Management's discussion and analysis

Management's discussion and analysis (MD&A) is provided to enable readers to assess CIBC's financial condition and results of operations as at and for the year ended October 31, 2019, compared with prior years. The MD&A should be read in conjunction with the audited consolidated financial statements. Unless otherwise indicated, all financial information in this MD&A has been prepared in accordance with International Financial Reporting Standards (IFRS or GAAP) and all amounts are expressed in Canadian dollars. Certain disclosures in the MD&A have been shaded as they form an integral part of the consolidated financial statements. The MD&A is current as of December 4, 2019. Additional information relating to CIBC, including the Annual Information Form, is available on SEDAR at www.sedar.com and on the U.S. Securities and Exchange Commission's (SEC) website at www.sec.gov. No information on CIBC's website (www.cibc.com) should be considered incorporated herein by reference. A glossary of terms used in the MD&A and the audited consolidated financial statements is provided on pages 196 to 201 of this Annual Report.

2 Overview
2 CIBC's strategy
2 Performance against objectives

4 Financial highlights

5 Economic and market environment
5 Year in review – 2019
5 Outlook for calendar year 2020

5 Significant events

6 Financial performance overview
6 2019 Financial results review
6 Net interest income and margin
7 Non-interest income
7 Trading activities (TEB)
8 Provision for credit losses
8 Non-interest expenses
9 Taxes
9 Foreign exchange
10 Fourth quarter review
10 Quarterly trend analysis
11 Review of 2018 financial performance

13 Non-GAAP measures

16 Strategic business units overview
17 Canadian Personal and Small Business Banking
19 Canadian Commercial Banking and Wealth Management
21 U.S. Commercial Banking and Wealth Management
23 Capital Markets
26 Corporate and Other

27 Financial condition
27 Review of condensed consolidated balance sheet
28 Capital management
38 Off-balance sheet arrangements

40 Management of risk

78 Accounting and control matters
78 Critical accounting policies and estimates
83 Accounting developments
84 Other regulatory developments
85 Related-party transactions
85 Policy on the Scope of Services of the Shareholders' Auditor
85 Controls and procedures

86 Supplementary annual financial information

A NOTE ABOUT FORWARD-LOOKING STATEMENTS: From time to time, we make written or oral forward-looking statements within the meaning of certain securities laws, including in this Annual Report, in other filings with Canadian securities regulators or the SEC and in other communications. All such statements are made pursuant to the "safe harbour" provisions of, and are intended to be forward-looking statements under applicable Canadian and U.S. securities legislation, including the U.S. Private Securities Litigation Reform Act of 1995. These statements include, but are not limited to, statements made in the "Message from the President and Chief Executive Officer", "Overview – Performance against objectives", "Economic and market environment – Outlook for calendar year 2020", "Significant events", "Financial performance overview – Taxes", "Strategic business units overview – Canadian Personal and Small Business Banking", "Strategic business units overview – Canadian Commercial Banking and Wealth Management", "Strategic business units overview – U.S. Commercial Banking and Wealth Management", "Strategic business units overview – Capital Markets", "Financial condition – Capital management", "Financial condition – Off-balance sheet arrangements", "Management of risk – Risk overview", "Management of risk – Top and emerging risks", "Management of risk – Credit risk", "Management of risk – Market risk", "Management of risk – Liquidity risk", "Accounting and control matters – Critical accounting policies and estimates", "Accounting and control matters – Accounting developments", "Accounting and control matters – Other regulatory developments" and "Accounting and control matters – Controls and procedures" sections of this report and other statements about our operations, business lines, financial condition, risk management, priorities, targets, ongoing objectives, strategies, the regulatory environment in which we operate and outlook for calendar year 2020 and subsequent periods. Forward-looking statements are typically identified by the words "believe", "expect", "anticipate", "intend", "estimate", "forecast", "target", "objective" and other similar expressions or future or conditional verbs such as "will", "should", "would" and "could". By their nature, these statements require us to make assumptions, including the economic assumptions set out in the "Economic and market environment – Outlook for calendar year 2020" section of this report, and are subject to inherent risks and uncertainties that may be general or specific. A variety of factors, many of which are beyond our control, affect our operations, performance and results, and could cause actual results to differ materially from the expectations expressed in any of our forward-looking statements. These factors include: credit, market, liquidity, strategic, insurance, operational, reputation, conduct and legal, regulatory and environmental risk; the effectiveness and adequacy of our risk management and valuation models and processes; legislative or regulatory developments in the jurisdictions where we operate, including the Dodd-Frank Wall Street Reform and Consumer Protection Act and the regulations issued and to be issued thereunder, the Organisation for Economic Co-operation and Development Common Reporting Standard, and regulatory reforms in the United Kingdom and Europe, the Basel Committee on Banking Supervision's global standards for capital and liquidity reform, and those relating to bank recapitalization legislation and the payments system in Canada; amendments to, and interpretations of, risk-based capital guidelines and reporting instructions, and interest rate and liquidity regulatory guidance; the resolution of legal and regulatory proceedings and related matters; the effect of changes to accounting standards, rules and interpretations; changes in our estimates of reserves and allowances; changes in tax laws; changes to our credit ratings; political conditions and developments, including changes relating to economic or trade matters; the possible effect on our business of international conflicts and terrorism; natural disasters, public health emergencies, disruptions to public infrastructure and other catastrophic events; reliance on third parties to provide components of our business infrastructure; potential disruptions to our information technology systems and services; increasing cyber security risks which may include theft or disclosure of assets, unauthorized access to sensitive information, or operational disruption; social media risk; losses incurred as a result of internal or external fraud; anti-money laundering; the accuracy and completeness of information provided to us concerning clients and counterparties; the failure of third parties to comply with their obligations to us and our affiliates or associates; intensifying competition from established competitors and new entrants in the financial services industry including through internet and mobile banking; technological change; global capital market activity; changes in monetary and economic policy; currency value and interest rate fluctuations, including as a result of market and oil price volatility; general business and economic conditions worldwide, as well as in Canada, the U.S. and other countries where we have operations, including increasing Canadian household debt levels and global credit risks; our success in developing and introducing new products and services, expanding existing distribution channels, developing new distribution channels and realizing increased revenue from these channels; changes in client spending and saving habits; our ability to attract and retain key employees and executives; our ability to successfully execute our strategies and complete and integrate acquisitions and joint ventures; the risk that expected synergies and benefits of an acquisition will not be realized within the expected time frame or at all; and our ability to anticipate and manage the risks associated with these factors. This list is not exhaustive of the factors that may affect any of our forward-looking statements. These and other factors should be considered carefully and readers should not place undue reliance on our forward-looking statements. Any forward-looking statements contained in this report represent the views of management only as of the date hereof and are presented for the purpose of assisting our shareholders and financial analysts in understanding our financial position, objectives and priorities and anticipated financial performance as at and for the periods ended on the dates presented, and may not be appropriate for other purposes. We do not undertake to update any forward-looking statement that is contained in this report or in other communications except as required by law.

Overview

CIBC is a leading North American financial institution with a market capitalization of $50 billion and a Basel III Common Equity Tier 1 (CET1) ratio of 11.6% as at October 31, 2019. Through our four strategic business units (SBUs) – Canadian Personal and Small Business Banking, Canadian Commercial Banking and Wealth Management, U.S. Commercial Banking and Wealth Management, and Capital Markets – CIBC provides a full range of financial products and services to 10 million personal banking, business, public sector and institutional clients in Canada, the U.S. and around the world. We have approximately 45,000 employees dedicated to providing our clients with banking for a modern world, delivering consistent and sustainable earnings growth for our shareholders, and giving back to our communities.

CIBC's strategy

We are building a relationship-oriented bank for a modern world. To achieve our strategic objectives of delivering superior client experience and shareholder returns, we are focused on four key areas:

- Delivering a modern relationship-banking value proposition to our clients;
- Diversifying our earnings growth;
- Optimizing our operational efficiency; and
- Maintaining capital and balance sheet discipline.

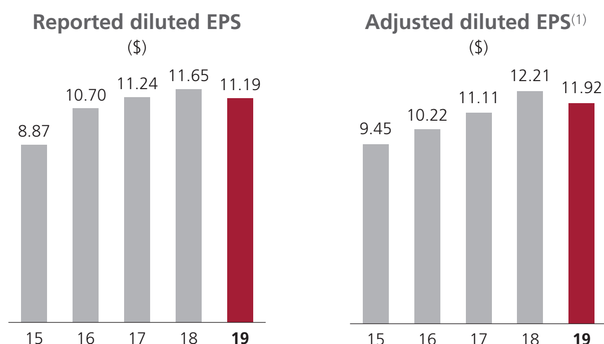
Performance against objectives

For many years, CIBC has reported a scorecard of financial measures that we use to evaluate and report on our progress to external stakeholders. These measures can be categorized into five key areas – earnings growth, efficiency ratio, return on common shareholders' equity (ROE), shareholder value and balance sheet strength. We have set targets for each of these measures over the medium term, which we define as three to five years.

Earnings growth[1]

To assess our earnings growth, we monitor our earnings per share (EPS). Our target is average annual EPS growth of 5% to 10%. In 2019, against a backdrop of a challenging market environment, reported and adjusted[1] diluted EPS declined by 4% and 2%, respectively.

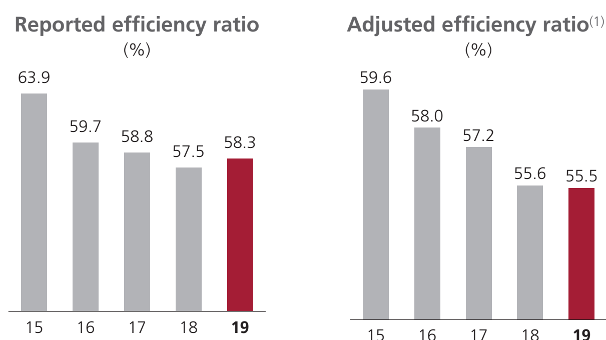
Going forward, we are maintaining our target to deliver average annual EPS growth of 5% to 10% through the cycle.



Efficiency ratio[1]

To assess how well we use our resources to generate net income, we measure and monitor our efficiency ratio, defined as the ratio of non-interest expenses to total revenue. In 2019, CIBC's reported and adjusted[1] efficiency ratios were 58.3% and 55.5%, respectively, compared with 57.5% and 55.6% in 2018.

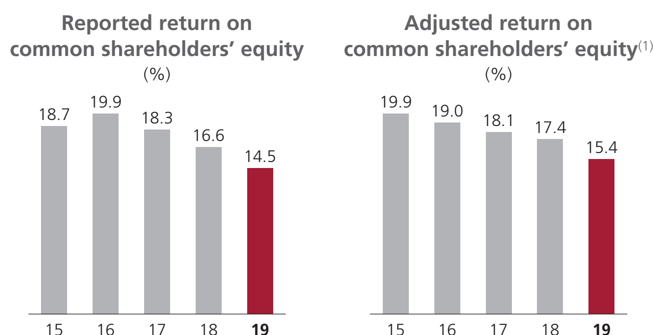
CIBC has set a medium-term target of achieving a run rate efficiency ratio of 52% by 2022.



Return on common shareholders' equity[1]

ROE is another key measure of shareholder value. In 2019, CIBC's reported and adjusted[1] ROE were at 14.5% and 15.4%, respectively.

Going forward, we will continue to target a strong ROE of at least 15% through the cycle.



(1) For additional information, see the "Non-GAAP measures" section.

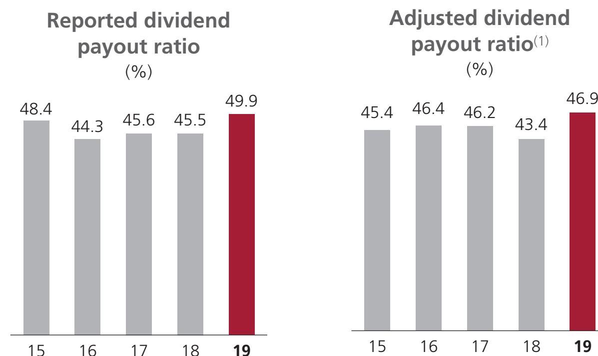
Shareholder value

We have two shareholder value targets:

1. Dividend payout ratio

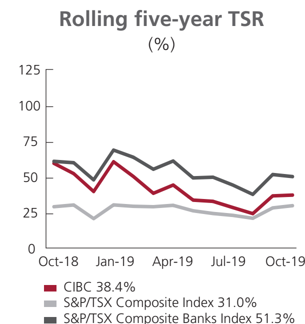
For many years, we have consistently delivered adjusted dividend payout ratios in the range of 40% to 50% of earnings to common shareholders. Our key criteria for considering dividend increases are our current level of payout relative to our target and our view on the sustainability of our current earnings level through the cycle. In 2019, our reported and adjusted[(1)] dividend payout ratios were 49.9% and 46.9%, respectively.

Going forward, we will continue to target a dividend payout ratio of 40% to 50%.



2. Total shareholder return (TSR)

TSR is the ultimate measure of shareholder value, and the output of delivering against the financial targets within our control. We have an objective to deliver a TSR that exceeds the industry average, which we have defined as the Standard & Poor's (S&P)/Toronto Stock Exchange (TSX) Composite Banks Index, over a rolling five-year period. For the five years ended October 31, 2019, our TSR was 38.4%, which was below the Banks Index return over the same period of 51.3%.

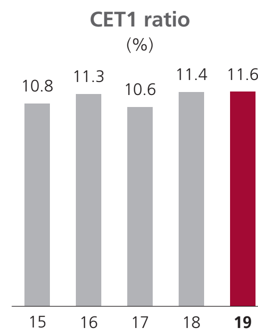


Balance sheet strength

Maintaining a strong balance sheet is foundational to our long-term success. Our goal is to maintain strong capital ratios that comfortably exceed regulatory targets.

We look to constantly balance our objectives of holding a prudent amount of excess capital for unexpected events and environmental uncertainties, investing in our core businesses, growing through acquisitions and returning capital to our shareholders. At the end of 2019, our Basel III CET1 ratio was 11.6%, well above the current regulatory target set by the Office of the Superintendent of Financial Institutions (OSFI).

In addition to our capital objectives, we remain focused on asset quality and a strong funding profile as key underpinnings of a strong and stable balance sheet.



Client experience

We continue to have a strong and ongoing focus on client experience. Aligned to our journey as a purpose-led bank, we have enhanced our internal client experience index in 2019 to improve the transparency and accuracy of our client experience measurement program. The index has been renamed the CIBC Client Experience Net Promoter Score Index (CIBC CXNPS) and reflects the balanced weighting of nine internal net promoter scores from across all of our SBUs. As at October 31, 2019, the CIBC CXNPS score was 60.9. Our goal is to achieve continuous improvement year over year.

(1) For additional information, see the "Non-GAAP measures" section.

Financial highlights

As at or for the year ended October 31		2019	2018	2017	2016	2015
Financial results ($ millions)						
Net interest income		**$ 10,551**	$ 10,065	$ 8,977	$ 8,366	$ 7,915
Non-interest income		**8,060**	7,769	7,303	6,669	5,941
Total revenue		**18,611**	17,834	16,280	15,035	13,856
Provision for credit losses		**1,286**	870	829	1,051	771
Non-interest expenses		**10,856**	10,258	9,571	8,971	8,861
Income before income taxes		**6,469**	6,706	5,880	5,013	4,224
Income taxes		**1,348**	1,422	1,162	718	634
Net income		**$ 5,121**	$ 5,284	$ 4,718	$ 4,295	$ 3,590
Net income attributable to non-controlling interests		**25**	17	19	20	14
Preferred shareholders		**111**	89	52	38	45
Common shareholders		**4,985**	5,178	4,647	4,237	3,531
Net income attributable to equity shareholders		**$ 5,096**	$ 5,267	$ 4,699	$ 4,275	$ 3,576
Financial measures						
Reported efficiency ratio		**58.3 %**	57.5 %	58.8 %	59.7 %	63.9 %
Adjusted efficiency ratio [1]		**55.5 %**	55.6 %	57.2 %	58.0 %	59.6 %
Loan loss ratio [2]		**0.29 %**	0.26 %	0.25 %	0.31 %	0.27 %
Reported return on common shareholders' equity		**14.5 %**	16.6 %	18.3 %	19.9 %	18.7 %
Adjusted return on common shareholders' equity [1]		**15.4 %**	17.4 %	18.1 %	19.0 %	19.9 %
Net interest margin		**1.65 %**	1.68 %	1.66 %	1.64 %	1.74 %
Net interest margin on average interest-earning assets		**1.84 %**	1.88 %	1.85 %	1.88 %	2.00 %
Return on average assets		**0.80 %**	0.88 %	0.87 %	0.84 %	0.79 %
Return on average interest-earning assets		**0.89 %**	0.99 %	0.97 %	0.96 %	0.91 %
Total shareholder return		**4.19 %**	4.70 %	18.30 %	5.19 %	1.96 %
Reported effective tax rate		**20.8 %**	21.2 %	19.8 %	14.3 %	15.0 %
Adjusted effective tax rate [1]		**20.6 %**	20.0 %	20.3 %	16.6 %	15.5 %
Common share information						
Per share ($)	– basic earnings	**$ 11.22**	$ 11.69	$ 11.26	$ 10.72	$ 8.89
	– reported diluted earnings	**11.19**	11.65	11.24	10.70	8.87
	– adjusted diluted earnings [1]	**11.92**	12.21	11.11	10.22	9.45
	– dividends	**5.60**	5.32	5.08	4.75	4.30
	– book value	**79.87**	73.83	66.55	56.59	51.25
Share price ($)	– high	**116.19**	124.59	119.86	104.46	107.16
	– low	**98.20**	110.11	97.76	83.33	86.00
	– closing	**112.31**	113.68	113.56	100.50	100.28
Shares outstanding (thousands)	– weighted-average basic [3]	**444,324**	443,082	412,636 [4]	395,389	397,213
	– weighted-average diluted	**445,457**	444,627	413,563 [4]	395,919	397,832
	– end of period [3]	**445,342**	442,826	439,313 [4]	397,070	397,291
Market capitalization ($ millions)		**$ 50,016**	$ 50,341	$ 49,888	$ 39,906	$ 39,840
Value measures						
Dividend yield (based on closing share price)		**5.0 %**	4.7 %	4.5 %	4.7 %	4.3 %
Reported dividend payout ratio		**49.9 %**	45.5 %	45.6 %	44.3 %	48.4 %
Adjusted dividend payout ratio [1]		**46.9 %**	43.4 %	46.2 %	46.4 %	45.4 %
Market value to book value ratio		**1.41**	1.54	1.71	1.78	1.96
On- and off-balance sheet information ($ millions)						
Cash, deposits with banks and securities		**$ 138,669**	$ 119,355	$ 107,571	$ 101,588	$ 93,619
Loans and acceptances, net of allowance		**398,108**	381,661	365,558	319,781	290,981
Total assets		**651,604**	597,099	565,264	501,357	463,309
Deposits		**485,712**	461,015	439,706	395,647	366,657
Common shareholders' equity		**35,569**	32,693	29,238	22,472	20,360
Average assets		**639,716**	598,441	542,365	509,140	455,324
Average interest-earning assets		**572,677**	536,059	485,837	445,134	395,616
Average common shareholders' equity		**34,467**	31,184	25,393	21,275	18,857
Assets under administration (AUA) [5][6]		**2,425,651**	2,303,962	2,192,947	2,041,887	1,846,142
Assets under management (AUM) [6]		**252,007**	225,379	221,571	183,715	170,465
Balance sheet quality (All-in basis) and liquidity measures						
Risk-weighted assets (RWA) ($ millions) [7]						
Total RWA		**$ 239,863**	n/a	n/a	n/a	n/a
CET1 capital RWA		**n/a**	$ 216,144	$ 203,321	$ 168,996	$ 156,107
Tier 1 capital RWA		**n/a**	216,303	203,321	169,322	156,401
Total capital RWA		**n/a**	216,462	203,321	169,601	156,652
Capital ratios						
CET1 ratio		**11.6 %**	11.4 %	10.6 %	11.3 %	10.8 %
Tier 1 capital ratio		**12.9 %**	12.9 %	12.1 %	12.8 %	12.5 %
Total capital ratio		**15.0 %**	14.9 %	13.8 %	14.8 %	15.0 %
Leverage ratio		**4.3 %**	4.3 %	4.0 %	4.0 %	3.9 %
Liquidity coverage ratio (LCR) [8]		**125 %**	128 %	120 %	124 %	119 %
Other information						
Full-time equivalent employees		**45,157**	44,220	44,928	43,213	44,201

(1) For additional information, see the "Non-GAAP measures" section.
(2) The ratio is calculated as the provision for credit losses on impaired loans to average loans and acceptances, net of allowance for credit losses. In 2019, following our adoption of IFRS 9 on November 1, 2017, provision for credit losses on impaired loans (stage 3) is calculated in accordance with IFRS 9. 2017 and prior amounts were calculated in accordance with IAS 39.
(3) Excludes nil restricted shares as at October 31, 2019 (2018: 60,764).
(4) Excludes 2,010,890 common shares which were issued and outstanding, but which had not been acquired by a third party as at October 31, 2017. These shares were issued as a component of our acquisition of The PrivateBank.
(5) Includes the full contract amount of AUA or custody under a 50/50 joint venture between CIBC and The Bank of New York Mellon of $1,923.2 billion as at October 31, 2019 (2018: $1,834.0 billion).
(6) AUM amounts are included in the amounts reported under AUA.
(7) Beginning in 2019, the capital ratios are calculated by reference to the same level of RWA. Prior to 2019, before any capital floor requirement, there were three different levels of RWA for the calculation of CIBC's CET1, Tier 1 and Total capital ratios as CIBC elected in 2014 to phase in the credit valuation adjustment (CVA) capital charge as permitted under the OSFI guideline; different scalars were applied to the CVA included in the RWA calculation applicable to each of the three tiers of capital. RWA as at October 31, 2017 include a capital floor adjustment.
(8) Average for the three months ended October 31 for each respective year.
n/a Not applicable.

Economic and market environment

Year in review – 2019

CIBC operated in an environment of decelerating economic growth in both the U.S. and Canada in 2019. Canada experienced low unemployment rates that supported household credit quality, but credit performance has normalized from very strong levels in the prior year. Both consumer and mortgage credit growth grew at a much slower pace than earlier in this expansion but showed a modest acceleration in the latter half of the year as mortgage rates eased and housing activity rebounded. Corporate credit quality remained generally healthy despite a slowing in profit growth, but was impacted by softer conditions in some regions and sectors. A drop in business capital spending drove slower growth in financing activity that manifested in the form of softer growth in bonds and equity issuance while business loan growth remained healthy. The U.S. economy showed a moderation in growth, as earlier fiscal stimulus impacts faded and trade uncertainties grew. Conversely, labour markets remained very healthy, with the consumer side of the economy helped by income gains and interest rate cuts in the second half of the year. Loan growth remained steady, while equities recovered ground and interest rate relief offset sluggish earnings.

Outlook for calendar year 2020

A slowing global backdrop is expected to result in a further slight moderation in Canadian real gross domestic product (GDP) growth to just under 1.5%. Risks on the trade front and soft capital spending could see the Bank of Canada ease interest rates by 25 basis points from what are already low levels, potentially prompting a softening in the Canadian dollar over the course of 2020. While the unemployment rate is likely to edge above 6% in 2020, it is still expected to remain at historically low levels. Housing construction should be fairly steady, supported by lower mortgage rates, while only modest growth is expected in business capital spending until global uncertainties dissipate. Global crude oil prices look to be rangebound and, while Canadian production should gradually recover from earlier constraints, a lift to capital spending in the energy sector is likely contingent on further progress on pipeline capacity.

The U.S. economy is expected to decelerate to approximately 1.7% real GDP growth in 2020 as trade and global growth uncertainties are expected to hold back business capital spending and hiring. Despite this, labour markets are still anticipated to remain tight by historical standards. The U.S. Federal Reserve is expected to hold rates through 2020.

Escalating trade tensions between China and both the U.S. and Canada, and the threat of recession in Europe, pose downside risks to our U.S. and Canadian outlooks, but ones that may be offset by greater interest rate reductions than those currently projected.

Canadian Personal and Small Business Banking is expected to see a continuation of low growth in consumer and mortgage lending, with demand constrained by modest growth in housing prices and the regulatory tightening introduced in 2018.

Low interest rates and moderate growth in corporate earnings should support activity in Capital Markets and Canadian Commercial Banking and Wealth Management. Government bond issuance will likely increase to finance larger federal deficits, an impact that could be offset by reduced deficits in some provinces. Credit quality should remain healthy with low unemployment and moderate profit growth. Wealth management should benefit from ongoing growth in the pool of savings, but modest economic growth could constrain the extent to which AUM benefit from equity price gains.

In U.S. Commercial Banking and Wealth Management, commercial banking faces slower growth in the manufacturing-weighted Midwest, but would benefit from any improvement in trade uncertainties that are currently holding back capital spending plans, while lower interest rates should support growth in commercial lending activity. Wealth management has benefited from a greater pool of after-tax savings, although a soft path for further equity price gains is expected to contain growth in AUM.

Significant events

Sale of FirstCaribbean International Bank Limited

On November 8, 2019, we announced that we had entered into a definitive agreement to sell our controlling interest in FirstCaribbean International Bank Limited (CIBC FirstCaribbean) to GNB Financial Group Limited (GNB). Under the terms of the agreement, GNB will acquire 66.73% of CIBC FirstCaribbean's outstanding shares from CIBC for total consideration of approximately US$797 million, subject to closing adjustments to reflect certain changes in CIBC FirstCaribbean's book value prior to closing. The total consideration is comprised of approximately US$200 million in cash and secured financing provided by CIBC for the remainder. CIBC will also provide secured financing to facilitate the purchase of any shares tendered by the minority shareholders of CIBC FirstCaribbean under the take-over bid required by local securities laws. We expect to retain a minority interest in CIBC FirstCaribbean of approximately 24.9% after closing. This transaction is subject to regulatory approvals and is expected to close in 2020.

Due to the valuation implied from the expected sale of our controlling interest in CIBC FirstCaribbean, we recognized a goodwill impairment charge of $135 million in the fourth quarter of 2019, shown as an item of note. For additional information, see Note 3 and Note 8 to our consolidated financial statements.

Acquisition of Cleary Gull

On September 9, 2019, we completed the acquisition of substantially all of the assets and operations of Cleary Gull Inc. (Cleary Gull), a Milwaukee-based boutique investment banking firm specializing in middle-market mergers and acquisitions, private capital placement and debt advisory across the U.S. Goodwill and intangible assets of $16 million were recognized as a result of the acquisition. The results of the acquired business have been consolidated from the date of close and are included in our Capital Markets SBU.

Acquisition of Lowenhaupt Global Advisors

On September 1, 2019, we completed the acquisition of substantially all of the assets and operations of Lowenhaupt Global Advisors, LLC (LGA), a wealth advisory firm in St. Louis and New York that provides independent advice on family wealth transfer, taxation, investment portfolio allocation and business structuring. Goodwill and intangible assets of $14 million were recognized as a result of the acquisition. The results of the acquired business have been consolidated from the date of close and are included in our U.S. Commercial Banking and Wealth Management SBU.

Finalization of arrangement with Air Canada

Following the close of Air Canada's acquisition of the Aeroplan loyalty business from Aimia Inc. on January 10, 2019, we will be offering credit cards under Air Canada's new loyalty program, which is expected to launch in 2020. This program will allow CIBC's Aeroplan cardholders to transfer their Aeroplan Miles to Air Canada's new loyalty program.

To secure our participation in Air Canada's new loyalty program for a period of 10 years, we paid Air Canada $200 million plus applicable sales tax, which we recognized as an expense in the first quarter of 2019. We have shown this payment, together with related transaction costs, as an item of note related to the first quarter of 2019. In addition, we made a payment of $92 million plus applicable sales tax in the first quarter of 2019 as a prepayment to be applied towards future monthly payments in respect of Aeroplan Miles over a 10-year period.

Financial performance overview

This section provides a review of our consolidated financial results for 2019. A review of our SBU results follows on pages 16 to 25. Refer to page 11 for a review of our financial performance for 2018.

2019 Financial results review

Reported net income for the year was $5,121 million, compared with $5,284 million in 2018.

Adjusted net income[1] for the year was $5,444 million, compared with $5,541 million in 2018.

Reported diluted EPS for the year was $11.19, compared with $11.65 in 2018.

Adjusted diluted EPS[1] for the year was $11.92, compared with $12.21 in 2018.

2019

Net income was affected by the following items of note:

- $227 million ($167 million after-tax) charge for a payment made to Air Canada, including related sales tax and transaction costs, to secure our participation in the new loyalty program (Canadian Personal and Small Business Banking);
- $135 million ($135 million after-tax) goodwill impairment charge related to the expected sale of our controlling interest in CIBC FirstCaribbean (Corporate and Other);
- $109 million ($82 million after-tax) amortization of acquisition-related intangible assets ($7 million after-tax in Canadian Personal and Small Business Banking, $1 million after-tax in Canadian Commercial Banking and Wealth Management, $65 million after-tax in U.S. Commercial Banking and Wealth Management, and $9 million after-tax in Corporate and Other);
- $67 million ($49 million after-tax) of interest income related to the settlement of certain income tax matters (Corporate and Other);
- $45 million ($33 million after-tax net positive impact) in purchase accounting adjustments net of transaction and integration-related costs[2] associated with the acquisitions of The PrivateBank, Geneva Advisors and Wellington Financial (income of $25 million after-tax in U.S. Commercial Banking and Wealth Management, and $8 million after-tax in Corporate and Other); and
- $28 million ($21 million after-tax) increase in legal provisions (Corporate and Other).

The above items of note increased revenue by $101 million and non-interest expenses by $488 million, and decreased income taxes by $64 million. In aggregate, these items of note decreased net income by $323 million.

2018

Net income was affected by the following items of note:

- $115 million ($85 million after-tax) amortization of acquisition-related intangible assets ($9 million after-tax in Canadian Personal and Small Business Banking, $1 million after-tax in Canadian Commercial Banking and Wealth Management, $65 million after-tax in U.S. Commercial Banking and Wealth Management, and $10 million after-tax in Corporate and Other);
- $89 million ($65 million after-tax and minority interest) of incremental losses on debt securities and loans in CIBC FirstCaribbean recognized in the fourth quarter resulting from the Barbados government debt restructuring (Corporate and Other);
- $88 million charge from net tax adjustments resulting from the U.S. tax reforms enacted in the first quarter of 2018 (Corporate and Other); and
- $16 million ($14 million after-tax) in transaction and integration-related costs net of purchase accounting adjustments[2] associated with the acquisitions of The PrivateBank and Geneva Advisors (income of $38 million after-tax in U.S. Commercial Banking and Wealth Management, and charge of $52 million after-tax in Corporate and Other).

The above items of note increased revenue by $2 million, provision for credit losses by $28 million, non-interest expenses by $194 million, and income taxes by $37 million. In aggregate, these items of note decreased net income by $257 million and net income attributable to common shareholders by $252 million.

(1) For additional information, see the "Non-GAAP measures" section.
(2) Transaction costs include interest adjustments relating to the obligation payable to dissenting shareholders. Integration costs are comprised of direct and incremental costs incurred as part of the integration of the businesses of The PrivateBank (subsequently rebranded as CIBC Bank USA) and Geneva Advisors with CIBC, including enabling cross-sell opportunities and expansion of services in the U.S. market, the upgrade and conversion of systems and processes, project management, integration-related travel, severance, consulting fees and marketing costs related to rebranding activities. Purchase accounting adjustments, included as items of note beginning in the fourth quarter of 2017, include the accretion of the acquisition date fair value discount on the acquired loans of The PrivateBank and changes in the fair value of contingent consideration relating to the Geneva Advisors and Wellington Financial acquisitions.

Net interest income and margin

$ millions, for the year ended October 31	**2019**	2018	2017
Average interest-earning assets	**$ 572,677**	$ 536,059	$ 485,837
Net interest income	**10,551**	10,065	8,977
Net interest margin on average interest-earning assets	**1.84 %**	1.88 %	1.85 %

Net interest income was up $486 million or 5% from 2018, primarily due to volume growth across our businesses, wider spreads in Canadian Personal and Small Business Banking, and the impact of foreign exchange translation, partially offset by lower trading income and narrower spreads in U.S. Commercial Banking and Wealth Management. The current year also included interest income related to the settlement of certain income tax matters, shown as an item of note.

Net interest margin on average interest-earning assets was down four basis points, primarily due to a shift in the mix of average interest-earning assets, partially offset by higher margins in Canadian Personal and Small Business Banking.

Additional information on net interest income and margin is provided in the "Supplementary annual financial information" section.

Non-interest income

$ millions, for the year ended October 31	2019	2018	2017
Underwriting and advisory fees	**$ 475**	$ 420	$ 452
Deposit and payment fees	**908**	877	843
Credit fees	**958**	851	744
Card fees	**458**	510	463
Investment management and custodial fees [1][2]	**1,305**	1,247	1,034
Mutual fund fees [2]	**1,595**	1,624	1,573
Insurance fees, net of claims	**430**	431	427
Commissions on securities transactions	**313**	357	349
Gains (losses) from financial instruments measured/designated at fair value through profit or loss (FVTPL), net (2017: Trading income (loss) and designated at fair value (FVO) gains (losses), net) [3]	**761**	603	227
Gains (losses) from debt securities measured at fair value through other comprehensive income (FVOCI) and amortized cost, net (2017: Available-for-sale (AFS) securities gains, net)	**34**	(35)	143
Foreign exchange other than trading	**304**	310	252
Income from equity-accounted associates and joint ventures [1]	**92**	121	101
Other	**427**	453	695
	$ 8,060	$ 7,769	$ 7,303

(1) Custodial fees directly recognized by CIBC are included in Investment management and custodial fees. Our proportionate share of CIBC Mellon's custodial fees are included within Income from equity-accounted associates and joint ventures.
(2) Investment management fees and mutual fund fees are driven by various factors, including the amount of AUM. Investment management fees in our asset management and private wealth management businesses are generally driven by the amount of AUM, while investment management fees in our retail brokerage business are driven by a combination of the amount of AUA and, to a lesser extent, other factors unrelated to the amount of AUA (e.g. flat fees on a per account basis).
(3) Includes $54 million of loss (2018: $46 million of income; 2017: $1 million of income) relating to non-trading financial instruments measured/designated at FVTPL.

Non-interest income was up $291 million or 4% from 2018.

Underwriting and advisory fees were up $55 million or 13%, primarily due to higher advisory activity, debt issuance and loan syndication revenue, partially offset by lower equity issuance revenue.

Deposit and payment fees were up $31 million or 4%, primarily driven by lower acquisition costs and higher fees in Canadian Personal and Small Business Banking.

Credit fees were up $107 million or 13%, primarily due to growth in commercial loans.

Card fees were down $52 million or 10%, primarily due to presentation changes relating to our adoption of IFRS 15 "Revenue from Contracts with Customers" (IFRS 15) on November 1, 2018 (see Note 1 for additional details), offset in Non-interest expenses – Other (see "Non-interest expenses" section below).

Investment management and custodial fees were up $58 million or 5%, primarily due to AUM growth in our wealth management businesses.

Commissions on securities transactions were down $44 million or 12%, primarily due to lower trading volume in our retail brokerage business.

Gains (losses) from financial instruments measured/designated at FVTPL, net were up $158 million or 26%, primarily due to higher trading income, partially offset by lower treasury revenue. See the "Trading activities (TEB)" section which follows for further details.

Gains (losses) from debt securities measured at FVOCI and amortized cost, net were up $69 million, as the prior year included losses on debt securities measured at FVOCI as a result of the Barbados government debt restructuring, of which $61 million was shown as an item of note in the fourth quarter of 2018.

Trading activities (TEB)

$ millions, for the year ended October 31	2019	2018	2017
Trading income consists of:			
Net interest income [1]	**$ 633**	$ 856	$ 1,143
Non-interest income	**815**	557	226
	$ 1,448	$ 1,413	$ 1,369
Trading income by product line:			
Interest rates	**$ 300**	$ 246	$ 276
Foreign exchange	**585**	573	524
Equities	**386**	452	401
Commodities	**117**	94	111
Other	**60**	48	57
	$ 1,448	$ 1,413	$ 1,369

(1) Includes taxable equivalent basis (TEB) adjustment of $177 million (2018: $278 million; 2017: $298 million) reported within Capital Markets. See "Strategic business units overview" section for further details.

Net interest income comprises interest and dividends relating to financial assets and liabilities associated with trading activities, net of interest expense and interest income associated with funding these assets and liabilities. Non-interest income includes realized and unrealized gains and losses on securities mandatorily measured at FVTPL and income relating to changes in fair value of derivative financial instruments. Trading activities and related risk management strategies can periodically shift income between net interest income and non-interest income. Therefore, we view total trading revenue as the most appropriate measure of trading performance.

Trading income was up $35 million or 2% from 2018, primarily due to higher interest rate, commodities and foreign exchange trading income, partially offset by lower equity trading income.

Provision for credit losses[1]

$ millions, for the year ended October 31	**2019**	2018	2017
	In accordance with IFRS 9	In accordance with IFRS 9	In accordance with IAS 39
Provision for (reversal of) credit losses – impaired			
Canadian Personal and Small Business Banking	**$ 809**	$ 760	$ 760
Canadian Commercial Banking and Wealth Management	**159**	15	16
U.S. Commercial Banking and Wealth Management	**68**	67	37
Capital Markets	**90**	8	(4)
Corporate and Other	**21**	102	20
	1,147	952	829
Provision for (reversal of) credit losses – performing			
Canadian Personal and Small Business Banking	**87**	(19)	6
Canadian Commercial Banking and Wealth Management	**4**	(10)	n/a
U.S. Commercial Banking and Wealth Management	**5**	12	47
Capital Markets	**63**	(38)	n/a
Corporate and Other	**(20)**	(27)	(53)
	139	(82)	–
	$ 1,286	$ 870	$ 829

(1) As a result of our adoption of IFRS 9 effective November 1, 2017, we now recognize provision for credit losses on both impaired and performing loans in the SBUs. In prior periods, provision for credit losses on performing loans was recognized in Corporate and Other, with the exception of provision for credit losses related to CIBC Bank USA, which was recognized in U.S. Commercial Banking and Wealth Management, and provision for credit losses on: (i) performing residential mortgages greater than 90 days delinquent; and (ii) performing personal loans and scored small business loans greater than 30 days delinquent, which was recognized in Canadian Personal and Small Business Banking. Provision for credit losses related to CIBC FirstCaribbean continues to be recognized in Corporate and Other.

n/a Not applicable.

