Basel III leverage ratio is due to begin on January 1, 2016.

Dodd-Frank – Enhanced Supervision of Foreign Banking Organizations

On February 18, 2014, the U.S. Federal Reserve (Fed) finalized a new oversight regime for non-U.S. banks with subsidiaries, affiliates and branches operating in the U.S. (*Enhanced Prudential Standards for Bank Holding Companies and Foreign Banking Organizations*), intended to address the perceived systemic risk that large foreign banks could pose to U.S. financial markets.

As a Foreign Banking Organization with more than US$50 billion in U.S. non-branch assets, RBC is required to establish a separately capitalized U.S. IHC, into which all of our U.S. legal entities must be placed and for which certain U.S.-based requirements will apply. The IHC will be subject to Fed oversight comparable to U.S. bank holding companies. As a result, changes to our existing practices will be required to provide the governance and infrastructure needed to support these U.S.-specific requirements in areas of financial reporting, capital and liquidity, risk management, and stress testing. In addition, there will be limitations on capital distributions from the IHC to RBC, and such distributions will be subject to supervisory approval. The requirements will be phased-in between 2015 and 2018, with RBC needing to form its IHC by July 1, 2016. An implementation plan outlining our approach for meeting these requirements including forming the IHC was filed with the Fed initially on December 22, 2014. A modified implementation plan was subsequently filed on April 30, 2015 to reflect the planned integration of City National into the IHC. The Fed has stated that it plans to issue, at a later date, separate rules to apply early remediation requirements, and limits on exposures to single counterparties to the IHC. The final rule also deferred application of U.S.-based liquidity and leverage requirements. On October 7, 2015, the Fed approved our request for one-year extensions for the IHC to comply with the Fed's capital plan and stress test requirements. Specifically, the IHC will now be required to comply with the Fed's capital plan requirement beginning January 1, 2017, and with the Fed's stress test requirement beginning January 1, 2018. This extension was granted in consideration of the Fed's October 7, 2015 approval of our acquisition of City National. The Fed agreed with our view that the extension will allow for a more complete integration of City National into our capital plan and stress test development efforts, and that the extension is unlikely to present an undue risk to financial stability. RBC has incurred, and will continue to incur, costs to comply with these additional U.S.-based financial reporting, risk management and governance requirements and we may have less flexibility in our capital and liquidity planning which historically has been managed on a global basis. These impacts are not expected to materially affect our overall results.

Canadian bail-in regime

Bail-in regimes are being implemented in a number of jurisdictions following the 2008 financial crisis in an effort to limit taxpayer exposure to potential losses of a failing institution and ensure the institution's shareholders and creditors remain responsible for bearing such losses. The former Federal government under the Conservative party had proposed a "bail-in" regime for the six D-SIBs which would have granted the Federal government the power to permanently cancel a D-SIB's existing common shares and/or convert their long-term senior debt into common shares once the institution was no longer viable. Higher Loss Absorbency requirements would have also applied to ensure affected banks maintained sufficient capital to absorb the proposed conversions. It is unclear at this time whether the recently elected Liberal government will reinstate the Conservative government's proposal and what impact any proposed changes might have on our cost of funding.

Total loss-absorbing capacity (TLAC)

On November 9, 2015, the Financial Stability Board (FSB) finalized minimum common international standards related to the total loss-absorbing capacity (TLAC) of global systemically important banks (G-SIBs). The standards are intended to address the sufficiency of G-SIBs' capital to absorb losses in a resolution situation in a manner that minimizes impact on financial stability and ensures continuity of critical and long-term debt functions. Under the final standards, G-SIBs would be expected to meet a 16% Risk Weighted Asset (RWA) requirement by 2019, increasing to 18% by 2022. In addition, G-SIBs would be expected by 2019 to maintain a TLAC leverage ratio exposure of 6% of the Basel III leverage ratio denominator, increasing to 6.75% by 2022. RBC would become subject to these enhanced requirements if we are designated as a G-SIB by the FSB in the future. To date, neither RBC nor any other Canadian bank has been designated as a G-SIB. It is also uncertain how these standards will be integrated into any bail-in regime that could potentially be introduced in Canada.

On October 30, 2015, the Fed proposed rules establishing TLAC, long-term debt, and "clean holding company" requirements for U.S. G-SIBs and the IHCs of non-U.S. G-SIBs. RBC is not covered at this time by the proposal, but our U.S. IHC would become subject to these U.S. requirements should we be designated as a G-SIB in the future.

Over-the-counter derivatives reform

Reforms to over-the-counter (OTC) derivatives markets continue on a global basis, with the governments of the G20 nations proceeding with plans to transform the capital regimes, national regulatory frameworks and infrastructures in which we and other market participants operate. We, along with other Canadian banks, are experiencing changes in our wholesale banking business, some of which impacts our client- and trading-related derivatives revenue in Capital Markets. Certain of the rules that impact RBC include:

On January 30, 2015 OSFI issued revised Guideline B-7 Derivatives Sound Practices, translating the G20 reforms into its expectations for Federally Regulated Financial Institutions (FRFIs), including Canadian banks.

In March 2015, the BCBS and the International Organization of Securities Commissions (IOSCO) established minimum standards for margin requirements for non-centrally cleared derivatives requiring non-exempt financial entities and systemically important non-financial entities to exchange initial and variation margin on bilateral OTC derivatives. Throughout 2014 and 2015, regulators around the globe proposed domestic rules based on these guidelines. The BCBS/IOSCO framework will be phased-in from September 1, 2016. RBC expects it will be required to comply from this date and will work with national authorities to prepare for compliance.

To avoid the imposition of duplicative prudential and other regulatory requirements and mitigate some of the related compliance and operating costs, the U.S. Commodity Futures Trading Commission (CFTC) has issued guidance that permits RBC and other Canadian banks who registered as swaps dealers in the U.S. to substitute compliance with a limited subset of CFTC swap dealers rules by complying with Canadian rules in several areas. We continue to work with Canadian and U.S. authorities to encourage further reliance on the Canadian framework in this regard. Pending the issuance of expanded CFTC substituted compliance determinations, we, along with other Canadian swap dealers continue to engage with the CFTC to ensure the continued availability of no-action relief in connection with certain U.S. rules that are beyond the scope of the existing substituted compliance determinations and guidance.

In Europe, OTC reforms are being implemented through the European Market Infrastructure Regulation (EMIR) and the review of Markets in Financial Instruments Directive and accompanying Regulation (together, MiFID II/MiFIR). EMIR requires firms to clear certain OTC standardized derivative contracts through central counterparties, establish risk mitigation controls for non-cleared OTC derivatives transactions, and report both cleared and non-cleared contracts to trade repositories. MiFID II/MiFIR is expected to take effect in January 2017 and will introduce an on-venue trading obligation, subject to a determination of sufficient liquidity by the European Securities and Markets Authority (ESMA), for certain OTC derivatives that ESMA has deemed to be subject to the clearing obligation under EMIR.

Consumer protection

On September 19, 2014, the Supreme Court of Canada rendered its judgment in the 2003 Quebec class action lawsuit, *Marcotte v. Bank of Montreal*. The Court found that certain provisions of Quebec's *Consumer Protection Act* apply to credit cards issued by federally-chartered banks. The extent to which provincial/territorial regulation of other banking activities will be upheld is yet to be determined.

Common reporting standard

In April 2013, in an effort to combat international tax evasion, the G20 countries committed to introduce a global standard for the automatic exchange of financial information. In July 2014, the Organisation for Economic Co-operation and Development published the Standard for Automatic Exchange of Financial Account Information in Tax Matters, which consists of a Model Competent Authority Agreement to be used by governments to enter into agreements with jurisdictions with which they will automatically exchange financial account information (Reportable Jurisdictions), and a Common Reporting Standard (CRS) that provides standard procedures to be followed by financial institutions globally to identify reportable accounts. Information related to such accounts will be submitted by financial institutions to their local governments on an annual basis, who will then automatically exchange that information with the appropriate Reportable Jurisdictions.

As of November 1, 2015, over 90 countries have committed to introduce the requirements of CRS into local law, effective in either 2016 or 2017, with the first exchanges of information to begin in the year following implementation. The majority of jurisdictions in which RBC operates have committed to implement CRS, with a notable exception being the U.S.

RBC businesses operating in CRS jurisdictions will be required to make changes to existing business processes in order to comply with CRS due diligence requirements related to the identification and reporting of reportable accounts. In addition to changes to new account opening procedures, a review of pre-existing accounts in accordance with defined procedures will also be required and may require contacting certain pre-existing clients to request additional information and/or documentation. We will also incur additional costs in order to comply with these due diligence requirements.

U.K. and European regulatory reform

Effective March 2016, certain RBC U.K. subsidiaries and branches will become subject to enhanced requirements under the Senior Managers and Certification Regime, including prescribed responsibilities, a statutory duty on senior managers to take reasonable steps to prevent regulatory breaches in their areas of responsibility, and new remuneration rules for senior managers. A certification regime will apply to employees performing 'significant harm' roles. Additionally, new conduct rules will apply to all in-scope employees from March 2017.

In July 2015, a revised Deposit Guarantee Scheme Directive (DGSD) took effect. DGSD strengthens depositor protection across the EU through harmonization of the amount protected (€100,000/GBP 75,000) and related disclosure requirements. In the U.K., further obligations relating to Single Customer View reporting and continuous access to funds will come into effect in late 2016. The requirements impact our deposit-taking businesses in Europe by requiring changes to current reporting and disclosure requirements, as well as revisions to current procedures and processes.

MiFID II/MiFIR will have a significant impact across all RBC businesses operating in the EU given the wide-ranging nature of the reforms, which will introduce changes with respect to pre- and post-trade transparency; market structure; trade and transaction reporting; algorithmic and high frequency trading; and conduct of business. Final technical standards are expected in early 2016. The complexity of MiFID II/MiFIR implementation for RBC businesses operating in the EU will be increased by the need to address obligations arising under other overlapping regulatory initiatives. This will include the reporting obligations to be implemented under the recast Transparency Directive (effective November 2015) and Securities Financing Transaction Regulation (expected to come into force in 2016); the EMIR clearing obligation (to be phased-in over the course of 2016); and the Market Abuse Regulation (effective July 2016), which is intended to increase market integrity and investor protection across the EU.

Competitive risk

The competition for clients among financial services companies in the markets in which we operate is intense. Client loyalty and retention can be influenced by a number of factors, including new technology used or services offered by our competitors, relative service levels, relative prices, product and service attributes, our reputation, actions taken by our competitors, and adherence with competition and anti-trust laws. Other companies, such as insurance companies and non-financial companies, are increasingly offering services traditionally provided by banks. For example, our payments business is facing intense competition from emerging non-traditional competitors. This competition could also reduce net interest income, fee revenue and adversely affect our results.

Systemic risk

Systemic risk is the risk that the financial system as a whole, or a major part of it – either in an individual country, a region, or globally – is put in real and immediate danger of collapse or serious damage with the likelihood of material damage to the real economy, and that this will result in financial, reputation or other risks for RBC.

Systemic risk is considered to be the least controllable risk facing RBC. Our ability to mitigate this risk when undertaking business activities is limited, other than through collaborative mechanisms between key industry participants, and, as appropriate, the public sector, to reduce the frequency and impact of these risks. The two most significant measures in mitigating the impact of systemic risk are diversification and stress testing.

Our diversified business portfolios, products, activities and funding sources help mitigate the potential impacts from systemic risk. We also mitigate systemic risk by establishing risk limits to ensure our portfolio is well diversified, and concentration risk is reduced and remains within our Risk Appetite.

Stress testing involves consideration of the simultaneous movements in a number of risk factors. It is used to ensure our business strategies and capital planning are robust by measuring the potential impacts of credit, market, liquidity and funding and operational risks on us, under adverse economic conditions. Our enterprise-wide stress testing program uses stress scenarios featuring a range of severities based on plausible adverse economic and financial market events. These stress scenarios are evaluated across the organization, and results are integrated to develop an enterprise-wide view of the impacts on our financial results and capital requirements. For further details on our stress testing, refer to the Risk management – Enterprise risk management section.

Overview of other risks

In addition to the risks described in the Risk management section, there are other risk factors, described below, which may adversely affect our businesses and financial results. The following discussion is not exhaustive as other factors could also adversely affect our results.

Business and economic conditions

Our earnings are significantly affected by the general business and economic conditions in the geographic regions in which we operate. These conditions include consumer saving and spending habits as well as consumer borrowing and repayment patterns, business investment, government spending, exchange rates, sovereign debt risks, the level of activity and volatility of the capital markets, strength of the economy and inflation. For example, an extended economic downturn may result in high unemployment and lower family income, corporate earnings, business investment and consumer spending, and could adversely affect the demand for our loan and other products and result in higher provisions for credit losses. Given the importance of our Canadian operations, an economic downturn in Canada or in the U.S. impacting Canada would largely affect our personal and business lending activities in our Canadian banking businesses, including cards, and could significantly impact our results of operations.

Our earnings are also sensitive to changes in interest rates. A continuing low interest rate environment in Canada, the U.S. and globally would result in net interest income being unfavourably impacted by spread compression largely in Personal & Commercial Banking and Wealth Management. While an increase in interest rates would benefit our businesses that are currently impacted by spread compression, a significant increase in interest rates could also adversely impact household balance sheets. This could result in credit deterioration which might negatively impact our financial results, particularly in some of our personal and commercial banking and Wealth Management businesses.

Capital Markets and Investor & Treasury Services would be negatively impacted if global capital markets deteriorate resulting in lower average fee-based client assets and transaction volumes and trading volatility. In Wealth Management, weaker market conditions would lead to lower average fee-based client assets and transaction volumes. Worsening of financial and credit market conditions may adversely affect our ability to access capital markets on favourable terms and could negatively affect our liquidity, resulting in increased funding costs and lower transaction volumes in Capital Markets and Investor & Treasury Services. For further details on economic and market factors which may impact our financial performance, refer to the Wealth Management, Investor & Treasury Services and Capital Markets sections.

Government fiscal, monetary and other policies

Our businesses and earnings are affected by the fiscal, monetary or other policies that are adopted by the Bank of Canada and various other Canadian regulatory authorities, the Board of Governors of the Federal Reserve System in the U.S. and other U.S. government authorities, as well as those adopted by international regulatory authorities and agencies in jurisdictions in which we operate. Such policies can also adversely affect our clients and counterparties in Canada, the U.S. and internationally, which may increase the risk of default by such clients and counterparties.

Tax risk and transparency

Tax risk refers to the risk of loss related to unexpected tax liabilities. The tax laws and systems that are applicable to RBC are complex and wide ranging. As a result, we ensure that any decisions or actions related to tax always reflect our assessment of the long-term costs and risks involved, including their impact on our relationship with clients, shareholders, and regulators, and our reputation.

Our approach to tax is governed by our Taxation Policy and Risk Management Framework, and reflects the fundamentals of our Risk Pyramid. Oversight of our tax policy and the management of tax risk is the responsibility of the CAO & CFO and the Senior Vice President, Taxation. We report our tax position to the Audit Committee on a regular basis and discuss our tax strategy with the Audit and Risk Committees as well as with GE.

Our tax strategy is designed to ensure transparency and support our business strategy, and is aligned with our corporate vision and values. We seek to maximize shareholder value by ensuring that our businesses are structured in a tax-efficient manner while considering reputational risk by being in compliance with all laws and regulations. Our framework seeks to ensure that we:

- Act with integrity and in a straightforward, open and honest manner in all tax matters;
- Ensure tax strategy is aligned with our business strategy supporting only bona fide transactions with a business purpose and economic substance;
- Ensure our full compliance and full disclosure to tax authorities of our statutory obligations; and
- Endeavour to work with the tax authorities to build positive long-term relationships and where disputes occur, address them constructively.

With respect to assessing the needs of our clients, we consider a number of factors including the purposes of the transaction. We seek to ensure that we only support bona fide client transactions with a business purpose and economic substance. Should we become aware of client transactions that are aimed at evading their tax obligations, we will not proceed with the transaction.

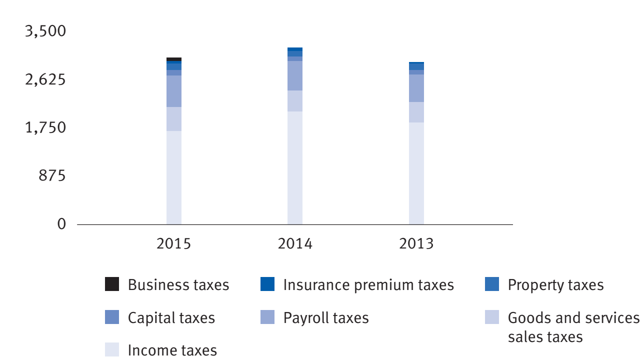
RBC operates in 39 countries worldwide. Our activities in these countries are subject to both Canadian and international tax legislation and other regulation, and are fully disclosed to the relevant tax authorities. The Taxation group and GRM both regularly review the activities of all entities to ensure compliance with tax requirements and other regulations.

Given that we operate globally, complex tax legislation and accounting principles can result in differing legal interpretations between the respective tax authorities we deal with and ourselves, and we are at risk of tax authorities disagreeing with prior positions we have taken for tax purposes. Should this occur, we are committed to an open and transparent dialogue with the tax authorities to ensure a quick assessment and prompt resolution of the issues. Failure to adequately manage tax risk and resolve issues with tax authorities in a satisfactory manner could adversely impact our results, potentially to a material extent in a particular period, and/or significantly impact our reputation.

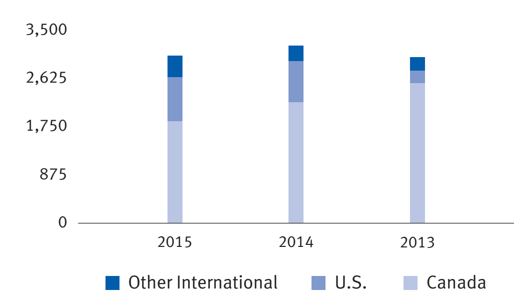
Tax Contribution

In 2015, total income and other tax expense to various levels of governments globally totalled $3.1 billion (2014 – $3.2 billion; 2013 – $3 billion). In Canada, total income and other tax expense for the year ended October 31, 2015 to various levels of government totalled $1.9 billion (2014 – $2.2 billion; 2013 – $2.6 billion).

Income and other tax expense – by category
(Millions of Canadian dollars)



Income and other tax expense – by geography
(Millions of Canadian dollars)



For further details on income and other tax expense, refer to the Financial performance section.

Environmental risk
Environmental risk is the risk of loss to financial, operational or reputational value resulting from the impact of environmental issues. It arises from the business activities and operations of both us and our clients. For example, the environmental issues associated with our clients' purchase and sale of contaminated property or development of large-scale projects may give rise to credit, regulatory and reputation risk. Operational and legal risks may arise from environmental issues at our branches, offices or data processing centres.

Corporate Sustainability (CS) sets enterprise-wide policy requirements for the identification, assessment, control, monitoring and reporting of environmental risk. Oversight is provided by GE and the Governance Committee of the Board of Directors. Business segments and corporate functions are responsible for incorporating environmental risk management requirements and controls within their operations. The CS Group also provides advisory services and support to business segments on the management of specific environmental risks in business transactions.

Periodically, we verify that our environmental risk management policies and processes are operating as intended. On an annual basis, and more frequently as required, environmental risk management activities, issues and trends are reported to GE and to the Governance Committee of the Board of Directors. Failure to adequately manage environmental risk could adversely impact our results and/or significantly impact our reputation.

We report on the full extent of environmental management annually in the Corporate Responsibility Report and Public Accountability Statements.

Other factors
Other factors that may affect actual results include changes in government trade policy, changes in accounting standards, including their effect on our accounting policies, estimates and judgments, currency and interest rate movements in Canada, the U.S., and other jurisdictions in which we operate, changes to our credit ratings, the timely and successful development of new products and services, our ability to cross-sell more products to customers, technological changes, effective design, implementation and execution of processes and their associated controls, fraud by internal and external parties, the possible impact on our business from disease or illness that affects local, national or global economies, disruptions to public infrastructure, including transportation, communication, power and water, international conflicts and other political developments including those relating to the war on terrorism, and our success in anticipating and managing the associated risks.

We caution that the foregoing discussion of risk factors, many of which are beyond our control, is not exhaustive and other factors could also affect our results.

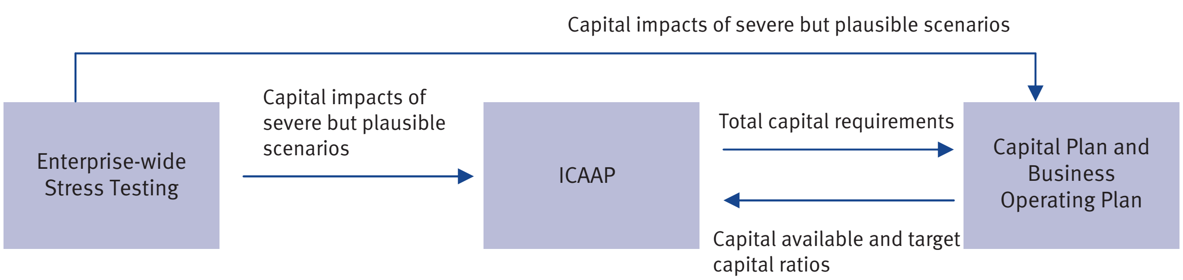
Capital management

We actively manage our capital to maintain strong capital ratios and high ratings while providing strong returns to our shareholders. In addition to the regulatory requirements, we consider the expectations of credit rating agencies, depositors and shareholders, as well as our business plans, stress tests, peer comparisons and our internal capital ratio targets. Our goal is to optimize our capital usage and structure, and provide support for our business segments and clients and better returns for our shareholders, while protecting depositors and senior creditors.

Capital management framework
Our capital management framework provides the policies and processes for defining, measuring, raising and investing all types of capital in a co-ordinated and consistent manner. It includes our overall approach to capital management, including guiding principles as well as roles and responsibilities relating to capital adequacy and transactions, dividends, solo capital and management of risk-weighted assets (RWA) and leverage ratio exposures. We manage and monitor capital from several perspectives, including regulatory capital, economic capital and subsidiary capital.

Our capital planning is a dynamic process which involves various teams including Finance, Corporate Treasury, GRM, Economics and our businesses, and covers internal capital ratio targets, potential capital transactions as well as projected dividend payouts and share repurchases. The integral parts of our capital planning are comprised of our business operating plans, enterprise-wide stress testing and Internal Capital Adequacy Assessment Process (ICAAP), along with the considerations of regulatory capital requirements and accounting changes, internal capital requirements, rating agency metrics and solo capital.

Our capital plan is established on an annual basis and is aligned with the management actions included in the annual business operating plan, which includes forecast growth in assets and earnings taking into account our business strategies, projected market and economic environment and peer positioning. This includes incorporating potential capital transactions based on our projected internal capital generation, business forecasts, market conditions and other developments, such as accounting and regulatory changes that may impact capital requirements. All of the components in the capital plan are monitored throughout the year and are revised as deemed appropriate.



Our Enterprise-wide stress testing and ICAAP provide key inputs for capital planning, including setting the appropriate internal capital ratio targets. The stress scenarios are evaluated across the organization, and results are integrated to develop an enterprise-wide view of financial impacts and capital requirements, which in turn facilitate the planning of mitigating actions to absorb exceptional adverse events. ICAAP is an OSFI mandated annual process to assess capital adequacy and requirements to cover all material risks, with a cushion to cover severe but plausible contingencies. In accordance with the OSFI guideline, the major components of our ICAAP process include comprehensive risk assessment, stress testing, capital assessment and planning (both economic and regulatory capital), board and senior management oversight, monitoring and reporting and internal control review.

Our internal capital targets are established to maintain robust capital positions in excess of OSFI's Basel III "all-in" regulatory targets, which include minimum capital requirements plus a capital conservation buffer, and effective January 1, 2016, a D-SIBs surcharge that can absorb losses during periods of stress. The "all-in" methodology includes all regulatory adjustments that will be required by 2019, while retaining the phase-out rules for non-qualifying capital instruments, as per OSFI's Basel III Capital Adequacy Requirements (CAR) guideline. The stress test results of our Enterprise-wide stress testing and ICAAP are incorporated into the OSFI capital conservation buffer and D-SIBs surcharge, with a view to ensuring the bank has adequate capital to underpin risks and absorb losses under all plausible stress scenarios given our risk profile and appetite. In addition, we include a discretionary cushion on top of the OSFI regulatory targets to maintain capital strength for forthcoming regulatory and accounting changes, peer comparatives, rating agencies sensitivities and solo capital level.

The Board of Directors is responsible for ultimate oversight of capital management, including the annual review and approval of the Capital Plan. ALCO and GE share responsibility for capital management and receive regular reports detailing our compliance with established limits and guidelines. The Risk Committee annually approves the Capital Management Framework. The Audit and Risk Committees jointly approve the ICAAP process. The Audit Committee is also responsible for the ongoing review of internal controls over capital management.

Basel III

Our regulatory capital requirements are determined on a Basel III "all-in" basis as per OSFI guidelines. The top corporate entity to which Basel III applies at the consolidated level is Royal Bank of Canada.

Under Basel III, banks select from among alternative approaches to calculate their minimum regulatory capital required to underpin credit, market and operational risks.

We adopted the Basel III IRB approach to calculate credit risk capital for consolidated regulatory reporting purposes. While the majority of our credit risk exposures are reported under the Basel III IRB approach for regulatory capital purposes, certain portfolios considered non-material from a consolidated perspective continue to use the Basel III Standardized approach for credit risk (for example, our Caribbean banking operations). For consolidated regulatory reporting of operational risk capital, we currently use the Standardized approach. We have applied to OSFI for approval for the use of AMA for operational risk capital measurement and will commence reflecting operational risk capital under the AMA approach once approved. For consolidated regulatory reporting of market risk capital, we use both Internal Models-based and Standardized approaches.

In December 2010, the BCBS issued "Basel III: A global regulatory framework for more resilient banks and banking systems", which outlines the capital and liquidity requirements for global banks, with the objective of promoting financial stability and is intended to ensure sustainable economic growth. The BCBS sets out the Basel III transitional requirements for Common Equity Tier 1 (CET1), Tier 1 and Total capital ratios at 4.5%, 6.0% and 8%, respectively for 2015, which will be fully phased-in to 7%, 8.0% and 10.5%, respectively (including minimums plus capital conservation buffer of 2.5%) by January 1, 2019. The BCBS also released the NVCC requirements in January 2011 with an effort to ensure the loss absorbency of regulatory capital instruments at the point of non-viability. In August 2011, OSFI issued an advisory outlining the NVCC principles and requirements, including a full and permanent conversion of non-common capital instruments into common shares upon a trigger event, effective the first quarter of 2013.

OSFI expects Canadian banks to currently meet the Basel III "all-in" targets (BCBS January 1, 2019 requirements – minimum ratios plus the capital conservation buffer) for CET1 ratio, Tier 1 and Total capital. To ensure consistent implementation similar to that in other countries, effective January 1, 2014, OSFI allowed Canadian banks to phase in the Basel III CVA capital charge over a five-year period ending December 31, 2018. In accordance with OSFI guidance, there are two possible options to phase in the CVA capital charge. Under the option selected by RBC in 2015, Option 1, Basel III CVA is reflected in risk-weighted assets based on a scalar of 64%, 71%, and 77% for CET1, Tier 1 and Total Capital, respectively. In 2016, the scalars will remain unchanged, and will reach 100% for each tier of capital by 2019.

Commencing January 1, 2016, RBC will be required to include an additional 1% risk-weighted capital surcharge given our designation as a D-SIB by OSFI in 2013 (along with five other Canadian banks).

In October 2014, OSFI issued its final "Leverage Requirements (LR) Guideline", which replaced the OSFI Assets-to-Capital Multiple (ACM) with the Basel III Leverage ratio, beginning in the first quarter of 2015. The leverage ratio is defined as Tier 1 capital divided by leverage ratio exposure. The leverage ratio exposure is the sum of (a) on-balance sheet exposures; (b) derivative exposures; (c) securities financing transaction exposures and (d) off-balance sheet items. Canadian banks are expected to maintain a leverage ratio that meets or exceeds 3% at all times.

Pursuant to the BCBS publication "Global systemically important banks (G-SIB): updated assessment methodology and the higher loss absorbency requirement", issued in July 2013 and the OSFI advisory "Global systemically important banks (G-SIBs) – Public disclosure requirements", published in March 2014 and revised in September 2015, all federally regulated banks with a Basel III leverage ratio total exposure exceeding €200 billion at their financial year-end are required, at a minimum, to publicly disclose in the first quarter following their year-end, the twelve indicators used in the G-SIB assessment methodology, with the goal of enhancing the transparency of the relative scale of banks' potential global systemic importance and data quality. In the first quarter of 2015, we were not designated as a G-SIB. However, as we met the BCBS size threshold, we disclosed the 12 indicators using the OSFI prescribed template for the financial years ended 2013 and 2014 in our first quarter of 2015 report to shareholders.

In November 2015, the FSB and BCBS published an updated list of G-SIBs. We were not designated as a G-SIB as of November 2015.

In December 2013, BCBS issued the final standard related to the capital requirements for banks' equity investment in funds, with an effective date of January 2017, which aims to provide three approaches to measuring the risk sensitivity of banking book investments in funds. In December 2014, BCBS issued the final standards on the revised securitization framework, which aims to strengthen the capital standards for securitization exposures held in the banking book, with an effective date of January 2018. We are reviewing these two standards and have commenced work to ensure implementation of these standards by the respective effective dates.

In January 2015, BCBS issued the final standard on Pillar 3 which requires disclosure of standard templates to provide comparability and consistency of capital disclosure amongst banks. BCBS requires all banks to provide the revised Pillar 3 disclosures by the end of fiscal 2016. The implementation date for Pillar III for Canadian banks is expected to be no earlier than the fourth quarter of 2017.

The BCBS also issued two consultative papers in December 2014 "Capital floor: the design of a framework based on Standardized approaches" and "Revisions to the Standardized approach for credit risk". The capital floor consultative document focuses on the design of a capital floor framework based on the Standardized approach, with the objective to mitigate model risk and measurement error stemming from internal models and enhance comparability of capital across banks. This framework will replace the current transitional floor, which is based on the Basel I standard. The revisions to the Standardized approach for credit risk document is designed to strengthen the existing regulatory capital framework, with the objective of reducing reliance on external credit ratings, increasing risk sensitivity, and increasing comparability of capital requirements to the IRB approach. These revisions are expected to increase the comparability of capital requirements between banks using the Standardized approach.

We will continue to monitor and assess the capital impact of these regulatory developments.

The following table provides a summary of OSFI regulatory target ratios under Basel III.

OSFI regulatory target ratios under Basel III **Table 70**

Basel III Capital ratios and leverage	OSFI regulatory target requirements for large banks under Basel III					RBC capital and leverage ratios as at October 31, 2015	Meet or exceed OSFI regulatory target ratios
	Minimum	Capital Conservation Buffer	Minimum including Capital Conservation Buffer	D-SIBs Surcharge (1)	Minimum including Capital Conservation Buffer and D-SIBs surcharge (1)		
Common Equity Tier 1	› 4.5%	2.5%	› 7.0%	1.0%	› 8.0%	10.6%	✓
Tier 1 capital	› 6.0%	2.5%	› 8.5%	1.0%	› 9.5%	12.2%	✓
Total capital	› 8.0%	2.5%	› 10.5%	1.0%	› 11.5%	14.0%	✓
Leverage ratio	› 3.0%	n.a.	› 3.0%	n.a.	› 3.0%	4.3%	✓

(1) The D-SIBs surcharge will be applicable to risk-weighted capital commencing January 1, 2016.