Provision for credit losses was up $416 million or 48% from 2018. Provision for credit losses on performing loans was up $221 million, as the prior year included a reduction in allowance driven by an economic outlook that had improved since our adoption of IFRS 9 "Financial Instruments" (IFRS 9) on November 1, 2017, while the current year included an increase in allowance, reflective of the impact of certain unfavourable changes to our economic outlook, as well as unfavourable credit migration in certain portfolios. Provision for credit losses on impaired loans was up $195 million, due to higher provisions including one fraud-related impairment in Canadian Commercial Banking and Wealth Management, higher provisions in the utility and the oil and gas sectors within Capital Markets, higher provisions and write-offs in personal lending within Canadian Personal and Small Business Banking, partially offset by lower provisions in CIBC FirstCaribbean, included in Corporate and Other, as the prior year included losses on sovereign loans resulting from the Barbados government debt restructuring, of which $28 million was shown as an item of note in the fourth quarter of 2018.

For further details regarding provision for credit losses in our SBUs, refer to the "Strategic business units overview" section.

Non-interest expenses

$ millions, for the year ended October 31	**2019**	2018	2017
Employee compensation and benefits			
Salaries	**$ 3,081**	$ 2,934	$ 2,738
Performance-based compensation	**1,873**	1,966	1,745
Benefits	**772**	765	715
	5,726	5,665	5,198
Occupancy costs	**892**	875	822
Computer, software and office equipment	**1,874**	1,742	1,630
Communications	**303**	315	317
Advertising and business development	**359**	327	282
Professional fees	**226**	226	229
Business and capital taxes	**110**	103	96
Other	**1,366**	1,005	997
	$ 10,856	$ 10,258	$ 9,571

Non-interest expenses were up $598 million or 6% from 2018.

Employee compensation and benefits were up $61 million or 1%, primarily due to higher salaries, driven in part by the impact of foreign exchange translation, partially offset by lower performance-based compensation.

Computer, software and office equipment were up $132 million or 8%, primarily due to higher spending on strategic initiatives.

Other expenses were up $361 million or 36%, as the current year included a charge for a payment made to Air Canada, including related sales tax and transaction costs, to secure our participation in the new loyalty program, a goodwill impairment charge related to the expected sale of our controlling interest in CIBC FirstCaribbean, and an increase in legal provisions, all shown as items of note, partially offset by lower expenses due to presentation changes relating to our adoption of IFRS 15 (see the "Non-interest income" section above).

Taxes

$ millions, for the year ended October 31	2019	2018	2017
Income taxes	**$ 1,348**	$ 1,422	$ 1,162
Indirect taxes [1]			
Goods and Services Tax (GST), Harmonized Sales Tax (HST) and sales taxes	**418**	354	390
Payroll taxes	**271**	271	242
Capital taxes	**76**	68	61
Property and business taxes	**72**	77	72
Total indirect taxes	**837**	770	765
Total taxes	**$ 2,185**	$ 2,192	$ 1,927
Reported effective tax rate	**20.8 %**	21.2 %	19.8 %
Total taxes as a percentage of net income before deduction of total taxes	**29.9 %**	29.3 %	29.0 %

(1) Certain amounts are based on a paid or payable basis and do not factor in capitalization and subsequent amortization.

Income taxes include those imposed on CIBC as a Canadian legal entity, as well as on our domestic and foreign subsidiaries. Indirect taxes comprise GST, HST and sales, payroll, capital, property and business taxes. Indirect taxes are included in non-interest expenses.

Total income and indirect taxes were down $7 million from 2018.

Income tax expense was $1,348 million, down $74 million from 2018. This was primarily due to net tax adjustments resulting from the U.S. tax reforms enacted in the first quarter of 2018, shown as an item of note, as well as lower income in the current year, partially offset by lower tax-exempt income and the goodwill impairment charge related to the expected sale of our controlling interest in CIBC FirstCaribbean, which is not deductible for tax purposes. The current year also included a net tax recovery of $38 million resulting from the Enron settlement discussed below, largely offset by a $28 million revaluation of certain deferred tax assets due to tax rate changes enacted by the Barbados government in the first quarter of 2019.

Indirect taxes were up $67 million, primarily due to the sales taxes applicable to the payment that we made to Air Canada to secure our participation in its new loyalty program and higher spending on strategic initiatives.

On December 22, 2017, the President of the United States signed into law the Tax Cuts and Jobs Act (U.S. tax reforms), which reduced the U.S. federal corporate income tax rate to 21% effective January 1, 2018, resulting in a significant decrease in CIBC's U.S. deferred tax assets in the first quarter of 2018. The U.S. tax reforms introduced other important changes to U.S. corporate income tax laws including the creation of a new Base Erosion Anti-abuse Tax (BEAT) that subjects certain payments from a U.S. corporation to foreign related parties to additional taxes. In December 2018 and 2019, the Internal Revenue Service released proposed and final regulations to implement certain aspects of the U.S. tax reforms, including BEAT. CIBC continues to evaluate the impact of these regulations on our U.S. operations.

In prior years, the Canada Revenue Agency (CRA) issued reassessments disallowing the deduction of approximately $3 billion of the 2005 Enron settlement payments and related legal expenses (the "Enron expenses"). In January 2019, CIBC entered into a settlement agreement (the "Agreement") with the CRA that provides certainty with respect to the portion of the Enron expenses that are deductible in Canada. The impact of this Agreement resulted in the recognition of a net $38 million tax recovery in the first quarter of 2019. This recovery was determined after taking into account the portion of the Enron expenses that we expect to deduct in the United States, but which has not yet been agreed to by the Internal Revenue Service, and the taxable refund interest that we expect to collect from the CRA upon the reassessment of certain prior year tax returns in accordance with the Agreement. It is possible that adjustments may be required to the amount of the tax benefits recognized in the United States.

The 2015 Canadian federal budget which became law effective on November 1, 2015, contained new rules for "synthetic equity arrangements" which eliminated the tax deductibility of Canadian inter-corporate dividends for Canadian corporations in certain circumstances. A set of transition rules applied between November 1, 2015 and April 30, 2017. The new rules have resulted in a higher effective tax rate, as the tax deductibility of certain Canadian corporate dividends is diminished. On February 27, 2018, the 2018 Canadian federal budget was released which extended the denial of the deductibility of Canadian inter-corporate dividends for Canadian corporations to include dividends received on share buyback transactions.

In prior years, the CRA reassessed CIBC approximately $527 million of additional income tax by denying the tax deductibility of certain 2011 to 2013 Canadian corporate dividends on the basis that they were part of a "dividend rental arrangement". In March 2018, CIBC filed a Notice of Appeal with the Tax Court of Canada with respect to the 2011 taxation year. The matter is now in litigation. The circumstances of the dividends subject to the reassessments are similar to those prospectively addressed by the rules in the 2015 and 2018 Canadian federal budgets. In May 2019, the CRA reassessed CIBC in respect of the 2014 taxation year for approximately $273 million of additional income tax. It is possible that subsequent years may be reassessed for similar activities. CIBC is confident that its tax filing positions were appropriate and intends to defend itself vigorously. Accordingly, no amounts have been accrued in the consolidated financial statements.

Foreign exchange

The estimated impact of U.S. dollar translation on key lines of our consolidated statement of income, as a result of changes in average exchange rates, is as follows:

$ millions, for the year ended October 31	2019 vs. 2018	2018 vs. 2017	2017 vs. 2016
Estimated increase (decrease) in:			
Total revenue	**$ 124**	$ (55)	$ (36)
Provision for credit losses	**7**	(2)	(1)
Non-interest expenses	**66**	(30)	(20)
Income taxes	**5**	(3)	(1)
Net income	**46**	(20)	(14)
Impact on EPS:			
Basic	**$ 0.10**	$ (0.05)	$ (0.03)
Diluted	**0.10**	(0.05)	(0.03)
Average USD appreciation (depreciation) relative to CAD	**3.2 %**	(1.5) %	(1.3) %

Fourth quarter review

$ millions, except per share amounts, for the three months ended				2019				2018
	Oct. 31	Jul. 31	Apr. 30	Jan. 31	Oct. 31	Jul. 31	Apr. 30	Jan. 31
Revenue								
Canadian Personal and Small Business Banking	$ 2,225	$ 2,239	$ 2,128	$ 2,166	$ 2,201	$ 2,176	$ 2,090	$ 2,138
Canadian Commercial Banking and Wealth Management	1,028	1,023	1,003	992	986	988	937	954
U.S. Commercial Banking and Wealth Management [(1)]	503	509	475	479	457	448	429	432
Capital Markets [(1)]	735	746	751	705	649	752	710	801
Corporate and Other [(1)]	281	215	185	223	159	183	210	134
Total revenue	$ 4,772	$ 4,732	$ 4,542	$ 4,565	$ 4,452	$ 4,547	$ 4,376	$ 4,459
Net interest income	$ 2,801	$ 2,694	$ 2,460	$ 2,596	$ 2,539	$ 2,577	$ 2,476	$ 2,473
Non-interest income	1,971	2,038	2,082	1,969	1,913	1,970	1,900	1,986
Total revenue	4,772	4,732	4,542	4,565	4,452	4,547	4,376	4,459
Provision for credit losses	402	291	255	338	264	241	212	153
Non-interest expenses	2,838	2,670	2,588	2,760	2,591	2,572	2,517	2,578
Income before income taxes	1,532	1,771	1,699	1,467	1,597	1,734	1,647	1,728
Income taxes	339	373	351	285	329	365	328	400
Net income	$ 1,193	$ 1,398	$ 1,348	$ 1,182	$ 1,268	$ 1,369	$ 1,319	$ 1,328
Net income attributable to:								
Non-controlling interests	$ 8	$ 6	$ 7	$ 4	$ 2	$ 4	$ 6	$ 5
Equity shareholders	1,185	1,392	1,341	1,178	1,266	1,365	1,313	1,323
EPS – basic	$ 2.59	$ 3.07	$ 2.96	$ 2.61	$ 2.81	$ 3.02	$ 2.90	$ 2.96
– diluted	2.58	3.06	2.95	2.60	2.80	3.01	2.89	2.95

(1) Capital Markets and U.S. Commercial Banking and Wealth Management revenue and income taxes are reported on a TEB with an equivalent offset in the revenue and income taxes of Corporate and Other.

Compared with Q4/18

Net income for the quarter was $1,193 million, down $75 million or 6% from the fourth quarter of 2018.

Net interest income was up $262 million or 10%, primarily due to volume growth, interest income related to the settlement of certain income tax matters, shown as an item of note, and higher trading income, partially offset by narrower spreads in U.S. Commercial Banking and Wealth Management.

Non-interest income was up $58 million or 3% as the fourth quarter of 2018 had losses on debt securities measured at FVOCI as a result of the Barbados government debt restructuring, of which $61 million was shown as an item of note. The current quarter also included higher credit fees, largely offset by lower treasury revenue and card fees.

Provision for credit losses was up $138 million or 52% from the same quarter last year. Provision for credit losses on performing loans was up $67 million, due to an unfavourable change to our economic outlook and unfavourable credit migration in certain portfolios. Provision for credit losses on impaired loans was up $71 million, due to a provision for one fraud-related impairment in Canadian Commercial Banking and Wealth Management, higher provisions in the oil and gas sector within Capital Markets, higher provisions and write-offs in personal lending within Canadian Personal and Small Business Banking, partially offset by lower provisions in CIBC FirstCaribbean, as the prior year included losses on sovereign loans resulting from the Barbados government debt restructuring, shown as an item of note.

Non-interest expenses were up $247 million or 10%, primarily due to the goodwill impairment charge related to the expected sale of our controlling interest in CIBC FirstCaribbean, shown as an item of note, higher spending on strategic initiatives, and an increase in legal provisions, shown as an item of note.

Income tax expense was up $10 million or 3%, despite lower income, primarily due to the goodwill impairment charge related to the expected sale of our controlling interest in CIBC FirstCaribbean, which is not deductible for tax purposes.

Compared with Q3/19

Net income for the quarter was down $205 million or 15% from the prior quarter.

Net interest income was up $107 million or 4%, primarily due to interest income related to the settlement of certain income tax matters, shown as an item of note, and volume growth.

Non-interest income was down $67 million or 3%, primarily due to lower treasury revenue, lower trading income, and lower underwriting and advisory and card fees.

Provision for credit losses was up $111 million or 38% from the prior quarter. Provision for credit losses on performing loans was up $53 million, due to an unfavourable change to our economic outlook and unfavourable credit migration in certain portfolios. Provision for credit losses on impaired loans was up $58 million, due to a provision for one fraud-related impairment in Canadian Commercial Banking and Wealth Management, higher provisions and write-offs in personal lending within Canadian Personal and Small Business Banking, partially offset by lower provisions within U.S. Commercial Banking and Wealth Management.

Non-interest expenses were up $168 million or 6%, primarily due to the goodwill impairment charge related to the expected sale of our controlling interest in CIBC FirstCaribbean and an increase in legal provisions, both shown as items of note.

Income tax expense was down $34 million or 9%, primarily due to lower income.

Quarterly trend analysis

Our quarterly results are modestly affected by seasonal factors. The second quarter has fewer days as compared with the other quarters, generally leading to lower earnings. The summer months (July – third quarter and August – fourth quarter) typically experience lower levels of market activity, which affects our brokerage, investment management, and Capital Markets activities.

Revenue

Canadian Personal and Small Business Banking revenue has benefited from volume growth and widening spreads over the period.

Canadian Commercial Banking and Wealth Management has benefited from strong volume growth in deposits and loans, and continued growth in AUA and AUM as a result of market appreciation over the period. Increases in interest rates throughout 2018 contributed to improved margins over the period.

U.S. Commercial Banking and Wealth Management has benefited from strong volume growth in both loans and deposits. Reductions in interest rates during the latter half of 2019 resulted in narrower margins as deposit re-pricing lagged the predominantly LIBOR-indexed loan portfolio. The third quarter of 2019 benefited from an elevated level of interest recoveries.

Capital Markets revenue is influenced, to a large extent, by market conditions and activity in the equity derivatives business, which includes tax-exempt income. The first quarter of 2018 included higher equity derivatives trading revenue, with the TEB component of revenue offset in Corporate and Other.

Corporate and Other includes interest income related to the settlement of certain income tax matters in the fourth quarter of 2019.

Provision for credit losses

Provision for credit losses is dependent upon the credit cycle in general, on the credit performance of the loan portfolios, and changes in economic outlook.

In Canadian Personal and Small Business Banking, the first quarter of 2018 included a reduction in allowance on performing loans, reflective of an economic outlook that improved in that quarter. The second and the fourth quarters of 2019 included an increase in allowance on performing loans, reflective of the impact of certain changes to our economic outlook, and model parameter updates.

In Canadian Commercial Banking and Wealth Management, all four quarters of 2019 included increased provisions for impaired loans in the Canadian commercial banking portfolio. The fourth quarter of 2019 also included one fraud-related impairment.

In U.S. Commercial Banking and Wealth Management, the third and fourth quarters of 2018 and the third quarter of 2019 included higher provisions on impaired loans in the U.S. commercial banking portfolio.

In Capital Markets, the first half of 2018 included reductions in allowance for performing loans, reflective of better portfolio credit quality and an improved outlook with respect to the oil and gas sector. The first quarter of 2019 included an increase in allowance on performing loans, reflective of the impact of increased uncertainty on our economic outlook, as well as higher provisions on impaired loans. The third quarter of 2019 included an increase in allowance on performing loans in the oil and gas sector to reflect expectations of potentially higher losses resulting from low natural gas prices, as well as higher provisions on impaired loans in the oil and gas sector. The fourth quarter of 2019 included an increase in allowance on performing loans to reflect an unfavourable change to our economic outlook, as well as unfavourable credit migration within the performing portfolio.

In Corporate and Other, the third and fourth quarters of 2018 included higher provisions on impaired loans in CIBC FirstCaribbean resulting from the Barbados government debt restructuring.

Non-interest expenses

Non-interest expenses have fluctuated over the period largely due to changes in employee-related compensation and benefits, spending on strategic initiatives, and movement in foreign exchange rates. The first quarter of 2019 included a charge for a payment made to Air Canada, including related sales tax and transaction costs, to secure our participation in its new loyalty program. The fourth quarter of 2019 included a goodwill impairment charge related to the expected sale of our controlling interest in CIBC FirstCaribbean and an increase in legal provisions in Corporate and Other, shown as an item of note.

Income taxes

Income taxes vary with changes in income subject to tax, and the jurisdictions in which the income is earned. Taxes can also be affected by the impact of significant items and the level of tax-exempt income. The first quarter of 2018 included net tax adjustments resulting from U.S. tax reforms. The favourable impact of the U.S. tax reforms on the effective tax rate in the U.S. has benefited the U.S. Commercial Banking and Wealth Management SBU beginning in the first quarter of 2018. The first quarter of 2019 included a net tax recovery resulting from the Enron settlement, largely offset by the revaluation of certain deferred tax assets due to tax rate changes enacted by the Barbados government in that quarter.

Review of 2018 financial performance

$ millions, for the year ended October 31		Canadian Personal and Small Business Banking	Canadian Commercial Banking and Wealth Management	U.S. Commercial Banking and Wealth Management [1]	Capital Markets [1]	Corporate and Other [1]	CIBC Total
2018	Net interest income	$ 6,167	$ 1,120	$ 1,236	$ 1,413	$ 129	$ 10,065
	Non-interest income	2,438	2,745	530	1,499	557	7,769
	Total revenue	8,605	3,865	1,766	2,912	686	17,834
	Provision for (reversal of) credit losses	741	5	79	(30)	75	870
	Non-interest expenses	4,395	2,068	1,023	1,492	1,280	10,258
	Income (loss) before income taxes	3,469	1,792	664	1,450	(669)	6,706
	Income taxes	922	485	99	381	(465)	1,422
	Net income (loss)	$ 2,547	$ 1,307	$ 565	$ 1,069	$ (204)	$ 5,284
	Net income (loss) attributable to:						
	Non-controlling interests	$ –	$ –	$ –	$ –	$ 17	$ 17
	Equity shareholders	2,547	1,307	565	1,069	(221)	5,267
2017	Net interest income	$ 5,752	$ 984	$ 545	$ 1,647	$ 49	$ 8,977
	Non-interest income	2,620	2,606	331	1,176	570	7,303
	Total revenue	8,372	3,590	876	2,823	619	16,280
	Provision for (reversal of) credit losses	766	16	84	(4)	(33)	829
	Non-interest expenses	4,348	2,021	534	1,373	1,295	9,571
	Income (loss) before income taxes	3,258	1,553	258	1,454	(643)	5,880
	Income taxes	838	415	55	364	(510)	1,162
	Net income (loss)	$ 2,420	$ 1,138	$ 203	$ 1,090	$ (133)	$ 4,718
	Net income (loss) attributable to:						
	Non-controlling interests	$ –	$ –	$ –	$ –	$ 19	$ 19
	Equity shareholders	2,420	1,138	203	1,090	(152)	4,699

(1) Capital Markets and U.S. Commercial Banking and Wealth Management revenue and income taxes are reported on a TEB with an equivalent offset in the revenue and income taxes of Corporate and Other.

The following discussion provides a comparison of our results of operations for the years ended October 31, 2018 and 2017.

Overview

Net income for 2018 was $5,284 million, compared with $4,718 million in 2017. The increase in net income of $566 million was due to higher revenue, partially offset by higher non-interest expenses.

Consolidated CIBC

Net interest income

Net interest income was up $1,088 million or 12% from 2017, primarily due to the inclusion of the results of CIBC Bank USA for the full year, volume growth and wider spreads in Canadian personal and commercial products, and higher treasury revenue. These factors were partially offset by lower trading income.

Non-interest income

Non-interest income was up $466 million or 6% from 2017. The results of CIBC Bank USA were included following the acquisition on June 23, 2017. The increase in non-interest income was primarily due to higher investment management and custodial fees, credit fees, and mutual fund fees, as well as higher revenue from trading activities, partially offset by lower revenue from other activities, as 2017 included a gain on the sale and lease back of certain retail properties, shown as an item of note.

Provision for credit losses

Provision for credit losses was up $41 million or 5% from 2017. Provision for credit losses on impaired loans was up $123 million, primarily due to higher provisions on impaired loans in CIBC FirstCaribbean and the U.S. commercial banking portfolio. The higher provisions on impaired loans in CIBC FirstCaribbean included losses on sovereign loans resulting from the Barbados government debt restructuring, of which $28 million was shown as an item of note in the fourth quarter of 2018. Provision for credit losses on performing loans was down $82 million from 2017, driven by an economic outlook that improved since our adoption of IFRS 9 on November 1, 2017, and the transfer of certain loans to the impaired portfolio.

Non-interest expenses

Non-interest expenses were up $687 million or 7% from 2017, primarily due to the inclusion of the non-interest expenses of CIBC Bank USA for the full year and higher spending on strategic initiatives.

Income taxes

Income tax expense was up $260 million from 2017, primarily due to higher income and net tax adjustments resulting from the U.S. tax reforms enacted in the first quarter of 2018, shown as an item of note.

Revenue by segment

Canadian Personal and Small Business Banking

Revenue was up $233 million or 3% from 2017, primarily due to volume growth, wider spreads and higher fees, partially offset by the gain on the sale and lease back of certain retail properties in 2017, shown as an item of note.

Canadian Commercial Banking and Wealth Management

Revenue was up $275 million or 8% from 2017. Commercial banking revenue was up primarily due to volume growth, wider spreads, and higher fees. Wealth management revenue was up primarily due to higher investment management and custodial fees and mutual fund fees from higher average AUM and AUA, partially offset by lower commission revenue driven by lower equity issuance activity and a decline in transaction volume.

U.S. Commercial Banking and Wealth Management

Revenue was up $890 million or 102% from 2017, primarily due to the inclusion of the results of CIBC Bank USA for the full year, which included accretion of the acquisition date fair value discount on the acquired loans of The PrivateBank.

Capital Markets

Revenue was up $89 million or 3% from 2017. Global markets revenue was up primarily due to higher revenue from our foreign exchange and equity derivatives trading business and global markets financing activities, partially offset by lower revenue from our interest rate and commodities trading businesses. Corporate and investment banking revenue was up primarily due to higher corporate banking and advisory revenue, partially offset by lower investment portfolio gains and lower revenue from equity and debt underwriting.

Corporate and Other

Revenue was up $67 million or 11% from 2017, primarily due to higher treasury revenue, partially offset by losses recognized on debt securities in CIBC FirstCaribbean as a result of the Barbados government debt restructuring, of which $61 million was shown as an item of note in the fourth quarter of 2018.

Non-GAAP measures

We use a number of financial measures to assess the performance of our business lines as described below. Some measures are calculated in accordance with GAAP (IFRS), while other measures do not have a standardized meaning under GAAP, and accordingly, these measures may not be comparable to similar measures used by other companies. Investors may find these non-GAAP measures useful in understanding how management views underlying business performance.

Adjusted measures

Management assesses results on a reported and adjusted basis and considers both as useful measures of performance. Adjusted results remove items of note from reported results and are used to calculate our adjusted measures noted below. Items of note include the amortization of intangibles, and certain items of significance that arise from time to time which management believes are not reflective of underlying business performance. We believe that adjusted measures provide the reader with a better understanding of how management assesses underlying business performance and facilitate a more informed analysis of trends. While we believe that adjusted measures may facilitate comparisons between our results and those of some of our Canadian peer banks which make similar adjustments in their public disclosure, it should be noted that there is no standardized meaning for adjusted measures under GAAP.

We also adjust our results to gross up tax-exempt revenue on certain securities to a TEB, being the amount of fully taxable revenue, which, were it to have incurred tax at the statutory income tax rate, would yield the same after-tax revenue.

Adjusted diluted EPS

We adjust our reported diluted EPS to remove the impact of items of note, net of income taxes, to calculate the adjusted EPS.

Adjusted efficiency ratio

We adjust our reported revenue and non-interest expenses to remove the impact of items of note and gross up tax-exempt revenue to bring it to a TEB, as applicable.

Adjusted dividend payout ratio

We adjust our reported net income attributable to common shareholders to remove the impact of items of note, net of income taxes, to calculate the adjusted dividend payout ratio.

Adjusted return on common shareholders' equity

We adjust our reported net income attributable to common shareholders to remove the impact of items of note, net of income taxes, to calculate the adjusted ROE.

Adjusted effective tax rate

We adjust our reported income before income taxes and reported income taxes to remove the impact of items of note to calculate the adjusted effective tax rate.

Economic capital

Economic capital provides a framework to evaluate the returns of each SBU, commensurate with risk assumed. The economic capital measure is based upon an estimate of equity capital required by the businesses to absorb unexpected losses consistent with our targeted risk rating over a one-year horizon. Economic capital comprises primarily credit, market, operational and strategic risk capital. The difference between our total equity capital and economic capital is held in Corporate and Other. There is no comparable GAAP measure for economic capital.

Economic profit

Net income attributable to equity shareholders, adjusted for a charge on economic capital, determines economic profit. This measures the return generated by each SBU in excess of our cost of capital, thus enabling users of our financial information to identify relative contributions to shareholder value. Reconciliation of net income attributable to equity shareholders to economic profit is provided with segmented information.

Segmented return on equity

We use ROE on a segmented basis as one of the measures for performance evaluation and resource allocation decisions. While ROE for total CIBC provides a measure of return on common equity, ROE on a segmented basis provides a similar metric relating to the economic capital allocated to the segments. As a result, segmented ROE is a non-GAAP measure.

The following table provides a reconciliation of non-GAAP to GAAP measures related to CIBC on a consolidated basis.

$ millions, for the year ended October 31		2019	2018	2017	2016	2015
Reported and adjusted diluted EPS						
Reported net income attributable to common shareholders	A	**$ 4,985**	$ 5,178	$ 4,647	$ 4,237	$ 3,531
After-tax impact of items of note [1]		**323**	257	(53)	(191)	232
After-tax impact of items of note on non-controlling interests		**–**	(5)	–	–	(2)
Adjusted net income attributable to common shareholders [2]	B	**$ 5,308**	$ 5,430	$ 4,594	$ 4,046	$ 3,761
Diluted weighted-average common shares outstanding (thousands)	C	**445,457**	444,627	413,563	395,919	397,832
Reported diluted EPS ($)	A/C	**$ 11.19**	$ 11.65	$ 11.24	$ 10.70	$ 8.87
Adjusted diluted EPS ($) [2]	B/C	**11.92**	12.21	11.11	10.22	9.45
Reported and adjusted efficiency ratio						
Reported total revenue	D	**$ 18,611**	$ 17,834	$ 16,280	$ 15,035	$ 13,856
Pre-tax impact of items of note [1]		**(101)**	(2)	(305)	(505)	(40)
TEB		**179**	280	300	474	482
Adjusted total revenue (TEB) [2]	E	**$ 18,689**	$ 18,112	$ 16,275	$ 15,004	$ 14,298
Reported non-interest expenses	F	**$ 10,856**	$ 10,258	$ 9,571	$ 8,971	$ 8,861
Pre-tax impact of items of note [1]		**(488)**	(194)	(259)	(262)	(338)
Adjusted non-interest expenses [2]	G	**$ 10,368**	$ 10,064	$ 9,312	$ 8,709	$ 8,523
Reported efficiency ratio	F/D	**58.3 %**	57.5 %	58.8 %	59.7 %	63.9 %
Adjusted efficiency ratio [2]	G/E	**55.5 %**	55.6 %	57.2 %	58.0 %	59.6 %
Reported and adjusted dividend payout ratio						
Dividends paid to common shareholders	H	**$ 2,488**	$ 2,356	$ 2,121	$ 1,879	$ 1,708
Reported dividend payout ratio	H/A	**49.9 %**	45.5 %	45.6 %	44.3 %	48.4 %
Adjusted dividend payout ratio [2]	H/B	**46.9 %**	43.4 %	46.2 %	46.4 %	45.4 %
Reported and adjusted return on common shareholders' equity						
Average common shareholders' equity	I	**$ 34,467**	$ 31,184	$ 25,393	$ 21,275	$ 18,857
Reported return on common shareholders' equity	A/I	**14.5 %**	16.6 %	18.3 %	19.9 %	18.7 %
Adjusted return on common shareholders' equity [2]	B/I	**15.4 %**	17.4 %	18.1 %	19.0 %	19.9 %
Reported and adjusted effective tax rate						
Reported income before income taxes	J	**$ 6,469**	$ 6,706	$ 5,880	$ 5,013	$ 4,224
Pre-tax impact of items of note [1]		**387**	220	(29)	(94)	298
Adjusted income before income taxes [2]	K	**$ 6,856**	$ 6,926	$ 5,851	$ 4,919	$ 4,522
Reported income taxes	L	**$ 1,348**	$ 1,422	$ 1,162	$ 718	$ 634
Tax impact of items of note [1]		**64**	(37)	24	97	66
Adjusted income taxes [2]	M	**$ 1,412**	$ 1,385	$ 1,186	$ 815	$ 700
Reported effective tax rate	L/J	**20.8 %**	21.2 %	19.8 %	14.3 %	15.0 %
Adjusted effective tax rate [2]	M/K	**20.6 %**	20.0 %	20.3 %	16.6 %	15.5 %

$ millions, for the year ended October 31		Canadian Personal and Small Business Banking	Canadian Commercial Banking and Wealth Management	U.S. Commercial Banking and Wealth Management	Capital Markets	Corporate and Other	CIBC Total
2019	**Reported net income (loss)**	**$ 2,291**	**$ 1,301**	**$ 683**	**$ 937**	**$ (91)**	**$ 5,121**
	After-tax impact of items of note [1]	**174**	**1**	**40**	**–**	**108**	**323**
	Adjusted net income (loss) [2]	**$ 2,465**	**$ 1,302**	**$ 723**	**$ 937**	**$ 17**	**$ 5,444**
2018	Reported net income (loss)	$ 2,547	$ 1,307	$ 565	$ 1,069	$ (204)	$ 5,284
	After-tax impact of items of note [1]	9	1	27	–	220	257
	Adjusted net income (loss) [2]	$ 2,556	$ 1,308	$ 592	$ 1,069	$ 16	$ 5,541
2017	Reported net income (loss)	$ 2,420	$ 1,138	$ 203	$ 1,090	$ (133)	$ 4,718
	After-tax impact of items of note [1]	(170)	1	19	–	97	(53)
	Adjusted net income (loss) [2]	$ 2,250	$ 1,139	$ 222	$ 1,090	$ (36)	$ 4,665
2016	Reported net income (loss)	$ 2,160	$ 991	$ 87	$ 992	$ 65	$ 4,295
	After-tax impact of items of note [1]	(25)	2	6	28	(202)	(191)
	Adjusted net income (loss) [2]	$ 2,135	$ 993	$ 93	$ 1,020	$ (137)	$ 4,104
2015	Reported net income (loss)	$ 2,026	$ 921	$ 104	$ 847	$ (308)	$ 3,590
	After-tax impact of items of note [1]	(28)	2	7	8	243	232
	Adjusted net income (loss) [2]	$ 1,998	$ 923	$ 111	$ 855	$ (65)	$ 3,822

(1) Reflects impact of items of note described under "2019 Financial results review" section and below.
(2) Non-GAAP measure.

Impact of items of note in prior years

2017

Net income was affected by the following items of note:

- $299 million ($245 million after-tax) gain on the sale and lease back of certain retail properties (Canadian Personal and Small Business Banking);
- $104 million ($73 million after-tax) in transaction and integration-related costs as well as purchase accounting adjustments[(1)] associated with the acquisition of The PrivateBank and Geneva Advisors ($3 million after-tax in U.S. Commercial Banking and Wealth Management, and $70 million after-tax in Corporate and Other);
- $98 million ($71 million after-tax) in fees and charges related to the launch of Simplii Financial and the related wind-down of President's Choice Financial (Canadian Personal and Small Business Banking);
- $45 million ($33 million after-tax) increase in legal provisions in the third quarter (Corporate and Other);
- $41 million ($28 million after-tax) amortization of acquisition-related intangible assets ($4 million after-tax in Canadian Personal and Small Business Banking, $1 million after-tax in Canadian Commercial Banking and Wealth Management, $16 million after-tax in U.S. Commercial Banking and Wealth Management, and $7 million after-tax in Corporate and Other); and
- $18 million ($13 million after-tax) reduction in the portion of the collective allowance recognized in Corporate and Other[(2)] in the fourth quarter.

The above items of note increased revenue by $305 million, provision for credit losses by $17 million and non-interest expenses by $259 million, and decreased income taxes by $24 million. In aggregate, these items of note increased net income by $53 million.

2016

Net income was affected by the following items of note:

- $428 million ($383 million after-tax) gain, net of related transaction costs, on the sale of our minority investment in American Century Investments (ACI) (Corporate and Other);
- $134 million ($98 million after-tax) in restructuring charges primarily relating to employee severance (Corporate and Other);
- $109 million ($80 million after-tax) increase in the portion of the collective allowance recognized in Corporate and Other[(2)];
- $77 million ($56 million after-tax) increase in legal provisions (Corporate and Other);
- $53 million ($47 million after-tax) gain, net of related transaction and severance costs, on the sale of a processing centre (Corporate and Other);
- $40 million ($30 million after-tax) of loan losses in our exited European leveraged finance portfolio (Capital Markets);
- $30 million ($22 million after-tax) amortization of acquisition-related intangible assets ($5 million after-tax in Canadian Personal and Small Business Banking, $2 million after-tax in Canadian Commercial Banking and Wealth Management, $6 million after-tax in U.S. Commercial Banking and Wealth Management, and $9 million after-tax in Corporate and Other);
- $30 million income tax recovery due to the settlement of transfer pricing-related matters (Canadian Personal and Small Business Banking);
- $15 million income tax recovery arising from a change in our expected utilization of certain tax loss carryforwards, primarily due to the sale of our minority investment in ACI (Corporate and Other); and
- $3 million ($2 million after-tax) gain from the structured credit run-off business (Capital Markets).

The above items of note increased revenue by $505 million, provision for credit losses by $149 million and non-interest expenses by $262 million, and decreased income taxes by $97 million. In aggregate, these items of note increased net income by $191 million.

2015

Net income was affected by the following items of note:

- $296 million ($225 million after-tax) in cumulative restructuring charges primarily relating to employee severance (Corporate and Other);
- $46 million ($34 million after-tax) gain arising from accounting adjustments on credit card-related balance sheet amounts (Canadian Personal and Small Business Banking);
- $42 million ($33 million after-tax) amortization of acquisition-related intangible assets ($6 million after-tax in Canadian Personal and Small Business Banking, $2 million after-tax in Canadian Commercial Banking and Wealth Management, $7 million after-tax in U.S. Commercial Banking and Wealth Management, and $18 million after-tax in Corporate and Other);
- $29 million ($21 million after-tax) loss from the structured credit run-off business (Capital Markets); and
- $23 million ($13 million after-tax) gain on sale of an investment in our merchant banking portfolio (Capital Markets).

The above items of note increased revenue by $40 million and non-interest expenses by $338 million, and decreased income taxes by $66 million. In aggregate, these items of note decreased net income by $232 million.

(1) Transaction costs include legal and other advisory fees, financing costs associated with pre-funding the cash component of the merger consideration, and interest incurred on the obligation payable to dissenting shareholders. Integration costs are comprised of direct and incremental costs incurred as part of planning for and executing the integration of the businesses of The PrivateBank (subsequently rebranded as CIBC Bank USA) and Geneva Advisors with CIBC, including enabling cross-sell opportunities and expansion of services in the U.S. market, the upgrade and conversion of systems and processes, project management, integration-related travel, severance, consulting fees and marketing costs related to rebranding activities. Purchase accounting adjustments, included as items of note beginning in the fourth quarter of 2017, include the accretion of the acquisition date fair value discount on the acquired loans of The PrivateBank, the collective allowance established for new loan originations and renewals of acquired loans (prior to the adoption of IFRS 9 in the first quarter of 2018), and changes in the fair value of contingent consideration relating to the Geneva Advisors acquisition.

(2) Relates to collective allowance, except for: (i) residential mortgages greater than 90 days delinquent; (ii) personal loans and scored small business loans greater than 30 days delinquent; and (iii) net write-offs for the cards portfolio, which were all reported in the respective SBUs prior to our adoption of IFRS 9.

Strategic business units overview

CIBC has four SBUs – Canadian Personal and Small Business Banking, Canadian Commercial Banking and Wealth Management, U.S. Commercial Banking and Wealth Management, and Capital Markets. These SBUs are supported by the following functional groups – Technology and Operations, Risk Management, Culture and Brand, and Finance, as well as other support groups, which all form part of Corporate and Other. The expenses of these functional and support groups are generally allocated to the business lines within the SBUs. The majority of the functional and support costs of CIBC Bank USA are recognized directly in the U.S. Commercial Banking and Wealth Management SBU. Corporate and Other also includes the results of CIBC FirstCaribbean and other strategic investments, as well as other income statement and balance sheet items not directly attributable to the business lines.

Business unit allocations

Revenue, expenses, and other balance sheet resources related to certain activities are generally allocated to the lines of business within the SBUs.

Treasury activities impact the financial results of the SBUs. Each line of business within our SBUs is charged or credited with a market-based cost of funds on assets and liabilities, respectively, which impacts the revenue performance of the SBUs. Once the interest and liquidity risks inherent in our client-driven assets and liabilities are transfer priced into Treasury, they are managed within CIBC's risk framework and limits. The residual financial results associated with Treasury activities are reported in Corporate and Other, with the exception of certain Treasury activities in U.S. Commercial Banking and Wealth Management, which are reported in that SBU. Capital is attributed to the SBUs in a manner that is intended to consistently measure and align economic costs with the underlying benefits and risks associated with SBU activities. Earnings on unattributed capital remain in Corporate and Other. We review our transfer pricing methodologies on an ongoing basis to ensure they reflect changing market environments and industry practices.