Regulatory capital, RWA and capital ratios

The following table provides details on our regulatory capital, RWA and capital ratios. Our capital position remained strong during the year and our capital ratios remain well above OSFI regulatory targets.

Regulatory capital, RWA and capital ratios **Table 71**

	As at	
(Millions of Canadian dollars, except percentage and multiple amounts and as otherwise noted)	**October 31 2015**	October 31 2014
Capital (1)		
CET1 capital	**$ 43,715**	$ 36,406
Tier 1 capital	**50,541**	42,202
Total capital	**58,004**	50,020
RWA used in calculation of capital ratios (1), (2)		
CET1 capital RWA	**411,756**	368,594
Tier 1 capital RWA	**412,941**	369,976
Total capital RWA	**413,957**	372,050
Total capital RWA consisting of: (1)		
Credit risk	**$ 323,870**	$ 286,327
Market risk	**39,786**	38,460
Operational risk	**50,301**	47,263
Total capital RWA	**$ 413,957**	$ 372,050
Capital ratios, Leverage ratio and multiples (1), (3)		
CET1 ratio	**10.6%**	9.9%
Tier 1 capital ratio	**12.2%**	11.4%
Total capital ratio	**14.0%**	13.4%
Assets-to-capital multiple (4)	**n.a.**	17.0X
Gross-adjusted assets (GAA) (4) (billions)	**n.a.**	$ 885.0
Leverage ratio	**4.3%**	n.a.
Leverage ratio exposure (billions)	**$ 1,170.2**	n.a.

(1) Capital, RWA, capital ratios and multiples are calculated using OSFI Capital Adequacy Requirements based on the Basel III framework. Leverage ratios are calculated using OSFI Leverage Requirements Guideline based on the Basel III framework. Effective the first quarter of 2015, the leverage ratio has replaced the ACM. The leverage ratio is a regulatory measure under the Basel III framework and is not applicable (n.a.) for periods prior to Q1 2015. Capital ratios presented above are on an "all-in" basis.

(2) Effective Q3 2014, different scalars were applied to the CVA included in each of the three tiers of capital. In 2014, the CVA scalars 57%, 65% and 77% were applied to CET 1, Tier 1 and Total Capital, respectively. In fiscal 2015, the CVA scalars were 64%, 71% and 77%, respectively. In fiscal 2016, the scalars will remain unchanged.

(3) To enhance comparability among other global financial institutions, our transitional CET1, Tier 1, Total capital and leverage ratios as at October 31, 2015 were 12.0%, 12.2%, 13.9% and 4.5%, respectively. Transitional is defined as capital calculated according to the current year's phase-in of regulatory adjustments and phase-out of non-qualifying capital instruments.

(4) Assets-to-capital multiples and GAA were calculated on a transitional basis in the prior period.

Basel III regulatory capital and capital ratios

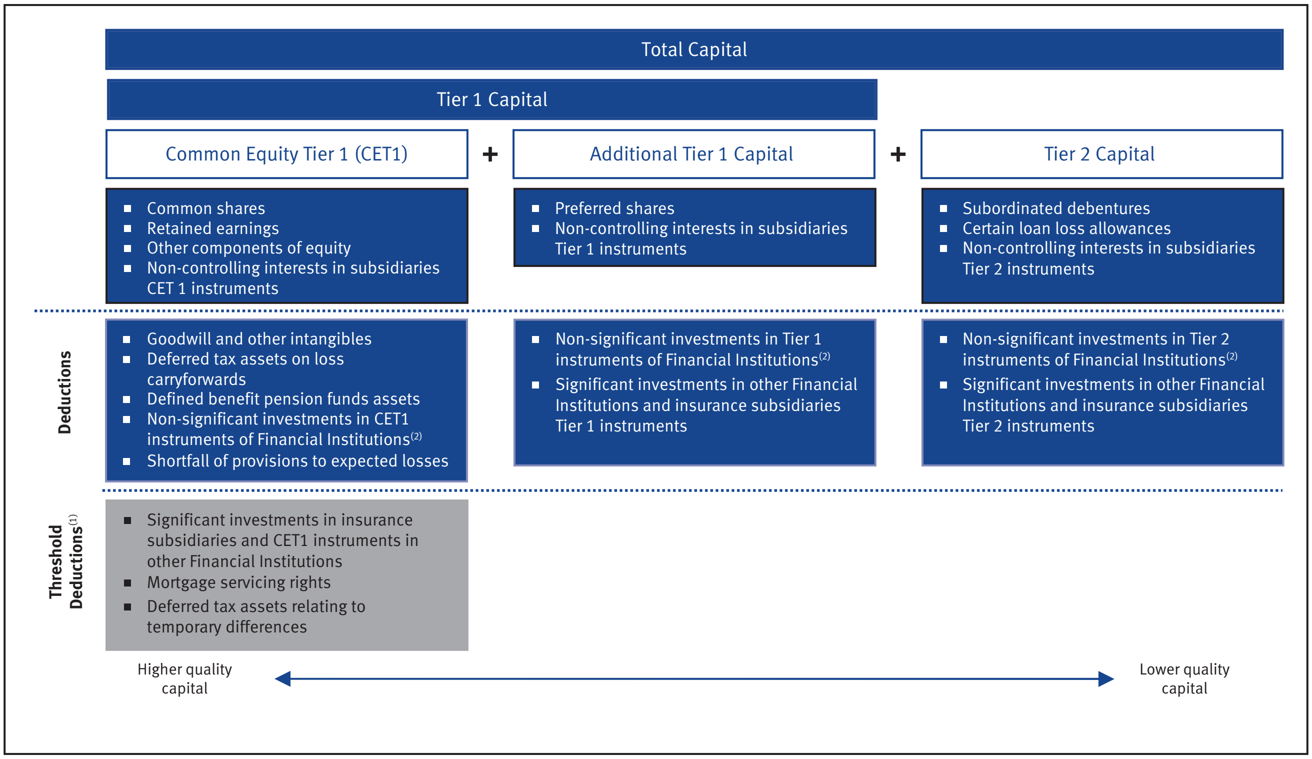
Under Basel III, regulatory capital consists of CET1, Additional Tier 1 and Tier 2 capital.

CET1 capital comprises the highest quality of capital. Regulatory adjustments under Basel III include full deductions of certain items and additional capital components that are subject to threshold deductions.

Tier 1 capital comprises predominantly CET1 and Additional Tier 1 items including non-cumulative preferred shares. Tier 2 capital includes subordinated debentures that meet certain criteria, certain loan loss allowances and non-controlling interests in subsidiaries Tier 2 instruments. Total capital is defined as the sum of Tier 1 and Tier 2 capital. Preferred shares and subordinated debentures issued after January 1, 2013 require NVCC features to be included into regulatory capital. For further details on NVCC, refer to the discussion above.

Regulatory capital ratios are calculated by dividing CET1, Tier 1 and Total capital by their respective RWA.

The following chart provides a summary of the major components of CET1, Additional Tier 1 and Tier 2 capital.



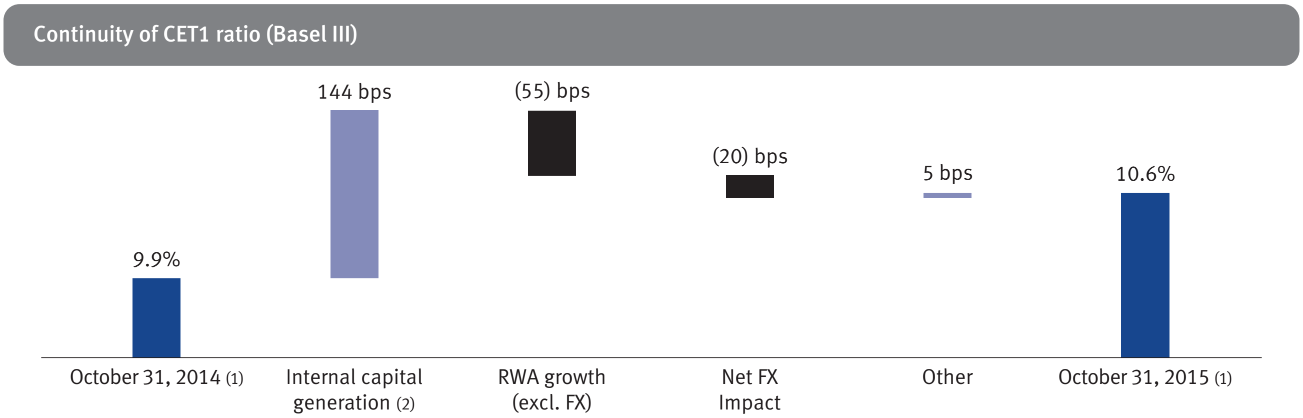
(1) First level: The amount by which each of the items exceeds a 10% threshold of CET1 capital (after all deductions but before threshold deductions) will be deducted from CET1 capital. Second level: The aggregate amount of the three items not deducted from the first level above and in excess of 15% of CET1 capital after regulatory adjustments will be deducted from capital, and the remaining balance not deducted will be risk-weighted at 250%.

(2) Non-significant investments are subject to certain CAR criteria that drive the amount eligible for deduction.

Regulatory Capital **Table 72**

	All-in basis	
(Millions of Canadian dollars)	**2015**	2014
CET1 capital: instruments and reserves and regulatory adjustments		
Directly issued qualifying common share capital (and equivalent for non-joint stock companies) plus related stock surplus	**$ 14,739**	$ 14,684
Retained earnings	**37,645**	31,442
Accumulated other comprehensive income (and other reserves)	**4,626**	2,418
Directly issued capital subject to phase out from CET1 (only applicable to non-joint stock companies)	**–**	–
Common share capital issued by subsidiaries and held by third parties (amount allowed in group CET1)	**13**	12
Regulatory adjustments applied to CET1 under Basel III	**(13,308)**	(12,150)
Common Equity Tier 1 capital (CET1)	**$ 43,715**	$ 36,406
Additional Tier 1 capital: instruments and regulatory adjustments		
Directly issued qualifying Additional Tier 1 instruments plus related stock surplus	**2,350**	1,000
Directly issued capital instruments to phase out from Additional Tier 1	**4,473**	4,794
Additional Tier 1 instruments issued by subsidiaries and held by third parties (amount allowed in group AT1)	**3**	2
Regulatory adjustments applied to Additional Tier 1 under Basel III	**–**	–
Additional Tier 1 capital (AT1)	**6,826**	5,796
Tier 1 capital (T1=CET1+AT1)	**$ 50,541**	$ 42,202
Tier 2 capital: instruments and provisions and regulatory adjustments		
Directly issued qualifying Tier 2 instruments plus related stock surplus	**3,073**	2,010
Directly issued capital instruments subject to phase out from Tier 2	**4,227**	5,595
Tier 2 instruments issued by subsidiaries and held by third parties (amount allowed in group Tier 2)	**29**	31
Collective allowance	**134**	182
Regulatory adjustments applied to Tier 2 under Basel III	**–**	–
Tier 2 capital (T2)	**$ 7,463**	$ 7,818
Total capital (TC=T1+T2)	**$ 58,004**	$ 50,020

2015 vs. 2014



(1) Represents rounded figures.
(2) Internal capital generation includes $5.3 billion which represents Net income available to shareholders less common and preferred shares dividends.

Our CET1 ratio was 10.6%, up 70 bps from last year, mainly due to strong internal capital generation. This factor was partially offset by higher RWA reflecting business growth, and the net impact of foreign exchange translation.

Our Tier 1 capital ratio of 12.2% was up 80 bps, mainly due to the factors noted under CET1 ratio, and the net issuance of preferred shares.

Our Total capital ratio of 14.0% was up 60 bps, mainly due to the factors noted under Tier 1 capital ratio, partially offset by the net redemption of subordinated debentures.

Basel III RWA

OSFI requires banks to meet minimum risk-based capital requirements for exposures to credit risk, operational risk, and, where they have significant trading activity, market risk. RWA is calculated for each of these risk types and added together to determine total RWA. In addition, OSFI requires the minimum risk-based capital to be no less than 90% of the capital requirements as calculated under the Basel I standards. If the capital requirement is less than 90%, a transitional adjustment to RWA must be applied as prescribed by OSFI CAR guidelines.

Total capital risk-weighted assets — **Table 73**

	2015						2014
			Risk-weighted assets				
As at October 31 (Millions of Canadian dollars, except percentage amounts)	Exposure (1)	Average of risk weights (2)	Standardized approach	Advanced approach	Other	Total	Total
Credit risk							
Lending-related and other							
Residential mortgages	$ 207,393	6%	$ 1,344	$ 11,453	$ –	$ 12,797	$ 10,573
Other retail	226,661	23%	4,771	46,386	–	51,157	48,976
Business	282,261	54%	15,064	136,501	–	151,565	126,948
Sovereign	75,636	12%	2,370	6,805	–	9,175	7,683
Bank	97,961	8%	578	7,117	–	7,695	7,079
Total lending-related and other	$ 889,912	26%	$ 24,127	$ 208,262	$ –	$ 232,389	$ 201,259
Trading-related							
Repo-style transactions	$ 340,131	2%	$ 15	$ 6,637	$ 28	$ 6,680	$ 4,912
Derivatives – including CVA – CET1 phase-in adjustment	90,782	32%	1,300	16,581	11,451	29,332	26,875
Total trading-related	$ 430,913	8%	$ 1,315	$ 23,218	$ 11,479	$ 36,012	$ 31,787
Total lending-related and other and trading-related	$ 1,320,825	20%	$ 25,442	$ 231,480	$ 11,479	$ 268,401	$ 233,046
Bank book equities	2,057	99%	–	2,045	–	2,045	2,025
Securitization exposures	55,932	13%	310	7,053	–	7,363	5,830
Regulatory scaling factor	n.a.	n.a.	n.a.	14,400	–	14,400	11,938
Other assets	45,818	64%	n.a.	n.a.	29,460	29,460	30,032
Total credit risk	$ 1,424,632	23%	$ 25,752	$ 254,978	$ 40,939	$ 321,669	$ 282,871
Market risk							
Interest rate			$ 1,339	$ 6,835	$ –	$ 8,174	$ 6,326
Equity			1,616	2,115	–	3,731	1,621
Foreign exchange			927	61	–	988	1,274
Commodities			943	13	–	956	2,030
Specific risk			8,716	3,084	–	11,800	14,980
Incremental risk charge			–	14,137	–	14,137	12,229
Total market risk			$ 13,541	$ 26,245	$ –	$ 39,786	$ 38,460
Operational risk			$ 50,301	n.a.	n.a.	$ 50,301	$ 47,263
CET1 capital risk-weighted assets (3)			$ 89,594	$ 281,223	$ 40,939	$ 411,756	$ 368,594
Additional CVA adjustment, prescribed by OSFI, for Tier 1 capital			–	–	1,185	1,185	1,382
Tier 1 capital risk-weighted assets (3)			$ 89,594	$ 281,223	$ 42,124	$ 412,941	$ 369,976
Additional CVA adjustment, prescribed by OSFI, for Total capital			–	–	1,016	1,016	2,074
Total capital risk-weighted assets (3)	$ 1,424,632		$ 89,594	$ 281,223	$ 43,140	$ 413,957	$ 372,050

(1) Total exposure represents exposure at default which is the expected gross exposure upon the default of an obligor. This amount is before any allowance against impaired loans or partial write-offs and does not reflect the impact of credit risk mitigation and collateral held.
(2) Represents the average of counterparty risk weights within a particular category.
(3) Effective Q3 2014, different scalars were applied to the CVA included in each of the three tiers of capital. In Q3 and Q4, 2014, the CVA scalars 57%, 65% and 77% were applied to CET 1, Tier 1 and Total Capital, respectively. In fiscal 2015, the CVA scalars were 64%, 71% and 77%, respectively. In 2016, the scalars will remain unchanged.

2015 vs. 2014

During the year, CET1 RWA was up $43 billion, mainly reflecting the impact of foreign exchange translation and business growth largely in our wholesale lending portfolio and repo-style transactions.

Selected capital management activity

The following table provides our selected capital management activity for the year ended October 31, 2015.

Selected capital management activity			Table 74
	2015		
(Millions of Canadian dollars, except number of shares)	Issuance or redemption date	Number of shares (000s)	Amount
Tier 1 capital			
Common shares issued			
Stock options exercised (1)		1,190	$ 62
Issuance of preferred shares Series BD (2), (3), (4)	January 30, 2015	24,000	600
Issuance of preferred shares Series BF (2), (3), (4)	March 13, 2015	12,000	300
Issuance of preferred shares Series BH (2), (3), (4)	June 5, 2015	6,000	150
Issuance of preferred shares Series BI (2), (3), (4)	July 22, 2015	6,000	150
Issuance of preferred shares Series BJ (2), (3), (4)	October 2, 2015	6,000	150
Redemption of preferred shares Series AX	November 24, 2014	(13,000)	(325)
Tier 2 capital			
Issuance of June 4, 2025 subordinated debentures (2), (4)	June 4, 2015		1,000
Maturity of November 14, 2014 subordinated debentures (2)	November 14, 2014		(200)
Redemption of June 15, 2020 subordinated debentures (2)	June 15, 2015		(1,500)

(1) Amounts include cash received for stock options exercised during the period and the fair value adjustments to stock options.
(2) For further details, refer to Notes 19 and 21 of our audited 2015 Annual Consolidated Financial Statements.
(3) Based on gross amount.
(4) NVCC capital instruments.

Dividends

Our common share dividend policy reflects our earnings outlook, payout ratio objective and the need to maintain adequate levels of capital to fund business opportunities. In 2015, our dividend payout ratio was 46%, which met our dividend payout ratio target of 40% to 50%. Common share dividends paid during the year were $4.4 billion.

Selected share data (1) **Table 75**

(Millions of Canadian dollars, except number of and per share amounts)	2015 Number of shares (000s)	2015 Amount	2015 Dividends declared per share	2014 Number of shares (000s)	2014 Amount	2014 Dividends declared per share	2013 Number of shares (000s)	2013 Amount	2013 Dividends declared per share
Common shares outstanding	**1,443,423**	**$14,573**	**$ 3.08**	1,442,233	$14,511	$ 2.84	1,441,056	$14,377	$ 2.53
First preferred shares outstanding									
Non-cumulative Series W (2)	**12,000**	**300**	**1.23**	12,000	300	1.23	12,000	300	1.23
Non-cumulative Series AA	**12,000**	**300**	**1.11**	12,000	300	1.11	12,000	300	1.11
Non-cumulative Series AB	**12,000**	**300**	**1.18**	12,000	300	1.18	12,000	300	1.18
Non-cumulative Series AC	**8,000**	**200**	**1.15**	8,000	200	1.15	8,000	200	1.15
Non-cumulative Series AD	**10,000**	**250**	**1.13**	10,000	250	1.13	10,000	250	1.13
Non-cumulative Series AE	**10,000**	**250**	**1.13**	10,000	250	1.13	10,000	250	1.13
Non-cumulative Series AF	**8,000**	**200**	**1.11**	8,000	200	1.11	8,000	200	1.11
Non-cumulative Series AG	**10,000**	**250**	**1.13**	10,000	250	1.13	10,000	250	1.13
Non-cumulative Series AH	**–**	**–**	**–**	–	–	–	–	–	0.86
Non-cumulative Series AJ (3)	**13,579**	**339**	**0.88**	13,579	339	0.97	16,000	400	1.25
Non-cumulative Series AK (3)	**2,421**	**61**	**0.67**	2,421	61	0.53	–	–	–
Non-cumulative Series AL (3)	**12,000**	**300**	**1.07**	12,000	300	1.15	12,000	300	1.40
Non-cumulative Series AN (3)	**–**	**–**	**–**	–	–	0.39	9,000	225	1.56
Non-cumulative Series AP (3)	**–**	**–**	**–**	–	–	0.39	11,000	275	1.56
Non-cumulative Series AR (3)	**–**	**–**	**–**	–	–	0.39	14,000	350	1.56
Non-cumulative Series AT (3)	**–**	**–**	**–**	–	–	1.17	11,000	275	1.56
Non-cumulative Series AV (3)	**–**	**–**	**–**	–	–	1.17	16,000	400	1.56
Non-cumulative Series AX (3)	**–**	**–**	**–**	13,000	325	1.53	13,000	325	1.53
Non-cumulative Series AZ (3), (4)	**20,000**	**500**	**1.00**	20,000	500	0.50	–	–	–
Non-cumulative Series BB (3), (4)	**20,000**	**500**	**0.98**	20,000	500	0.46	–	–	–
Non-cumulative Series BD (3), (4)	**24,000**	**600**	**0.73**	–	–	–	–	–	–
Non-cumulative Series BF (3), (4)	**12,000**	**300**	**0.63**	–	–	–	–	–	–
Non-cumulative Series BH (4)	**6,000**	**150**	**0.58**	–	–	–	–	–	–
Non-cumulative Series BI (4)	**6,000**	**150**	**0.42**	–	–	–	–	–	–
Non-cumulative Series BJ (4)	**6,000**	**150**	**–**	–	–	–	–	–	–
Treasury shares held – preferred	**(63)**	**(2)**		1	–		47	1	
Treasury shares held – common	**532**	**38**		892	71		666	41	
Stock options									
Outstanding	**8,182**			8,579			10,604		
Exercisable	**5,231**			4,987			5,711		
Dividends									
Common		**4,443**			4,097			3,651	
Preferred		**191**			213			253	

(1) For further details about our capital management activity, refer to Note 21 of our audited 2015 Annual Consolidated Financial Statements.
(2) Effective February 24, 2010, we have the right to convert into common shares at our option, subject to certain restrictions.
(3) Dividend rate will reset every five years.
(4) NVCC capital instruments.

Our normal course issuer bid (NCIB) commenced on November 1, 2014 and expired on October 31, 2015. Over the term of the previous bid, we did not purchase any common shares.

On November 2, 2015, we completed the acquisition of City National, whereby we issued 41.6 million RBC common shares. In addition, we issued RBC first preferred shares (Series C-1 and Series C-2) with a par value of US$275 million upon the cancellation of all outstanding City National preferred stock.

On November 2, 2015, we redeemed all $1.5 billion outstanding 3.18% subordinated debentures due on November 2, 2015 for 100% of their principal amount plus accrued interest to the redemption date.

On November 16, 2015, we announced our intention to redeem all issued and outstanding $1.2 billion principal amount of RBC TruCS 2015 for cash at a redemption price of $1,000 per unit. The redemption is expected to be completed on December 31, 2015.

As at November 27, 2015, the number of outstanding common shares and stock options and awards was 1,485,401,829 and 14,675,359, respectively, and the number of Treasury shares – preferred and Treasury shares – common was (9,137) and 291,505, respectively.

NVCC provisions require the conversion of our capital instruments into a variable number of common shares in the event that OSFI deems the Bank to be non-viable or a federal or provincial government in Canada publicly announces that the Bank has accepted or agreed to accept a capital injection. If a NVCC trigger event were to occur, our NVCC capital instruments preferred shares Series AZ, preferred shares Series BB, preferred shares Series BD, preferred shares Series BF, preferred shares Series BH, preferred shares Series BI, preferred shares Series BJ, subordinated debentures due on July 17, 2024, subordinated debentures due on September 29, 2026 and subordinated debentures due on June 4, 2025 would be converted into RBC common shares pursuant to an automatic conversion formula with a conversion price based on the greater of: (i) a floor price of $5.00, and (ii) the current market price of our common shares at the time of the trigger event (10-day weighted average). Based on a floor price of $5.00 and including an estimate for accrued dividends and interest, these NVCC capital instruments would convert into a maximum of 1,388 million RBC common shares, in aggregate, which would represent a dilution impact of 49% based on the number of RBC common shares outstanding as at October 31, 2015.

Attributed capital
Our methodology for allocating capital to our business segments is based on the higher of fully diversified economic capital and the Basel III regulatory capital requirements. Risk-based capital attribution provides a uniform base for performance measurement among business segments, which compares to our overall corporate return objective and facilitates management decisions in resource allocation in conjunction with other factors.

Attributed capital is calculated and attributed on a wider-array of risks compared to Basel III regulatory capital requirements, which are calibrated predominantly to target credit, market (trading) and operational risk measures. Economic capital is our internal quantification of risks associated with business activities which is the capital required to remain solvent under extreme market conditions, reflecting our objective to maintain strong credit ratings. Economic capital is calculated based on credit, market (trading and non-trading), operational, business and fixed asset, and insurance risks, along with capital attribution for goodwill and other intangibles. The common risks between the two frameworks are aligned to reflect increased regulatory requirements.

- Business risk is the risk of loss or harm due to variances in volumes, prices and costs caused by competitive forces, regulatory changes, reputation and strategic risks.
- Fixed asset risk is defined as the risk that the value of fixed assets will be less than their book value at a future date.

For further discussion on Credit, Market, Operational and Insurance risks, refer to the Risk management section.

Attributed capital is also used to assess the adequacy of our capital base. Our policy is to maintain a level of available capital, defined as common equity and other capital instruments with equity-like loss absorption features such as preferred shares that exceed Economic capital with a comfortable cushion.

The calculation and attribution of capital involves a number of assumptions and judgments by management which are monitored to ensure that the economic capital framework remains comprehensive and consistent. The models are benchmarked to leading industry practices via participation in surveys, reviews of methodologies and ongoing interaction with external risk management industry professionals.

The following outlines our attributed capital.

Attributed capital — **Table 76**

(Millions of Canadian dollars)	2015	2014
Credit risk	$ 16,400	$ 13,800
Market risk (trading and non-trading)	3,900	3,900
Operational risk	4,600	4,300
Business and fixed asset risk	2,900	2,750
Insurance risk	550	500
Goodwill and other intangibles	11,900	11,350
Regulatory capital allocation	5,400	4,150
Attributed capital	$ 45,650	$ 40,750
Under attribution of capital	6,650	4,950
Average common equity	$ 52,300	$ 45,700

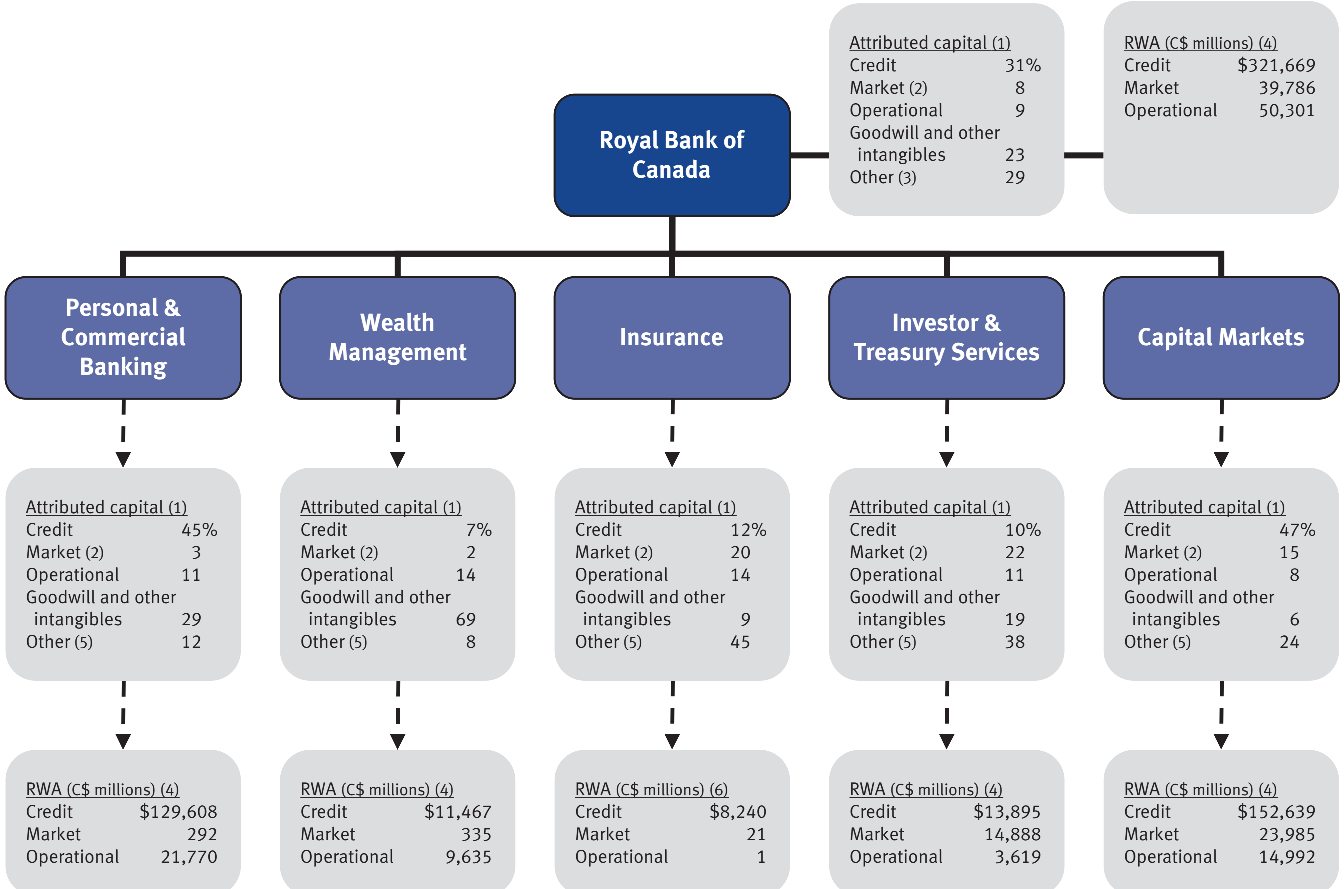
2015 vs. 2014
Attributed capital increased $5 billion largely due to higher credit risk reflecting business growth and the impact of foreign exchange translation, and higher regulatory capital allocation. The increase in operational and business risks reflected higher revenue. Goodwill and other intangibles risk increased mainly as a result of the impact of foreign exchange translation.

We remain well capitalized with current levels of available capital exceeding the attributed capital required to underpin all of our material risks.

Attributed capital in the context of our business activities
In carrying out our business activities, we are exposed to a range of risks. The following chart provides a high level view of risks within our business segments, which includes credit, market and operational risks. We have used attributed capital to illustrate the relative size of the risks in each of our businesses. The attributed capital distribution reflects the diversified nature of our business activities. RWA represents our exposure to credit, market and operational risk for regulatory capital requirements.

Within Personal & Commercial Banking, credit risk is the most significant risk, largely related to our personal financial services, business financial services and cards businesses. The primary risks within Wealth Management, which provides services to institutional and individual clients, are operational risk and credit risk. Risks within our Insurance operations are primarily related to insurance risk in our life, health, home and auto businesses followed by market risk and operational risk. The largest risk within Investor & Treasury Services is market risk, followed by credit risk and operational risk. The most significant risk within Capital Markets is credit risk, followed by market risk.

For additional information on the risks highlighted below, refer to the Risk management section.