To measure and report the results of operations of the lines of business within our Canadian Personal and Small Business Banking and Canadian Commercial Banking and Wealth Management SBUs, we use a Manufacturer/Customer Segment/Distributor Management Model. The model uses certain estimates and allocation methodologies to process internal payments between lines of business for sales, renewals and trailer commissions to facilitate preparation of segmented financial information. Periodically, the sales, renewals and trailer commission rates paid to customer segments for certain products/services are revised and applied prospectively.

Non-interest expenses incurred by our functional groups are attributed to the SBUs to which they relate based on appropriate criteria.

We recognize provision for credit losses on both impaired (stage 3) and performing (stages 1 and 2) loans in the respective SBUs. Prior to November 1, 2017, provision for credit losses on performing loans was recognized in Corporate and Other, with the exception of provision for credit losses related to CIBC Bank USA, which was recognized in U.S. Commercial Banking and Wealth Management, and provision for credit losses on: (i) performing residential mortgages greater than 90 days delinquent; and (ii) performing personal loans and scored small business loans greater than 30 days delinquent, which was recognized in Canadian Personal and Small Business Banking.

Revenue, taxable equivalent basis

The SBUs evaluate revenue on a TEB. In order to arrive at the TEB amount, the SBUs gross up tax-exempt revenue on certain securities to a TEB, being the amount of fully taxable revenue, which, were it to have incurred tax at the statutory income tax rate, would yield the same after-tax revenue. Simultaneously, an equivalent amount is booked as an income tax expense resulting in no impact on the net income of the SBUs. This measure enables comparability of revenue arising from both taxable and tax-exempt sources. The total TEB adjustments of the SBUs are offset in revenue and income tax expense in Corporate and Other.

Canadian Personal and Small Business Banking

Canadian Personal and Small Business Banking provides personal and business clients across Canada with financial advice, products and services through a team in our banking centres, as well as through our direct, mobile and remote channels.

Our business strategy

Our goal is to build a modern consumer and small business relationship bank to help our clients achieve their ambitions by focusing on three key strategic priorities:

- Winning at relationships
- Delivering market-leading solutions
- Being easy to bank with

2019 progress

In 2019, we made good progress on our strategy.

Winning at relationships

- For the fifth consecutive year, CIBC was ranked #1 in *Investment Executive* magazine's Report Card on Banks, as voted by our Imperial Service advisors.
- Amplified our focus on providing exceptional advice and solutions by increasing the number and quality of financial and retirement plans, increasing the accreditation of our advisors and engaging more than 25,000 clients through financial education seminars and national education events. Topics included women and wealth, retirement planning and cash flow planning, among others.
- Successfully piloted a new business advisor role in key markets to provide specialized support for our growing business client segment. Expanded the number in Ontario throughout the year, and expansion in Western Canada is planned for 2020.
- Restructured our banking centre network into a community model to be closer to our clients and communities where we operate, while investing in local leadership to help bring the depth and breadth of our expertise to our clients.
- Reached a total of more than 200 redesigned urban banking centres across Canada as part of a multi-year network transformation strategy, positioning CIBC for the future of banking through a clear focus on advice and client relationships, and supported by innovative digital banking capabilities.

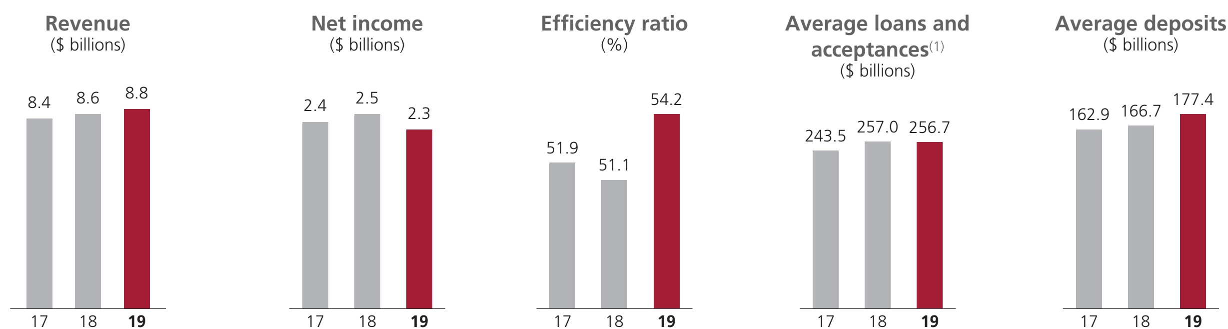
Delivering market-leading solutions

- Launched CIBC SmartBanking for Business, a first-of-its kind banking platform in Canada that is designed to help businesses manage their banking, accounting and payroll in one place.
- Introduced a Full-Service Physician Package and Medical/Dental Student Offer to bring the best of our bank to clients as they progress through various stages of their career.
- Expanded our CIBC Global Money Transfer service to business clients so they can now send money internationally with no transfer fee at a preferred exchange rate to more than 75 countries.
- Launched Pace It on our credit cards, allowing clients to convert larger purchases into installment plans, enabling clients to spread their payments out over a fixed time period at a lower interest rate – a first among the large Canadian banks.
- Introduced Shopping with Points, a new feature on our Aventura card enabling clients to redeem their points directly for purchases and giving them greater flexibility and choice in using their reward points beyond travel.
- Introduced the CIBC Smart Plus account, providing clients with an exceptional all-in-one, everyday banking solution that provides unlimited transactions, overdraft protection, no CIBC fees on ATM withdrawals worldwide, and an annual fee rebate on a premium CIBC credit card.
- Expanded Simplii Financial's suite of banking products with the introduction of the no annual fee Simplii Financial Cash Back Visa card.

Being easy to bank with

- Awarded the highest overall score by Forrester for mobile banking for the 6th year in a row.
- Received the highest ranking in Surviscor's 2019 Canadian Mobile Banking scorCard for the best overall mobile banking experience in the Canadian digital banking landscape.
- Earned the top ranking in customer satisfaction for mobile credit card apps by J.D. Power.
- Named the Best Consumer Digital Bank in Canada by *Global Finance* magazine, recognizing our mobile banking, mobile app and website design as top in the country.
- Over 1,000 of our CIBC banking centres can now leverage eSignatures, saving our clients time and delivering a radically simple banking experience when they visit us.
- Clients now have access to enriched transaction information online and in their mobile app, including recognizable merchant names, transaction details and merchant locations on a map – a first among the large Canadian banks.
- Continued to significantly invest in technology and innovations to make it easier for our clients to bank with us – from document scanning that saves our clients' time, to a simplified and faster mortgage application system, to a centralized power of attorney and estates process to ensure we are bringing the best of our bank to our clients.

2019 financial review



(1) Loan amounts are stated before any related allowances.

Our focus for 2020

We are continuing to deliver on our client-focused strategy with a clear focus on relationship-building and advice, with the objective of helping to make our clients' ambitions a reality. Our priorities in 2020 are:

- Winning at relationships through deeper needs-based conversations including more financial planning;
- Delivering market-leading solutions that offer clients great value and benefits, are easy to use and provide a more focused product line; and
- Being easy to bank with by implementing meaningful process enhancements and helping clients experience radically simple banking.

Results[1]

$ millions, for the year ended October 31	**2019**	2018	2017
Revenue	**$ 8,758**	$ 8,605	$ 8,372
Provision for (reversal of) credit losses			
Impaired [2]	**809**	760	760
Performing [2]	**87**	(19)	6
Provision for credit losses	**896**	741	766
Non-interest expenses	**4,745**	4,395	4,348
Income before income taxes	**3,117**	3,469	3,258
Income taxes	**826**	922	838
Net income	**$ 2,291**	$ 2,547	$ 2,420
Net income attributable to:			
Equity shareholders (a)	**$ 2,291**	$ 2,547	$ 2,420
Efficiency ratio	**54.2 %**	51.1 %	51.9 %
Return on equity [3]	**62.4 %**	67.2 %	64.3 %
Charge for economic capital [3] (b)	**$ (359)**	$ (372)	$ (367)
Economic profit [3] (a+b)	**$ 1,932**	$ 2,175	$ 2,053
Average assets ($ billions)	**$ 259.1**	$ 259.1	$ 246.3
Average loans and acceptances ($ billions)	**$ 256.7**	$ 257.0	$ 243.5
Average deposits ($ billions)	**$ 177.4**	$ 166.7	$ 162.9
Full-time equivalent employees	**13,431**	14,086	14,709

(1) For additional segmented information, see Note 30 to the consolidated financial statements.
(2) As a result of our adoption of IFRS 9 effective November 1, 2017, we now recognize provision for credit losses on both impaired and performing loans in the SBU. In prior years, provision for credit losses on performing loans was recognized in Corporate and Other, with the exception of provision for credit losses on: (i) performing residential mortgages greater than 90 days delinquent; and (ii) performing personal loans and scored small business loans greater than 30 days delinquent, which was recognized in Canadian Personal and Small Business Banking.
(3) For additional information, see the "Non-GAAP measures" section.

Financial overview

Net income was down $256 million or 10% from 2018, primarily due to higher non-interest expenses as the current year included a charge for a payment made to Air Canada to secure our participation in its new loyalty program, shown as an item of note, and a higher provision for credit losses, partially offset by higher revenue.

Revenue

Revenue was up $153 million or 2% from 2018, primarily due to wider spreads and volume growth, partially offset by lower fee income.

Provision for credit losses

Provision for credit losses was up $155 million or 21% from 2018. The current year included a provision for credit losses on performing loans due to the impact of certain unfavourable changes to our economic outlook and unfavourable credit migration in certain portfolios. The prior year included a reversal of credit losses on performing loans, driven by an economic outlook that had improved since our adoption of IFRS 9 on November 1, 2017, partially offset by an unfavourable impact from model parameter updates. Provision for credit losses on impaired loans was up due to higher write-offs and an increase in allowance driven by higher impaired balances in the personal lending portfolio.

Non-interest expenses

Non-interest expenses were up $350 million or 8% from 2018, primarily due to the charge noted above and higher spending on strategic initiatives.

Income taxes

Income taxes were down $96 million or 10% from 2018, primarily due to lower income.

Average assets

Average assets were comparable with 2018.

Canadian Commercial Banking and Wealth Management

Canadian Commercial Banking and Wealth Management provides high-touch, relationship-oriented banking and wealth management services to middle-market companies, entrepreneurs, high-net-worth individuals and families across Canada, as well as asset management services to institutional investors.

Our business strategy

We are focused on building and enhancing client relationships, being Canada's leader in financial advice and generating long-term consistent growth. To deliver on this, our three strategic priorities are:

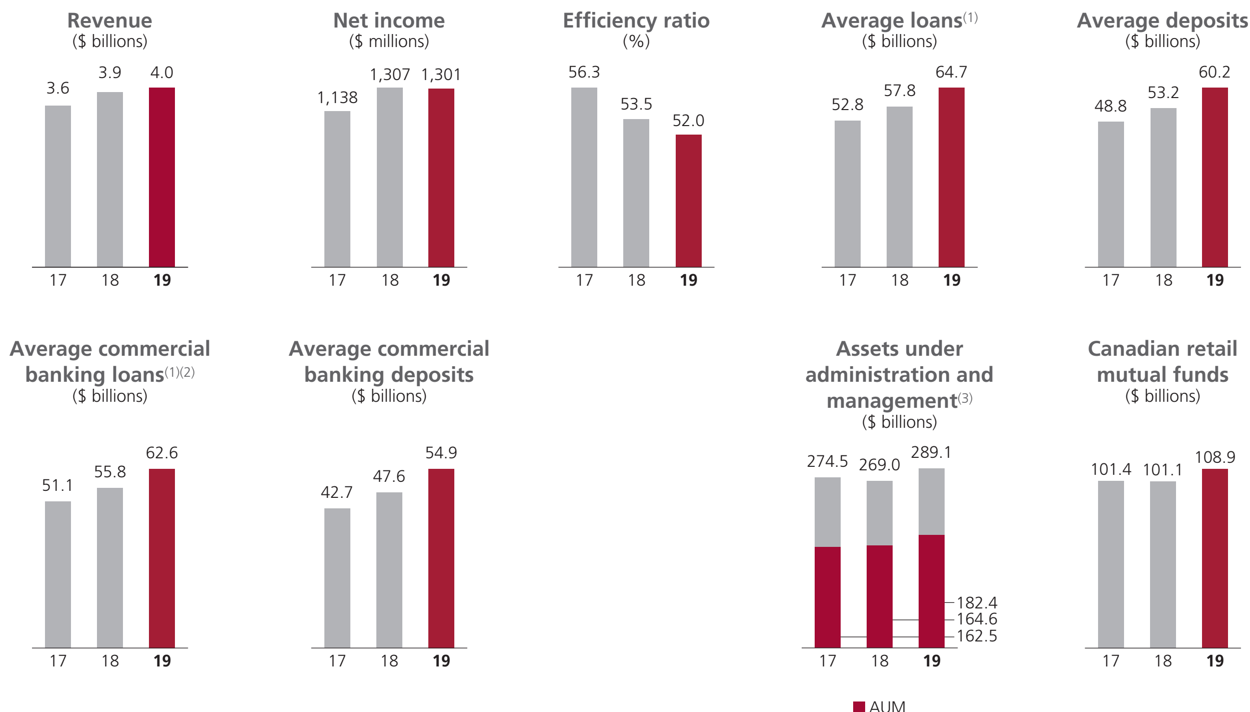
- Scaling commercial banking
- Increasing agility and efficiency in wealth management
- Deepening client relationships across our bank

2019 progress

In 2019, we made good progress on our strategy.

Scaling commercial banking	Increasing agility and efficiency in wealth management	Deepening client relationships across our bank
• Expanded our commercial banking team by adding talent to help meet the unique needs of our diverse clients. • Continued to meet clients' needs on both sides of the border through cross-border client referrals with CIBC Bank USA. • Expanded CIBC Innovation Banking to other high-growth centres in North America in order to extend our service offering to technology and innovation clients across North America.	• Launched CIBC Smart Investment Solutions – all-in-one portfolios that blend active and passive investment strategies to deliver on value and expertise. • Continued to focus on enhancing value for our clients by finding opportunities to simplify our product lineup and optimize costs.	• Increased partnership referrals to deepen client relationships across CIBC and better satisfy the needs of our clients. • Upgraded the financial planning capabilities and capacity of our team.

2019 financial review



(1) Loan amounts are stated before any related allowances.
(2) Comprises loans and acceptances and notional amount of letters of credit.
(3) AUM amounts are included in the amounts reported under AUA.

Our focus for 2020

To build on our momentum across Canadian Commercial Banking and Wealth Management, we will continue to focus on helping our clients achieve their ambitions by:

- Developing and deepening client relationships through a full-service, solutions-based approach that includes commercial and private banking, as well as wealth management services;
- Continuing to invest in financial planning to further our role as a leader in financial advice;
- Simplifying and optimizing our business to align with changing market dynamics to better meet the needs of our clients; and
- Expanding our workforce to seize strategic opportunities in commercial banking.

Results[1]

$ millions, for the year ended October 31	**2019**	2018	2017
Revenue			
Commercial banking	**$ 1,651**	$ 1,488	$ 1,324
Wealth management	**2,395**	2,377	2,266
Total revenue	**4,046**	3,865	3,590
Provision for (reversal of) credit losses			
Impaired [2]	**159**	15	16
Performing [2]	**4**	(10)	n/a
Provision for credit losses	**163**	5	16
Non-interest expenses	**2,106**	2,068	2,021
Income before income taxes	**1,777**	1,792	1,553
Income taxes	**476**	485	415
Net income	**$ 1,301**	$ 1,307	$ 1,138
Net income attributable to:			
Equity shareholders (a)	**$ 1,301**	$ 1,307	$ 1,138
Efficiency ratio	**52.0 %**	53.5 %	56.3 %
Return on equity [3]	**36.8 %**	39.8 %	37.6 %
Charge for economic capital [3] (b)	**$ (345)**	$ (322)	$ (295)
Economic profit [3] (a+b)	**$ 956**	$ 985	$ 843
Average assets ($ billions)	**$ 62.6**	$ 55.7	$ 50.8
Average loans ($ billions)	**$ 64.7**	$ 57.8	$ 52.8
Average deposits ($ billions)	**$ 60.2**	$ 53.2	$ 48.8
AUA ($ billions)	**$ 289.1**	$ 269.0	$ 274.5
AUM ($ billions)	**$ 182.4**	$ 164.6	$ 162.5
Full-time equivalent employees	**5,048**	4,999	5,081

(1) For additional segmented information, see Note 30 to the consolidated financial statements.
(2) As a result of our adoption of IFRS 9 effective November 1, 2017, we now recognize provision for credit losses on both impaired and performing loans in the SBU. In prior years, provision for credit losses on performing loans was recognized in Corporate and Other.
(3) For additional information, see the "Non-GAAP measures" section.
n/a Not applicable.

Financial overview

Net income was down $6 million from 2018, primarily due to a higher provision for credit losses and higher non-interest expenses, partially offset by higher revenue.

Revenue

Revenue was up $181 million or 5% from 2018.

Commercial banking revenue was up $163 million or 11%, primarily due to volume growth from loans and deposits, and higher fees.

Wealth management revenue was up $18 million or 1%, primarily due to higher investment management and custodial fees driven by higher AUM and AUA, wider spreads, and volume growth, partially offset by lower commission revenue and mutual fund fees.

Provision for credit losses

Provision for credit losses was up $158 million from 2018, primarily due to higher provisions on impaired loans in the Canadian commercial banking portfolio, including one fraud-related impairment in the fourth quarter.

Non-interest expenses

Non-interest expenses were up $38 million or 2% from 2018, primarily due to higher spending on strategic initiatives and higher employee-related compensation, partially offset by lower performance-based compensation.

Income taxes

Income taxes were down $9 million or 2% from 2018, primarily due to lower income.

Average assets

Average assets were up $6.9 billion or 12% from 2018, primarily due to growth in commercial loans.

Assets under administration

AUA were up $20.1 billion or 7% from 2018, primarily due to market appreciation. AUM amounts are included in the amounts reported under AUA.

U.S. Commercial Banking and Wealth Management

U.S. Commercial Banking and Wealth Management provides high-touch, relationship-oriented commercial, personal and small business banking, as well as wealth management services to meet the needs of middle-market companies, executives, entrepreneurs, high-net-worth individuals and families in the markets we serve in the U.S.

Our business strategy

Our goal is to build the best-in-class commercial and wealth management bank for our chosen client segments and markets with a focus on developing deep, profitable relationships leveraging the full complement of CIBC's products and services across our North American platform. To deliver on this, our three key strategic priorities are:

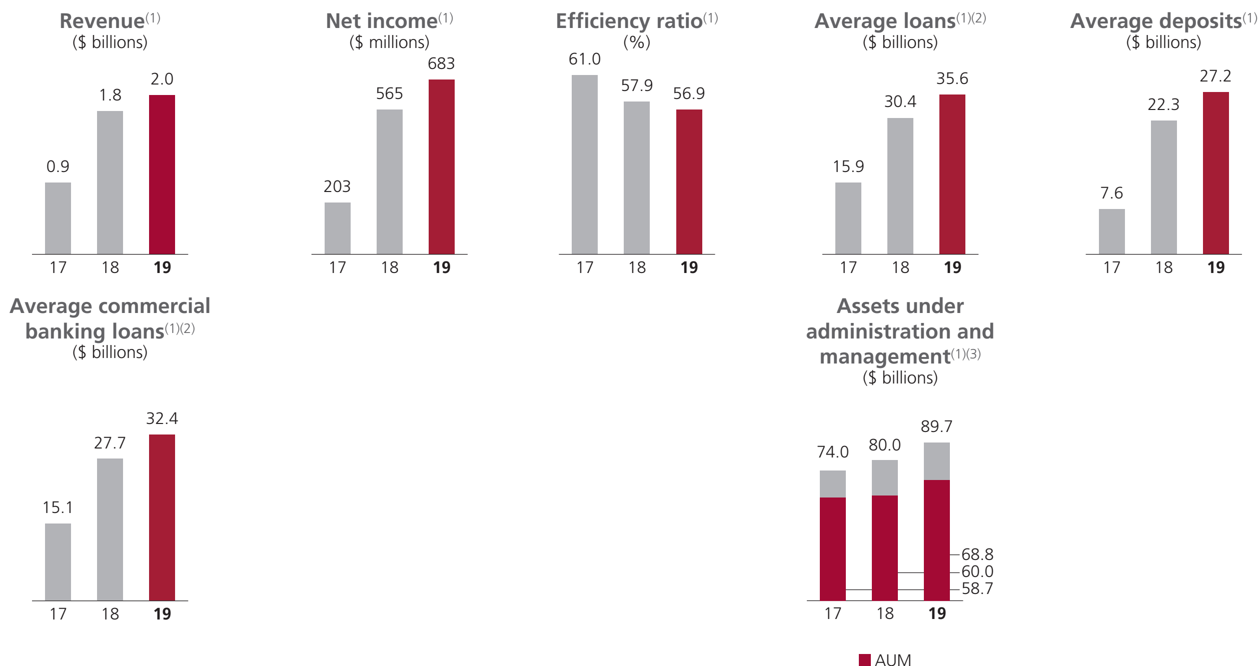
- Growing organically by adding and deepening our client relationships and selectively entering additional markets and specialty businesses
- Continuing to build a strong U.S. operating platform by investing appropriately in our growth
- Maintaining our risk discipline through selective evaluation of new opportunities, portfolio diversification, and quality of funding sources

2019 progress

In 2019, we made strong progress on our strategy.

Growing organically by adding and deepening our client relationships and selectively entering additional markets and specialty businesses	Continuing to build a strong U.S. operating platform by investing appropriately in our growth	Maintaining our risk discipline through selective evaluation of new opportunities, portfolio diversification, and quality of funding sources
• Achieved solid revenue growth, reflecting strong business performance and our continued focus on building full, profitable client relationships. • Generated robust loan and deposit growth, as we continue to capitalize on referral opportunities to do more for our combined North American client base. • Generated strong growth in AUM and AUA, reflecting continued client development efforts and an acquisition.	• Managed expenses while appropriately investing in our growth, with an efficiency ratio of 56.9% for 2019. • Expanded our private wealth management capabilities by acquiring LGA, a leading family office in St. Louis and New York. • Refined client-facing processes, making it easier for clients to bank with us.	• Maintained focus on strong asset quality which remained stable during 2019. • Continued growing deposits via CIBC Agility, an online savings and certificate of deposit account platform for U.S. clients that provides us with some diversification of our deposit base.

2019 financial review



(1) Included the results of CIBC Bank USA following the acquisition on June 23, 2017.
(2) Loan amounts are stated before any related allowances. Average commercial banking loans are stated before purchase accounting adjustments.
(3) AUM amounts are included in the amounts reported under AUA.

Our focus for 2020

To build on our momentum across U.S. Commercial Banking and Wealth Management, we will continue to focus on helping our clients achieve their ambitions by:

- Adding new client relationships in commercial banking and wealth management through our strategically located U.S. offices and national specialty groups, while maintaining our focus on asset quality, as well as loan and deposit portfolio diversification;
- Expanding relationships with existing clients by leveraging cross-border and cross-business capabilities; and
- Investing appropriately in the growth of our business while managing expenses.

Results[1]

$ millions, for the year ended October 31	2019	2018	2017
Revenue			
Commercial banking	**$ 1,349**	$ 1,197	$ 532
Wealth management	**611**	563	324
Other	**6**	6	20
Total revenue [2][3]	**1,966**	1,766	876
Provision for (reversal of) credit losses			
Impaired [4]	**68**	67	37
Performing [4]	**5**	12	47
Provision for credit losses	**73**	79	84
Non-interest expenses	**1,119**	1,023	534
Income before income taxes	**774**	664	258
Income taxes [2]	**91**	99	55
Net income	**$ 683**	$ 565	$ 203
Net income attributable to:			
Equity shareholders (a)	**$ 683**	$ 565	$ 203
Efficiency ratio	**56.9 %**	57.9 %	61.0 %
Return on equity [5]	**9.1 %**	8.1 %	7.5 %
Charge for economic capital [5] (b)	**$ (713)**	$ (664)	$ (256)
Economic profit [5] (a+b)	**$ (30)**	$ (99)	$ (53)
Average assets ($ billions)	**$ 48.7**	$ 42.0	$ 19.9
Average loans ($ billions)	**$ 35.6**	$ 30.4	$ 15.9
Average deposits ($ billions)	**$ 27.2**	$ 22.3	$ 7.6
AUA ($ billions)	**$ 89.7**	$ 80.0	$ 74.0
AUM ($ billions)	**$ 68.8**	$ 60.0	$ 58.7
Full-time equivalent employees	**2,113**	1,947	1,753

(1) For additional segmented information, see Note 30 to the consolidated financial statements.
(2) Revenue and income taxes are reported on a TEB. Accordingly, revenue and income taxes include a TEB adjustment of $2 million (2018: $2 million; 2017: $2 million). The equivalent amounts are offset in the revenue and income taxes of Corporate and Other.
(3) Included $35 million of accretion of the acquisition date fair value discount on the acquired loans of The PrivateBank, shown as an item of note beginning in the fourth quarter of 2017 (2018: $55 million; 2017: $45 million, of which $31 million was included as an item note in the fourth quarter of 2017).
(4) As a result of our adoption of IFRS 9 effective November 1, 2017, we now recognize provision for credit losses on both impaired and performing loans in the SBU. In prior years, provision for credit losses on performing loans other than that of CIBC Bank USA was recognized in Corporate and Other.
(5) For additional information, see the "Non-GAAP measures" section.

Financial overview

Net income was up $118 million or 21% from 2018, primarily due to higher revenue, partially offset by higher non-interest expenses.

Revenue

Revenue was up $200 million or 11% from 2018.

Commercial banking revenue was up $152 million or 13%, primarily due to volume growth and the impact of foreign exchange translation, partially offset by narrower spreads and lower revenue from the accretion of the acquisition date fair value discount on the acquired loans of The PrivateBank, shown as an item of note.

Wealth management revenue was up $48 million or 9%, primarily due to volume growth, higher investment management and custodial fees driven by higher AUM, and the impact of foreign exchange translation, partially offset by narrower spreads.

Other revenue was comparable with 2018. Other revenue primarily includes the treasury activities of CIBC Bank USA.

Provision for credit losses

Provision for credit losses was down $6 million or 8% from 2018. The current year included a provision for credit losses on performing loans that reflects the unfavourable impact of changes to our economic outlook and unfavourable credit migration within the performing portfolio. The prior year also included a provision for credit losses on performing loans driven by unfavourable credit migration within the performing portfolio, partially offset by improvements in our economic outlook since our adoption of IFRS 9 on November 1, 2017. The provision for credit losses on impaired loans was comparable with the prior year.

Non-interest expenses

Non-interest expenses were up $96 million or 9% from 2018, primarily due to higher spending on strategic initiatives, higher employee-related compensation, and the impact of foreign exchange translation, partially offset by lower performance-based compensation.

Income taxes

Income taxes were down $8 million or 8% from 2018, as higher income in the current year was more than offset by a lower effective tax rate due to the impact of the U.S. tax reforms.

Average assets

Average assets were up $6.7 billion or 16% from 2018, primarily due to growth in commercial loans.

Assets under administration

AUA were up $9.7 billion or 12% from 2018, primarily due to the impact of foreign exchange rates, net sales, and market appreciation. AUM amounts are included in the amounts reported under AUA.

Capital Markets

Capital Markets provides integrated global markets products and services, investment banking advisory and execution, corporate banking solutions and top-ranked research to corporate, government and institutional clients around the world.

Our business strategy

Our goal is to be the leading capital markets franchise for our core clients in Canada and the lead relationship bank for our key clients globally by delivering best-in-class insight, advice and execution. To enable CIBC's strategy and priorities, we collaborate with our partners across our bank to deepen and enhance client relationships. To deliver on our goal, our three key strategic priorities are:

- Being the leading capital markets platform in Canada for our core clients
- Building a North American client platform with global capabilities
- Increasing connectivity across CIBC to deliver better service for clients

2019 progress

In 2019, we made good progress on our strategy.

Being the leading capital markets platform in Canada for our core clients	Building a North American client platform with global capabilities	Increasing connectivity across CIBC to deliver better service for clients
• Supported our clients by investing in our talent, further developing our proprietary technology, expanding our structuring expertise and advice, and leveraging our market expertise.	• Acquired Cleary Gull, a Milwaukee-based boutique investment banking firm specializing in middle-market mergers and acquisitions, private capital placement and debt advisory across the U.S.	• Eliminated transfer fees for businesses sending money overseas with CIBC's Global Money Transfer service, making it easier and faster to do business in more than 75 countries around the world.
• Continued to hold leadership positions in syndicated loans, debt and equity underwriting, advisory services, equity trading, commodities and foreign exchange.	• Expanded our U.S. Prime Service business, focused on meeting the needs of U.S.-based alternative asset managers and other cross-border clients, and furthering our North American platform for growth.	• Launched our Multi-Currency Pricing business, a market-leading foreign exchange solution for Canadian businesses who transact with international cardholders online.
• Strengthened our platform by continuing to evolve our research coverage framework and provide specialized advice and solutions, aligned to the macro trends influencing the global economy and our clients, including renewable energy, private capital, technology and innovation.	• Announced our commitment to support $150 billion in environmental and sustainable finance activities by 2027, underscoring our focus on enabling growth, and helping to make Canada and North America global leaders in environmental stewardship and sustainability.	• Expanded our U.S. investment banking team in Chicago, further strengthening partnerships with commercial banking to bring our suite of commercial and capital markets solutions to mid-market businesses.
	• Announced distribution of CIBC's top-ranked Canadian equity research, analyst expertise and execution capabilities to European-based clients through partnership with Kepler Cheuvreux.	• Expanded our client teams and product capabilities to bring our suite of wealth and capital markets solutions to small businesses, family offices, ultra high-net-worth clients, foundations and endowments.

As a leading capital markets franchise in Canada and banking partner to our clients around the world, Capital Markets acted as:

- Financial advisor to Barrick Gold Corporation on its creation of a joint venture in Nevada with Newmont Mining Corporation representing one of the largest mining joint ventures; CIBC also acted as financial advisor to Randgold Resources on its merger with Barrick Gold Corporation;
- Financial advisor, co-lead arranger and joint bookrunner on the sale of 10.01% of SNC-Lavalin's interest in Highway 407 for up to $3.25 billion to a Canadian pension fund and the refinancing of associated credit facilities;
- Exclusive financial advisor to Kilmer Infrastructure and HMSHost on the sale of their respective interests in the ONRoute Service Centres business to a consortium of infrastructure investors led by Arjun Infrastructure Partners and Fengate Asset Management; CIBC also acted as sole underwriter and lead arranger to Arjun and Fengate in support of the acquisition;
- Exclusive financial advisor and sole lead to ENMAX Corporation on the acquisition of operations in Maine from Emera Inc. for approximately US$1.3 billion and associated credit facilities representing CIBC's first advisory role for a Canadian utility acquiring assets in the U.S.;
- Financial advisor and sole bookrunner, administrative agent and lead arranger to Northland Power on its acquisition of a 99.2% interest in Empresa de Energía de Boyacá (EBSA) for approximately $1.05 billion, $347 million subscription receipts offering and $1.1 billion bridge facility. CIBC also acted as sole bookrunner on a $863 million secondary offering of Northland Power common shares for Northland Power Holdings Inc.;
- Exclusive financial advisor to TC Energy on the sale of its interests in three Ontario natural gas-fired power plants to Ontario Power Generation for approximately $2.87 billion representing the largest power asset sale in Canada. CIBC also acted as sole bookrunner on a $1 billion issue of medium-term note debentures for TransCanada Pipelines Limited;
- Financial advisor to WestJet on its sale to ONEX Corporation for approximately $5 billion;
- Financial advisor to Starlight Investments on the US$1.4 billion sale of Starlight U.S. Multi-Family (No. 5) Core Fund to Tricon Capital Group; and
- Joint lead agent, mandated lead arranger and swap provider on a A$2.5 billion corporate refinancing for Port of Melbourne.

Capital Markets awards and recognition

- Canadian Structured Notes Issuer of the Year – mtn-i Americas Structured Note Awards (2019)
- CIBC Prime Services named Top Canadian Prime Broker by *Alternative IQ* (2019)
- Most helpful analyst in rates research, CIBC Capital Markets by *Greenwich Associates* Canadian Fixed Income Investors (2019)
- The leader in Canadian equity trading, #1 in volume, value and number of trades – TSX and ATS Market Share Report (2009 – present)
- CIBC Global Investment Banking ranked #2 in Canadian Corporate Bond Issuance by Bloomberg (2019)
- M&A Atlas Awards Americas (2019)
  - U.S.A. Boutique Investment Banker of the Year: Ronald D. Miller, CIBC Cleary Gull
  - U.S.A. Middle Markets M&A Industry TMT Deal of the Year – Allen Technologies, Inc., a portfolio company of Greyrock Capital Group, to Periscope Equity, LLC (2019)
  - U.S.A. Middle Markets M&A Industry Industrials Deal of the Year – Roll-Rite Holdings Group LLC, a portfolio company of Capital Partners and Argosy Private Equity, to Safe Fleet Holdings, LLC, a portfolio company of Oak Hill Capital Partners (2019)

2019 financial review

Our focus for 2020

To support our bank's long-term objectives, Capital Markets remains focused on delivering profitable growth by deepening client relationships and collaborating with our partners across our bank to help make our clients' ambitions a reality. We will continue to do this by:

- Maintaining our focused approach to client coverage in Canada;
- Growing our North American platform by further expanding our U.S. reach and broadening the services offered to clients; and
- Strengthening our connectivity, technology and innovation efforts to bring more of our bank's offerings to our clients.

Results[1]

$ millions, for the year ended October 31	2019	2018	2017
Revenue			
Global markets	$ 1,705	$ 1,674	$ 1,601
Corporate and investment banking [2]	1,232	1,238	1,222
Total revenue [3]	2,937	2,912	2,823
Provision for (reversal of) credit losses			
Impaired [4]	90	8	(4)
Performing [4]	63	(38)	n/a
Provision for (reversal of) credit losses	153	(30)	(4)
Non-interest expenses	1,516	1,492	1,373
Income before income taxes	1,268	1,450	1,454
Income taxes [3]	331	381	364
Net income	$ 937	$ 1,069	$ 1,090
Net income attributable to:			
Equity shareholders (a)	$ 937	$ 1,069	$ 1,090
Efficiency ratio	51.6 %	51.2 %	48.6 %
Return on equity [5]	31.7 %	39.4 %	35.5 %
Charge for economic capital [5] (b)	$ (288)	$ (266)	$ (299)
Economic profit [5] (a+b)	$ 649	$ 803	$ 791
Average assets ($ billions)	$ 184.6	$ 166.2	$ 156.4
Full-time equivalent employees	1,449	1,396	1,314

(1) For additional segmented information, see Note 30 to the consolidated financial statements.
(2) Certain information has been reclassified to conform to the presentation adopted in the first quarter of 2019. Corporate and investment banking includes the Other line of business.
(3) Revenue and income taxes are reported on a TEB. Accordingly, revenue and income taxes include a TEB adjustment of $177 million (2018: $278 million; 2017: $298 million). The equivalent amounts are offset in the revenue and income taxes of Corporate and Other.
(4) As a result of our adoption of IFRS 9 effective November 1, 2017, we now recognize provision for credit losses on both impaired and performing loans in the SBU. In prior years, provision for credit losses on performing loans was recognized in Corporate and Other.
(5) For additional information, see the "Non-GAAP measures" section.
n/a Not applicable.

Financial overview

Net income was down $132 million or 12% from 2018, primarily due to a higher provision for credit losses.

Revenue

Revenue was up $25 million or 1% from 2018.

Global markets revenue was up $31 million or 2%, primarily due to higher revenue from our interest rate trading business, global markets financing activities, and our commodities and equity trading businesses, largely offset by lower revenue from our equity derivatives trading business.

Corporate and investment banking revenue was down $6 million, primarily due to lower investment portfolio gains, lower equity underwriting activity, and lower revenue from our run-off businesses, partially offset by higher corporate banking and advisory revenue.

Provision for (reversal of) credit losses

Provision for credit losses was $153 million compared to a reversal of credit losses of $30 million in 2018. Provision for credit losses on performing loans was up due to an increase in the oil and gas sector reflective of both unfavourable credit migration and downward revisions to expected oil prices. Provision for credit losses on impaired loans was up primarily due to higher provisions in the utility and oil and gas sectors.

Non-interest expenses

Non-interest expenses were up $24 million or 2% from 2018, primarily due to higher spending on strategic initiatives and higher employee-related compensation, partially offset by lower performance-based compensation.

Income taxes

Income taxes were down $50 million or 13% from 2018, primarily due to lower income.

Average assets

Average assets were up $18.4 billion or 11% from 2018, primarily due to an increase in securities purchased under resale agreements and higher loan balances.

Corporate and Other

Corporate and Other includes the following functional groups – Technology and Operations, Risk Management, Culture and Brand, and Finance, as well as other support groups. The expenses of these functional and support groups are generally allocated to the business lines within the SBUs. The majority of the functional and support costs of CIBC Bank USA are recognized directly in the U.S. Commercial Banking and Wealth Management SBU. Corporate and Other also includes the results of CIBC FirstCaribbean and other strategic investments, as well as other income statement and balance sheet items not directly attributable to the business lines.