(1) Attributed capital: An estimate of the amount of equity capital required to underpin risks. It is calculated by estimating the level of capital that is necessary to support our various business, given their risks, consistent with our desired solvency standard and credit ratings.
(2) Market risk attributed capital: An estimate of the amount of equity capital required to underpin trading market risk and interest rate risk.
(3) Other – RBC: Includes (a) an estimate of the amount of equity capital required to underpin risks associated with business, fixed assets and insurance risks; (b) a regulatory capital adjustment since attributed capital is determined at the higher of regulatory or economic capital; and (c) unattributed capital reported representing common equity in excess of common equity attributed to our business segments which is reported in the Corporate Support segment only.
(4) RWA amount above represents RWA for CET1.
(5) Other – Business segments: Includes (a) an estimate of the amount of equity capital required to underpin risks associated with business, fixed assets and insurance risks; and (b) a regulatory capital adjustment since attributed capital is determined at the business segment level as the greater of regulatory or economic capital.
(6) Insurance RWA amount above represents our investments in the insurance subsidiaries capitalized at the regulatory prescribed rate as required under Basel CAR filing.

Subsidiary capital

Our capital management framework includes the management of our subsidiaries' capital. We invest capital across the enterprise to meet any local regulators' capital adequacy requirements and maximize returns to our shareholders. We invest in our subsidiaries as appropriate during the year. We set guidelines for defining capital investments in our subsidiaries and manage the relationship between capital invested in subsidiaries and our consolidated capital base to ensure that we can access capital recognized in our consolidated regulatory capital measurements.

Each of our subsidiaries has responsibility for maintaining its compliance with any local regulatory capital adequacy requirements, which may include restrictions on the transfer of assets in the form of cash, dividends, loans or advances. Concurrently, Corporate Treasury provides centralized oversight of capital adequacy across all subsidiary entities.

Other considerations affecting capital

Capital treatment for equity investments in other entities is determined by a combination of accounting and regulatory guidelines based on the size or nature of the investment. Three broad approaches apply as follows:

- Consolidation: entities which we control are consolidated on our Consolidated Balance Sheets.
- Deduction: certain holdings are deducted in full from our regulatory capital. These include all unconsolidated "substantial investments," as defined by the Bank Act (Canada) in the capital of financial institutions, as well as all investments in insurance subsidiaries.
- Risk weighting: unconsolidated equity investments that are not deducted from capital are risk weighted at a prescribed rate for determination of capital charges.

Regulatory capital approach for securitization exposures

For our securitization exposures, we use an internal assessment approach (IAA) for exposures related to our ABCP business, and for other securitization exposures we use a combination of approaches including a ratings-based approach and the standardized approach.

While our IAA rating methodologies are based in large part on criteria that are published by External Credit Assessment Institutions (ECAIs) such as S&P and therefore are similar to the methodologies used by these institutions, they are not identical. Our ratings process includes a comparison of the available credit enhancement in a securitization structure to a stressed level of projected losses. The stress level used is determined by the desired risk profile of the transaction. As a result, we stress the cash flows of a given transaction at a higher level in order to achieve a higher rating. Conversely, transactions that only pass lower stress levels achieve lower ratings.

Most of the other securitization exposures (non-ABCP) carry external ratings and we use the lower of our own rating or the lowest external rating for determining the proper capital allocation for these positions. We periodically compare our own ratings to ECAIs ratings to ensure that the ratings provided by ECAIs are reasonable.

GRM has responsibility for providing risk assessments for capital purposes in respect of all our banking book exposures. GRM is independent of the business originating the securitization exposures and performs its own analysis, sometimes in conjunction with but always independent of the applicable business. GRM has developed asset class specific criteria guidelines which provide the rating methodologies for each asset class. The guidelines are reviewed periodically and are subject to the ratings replication process mandated by Pillar I of the Basel rules.

Additional financial information

Exposure to U.S. subprime and Alt-A through RMBS, CDOs and mortgages

Certain activities and transactions we enter into expose us to the risk of default of U.S. subprime and Alt-A residential mortgages. Our exposures to U.S. subprime and Alt-A residential mortgages of $423 million represented less than 0.1% of our total assets as at October 31, 2015, compared to $396 million or less than 0.1% last year. The increase of $27 million was primarily due to the impact of foreign exchange translation.

Commercial mortgage-backed securities

The fair value of our total direct holdings of Canadian and U.S. commercial mortgage-backed securities was $379 million as at October 31, 2015.

Assets and liabilities measured at fair value

Our financial instruments carried at fair value are classified as Level 1, 2 or 3, in accordance with the fair value hierarchy set out in IFRS 13 Fair Value Measurement. For further details on the fair value of our financial instruments and transfers between levels of the fair value hierarchy, refer to Note 3 of our audited 2015 Annual Consolidated Financial Statements.

The following table presents the total fair value of each major class of financial assets and financial liabilities measured at fair value and the percentage of the fair value of each class categorized as Level 1, 2 or 3 as at October 31, 2015.

Assets and liabilities measured at fair value — **Table 77**

	As at October 31, 2015				
(Millions of Canadian dollars, except percentage amounts)	Fair value (1)	Level 1 (1)	Level 2 (1)	Level 3 (1)	Total
Financial assets					
Securities at FVTPL	$ 158,703	39%	61%	0%	100%
Available-for-sale	48,149	12	80	8	100
Assets purchased under reverse repurchase agreements and securities borrowed	114,692	0	100	0	100
Loans	2,773	0	83	17	100
Derivatives	193,153	2	97	1	100
Financial liabilities					
Deposits	$ 115,592	0%	100%	0%	100%
Obligations related to securities sold short	47,658	67	33	0	100
Obligations related to assets sold under repurchase agreements and securities loaned	73,362	0	100	0	100
Derivatives	195,820	2	97	1	100

(1) The derivative assets and liabilities presented in the table above do not reflect the impact of netting.

Accounting and control matters

Critical accounting policies and estimates

Application of critical accounting policies, judgments, estimates and assumptions

Our significant accounting policies are described in Note 2 to our audited 2015 Annual Consolidated Financial Statements. Certain of these policies, as well as estimates made by management in applying such policies, are recognized as critical because they require us to make particularly subjective or complex judgments about matters that are inherently uncertain and because of the likelihood that significantly different amounts could be reported under different conditions or using different assumptions. Our critical accounting judgments, estimates and assumptions relate to the fair value of financial instruments, allowance for credit losses, goodwill and other intangible assets, employee benefits, consolidation, derecognition of financial assets, securities impairment, application of the effective interest method, provisions, insurance claims and policy benefit liabilities and income taxes. Our critical accounting policies and estimates have been reviewed and approved by our Audit Committee, in consultation with management, as part of their review and approval of our significant accounting policies, judgments, estimates and assumptions.

Fair value of financial instruments and securities impairment

The fair value of a financial instrument is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. We determine fair value by incorporating all factors that market participants would consider in setting a price, including commonly accepted valuation approaches.

The Board of Directors provides oversight on valuation of financial instruments, primarily through the Audit Committee and Risk Committee. The Audit Committee reviews the presentation and disclosure of financial instruments that are measured at fair value, while the Risk Committee assesses adequacy of governance structures and control processes for valuation of these instruments.

We have established policies, procedures and controls for valuation methodologies and techniques to ensure fair value is reasonably estimated. Major valuation processes and controls include, but are not limited to, profit and loss decomposition, independent price verification (IPV) and model validation standards. These control processes are managed by either Finance or GRM and are independent of the relevant businesses and their trading functions. Profit and loss decomposition is a process to explain the fair value changes of certain positions and is performed daily for trading portfolios. All fair value instruments are subject to IPV, a process whereby trading function valuations are verified against external market prices and other relevant market data. Market data sources include traded prices, brokers and price vendors. We give priority to those third-party pricing services and prices having the highest and most consistent accuracy. The level of accuracy is determined over time by comparing third-party price values to traders' or system values, to other pricing service values and, when available, to actual trade data. Other valuation techniques are used when a price or quote is not available. Some valuation processes use models to determine fair value. We have a systematic and consistent approach to control model use. Valuation models are approved for use within our model risk management framework. The framework addresses, among other things, model development standards, validation processes and procedures, and approval authorities. Model validation ensures that a model is suitable for its intended use and sets parameters for its use. All models are revalidated regularly by qualified personnel who are independent of the model design and development. Annually our model risk profile is reported to the Board of Directors.

In determining fair value, a hierarchy is used which prioritizes the inputs to valuation techniques. The fair value hierarchy gives the highest priority to unadjusted quoted prices in active markets for identical assets or liabilities (Level 1) and the lowest priority to unobservable inputs (Level 3). Determination of fair value based on this hierarchy requires the use of observable market data whenever available. Level 1 inputs are unadjusted quoted prices in active markets for identical assets or liabilities that we have the ability to access at the measurement date. Level 2 inputs include quoted prices for similar assets or liabilities in active markets, quoted prices for identical or similar assets or liabilities in markets that are not active, and model inputs that are either observable, or can be corroborated by observable market data for substantially the full term of the assets or liabilities. Level 3 inputs are one or more inputs that are unobservable and significant to the fair value of the asset or liability. Unobservable inputs are used to measure fair value to the extent that observable inputs are not available at the measurement date. The availability of inputs for valuation may affect the selection of valuation techniques. The classification of a financial instrument in the hierarchy for disclosure purposes is based upon the lowest level of input that is significant to the measurement of fair value.

Where observable prices or inputs are not available, management judgment is required to determine fair values by assessing other relevant sources of information such as historical data, proxy information from similar transactions, and through extrapolation and interpolation techniques. For more complex or illiquid instruments, significant judgment is required in the determination of the model used, the selection of model inputs, and in some cases the application of valuation adjustments to the model value or quoted price for inactively traded financial instruments, as the selection of model inputs may be subjective and the inputs may be unobservable. Unobservable inputs are inherently uncertain as there is little or no market data available from which to determine the level at which the transaction would occur under normal business circumstances. Appropriate parameter uncertainty and market risk valuation adjustments for such inputs and other model risk valuation adjustments are assessed in all such instances.

We record valuation adjustments to appropriately reflect counterparty credit quality of our derivative portfolio, differences between the overnight index swap (OIS) curve and London Interbank Offered Rates (LIBOR) for collateralized derivatives, funding valuation adjustments (FVA) for uncollateralized and under-collateralized OTC derivatives, unrealized gains or losses at inception of the transaction, bid-offer spreads, unobservable parameters and model limitations. These adjustments may be subjective as they require significant judgment in the input selection, such as probability of default and recovery rate, and are intended to arrive at fair value that is determined based on assumptions that market participants would use in pricing the financial instrument. The realized price for a transaction may be different from its recorded value that is previously estimated using management judgment, and may therefore impact unrealized gains and losses recognized in Non-interest income – Trading revenue or Other.

Valuation adjustments are recorded for the credit risk of our derivative portfolios in order to arrive at their fair values. CVA take into account our counterparties' creditworthiness, the current and potential future mark-to-market of the transactions, and the effects of credit mitigants such as master netting and collateral agreements. CVA amounts are derived from estimates of exposure at default, probability of default, recovery rates on a counterparty basis, and market and credit factor correlations. Exposure at default is the amount of expected derivative related assets and liabilities at the time of default, estimated through modeling using underlying risk factors. Probability of default and recovery rate are generally implied from the market prices for credit protection and credit ratings of the counterparty. Correlation is the statistical measure of how credit and market factors may move in relation to one another. Correlation is estimated using historical data and market data where available. CVA is calculated daily and changes are recorded in Non-interest income – Trading revenue.

In the determination of fair value of collateralized OTC derivatives using the OIS curve, our valuation approach accounts for the difference between certain OIS rates and LIBOR for derivatives valuation as valuation adjustments.

FVA are also calculated to incorporate cost and benefit of funding in the valuation of uncollateralized and under-collateralized OTC derivatives. Future expected cash flows of these derivatives are discounted to reflect the cost and benefit of funding the derivatives by using a funding curve, implied volatilities and correlations as inputs.

Where required, a valuation adjustment is made to reflect the unrealized gain or loss at inception of a financial instrument contract where the fair value of that financial instrument is not obtained from a quoted market price or cannot be evidenced by other observable market transactions based on a valuation technique incorporating observable market data.

A bid-offer valuation adjustment is required when a financial instrument is valued at the mid-market price, instead of the bid or offer price for asset or liability positions, respectively. The valuation adjustment takes into account the spread from the mid to either the bid or offer price.

Some valuation models require parameter calibration from such factors as market observed option prices. The calibration of parameters may be sensitive to factors such as the choice of instruments or optimization methodology. A valuation adjustment is also estimated to mitigate the uncertainties of parameter calibration and model limitations.

We classify our financial instruments measured at fair value on a recurring basis into three levels based on the transparency of the inputs used to measure the fair values of the instruments. As at October 31, 2015, Level 2 instruments, whose fair values are based on observable inputs, include $456 billion of financial assets (October 31, 2014 – $355 billion) and $394 billion of financial liabilities (October 31, 2014 – $296 billion). These amounts represent 85% of our total financial assets at fair value (October 31, 2014 – 81%) and 91% of our total financial liabilities at fair value (October 31, 2014 – 89%), respectively. Level 3 instruments, whose valuations include significant unobservable inputs, include $6 billion of financial assets (October 31, 2014 – $6 billion) and $2 billion of financial liabilities (October 31, 2014 – $2 billion), representing 1% of our total financial assets at fair value (October 31, 2014 – 1%) and 1% of our total financial liabilities at fair value (October 31, 2014 – 1%), respectively.

At each reporting date or more frequently when conditions warrant, we evaluate our AFS securities to determine whether there is any objective evidence of impairment, such as a significant or prolonged decline in the fair value of the security below its cost or when an adverse effect on future cash flows from the security can be reliably estimated. When assessing impairment for debt instruments we primarily consider counterparty ratings and security-specific factors, including collateral, external ratings, subordination and other market factors. For complex debt instruments including U.S. non-agency MBS, ABS and other structured products, we also use cash flow projection models which incorporate actual and projected cash flows for each security using a number of assumptions and inputs that are based on security specific factors. The inputs and assumptions used such as default, prepayment and recovery rates are based on updated market data. For U.S. non-agency MBS, recovery rates are largely dependent upon forecasted property prices which were assessed at the municipal level, provided by a third-party vendor. In addition, we also consider the transaction structure and credit enhancement for the structured securities. If the result indicates that we will not be able to recover the entire principal and interest amount, we do a further review of the security in order to assess whether a loss would ultimately be realized. As equity securities do not have contractual cash flows, they are assessed differently than debt securities. In assessing whether there is any objective evidence that suggests that the security is impaired we consider factors which include the length of time and extent the fair value has been below the cost and the financial condition and near term prospects of the issuer. We also consider the estimated recoverable value and the period of recovery. We conduct further analysis for securities where the fair value had been below cost for greater than twelve months. If an AFS security is impaired, the cumulative unrealized losses previously recognized in Other components of equity are recognized directly in income under Non-interest income. As at October 31, 2015, our gross unrealized losses on AFS securities were $304 million (October 31, 2014 – $181 million). Refer to Note 4 to our audited 2015 Annual Consolidated Financial Statements for more information.

Allowance for credit losses

We maintain allowance for credit losses relating to on-balance sheet exposures, such as loans and acceptances, and off-balance sheet items such as letters of credit, guarantees and unfunded commitments, at levels that management considers appropriate to cover credit related losses incurred as at the balance sheet date.

Allowances are determined individually for loans that are individually significant, and collectively for loans that are not individually significant and loans which are significant but for which there is no objective evidence of impairment, using current and historical credit information in both quantitative and qualitative assessments. For further information on allowance for credit losses, refer to Note 5 to our audited 2015 Annual Consolidated Financial Statements.

Individually assessed loans

Loans which are individually significant are assessed individually for objective indicators of impairment. A loan is considered impaired when management determines that it will not be able to collect all amounts due according to the original contractual terms or the equivalent value.

Credit exposures of individually significant loans are evaluated based on factors including the borrower's overall financial condition, resources and payment record, and where applicable, the realizable value of any collateral. If there is evidence of impairment leading to an impairment loss, then the amount of the loss is determined as the difference between the carrying amount of the loan, including accrued interest, and the estimated recoverable amount. The estimated recoverable amount is measured as the present value of expected future cash flows discounted at the loan's original effective interest rate, including cash flows that may result from the realization of collateral less costs to sell.

Collectively assessed loans

Loans which are not individually significant, or which are individually assessed and not determined to be impaired, are collectively assessed for impairment. For the purposes of a collective evaluation of impairment, loans are grouped on the basis of similar risk characteristics, taking into account loan type, industry, geographic location, collateral type, past due status and other relevant factors.

The collective impairment allowance is determined by reviewing factors including: (i) historical loss experience, which takes into consideration historical probabilities of default, loss given default and exposure at default, in portfolios of similar credit risk characteristics, and (ii) management's judgment on the level of impairment losses based on historical experience relative to the actual level as reported at the balance sheet date, taking into consideration the current portfolio credit quality trends, business and economic and credit conditions, the impact of policy and process changes, and other supporting factors. Future cash flows for a group of loans are collectively evaluated for impairment on the basis of the contractual cash flows of the loans in the group and historical loss experience for loans with credit risk characteristics similar to those in the group. Historical loss experience is adjusted based on current observable data to reflect the effects of current conditions that did not affect the period on which the historical loss experience is based and to remove the effects of conditions in the historical period that do not currently exist. The methodology and assumptions used for estimating future cash flows are reviewed regularly to reduce any differences between loss estimates and actual loss experience.

Write-off of loans

Loans and the related impairment allowance for credit losses are written off, either partially or in full, when there is no realistic prospect of recovery. Where loans are secured, they are generally written off after receipt of any proceeds from the realization of the collateral. In circumstances where the net realizable value of any collateral has been determined and there is no reasonable expectation of further recovery, write off may be earlier. For credit cards, the balances and related allowance for credit losses are written off when payment is 180 days in arrears. Personal loans are generally written off at 150 days past due.

Total allowance for credit losses

Based on the procedures discussed above, management believes that the total allowance for credit losses of $2,120 million is adequate to absorb estimated credit losses incurred in the lending portfolio as at October 31, 2015 (October 31, 2014 – $2,085 million). This amount includes $91 million (October 31, 2014 – $91 million) classified in Provisions under Other liabilities on our Consolidated Balance Sheets, which relates to off-balance sheet and other items.

Goodwill and other intangible assets

We allocate goodwill to groups of cash-generating units (CGU). Goodwill is not amortized and is tested for impairment on an annual basis, or more frequently if there are objective indications of impairment. We test for impairment by comparing the recoverable amount of a CGU with its carrying amount. A CGU's recoverable amount is the higher of its fair value less cost of disposal and its value in use. The carrying amount of a CGU comprises the carrying amount of assets, liabilities, and goodwill allocated to the CGU. When the carrying value of a CGU exceeds its recoverable amount, the impairment loss is allocated first to reduce the carrying amount of any goodwill allocated to the CGU and then to the other assets of the CGU proportionally based on the carrying amount of each asset. Any impairment charge is recognized in income in the period it is identified. Subsequent reversals of goodwill impairment are prohibited.

We estimate the value in use and fair value less costs of disposal of our CGUs primarily using a discounted cash flow method which incorporates each CGU's internal forecasts of revenues and expenses. Significant management judgment is applied in the determination of expected future cash flows (uncertainty in timing and amount), discount rates (based on CGU-specific risks) and terminal growth rates. CGU-specific risks include country risk, business/operational risk, geographic risk (including political risk, devaluation risk and government regulation), currency risk and price risk (including product pricing risk and inflation). If the forecast earnings and other assumptions in future periods deviate significantly from the current amounts used in our impairment testing, the value of our goodwill could become impaired.

Other intangible assets with a finite life are amortized on a straight-line basis over their estimated useful lives as follows: computer software – 3 to 10 years and customer relationships – 10 to 20 years. They are assessed for indicators of impairment at each reporting period if there is an indication that an asset may be impaired. An impairment test is performed by comparing the carrying amount of the intangible asset to its recoverable amount. Where it is not possible to estimate the recoverable amount of an individual asset, we estimate the recoverable amount of the CGU to which the asset belongs. If the recoverable amount of the asset (or CGU) is less than its carrying amount, the carrying amount of the intangible asset is written down to its recoverable amount as an impairment loss. An impairment loss recognized previously is reversed if there is a change in the estimates used to determine the recoverable amount of the asset (or CGU) since the last impairment loss was recognized. If an impairment loss is subsequently reversed, the carrying amount of the asset (or CGU) is revised to the lower of its recoverable amount and the carrying amount that would have been determined (net of amortization) had there been no prior impairment.

Significant judgment is applied in estimating the useful lives and recoverable amounts of our intangible assets and assessing whether certain events or circumstances constitute objective evidence of impairment. We do not have any other intangible assets with indefinite lives.

As at October 31, 2015, we had $9.3 billion of goodwill (October 31, 2014 – $8.6 billion) and $2.8 billion of other intangible assets (October 31, 2014 – $2.8 billion). For further details, refer to Notes 2 and 10 to our 2015 Annual Consolidated Financial Statements.

Employee benefits

We sponsor a number of benefit programs for eligible employees, including registered pension plans, supplemental pension plans, health, dental, disability and life insurance plans.

The calculation of defined benefit expenses and obligations depends on various assumptions such as discount rates, healthcare cost trend rates, projected salary increases, retirement age, and mortality and termination rates. The discount rate assumption is determined using spot rates from a derived Aa corporate bond yield curve for our Canadian pension and other post-employment benefit plans, and spot rates from an Aa corporate bond yield curve for our International pension and other post-employment benefit plans. All other assumptions are determined by management, applying significant judgment, and are reviewed by the actuaries. Actual experience that differs from the actuarial assumptions will affect the amounts of benefit obligations and remeasurements that we recognize. The weighted average assumptions used and the sensitivity of key assumptions are presented in Note 17 to our audited 2015 Annual Consolidated Financial Statements.

Consolidation

Subsidiaries are those entities, including structured entities, over which we have control. We control an entity when we are exposed, or have rights, to variable returns from our involvement with the entity and have the ability to affect those returns through our power over the investee. We have power over an entity when we have existing rights that give us the current ability to direct the activities that most significantly affect the entity's returns (relevant activities). Power may be determined on the basis of voting rights or, in the case of structured entities, other contractual arrangements.

We are not deemed to control an entity when we exercise power over an entity in an agency capacity. In determining whether we are acting as an agent, we consider the overall relationship between us, the investee and other parties to the arrangement with respect to the following factors: (i) the scope of our decision making power; (ii) the rights held by other parties; (iii) the remuneration to which we are entitled; and (iv) our exposure to variability of returns.

The determination of control is based on the current facts and circumstances and is continuously assessed. In some circumstances, different factors and conditions may indicate that various parties control an entity depending on whether those factors and conditions are assessed in isolation or in totality. Significant judgment is applied in assessing the relevant factors and conditions in totality when determining whether we control an entity. Specifically, judgment is applied in assessing whether we have substantive decision making rights over the relevant activities and whether we are exercising our power as a principal or an agent.

We consolidate all subsidiaries from the date control is transferred to us, and cease consolidation when an entity is no longer controlled by us. Our consolidation conclusions affect the classification and amount of assets, liabilities, revenues and expenses reported in our Consolidated Financial Statements.

Non-controlling interests in subsidiaries that we consolidate are shown on our Consolidated Balance Sheets as a separate component of equity which is distinct from our shareholders' equity. The net income attributable to non-controlling interests is separately disclosed in our Consolidated Statements of Income.

For further details, refer to Off-balance sheet arrangements and Note 7 to our audited 2015 Annual Consolidated Financial Statements.

Derecognition of financial assets

We periodically enter into transactions in which we transfer financial assets such as loans or packaged MBS to structured entities or trusts that issue securities to investors. We derecognized the assets when our contractual rights to the cash flows from the assets have expired, when we retain the rights to receive the cash flows but assume an obligation to pay those cash flows to a third party subject to certain pass-through requirements, or when we transfer our contractual rights to receive the cash flows and substantially all of the risks and rewards of the assets have been transferred. When we retain substantially all of the risks and rewards of the transferred assets, the transferred assets are not derecognized from our Consolidated Balance Sheets and are accounted for as secured financing transactions. When we neither retain nor transfer substantially all risks and rewards of ownership of the assets, we derecognize the assets if control over the assets is relinquished. If we retain control over the transferred assets, we continue to recognize the transferred assets to the extent of our continuing involvement. Management's judgment is applied in determining whether we have transferred or retained substantially all risk and rewards of ownership of the transferred financial asset.

The majority of assets transferred under repurchase agreements, securities lending agreements, and in our Canadian residential mortgage securitization transactions do not qualify for derecognition; as a result, we continue to record the associated transferred assets on our Consolidated Balance Sheets and no gains or losses are recognized for these securitization activities. Otherwise, a gain or loss is recognized on securitization by comparing the carrying amount of the transferred asset with its fair value at the date of the transfer. As at October 31, 2015, the carrying and fair values of the transferred assets that do not qualify for derecognition were $119 billion and $119 billion, respectively (October 31, 2014 – $101 billion and $101 billion), and the carrying and fair values of the associated liabilities totalled $119 billion and $120 billion, respectively (October 31, 2014 – $101 billion and $102 billion). For further information on derecognition of financial assets, refer to Note 6 to our audited 2015 Annual Consolidated Financial Statements.

Application of the effective interest method
Interest is recognized in Interest income and Interest expense in the Consolidated Statements of Income for all interest bearing financial instruments using the effective interest method. The effective interest rate is the rate that discounts estimated future cash flows over the expected life of the financial asset or liability to the net carrying amount upon initial recognition. Significant judgment is applied in determining the effective interest rate due to uncertainty in the timing and amounts of future cash flows.

Provisions
Provisions are liabilities of uncertain timing or amount and are recognized when we have a present legal or constructive obligation as a result of a past event, it is probable that an outflow of resources will be required to settle the obligation, and a reliable estimate can be made of the amount of the obligation. Provisions are measured as the best estimate of the consideration required to settle the present obligation at the reporting date. Significant judgment is required in determining whether a present obligation exists and in estimating the probability, timing and amount of any outflows. We record provisions related to litigation, asset retirement obligations, and the allowance for off-balance sheet and other items. Provisions are recorded under Other liabilities on our Consolidated Balance Sheets.

We are required to estimate the results of ongoing legal proceedings, expenses to be incurred to dispose of capital assets, and credit losses on undrawn commitments and guarantees. The forward-looking nature of these estimates requires us to use a significant amount of judgment in projecting the timing and amount of future cash flows. We record our provisions on the basis of all available information at the end of the reporting period and make adjustments on a quarterly basis to reflect current expectations. Should actual results differ from our expectations, we may incur expenses in excess of the provisions recognized.

When some or all of the economic benefits required to settle a provision are expected to be recovered from a third party, such as an insurer, a separate asset is recognized if it is virtually certain that reimbursement will be received.

Insurance claims and policy benefit liabilities
Insurance claims and policy benefit liabilities represent current claims and estimates for future insurance policy benefits. Liabilities for life insurance contracts are determined using the Canadian Asset Liability Method, which incorporates assumptions for mortality, morbidity, policy lapses and surrenders, investment yields, policy dividends, operating and policy maintenance expenses, and provisions for adverse deviation. These assumptions are reviewed at least annually and updated in response to actual experience and market conditions. Liabilities for property and casualty insurance represent estimated provisions for reported and unreported claims. Liabilities for life and property and casualty insurance are included in Insurance claims and policy benefit liabilities. Changes in Insurance claims and policy benefit liabilities are included in the Insurance policyholder benefits, claims and acquisition expense in our Consolidated Statements of Income in the period in which the estimates change.

Income taxes
We are subject to income tax laws in various jurisdictions where we operate, and the complex tax laws are potentially subject to different interpretations by us and the relevant taxation authority. Management's judgment is applied in the interpretation of the relevant tax laws and in the estimation of the provision for current and deferred income taxes, including the expected timing and amount of the realization. A deferred tax asset or liability is determined for each temporary difference based on the tax rates that are expected to be in effect in the period that the asset is realized or the liability is settled. Where the temporary differences will not reverse in the foreseeable future, no deferred tax amount is recognized.

On a quarterly basis, we review whether it is probable that the benefits associated with our deferred tax assets will be realized, using both positive and negative evidence. Refer to Note 24 to our audited 2015 Annual Consolidated Financial Statements for further information.

Changes in accounting policies and disclosure

We have adopted new accounting pronouncements effective November 1, 2014. These new and amended standards include, IAS 32 Financial Instruments: Presentations and IFRS Interpretations Committee IFRIC Interpretation 21 Levies. Refer to Note 2 to our audited 2015 Annual Consolidated Financial Statements for details of these changes.

Future changes in accounting policy and disclosure

IFRS 15 *Revenue from Contracts with Customers* (IFRS 15)
In May 2014, the IASB issued IFRS 15 which establishes principles for reporting about the nature, amount, timing and uncertainty of revenue and cash flows arising from an entity's contracts with customers. The standard provides a single, principles based five-step model for revenue recognition to be applied to contracts with customers except for revenue arising from items such as financial instruments, insurance contracts and leases. In September 2015, the IASB amended IFRS 15 by deferring its effective date by one year. IFRS 15 will be effective for us on November 1, 2018.

IFRS 9 *Financial Instruments* (IFRS 9)
In July 2014, the IASB issued the complete version of IFRS 9, which brings together the classification and measurement, impairment and hedge accounting phases of the IASB's project to replace IAS 39 *Financial Instruments: Recognition and Measurement* (IAS 39).

In January 2015, OSFI issued an advisory with respect to the early adoption of IFRS 9 for D-SIBs, requiring D-SIBs to adopt IFRS 9 for the annual period beginning on November 1, 2017. As a result, we will be required to adopt IFRS 9 on November 1, 2017, with the exception of the own credit provisions of IFRS 9, which we adopted in the second quarter of 2014.

Impairment
IFRS 9 introduces an expected loss model for all financial assets not classified as or designated as at FVTPL. Allowances are measured according to the model which has three stages: (1) on initial recognition and where there has been no significant increase in credit risk or the resulting credit risk is considered to be low, 12-month expected credit losses are recognized in profit or loss and a loss allowance is established; (2) if credit risk increases significantly since initial recognition, and the resulting credit risk is not considered to be low, full lifetime expected credit losses are recognized; and (3) when a financial asset is considered impaired, interest revenue is calculated based on the carrying amount of the asset, net of the loss allowance, rather than its gross carrying amount.

The assessment of changes in credit risk since initial recognition and the estimation of expected credit losses are required to incorporate all relevant information which is available as at the reporting date. This includes information about past events and current conditions as well as reasonable and supportable forecasts of future events and economic conditions. The estimation of expected credit losses is a discounted probability-weighted estimate.

The recognition and measurement of impairment losses under IFRS 9 is intended to be more forward-looking than under IAS 39 and the resulting provision for credit losses is expected to be more volatile. Because all financial assets within the scope of the IFRS 9 impairment model will be assessed for at least 12-months of expected credit losses, and the population of financial assets to which full lifetime expected credit losses applies is larger than the population of impaired loans for which there is objective evidence of impairment in accordance with IAS 39, the allowance for credit losses is expected to increase.