Results[1]

$ millions, for the year ended October 31	2019	2018	2017
Revenue			
International banking	$ 803	$ 663	$ 723
Other	101	23	(104)
Total revenue [2]	904	686	619
Provision for (reversal of) credit losses			
Impaired [3]	21	102	20
Performing [3]	(20)	(27)	(53)
Provision for (reversal of) credit losses	1	75	(33)
Non-interest expenses	1,370	1,280	1,295
Loss before income taxes	(467)	(669)	(643)
Income taxes [2]	(376)	(465)	(510)
Net income (loss)	$ (91)	$ (204)	$ (133)
Net income (loss) attributable to:			
Non-controlling interests	$ 25	$ 17	$ 19
Equity shareholders	(116)	(221)	(152)
Full-time equivalent employees	23,116	21,792	22,071

(1) For additional segmented information, see Note 30 to the consolidated financial statements.
(2) Revenue and income taxes of Capital Markets and U.S. Commercial Banking and Wealth Management are reported on a TEB. The equivalent amounts are offset in the revenue and income taxes of Corporate and Other. Accordingly, revenue and income taxes include a TEB adjustment of $179 million (2018: $280 million; 2017: $300 million).
(3) As a result of our adoption of IFRS 9 effective November 1, 2017, we now recognize provision for credit losses on both impaired and performing loans in the SBUs. In prior years, provision for credit losses on performing loans was recognized in Corporate and Other, with the exception of provision for credit losses related to CIBC Bank USA, which was recognized in U.S. Commercial Banking and Wealth Management, and provision for credit losses on: (i) performing residential mortgages greater than 90 days delinquent; and (ii) performing personal loans and scored small business loans greater than 30 days delinquent, which was recognized in Canadian Personal and Small Business Banking. Provision for credit losses related to CIBC FirstCaribbean continues to be recognized in Corporate and Other.

Financial overview

Net loss was down $113 million or 55% from 2018, primarily due to higher revenue and a lower provision for credit losses, partially offset by higher non-interest expenses.

Revenue

Revenue was up $218 million or 32% from 2018.

International banking revenue was up $140 million or 21% from 2018, as the prior year included incremental expected credit losses on debt securities in CIBC FirstCaribbean as a result of the Barbados government restructuring its public debt, of which $61 million was shown as an item of note in the fourth quarter of 2018. The current year also reflected a favourable impact from foreign exchange translation and better performance in CIBC FirstCaribbean.

Other revenue was up $78 million or 339% from 2018, primarily due to a lower TEB adjustment and interest income related to the settlement of certain income tax matters, shown as an item of note, partially offset by lower treasury revenue and lower income from equity-accounted associates and joint ventures.

Provision for (reversal of) credit losses

Provision for credit losses was down $74 million from 2018, as the prior year included a higher provision for credit losses on impaired loans in CIBC FirstCaribbean, which included losses on sovereign loans resulting from the Barbados government debt restructuring noted above, of which $28 million was shown as an item of note in the fourth quarter of 2018.

Non-interest expenses

Non-interest expenses were up $90 million or 7% from 2018. The current year was impacted by a goodwill impairment charge related to the expected sale of our controlling interest in CIBC FirstCaribbean, an increase in legal provisions, and lower transaction and integration-related costs as well as purchase accounting adjustments associated with the acquisitions of The PrivateBank and Geneva Advisors, all shown as items of note. Excluding these items of note, non-interest expenses were up $17 million from 2018, primarily due to higher spending on strategic initiatives, higher operating expenses in CIBC FirstCaribbean and the impact of foreign exchange translation, partially offset by lower corporate support costs.

Income taxes

Income tax benefit was down $89 million, primarily due to a lower TEB adjustment and lower losses, partially offset by net tax adjustments resulting from the U.S. tax reforms enacted in the first quarter of 2018, shown as an item of note, that were included in 2018. The current year also included the net tax recovery resulting from the Enron settlement (see the "Financial performance overview – Taxes" section for additional details) and the revaluation of certain deferred tax assets due to tax rate changes enacted by the Barbados government.

Financial condition

Review of condensed consolidated balance sheet

$ millions, as at October 31	2019	2018
Assets		
Cash and deposits with banks	**$ 17,359**	$ 17,691
Securities	**121,310**	101,664
Securities borrowed or purchased under resale agreements	**59,775**	48,938
Loans and acceptances	**398,108**	381,661
Derivative instruments	**23,895**	21,431
Other assets	**31,157**	25,714
	$ 651,604	$ 597,099
Liabilities and equity		
Deposits	**$ 485,712**	$ 461,015
Obligations related to securities lent or sold short or under repurchase agreements	**69,258**	47,353
Derivative instruments	**25,113**	20,973
Acceptances	**9,188**	10,296
Other liabilities	**19,069**	18,266
Subordinated indebtedness	**4,684**	4,080
Equity	**38,580**	35,116
	$ 651,604	$ 597,099

Assets

Total assets as at October 31, 2019 were up $54.5 billion or 9% from 2018.

Cash and deposits with banks decreased by $0.3 billion or 2%, mainly due to lower short-term placements in Treasury.

Securities increased by $19.6 billion or 19%, primarily due to increases in U.S. Treasury and other agencies from client-driven activities, as well as debt securities in Canadian governments, and corporate debt. Further details on the composition of securities are provided in the "Supplementary annual financial information" section and Note 4 to the consolidated financial statements.

Securities borrowed or purchased under resale agreements increased by $10.8 billion or 22%, primarily due to client-driven activities.

Net loans and acceptances increased by $16.4 billion or 4%, primarily due to an increase in U.S. and Canadian business and government loans. Further details on the composition of loans and acceptances are provided in the "Supplementary annual financial information" section and Note 5 to the consolidated financial statements.

Derivative instruments increased by $2.5 billion or 11%, largely driven by an increase in interest rate derivatives valuation, partially offset by a decrease in other commodity derivatives valuation.

Other assets increased by $5.4 billion or 21%, primarily due to an increase in broker receivables, precious metals, and collateral pledged for derivatives.

Liabilities

Total liabilities as at October 31, 2019 were up $51.0 billion or 9% from 2018.

Deposits increased by $24.7 billion or 5%, primarily due to domestic retail volume growth, and increases in Canadian and U.S. commercial deposits. Further details on the composition of deposits are provided in the "Supplementary annual financial information" section and Note 10 to the consolidated financial statements.

Obligations related to securities lent or sold short or under repurchase agreements increased by $21.9 billion or 46%, primarily due to client-driven activities.

Derivative instruments increased by $4.1 billion or 20%, largely driven by an increase in interest rate and foreign exchange derivatives valuation.

Acceptances decreased by $1.1 billion or 11%, driven by client activities.

Other liabilities increased by $0.8 billion or 4%, primarily due to an increase in broker payables.

Subordinated indebtedness increased by $0.6 billion or 15%, mainly due to an issuance in the third quarter of 2019, net of a redemption in the fourth quarter of 2019. For further details see the "Capital management" section.

Equity

Equity as at October 31, 2019 increased $3.5 billion or 10% from 2018, primarily due to a net increase in retained earnings and the issuance of preferred shares.

Capital management

Our capital strength protects our depositors and creditors from risks inherent in our businesses. Our overall capital management objective is to maintain a strong and efficient capital base that:

- Acts as a buffer to absorb unexpected losses while providing sustainable returns to our shareholders;
- Enables our frontline businesses to grow and execute on our strategy;
- Demonstrates balance sheet strength and our commitment to prudent balance sheet management; and
- Supports us in maintaining a favourable credit standing and raising additional capital or other funding on attractive terms.

We closely monitor and manage our capital to help achieve the appropriate balance of strength and efficiency of our capital base.

Capital management and planning framework

CIBC maintains a capital management policy that helps us achieve our capital management objectives. Our capital management policy is reviewed and approved by the Board of Directors (the Board) in support of our Internal Capital Adequacy Assessment Process (ICAAP). The policy includes guidelines that relate to capital strength, capital mix, dividends and return of capital, and unconsolidated capital adequacy of regulated entities, based on regulatory requirements and our risk appetite. The key guideline relates to our capital strength, which is foundational to our financial strength and supports growth. The guideline on dividends and return of capital is intended to balance the need for retaining capital for strength and growth, while providing an adequate return to our shareholders. The level of capital and capital ratios is continually monitored relative to our regulatory minimums and internal targets and the amount of capital required may change in relation to CIBC's business growth, risk appetite, and business and regulatory environment, including changes in accounting policies.

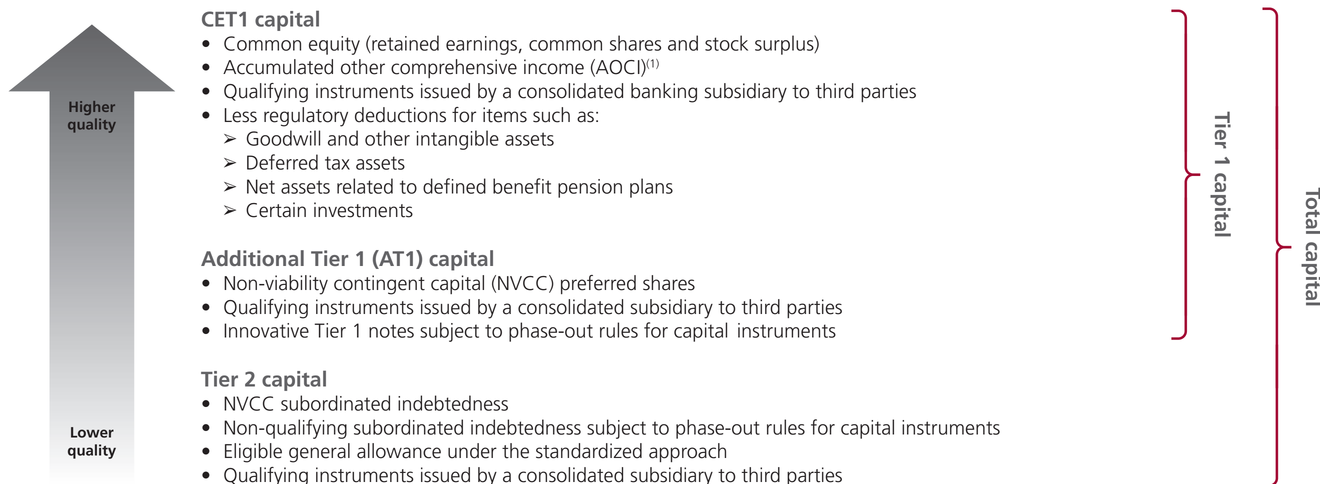
Capital planning is a crucial element of our overall financial planning process and establishment of strategic objectives and is developed in accordance with the capital management policy. Each year, a capital plan and three-year outlook are established as part of the financial plan, which establishes targets for the coming year and business plans to achieve those targets. The capital plan is also stress-tested as a part of our enterprise-wide stress testing process to ensure CIBC is adequately capitalized through severe but plausible stress scenarios (see the "Enterprise-wide stress testing" section for further details). Our capital position is monitored throughout the year and assessed against the capital plan.

The Board, with endorsement from the Risk Management Committee, provides overall oversight of CIBC's capital management through the approval of our risk appetite, capital policy and plan. The Risk Management Committee is provided with regular updates on our capital position including performance to date, updated forecasts, as well as any material regulatory developments that may impact our future capital position. Treasury is responsible for the overall management of capital including planning, forecasting, and execution of the plan, with senior management oversight provided by the Global Asset Liability Committee.

Regulatory capital requirements under Basel III

Our regulatory capital requirements are determined in accordance with guidelines issued by OSFI, which are based upon the risk-based capital standards developed by the Basel Committee on Banking Supervision (BCBS).

Regulatory capital consists of CET1, Tier 1 and Tier 2 capital. The tiers of regulatory capital indicate increasing quality/permanence and the ability to absorb losses. The major components of our regulatory capital are summarized as follows:



(1) Excluding Accumulated Other Comprehensive Income (AOCI) relating to cash flow hedges and changes to FVO liabilities attributable to changes in own credit risk.

Qualifying regulatory capital instruments must be capable of absorbing loss at the point of non-viability of the financial institution. Non-qualifying Tier 1 and Tier 2 capital instruments are excluded from regulatory capital at a rate of 10% per annum until January 2022, at which point they will have no regulatory value.

OSFI requires all institutions to achieve target capital ratios which include buffers. Targets may be higher for certain institutions at OSFI's discretion. CIBC, along with Bank of Montreal, Bank of Nova Scotia, National Bank of Canada, Royal Bank of Canada, and the Toronto-Dominion Bank, have been designated by OSFI as domestic systemically important banks (D-SIBs) in Canada. D-SIBs are subject to a CET1 surcharge equal to 1.0% of RWA and a Domestic Stability Buffer requirement intended to address Pillar 2 risks that are not adequately captured in the Pillar 1 capital requirements. The Domestic Stability Buffer is currently set at 2.0%, but can range from 0% to 2.5% of RWA (see the "Continuous enhancement to regulatory capital requirements" section for details regarding recent increases to the Domestic Stability Buffer requirement). Additionally, banks need to hold an incremental countercyclical capital buffer equal to their weighted average buffer requirement in Canada and across certain other jurisdictions where they have private sector credit exposures.

OSFI's current targets are summarized below:

As at October 31, 2019	Minimum	Capital conservation buffer	D-SIB buffer	Pillar I targets (1)	Domestic Stability Buffer (2)	Target including all buffer requirements
CET1 ratio	**4.5 %**	**2.5 %**	**1.0 %**	**8.0 %**	**2.0 %**	**10.00 %**
Tier 1 capital ratio	**6.0 %**	**2.5 %**	**1.0 %**	**9.5 %**	**2.0 %**	**11.50 %**
Total capital ratio	**8.0 %**	**2.5 %**	**1.0 %**	**11.5 %**	**2.0 %**	**13.50 %**

(1) The countercyclical capital buffer applicable to CIBC is insignificant as at October 31, 2019.
(2) The Domestic Stability Buffer was increased to 2.0% effective October 31, 2019. See the "Continuous enhancement to regulatory capital requirements" section for additional details.

Capital adequacy requirements are applied on a consolidated basis consistent with our financial statements, except for our insurance subsidiaries (CIBC Reinsurance Company Limited, CIBC Cayman Reinsurance Limited and CIBC Life Insurance Company Limited), which are excluded from the regulatory scope of consolidation. The basis of consolidation applied to our financial statements is described in Note 1 to the consolidated financial statements. CIBC Life Insurance Company Limited is subject to OSFI's Life Insurance Capital Adequacy Test.

Risk-weighted assets

The following table provides a summary of permissible regulatory capital approaches and those adopted by CIBC:

Risk category	Permissible regulatory capital approaches	Approach adopted by CIBC
Credit risk(1)	Basel provides three approaches for calculating credit risk capital requirements: • Standardized • Foundation • Advanced internal ratings-based (AIRB) OSFI expects financial institutions in Canada with Total capital in excess of $5 billion to use the AIRB approach for all material portfolios and credit businesses.	We have adopted the AIRB approach for the majority of our credit portfolios. Under this methodology, we utilize our own internal estimates to determine probability of default (PD), loss given default (LGD), maturity, and exposure at default (EAD) for lending products and securities. We utilize the standardized approach for credit portfolios within CIBC Bank USA and CIBC FirstCaribbean. We periodically review portfolios under the standardized approach for consideration of adoption of the AIRB approach.
	OSFI provides three approaches for calculating counterparty credit risk (CCR) for derivatives and repo-style transactions: • Standardized approach (SA-CCR) • Internal model method (IMM) • Comprehensive approach	Counterparty credit risk for derivatives is calculated using SA-CCR in accordance with revisions to the Capital Adequacy Requirements (CAR) Guideline that were effective for CIBC on November 1, 2018. Prior to adopting SA-CCR, CIBC used the current exposure method (CEM) for CCR exposures. The comprehensive approach is used for credit risk mitigation for repo-style transactions.
	Permitted approaches for equity positions in the banking book (which includes equity investments in funds) include: • Standardized • Market-based • Look-through • Mandate-based • Fall-back	We use the standardized approach for equity positions in the banking book and both the look-through and mandate-based approaches for equity investments in funds.
	Basel provides the following approaches for calculating capital requirements for securitization positions: • Internal Ratings-Based Approach (SEC-IRBA) • Internal Assessment Approach (SEC-IAA) • External Ratings-Based Approach (SEC-ERBA) • Standardized (SEC-SA)	We use SEC-IRBA, SEC-ERBA, SEC-IAA, and SEC-SA for securitization exposures in the banking book.
Market risk	Market risk capital requirements can be determined under the following approaches: • Standardized • Internal models Internal models involve the use of internal VaR models to measure market risk and determine the appropriate capital requirement. The stressed VaR and incremental risk charge (IRC) also form part of the internal models approach.	We use the internal models approach to calculate market risk capital. Our internal market risk models comprise VaR, stressed VaR, IRC and a capital charge for risk not captured in VaR. We also use SEC-ERBA for trading book securitization positions.
Operational risk	Operational risk capital requirements can be determined under the following approaches: • Basic indicator approach • Standardized approach • Advanced measurement approach (AMA)	We use AMA and standardized approaches based on OSFI rules to calculate operational risk capital.

(1) Includes counterparty credit risk.

Since the introduction of Basel II in 2008, OSFI has prescribed a capital floor requirement for institutions that use the AIRB approach for credit risk.

During 2018, before any capital floor requirement, there were three different levels of RWA for the calculation of CIBC's CET1, Tier 1 and Total capital ratios as CIBC elected in 2014 to phase in the CVA capital charge as permitted under OSFI's guideline. Beginning in the first quarter of 2019, the ratios are calculated by reference to the same level of RWA as the phase-in of the CVA capital charge has been completed.

Regulatory capital and ratios

The components of our regulatory capital and ratios under Basel III are presented in the table below:

$ millions, as at October 31	2019	2018
Common Equity Tier 1 (CET1) capital: instruments and reserves		
Directly issued qualifying common share capital plus related stock surplus	**$ 13,716**	$ 13,379
Retained earnings	**20,972**	18,537
AOCI (and other reserves)	**881**	777
Common share capital issued by subsidiaries and held by third parties (amount allowed in group CET1)	**126**	118
CET1 capital before regulatory adjustments	**35,695**	32,811
CET1 capital: regulatory adjustments		
Prudential valuation adjustments	**32**	27
Goodwill (net of related tax liabilities)	**5,375**	5,489
Other intangibles other than mortgage-servicing rights (net of related tax liabilities)	**1,658**	1,661
Deferred tax assets excluding those arising from temporary differences (net of related tax liabilities)	**24**	38
Defined benefit pension fund net assets (net of related tax liabilities)	**138**	284
Other	**761**	671
Total regulatory adjustments to CET1 capital	**7,988**	8,170
CET1 capital	**27,707**	24,641
Additional Tier 1 (AT1) capital: instruments		
Directly issued qualifying AT1 instruments plus related stock surplus (1)	**2,825**	2,250
Directly issued capital instruments subject to phase out from AT1 (2)	**302**	1,003
AT1 instruments issued by subsidiaries and held by third parties (amount allowed in AT1)	**17**	14
AT1 capital	**3,144**	3,267
Tier 1 capital (T1 = CET1 + AT1)	**30,851**	27,908
Tier 2 capital: instruments and provisions		
Directly issued qualifying Tier 2 instruments plus related stock surplus (3)	**4,015**	3,430
Directly issued capital instruments subject to phase out from Tier 2	**630**	579
Tier 2 instruments issued by subsidiaries and held by third parties (amount allowed in Tier 2)	**23**	20
General allowances	**335**	293
Tier 2 capital (T2)	**5,003**	4,322
Total capital (TC = T1 + T2)	**$ 35,854**	$ 32,230
Total RWA (4)	**$ 239,863**	n/a
CET1 capital RWA (4)	**n/a**	$ 216,144
Tier 1 capital RWA (4)	**n/a**	216,303
Total capital RWA (4)	**n/a**	216,462
Capital ratios		
CET1 ratio	**11.6 %**	11.4 %
Tier 1 capital ratio	**12.9 %**	12.9 %
Total capital ratio	**15.0 %**	14.9 %

(1) Comprises non-cumulative Class A Preferred Shares Series 39, 41, 43, 45, 47, 49, and 51 which are treated as non-viability contingent capital (NVCC) in accordance with OSFI's capital adequacy guidelines.
(2) Comprises CIBC Tier 1 Notes – Series A and Series B due June 30, 2108 (together, the Tier 1 Notes). The CIBC Tier 1 Notes – Series A were redeemed on June 30, 2019.
(3) Comprises Debentures due on October 28, 2024, January 26, 2026, April 4, 2028 and June 19, 2029 which are treated as NVCC in accordance with OSFI's capital adequacy guidelines. The Debentures due on October 28, 2024 were redeemed on October 28, 2019.
(4) Beginning in 2019, the capital ratios are calculated by reference to the same level of RWA. Prior to 2019, before any capital floor requirement, there were three different levels of RWA for the calculation of CIBC's CET1, Tier 1 and Total capital ratios as CIBC elected in 2014 to phase in the CVA capital charge as permitted under the OSFI guideline; different scalars were applied to the CVA included in the RWA calculation applicable to each of the three tiers of capital.
n/a Not applicable.

The CET1 ratio at October 31, 2019 increased 0.2% from October 31, 2018, mainly driven by an increase in CET1 capital, partially offset by an increase in RWA. The increase in CET1 capital was primarily the result of internal capital generation (net income less dividends and share repurchases) and common share issuance. The increase in RWA was primarily due to organic growth, changes in regulatory requirements and movement in risk levels. In the first quarter of 2019, CIBC implemented OSFI's revisions to the CAR Guideline including the revised standardized approach to counterparty credit risk and central counterparties, the revised securitization framework, and the removal of the CVA phase-in transitional arrangement.

The Tier 1 capital ratio at October 31, 2019 was comparable with October 31, 2018 as the impact of the redemption of the CIBC Tier 1 Notes – Series A, net of the issuance of NVCC preferred shares during 2019, was offset by the factors affecting the CET1 ratio noted above. See the "Capital initiatives" section below for further details.

The Total capital ratio at October 31, 2019 increased 0.1% from October 31, 2018 primarily due to the issuance, net of redemptions, of NVCC subordinated indebtedness during the year, in addition to the factors affecting the Tier 1 capital ratio noted above. See the "Capital initiatives" section below for further details.

Components of risk-weighted assets

The components of our RWA and corresponding minimum total capital requirements are presented in the table below:

$ millions, as at October 31	2019		2018	
	RWA	**Minimum total capital required** (1)	RWA	Minimum total capital required (1)
Credit risk (2)				
Standardized approach				
Corporate	**$ 39,131**	**$ 3,130**	$ 32,443	$ 2,595
Sovereign	**2,411**	**193**	2,319	185
Banks	**454**	**36**	470	38
Real estate secured personal lending	**2,597**	**208**	2,764	221
Other retail	**911**	**73**	903	72
Trading book	**468**	**37**	247	20
Equity	**606**	**48**	436	35
Securitization (3)	**707**	**57**	n/a	n/a
	47,285	**3,782**	39,582	3,166
AIRB approach (4)				
Corporate	**76,182**	**6,095**	68,402	5,472
Sovereign (5)	**2,227**	**178**	2,144	171
Banks	**3,082**	**247**	3,547	284
Real estate secured personal lending	**18,557**	**1,485**	16,072	1,286
Qualifying revolving retail	**15,605**	**1,248**	18,071	1,446
Other retail	**8,890**	**711**	7,773	622
Equity	**395**	**32**	299	24
Trading book	**6,684**	**535**	3,982	319
Securitization (3)	**815**	**65**	1,050	84
Adjustment for scaling factor	**7,898**	**632**	7,280	582
	140,335	**11,228**	128,620	10,290
Other credit RWA (6)	**10,134**	**811**	10,697	856
Total credit risk (before adjustment for CVA phase-in) (7)	**197,754**	**15,821**	178,899	14,312
Market risk (Internal Models and IRB Approach)				
VaR	**1,073**	**86**	868	70
Stressed VaR	**2,478**	**198**	2,084	167
Incremental risk charge	**2,574**	**206**	2,865	229
Securitization and other	**407**	**33**	566	45
Total market risk	**6,532**	**523**	6,383	511
Operational risk	**28,587**	**2,287**	26,626	2,130
Total RWA before adjustments for CVA phase-in and capital floor	**$ 232,873**	**$ 18,631**	$ 211,908	$ 16,953
CVA capital charge (7)				
Total RWA (7)	**$ 6,990**	**$ 559**	n/a	n/a
CET1 RWA	**n/a**	**n/a**	$ 4,236	$ 339
Tier 1 RWA	**n/a**	**n/a**	4,395	352
Total RWA	**n/a**	**n/a**	4,554	364
Total RWA after adjustments for CVA phase-in and capital floor (7)				
Total RWA	**$ 239,863**	**$ 19,190**	n/a	n/a
CET1 capital RWA	**n/a**	**n/a**	$ 216,144	$ 17,292
Tier 1 capital RWA	**n/a**	**n/a**	216,303	17,305
Total capital RWA	**n/a**	**n/a**	216,462	17,317

(1) Refers to the minimum standard established by the BCBS before the application of the capital conservation buffer and any other capital buffers that may be established by regulators from time to time. It is calculated by multiplying RWA by 8%.
(2) Credit risk includes counterparty credit risk, which comprises derivative and repo-style transactions. Credit risk for CIBC Bank USA and CIBC FirstCaribbean are calculated under the standardized approach.
(3) In the first quarter of 2019, we implemented OSFI's revisions to the CAR Guideline, including the revised securitization framework. As a result, certain exposures that were previously subject to the IRB approach are now subject to the standardized approach. In addition, SEC-ERBA, which is inclusive of SEC-IAA, includes exposures that qualify for the IRB approach as well as exposures under the standardized approach.
(4) Includes RWA relating to equity investments in funds and certain commercial loans which are determined using the supervisory slotting approach.
(5) Includes residential mortgages insured by Canada Mortgage and Housing Corporation (CMHC), an agency of the Government of Canada, and government guaranteed student loans.
(6) Comprises RWA relating to derivative and repo-style transactions cleared through qualified central counterparties (QCCPs), settlement risk, and other assets that are subject to the credit risk framework but are not included in the standardized or IRB frameworks, including other balance sheet assets that are risk-weighted at 100%, significant investments in the capital of non-financial institutions that are risk-weighted at 1250%, and amounts below the thresholds for deduction that are risk-weighted at 250%.
(7) Beginning in 2019, the capital ratios are calculated by reference to the same level of RWA. Prior to 2019, before any capital floor requirement, there were three different levels of RWA for the calculation of CIBC's CET1,Tier 1 and Total capital ratios as CIBC elected in 2014 to phase in the CVA capital charge as permitted under the OSFI guideline; different scalars were applied to the CVA included in the RWA calculation applicable to each of the three tiers of capital.
n/a Not applicable.

The increase in total RWA was primarily due to organic growth, changes in regulatory requirements and movement in risk levels.

The increase in credit risk RWA was primarily due to organic growth across our businesses and changes in regulatory requirements.

The change in market risk RWA was driven by movement in risk levels, which includes changes in open positions and the market rates affecting these positions, foreign exchange movements and capital model updates.

The increase in operational risk RWA was primarily driven by movement in risk levels, which reflects changes in loss experience, changes in the business environment, internal control factors and gross income, as defined by OSFI.

Movement in total regulatory capital

Changes in regulatory capital under Basel III are presented in the table below:

$ millions, for the year ended October 31	2019	2018
CET1 capital		
Balance at beginning of year	**$ 24,641**	$ 21,618
Issue of common shares pursuant to the acquisition of The PrivateBank	**–**	194
Issue of common shares pursuant to the acquisition of Wellington Financial	**–**	47
Shares issued in lieu of cash dividends	**194**	337
Other issue of common shares	**183**	218
Purchase of common shares for cancellation	**(30)**	(104)
Premium on purchase of common shares for cancellation	**(79)**	(313)
Net income attributable to equity shareholders	**5,096**	5,267
Preferred and common share dividends	**(2,599)**	(2,445)
Change in AOCI balances included in regulatory capital		
Net foreign currency translation adjustments	**(31)**	286
Net change in securities measured at FVOCI	**196**	(191)
Net change in cash flow hedges	**131**	(51)
Net change in post-employment defined benefit plans	**(220)**	226
Change in shortfall of allowance to expected losses	**72**	(173)
Change in goodwill and other intangible assets	**117**	(212)
Other, including change in regulatory adjustments [1]	**36**	(63)
CET 1 capital balance at end of year	**$ 27,707**	$ 24,641
AT1 capital		
Balance at beginning of year	**$ 3,267**	$ 3,064
AT1 eligible capital issues	**575**	450
Phase-out of innovative Tier 1 notes	**(251)**	(251)
Redeemed	**(452)**	–
Other, including change in regulatory adjustments [1]	**5**	4
AT 1 capital balance at end of year	**$ 3,144**	$ 3,267
Tier 2 capital		
Balance at beginning of year	**$ 4,322**	$ 3,447
New Tier 2 eligible capital issues	**1,500**	1,500
Redeemed	**(1,000)**	(600)
Other, including change in regulatory adjustments [1]	**181**	(25)
Tier 2 capital balance at end of year	**$ 5,003**	$ 4,322
Total capital balance at end of year	**$ 35,854**	$ 32,230

(1) Includes the net impact on retained earnings and AOCI as at November 1, 2017 from our adoption of IFRS 9 and as at November 1, 2018 from our adoption of IFRS 15.

Leverage ratio

The Basel III capital standards include a non-risk-based capital metric, the leverage ratio, to supplement risk-based capital requirements.

The leverage ratio is defined as Tier 1 capital divided by the leverage ratio exposure. The leverage ratio exposure is defined under the rules as the sum of:

(i) On-balance sheet assets less Tier 1 capital regulatory adjustments;

(ii) Derivative exposures;

(iii) Securities financing transaction exposures; and

(iv) Off-balance sheet exposures (such as commitments, direct credit substitutes, letters of credit, and securitization exposures).

OSFI expects federally regulated deposit-taking institutions to have leverage ratios that meet or exceed 3.0%. This minimum may be higher for certain institutions at OSFI's discretion.

$ millions, as at October 31		2019	2018
Tier 1 capital	A	**$ 30,851**	$ 27,908
Leverage ratio exposure	B	**714,343**	653,946
Leverage ratio	A/B	**4.3 %**	4.3 %

The leverage ratio at October 31, 2019 was comparable with October 31, 2018, as an increase in Tier 1 capital was offset by an increase in leverage ratio exposure. The increase in leverage ratio exposure was primarily driven by increases in on- and off-balance sheet assets and securities financing transaction exposures.

Continuous enhancement to regulatory capital requirements

The BCBS and OSFI have published a number of proposals for changes to the existing regulatory capital requirements to strengthen the regulation, supervision, and practices of banks with the overall objective of enhancing financial stability. The discussion below provides a summary of significant BCBS and OSFI publications that have been issued but not yet effective, other than those discussed in separate sections of the document.

Basel III reforms

In December 2017, the Group of Central Bank Governors and Heads of Supervision (GHOS; the oversight body of the BCBS) announced the finalization of Basel III reforms. Revisions have been included in the finalized framework with the objective of reducing excessive variability in RWA and improving comparability of capital ratios among banks. Notable changes include:

- Major revisions to the standardized approaches to credit and operational risk, market risk, and CVA frameworks, which will be effective January 1, 2022;
- Constraints on the use of internally modelled approaches for certain credit exposures;
- Changes to the Basel III capital output floor requirements that will ensure that banks' RWA generated by internal models are not lower than 72.5% of RWA as calculated under the Basel III framework's standardized approaches. The new approach to the capital output floor will be phased in beginning at 50% in 2022, increasing by 5% every year thereafter to a rate of 72.5% in 2027; and
- Finalized leverage ratio requirements, including a new buffer requirement for global systemically important banks (G-SIBs) starting in 2022. The finalized leverage ratio guideline includes changes to the measurement for derivative exposures, treatment of unsettled trades, and revisions to credit conversion factors related to off-balance sheet items.

In July 2018, OSFI issued for public consultation a discussion paper on the proposed implementation of the final Basel III reforms in Canada in response to the BCBS publishing the final Basel III reforms in December 2017, as discussed above. Notable areas where the discussion paper differs from the BCBS guidance include:

- Potentially accelerating the implementation of the revised operational risk framework to 2021;
- Advancing the calibration of the capital output floor to 72.5% starting in 2022;
- Applying the higher leverage ratio requirement to Canadian D-SIBs starting in 2022; and
- Modifying model parameters and approaches for certain assets under the credit risk framework.

In January 2019, the BCBS published the final standard "Revisions to the minimum capital requirements for market risk", which aims to address issues related to the implementation of the market risk standard published in January 2016. The BCBS implementation date for the market risk standard is January 1, 2022.

In June 2019, the BCBS issued two publications impacting the leverage ratio calculation and associated disclosures effective January 2022. "Leverage ratio treatment of client cleared derivatives" aligns the measurement of client cleared derivatives with the standardized approach to measuring counterparty credit risk exposures, allowing cash and non-cash forms of segregated initial and variation margin received to offset the replacement cost and potential future exposure for these derivatives only. "Revisions to leverage ratio disclosure requirements" requires banks to disclose their leverage ratios based on both quarter-end and daily average values for securities financing transactions, allowing for a better understanding of actual leverage employed throughout the period.

In July 2019, OSFI issued revisions to its capital requirements for operational risk applicable to deposit-taking institutions, reflecting the final Basel III revisions published by the BCBS in December 2017. In advance of these new requirements, institutions that are currently approved to use the advanced measurement approach for operational risk capital are required to report using the current standardized approach for fiscal year 2020.

Domestic Stability Buffer

In December 2018, OSFI announced an increase in the Domestic Stability Buffer requirement from 1.5% to 1.75% effective April 30, 2019. This increased OSFI's target capital ratios, including all buffers, for CET1, Tier 1 and Total capital to 9.75%, 11.25% and 13.25%, respectively.

In June 2019, OSFI announced a second increase in the Domestic Stability Buffer requirement, from 1.75% to 2.0% effective October 31, 2019. This increased OSFI's target capital ratios, including all buffers, for CET1, Tier 1 and Total capital to 10.0%, 11.5% and 13.5% respectively.

Revised Pillar 3 disclosure requirements

In January 2015, the BCBS issued "Revised Pillar 3 disclosure requirements", which sets out the first phase of an initiative to replace existing Pillar 3 disclosure requirements for the various types of risk. Pillar 3 aims to promote market discipline through regulatory disclosure requirements, in order to improve comparability and consistency of risk disclosures and increase transparency and confidence about a bank's exposure to risk and the overall adequacy of its regulatory capital. We implemented the first phase of the Pillar 3 disclosure requirements in the fourth quarter of 2018, with the exception of certain market risk related disclosures that have been deferred until the latter phases of the project as permitted by the OSFI guideline issued in April 2017.

In March 2017, the BCBS released "Pillar 3 disclosure requirements – consolidated and enhanced framework", a standard establishing the second phase of the project. This standard includes enhancements to the January 2015 requirements, the introduction of several new disclosure requirements, and the consolidation of all existing BCBS disclosure requirements into the Pillar 3 framework.

In December 2018, the BCBS issued "Pillar 3 disclosure requirements – updated framework", a standard establishing the third phase of an initiative to replace existing Pillar 3 requirements for the various types of risk. This standard includes enhancements to the first and second phases of the BCBS initiative, for which standards were issued in January 2015 and March 2017, respectively, the introduction of several new disclosure requirements, and the consolidation of all existing BCBS disclosure requirements into the Pillar 3 framework.

OSFI has not yet released its requirements for the second and third phases of the Pillar 3 framework, though it has provided separate guidance regarding certain disclosure requirements, including the Total Loss Absorbing Capacity (TLAC) disclosure requirements contemplated in the second phase which we implemented in the first quarter of 2019.

Global systemically important banks – public disclosure requirements

On July 5, 2018, the BCBS issued "Global systemically important banks: revised assessment methodology and the higher loss absorbency requirement" as a result of the first review of the G-SIB framework. The core elements of the framework have been maintained. A trading volume indicator has been added to the substitutability category, increasing the existing 12 indicators to 13. The scope of consolidation for the G-SIB framework will now include insurance subsidiaries. The revised assessment methodology must be effective by the 2021 G-SIB assessment. The framework will continue to be reviewed every three years with the next review to be completed by 2021.

Other regulatory developments

In October 2017, the BCBS issued the final guideline on the identification and management of step-in risk. Step-in risk is the risk that a bank might provide financial support to an unconsolidated entity beyond, or in the absence of, any contractual obligations or equity ties, should the entity experience financial stress. The focus of the guideline is on unconsolidated entities such as securitization conduits, structured investment vehicles, and money market funds. The objective of the guideline is to mitigate this risk through banks' self-assessment and reporting to supervisors, and not by the automatic application of a Pillar I liquidity or capital charge.

In April 2019, OSFI released the final guideline "Large Exposure Limits for Domestic Systemically Important Banks". The guideline is intended to limit maximum losses a lender could incur as a result of the default of an individual obligor or set of connected obligors, and is not expected to have a significant impact on our operations. The guideline has an implementation date of November 1, 2019.

In May 2019, OSFI issued revisions to "Guideline B-12: Interest Rate Risk Management", which incorporates guidance contained in the "Interest rate risk in the banking book" standard issued by BCBS in April 2016 with the objective of ensuring institutions have governance processes and controls that remain current and comprehensive with respect to defining a risk control framework for managing interest rate risk in the banking book to prudent levels. The new guideline outlines OSFI's expectations regarding risk measurement, development of stressed shock scenarios, as well as key behavioural and model assumptions. The implementation date for the OSFI guideline is January 1, 2020.

CIBC will continue to monitor and prepare for developments impacting regulatory capital requirements and disclosures.

Capital initiatives

The following were the main capital initiatives undertaken in 2019:

Normal course issuer bid

On May 31, 2019, we announced that the Toronto Stock Exchange had accepted the notice of CIBC's intention to commence a normal course issuer bid. Purchases under this bid will terminate upon the earlier of: (i) CIBC purchasing up to a maximum of 9 million common shares; (ii) CIBC providing a notice of termination; or (iii) June 3, 2020. Our previous bid terminated on June 3, 2019. During the year, we purchased and cancelled 1,000,000 common shares under the current bid at an average price of $109.06 for a total amount of $109 million.

Shareholder investment plan (the plan)

Effective with the October 28, 2016 dividend, CIBC has elected to issue shares from Treasury to fulfill the requirements of the plan. Pursuant to the plan, we issued 1,777,738 common shares for consideration of $194 million for the year ended October 31, 2019.

Dividends

Our quarterly common share dividend was increased from $1.36 per share to $1.40 per share for the quarter ended April 30, 2019, and from $1.40 per share to $1.44 per share for the quarter ended October 31, 2019.

Common and preferred share dividends are declared quarterly at the discretion of the Board. The declaration and payment of dividends is governed by Section 79 of the *Bank Act* (Canada), the terms of the preferred shares, and the terms of the Tier 1 notes issued by CIBC Capital Trust, as explained in Notes 15 and 16 to the consolidated financial statements.

Preferred shares

On January 22, 2019, we issued 13 million Non-cumulative Rate Reset Class A Preferred Shares Series 49 (NVCC) (Series 49 Shares) with a par value of $25.00 per share, for gross proceeds of $325 million. On June 4, 2019, we issued 10 million Non-cumulative Rate Reset Class A Preferred Shares Series 51 (NVCC) (Series 51 shares) with a par value of $25.00 per share, for gross proceeds of $250 million.

Holders of the Non-cumulative Rate Reset Class A Preferred Shares Series 39 (NVCC) (Series 39 shares) had the option to convert their shares into Non-cumulative Floating Rate Class A Preferred Shares Series 40 (NVCC) (Series 40 shares) on a one-for-one basis on July 31, 2019. As the conditions for conversion were not met, no Series 40 shares were issued, and all of the Series 39 shares remain outstanding. The dividend on the Series 39 shares was reset to 3.713%, payable quarterly as and when declared by the Board, effective for the five-year period commencing July 31, 2019.

See the "Outstanding share data" section below and Note 15 to the consolidated financial statements for further details.

CIBC Tier 1 Notes

On June 30, 2019, CIBC Capital Trust, a trust wholly owned by CIBC, redeemed all $1.3 billion of its 9.976% CIBC Tier 1 Notes – Series A (the notes) due June 30, 2108. In accordance with their terms, the notes were redeemed at 100% of their principal amount, together with accrued and unpaid interest thereon. As a result of the redemption of the notes by CIBC Capital Trust, CIBC redeemed the corresponding senior deposit notes issued by CIBC to CIBC Capital Trust on June 30, 2019.

Subordinated indebtedness

On June 19, 2019, we issued $1.5 billion principal amount of 2.95% Debentures (subordinated indebtedness). The Debentures bear interest at a fixed rate of 2.95% per annum (paid semi-annually) until June 19, 2024, and at the three-month Canadian dollar bankers' acceptance rate plus 1.18% per annum thereafter (paid quarterly) until maturity on June 19, 2029.

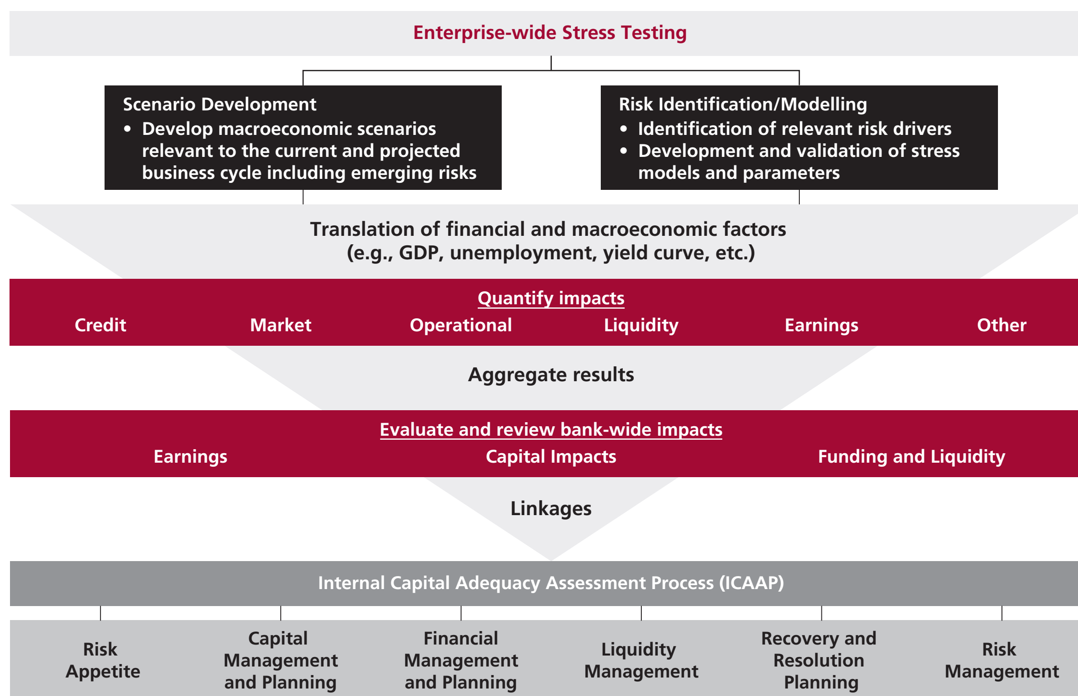
On October 28, 2019, we redeemed all $1.0 billion of our 3.00% Debentures due October 28, 2024. In accordance with their terms, the Debentures were redeemed at 100% of their principal amount, plus accrued and unpaid interest thereon.

Enterprise-wide stress testing

We perform enterprise-wide stress testing on at least an annual basis and the results are an integral part of our ICAAP, as defined by Pillar II of the Basel III Accord, wherein we identify and measure our risks on an ongoing basis in order to ensure that the capital available is sufficient to cover all risks across CIBC, including the impacts of stress testing. We maintain a process which determines plausible but stressed economic scenarios such as global recessions and housing price shocks, and then apply these stress scenarios to our bank-wide exposures to determine the impact on the consolidated statement of income, RWA requirements, and consequently, key capital ratios. This helps us analyze the potential risks within our portfolios and establish prudent capital levels in excess of the regulatory minimum requirements. All of the elements of capital are monitored throughout the year and the capital plan is adjusted as appropriate.

Management determines the range of scenarios to be tested. Macroeconomic stress test scenarios are designed to be both severe and plausible and designed to be consistent with OSFI's stress testing framework to ensure that they are comprehensive.

The following diagram summarizes the enterprise-wide stress testing process including the development of scenarios, identification of risk drivers and linkages to our other bank-wide ICAAP processes. The process includes syndication with our economists and lines of business to ensure scenarios are relevant to our businesses and there is a consistent interpretation of the scenarios across CIBC.



Stress test scenarios are designed to capture a wide range of macroeconomic and financial variables that are relevant to assess the impact on our specific portfolios. This includes, for example, GDP, unemployment, house prices, interest rates and equity prices.

The stress testing process is comprehensive using a bottoms-up analysis of each of our bank-wide portfolios, and results are analyzed on a product, location and sector basis. Our stress testing approach combines the use of statistical models and expert judgment to ensure the results are reasonable in estimating the impacts of the stress scenarios.

Stress testing methodologies and results are subject to a detailed review and challenge from both our lines of business and Risk Management. Stress testing results are presented for review to the Risk Management Committee and are also shared with the Board and OSFI. The results of our enterprise-wide stress testing are used to highlight any vulnerabilities and ensure we remain well capitalized against regulatory and management expectations.

A key objective of the enterprise-wide stress tests is to identify key areas of exposure and foster discussion of management actions that would be taken to mitigate the impact of stress scenarios. Reverse stress testing is also integrated into our recovery and resolution planning process to determine worst case scenarios that would result in CIBC reaching the point of non-viability from which remedial actions are then considered.

Additional information on stress testing is provided in the "Management of risk" section.

Recovery plan

Federally regulated financial institutions must maintain robust and credible recovery plans that identify options to restore financial strength and viability when under severe stress. CIBC continues to maintain and update its recovery plan in line with OSFI requirements.

Resolution plan

In 2019, the Canada Deposit Insurance Corporation (CDIC) issued guidance for a comprehensive bank-authored resolution plan. Each Canadian D-SIB must have a credible and feasible resolution plan documented and in place, demonstrating how the bank can be resolved in an orderly manner while ensuring the continuity of critical financial services. CIBC continues to develop its resolution plan deliverables in line with regulatory requirements and timelines for final submission to CDIC by December 2020.

Outstanding share data

The table below provides a summary of our outstanding shares, NVCC capital instruments, and the maximum number of common shares issuable on conversion/exercise:

$ millions, except number of shares and per share amounts, as at November 29, 2019	Shares outstanding		Minimum conversion price per common share	Maximum number of common shares issuable on conversion/exercise
	Number of shares	Amount		
Common shares	445,440,208	$ 13,628		
Treasury shares – common shares	32,588	4		
Preferred shares (1)(2)				
Series 39 (NVCC)	16,000,000	$ 400	$ 5.00	80,000,000
Series 41 (NVCC)	12,000,000	300	5.00	60,000,000
Series 43 (NVCC)	12,000,000	300	5.00	60,000,000
Series 45 (NVCC)	32,000,000	800	5.00	160,000,000
Series 47 (NVCC)	18,000,000	450	5.00	90,000,000
Series 49 (NVCC)	13,000,000	325	5.00	65,000,000
Series 51 (NVCC)	10,000,000	250	5.00	50,000,000
Treasury shares – preferred shares (1)(2)	–	–		
Subordinated indebtedness (2)(3)				
3.42% Debentures due January 26, 2026 (NVCC)	n/a	1,000	5.00	300,000,000
3.45% Debentures due April 4, 2028 (NVCC)	n/a	1,500	5.00	450,000,000
2.95% Debentures due June 19, 2029 (NVCC)	n/a	1,500	5.00	450,000,000
Stock options outstanding				5,125,447

(1) Upon the occurrence of a Trigger Event, each share is convertible into a number of common shares, determined by dividing the par value of $25.00 plus declared and unpaid dividends by the average common share price (as defined in the relevant prospectus supplement) subject to a minimum price per share (subject to adjustment in certain events as defined in the relevant prospectus supplement). Preferred shareholders do not have the right to convert their shares into common shares.
(2) The maximum number of common shares issuable on conversion excludes the impact of declared but unpaid dividends and accrued interest.
(3) Upon the occurrence of a Trigger Event, the Debentures are convertible into a number of common shares, determined by dividing 150% of the par value plus accrued and unpaid interest by the average common share price (as defined in the relevant prospectus supplement) subject to a minimum price per common share (subject to adjustment in certain events as defined in the relevant prospectus supplement).
n/a Not applicable.

The occurrence of a "Trigger Event" would result in conversion of all of the outstanding NVCC instruments described above, which would represent a dilution impact of 80% based on the number of CIBC common shares outstanding as at October 31, 2019. As described in the Capital Adequacy Guidelines, a Trigger Event occurs when OSFI determines the bank is or is about to become non-viable and, if after conversion of all contingent instruments and consideration of any other relevant factors or circumstances, it is reasonably likely that its viability will be restored or maintained; or if the bank has accepted or agreed to accept a capital injection or equivalent support from a federal or provincial government, without which OSFI would have determined the bank to be non-viable.

Bank recapitalization (Bail-in) conversion regulations

The Department of Finance's final bail-in regulations became effective September 23, 2018. These regulations provide certain statutory powers to CDIC to enact the bail-in regime, including the ability to convert specified eligible shares and liabilities of D-SIBs into common shares in the event such a bank becomes non-viable.

The Superintendent of Financial Institutions (the Superintendent) is responsible for designating D-SIBs, setting minimum TLAC requirements, and determining whether a bank is non-viable. Senior debt issued by CIBC on or after September 23, 2018, with an original term to maturity of more than 400 days (including explicit or embedded options) that is unsecured or partially secured is subject to bail-in. Consumer deposits, certain derivatives, covered bonds, and certain structured notes would not be eligible for bail-in. Beginning in the first quarter of 2022, D-SIBs will be required to maintain a supervisory target TLAC ratio (which is comprised of a minimum risk-based TLAC ratio of 21.5% plus the then applicable Domestic Stability Buffer) and a minimum TLAC leverage ratio of 6.75%.

Under the bail-in regime there is no fixed and pre-determined contractual conversion ratio for the conversion of the specified eligible shares and liabilities of CIBC that are subject to a bail-in conversion into common shares, nor are there specific requirements regarding whether liabilities subject to a bail-in conversion are converted into common shares. CDIC determines the timing of the bail-in conversion, the portion of the specified eligible shares and liabilities to be converted and the terms and conditions of the conversion, subject to parameters set out in the bail-in regime.

As at October 31, 2019, $8,986 million (October 31, 2018: $190 million) of our outstanding liabilities were subject to conversion under the bail-in regime.

Non-cumulative Rate Reset Class A Preferred Shares Series 39 (NVCC) (Series 39 shares) and Non-cumulative Floating Rate Class A Preferred Shares Series 40 (NVCC) (Series 40 shares)

For the initial five-year period to the earliest redemption date of July 31, 2019, the Series 39 shares paid quarterly cash dividends, as declared, at a rate of 3.90%. The dividend was reset to 3.713%, payable quarterly as and when declared by the Board, effective for the five-year period commencing July 31, 2019. On July 31, 2024, and on July 31 every five years thereafter, the dividend rate will reset to be equal to the then current five-year Government of Canada bond yield plus 2.32%.

Holders of the Series 39 shares had the right to convert their shares on a one-for-one basis into Series 40 shares, subject to certain conditions, on July 31, 2019. As the conditions for conversion were not met, no Series 40 shares were issued, and all of the Series 39 shares remain outstanding. Holders of the Series 39 shares will have the right to convert their shares on a one-for-one basis into Series 40 shares, subject to certain conditions, on July 31, 2024 and on July 31 every five years thereafter. Holders of the Series 40 shares will be entitled to receive a quarterly floating rate dividend, if declared, equal to the three-month Government of Canada Treasury Bill yield plus 2.32%. Holders of the then outstanding Series 40 shares may convert their shares on a one-for-one basis into Series 39 shares, subject to certain conditions, on July 31, 2029 and on July 31 every five years thereafter.

Subject to regulatory approval and certain provisions of the shares, we may redeem all or any part of the then outstanding Series 39 shares at par on July 31, 2024, and on July 31 every five years thereafter; we may redeem all or any part of the then outstanding Series 40 shares at par on July 31, 2029, and on July 31 every five years thereafter.

Non-cumulative Rate Reset Class A Preferred Shares Series 41 (NVCC) (Series 41 shares)
For the initial five-year period to the earliest redemption date of January 31, 2020, the Series 41 shares pay quarterly cash dividends, if declared, at a rate of 3.75%. On January 31, 2020, and on January 31 every five years thereafter, the dividend rate will reset to be equal to the then current five-year Government of Canada bond yield plus 2.24%.

Holders of the Series 41 shares will have the right to convert their shares on a one-for-one basis into Non-cumulative Floating Rate Class A Preferred Shares Series 42 (NVCC) (Series 42 shares), subject to certain conditions, on January 31, 2020 and on January 31 every five years thereafter. Holders of the Series 42 shares will be entitled to receive a quarterly floating rate dividend, if declared, equal to the three-month Government of Canada Treasury Bill yield plus 2.24%. Holders of the Series 42 shares may convert their shares on a one-for-one basis into Series 41 shares, subject to certain conditions, on January 31, 2025 and on January 31 every five years thereafter.

Subject to regulatory approval and certain provisions of the shares, we may redeem all or any part of the then outstanding Series 41 shares at par on January 31, 2020 and on January 31 every five years thereafter; we may redeem all or any part of the then outstanding Series 42 shares at par on January 31, 2025 and on January 31 every five years thereafter.

Non-cumulative Rate Reset Class A Preferred Shares Series 43 (NVCC) (Series 43 shares)
For the initial five-year period to the earliest redemption date of July 31, 2020, the Series 43 shares pay quarterly cash dividends, if declared, at a rate of 3.60%. On July 31, 2020, and on July 31 every five years thereafter, the dividend rate will reset to be equal to the then current five-year Government of Canada bond yield plus 2.79%.

Holders of the Series 43 shares will have the right to convert their shares on a one-for-one basis into Non-cumulative Floating Rate Class A Preferred Shares Series 44 (NVCC) (Series 44 shares), subject to certain conditions, on July 31, 2020 and on July 31 every five years thereafter. Holders of the Series 44 shares will be entitled to receive a quarterly floating rate dividend, if declared, equal to the three-month Government of Canada Treasury Bill yield plus 2.79%. Holders of the Series 44 shares may convert their shares on a one-for-one basis into Series 43 shares, subject to certain conditions, on July 31, 2025 and on July 31 every five years thereafter.

Subject to regulatory approval and certain provisions of the shares, we may redeem all or any part of the then outstanding Series 43 shares at par on July 31, 2020 and on July 31 every five years thereafter; we may redeem all or any part of the then outstanding Series 44 shares at par on July 31, 2025 and on July 31 every five years thereafter.

Non-cumulative Rate Reset Class A Preferred Shares Series 45 (NVCC) (Series 45 shares)
For the initial five-year period to the earliest redemption date of July 31, 2022, the Series 45 shares pay quarterly cash dividends, if declared, at a rate of 4.40%. On July 31, 2022, and on July 31 every five years thereafter, the dividend rate will reset to be equal to the then current five-year Government of Canada bond yield plus 3.38%.

Holders of the Series 45 shares will have the right to convert their shares on a one-for-one basis into Non-cumulative Floating Rate Class A Preferred Shares Series 46 (NVCC) (Series 46 shares), subject to certain conditions, on July 31, 2022 and on July 31 every five years thereafter. Holders of the Series 46 shares will be entitled to receive a quarterly floating rate dividend, if declared, equal to the three-month Government of Canada Treasury Bill yield plus 3.38%. Holders of the Series 46 shares may convert their shares on a one-for-one basis into Series 45 shares, subject to certain conditions, on July 31, 2027 and on July 31 every five years thereafter.

Subject to regulatory approval and certain provisions of the shares, we may redeem all or any part of the then outstanding Series 45 shares at par on July 31, 2022 and on July 31 every five years thereafter; we may redeem all or any part of the then outstanding Series 46 shares at par on July 31, 2027 and on July 31 every five years thereafter.

Non-cumulative Rate Reset Class A Preferred Shares Series 47 (NVCC) (Series 47 shares)
For the initial five-year period to the earliest redemption date of January 31, 2023, the Series 47 shares pay quarterly cash dividends, if declared, at a rate of 4.50%. On January 31, 2023, and on January 31 every five years thereafter, the dividend rate will reset to be equal to the then current five-year Government of Canada bond yield plus 2.45%.

Holders of the Series 47 shares will have the right to convert their shares on a one-for-one basis into Non-cumulative Floating Rate Class A Preferred Shares Series 48 (NVCC) (Series 48 shares), subject to certain conditions, on January 31, 2023 and on January 31 every five years thereafter. Holders of the Series 48 shares will be entitled to receive a quarterly floating rate dividend, if declared, equal to the three-month Government of Canada Treasury Bill yield plus 2.45%. Holders of the Series 48 shares may convert their shares on a one-for-one basis into Series 47 shares, subject to certain conditions, on January 31, 2028 and on January 31 every five years thereafter.

Subject to regulatory approval and certain provisions of the shares, we may redeem all or any part of the then outstanding Series 47 shares at par on January 31, 2023 and on January 31 every five years thereafter; we may redeem all or any part of the then outstanding Series 48 shares at par on January 31, 2028 and on January 31 every five years thereafter.

Non-cumulative Rate Reset Class A Preferred Shares Series 49 (NVCC) (Series 49 shares)
For the initial five-year period to the earliest redemption date of April 30, 2024, the Series 49 shares pay quarterly cash dividends, if declared, at a rate of 5.20%. On April 30, 2024, and on April 30 every five years thereafter, the dividend rate will reset to be equal to the then current five-year Government of Canada bond yield plus 3.31%.

Holders of the Series 49 shares will have the right to convert their shares on a one-for-one basis into Non-cumulative Floating Rate Class A Preferred Shares Series 50 (NVCC) (Series 50 shares), subject to certain conditions, on April 30, 2024 and on April 30 every five years thereafter. Holders of the Series 50 shares will be entitled to receive a quarterly floating rate dividend, if declared, equal to the three-month Government of Canada Treasury Bill yield plus 3.31%. Holders of the Series 50 shares may convert their shares on a one-for one basis into Series 49 shares, subject to certain conditions, on April 30, 2029 and on April 30 every five years thereafter.

Subject to regulatory approval and certain provisions of the shares, we may redeem all or any part of the then outstanding Series 49 shares at par on April 30, 2024 and on April 30 every five years thereafter; we may redeem all or any part of the then outstanding Series 50 shares at par on April 30, 2029 and on April 30 every five years thereafter.

Non-cumulative Rate Reset Class A Preferred Shares Series 51 (NVCC) (Series 51 shares)
For the initial five-year period to the earliest redemption date of July 31, 2024, the Series 51 shares pay quarterly cash dividends, if declared, at a rate of 5.15%. On July 31, 2024, and on July 31 every five years thereafter, the dividend rate will reset to be equal to the then current five-year Government of Canada bond yield plus 3.62%.

Holders of the Series 51 shares will have the right to convert their shares on a one-for-one basis into Non-cumulative Floating Rate Class A Preferred Shares Series 52 (NVCC) (Series 52 shares), subject to certain conditions, on July 31, 2024 and on July 31 every five years thereafter. Holders of the Series 52 shares will be entitled to receive a quarterly floating rate dividend, if declared, equal to the three-month Government of Canada Treasury Bill yield plus 3.62%. Holders of the Series 52 shares may convert their shares on a one-for-one basis into Series 51 shares, subject to certain conditions, on July 31, 2029 and on July 31 every five years thereafter.

Subject to regulatory approval and certain provisions of the shares, we may redeem all or any part of the then outstanding Series 51 shares at par on July 31, 2024 and on July 31 every five years thereafter; we may redeem all or any part of the then outstanding Series 52 shares at par on July 31, 2029 and on July 31 every five years thereafter.

Off-balance sheet arrangements

We enter into off-balance sheet arrangements in the normal course of our business. We consolidate all of our sponsored trusts that securitize our own assets.

Non-consolidated structured entities

We manage and administer a single-seller conduit and several CIBC-sponsored multi-seller conduits in Canada. The multi-seller conduits acquire direct or indirect ownership or security interests in pools of financial assets from our clients and finance the acquisitions by issuing asset-backed commercial paper (ABCP) to investors. The single-seller conduit acquires financial assets and finances these acquisitions through a credit facility provided by a syndicate of financial institutions. The sellers to the conduits may continue to service the assets and may be exposed to credit losses realized on these assets, typically through the provision of over-collateralization or another form of retained interest. The conduits may obtain credit enhancement from third-party providers.

We generally provide the multi-seller conduits with commercial paper backstop liquidity facilities, securities distribution, and provide both the single and multi-seller conduits with accounting, cash management, and operations services. The liquidity facilities for the managed and administered multi-seller conduits require us to provide funding, subject to the satisfaction of certain conditions with respect to the conduits, for ABCP not placed with external investors. We may also purchase ABCP issued by the multi-seller conduits for market making purposes.

We are required to maintain certain short-term and/or long-term debt ratings with respect to the liquidity facilities that we provide to the sponsored multi-seller conduits. If we are downgraded below the level specified under the terms of those facilities, we must provide alternative satisfactory liquidity arrangements, such as procuring an alternative liquidity provider that meets the minimum rating requirements.

We may also act as the counterparty to derivative contracts entered into by a multi-seller conduit in order to convert the yield of the underlying assets to match the needs of the multi-seller conduit's investors or to mitigate the interest rate, basis, and currency risk within the conduit.

We earn fees for providing services related to the non-consolidated single-seller and multi-seller conduits, such as backstop liquidity facilities, distribution, transaction structuring, and conduit administration. These fees totalled $54 million in 2019 (2018: $55 million). All fees earned in respect of activities with the conduits are on a market basis.

As at October 31, 2019, the amount funded for the various asset types in the multi-seller conduits amounted to $7.1 billion (2018: $7.0 billion). The estimated weighted-average life of these assets was 1.6 years (2018: 1.7 years). Our holdings of commercial paper issued by the non-consolidated sponsored multi-seller conduits that offer commercial paper to external investors were $26 million (2018: $9 million). Our committed backstop liquidity facilities to these conduits were $8.8 billion (2018: $8.8 billion). We also provided credit facilities of $50 million (2018: $50 million) to these conduits.

We participated in a syndicated facility for a three-year commitment of $700 million to the single-seller conduit that provides funding to franchisees of a major Canadian retailer. Our portion of the commitment was $130 million (2018: $130 million). As at October 31, 2019, we funded $87 million (2018: $93 million) through the issuance of bankers' acceptances and prime loans.

We engage one or more of the four major rating agencies, DBRS Limited (DBRS), Fitch Ratings Inc. (Fitch), Moody's Investors Service, Inc. (Moody's), and S&P, to opine on the credit ratings of asset-backed securities (ABS) issued by our sponsored securitization vehicles. In the event that ratings differ between rating agencies, we use the lower rating.

We also have investments in and provide loans, liquidity and credit facilities to certain other third-party and CIBC-managed structured entities. The on-balance sheet exposure related to these structured entities is included in the consolidated financial statements.

Our on- and off-balance sheet amounts related to the structured entities that are not consolidated are set out in the table below. For additional details on our structured entities, see Note 6 to the consolidated financial statements.

$ millions, as at October 31	**2019**			2018		
	Investments and loans [1]	**Liquidity, credit facilities and commitments**	**Written credit derivatives** [2]	Investments and loans [1]	Liquidity, credit facilities and commitments	Written credit derivatives [2]
Single-seller and multi-seller conduits	**$ 113**	**$ 7,137** [3]	**$ –**	$ 102	$ 7,136 [3]	$ –
Third-party structured vehicles – continuing	**3,345**	**2,358**	**–**	3,347	1,656	–
Structured vehicles run-off	**3**	**13**	**139**	3	13	157
Other	**332**	**127**	**–**	298	114	–

(1) Excludes securities issued by, retained interest in, and derivatives with entities established by CMHC, Federal National Mortgage Association, Federal Home Loan Mortgage Corporation, Government National Mortgage Association, Federal Home Loan Banks, Federal Farm Credit Bank, and Student Loan Marketing Association. $3 million (2018: $3 million) of the exposures related to structured vehicles run-off were hedged.

(2) Disclosed amounts reflect the outstanding notional of written credit derivatives. The negative fair value recorded on the consolidated balance sheet was $112 million (2018: $131 million). Notional of $130 million (2018: $141 million) was hedged with credit derivatives protection from third parties. The fair value of these hedges net of CVA was $104 million (2018: $115 million). An additional notional of $9 million (2018: $16 million) was hedged through a limited recourse note.

(3) Excludes an additional $1.6 billion (2018: $1.7 billion) relating to our backstop liquidity facilities provided to the multi-seller conduits as part of their commitment to fund purchases of additional assets. Also excludes $26 million (2018: $9 million) of our direct investments in the multi-seller conduits which we consider investment exposure.

Other financial transactions
We are the sponsor of several mutual and pooled funds, in the form of trusts. We are the administrator of these funds. In addition, we may act in other capacities, including custodian, trustee, and broker. We earn fees at market rates from these trusts. We do not guarantee either principal or returns to investors in these funds. We act as a trustee of a number of personal trusts and have a fiduciary responsibility to act in the best interests of the beneficiaries of the trusts. We earn a fee for acting as a trustee. We also participate in transactions to modify the cash flows of trusts managed by third-party asset managers to create investments with specific risk profiles, or to assist clients in the efficient management of other risks. Typically, these involve the use of derivative products, which transfer the risks and returns to or from a trust.

Derivatives
We participate in derivatives transactions, as a market maker facilitating the needs of our clients or as a principal to manage the risks associated with our funding, investing and trading strategies. All derivatives are recorded at fair value on our consolidated balance sheet. See Notes 12 and 23 to the consolidated financial statements for details on derivative contracts and the risks associated with them.

Credit-related arrangements
Credit-related arrangements are generally off-balance sheet instruments and are typically entered into to meet the financing needs of clients. In addition, there are certain exposures for which we could be obligated to extend credit that are not recorded on the consolidated balance sheet. For additional details of these arrangements, see the "Liquidity risk" section and Note 21 to the consolidated financial statements.

Guarantees
A guarantee is a contract that requires the issuer to make specified payments to reimburse the holder for a loss it incurs because a specified debtor failed to make payment when due in accordance with the original or modified terms of a debt instrument. Guarantees include credit derivatives protection sold and standby and performance letters of credit, as discussed in Notes 12 and 21 to the consolidated financial statements, respectively.

Management of risk

We have provided certain disclosures required under IFRS 7 "Financial Instruments – Disclosures" (IFRS 7) related to the nature and extent of risks arising from financial instruments in the MD&A, as permitted by that IFRS standard. These disclosures are included in the "Risk overview", "Credit risk", "Market risk", "Liquidity risk", "Operational risk", "Reputation, conduct and legal risk", and "Regulatory compliance risk" sections.

40 Risk overview
41 Risk governance structure
42 Risk management structure
43 Risk management process
43 Risk appetite statement
44 Risk policies and limits
45 Risk identification and measurement
46 Stress testing
46 Risk treatment and mitigation
46 Risk monitoring and reporting

46 Top and emerging risks

49 Risks arising from business activities

50 Credit risk
50 Governance and management
50 Policies
51 Process and control
51 Risk measurement
54 Exposure to credit risk
56 Credit quality of portfolios
59 Credit quality performance
60 Exposure to certain countries and regions
60 Selected exposures in certain activities
61 Settlement risk
61 Securitization activities

62 Market risk
62 Governance and management
62 Policies
62 Market risk limits
62 Process and control
62 Risk measurement
63 Trading activities
66 Non-trading activities
67 Pension risk

68 Liquidity risk
68 Governance and management
68 Policies
68 Risk measurement
69 Liquid assets
71 Funding
73 Contractual obligations

74 Other risks
74 Strategic risk
74 Insurance risk
74 Operational risk
76 Technology, information and cyber security risk
76 Reputation, conduct and legal risk
76 Regulatory compliance risk
77 Environmental and related social risk

Risk overview

CIBC faces a wide variety of risks across all of its areas of business. Identifying and understanding risks and their impact allows CIBC to frame its risk appetite and risk management practices. Defining acceptable levels of risk, and establishing sound principles, policies and practices for managing risks, is fundamental to achieving consistent and sustainable long-term performance, while remaining within our risk appetite.

Our risk appetite defines tolerance levels for various risks. This is the foundation for our risk management culture and our risk management framework.

Our risk management framework includes:

- CIBC and SBU-level risk appetite statements;
- Risk frameworks, policies, procedures and limits to align activities with our risk appetite;
- Regular risk reports to identify and communicate risk levels;
- An independent control framework to identify and test compliance with key controls;
- Stress testing to consider the potential impact of changes in the business environment on capital, liquidity and earnings;
- Proactive consideration of risk mitigation options in order to optimize results; and
- Oversight through our risk-focused committees and governance structure.

Managing risk is a shared responsibility at CIBC. Business units and risk management professionals work in collaboration to ensure that business strategies and activities are consistent with our risk appetite. CIBC's approach to enterprise-wide risk management aligns with the three lines of defence model:

(i) As the first line of defence, CIBC's SBUs and functional groups own the risks and are accountable and responsible for identifying and assessing risks inherent in their activities in accordance with the CIBC risk appetite. In addition, they establish and maintain controls to mitigate such risks. The first line of defence may include control groups within the relevant area to facilitate the control framework and other risk-related processes. Control groups provide subject matter expertise to the business lines and/or implement and maintain enterprise-wide control programs and activities. While control groups collaborate with the lines of business in identifying and managing risk, they also challenge risk decisions and risk mitigation strategies.

(ii) The second line of defence is independent from the first line of defence and provides an enterprise-wide view of specific risk types, guidance and effective challenge to risk and control activities. Risk Management, including anti-money laundering (AML) and Compliance, is the primary second line of defence. Risk Management may leverage or rely on subject matter expertise of other groups (e.g., third parties or control groups) to better inform their independent assessments, as appropriate.

(iii) As the third line of defence, CIBC's internal audit function provides reasonable assurance of the design and operating effectiveness of CIBC's controls, processes and systems. Internal audit reports the results of its assessment to management and the Board.

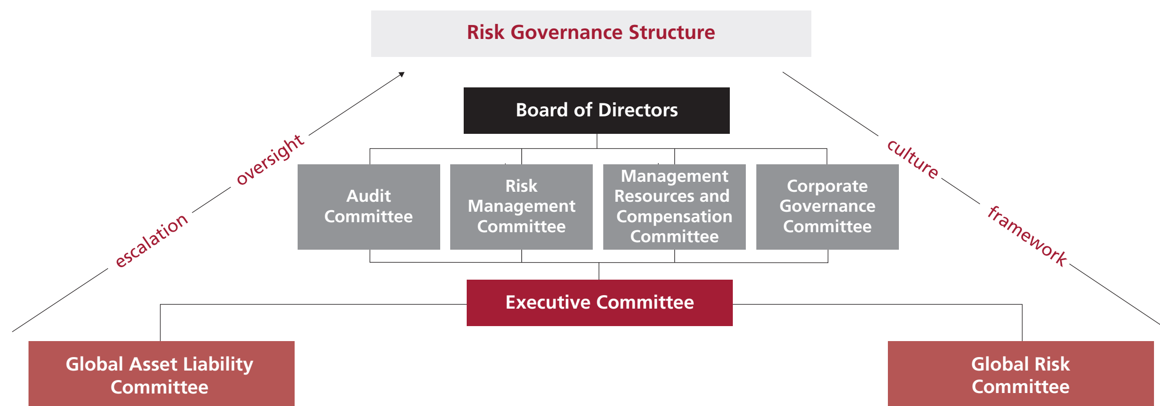
A strong risk culture and communication between the three lines of defence are important characteristics of effective risk management.

We continuously monitor our risk profile against our defined risk appetite and related limits, taking action as needed to maintain an appropriate balance of risk and return. Monitoring our risk profile includes forward-looking analysis of sensitivity to local and global market factors, economic conditions, and political and regulatory environments that influence our overall risk profile.

Regular and transparent risk reporting and discussion at senior management committees facilitates communication of risks and discussion of risk management strategies across the organization.

Risk governance structure

Our risk governance structure is illustrated below:



Board of Directors (the Board): The Board oversees the enterprise-wide risk management program through approval of our risk appetite and supporting risk management policies and limits. The Board accomplishes its mandate through its Audit, Risk Management, Management Resources and Compensation, and Corporate Governance committees, described below.

Audit Committee (AC): The Audit Committee reviews the overall design and operating effectiveness of internal controls and the control environment, including controls over the risk management process.

Risk Management Committee (RMC): This committee assists the Board in fulfilling its responsibilities for defining CIBC's risk appetite and overseeing CIBC's risk profile and performance against the defined risk appetite. This includes oversight of policies, procedures and limits related to the identification, measurement, monitoring and controlling of CIBC's principal business risks.

Management Resources and Compensation Committee (MRCC): This committee is responsible for assisting the Board in its global oversight of CIBC's human capital strategy, including talent and total rewards, and the alignment with CIBC's strategy, risk appetite and controls.

Corporate Governance Committee (CGC): This committee is responsible for assisting the Board in fulfilling its corporate governance oversight responsibilities.

Executive Committee (ExCo): The ExCo, led by the CEO and including the executives reporting directly to the CEO, is responsible for setting business strategy and for monitoring, evaluating and managing risks across CIBC. The ExCo is supported by the following committees:

- *Global Asset Liability Committee (GALCO):* This committee, which comprises members from the ExCo and senior Treasury and Risk Management executives, provides oversight regarding capital management, funding and liquidity management, and asset liability management. It also provides strategic direction regarding structural interest rate risk and structural foreign exchange risk postures, approval of funds transfer pricing policies/ parameters and approval of wholesale funding plans.
- *Global Risk Committee (GRC):* This committee, which comprises members of the ExCo and senior leaders from the lines of business, Risk Management and other functional groups, provides a forum for discussion and oversight of risk appetite, risk profile and risk-mitigation strategies. Key activities include reviewing, and providing input regarding CIBC's risk appetite statements; monitoring risk profile against risk appetite, reviewing, and evaluating business activities in the context of risk appetite; and identifying, reviewing, and advising on current and emerging risk issues and associated mitigation plans.

Risk management structure

The Risk Management group, led by our Chief Risk Officer (CRO), is responsible for setting risk strategies and for providing independent oversight of the businesses. Risk Management works to identify, assess, mitigate, monitor and control the risks associated with business activities and strategies, and is responsible for providing an effective challenge to the lines of business.

The current structure is illustrated below:

The Risk Management group performs several important activities including:

- Developing CIBC's risk appetite and associated management control metrics;
- Setting risk strategy to manage risks in alignment with our risk appetite and business strategy;
- Establishing and communicating risk policies, procedures and limits to control risks in alignment with risk strategy;
- Measuring, monitoring and reporting on risk levels;
- Identifying and assessing emerging and potential strategic risks;
- Deciding on transactions that fall outside of risk limits delegated to business lines; and
- Ensuring compliance with applicable regulatory and anti-money laundering requirements.

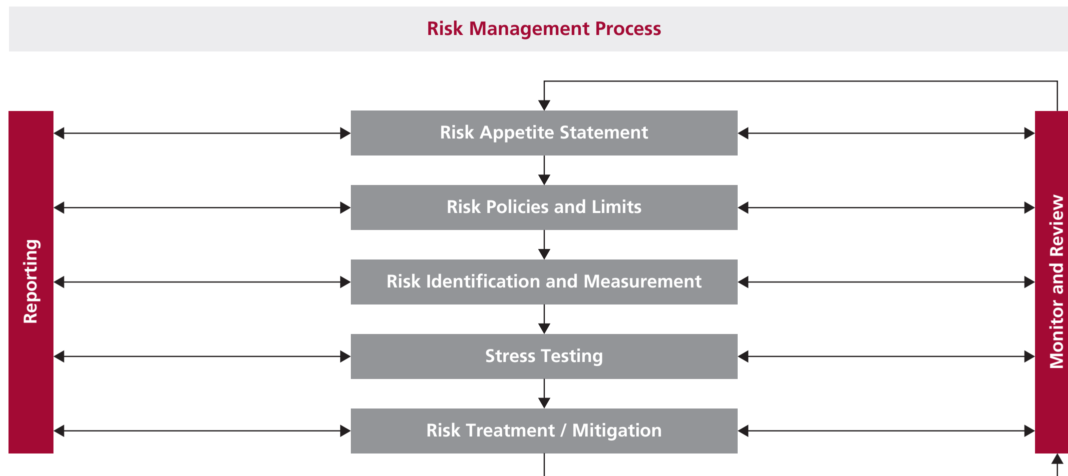
The following key groups within Risk Management, independent of the originating businesses, contribute to our management of risk:

- Capital Markets Risk Management – This group provides independent oversight of the measurement, monitoring and control of market risks (both trading and non-trading), and trading credit risk (also called counterparty credit risk) across CIBC's portfolios, and effective challenge and sound risk management oversight to the treasury/liquidity management function within CIBC.
- Global Credit Risk Management – This group is responsible for the adjudication and oversight of credit risks (including transaction-specific environmental and related social risk[(1)]) associated with our commercial, corporate and wealth management activities, management of the risks in our investment portfolios, as well as management of special loan portfolios.
- Global Operational Risk Management – This group develops the systems and tools to facilitate the identification of operational risks, and has global accountability for the measurement and monitoring of all operational risk types including fraud, model, third party, technology and information security risks.
- Risk Analytics, Reporting and Credit Decisioning – This group is responsible for enterprise-wide analysis, including enterprise-wide stress testing and reporting, loan loss reporting, risk policy and governance, risk systems and models, as well as economic and regulatory capital methodologies. In addition, this group manages credit risk in personal and small business products offered through the various distribution channels (residential mortgages, credit cards, personal loans/lines of credit, small business loans) and performs analytics to optimize retail credit performance, along with collections, fraud, and anti-money laundering outcomes.
- Conduct Risk Management and Environmental Sustainability – This group is responsible for enterprise-wide conduct risk, including sales practice risk, effective challenge of compensation plan changes and non-transactional reputation risk. In addition, this group identifies and manages environmental risk, including the physical and transition risks associated with climate change.
- Compliance – This group provides timely and proactive advice and independent oversight of CIBC's compliance with applicable regulatory requirements.
- Enterprise Anti-Money Laundering – This group is responsible for all aspects of compliance with and oversight of requirements relating to anti-money laundering, anti-terrorist financing, and sanctions measures.
- U.S. Risk Management – This group carries out the mandate of CIBC Risk Management at a regional level under the leadership of the U.S. CRO, with oversight from the U.S. Risk Management Committee and reporting to the Senior Executive Vice-President, U.S. Region. The group provides independent oversight for the identification, management, measurement, monitoring and control of risks in the U.S.

(1) See the "Environmental and related social risk" section for further details, including oversight of non-transaction-specific environmental and related social risk, which reports directly into the CRO.

Risk management process

Our risk management process is illustrated below:



Risk appetite statement

CIBC's risk appetite statement defines the amount of risk we are willing to assume in pursuit of our strategic and financial objectives. Our guiding principle is to practice sound risk management, supported by strong capital and funding positions, as we pursue our client-focused strategy. In defining our risk appetite, we take into consideration our vision, values, and strategy, along with our risk capacity (defined by regulatory constraints). It defines how we conduct business, which is to be consistent with the following objectives:

- Doing the right thing for our clients/stakeholders;
- Safeguarding our reputation and brand;
- Engaging in client-oriented businesses that we understand;
- Maintaining a balance between risk and returns;
- Retaining a prudent attitude towards tail and event risk;
- Meeting regulatory expectations and/or identifying and having plans in place to address any issues in a timely manner; and
- Achieving/maintaining an AA rating.

Our CIBC risk appetite statement contains metrics with limits that define our risk tolerance levels. In addition, we have SBU risk appetite statements that are integrated with the overall CIBC risk appetite statement that further articulate our business level risk tolerances.

Our CIBC risk appetite statement is reviewed annually in conjunction with our strategic, financial and capital planning cycle to ensure alignment and is approved annually by the Board. To help ensure CIBC stays within its risk appetite, the Board, RMC, and senior management regularly receive and review reporting on our risk profile against the risk appetite limits.

All strategic business decisions, as well as day-to-day business decisions, are governed by our risk appetite framework. Strategic decisions are evaluated to ensure that the risk exposure is within our risk appetite. Day-to-day activities and decisions are governed by our framework of risk tolerance limits, policies, standards and procedures that support our risk appetite statement.

Risk culture

Risk culture refers to desired attitudes and behaviours relative to risk taking. At CIBC, we strive to achieve a consistent and effective risk culture by:

- Promoting, through both formal and informal channels, a shared accountability of risk identification, management and mitigation;
- Cultivating an environment of transparency, open communication and robust discussion of risk;
- Setting the appropriate "tone at the top" through clear communication and reinforcement; and
- Identifying behaviours that are and are not aligned with risk appetite, and reinforce appropriate behaviours.

Every year, all employees are required to complete formal training on risk appetite, reputation risk, operational risk, code of conduct, anti-money laundering and other key risk topics. By taking this mandatory training, all employees develop a basic knowledge of risk management in support of our risk culture. This training is supplemented by our risk appetite statement, risk management priorities, documents on our internal website and internal news releases. In addition, we have policies, procedures and limits in place that govern our day-to-day business activity, with escalation procedures for limit breaches outlined accordingly.

Risk input into performance and compensation

Throughout the year, the Risk Management team manages various compensation risk reviews. These reviews are part of the second line of defence responsibilities to review and challenge new compensation plans, changes to existing compensation plans, and compensation plans that will be closed. All compensation plans are rated as either high-risk or low-risk with high-risk compensation plans requiring approval from the CRO.

At each year-end, Risk Management provides an assessment of adherence to risk appetite and material risk matters across CIBC. Risk Management also considers a number of risk inputs to identify matters which may directly impact individual compensation awards and/or performance ratings. Annually, Risk Management reviews the assessment with both the RMC and the MRCC.

The MRCC oversees the performance management and compensation process. The MRCC is responsible for assisting the Board in its global oversight of CIBC's human capital strategy, including talent and total rewards, and the alignment with CIBC's strategy, risk appetite and controls. The MRCC's key compensation-related responsibilities include:

- Approving CIBC's compensation philosophy and any material changes to CIBC's compensation principles or practices;
- Approving new material compensation policies and material changes to existing material compensation policies;

- Reviewing and recommending for Board approval new material compensation plans or changes to existing material compensation plans;
- Assessing the appropriateness and alignment of compensation relative to actual business performance and risks;
- Reviewing and recommending for Board approval incentive compensation funding and allocations, based on an assessment of business performance and risk;
- Reviewing and recommending for Board approval individual compensation target and compensation for the ExCo, including the CEO and other key officers; and
- Approving individual compensation for employees with total direct compensation above a certain materiality threshold.

Risk policies and limits

Our risk policies and limits framework is intended to ensure that risks are appropriately identified, measured, monitored and controlled in accordance with our risk appetite. For most risks, we have developed an overarching framework document that sets out the key principles for managing the associated risks and our key risk policies and limits. This framework is supported by standards, guidelines, processes, procedures and controls that govern day-to-day activities in our businesses. Oversight is provided by management committees, as well as the Board/Board Committees.

Key risk policies and limits are illustrated below:

Risk Management Framework

Risk Appetite Statement and Risk Appetite Framework

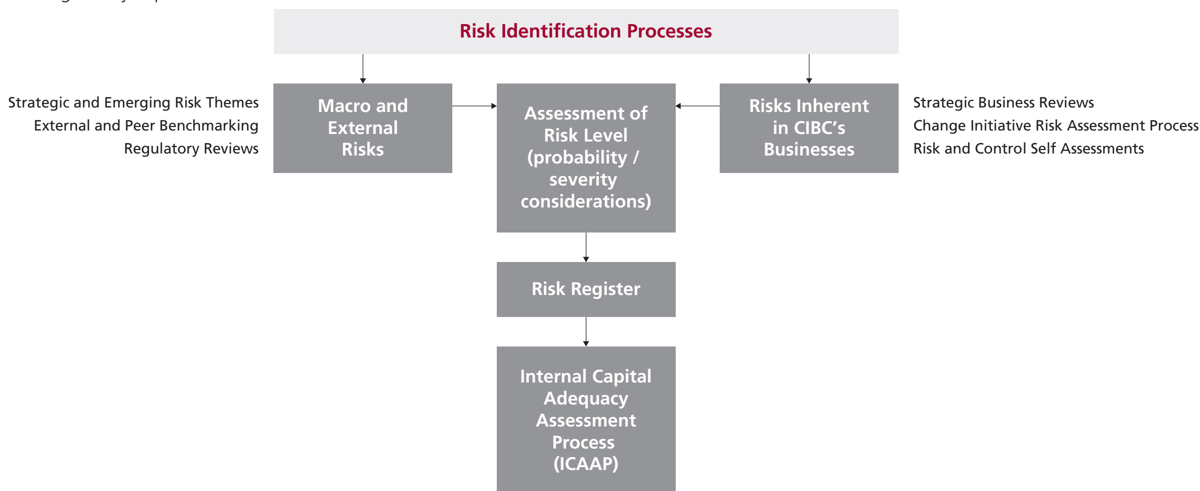
Risk	Overarching Framework / Policy	Risk Limits	Management Oversight
Credit	Credit Risk Management Policy	Credit Concentration Limits Delegated Credit Approval Authorities	Credit Committee Personal and Small Business Credit Risk Committee Global Risk Committee
Market	Trading Credit Risk and Market Risk Management Policies Structural Risk Management Policies	Market Risk Limits Delegated Risk Authorities	Global Risk Committee Global Asset Liability Committee
Operational	Operational Risk Management Policy Control Framework	Key Risk Indicators	Operational Risk and Control Committee Global Risk Committee Technology Risk Committee Model and Parameter Risk Committee
Reputation and conduct	Reputation Risk Management Framework and Policy Conduct Risk Framework	Key Risk Indicators	Reputation and Legal Risk Committee Reputation Risk Committee
Liquidity	Liquidity Risk Management Policy Pledging Policy	Liquidity and Funding Limits Pledging Limits	Global Asset Liability Committee Global Risk Committee
Strategic	Strategic Planning Policy	Risk Appetite Statement	Executive Committee
Regulatory	Regulatory Compliance Management Policy	Key Risk Indicators	Global Risk Committee
Money Laundering/ Terrorist Financing	Anti-Money Laundering (AML)/ Anti-Terrorist Financing (ATF) Framework Enterprise AML/ATF Policy	Risk Appetite Statement Key AML Metrics	AML Executive Steering Committee Global Risk Committee

Risk identification and measurement

Risk identification and measurement are important elements of our risk management framework. Risk identification is a continuous process, generally achieved through:

- Regular assessment of risks associated with lending and trading credit exposures;
- Ongoing monitoring of trading and non-trading portfolios;
- Assessment of risks in new business activities and processes;
- Assessment of risks in complex and unusual business transactions; and
- Regular monitoring of the overall risk profile considering market developments and trends, and external and internal events.

Risk Management maintains a "Risk Register" to list all material risks facing CIBC. The inventory is based on the risks inherent in CIBC's businesses and updated through various processes, illustrated in the following chart, to reflect changes in the nature of the risks we are facing. The Risk Register is used to support our ICAAP, either explicitly in the economic and regulatory capital calculations, or implicitly through the buffer of actual capital over economic capital and regulatory capital.



The decision to register a new risk is based on a risk assessment through our risk identification processes and includes criteria such as severity, measurability and probability. Furthermore, the decision to hold capital for a new risk is also based on whether the risk is being mitigated, and whether capital is deemed to be a suitable mitigant.

We have enterprise-wide methodologies, models and techniques in place to measure both the quantitative and qualitative aspects of risks, appropriate for the various types of risks we face. These methodologies, models and techniques are subject to independent assessment and review to ensure that the underlying logic remains sound, that model risks have been identified and managed, that use of the models continues to be appropriate and outputs are valid.

Risk is usually measured in terms of expected loss, unexpected loss, and economic capital.

Expected loss

Expected loss represents the loss that is statistically expected to occur in the normal course of business, with adjustments for conservatism, in a given period of time.

In respect of credit risk, the parameters used to measure expected loss are PD, LGD and EAD. These parameters are updated regularly and are based on our historical experience through the cycle and benchmarking of credit exposures. The PD, LGD and EAD parameters used for regulatory capital purposes are not adjusted for forward-looking information.

For trading market risks, VaR is a statistical technique used to measure risk. VaR is an estimate of the loss in market value for a given level of confidence that we would expect to incur in our trading portfolio due to an adverse one-day movement in market rates and prices. We also use stressed VaR to replicate our VaR over a period when relevant market factors are in distress.

For trading credit risks associated with market value based products, we use models to estimate exposure relative to the value of the portfolio of trades with each counterparty, giving consideration to market rates and prices.

Unexpected loss and economic capital

Unexpected loss is the statistical estimate of the amount by which actual losses might exceed expected losses over a specified time horizon, computed at a given confidence level. We use economic capital to estimate the level of capital needed to protect us against unexpected losses. Economic capital allows us to assess performance on a risk-adjusted basis.

We also use techniques such as sensitivity analysis and stress testing to help ensure that the risks remain within our risk appetite and that our capital is adequate to cover those risks. Our stress testing program includes evaluation of the potential effects of various economic and market scenarios on our risk profile, earnings and capital. Refer to the "Capital management" section for additional details.

Model risk management

Model risk management encompasses sound development, independent validation, and ongoing monitoring and review of the models as well as governance and controls that are proportionate to the risks. Our model inventory includes, but is not limited to, models that relate to risk measurement (including VaR, economic and regulatory capital), pricing, credit risk rating and scoring models, credit models for the calculation of loss severity and stress testing, and models for the calculation of expected credit losses under IFRS 9. CIBC's approach to provide effective governance and oversight for model risk management is comprised of the following key elements:

- Governance and oversight by management committees, including the Model and Parameter Risk Committee (MPRC), senior management and the Board;

- Policies, procedures and standards to outline applicable roles and responsibilities of the various oversight groups and to provide guidance to identify, measure, control and monitor model risk throughout the model's life cycle; and
- Controls for key operational aspects of model risk management including maintaining a model inventory, model risk ranking, model risk attestation and ongoing monitoring and reporting.

The MPRC is a subcommittee of the GRC and is responsible for reviewing and approving proposals for new and/or modified regulatory, economic capital and financial reporting models and provides oversight of CIBC's regulatory, economic capital and financial reporting models and parameters for credit, market and operational risks. The MPRC has accountability and responsibility for model and parameter approvals, parameter performance monitoring, validation oversight, and policy oversight.

Model risk mitigation policies

We have policies, procedures, standards and controls to ensure effective model risk management for CIBC. A model review and validation is the independent effective challenge that documents the model risk and ensures models are sound and CIBC can rely on their output. The model review and validation process includes:

- Review of model documentation;
- Comprehensive, systematic testing of key model parameters on implementation to ensure results are as expected;
- Replication of the risk quantification process to determine whether the model implementation is faithful to the model specifications;
- Review of whether the model/parameter concepts and assumptions are appropriate and robust;
- Accuracy testing to assess the calibration and accuracy of the risk components including, for example, the discriminative power of rating systems and the reasonableness of capital parameters;
- Sensitivity testing to analyze the sensitivity of model/parameter outputs to model/parameter assumptions and key inputs;
- Scenario and stress testing of the model outputs to key inputs;
- Back-testing by comparing actual results with model-generated risk measures;
- Benchmarking to other models and comparable internal and external data;
- Review of the internal usage of the model/parameter applications to ensure consistency of application;
- Reporting of model status to the MPRC, supported through an up-to-date inventory of regulatory models and parameters;
- A quarterly attestation process for model owners in order to ensure compliance with the Model Risk and Validation Policy; and
- A comprehensive validation report is prepared that identifies the conditions for valid application of the model and summarizes these findings to the model owners, developers and users.

Once a model has been approved for use, ongoing monitoring becomes a joint responsibility of model users, owners and validators.

Stress testing

Stress testing supplements our other risk management tools by providing an estimate of tail risk (i.e., low probability, high severity events). Results of stress testing are interpreted in the context of our risk appetite, including metrics for capital adequacy. Enterprise-wide stress testing, capital planning and financial planning processes are integrated for a comprehensive information system. See the "Financial condition" section for detailed discussion on our enterprise-wide stress testing.

Risk treatment and mitigation

Risk treatment and mitigation is the implementation of options for modifying risk levels. CIBC pursues risk mitigation options in order to control its risk profile in the context of its risk appetite. CIBC's objective is to proactively consider risk mitigation options in order to optimize results.

Discussions regarding potential risk mitigation strategies are held between Risk Management and the lines of business, and at the GRC or GALCO and at the RMC for governance and oversight, as appropriate. In evaluating possible strategies, considerations include costs and benefits, residual risks (i.e., risks that are retained), secondary risks (i.e., those caused by the risk mitigation actions), and appropriate monitoring and review to track results.

Risk controls

Our risk management framework also includes a comprehensive set of risk controls, designed to ensure that risks are being appropriately identified and managed. Our risk controls are part of CIBC's overall Control Framework, developed based on the Committee of Sponsoring Organizations of the Treadway Commission's (COSO) widely accepted "Internal Control – Integrated Framework". The Control Framework also draws on elements of the OSFI Supervisory Framework and Corporate Governance Guidelines.

The Board, primarily through the RMC, approves certain credit risk limits and delegates specific transactional approval authorities to the CEO or jointly to the CEO and CRO. The RMC must approve transactions that exceed delegated authorities. Delegation of authority to business units is controlled to ensure decision-making authorities are restricted to those individuals with the necessary experience levels. In addition, CIBC has rigorous processes to identify, evaluate and remediate risk control deficiencies in a timely manner. Regular reporting is provided to the RMC to evidence compliance with risk limits. Risk limits and the delegation of authority to the CEO or jointly to the CEO and CRO are reviewed annually by the RMC.

Risk monitoring and reporting

To monitor CIBC's risk profile and facilitate evaluation against the risk appetite statement, a number of measurement metrics have been established, with regular reporting against these metrics provided to the GRC and the RMC. This reporting enables decisions on growth and risk mitigation strategies.

Exposures are also regularly monitored against limits, with escalation protocols for limit excesses, should they occur. Escalation protocols ensure awareness at appropriate levels and facilitate management of excesses that is consistent with our risk appetite.

Regular management reports on each risk type are also prepared to facilitate monitoring and control of risk at a more granular level.

Top and emerging risks

We monitor and review top and emerging risks that may affect our future results, and take action to mitigate potential risks if required. We perform in-depth analyses, which can include stress testing our exposures relative to the risks, and provide updates and related developments to the Board on a regular basis. Top and emerging risks are those that we consider to have potential negative implications that are material for CIBC. This section describes those top and emerging risks, as well as regulatory and accounting developments that are material for CIBC.

Technology, information and cyber security risk

Financial institutions like CIBC are evolving their business processes to leverage innovative technologies and the internet to improve client experience and streamline operations. At the same time, cyber threats and the associated financial, reputation and business interruption risks have also increased.

These risks continue to be actively managed by us through strategic risk reviews, enterprise-wide technology and information security programs, with the goal of maintaining overall cyber-resilience that prevents, detects, and responds to threats such as data breaches, malware, unauthorized access, and denial-of-service attacks, which can result in damage to CIBC systems and information, theft or disclosure of confidential information, unauthorized or fraudulent activity, and service disruption.

Given the importance of electronic financial systems, including secure online and mobile banking provided by CIBC to its clients, CIBC monitors the changing environment globally, including cyber threats, mitigation strategies and evolving regulatory requirements, in order to improve our controls and processes to protect our systems and client information. In addition, we perform cyber security preparedness, testing, and recovery exercises to validate our defences, benchmark against best practices and provide regular updates to the Board. CIBC has well-defined cyber incident response protocols and playbooks in the event that a security incident or breach occurs. CIBC also has cyber insurance coverage to help mitigate against certain potential losses associated with cyber incidents. CIBC's insurance coverage is subject to various terms and provisions, including limits on the types and amounts of coverage relating to losses arising from cyber incidents. We periodically assess our insurance coverage based on our risk tolerance and limits.

Despite our commitment to information and cyber security, and given the rapidly evolving threat and regulatory landscape, coupled with a changing business environment, it is not possible for CIBC to identify all cyber risks or implement measures to prevent or eliminate all potential incidents from occurring. However, CIBC monitors its risk profile for changes and continues to refine approaches to security protection and service resilience to minimize the impact of any incidents that may occur.

Third party risk

CIBC's Board and senior management recognize the establishment of third-party relationships as important to CIBC's business model and therefore leverage them to achieve CIBC's business objectives. With the introduction of new technologies, new foreign jurisdictions and increasing reliance on sub-contractors, the third-party landscape continues to evolve. While such relationships may benefit CIBC through reduced costs, innovation, improved performance and increased business competitiveness, they also can introduce risks of failure or disruption to CIBC through breakdowns in people, processes or technology or through external events that impact these third parties.

To mitigate third-party risks, prepare for future third-party risks and changing regulatory expectations, and to ensure existing processes and internal controls are operating effectively, CIBC relies on its strong risk culture and established Third Party Risk Management program, which includes policies, procedures, expertise and resources dedicated to third-party risk management. The program identifies and manages risks that arise from third-party relationships from the point of selection through the life cycle of the business arrangement and supports the maintenance of collaborative relationships that advance CIBC's strategic direction and operational needs within our risk appetite.

Disintermediation risk

Canadian banking clients are increasingly shifting their service transactions from branches to digital platforms. As such, competitive pressure from digital disruptors, both global technology leaders and smaller financial technology entrants, is increasing and the risk of disintermediation is growing due to the level of sophistication of these non-traditional competitors. Cryptocurrencies, such as Bitcoin, are increasingly being recognized by financial institutions as risk factors facing their business operations. One of the major appeals of cryptocurrencies is the anonymity they offer, as participants can transfer assets across the internet without the need for centralized third-party intermediaries such as banks. In view of several shortcomings including their high volatility and propensity for attempted and successful cyber attacks, the widespread adoption of cryptocurrencies as a substitute for government-issued currencies does not appear to be a near-term prospect. However, the underlying blockchain technology is seen to have vast potential which could contribute to increased disintermediation.

Blockchain is a decentralized ledger technology that keeps records that are linked and secured with cryptography. It enables the use of cryptocurrencies, such as Bitcoin. The percentage of global GDP stored on this technology is expected to continue to increase, creating the potential for blockchain to transform business models over time across multiple industries that focus on transaction and record verification.

CIBC manages disintermediation risk through strategic risk reviews as well as investment in emerging channels, in data and analytics capabilities, and in technology and innovation in general, to meet our clients' changing expectations, while working to reduce our cost structure and simplify operations.

Climate risk

The physical effects of climate change such as heat waves, water stress and flooding, along with regulations designed to mitigate climate change, will have a measurable impact on communities and the economy. As the world transitions to a low-carbon economy, we are committed to understanding and responsibly managing the relevant impacts of climate change on our business activities. While CIBC has relatively low direct carbon emissions given we are a service-based company, many of our clients operate in businesses that currently face or will face new carbon emission standards in the foreseeable future.

There is an increasing demand for disclosure around climate-related risk identification and mitigation and we support the disclosure framework developed by the Task Force on Climate-related Financial Disclosures (TCFD). The TCFD reporting framework provides stakeholders with consistent, material climate-related disclosures that are comparable across sectors, industries and countries. A key recommendation by the TCFD is the use of climate-related scenario analysis as a way to provide insight into how physical and transition risks of climate change might impact a business over time. Along with many other global banks, CIBC is participating in the United Nations Environmental Programme Finance Initiative Task Force on Climate-related Financial Disclosures (UNEP FI TCFD) in order to accelerate our progress and ensure consistency in approach to effective climate scenario analysis.

See the "Environmental and related social risk" section for additional information.

Geo-political risk

The level of geo-political risk escalates at certain points in time. While the specific impact on the global economy and on global credit and capital markets would depend on the nature of the event, in general, any major event could result in instability and volatility, leading to widening spreads, declining equity valuations, flight to safe-haven currencies and increased purchases of gold. In the short run, market shocks could hurt the net income of our trading and non-trading market risk positions. Geo-political risk could reduce economic growth, and in combination with the potential impacts on commodity prices and the recent rise of protectionism, could have serious negative implications for general economic and banking activities. Current areas of concern include:

- Ongoing trade tensions between the U.S. and China;
- Diplomatic tensions and the trade dispute between Canada and China;
- Relations between the U.S. and Iran;
- Anti-government protests in Hong Kong;
- Uncertainty regarding the outcome of Brexit negotiations following a third deadline delay and a general election to be held in the U.K. in December; and

- Uncertainty regarding the United States Congress' ratification of the Canada-U.S.-Mexico Agreement, and the potential impact on North American trade policy.

While it is impossible to predict where new geo-political disruption will occur, we do pay particular attention to markets and regions with existing or recent historical instability to assess the impact of these environments on the markets and businesses in which we operate.

Canadian consumer debt and the housing market

As a consequence of historically low interest rates, Canadians had increased debt levels at a pace that exceeded the growth in their income. Most of the increase in household debt levels was driven by higher levels of mortgage debt, which was tied to the Canadian housing market. The Bank of Canada's interest rate increases in 2018, combined with regulatory measures introduced by OSFI, the Department of Finance, and provincial governments, including taxes on foreign ownership and revised mortgage underwriting guidelines (B-20 guidelines), are having their intended effect. Household credit is currently growing at the slowest pace experienced in any non-recessionary period during the post-war era.

While we believe that the probability of a severe housing crash that generates significant losses for mortgage portfolios remains low, future increases in interest rates would elevate the risk associated with an inflated housing market. Further, the high levels of consumer debt would be a concern should the economy falter and unemployment rates begin to increase.

Currently, we qualify variable rate mortgage borrowers using the Bank of Canada five-year fixed benchmark rate, which is typically higher than the variable rate by approximately two percentage points, which is required as part of the B-20 guidelines. Therefore, our variable rate borrowers should be able to withstand some increase in interest rates. In addition, we run our enterprise-wide statistical stress tests at lower home prices to determine potential direct losses, and have also conducted stress tests to assess the impact of rising unemployment rates on borrowers' ability to repay loan obligations.

Money laundering

Money laundering, terrorist financing activities and other related crimes pose a great threat to the stability and integrity of a country's financial sector and its broader economy. In recognition of this threat, the international community has made the fight against these illegal activities a priority. In Canada, amendments to the regulations under the Proceeds of Crime (Money Laundering) and Terrorist Financing Act were published in June 2019 to improve the effectiveness of Canada's AML and ATF regime. The new regulations will require substantial changes to the type of client information we need to collect, and as such, will impact our client-facing systems and transaction, payment processing and reporting systems.

CIBC is committed to adhering to all regulatory requirements pertaining to AML and ATF and implementing best practices to minimize the impact of such activities. As such, CIBC has implemented procedures to ensure that relevant regulatory obligations with respect to the reporting of large cash transactions, electronic funds transfers, and cross-border movements of cash and monetary instruments, are met in each jurisdiction. In addition, all employees are required to complete CIBC's AML/ATF training annually.

Commodity prices

While crude oil prices have rebounded from December 2018 lows, ongoing price stability remains a concern despite supply restrictions and unease arising from geo-political tensions. Factors including the extension of existing output cuts to the end of the first quarter of 2020 by the Organization of the Petroleum Exporting Countries (OPEC), significant volume reductions resulting from U.S. sanctions on Venezuela and Iran, and output disruption from attacks on Saudi Arabian oil facilities are being counteracted by expectations of reduced oil demand in line with the projected deceleration in the pace of global economic growth for 2020. While there has been improvement in the price of Canada's heavy oil benchmark, WCS, and a narrowing of the spread between WCS and WTI, differentials remain volatile, affected by the impact of declines in production limitations mandated by the Alberta government and inadequate transportation capacity. Natural gas prices also continue to be an area of concern, as Alberta Energy Company (AECO) prices – the Canadian gas benchmark – have experienced extreme volatility since mid-2017, mainly due to severe pipeline constraints, with the largest impact felt by Canadian dry gas producers.

CIBC's overall commodity exposure continues to perform within our risk appetite, with losses in our oil and gas portfolio down from peak levels. Clients in our oil and gas portfolio are currently being assessed on the basis of our enhanced risk metrics, and our portfolio is being monitored in a prudent manner.

U.S. banking regulation

CIBC's U.S. operations are subject to supervision by the Board of Governors of the Federal Reserve System (Federal Reserve), and are also subject to a comprehensive federal and state regulatory framework. Our wholly owned subsidiary, CIBC Bancorp USA Inc. (CIBC Bancorp), is a financial holding company subject to regulation and supervision by the Federal Reserve under the Bank Holding Act of 1956, as amended. CIBC Bank USA, our Illinois-chartered bank, is subject to regulation by the U.S. Federal Deposit Insurance Corporation (FDIC) and the Illinois Department of Financial and Professional Regulation. CIBC's New York branch is subject to regulation and supervision by the New York Department of Financial Services and the Federal Reserve. Certain market activities of our U.S. operations are subject to regulation by the SEC and the U.S. Commodity Futures Trading Commission, as well as other oversight bodies.

The scope of these regulations could impact our business in a number of ways. For example, both CIBC Bancorp and CIBC Bank USA are required to maintain minimum capital ratios in accordance with Basel III rules adopted by the U.S. bank regulatory agencies, which differ in some respects from Canada's Basel III rules. Under the U.S. bank regulatory framework, both CIBC and CIBC Bancorp are expected to provide a source of strength to the subsidiary bank and may be required to commit additional capital and other resources to CIBC Bank USA in the event that its financial condition were to deteriorate, whether due to overall challenging economic conditions in the U.S., or because of business-specific issues. The Federal Reserve (in the case of CIBC Bancorp) and the FDIC (in the case of CIBC Bank USA) also have the ability to restrict dividends paid by CIBC Bancorp or CIBC Bank USA, which could limit our ability to receive distributions on our capital investment in our U.S. banking operations.

Furthermore, the Federal Reserve and the FDIC could also restrict our ability to grow our U.S. banking operations, whether through acquisitions or organically, if, among other things, they have supervisory concerns about risk management, AML or compliance programs and practices, governance and controls, and/or capital and liquidity adequacy at CIBC Bancorp, CIBC Bank USA or our New York branch, as applicable.

The U.S. regulatory environment continues to evolve and future legislative and regulatory developments may impact CIBC. In October 2019, U.S. banking regulators finalized a revised risk-based framework for applying enhanced prudential standards to the U.S. operations of foreign banking organizations. Under that framework, certain additional capital and liquidity requirements that would demand significant compliance efforts will not apply until CIBC's U.S. operations grow substantially.

Acquisition risk

CIBC seeks out acquisition opportunities that align with its strategy, risk appetite and financial goals. The ability to successfully execute on our strategy to integrate acquisitions, and the ability to anticipate and manage risks associated with acquisitions, are subject to certain factors. These include receiving regulatory and shareholder approval on a timely basis and on favourable terms, retaining clients and key personnel, realizing synergies and efficiencies, controlling integration and acquisition costs, among others, and changes in general business and economic conditions.

Although many of the factors are beyond CIBC's control, their impact is partially mitigated by conducting due diligence before completing the transaction, developing and executing appropriate integration plans, and monitoring performance following the acquisition. However, acquisitions involve inherent uncertainty and we cannot determine all potential events, facts and circumstances and there could be an adverse impact on CIBC's operations and financial performance.

Regulatory developments

See the "Taxes", "Capital management", "Liquidity risk" and "Accounting and control matters" sections for additional information on regulatory developments.

Accounting developments

See the "Accounting and control matters" section and Note 31 to the consolidated financial statements for additional information on accounting developments.

Risks arising from business activities

The chart below shows our business activities and related risk measures based upon regulatory RWA and economic capital as at October 31, 2019:

CIBC

	Canadian Personal and Small Business Banking	Canadian Commercial Banking and Wealth Management	U.S. Commercial Banking and Wealth Management	Capital Markets	Corporate and Other
SBUs	Canadian Personal and Small Business Banking	Canadian Commercial Banking and Wealth Management	U.S. Commercial Banking and Wealth Management	Capital Markets	Corporate and Other
Business activities	• Deposits • Residential mortgages • Personal loans • Credit cards • Small business lending • Insurance	• Commercial banking • Full service brokerage • Asset management • Private wealth management	• Commercial banking • Asset management • Private wealth management • Personal and small business banking	• Credit products • Global markets • Investment banking • Investment portfolios	• International banking • Investment portfolios • Joint ventures • Functional and support groups (see page 26)
Balance sheet ($ millions)					
Average assets	259,089	62,552	48,687	184,566	84,822
Average deposits	177,423	60,195	27,224	33,312	178,976
CET1 RWA ($ millions)					
Credit risk	48,876	44,980	42,630 [1]	49,452 [2]	18,806 [3]
Market risk	–	–	39	6,186	307
Operational risk	12,013	6,232	3,261	6,295	786
Economic capital [4] (%)					
Proportion of total CIBC	17	17	34	13	19
Comprising:					
Credit risk [5]	62	65	40	75	23
Market risk	28	2	2	13	16
Operational/Strategic risks	10	33	58	12	61

Risk profile

We are exposed to credit, market, liquidity, operational, and other risks, which primarily include strategic, insurance, technology, information and cyber security, reputation, conduct and legal, regulatory compliance, and environmental and related social risks.

(1) Includes counterparty credit risk of $242 million, which comprises derivatives and repo-style transactions.
(2) Includes counterparty credit risk of $16,849 million, which comprises derivatives and repo-style transactions.
(3) Includes counterparty credit risk of $149 million, which comprises derivatives and repo-style transactions.
(4) For additional information, see the "Non-GAAP measures" section.
(5) Includes investment risk.

Credit risk

Credit risk is the risk of financial loss due to a borrower or counterparty failing to meet its obligations in accordance with contractual terms.

Credit risk arises out of the lending businesses in each of our SBUs. Other sources of credit risk consist of our trading activities, which include our over-the-counter (OTC) derivatives, debt securities, and our repo-style transaction activity. In addition to losses on the default of a borrower or counterparty, unrealized gains or losses may occur due to changes in the credit spread of the counterparty, which could impact the carrying or fair value of our assets.

Governance and management

Credit risk is managed through the three lines of defence model. Frontline businesses and control groups must assess and manage the risks associated with their activities. They own the risks and the controls that mitigate the risks – this is the first line of defence.

The second line of defence is Risk Management, including AML and Compliance, which takes a broader, independent view and is responsible for the adjudication and oversight of credit risks associated with CIBC's commercial, corporate and wealth management activities, as well as risk assessments and decisions for the first line of defence.

Internal audit provides the third line of defence, by providing reasonable assurance of the design and operating effectiveness of CIBC's controls, processes and systems. Internal audit reports the results of its assessment to management and the Board.

Senior management reports to the GRC and RMC at least quarterly on material credit risk matters, including material credit transactions, compliance with limits, portfolio trends, impaired loans and credit loss provisioning levels. Provision for credit losses is reviewed by the RMC and the Audit Committee quarterly.

Specific to the management of credit risk, Risk Management is mandated to provide enterprise-wide oversight of the management of credit risk in CIBC's credit portfolios, including the measurement, monitoring and control of credit risk and the management of credit risk models. Key groups in Risk Management with credit risk responsibility include:

Capital Markets Risk Management: This group is responsible for independent oversight of the measurement, monitoring and control of market risk and trading credit risk for all counterparties, including adjudication of trading credit facilities for non-bank financial entities, prime brokerage clients and central clearing counterparties where the client has no other credit relationship with CIBC. In addition, Capital Markets Risk Management is responsible for managing the country risk rating and the country exposure limits processes, and oversight of the Global Collateral Finance framework covering repos and securities lending.

Global Credit Risk Management: This group is responsible for the adjudication and oversight of credit risks (including transaction-specific environmental and related social risk) associated with our commercial, corporate and wealth management credit portfolios, management of the risks in our investment portfolios, as well as management of special loan portfolios.

Model Validation, Global Operational Risk Management: This group is responsible for the oversight of model validation practices. Model validation constitutes the independent set of processes, activities and ongoing documentary evidence that models and parameters are sound and CIBC can rely on their output.

Risk Analytics, Reporting and Credit Decisioning: This group is responsible for enterprise-wide analysis, including enterprise-wide stress testing and reporting, risk policy and governance, risk systems and models, as well as economic and regulatory capital methodologies. In addition, this group manages credit risk in personal and small business products offered through the various distribution channels (e.g., residential mortgages, credit cards, personal loans/lines of credit, small business loans) and performs analytics to optimize retail credit performance, along with collections, fraud, and AML outcomes.

U.S. Risk Management: This group carries out the mandate of CIBC Risk Management at a regional level and provides independent oversight of the identification, management, measurement, monitoring and control of credit risks in the U.S. Commercial Banking and Wealth Management SBU.

Adjudication and oversight above delegated levels is provided by the CRO, GRC and RMC.

Policies

To control credit risk, prudent credit risk management principles are used as a base to establish policies, standards and guidelines that govern credit activities as outlined by the credit risk management policy.

The credit risk management policy supplements CIBC's risk management framework and risk appetite framework, and together with CIBC's portfolio concentration limits for credit exposures, CIBC's common risk/concentration risk limits for credit exposures, and other supporting credit risk policies, standards and procedures, assists CIBC in achieving its desired risk profile by providing an effective foundation for the management of credit risk.

Credit risk limits

The RMC approves Board limits, and exposures above Board limits require reporting to, or approval of, the RMC. Management limits are approved by the CRO. Usage is monitored to ensure risks are within allocated management and Board limits. Exposures above management limits require the approval of the CRO. Business lines may also impose lower limits to reflect the nature of their exposures and target markets. This tiering of limits provides for an appropriate hierarchy of decision making and reporting between management and the RMC. Credit approval authority flows from the Board and is further cascaded to officers in writing. The Board's Investment and Lending Authority Resolution sets thresholds above which credits require reporting to, or approval of, the RMC, ensuring an increasing level of oversight for credits of higher risk. CIBC maintains country limits to control exposures within countries outside of Canada and the U.S.

Credit concentration limits

At a bank-wide level, credit exposures are managed to promote alignment to our risk appetite statement, to maintain the target business mix and to ensure that there is no undue concentration of risk. We set limits to control borrower concentrations by risk-rating band for large exposures (i.e., risk-rated credits). Direct loan sales, credit derivative hedges, or structured transactions may also be used to reduce concentrations. We also have a set of portfolio concentration limits in place to control exposures by country, industry, product and activity. Further, our policies require limits to be established as appropriate for new initiatives and implementation of strategies involving material levels of credit risk. Concentration limits represent the maximum exposure levels we wish to hold on our books. In the normal course, it is expected that exposures will be held at levels below the maximums. The credit concentration limits are reviewed and approved by the RMC at least annually.

Credit concentration limits are also applied to our retail lending portfolios to mitigate concentration risk. We not only have concentration limits to individual borrowers and geographic regions, but also to different types of credit facilities, such as unsecured credits, rental occupancy purpose credits,

condominium secured credits and mortgages with a second or third charge where we are behind another lender. In addition, we limit the maximum insured mortgage exposure to private insurers in order to reduce counterparty risk.

Credit risk mitigation

We may mitigate credit risk by obtaining a pledge of collateral, which improves recoveries in the event of a default. Our credit risk management policies include verification of the collateral and its value and ensuring that we have legal certainty with respect to the assets pledged. Valuations are updated periodically depending on the nature of the collateral, legal environment, and the creditworthiness of the counterparty. The main types of collateral include: (i) cash or marketable securities for securities lending and repurchase transactions; (ii) cash or marketable securities taken as collateral in support of our OTC derivatives activity; (iii) charges over operating assets such as inventory, receivables and real estate properties for lending to small business and commercial borrowers; and (iv) mortgages over residential properties for retail lending.

In certain circumstances we may use third-party guarantees to mitigate risk. We also obtain insurance to reduce the risk in our real estate secured lending portfolios, the most material of which relates to the portion of our residential mortgage portfolio that is insured by CMHC, an agency of the Government of Canada.

We mitigate the trading credit risk of OTC derivatives, securities lending and repurchase transactions with counterparties by employing the International Swaps and Derivatives Association (ISDA) Master Agreement, as well as Credit Support Annexes (CSAs) or similar master and collateral agreements. See Note 12 to the consolidated financial statements for additional details on the risks related to the use of derivatives and how we manage these risks.

ISDA Master Agreements and similar master and collateral agreements, such as the global master repurchase agreement and global master securities lending agreement, facilitate cross transaction payments, prescribe close-out netting processes, and define the counterparties' contractual trading relationship. In addition, the agreements formalize non-transaction-specific terms. Master agreements serve to mitigate our credit risk by outlining default and termination events, which enable parties to close out of all outstanding transactions in the case of a negative credit event on either party's side. The mechanism for calculating termination costs in the event of a close-out are outlined in the master agreement; this allows for the efficient calculation of a single net obligation of one party to another.

CSAs and other collateral agreements are often included in ISDA Master Agreements or similar master agreements governing securities lending and repurchase transactions. They mitigate counterparty credit risk by providing for the exchange of collateral between parties when a party's exposure to the other exceeds agreed upon thresholds, subject to a minimum transfer amount. CSAs and other collateral agreements which operate with master agreements also designate acceptable collateral types, and set out rules for re-hypothecation and interest calculation on collateral. Collateral types permitted under CSAs and other master agreements are set through our trading credit risk management documentation procedures. These procedures include requirements around collateral type concentrations.

Consistent with global initiatives to improve resilience in the financial system, we will clear derivatives through central counterparties (CCPs) where feasible. Credit derivatives may be used to reduce industry sector concentrations and single-name exposure.

Forbearance policy

We employ forbearance techniques to manage client relationships and to minimize credit losses due to default, foreclosure or repossession. In certain circumstances, it may be necessary to modify a loan for economic or legal reasons related to a borrower's financial difficulties, and we may grant a concession in the form of below-market rates or terms that would not otherwise be considered, for the purpose of maximizing recovery of our exposure to the loan. In circumstances where the concession is considered below market, the modification is reported as a troubled debt restructuring (TDR). TDRs are subject to our normal quarterly impairment review which considers, amongst other factors, covenants and/or payment delinquencies. Loan loss provisions are adjusted as appropriate.

In retail lending, forbearance techniques include interest capitalization, amortization amendments and debt consolidations. We have a set of eligibility criteria which allow our Client Account Management team to determine suitable remediation strategies and propose products based on each borrower's situation. While these solutions often provide more favourable conditions than those originally provided and are intended to increase the ability of borrowers to service their obligation to CIBC overall, we consider these solutions to be at market and comparable to terms and conditions we would have offered to new clients with comparable credit ratings.

The solutions available to corporate and commercial clients vary based on the individual nature of the client's situation and are undertaken selectively where it has been determined that the client has or is likely to have repayment difficulties servicing its obligations. Covenants often reveal changes in the client's financial situation before there is a change in payment behaviour and typically allow for a right to reprice or accelerate payments. Solutions may be temporary in nature or may involve other special management options.

Process and control

The credit approval process is centrally controlled, with all significant credit requests submitted to a credit adjudication group within Risk Management that is independent of the originating businesses. Approval authorities are a function of the risk and amount of credit requested. In certain cases, credit requests must be escalated to senior management, the CRO, or to the RMC for approval.

After initial approval, individual credit exposures continue to be monitored, with a formal risk assessment, including review of assigned ratings, documented at least annually. Higher risk-rated accounts are subject to closer monitoring and are reviewed at least quarterly. Collections and specialized loan workout groups handle the day-to-day management of high risk loans to maximize recoveries.

Risk measurement

Exposures subject to AIRB approach

Under the AIRB approach we are required to categorize exposures to credit risk into broad classes of assets with different underlying risk characteristics. This asset categorization may differ from the presentation in our consolidated financial statements. Under the AIRB approach, credit risk is measured using the following three key risk parameters[(1)]:

- PD – the probability that the obligor will default within the next 12 months.
- EAD – the estimate of the amount which will be drawn at the time of default.
- LGD – the expected severity of loss as the result of the default, expressed as a percentage of the EAD.

Our credit risk exposures are divided into business and government and retail portfolios. Regulatory models used to measure credit risk exposure under the AIRB approach are subject to CIBC's model risk management process.

(1) These parameters differ from those used in the calculation of expected credit losses under IFRS 9. See the "Accounting and control matters" section for further details.

Business and government portfolios (excluding scored small business) – risk-rating method

The portfolios comprise exposures to corporate, sovereign, and bank obligors. Our adjudication process and criteria includes assigning an obligor default rating that reflects our estimate of the financial strength of the borrower, and a facility rating or loss given default rating that reflects the collateral amount and quality applicable to secured exposures, the seniority position of the claim, and the capital structure of the borrower for unsecured exposures.

The obligor rating takes into consideration our financial assessment of the obligor, the industry, and the economic environment of the region in which the obligor operates. Where a guarantee from a third party exists, both the obligor and the guarantor will be assessed. While our obligor rating is determined independently of external ratings for the obligor, our risk-rating methodology includes a review of those external ratings.

CIBC employs a 20-point master internal obligor default rating scale that broadly maps to external agencies ratings as presented in the table below.

Grade	CIBC rating	S&P equivalent	Moody's equivalent
Investment grade	00–47	AAA to BBB-	Aaa to Baa3
Non-investment grade	51–67	BB+ to B-	Ba1 to B3
Watch list	70–80	CCC+ to C	Caa1 to Ca
Default	90	D	C

We use quantitative modelling techniques to assist in the development of internal risk-rating systems. The risk-rating systems have been developed through analysis of internal and external credit risk data, supplemented with expert judgment. The risk ratings are used for portfolio management, risk limit setting, product pricing, and in the determination of regulatory and economic capital.

Our credit process is designed to ensure that we approve applications and extend credit only where we believe that our client has the ability to repay according to the agreed terms and conditions.

Our credit framework of policies and limits defines our appetite for exposure to any single name or group of related borrowers, which is a function of the internal risk rating. We generally extend new credit only to borrowers in the investment and non-investment grade categories noted above. Our credit policies are also defined to manage our exposure to concentration in borrowers in any particular industry or region.

In accordance with our process, each obligor is assigned an obligor default rating and the assigned rating is mapped to a PD estimate that represents a long-run average one-year default likelihood. For corporate obligors, PD estimates are calculated using joint maximum likelihood techniques based on our internal default rate history by rating category and longer dated external default rates as a proxy for the credit cycle to arrive at long-run average PD estimates. Estimates drawn from third party statistical default prediction models are used to supplement the internal default data for some rating bands where internal data is sparse. For small and medium corporate enterprises, PD estimates are developed using only internal default history. For bank and sovereign obligors, PD estimates are derived from an analysis based on external default data sets and supplemented with internal data where possible. We examine several different estimation methodologies and compare results across the different techniques. In addition, we apply the same techniques and estimation methodologies to analogous corporate default data and compare the results for banks and sovereigns to the corporate estimates for each technique. A regulatory floor is applied to PD estimates for corporate and bank obligors.

Each facility is assigned a loss given default rating and each assigned rating is mapped to an LGD estimate that considers economic downturn conditions. For corporate obligors, LGD estimates are primarily derived from internal historical recovery data. Time to resolution is typically 1 to 2 years for most corporate obligors, and 1 to 4 years in the real estate sector. LGD values are based on discounted post-default cash flows for resolved accounts and include material direct and indirect costs associated with collections. External data is used in some cases to supplement our analysis. Economic downturn periods are identified for each portfolio by examining the history of actual losses, default rates and LGD. For bank and sovereign exposures, LGD estimates are primarily driven by expert judgment supplemented with external data and benchmarks where available. Appropriate adjustments are made to LGD estimates to account for various uncertainties associated with estimation techniques and data limitations, including adjustments for unresolved accounts.

EAD is estimated based on the current exposure to the obligor together with possible future changes in that exposure driven by factors such as the available undrawn credit commitment amount and the obligor default rating. EAD estimates are primarily based on internal historical loss data supplemented with comparable external data. Economic downturn periods are identified for each portfolio by examining the historical default rates and actual EAD factors.

Appropriate adjustments are made to PD, LGD and EAD estimates to account for various uncertainties associated with estimation techniques and data limitations, including adjustments for unresolved accounts (for LGD).

A simplified risk-rating process (slotting approach) is used for part of our uninsured Canadian commercial mortgage portfolio, which comprises non-residential mortgages and multi-family residential mortgages. These exposures are individually rated on our rating scale using a risk-rating methodology that considers the property's key attributes, which include its loan-to-value (LTV) and debt service ratios, the quality of the property, and the financial strength of the owner/sponsor. All exposures are secured by a lien over the property. In addition, we have insured multi-family residential mortgages, which are not treated under the slotting approach, but are instead treated as sovereign exposures.

Retail portfolios

Retail portfolios are characterized by a large number of relatively small exposures. They comprise of: real estate secured personal lending (residential mortgages and personal loans and lines secured by residential property); qualifying revolving retail exposures (credit cards, overdrafts and unsecured lines of credit); and other retail exposures (loans secured by non-residential assets, unsecured loans including student loans, and scored small business loans).

We use scoring models in the adjudication of new retail credit exposures, which are based on statistical methods of analyzing the unique characteristics of the borrower, to estimate future behaviour. In developing our models, we use internal historical information from previous borrowers, as well as information from external sources, such as credit bureaus. The use of credit scoring models allows for consistent assessment across borrowers. There are specific guidelines in place for each product, and our adjudication decision will take into account the characteristics of the borrower, any guarantors, and the quality and sufficiency of the collateral pledged (if any). The lending process will include documentation of, where appropriate, satisfactory identification, proof of income, independent appraisal of the collateral and registration of security.

Retail portfolios are managed as pools of homogeneous risk exposures, using external credit bureau scores and/or other behavioural assessments to group exposures according to similar credit risk profiles. These pools are established through statistical techniques. Characteristics used to group individual exposures vary by asset category; as a result, the number of pools, their size, and the statistical techniques applied to their management differ accordingly.

The following table maps the PD bands to various risk levels:

Risk level	PD bands
Exceptionally low	0.01%–0.20%
Very low	0.21%–0.50%
Low	0.51%–2.00%
Medium	2.01%–10.00%
High	10.01%–99.99%
Default	100%

For the purposes of the AIRB approach for retail portfolios, additional PD, LGD and EAD segmentation into homogenous risk exposures is established through statistical techniques. The principal statistical estimation technique is decision trees benchmarked against alternative techniques such as regression and random forests.

Within real estate secured lending, we have two key parameter estimation models: mortgages and real estate secured personal lines of credit. Within qualifying revolving retail, we have three key parameter estimation models: credit cards, overdraft, and unsecured personal lines. A small percentage of credit cards, overdraft, and unsecured line accounts that do not satisfy the requirements for qualifying revolving retail are grouped into other retail parameter models. Within other retail, we have three key parameter models: margin lending, personal loans, and scored small business loans. Each parameter model pools accounts according to characteristics such as: delinquency, current credit bureau score, internal behaviour score, estimated current LTV ratio, account type, account age, utilization, outstanding balance, or authorized limit.

PD is estimated as the average default rate over an extended period based on internal historical data, generally for a 5-to-10-year period, which is adjusted using internal historical data on default rates over a longer period or comparable external data that includes a period of stress. A regulatory floor is applied to our PD estimate for all retail exposures with the exception of insured mortgages and government-guaranteed loans.

LGD is estimated based on observed recovery rates over an extended period using internal historical data. In determining our LGD estimate, we exclude any accounts that have not had enough time since default for the substantial majority of expected recovery to occur. This recovery period is product-specific and is typically in the range of 1 to 3 years. Accounts that cure from default and return to good standing are considered to have zero loss. We simulate the loss rate in a significant downturn based on the relationship(s) between LGD and one or more of the following: PD; housing prices, cure rate, and recovery time; or observed LGD in periods with above-average loss rates. We apply appropriate adjustments to address various types of estimation uncertainty including sampling error and trending. A regulatory floor is applied to all real estate secured exposures with the exception of insured mortgages.

EAD for revolving products is estimated as a percentage of the authorized credit limit based on the observed EAD rates over an extended period using historical data. We simulate the EAD rate in a significant downturn based on the relationship(s) between the EAD rate and PD and/or the observed EAD rate in periods with above-average EAD rates. For term loan products, EAD is set equal to the outstanding balance.

We apply appropriate adjustments to PD, LGD and EAD to address various types of estimation uncertainty including sampling error and trending.

Back-testing

We monitor the three key risk parameters – PD, EAD and LGD – on a quarterly basis for our business and government portfolios and on a monthly basis for our retail portfolios. Every quarter, the back-testing results are reported to OSFI and are presented to the business and Risk Management senior management for review and challenge. For each parameter, we identify any portfolios whose realized values are significantly above or significantly below expectations and then test to see if this deviation is explainable by changes in the economy. If the results indicate that a parameter model may be losing its predictive power, we prioritize that model for review and update.

Stress testing

As part of our regular credit portfolio management process, we conduct stress testing and scenario analyses on our portfolio to quantitatively assess the impact of various historical, as well as hypothetical, stressed conditions, versus limits determined in accordance with our risk appetite. Scenarios are selected to test our exposures to specific industries (e.g., oil and gas and real estate), products (e.g., mortgages and cards), or geographic regions (e.g., Europe and Caribbean). Results from stress testing are a key input into management decision making, including the determination of limits and strategies for managing our credit exposure. See the "Real estate secured personal lending" section for further discussion on our residential mortgage portfolio stress testing.

Exposure to credit risk

The portfolios are categorized based upon how we manage the business and the associated risks. Gross credit exposure amounts presented in the table below represent our estimate of EAD, which is net of derivative master netting agreements and CVA but is before allowance for credit losses or credit risk mitigation. Gross credit exposure amounts relating to our business and government portfolios are reduced for collateral held for repo-style transactions, which reflects the EAD value of such collateral. Non-trading equity exposures are not included in the table below as they have been deemed immaterial under the OSFI guidelines, and hence are subject to 100% risk-weighting.

$ millions, as at October 31			2019			2018
	AIRB approach [1]	**Standardized approach**	**Total**	AIRB approach [1]	Standardized approach [2]	Total
Business and government portfolios						
Corporate						
Drawn	**$ 96,444**	**$ 32,292**	**$ 128,736**	$ 85,899	$ 27,018	$ 112,917
Undrawn commitments	**44,732**	**6,244**	**50,976**	43,180	4,885	48,065
Repo-style transactions	**122,776**	**1**	**122,777**	91,970	2	91,972
Other off-balance sheet	**14,540**	**981**	**15,521**	14,496	827	15,323
OTC derivatives	**14,125**	**596**	**14,721**	9,440	294	9,734
	292,617	**40,114**	**332,731**	244,985	33,026	278,011
Sovereign						
Drawn	**73,036**	**13,301**	**86,337**	51,703	12,047	63,750
Undrawn commitments	**6,421**	**–**	**6,421**	6,576	–	6,576
Repo-style transactions	**21,404**	**–**	**21,404**	16,929	–	16,929
Other off-balance sheet	**1,624**	**–**	**1,624**	753	–	753
OTC derivatives	**3,094**	**2**	**3,096**	3,454	–	3,454
	105,579	**13,303**	**118,882**	79,415	12,047	91,462
Banks						
Drawn	**12,689**	**1,862**	**14,551**	13,697	1,868	15,565
Undrawn commitments	**1,771**	**6**	**1,777**	1,041	5	1,046
Repo-style transactions	**25,472**	**–**	**25,472**	28,860	–	28,860
Other off-balance sheet	**61,532**	**–**	**61,532**	65,253	–	65,253
OTC derivatives	**9,355**	**18**	**9,373**	8,727	27	8,754
	110,819	**1,886**	**112,705**	117,578	1,900	119,478
Gross business and government portfolios	**509,015**	**55,303**	**564,318**	441,978	46,973	488,951
Less: collateral held for repo-style transactions	**157,415**	**–**	**157,415**	125,368	–	125,368
Net business and government portfolios	**351,600**	**55,303**	**406,903**	316,610	46,973	363,583
Retail portfolios						
Real estate secured personal lending						
Drawn	**222,933**	**4,177**	**227,110**	224,501	3,743	228,244
Undrawn commitments	**20,777**	**1**	**20,778**	19,572	2	19,574
	243,710	**4,178**	**247,888**	244,073	3,745	247,818
Qualifying revolving retail						
Drawn	**19,784**	**–**	**19,784**	22,469	–	22,469
Undrawn commitments	**49,709**	**–**	**49,709**	51,836	–	51,836
Other off-balance sheet	**275**	**–**	**275**	277	–	277
	69,768	**–**	**69,768**	74,582	–	74,582
Other retail						
Drawn	**13,478**	**1,268**	**14,746**	12,158	1,239	13,397
Undrawn commitments	**2,584**	**26**	**2,610**	2,546	26	2,572
Other off-balance sheet	**36**	**–**	**36**	9	–	9
	16,098	**1,294**	**17,392**	14,713	1,265	15,978
Total retail portfolios	**329,576**	**5,472**	**335,048**	333,368	5,010	338,378
Securitization exposures	**10,688**	**3,511**	**14,199**	13,661	–	13,661
Gross credit exposure	**849,279**	**64,286**	**913,565**	789,007	51,983	840,990
Less: collateral held for repo-style transactions	**157,415**	**–**	**157,415**	125,368	–	125,368
Net credit exposure [3]	**$ 691,864**	**$ 64,286**	**$ 756,150**	$ 663,639	$ 51,983	$ 715,622

(1) Includes exposures subject to the supervisory slotting approach.
(2) Certain information has been reclassified.
(3) Excludes exposures arising from derivative and repo-style transactions that are cleared through QCCPs as well as credit risk exposures arising from other assets that are subject to the credit risk framework but are not included in the standardized or IRB frameworks, including other balance sheet assets that are risk-weighted at 100%, significant investments in the capital of non-financial institutions that are risk-weighted at 1250%, settlement risk, and amounts below the thresholds for deduction that are risk-weighted at 250%.

Net credit exposure increased by $40.5 billion in 2019, primarily due to business growth in our North American lending portfolios.

Exposures subject to the standardized approach[1]

Exposures within CIBC Bank USA, CIBC FirstCaribbean and certain exposures to individuals for non-business purposes do not have sufficient historical data to support the AIRB approach for credit risk, and are subject to the standardized approach. The standardized approach utilizes a set of risk weightings defined by the regulators, as opposed to the more data intensive AIRB approach. A detailed breakdown of our standardized credit risk exposures by risk-weight category, before considering the effect of credit risk mitigation strategies and before allowance for credit losses, is provided below.

$ millions, as at October 31	Risk-weight category							2019	2018
	0%	**20%**	**35%**	**50%**	**75%**	**100%**	**150%**	**Total**	Total
Corporate	**$ –**	**$ –**	**$ –**	**$ 1**	**$ –**	**$ 39,966**	**$ 147**	**$ 40,114**	$ 32,767
Sovereign	**7,953**	**3,911**	**–**	**111**	**–**	**838**	**490**	**13,303**	12,047
Banks	**–**	**1,747**	**–**	**66**	**–**	**68**	**5**	**1,886**	2,159
Real estate secured personal lending	**–**	**–**	**1,238**	**–**	**2,770**	**162**	**8**	**4,178**	3,745
Other retail	**–**	**–**	**–**	**–**	**1,226**	**61**	**7**	**1,294**	1,265
	$ 7,953	**$ 5,658**	**$ 1,238**	**$ 178**	**$ 3,996**	**$ 41,095**	**$ 657**	**$ 60,775**	$ 51,983

(1) See "Securitization exposures" section for securitization exposures that are subject to the standardized approach.

We use credit ratings from S&P and Moody's to calculate credit risk RWA for certain exposures under the standardized approach, including securities issued by sovereigns and their central banks (sovereigns), banks and corporates, and deposits with sovereigns and banks. This includes S&P and Moody's issuer-specific credit ratings for securities issued by sovereigns and corporates, the S&P country credit rating for the country of incorporation for securities issued by banks, and deposits with banks, and the S&P country credit rating for deposits with central banks. The RWA calculated using credit ratings from these agencies represents 1.66% of credit risk RWA under the standardized approach.

Trading credit exposures

We have trading credit exposure (also called counterparty credit exposure) that arises from our OTC derivatives and our repo-style transactions. The nature of our derivatives exposure and how it is mitigated is further explained in Note 12 to the consolidated financial statements. Our repo-style transactions consist of our securities bought or sold under repurchase agreements, and our securities borrowing and lending activity.

The PD of our counterparties is estimated using models consistent with the models used for our direct lending activity. Due to the fluctuations in the market values of interest rates, exchange rates, and equity and commodity prices, counterparty credit exposure cannot be quantified with certainty at the inception of the trade. Counterparty credit exposure is estimated using the current fair value of the exposure, plus an estimate of the maximum potential future exposure due to changes in the fair value. Credit risk associated with these counterparties is managed within the same process as our lending business, and for the purposes of credit adjudication, the exposure is aggregated with any exposure arising from our lending business. The majority of our counterparty credit exposure benefits from the credit risk mitigation techniques discussed above, including daily re-margining, and posting of collateral.

We are also exposed to wrong-way risk. Specific wrong-way risk arises when CIBC receives financial collateral issued (or an underlying reference obligation of a transaction is issued) by the counterparty itself, or by a related entity that would be considered to be part of the same common risk group. General wrong-way risk arises when the exposure and/or collateral pledged to CIBC is highly correlated to that of the counterparty. Exposure to wrong-way risk with derivative counterparties is monitored by Capital Markets Risk Management. Where we may be exposed to wrong-way risk, our adjudication procedures subject those transactions to a more rigorous approval process. The exposure may be hedged with other derivatives to further mitigate the risk that can arise from these transactions.

We establish a CVA for expected future credit losses from each of our derivative counterparties. The expected future credit loss is a function of our estimates of the PD, the estimated loss in the event of default, and other factors such as risk mitigants.

Rating profile of OTC derivative mark-to-market (MTM) receivables

$ billions, as at October 31	2019		2018	
	Exposure [1]			
Investment grade	**$ 5.40**	**82.4 %**	$ 6.78	87.3 %
Non-investment grade	**1.12**	**17.1**	0.97	12.5
Watch list	**0.02**	**0.3**	0.01	0.1
Default	**0.01**	**0.2**	0.01	0.1
	$ 6.55	**100.0 %**	$ 7.77	100.0 %

(1) MTM of the OTC derivative contracts is after the impact of master netting agreements, but before any collateral.

Concentration of exposures

Concentration of credit risk exists when a number of obligors are engaged in similar activities, or operate in the same geographic areas or industry sectors, and have similar economic characteristics so that their ability to meet contractual obligations is similarly affected by changes in economic, political, or other conditions.

Geographic distribution[1]

The following table provides a geographic distribution of our business and government exposures under the AIRB approach, net of collateral held for repo-style transactions.

$ millions, as at October 31, 2019	Canada	U.S.	Europe	Other	Total
Drawn	**$ 123,265**	**$ 41,676**	**$ 6,470**	**$ 10,758**	**$ 182,169**
Undrawn commitments	**39,452**	**9,327**	**2,489**	**1,656**	**52,924**
Repo-style transactions	**6,152**	**3,477**	**743**	**1,865**	**12,237**
Other off-balance sheet	**56,158**	**12,608**	**8,232**	**698**	**77,696**
OTC derivatives	**12,207**	**6,812**	**5,216**	**2,339**	**26,574**
	$ 237,234	**$ 73,900**	**$ 23,150**	**$ 17,316**	**$ 351,600**
October 31, 2018	$ 213,842	$ 67,911	$ 21,255	$ 13,602	$ 316,610

(1) Classification by country is primarily based on domicile of debtor or customer.

Business and government exposure by industry groups

The following table provides an industry-wide breakdown of our business and government exposures under the AIRB approach, net of collateral held for repo-style transactions.

$ millions, as at October 31	Drawn	Undrawn commitments	Repo-style transactions	Other off-balance sheet	OTC derivatives	2019 Total	2018 Total
Commercial mortgages	$ 352	$ –	$ –	$ –	$ –	$ 352	$ 625
Financial institutions	38,209	6,834	11,471	69,145	14,739	140,398	142,431
Retail and wholesale	5,812	2,853	–	239	238	9,142	8,360
Business services	7,870	2,700	13	623	176	11,382	10,658
Manufacturing – capital goods	3,004	2,152	–	456	286	5,898	5,407
Manufacturing – consumer goods	4,038	1,685	–	197	104	6,024	5,238
Real estate and construction	35,187	7,856	117	1,111	650	44,921	41,028
Agriculture	6,828	1,550	–	22	175	8,575	7,319
Oil and gas	9,048	8,606	–	913	3,246	21,813	20,258
Mining	1,790	2,692	–	619	225	5,326	5,668
Forest products	627	479	–	175	43	1,324	1,145
Hardware and software	1,061	559	–	41	90	1,751	1,353
Telecommunications and cable	425	1,080	–	407	322	2,234	2,667
Broadcasting, publishing and printing	630	138	–	1	32	801	721
Transportation	4,710	2,425	–	401	1,341	8,877	7,083
Utilities	5,957	5,924	20	2,144	1,702	15,747	12,095
Education, health, and social services	2,907	1,122	6	151	387	4,573	3,883
Governments	53,714	4,269	610	1,051	2,818	62,462	40,671
	$ 182,169	$ 52,924	$ 12,237	$ 77,696	$26,574	$ 351,600	$ 316,610

As part of our risk mitigation strategy, we may use credit protection purchases as a hedge against customer or industry sector concentration. As at October 31, 2019, we had credit protection purchased totalling $183 million (2018: $158 million) related to our business and government loans.

Credit quality of portfolios

Credit quality of risk-rated portfolios

The following table provides the credit quality of our risk-rated portfolios under the AIRB approach, net of collateral held for repo-style transactions.

The obligor grade is our assessment of the creditworthiness of the obligor, without respect to the collateral held in support of the exposure. The LGD estimate would reflect our assessment of the value of the collateral at the time of default of the obligor. For slotted exposures, the slotting category reflects our assessment of both the creditworthiness of the obligor, as well as the value of the collateral.

$ millions, as at October 31				2019	2018
	EAD				
Obligor grade	Corporate	Sovereign	Banks	Total	Total
Investment grade	$ 104,405	$ 84,721	$ 87,691	$ 276,817	$ 249,031
Non-investment grade	70,730	837	1,046	72,613	65,973
Watch list	1,239	–	–	1,239	724
Default	579	–	–	579	257
Total risk-rated exposure	$ 176,953	$ 85,558	$ 88,737	$ 351,248	$ 315,985
LGD estimate	Corporate	Sovereign	Banks	Total	Total
Less than 10%	$ 9,977	$ 75,078	$ 57,611	$ 142,666	$ 128,989
10% – 25%	53,740	6,825	8,225	68,790	63,363
26% – 45%	84,497	3,582	22,517	110,596	97,494
46% – 65%	27,381	9	343	27,733	24,769
66% – 100%	1,358	64	41	1,463	1,370
	$ 176,953	$ 85,558	$ 88,737	$ 351,248	$ 315,985
Strong				$ 246	$ 499
Good				85	99
Satisfactory				21	25
Weak				–	1
Default				–	1
Total slotted exposure				$ 352	$ 625
Total business and government portfolios				$ 351,600	$ 316,610

The total exposures increased by $35.0 billion from October 31, 2018, largely attributable to growth in our North American lending portfolios. The investment grade category increased by $27.8 billion from October 31, 2018, while the non-investment grade category was up $6.6 billion. The increase in watch list and default exposures was largely attributable to credit migration of a number of exposures in the corporate lending portfolio, including exposures within the oil and gas portfolio.

Credit quality of the retail portfolios

The following table presents the credit quality of our retail portfolios under the AIRB approach.

$ millions, as at October 31				2019	2018
	EAD				
Risk level	Real estate secured personal lending	Qualifying revolving retail	Other retail	Total	Total
Exceptionally low	$ 193,850	$ 42,369	$ 3,656	$ 239,875	$ 241,305
Very low	25,020	6,036	2,962	34,018	36,106
Low	19,870	14,168	5,610	39,648	38,687
Medium	3,981	6,270	3,008	13,259	14,363
High	603	877	791	2,271	2,509
Default	386	48	71	505	398
	$ 243,710	$ 69,768	$ 16,098	$ 329,576	$ 333,368

Securitization exposures[1]

The following table provides details on securitization exposures in our banking book, by credit rating:

$ millions, as at October 31	2019	2018
	EAD	
Exposures under the AIRB approach		
S&P rating equivalent		
AAA to BBB-	$ 10,688	$ 11,394
BB+ to BB-	–	–
Below BB-	–	–
Unrated	–	2,261
	10,688	13,655
Exposures under the standardized approach	3,511	–
Total securitization exposures	$ 14,199	$ 13,655

(1) In the first quarter of 2019, we implemented OSFI's revisions to the CAR Guideline, including the revised securitization framework. As a result, certain exposures that were previously subject to the IRB approach are now subject to the standardized approach. In 2018, EAD was shown net of financial collateral of $6 million.

Real estate secured personal lending

Real estate secured personal lending comprises residential mortgages, and personal loans and lines secured by residential property (HELOC). This portfolio is low risk, as we have a first charge on the majority of the properties and a second lien on only a small portion of the portfolio. We use the same lending criteria in the adjudication of both first lien and second lien loans.

Under the *Bank Act* (Canada), banks are limited to providing residential real estate loans of no more than 80% of the collateral value. An exception is made for mortgage loans with a higher LTV ratio if they are insured by either CMHC or a private mortgage insurer. Mortgage insurance protects banks from the risk of default by the borrower, over the term of the coverage. Mortgage insurers are subject to regulatory capital requirements, which aim to ensure that they are well capitalized. If a private mortgage insurer becomes insolvent, the Government of Canada has, provided certain conditions are met, obligations in respect of policies underwritten by certain insolvent private mortgage insurers as more fully described in the *Protection of Residential Mortgage or Hypothecary Insurance Act* (PRMHIA). There is a possibility that losses could be incurred in respect of insured mortgages if, among other things, CMHC or the applicable private mortgage insurer denies a claim, or further, if a private mortgage insurer becomes insolvent and either the conditions under the PRMHIA are not met or the Government of Canada denies the claim.

The following table provides details on our residential mortgage and HELOC portfolios:

	Residential mortgages [1]				HELOC [2]		Total			
$ billions, as at October 31, 2019	Insured		Uninsured		Uninsured		Insured		Uninsured	
Ontario [3]	$ 28.8	28 %	$ 75.3	72 %	$ 11.3	100 %	$ 28.8	25 %	$ 86.6	75 %
British Columbia and territories [4]	10.3	25	31.6	75	4.3	100	10.3	22	35.9	78
Alberta	13.5	53	11.8	47	2.6	100	13.5	48	14.4	52
Quebec	5.7	38	9.1	62	1.4	100	5.7	35	10.5	65
Central prairie provinces	3.7	51	3.6	49	0.8	100	3.7	46	4.4	54
Atlantic provinces	4.2	51	4.0	49	0.8	100	4.2	46	4.8	54
Canadian portfolio [5][6]	66.2	33	135.4	67	21.2	100	66.2	30	156.6	70
U.S. portfolio [5]	–	–	1.5	100	0.1	100	–	–	1.6	100
Other international portfolio [5]	–	–	2.2	100	–	–	–	–	2.2	100
Total portfolio	$ 66.2	32 %	$ 139.1	68 %	$ 21.3	100 %	$ 66.2	29 %	$ 160.4	71 %
October 31, 2018	$ 77.0	37 %	$ 129.0	63 %	$ 22.2	100 %	$ 77.0	34 %	$ 151.2	66 %

(1) Balances reflect principal values.
(2) We did not have any insured HELOCs as at October 31, 2019 and 2018.
(3) Includes $14.1 billion (2018: $17.0 billion) of insured residential mortgages, $49.0 billion (2018: $45.9 billion) of uninsured residential mortgages, and $6.6 billion (2018: $6.9 billion) of HELOCs in the Greater Toronto Area (GTA).
(4) Includes $4.6 billion (2018: $5.6 billion) of insured residential mortgages, $22.1 billion (2018: $22.0 billion) of uninsured residential mortgages, and $2.7 billion (2018: $2.8 billion) of HELOCs in the Greater Vancouver Area (GVA).
(5) Geographic location is based on the address of the property.
(6) 72% (2018: 73%) of insurance on Canadian residential mortgages is provided by CMHC and the remaining by two private Canadian insurers, both rated at least AA (low) by DBRS.

The average LTV ratios[1] for our uninsured residential mortgages and HELOCs originated and acquired during the year are provided in the following table.

For the year ended October 31	2019		2018	
	Residential mortgages	**HELOC**	Residential mortgages	HELOC
Ontario [2]	**63 %**	**67 %**	63 %	67 %
British Columbia and territories [3]	**61**	**64**	60	63
Alberta	**68**	**72**	68	72
Quebec	**68**	**73**	68	72
Central prairie provinces	**69**	**74**	69	73
Atlantic provinces	**72**	**74**	72	74
Canadian portfolio [4]	**64 %**	**68 %**	64 %	67 %
U.S. portfolio [4]	**69**	**63**	68	67
Other international portfolio [4]	**72 %**	**n/m**	73 %	n/m

(1) LTV ratios for newly originated and acquired residential mortgages and HELOCs are calculated based on weighted average.
(2) Average LTV ratios for our uninsured GTA residential mortgages originated during the year were 62% (2018: 61%).
(3) Average LTV ratios for our uninsured GVA residential mortgages originated during the year were 57% (2018: 56%).
(4) Geographic location is based on the address of the property.
n/m Not meaningful.

The following table provides the average LTV ratios on our total Canadian residential mortgage portfolio:

	Insured	Uninsured
October 31, 2019 [1][2]	**55 %**	**54 %**
October 31, 2018 [1][2]	54 %	53 %

(1) LTV ratios for residential mortgages are calculated based on weighted average. The house price estimates for October 31, 2019 and 2018 are based on the Forward Sortation Area (FSA) level indices from the Teranet – National Bank National Composite House Price Index (Teranet) as of September 30, 2019 and 2018, respectively. Teranet is an independent estimate of the rate of change in Canadian home prices.
(2) Average LTV ratio on our uninsured GTA residential mortgage portfolio was 50% (2018: 51%). Average LTV ratio on our uninsured GVA residential mortgage portfolio was 47% (2018: 43%).

The tables below summarize the remaining amortization profile of our total Canadian, U.S. and other international residential mortgages. The first table provides the remaining amortization periods based on the minimum contractual payment amounts. The second table provides the remaining amortization periods based upon current customer payment amounts, which incorporate payments other than the minimum contractual amount and/or a different frequency of payments.

Contractual payment basis

	0–5 years	>5–10 years	>10–15 years	>15–20 years	>20–25 years	>25–30 years	>30–35 years	>35 years
Canadian portfolio								
October 31, 2019	**– %**	**1 %**	**2 %**	**6 %**	**49 %**	**42 %**	**– %**	**– %**
October 31, 2018 [1]	– %	1 %	2 %	4 %	45 %	48 %	– %	– %
U.S. portfolio								
October 31, 2019	**– %**	**2 %**	**2 %**	**1 %**	**9 %**	**86 %**	**– %**	**– %**
October 31, 2018 [1]	– %	2 %	4 %	2 %	10 %	82 %	– %	– %
Other international portfolio								
October 31, 2019	**9 %**	**16 %**	**23 %**	**23 %**	**17 %**	**12 %**	**– %**	**– %**
October 31, 2018 [1]	8 %	16 %	26 %	22 %	17 %	11 %	– %	– %

(1) Certain information has been reclassified to conform with the presentation adopted in the current year.

Current customer payment basis

	0–5 years	>5–10 years	>10–15 years	>15–20 years	>20–25 years	>25–30 years	>30–35 years	>35 years
Canadian portfolio								
October 31, 2019	**2 %**	**4 %**	**6 %**	**13 %**	**40 %**	**30 %**	**3 %**	**2 %**
October 31, 2018 [1]	2 %	4 %	7 %	11 %	36 %	32 %	5 %	3 %
U.S. portfolio								
October 31, 2019	**1 %**	**4 %**	**11 %**	**10 %**	**13 %**	**61 %**	**– %**	**– %**
October 31, 2018 [1]	2 %	4 %	13 %	12 %	13 %	55 %	– %	1 %
Other international portfolio								
October 31, 2019	**7 %**	**13 %**	**23 %**	**24 %**	**18 %**	**14 %**	**1 %**	**– %**
October 31, 2018 [1]	7 %	16 %	25 %	22 %	17 %	11 %	1 %	1 %

(1) Certain information has been reclassified to conform with the presentation adopted in the current year.

We have two types of condominium exposures in Canada: mortgages and developer loans. Both are primarily concentrated in the Toronto and Vancouver areas. As at October 31, 2019, our Canadian condominium mortgages were $25.2 billion (2018: $24.1 billion), of which 33% (2018: 38%) were insured. Our drawn developer loans were $1.3 billion (2018: $1.6 billion), or 1.0% (2018: 1.3%) of our business and government portfolio, and our related undrawn exposure was $4.0 billion (2018: $3.0 billion). The condominium developer exposure is diversified across 108 projects.

We stress test our mortgage and HELOC portfolio to determine the potential impact of different economic events. Our stress tests can use variables such as unemployment rates, debt service ratios and housing price changes, to model potential outcomes for a given set of circumstances. The stress testing involves variables that could behave differently in certain situations. Our main tests use economic variables in a similar range to historical events when Canada experienced economic downturns. Our results show that in an economic downturn, our strong capital position should be sufficient to absorb mortgage and HELOC losses.

Credit quality performance

As at October 31, 2019, total loans and acceptances after allowance for credit losses were $398.1 billion (2018: $381.7 billion). Consumer loans (comprising residential mortgages, credit cards, and personal loans, including student loans) constitute 66% (2018: 69%) of the portfolio, and business and government loans (including acceptances) constitute the remainder of the portfolio.

Consumer loans were up by $1.5 billion or 1% from the prior year, primarily due to an increase in residential mortgages of $0.9 billion. Business and government loans (including acceptances) were up $14.9 billion or 13% from the prior year, mainly attributable to the real estate and construction, financial institutions, utilities, agriculture, and transportation sectors.

Impaired loans

The following table provides details of our impaired loans and allowances for credit losses:

$ millions, as at or for the year ended October 31			**2019**			2018
	Business and government loans	**Consumer loans**	**Total**	Business and government loans	Consumer loans	Total
Gross impaired loans						
Balance at beginning of year under IAS 39	**n/a**	**n/a**	**n/a**	$ 626	$ 684	$ 1,310
Impact of adopting IFRS 9 at November 1, 2017	**n/a**	**n/a**	**n/a**	27	195	222
Balance at beginning of year under IFRS 9	**$ 621**	**$ 859**	**$ 1,480**	653	879	1,532
Classified as impaired during the year	**1,204**	**2,004**	**3,208**	559	1,907	2,466
Transferred to performing during the year	**(134)**	**(394)**	**(528)**	(110)	(463)	(573)
Net repayments	**(239)**	**(575)**	**(814)**	(190)	(532)	(722)
Amounts written off	**(190)**	**(940)**	**(1,130)**	(116)	(934)	(1,050)
Recoveries of loans and advances previously written off	**–**	**–**	**–**	–	–	–
Disposals of loans [1]	**(361)**	**–**	**(361)**	(182)	–	(182)
Purchased credit-impaired loans	**–**	**–**	**–**	–	–	–
Foreign exchange and other	**10**	**1**	**11**	7	2	9
Balance at end of year	**$ 911**	**$ 955**	**$ 1,866**	$ 621	$ 859	$ 1,480
Allowance for credit losses – impaired loans [2]						
Balance at beginning of year under IAS 39	**n/a**	**n/a**	**n/a**	$ 191	$ 286	$ 477
Impact of adopting IFRS 9 at November 1, 2017	**n/a**	**n/a**	**n/a**	13	(25)	(12)
Balance at beginning of year under IFRS 9	**$ 230**	**$ 252**	**$ 482**	204	261	465
Amounts written off	**(190)**	**(940)**	**(1,130)**	(116)	(934)	(1,050)
Recoveries of amounts written off in previous years	**13**	**181**	**194**	12	178	190
Charge to income statement [3]	**350**	**795**	**1,145**	188	764	952
Interest accrued on impaired loans	**(18)**	**(22)**	**(40)**	(10)	(13)	(23)
Disposals of loans [1]	**–**	**–**	**–**	(48)	–	(48)
Transfers	**–**	**–**	**–**	–	–	–
Foreign exchange and other	**(9)**	**2**	**(7)**	–	(4)	(4)
Balance at end of year	**$ 376**	**$ 268**	**$ 644**	$ 230	$ 252	$ 482
Net impaired loans [4]						
Balance at beginning of year under IAS 39	**n/a**	**n/a**	**n/a**	$ 435	$ 398	$ 833
Impact of adopting IFRS 9 at November 1, 2017	**n/a**	**n/a**	**n/a**	14	220	234
Balance at beginning of year under IFRS 9	**$ 391**	**$ 607**	**$ 998**	449	618	1,067
Net change in gross impaired	**290**	**96**	**386**	(32)	(20)	(52)
Net change in allowance	**(146)**	**(16)**	**(162)**	(26)	9	(17)
Balance at end of year	**$ 535**	**$ 687**	**$ 1,222**	$ 391	$ 607	$ 998
Net impaired loans as a percentage of net loans and acceptances			**0.31 %**			0.26 %

(1) Includes loans with a par value of $116 million and ECL of $48 million that were derecognized as a result of a debt restructuring agreement completed with the Government of Barbados on October 31, 2018.
(2) Effective November 1, 2017, all loans that are contractually 90 days in arrears are automatically classified as impaired and as stage 3 under IFRS 9, except for credit card loans which are classified as impaired and are fully written off when payments are contractually 180 days in arrears or at the earlier of the notice of bankruptcy, settlement proposal, or enlistment of credit counselling services. The determination of impairment was generally the same under IAS 39, except (i) residential mortgages guaranteed or insured by a Canadian government (federal or provincial) or a Canadian government agency were not classified as impaired until payments were contractually 365 days in arrears, and (ii) residential mortgages guaranteed or insured by a private insurer, or loans that were fully secured and in the process of collection were not classified as impaired until payments were contractually 180 days in arrears.
(3) Excludes provision for credit losses on impaired undrawn credit facilities and other off-balance sheet exposures.
(4) Effective November 1, 2017, net impaired loans are gross impaired loans net of stage 3 allowance for credit losses. In prior periods, net impaired loans were calculated by deducting the individual allowance and the portion of the collective allowance relating to impaired loans, which were generally loans that were past 90 days in arrears, from gross impaired loans.
n/a Not applicable.

Gross impaired loans

As at October 31, 2019, gross impaired loans were $1,866 million, up $386 million from the prior year, primarily due to increases in the retail and wholesale sector, which includes one fraud-related impairment, and the business services sector, as well as an increase in the Canadian residential mortgages portfolio.

65% of gross impaired loans related to Canada, of which the residential mortgages and personal lending portfolios, retail and wholesale, and business services sectors accounted for the majority.

18% of gross impaired loans related to CIBC FirstCaribbean, of which the residential mortgages portfolio, real estate and construction sector, and personal lending portfolio accounted for the majority.

The remaining gross impaired loans related to the U.S., of which the oil and gas, business services, and real estate and construction sectors accounted for the majority.

See the "Supplementary annual financial information" section for additional details on the geographic distribution and industry classification of impaired loans.

Allowance for credit losses – impaired loans

Allowance for credit losses on impaired loans was $644 million, up $162 million from the prior year, primarily due to an increase in the retail and wholesale sector, which includes one fraud-related impairment, as well as increases in the business services, oil and gas, and agriculture sectors, partially offset by decreases in CIBC FirstCaribbean.

Exposure to certain countries and regions

Europe

The following table provides our exposure to European countries, both within and outside the Eurozone.

Our direct exposures presented in the tables below comprise (A) funded – on-balance sheet loans (stated at amortized cost net of stage 3 allowance for credit losses, if any), deposits with banks (stated at amortized cost net of stage 3 allowance for credit losses, if any) and securities (stated at carrying value); (B) unfunded – unutilized credit commitments, letters of credit, and guarantees (stated at notional amount net of stage 3 allowance for credit losses, if any); and (C) derivative MTM receivables (stated at fair value) and repo-style transactions (stated at fair value).

Of our total direct exposures to Europe, approximately 45% (2018: 46%) is to entities in countries with Aaa/AAA ratings from at least one of Moody's or S&P.

The following table provides a summary of our positions in this business:

	Direct exposures											
	Funded				Unfunded			Derivative MTM receivables and repo-style transactions [1]				
$ millions, as at October 31, 2019	Corporate	Sovereign	Banks	Total funded (A)	Corporate	Banks	Total unfunded (B)	Corporate	Sovereign	Banks	Net exposure (C)	Total direct exposure (A)+(B)+(C)
Austria	$ –	$ 679	$ 16	$ 695	$ –	$ 13	$ 13	$ –	$ –	$ 1	$ 1	$ 709
Finland	78	–	419	497	72	–	72	–	–	–	–	569
France	49	52	242	343	263	33	296	20	–	31	51	690
Germany	427	1,091	731	2,249	329	111	440	22	–	48	70	2,759
Ireland	152	–	169	321	6	13	19	13	–	112	125	465
Luxembourg	111	–	1,590	1,701	103	–	103	2	–	33	35	1,839
Netherlands	369	462	191	1,022	161	78	239	63	–	2	65	1,326
Norway	–	329	316	645	613	–	613	–	–	–	–	1,258
Spain	1	–	1	2	66	29	95	–	–	5	5	102
Sweden	38	541	150	729	155	–	155	13	–	1	14	898
Switzerland	357	–	42	399	8	–	8	4	–	88	92	499
United Kingdom	1,395	627	1,418	3,440	3,442	280	3,722	652	46	138	836	7,998
Other European countries	56	–	35	91	17	23	40	–	70	3	73	204
Total Europe	**$ 3,033**	**$ 3,781**	**$ 5,320**	**$ 12,134**	**$ 5,235**	**$ 580**	**$ 5,815**	**$ 789**	**$ 116**	**$ 462**	**$ 1,367**	**$ 19,316**
October 31, 2018	$ 1,821	$ 2,686	$ 3,649	$ 8,156	$ 4,472	$ 482	$ 4,954	$ 626	$ 72	$ 1,048	$ 1,746	$ 14,856

(1) The amounts shown are net of CVA and collateral. Collateral on derivative MTM receivables was $1.0 billion (October 31, 2018: $0.8 billion), collateral on repo-style transactions was $20.5 billion (October 31, 2018: $20.5 billion), and both are comprised of cash and investment grade debt securities.

We have $589 million (2018: $465 million) of indirect exposure to European entities, as we hold debt or equity securities issued by European entities as collateral for derivative transactions and securities borrowing and lending activity from counterparties that are not in Europe.

Selected exposures in certain activities

In response to the recommendations of the Financial Stability Board, this section provides information on a selected activity within our continuing and exited businesses that may be of particular interest to investors based on their risk characteristics and the current market environment.

U.S. real estate lending

In our U.S. Commercial Banking and Wealth Management SBU, we operate a full-service real estate platform. Once construction is complete, and the property is income producing, we may occasionally offer fixed-rate financing within a permanent financing program (typically with average terms of up to 10 years). This portfolio of permanent financing exposures, which is a small subset of our total U.S. real estate lending portfolio, serves as a warehouse for inclusion in future commercial mortgage-backed securities (CMBS) programs. We retain no exposure to those CMBS programs. As at October 31, 2019, the portfolio of permanent financing exposures was $114 million (2018: $41 million).

Settlement risk

Settlement risk is the risk that during an agreed concurrent exchange of currency or principal payments, the counterparty will fail to make its payment to CIBC. This risk can arise in general trading activities and from payment and settlement system participation.

Many global settlement systems offer significant risk reduction benefits through complex risk mitigation frameworks. Bilateral payment netting agreements may be put in place to mitigate risk by reducing the aggregate settlement amount between counterparties. Further, we participate in several North American payment and settlement systems, including a global foreign exchange multilateral netting system. We also use financial intermediaries to access some payment and settlement systems, and for certain trades, we may utilize an established clearing house to minimize settlement risk.

Transactions settled outside of payment and settlement systems or clearing houses require approval of credit facilities for counterparties, either as pre-approved settlement risk limits or payment-versus-payment arrangements.

Securitization activities

We engage in three types of securitization activities: we securitize assets that we originate, we securitize assets originated by third parties and we engage in trading activities related to securitized products.

We securitize assets that we originate principally as a funding mechanism. The credit risk on the underlying assets in these transactions is transferred to the structured entity, with CIBC retaining first loss exposure and other investors exposed to the remaining credit risk.

Securitization activities relating to assets originated by third parties can include the securitization of those assets through ABCP conduits (or similar programs) that we sponsor (includes both consolidated and non-consolidated structured entities; see the "Off-balance sheet arrangements" section and Note 6 to our consolidated financial statements for additional details), or through direct exposure to a client-sponsored special purpose vehicle. Risks associated with securitization exposures to client-originated assets are mitigated through the transaction structure, which includes credit enhancements. For the transactions where we retain credit risk on the exposures that we hold, we earn interest income on these holdings. For the transactions in the ABCP conduits, we are also exposed to liquidity risk associated with the potential inability to roll over maturing ABCP in the market. We earn fee income for the services that we provide to these ABCP conduits.

We are also involved in the trading of ABS and ABCP to earn income in our role as underwriter and market maker. We are exposed to credit and market risk on the securities that we hold in inventory on a temporary basis until such securities are sold to an investor.

Capital requirements for exposures arising from securitization activities are determined using one of the following approaches: SEC-IRBA, SEC-ERBA, SEC-IAA, or SEC-SA.

The SEC-IAA process relies on internal risk ratings and is utilized for securitization exposures relating to ABCP conduits when external ratings are not available for the securitization exposures but the ABCP itself is externally rated. The internal assessment process involves an evaluation of a number of factors, including, but not limited to, pool characteristics, including asset eligibility criteria and concentration limits, transaction triggers, the asset seller's risk profile, servicing capabilities, and cash flow stress testing. Cash flows are stress-tested based on historical asset performance using our internal risk rating models by asset type. These models are subject to our model risk mitigation policies and are independently reviewed by the Model Validation team in Risk Management. The stress test factors used to determine the transaction risk profile and required credit enhancement levels are tailored for each asset type and transaction based on the assessment of the factors described above and are done in accordance with our internal risk rating methodologies and guidelines. Internal risk ratings are mapped to equivalent external ratings of external credit assessment institutions (DBRS, Fitch, Moody's and S&P) and are used to determine the appropriate risk weights for capital purposes. Securitization exposures and underlying asset performance are monitored on an ongoing basis. Risk Management serves as a second line of defence providing independent oversight regarding risk rating assumptions and adjudicating on the assignment of the internal risk ratings. SEC-IAA applies to various asset types in our ABCP conduits including, but not limited to, auto loans and leases, consumer loans, credit cards, dealer floorplan receivables, equipment loans and leases, fleet lease receivables, franchise loans, residential mortgages, and trade receivables.

Internal risk ratings determined for securitization exposures are also used in the estimation of expected credit losses as required under IFRS 9, determining economic capital, and for setting risk limits.

Market risk

Market risk is the risk of economic financial loss in our trading and non-trading portfolios from adverse changes in underlying market factors, including interest rates, foreign exchange rates, equity market prices, commodity prices, credit spreads, and customer behaviour for retail products. Market risk arises in CIBC's trading and treasury activities, and encompasses all market-related positioning and market making activity.

The trading book consists of positions in financial instruments and commodities held to meet the near-term needs of our clients.

The non-trading book consists of positions in various currencies that are related to asset/liability management (ALM) and investment activities.

Governance and management

Market risk is managed through the three lines of defence model. Frontline businesses and control groups are responsible for managing the market risk associated with their activities – this is the first line of defence.

The second line of defence is Risk Management, which has a dedicated market risk manager for each trading business, supplemented by regional risk managers located in all of our major trading centres, facilitating comprehensive risk coverage, including the measurement, monitoring and control of market risk.

Internal audit provides the third line of defence, with independent assessment of the design and operating effectiveness of risk management controls, processes and systems. Internal audit reports the results of its assessment to management and the Board.

Senior management reports material risk matters to the GRC and RMC at least quarterly, including material transactions, limit compliance, and portfolio trends.

Policies

We have comprehensive policies for the management of market risk. These policies are related to the identification and measurement of various types of market risk, their inclusion in the trading book, and to the establishment of limits within which we monitor, manage and report our overall exposures. Our policies also outline the requirements for the construction of valuation models, model review and validation, independent checking of the valuation of positions, the establishment of valuation adjustments, and alignment with accounting policies including MTM and mark-to-model methodologies.

Market risk limits

We have risk tolerance levels, expressed in terms of statistically based VaR measures, potential stress losses, and notional or other limits as appropriate. We use a multi-tiered approach to set limits on the amounts of risk that we can assume in our trading and non-trading activities, as follows:

- Board limits control consolidated market risk;
- Management limits control market risk for CIBC overall and are lower than the Board limits to allow for a buffer in the event of extreme market moves and/or extraordinary client needs;
- Tier 2 limits control market risk at the business unit level; and
- Tier 3 limits control market risk at the sub-business unit or desk level. Tier 3 limits are set on VaR and a variety of metrics including stress.

Management limits are established by the CRO, consistent with the risk appetite statement approved by the Board. Tier 2 and Tier 3 limits are approved at levels of management commensurate with risk assumed.

Process and control

Market risk exposures are monitored daily against approved risk limits, and control processes are in place to monitor that only authorized activities are undertaken. We generate daily risk and limit-monitoring reports, based on the previous day's positions. Summary market risk and limit compliance reports are produced and reviewed periodically with the GRC and RMC.

Risk measurement

We use the following measures for market risk:

- VaR enables the meaningful comparison of the risks in different businesses and asset classes. VaR is determined by the combined modelling of VaR for each of interest rate, credit spread, equity, foreign exchange, commodity, and debt specific risks, along with the portfolio effect arising from the interrelationship of the different risks (diversification effect):
  - Interest rate risk measures the impact of changes in interest rates and volatilities on cash instruments and derivatives.
  - Credit spread risk measures the impact of changes in credit spreads of provincial, municipal and agency bonds, sovereign bonds, corporate bonds, securitized products, and credit derivatives such as credit default swaps.
  - Equity risk measures the impact of changes in equity prices and volatilities, including implied market corrections.
  - Foreign exchange risk measures the impact of changes in foreign exchange rates and volatilities.
  - Commodity risk measures the impact of changes in commodity prices and volatilities, including the basis between related commodities.
  - Debt specific risk measures the impact of changes in the volatility of the yield of a debt instrument as compared with the volatility of the yield of a representative bond index.
  - Diversification effect reflects the risk reduction achieved across various financial instrument types, counterparties, currencies and regions. The extent of diversification benefit depends on the correlation between the assets and risk factors in the portfolio at a particular time.
- Price sensitivity measures the change in value of a portfolio to a small change in a given underlying parameter, so that component risks may be examined in isolation, and the portfolio rebalanced accordingly to achieve a desired exposure.
- Stressed VaR enables the meaningful comparison of the risks in different businesses and asset classes under stressful conditions. Changes to rates, prices, volatilities, and spreads over a 10-day horizon from a stressful historical period are applied to current positions and determine stressed VaR.
- IRC measures the required capital due to credit migration and default risk for debt securities held in the trading portfolios.
- Back-testing validates the effectiveness of risk measurement through analysis of observed and theoretical profit and loss outcomes.
- Stress testing and scenario analysis provide insight into portfolio behaviour under extreme circumstances.

The following table provides balances on the consolidated balance sheet that are subject to market risk. Certain differences between accounting and risk classifications are detailed in the footnotes below:

$ millions, as at October 31	2019				2018				
		Subject to market risk				Subject to market risk			
	Consolidated balance sheet	Trading	Non-trading	Not subject to market risk	Consolidated balance sheet	Trading	Non-trading	Not subject to market risk	Non-traded risk primary risk sensitivity
Cash and non-interest-bearing deposits with banks	$ 3,840	$ –	$ 1,711	$ 2,129	$ 4,380	$ –	$ 2,340	$ 2,040	Foreign exchange
Interest-bearing deposits with banks	13,519	641	12,878	–	13,311	96	13,215	–	Interest rate
Securities	121,310	42,403	78,907	–	101,664	49,784	51,880	–	Equity, interest rate
Cash collateral on securities borrowed	3,664	–	3,664	–	5,488	–	5,488	–	Interest rate
Securities purchased under resale agreements	56,111	–	56,111	–	43,450	–	43,450	–	Interest rate
Loans									
Residential mortgages	208,652	–	208,652	–	207,749	–	207,749	–	Interest rate
Personal	43,651	–	43,651	–	43,058	–	43,058	–	Interest rate
Credit card	12,755	–	12,755	–	12,673	–	12,673	–	Interest rate
Business and government	125,798	20,226 (1)	105,572	–	109,555	15,730 (1)	93,825	–	Interest rate
Allowance for credit losses	(1,915)	–	(1,915)	–	(1,639)	–	(1,639)	–	Interest rate
Derivative instruments	23,895	22,610	1,285	–	21,431	19,132	2,299	–	Interest rate, foreign exchange
Customers' liability under acceptances	9,167	–	9,167	–	10,265	–	10,265	–	Interest rate
Other assets	31,157	1,957	17,985	11,215	25,714	561	15,474	9,679	Interest rate, equity, foreign exchange
	$ 651,604	$ 87,837	$ 550,423	$ 13,344	$ 597,099	$ 85,303	$ 500,077	$ 11,719	
Deposits	$ 485,712	$ 44 (2)	$ 437,634	$ 48,034	$ 461,015	$ 507 (2)	$ 414,051	$ 46,457	Interest rate
Obligations related to securities sold short	15,635	14,721	914	–	13,782	13,731	51	–	Interest rate
Cash collateral on securities lent	1,822	–	1,822	–	2,731	–	2,731	–	Interest rate
Obligations related to securities sold under repurchase agreements	51,801	–	51,801	–	30,840	–	30,840	–	Interest rate
Derivative instruments	25,113	23,679	1,434	–	20,973	19,013	1,960	–	Interest rate, foreign exchange
Acceptances	9,188	–	9,188	–	10,296	–	10,296	–	Interest rate
Other liabilities	19,069	2,096	8,111	8,862	18,266	2,051	8,527	7,688	Interest rate
Subordinated indebtedness	4,684	–	4,684	–	4,080	–	4,080	–	Interest rate
	$ 613,024	$ 40,540	$ 515,588	$ 56,896	$ 561,983	$ 35,302	$ 472,536	$ 54,145	

(1) Excludes $115 million (2018: $39 million) of loans that are warehoused for future securitization purposes. These are considered non-trading for market risk purposes.
(2) Comprises FVO deposits which are considered trading for market risk purposes.

Trading activities

We hold positions in traded financial contracts to meet client investment and risk management needs. Trading revenue (net interest income or non-interest income) is generated from these transactions. Trading instruments are recorded at fair value and include debt and equity securities, as well as interest rate, foreign exchange, equity, commodity, and credit derivative products.

Value-at-Risk

Our VaR methodology is a statistical technique that measures the potential overnight loss at a 99% confidence level. We use a full revaluation historical simulation methodology to compute VaR, stressed VaR and other risk measures.

Although a valuable guide to risk, VaR should always be viewed in the context of its limitations. For example:

- The use of historical data for estimating future events will not encompass all potential events, particularly those that are extreme in nature.
- The use of a one-day holding period assumes that all positions can be liquidated, or the risks offset in one day. This may not fully reflect the market risk arising at times of severe illiquidity, when a one-day period may be insufficient to liquidate or hedge all positions fully.
- The use of a 99% confidence level does not take into account losses that might occur beyond this level of confidence.
- VaR is calculated on the basis of exposures outstanding at the close of business and assumes no management action to mitigate losses.

The VaR table below presents market risks by type of risk and in aggregate. The risks are interrelated and the diversification effect reflects the reduction of risk due to portfolio effects among the trading positions. Our trading risk exposures to interest rates and credit spreads arise from activities in the global debt and derivative markets, particularly from transactions in the Canadian, U.S., and European markets. The primary instruments are government and corporate debt, and interest rate derivatives. The majority of the trading exposure to foreign exchange risk arises from transactions involving the Canadian dollar, U.S. dollar, Euro, pound sterling, Australian dollar, Chinese yuan, and Japanese yen, whereas the primary risks of losses in equities are in the U.S., Canadian, and European markets. Trading exposure to commodities arises primarily from transactions involving North American natural gas, crude oil products, and precious metals.

VaR by risk type – trading portfolio

$ millions, as at or for the year ended October 31				2019				2018
	High	**Low**	**As at**	**Average**	High	Low	As at	Average
Interest rate risk	**$ 10.1**	**$ 2.8**	**$ 8.5**	**$ 5.2**	$ 7.6	$ 2.9	$ 3.5	$ 4.5
Credit spread risk	**2.0**	**0.9**	**1.5**	**1.3**	2.0	0.5	1.6	1.0
Equity risk	**10.4**	**1.7**	**3.4**	**3.1**	8.4	1.7	3.7	2.8
Foreign exchange risk	**4.3**	**0.6**	**2.9**	**2.1**	4.6	0.5	1.3	1.6
Commodity risk	**5.0**	**1.1**	**3.9**	**2.4**	4.7	1.0	1.5	1.8
Debt specific risk	**2.4**	**1.3**	**1.9**	**1.7**	2.7	0.9	1.3	1.5
Diversification effect [(1)]	**n/m**	**n/m**	**(15.3)**	**(10.1)**	n/m	n/m	(7.9)	(7.9)
Total VaR (one-day measure)	**$ 10.8**	**$ 3.6**	**$ 6.8**	**$ 5.7**	$ 10.4	$ 4.0	$ 5.0	$ 5.3

(1) Total VaR is less than the sum of the VaR of the different market risk types due to risk offsets resulting from a portfolio diversification effect.
n/m Not meaningful. It is not meaningful to compute a diversification effect because the high and low may occur on different days for different risk types.

Average total VaR for the year ended October 31, 2019 was up $0.4 million from the prior year. The increase was primarily due to increases in interest rate, commodity and foreign exchange risks.

Stressed VaR

The stressed VaR measure is intended to replicate the VaR calculation that would be generated for our current portfolio if the values of the relevant market risk factors were sourced from a period of stressed market conditions. The model inputs are calibrated to historical data from a continuous 12-month period of significant financial stress relevant to our current portfolio since December 2006. Our current stressed VaR period is from September 2, 2008 to August 31, 2009.

Stressed VaR by risk type – trading portfolio

$ millions, as at or for the year ended October 31				2019				2018
	High	**Low**	**As at**	**Average**	High	Low	As at	Average
Interest rate risk	**$ 37.0**	**$ 8.9**	**$ 26.4**	**$ 19.4**	$ 33.8	$ 6.8	$ 14.2	$ 17.4
Credit spread risk	**18.1**	**7.9**	**11.1**	**12.1**	17.9	4.0	17.9	9.6
Equity risk	**20.2**	**1.4**	**2.2**	**3.9**	7.8	0.8	6.3	3.4
Foreign exchange risk	**29.5**	**0.6**	**6.5**	**10.4**	15.5	0.5	2.7	5.3
Commodity risk	**11.9**	**1.3**	**11.9**	**4.8**	7.9	1.3	2.5	2.5
Debt specific risk	**7.3**	**4.1**	**4.9**	**5.5**	6.7	2.6	6.3	4.6
Diversification effect [(1)]	**n/m**	**n/m**	**(42.0)**	**(40.9)**	n/m	n/m	(33.4)	(30.4)
Stressed total VaR (one-day measure)	**$ 47.1**	**$ 3.5**	**$ 21.0**	**$ 15.2**	$ 22.6	$ 3.7	$ 16.5	$ 12.4

(1) Stressed total VaR is less than the sum of the VaR of the different market risk types due to risk offsets resulting from a portfolio diversification effect.
n/m Not meaningful. It is not meaningful to compute a diversification effect because the high and low may occur on different days for different risk types.

Average stressed total VaR for the year ended October 31, 2019 was up $2.8 million from the prior year. The increase was driven by an increase in foreign exchange, credit spread, commodity and interest rate risks related to positioning in the trading book.

Incremental risk charge

IRC is a measure of default and migration risk for debt securities held in the trading portfolios. Our IRC methodology is a statistical technique that measures the risk of issuer migration and default over a period of one year by simulating changes in issuer credit rating. Validation of the model included testing of the liquidity horizon, recovery rate, correlation, and PD and migration.

IRC – trading portfolio

$ millions, as at or for the year ended October 31				2019				2018
	High	**Low**	**As at**	**Average**	High	Low	As at	Average
Default risk	**$ 268.8**	**$ 124.0**	**$ 132.1**	**$ 180.2**	$ 214.2	$ 71.5	$ 176.1	$ 143.2
Migration risk	**111.2**	**45.5**	**67.7**	**72.2**	155.5	33.3	53.1	57.6
IRC (one-year measure) [(1)]	**$ 371.4**	**$ 186.5**	**$ 199.8**	**$ 252.4**	$ 291.5	$ 147.8	$ 229.2	$ 200.8

(1) High and low IRC are not equal to the sum of the constituent parts, because the highs and lows of the constituent parts may occur on different days.

Average IRC for the year ended October 31, 2019 was up $51.6 million from the prior year due to less diversification effect within our fixed income portfolio.

Back-testing

To determine the reliability of the trading VaR model, outcomes are monitored regularly through a back-testing process to test the validity of the assumptions and the parameters used in the trading VaR calculation. The back-testing process includes calculating a hypothetical or static profit and loss and comparing that result with calculated VaR. Static profit and loss represents the change in value of the prior day's closing portfolio due to each day's price movements, on the assumption that the contents of the portfolio remained unchanged. The back-testing process is conducted on a daily basis at the consolidated CIBC level. Back-testing is also performed for business lines and individual portfolios.

Static profit and loss and trading losses in excess of the one-day VaR are investigated. The back-testing process, including the investigation of results, is performed by risk professionals who are independent of those responsible for development of the model.

Internal audit also reviews our models, validation processes, and results of our back-testing. Based on our back-testing results, we are able to ensure that our VaR model continues to appropriately measure risk.

During the year, there was one negative back-testing breach of the total VaR measure, in line with statistical expectations.

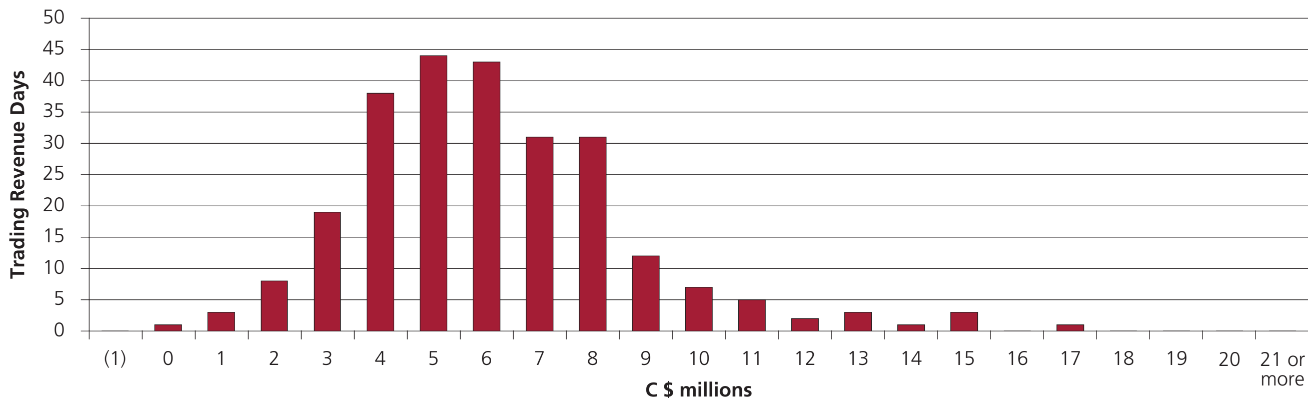
Trading revenue

Trading revenue (TEB) comprises both trading net interest income and non-interest income and excludes underwriting fees and commissions. Trading revenue (TEB) in the charts below excludes certain exited portfolios.

During the year, trading revenue (TEB) was positive for 99.6% of the days. The largest gain of $16.6 million occurred on August 30, 2019. It was attributable to the normal course of business within our global markets line of business, notably in equity derivatives. The largest loss of $0.6 million occurred on August 16, 2019, mainly driven by a loss in equity derivatives. Average daily trading revenue (TEB) was $5.6 million during the year, and the average daily TEB was $0.7 million. The large increase in VaR in May 2019 was the result of a large transaction in our equity underwriting business.

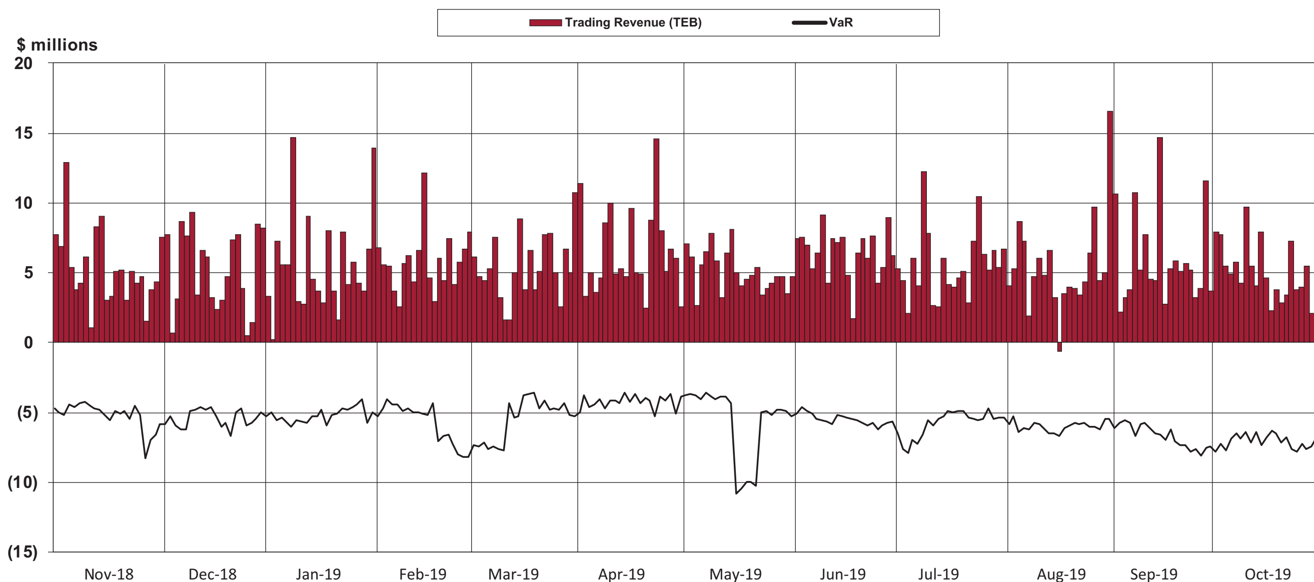
Frequency distribution of daily 2019 trading revenue (TEB) (1)

The histogram below presents the frequency distribution of daily trading revenue (TEB) for 2019.



Trading revenue (TEB) (1) *versus VaR*

The trading revenue (TEB) versus VaR graph below shows the current year's daily trading revenue (TEB) against the close of business day VaR measures.



(1) Excludes certain month-end transfer pricing and other miscellaneous adjustments.

Stress testing and scenario analysis

Stress testing and scenario analysis is designed to add insight to possible outcomes of abnormal market conditions, and to highlight possible risk concentrations.

We measure the effect on portfolio values under a wide range of extreme moves in market risk factors. Our approach simulates the impact on earnings of extreme market events over a one-month time horizon, assuming that no risk-mitigating actions are taken during this period to reflect the reduced market liquidity that typically accompanies such events.

Scenarios are developed using historical market data during periods of market disruption, or are based on hypothetical impacts of economic events, political events, and natural disasters as predicted by economists, business leaders, and risk managers.

Among the historical scenarios are the 1994 period of U.S. Federal Reserve tightening, and the market events following the 2008 market crisis. The hypothetical scenarios include potential market crises originating in North America, Europe and Asia. In March 2019, a subprime crisis traded scenario was introduced and replaced the "historical" subprime crisis scenario. The subprime crisis traded scenario incorporates trading behaviour by assuming that positions can be dynamically hedged during the course of the scenario, which reduces the holding period (vs. "historical" subprime crisis scenario). In September 2019, two updated Brexit scenarios were re-introduced in accordance with the latest events in the U.K. and Europe: a (i) Brexit "leaves" – hard Brexit scenario where the U.K. leaves the European Union without a formal agreement, or after snap elections are won by hardline conservatives, and (ii) a Brexit "remains" – second referendum scenario where a British snap election is won by a Liberal Party-Labour Party coalition, triggering a second referendum leading to the revocation of Article 50.

Below are examples of the core stress test scenarios which are currently run on a daily basis to add insight into potential exposures under stress:

- Subprime crisis traded
- U.S. Federal Reserve tightening – 1994
- U.S. sovereign debt default and downgrade
- Brexit "leaves" – hard Brexit
- Canada market crisis
- U.S. protectionism
- Eurozone bank crisis
- Brexit "remains" – second referendum
- Quantitative easing tapering and asset price correction
- Oil shock and equity correction
- Chinese hard landing

Stress testing scenarios are periodically reviewed and amended as necessary to ensure they remain relevant. Under stress limit monitoring, limits are placed on the maximum acceptable