Classification and measurement
IFRS 9 also introduces a principles-based approach to the classification of financial assets based on an entity's business model and the nature of the cash flows of the assets. All financial assets, including hybrid contracts, are measured at FVTPL, fair value through other comprehensive income or amortized cost replacing the existing IAS 39 classifications of held-to-maturity, loans and receivables, and available-for-sale. The combined application of the business model and contractual cash flow characteristics test may result in some differences in the population of financial assets measured at amortized cost or fair value compared with IAS 39. For financial liabilities, IFRS 9 includes the requirements for classification and measurement previously included in IAS 39.

Hedge accounting
The new hedge accounting model under IFRS 9 aims to simplify hedge accounting, align the accounting for hedge relationships more closely with an entity's risk management activities and permit hedge accounting to be applied more broadly to a greater variety of hedging instruments and risks eligible for hedge accounting.

The new standard does not explicitly address the accounting for macro hedging activities, which is being addressed by the IASB in a separate project. As a result, IFRS 9 includes an accounting policy choice to retain IAS 39 for hedge accounting requirements until the standard resulting from the IASB's project on macro hedge accounting is effective. The new hedge accounting disclosures, however, are required for the annual period beginning November 1, 2017.

Transition
The impairment and classification and measurement requirements of IFRS 9 will be applied retrospectively by adjusting the opening balance sheet at November 1, 2017. There is no requirement to restate comparative periods. Hedge accounting, if adopted, will be applied prospectively, with limited exceptions. At this stage, it is not possible to quantify the potential financial effect of adoption of IFRS 9 to the Bank.

To manage our transition to IFRS 9, we have implemented a comprehensive enterprise-wide program led jointly by Finance and GRM that focuses on key areas of impact including financial reporting, systems and processes, as well as communications and training. We have completed a preliminary organization-wide diagnostic to assess the scope and complexity of the adoption of IFRS 9 which identified areas with differences between IFRS 9 and IAS 39, as discussed above. We will continue to monitor and revisit our preliminary conclusions in order to identify any further financial, capital and business implications.

During 2015, we continued to manage the IFRS 9 program through the completion of activities and deliverables to support the key areas of impact noted above. To date, we have:

- Conducted preliminary assessments of the accounting policy elections for the adoption of IFRS 9;
- Initiated projects within the program framework which are in progress conducting thorough analysis, assessing financial and economic impacts and identifying process and systems requirements to ensure a successful transition;
- Developed a resourcing model and prepared an initial cost analysis and timeline to ensure that sufficient program resources are available to meet key deliverables;
- Provided updates to the Audit Committee and senior management to ensure timely decisions and escalation of key issues and risks; and
- Conducted internal education seminars for key stakeholders across the Bank in the various business platforms and functional groups.

In the upcoming year, we expect to:

- Continue to design specifications for data sourcing, systems, models, controls and processes in order to align finance and risk processes and systems;
- Agree on accounting interpretations and formulate bank-wide policies;
- Continue to roll out training and educational seminars to impacted internal stakeholders;
- Develop and validate new impairment models; and
- Design controls and governance of future processes.

As we prepare for our transition to IFRS 9, we continue to monitor industry interpretations of the new standard and expect to adjust our transition and implementation plans accordingly. Our IFRS 9 program remains aligned to our implementation schedule and we are on track to meet the timelines essential to our transition.

Future changes in regulatory disclosure

Basel Committee on Banking Supervision revised Pillar 3 disclosure requirements
In January 2015, the BCBS issued the final standard for the revised Pillar 3 which requires disclosure of standard templates to provide comparability and consistency of capital and risk disclosure amongst banks. BCBS requires all banks to provide the revised Pillar 3 disclosures by the end of fiscal 2016. The implementation date for Pillar 3 for Canadian banks is expected to be no earlier than the fourth quarter of 2017.

Controls and procedures

Disclosure controls and procedures
Our disclosure controls and procedures are designed to provide reasonable assurance that information required to be disclosed by us in reports filed or submitted under Canadian and U.S. securities laws is recorded, processed, summarized and reported within the time periods specified under those laws and include controls and procedures that are designed to ensure that information is accumulated and communicated to management, including the President and Chief Executive Officer, and the Chief Administrative Officer and Chief Financial Officer, to allow timely decisions regarding required disclosure.

As of October 31, 2015, management evaluated, under the supervision of and with the participation of the President and Chief Executive Officer and the Chief Administrative Officer and Chief Financial Officer, the effectiveness of our disclosure controls and procedures as defined under rules adopted by the United States Securities and Exchange Commission. Based on that evaluation, the President and Chief Executive Officer and the Chief Administrative Officer and Chief Financial Officer concluded that our disclosure controls and procedures were effective as of October 31, 2015.

Internal control over financial reporting

Management is responsible for establishing and maintaining adequate internal control over financial reporting. Internal control over financial reporting is designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with GAAP. However, because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements on a timely basis. See Management's Report on Internal Control over Financial Reporting and the Report of Independent Registered Public Accounting Firm.

No changes were made in our internal control over financial reporting during the year ended October 31, 2015 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Related party transactions

In the ordinary course of business, we provide normal banking services and operational services, and enter into other transactions with associated and other related corporations, including our joint venture entities, on terms similar to those offered to non-related parties. We grant loans to directors, officers and other employees at rates normally accorded to preferred clients. In addition, we offer deferred share and other plans to non-employee directors, executives and certain other key employees. For further information, refer to Notes 12 and 29 of our audited 2015 Annual Consolidated Financial Statements.

Net interest income on average assets and liabilities — Table 78

(Millions of Canadian dollars, except for percentage amounts)	Average balances 2015	Average balances 2014	Average balances 2013	Interest 2015	Interest 2014	Interest 2013	Average rate 2015	Average rate 2014	Average rate 2013
Assets									
Deposits with other banks (3)									
Canada	$ 8,463	$ 1,692	$ 1,355	$ 70	$ 61	$ 57	0.83%	3.61%	4.21%
U.S.	5,567	540	426	12	1	4	0.22	0.19	0.94
Other International	14,837	5,227	7,370	(5)	14	13	(0.03)	0.27	0.18
	28,867	7,459	9,151	77	76	74	0.27%	1.02%	0.81%
Securities									
Trading	164,509	149,920	137,064	3,543	3,322	3,113	2.15	2.22	2.27
Available-for-sale	52,833	43,047	37,809	976	671	666	1.85	1.56	1.76
	217,342	192,967	174,873	4,519	3,993	3,779	2.08	2.07	2.16
Asset purchased under reverse repurchase agreements and securities borrowed	165,602	136,857	123,766	1,251	971	941	0.76	0.71	0.76
Loans (2)									
Canada									
Retail	326,153	314,159	301,887	12,086	12,245	12,077	3.71	3.90	4.00
Wholesale	58,946	54,681	50,248	2,715	2,721	2,486	4.61	4.98	4.95
	385,099	368,840	352,135	14,801	14,966	14,563	3.84	4.06	4.14
U.S.	36,581	28,402	22,691	780	888	776	2.13	3.13	3.42
Other International	31,261	25,067	21,129	1,301	1,125	1,015	4.16	4.49	4.80
	452,941	422,309	395,955	16,882	16,979	16,354	3.73	4.02	4.13
Total interest-earning assets	864,752	759,592	703,745	22,729	22,019	21,148	2.63	2.90	3.01
Non-interest-bearing deposits with other banks	19,283	13,495	11,511	–	–	–	–	–	–
Customers' liability under acceptances	12,423	10,725	9,663	–	–	–	–	–	–
Other assets (3)	156,342	122,688	127,081	–	–	–	–	–	–
Total assets	$ 1,052,800	$ 906,500	$ 852,000	$ 22,729	$ 22,019	$ 21,148	2.16%	2.43%	2.48%
Liabilities and shareholders' equity									
Deposits (4)									
Canada (1)	459,679	418,780	379,080	5,162	5,416	5,242	1.12%	1.29%	1.38%
U.S.	68,909	50,459	43,076	214	158	169	0.31	0.31	0.39
Other International	62,029	54,267	48,953	347	299	283	0.56	0.55	0.58
	590,617	523,506	471,109	5,723	5,873	5,694	0.97	1.12	1.21
Obligations related to securities sold short	56,827	50,548	48,979	1,645	1,494	1,579	2.89	2.96	3.22
Obligations related to assets sold under repurchase agreements and securities loaned	84,380	68,594	70,881	337	278	279	0.40	0.41	0.39
Subordinated debentures	7,654	6,632	8,216	240	246	336	3.14	3.71	4.09
Other interest-bearing liabilities (3)	13,585	251	484	13	12	11	0.10	4.78	2.27
Total interest-bearing liabilities	753,063	649,531	599,669	7,958	7,903	7,899	1.06	1.22	1.32
Non-interest-bearing deposits (1)	76,830	69,596	66,607	–	–	–	–	–	–
Acceptances	12,422	10,725	9,663	–	–	–	–	–	–
Other liabilities (3)	151,845	124,643	129,118	–	–	–	–	–	–
Total liabilities	$ 994,160	$ 854,495	$ 805,057	$ 7,958	$ 7,903	$ 7,899	0.80%	0.92%	0.98%
Equity	58,640	52,005	46,943	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total liabilities and shareholders' equity	$ 1,052,800	$ 906,500	$ 852,000	$ 7,958	$ 7,903	$ 7,899	0.76%	0.87%	0.93%
Net interest income and margin	$ 1,052,800	$ 906,500	$ 852,000	$ 14,771	$ 14,116	$ 13,249	1.40%	1.56%	1.56%
Net interest income and margin (average earning assets)									
Canada	$ 539,333	$ 497,436	$ 471,448	$ 11,538	$ 11,121	$ 10,956	2.14%	2.24%	2.32%
U.S.	165,083	135,876	116,016	1,977	1,896	1,603	1.20	1.40	1.38
Other International	160,336	126,280	116,281	1,256	1,099	690	0.78	0.87	0.59
Total	$ 864,752	$ 759,592	$ 703,745	$ 14,771	$ 14,116	$ 13,249	1.71%	1.86%	1.88%

(1) Amounts have been revised from those previously presented.
(2) Interest income includes loan fees of $503 million (2014 – $516 million; 2013 – $509 million).
(3) Starting in 2015, we have included cash collateral and margin deposits, and cash collateral received in Deposits with other banks and Other interest-bearing liabilities, respectively (previously, in Other assets and Other liabilities). Insurance segment assets and liabilities are included in Other assets and Other liabilities, respectively.
(4) Deposits include personal savings deposits with average balances of $142 billion (2014 – $133 billion; 2013 – $124 billion), interest expense of $.6 billion (2014 – $.7 billion; 2013 – $.7 billion) and average rates of .4% (2014 – .5%; 2013 – .6%). Deposits also include term deposits with average balances of $345 billion (2014 – $302 billion; 2013 – $273 billion), interest expense of $4.5 billion (2014 – $4.4 billion; 2013 – $4.3 billion) and average rates of 1.30% (2014 – 1.47%; 2013 – 1.57%).

Change in net interest income — Table 79

(Millions of Canadian dollars)	2015 (3) vs. 2014 Increase (decrease) due to changes in: Average volume (1)	2015 (3) vs. 2014 Increase (decrease) due to changes in: Average rate (1)	2015 (3) vs. 2014 Net change	2014 vs. 2013 Increase (decrease) due to changes in: Average volume (1)	2014 vs. 2013 Increase (decrease) due to changes in: Average rate (1)	2014 vs. 2013 Net change
Assets						
Deposits with other banks (2)						
Canada (4)	$ 244	$ (235)	$ 9	$ 14	$ (10)	$ 4
U.S. (4)	9	2	11	1	(4)	(3)
Other international (4)	26	(45)	(19)	(4)	5	1
Securities						
Trading	323	(102)	221	292	(83)	209
Available-for-sale	153	152	305	92	(87)	5
Asset purchased under reverse repurchase agreements and securities borrowed	204	76	280	100	(70)	30
Loans						
Canada						
Retail	467	(626)	(159)	491	(323)	168
Wholesale	212	(218)	(6)	219	16	235
U.S.	256	(364)	(108)	195	(83)	112
Other international	278	(102)	176	189	(79)	110
Total interest income	$ 2,172	$ (1,462)	$ 710	$ 1,589	$ (718)	$ 871
Liabilities						
Deposits						
Canada (5)	529	(783)	(254)	549	(375)	174
U.S.	58	(2)	56	29	(40)	(11)
Other international	43	5	48	31	(15)	16
Obligations related to securities sold short	186	(35)	151	51	(136)	(85)
Obligations related to assets sold under repurchase agreements and securities loaned	64	(5)	59	(9)	8	(1)
Subordinated debentures	38	(44)	(6)	(65)	(25)	(90)
Other interest-bearing liabilities (2)	637	(636)	1	(5)	6	1
Total interest expense	$ 1,555	$ (1,500)	$ 55	$ 581	$ (577)	$ 4
Net interest income	$ 617	$ 38	$ 655	$ 1,008	$ (141)	$ 867

(1) Volume/rate variance is allocated on the percentage relationships of changes in balances and changes in rates to the total net change in net interest income.
(2) Starting in 2015, we have included cash collateral and margin deposits, and cash collateral received in Deposits with other banks and Other interest-bearing liabilities, respectively (previously, in Other assets and Other liabilities).
(3) Insurance segment assets and liabilities are included in Other assets and Other liabilities, respectively.
(4) Geographic classification for selected assets and liabilities is based on the domicile of the booking point of the subject assets and liabilities.
(5) Amounts have been revised from those previously presented.

Loans and acceptances by geography — Table 80

As at October 31 (Millions of Canadian dollars)	2015	2014	2013	2012 (1)	2011 (1)
Canada					
Residential mortgages	$ 229,987	$ 215,624	$ 206,134	$ 195,552	$ 185,620
Personal	84,637	86,984	86,102	80,000	75,668
Credit cards	15,516	14,650	13,902	13,422	12,723
Small business	4,003	4,067	4,026	2,503	2,481
Retail	334,143	321,325	310,164	291,477	276,492
Business	71,246	64,643	58,920	51,212	45,186
Sovereign (2)	8,508	3,840	3,807	3,751	3,304
Bank	530	413	823	390	747
Wholesale	$ 80,284	$ 68,896	$ 63,550	$ 55,353	$ 49,237
	$ 414,427	$ 390,221	$ 373,714	$ 346,830	$ 325,729
U.S.					
Retail	5,484	4,686	3,734	3,138	3,101
Wholesale	34,702	23,639	19,443	17,081	11,094
	40,186	28,325	23,177	20,219	14,195
Other International					
Retail	8,556	8,258	6,768	5,673	5,152
Wholesale	24,536	21,881	17,103	16,900	12,110
	33,092	30,139	23,871	22,573	17,262
Total loans and acceptances	$ 487,705	$ 448,685	$ 420,762	$ 389,622	$ 357,186
Total allowance for loan losses	(2,029)	(1,994)	(1,959)	(1,996)	(1,967)
Total loans and acceptances, net of allowance for loan losses	$ 485,676	$ 446,691	$ 418,803	$ 387,626	$ 355,219

(1) On a continuing operations basis.
(2) In 2015, we reclassified $4 billion from AFS securities to Loans.

Loans and acceptances by portfolio and sector — Table 81

As at October 31 (Millions of Canadian dollars)	2015	2014	2013	2012 (1)	2011 (1)
Residential mortgages	$ 233,975	$ 219,257	$ 209,238	$ 198,324	$ 188,406
Personal	94,346	96,021	93,260	85,800	80,921
Credit cards	15,859	14,924	14,142	13,661	12,937
Small business	4,003	4,067	4,026	2,503	2,481
Retail	$ 348,183	$ 334,269	$ 320,666	$ 300,288	$ 284,745
Business					
Agriculture	6,057	5,694	5,441	5,202	4,880
Automotive	6,614	6,209	6,167	3,585	3,025
Consumer goods	7,146	7,172	6,230	5,432	5,341
Energy					
Oil & gas	7,691	5,849	5,046	4,981	4,119
Utilities	5,162	3,766	3,860	3,821	2,275
Non-bank financial services	6,428	5,688	4,903	3,895	2,007
Forest products	1,169	979	893	811	698
Industrial products	4,725	4,665	4,038	3,938	3,381
Mining & metals	1,402	1,320	1,074	965	1,122
Real estate & related	33,802	30,387	24,413	20,650	15,569
Technology & media	6,599	4,822	4,006	4,203	2,712
Transportation & environment	5,907	5,432	5,593	5,221	4,927
Other (2)	35,133	26,604	22,716	21,447	17,011
Sovereign	9,887	4,628	4,396	4,193	4,050
Bank	1,800	1,201	1,320	990	1,324
Wholesale	$ 139,522	$ 114,416	$ 100,096	$ 89,334	$ 72,441
Total loans and acceptances	$ 487,705	$ 448,685	$ 420,762	$ 389,622	$ 357,186
Total allowance for loan losses	(2,029)	(1,994)	(1,959)	(1,996)	(1,967)
Total loans and acceptances, net of allowance for loan losses	$ 485,676	$ 446,691	$ 418,803	$ 387,626	$ 355,219

(1) On a continuing operations basis.
(2) Other in 2015 related to financing products, $10.1 billion; health, $6.0 billion; holding and investments, $6.9 billion; other services, $8.8 billion; and other, $3.3 billion.

Impaired loans by portfolio and geography — Table 82

As at October 31 (Millions of Canadian dollars, except for percentage amounts)	2015	2014	2013	2012 (1)	2011 (1)
Residential mortgages	$ 646	$ 678	$ 691	$ 674	$ 719
Personal	299	300	363	273	289
Small business	45	47	37	33	40
Retail	990	1,025	1,091	980	1,048
Business					
Agriculture	$ 41	$ 40	$ 43	$ 52	$ 75
Automotive	11	12	12	17	38
Consumer goods	130	108	101	83	91
Energy					
Oil and gas	156	6	14	2	33
Utilities	57	–	–	–	–
Non-bank financial services	1	3	1	5	13
Forest products	28	25	26	30	27
Industrial products	45	48	54	88	38
Mining & metals	17	9	2	2	4
Real estate & related	297	314	367	353	464
Technology & media	34	38	117	251	47
Transportation & environment	53	32	98	73	105
Other (2)	423	315	272	312	311
Sovereign	–	–	–	–	–
Bank	2	2	3	2	33
Wholesale	1,295	952	1,110	1,270	1,279
Total impaired loans (3)	$ 2,285	$ 1,977	$ 2,201	$ 2,250	$ 2,327
Canada					
Residential mortgages	$ 356	$ 388	$ 464	$ 475	$ 567
Personal	223	224	229	206	188
Small business	45	47	36	34	40
Retail	624	659	729	715	795
Business					
Agriculture	39	36	38	44	62
Automotive	8	11	9	11	30
Consumer goods	65	70	58	34	48
Energy					
Oil & gas	39	4	14	–	25
Utilities	20	–	–	–	–
Non-bank financial services	–	1	1	3	1
Forest products	5	6	8	12	7
Industrial products	39	41	40	34	26
Mining & metals	7	9	2	2	2
Real estate & related	161	171	169	153	164
Technology & media	34	37	86	238	43
Transportation & environment	29	11	21	22	12
Other	66	90	80	88	93
Sovereign	–	–	–	–	–
Bank	–	–	–	–	–
Wholesale	512	487	526	641	513
Total	$ 1,136	$ 1,146	$ 1,255	$ 1,356	$ 1,308
U.S.					
Retail	$ 10	$ 13	$ 14	$ 7	$ 6
Wholesale	204	18	98	162	116
Total	$ 214	$ 31	$ 112	$ 169	$ 122
Other International					
Retail	$ 356	$ 353	$ 348	$ 258	$ 247
Wholesale	579	447	486	467	650
Total	$ 935	$ 800	$ 834	$ 725	$ 897
Total impaired loans	$ 2,285	$ 1,977	$ 2,201	$ 2,250	$ 2,327
Allowance for impaired loans	(654)	(632)	(599)	(636)	(605)
Net impaired loans	$ 1,631	$ 1,345	$ 1,602	$ 1,614	$ 1,722
Gross impaired loans as a % of loans and acceptances					
Residential mortgages	0.28%	0.31%	0.33%	0.34%	0.38%
Personal	0.32%	0.31%	0.39%	0.32%	0.36%
Small business	1.13%	1.16%	0.83%	1.32%	1.61%
Retail	0.28%	0.31%	0.34%	0.33%	0.37%
Wholesale	0.93%	0.84%	1.11%	1.42%	1.77%
Total	0.47%	0.44%	0.52%	0.58%	0.65%
Allowance for impaired loans as a % of gross impaired loans	28.64%	31.98%	27.22%	28.33%	26.00%

(1) On a continuing operations basis.
(2) Other in 2015 is related to financing products, $109 million; health, $17 million; holding and investments, $185 million; other services, $69 million; and other, $43 million.
(3) Past due loans greater than 90 days not included in impaired loans were $314 million in 2015 (2014 – $316 million; 2013 – $346 million; 2012 – $393 million; 2011 – $525 million).

Provision for credit losses by portfolio and geography — Table 83

(Millions of Canadian dollars, except for percentage amounts)	2015	2014	2013	2012 (1)	2011 (1)
Residential mortgages	$ 47	$ 94	$ 41	$ 67	$ 42
Personal	388	441	458	445	438
Credit cards	378	353	354	394	448
Small business	32	44	32	43	35
Retail	**$ 845**	$ 932	$ 885	$ 949	$ 963
Business					
Agriculture	$ 9	$ 3	$ 4	$ 8	$ 7
Automotive	3	2	3	(2)	(4)
Consumer goods	33	27	17	27	14
Energy					
Oil and gas	47	(5)	(6)	(11)	(20)
Utilities	9	32	–	–	–
Non-bank financial services	7	–	10	1	(11)
Forest products	6	7	4	5	5
Industrial products	4	14	21	32	3
Mining & metals	8	2	1	–	–
Real estate & related	29	58	62	82	66
Technology & media	5	14	157	102	(3)
Transportation & environment	8	2	35	47	29
Other (2)	85	76	44	61	82
Sovereign	–	–	–	–	–
Bank	(1)	–	–	–	–
Wholesale	**$ 252**	$ 232	$ 352	$ 352	$ 168
Total provision for credit losses on impaired loans	**$ 1,097**	$ 1,164	$ 1,237	$ 1,301	$ 1,131
Canada					
Residential mortgages	$ 27	$ 27	$ 27	$ 34	$ 25
Personal	393	393	391	413	408
Credit cards	371	345	346	391	448
Small business	32	44	32	43	35
Retail	$ 823	$ 809	$ 796	$ 881	$ 916
Business					
Agriculture	9	4	4	8	7
Automotive	3	3	3	(2)	(3)
Consumer goods	21	25	16	13	13
Energy					
Oil & gas	22	(5)	(6)	(11)	(9)
Utilities	1	–	–	–	–
Non-bank financial services	–	–	–	1	–
Forest products	1	1	3	5	4
Industrial products	7	14	14	12	3
Mining & metals	3	2	1	–	1
Real estate & related	13	34	37	43	31
Technology & media	6	14	50	98	6
Transportation & environment	7	3	2	10	5
Other	23	28	25	30	44
Sovereign	–	–	–	–	–
Bank	–	–	–	–	–
Wholesale	$ 116	$ 123	$ 149	$ 207	$ 102
Total	$ 939	$ 932	$ 945	$ 1,088	$ 1,018
U.S.					
Retail	1	2	3	4	4
Wholesale	40	40	32	29	(19)
	$ 41	$ 42	$ 35	$ 33	$ (15)
Other International					
Retail	21	121	86	64	43
Wholesale	96	69	171	116	85
	$ 117	$ 190	$ 257	$ 180	$ 128
Total provision for credit losses on impaired loans	**$ 1,097**	$ 1,164	$ 1,237	$ 1,301	$ 1,131
Total provision for credit losses on non-impaired loans	**–**	–	–	(2)	2
Total provision for credit losses	**$ 1,097**	$ 1,164	$ 1,237	$ 1,299	$ 1,133
Provision for credit losses as a % of average net loans and acceptances	**0.24%**	0.27%	0.31%	0.35%	0.33%

(1) On a continuing operations basis.
(2) Other in 2015 is related to financing products, $39 million; holding and investments, $19 million; other services, $4 million; and other, $23 million.

Allowance for credit losses by portfolio and geography — Table 84

(Millions of Canadian dollars, except percentage amounts)	2015	2014	2013	2012 (1), (2)	2011 (2)
Allowance at beginning of year	$ 2,085	$ 2,050	$ 2,087	$ 2,056	$ 2,966
Alowance at beginning of year – discontinued operations	–	–	–	–	(854)
Provision for credit losses	1,097	1,164	1,237	1,299	1,133
Write-offs by portfolio					
Residential mortgages	(64)	(30)	(24)	(32)	(16)
Personal	(494)	(565)	(498)	(499)	(515)
Credit cards	(497)	(466)	(466)	(496)	(545)
Small business	(40)	(47)	(35)	(50)	(45)
Retail	$ (1,095)	$ (1,108)	$ (1,023)	$ (1,077)	$ (1,121)
Business	$ (243)	$ (221)	$ (448)	$ (288)	$ (226)
Sovereign	–	–	–	–	(9)
Bank	–	–	–	(32)	–
Wholesale	$ (243)	$ (221)	$ (448)	$ (320)	$ (235)
Total write-offs by portfolio	$ (1,338)	$ (1,329)	$ (1,471)	$ (1,397)	$ (1,356)
Recoveries by portfolio					
Residential mortgages	$ 7	$ 2	$ 2	$ 1	$ 1
Personal	105	106	96	83	79
Credit cards	119	114	112	102	97
Small business	10	9	9	8	7
Retail	$ 241	$ 231	$ 219	$ 194	$ 184
Business	$ 33	$ 32	$ 51	$ 39	$ 60
Sovereign	–	–	–	–	–
Bank	1	–	–	–	–
Wholesale	$ 34	$ 32	$ 51	$ 39	$ 60
Total recoveries by portfolio	$ 275	$ 263	$ 270	$ 233	$ 244
Net write-offs	$ (1,063)	$ (1,066)	$ (1,201)	$ (1,164)	$ (1,112)
Adjustments (3)	1	(63)	(73)	(104)	(75)
Total allowance for credit losses at end of year	$ 2,120	$ 2,085	$ 2,050	$ 2,087	$ 2,058
Allowance against impaired loans					
Canada					
Residential mortgages	$ 27	$ 31	$ 36	$ 41	$ 47
Personal	96	93	97	89	88
Small business	19	19	16	12	15
Retail	$ 142	$ 143	$ 149	$ 142	$ 150
Business					
Agriculture	$ 5	$ 6	$ 6	$ 9	$ 13
Automotive	4	4	4	7	15
Consumer goods	12	22	15	14	17
Energy					
Oil & gas	–	–	1	1	3
Utilities	1	–	–	–	–
Non-bank financial services	–	–	–	–	–
Forest products	3	3	4	6	3
Industrial products	13	18	15	10	12
Mining & metals	1	1	1	1	1
Real estate & related	28	48	42	45	47
Technology & media	12	17	46	107	20
Transportation & environment	7	5	6	8	5
Other	25	36	30	31	43
Sovereign	–	–	–	–	–
Bank	–	–	–	–	–
Wholesale	$ 111	$ 160	$ 170	$ 239	$ 179
	$ 253	$ 303	$ 319	$ 381	$ 329
U.S.					
Retail	$ 1	$ 1	$ 2	$ 1	$ 1
Wholesale	47	16	19	38	25
	$ 48	$ 17	$ 21	$ 39	$ 26
Other International					
Retail	$ 169	$ 172	$ 146	$ 96	$ 80
Wholesale	184	140	113	120	170
	$ 353	$ 312	$ 259	$ 216	$ 250
Total allowance against impaired loans	$ 654	$ 632	$ 599	$ 636	$ 605
Allowance against non-impaired loans					
Residential mortgages	$ 83	$ 78	$ 48	$ 48	$ 41
Personal	396	400	405	392	412
Credit cards	386	385	385	403	415
Small business	45	45	45	60	60
Retail	$ 910	$ 908	$ 883	$ 903	$ 928
Wholesale	$ 465	$ 454	$ 477	$ 457	$ 434
Off-balance sheet and other items	$ 91	$ 91	$ 91	$ 91	$ 91
Total allowance against non-impaired loans	$ 1,466	$ 1,453	$ 1,451	$ 1,451	$ 1,453
Total allowance for credit losses	$ 2,120	$ 2,085	$ 2,050	$ 2,087	$ 2,058
Key ratios					
Allowance for credit losses as a % of loans and acceptances	0.43%	0.46%	0.49%	0.54%	0.57%
Net write-offs as a % of average net loans and acceptances	0.23%	0.25%	0.30%	0.31%	0.33%

(1) On a continuing operations basis.
(2) Opening allowance for credit losses as at November 1, 2011 has been restated due to the implementation of amendments to IFRS 11.
(3) Under IFRS, other adjustments include $80 million of unwind of discount and $(81) million of changes in exchange rate (2014 – $87 million and $(24) million; 2013 – $86 million and $(13) million). For further details, refer to Note 5 of our audited 2015 Annual Consolidated Financial Statements.

Credit quality information by Canadian province — Table 85

(Millions of Canadian dollars)	2015	2014	2013	2012 (1)	2011 (1)
Loans and acceptances					
Atlantic provinces (2)	**$ 23,040**	$ 22,130	$ 21,263	$ 19,953	$ 18,481
Quebec	**51,197**	50,748	48,060	42,920	38,776
Ontario	**175,315**	159,817	152,258	141,566	141,230
Prairie provinces (3)	**94,392**	88,538	84,015	77,187	68,468
B.C. and territories (4)	**70,483**	68,988	68,118	65,204	58,774
Total loans and acceptances in Canada	**$ 414,427**	$ 390,221	$ 373,714	$ 346,830	$ 325,729
Gross impaired loans					
Atlantic provinces (2)	**$ 93**	$ 81	$ 83	$ 67	$ 66
Quebec	**213**	205	177	180	135
Ontario	**341**	391	424	502	398
Prairie provinces (3)	**339**	258	330	338	404
B.C. and territories (4)	**150**	211	241	269	305
Total gross impaired loans in Canada	**$ 1,136**	$ 1,146	$ 1,255	$ 1,356	$ 1,308
Provision for credit losses on impaired loans					
Atlantic provinces (2)	**$ 57**	$ 51	$ 50	$ 62	$ 54
Quebec	**96**	92	78	96	63
Ontario	**590**	588	605	704	686
Prairie provinces (3)	**129**	111	113	120	107
B.C. and territories (4)	**67**	90	99	106	108
Total provision for credit losses on impaired loans in Canada	**$ 939**	$ 932	$ 945	$ 1,088	$ 1,018

(1) On a continuing operations basis.
(2) Comprises Newfoundland and Labrador, Prince Edward Island, Nova Scotia and New Brunswick.
(3) Comprises Manitoba, Saskatchewan and Alberta.
(4) Comprises British Columbia, Nunavut, Northwest Territories and Yukon.

EDTF recommendations index

On October 29, 2012, the Enhanced Disclosure Task Force (EDTF), established by the Financial Stability Board, issued its report Enhancing the Risk Disclosures of Banks, which included 32 recommendations aimed at achieving transparent, high-quality risk disclosures. As a result, our enhanced disclosures have been provided in our 2015 Annual Report and Supplementary Financial Information package (SFI).

The following index summarizes our disclosure by EDTF recommendation: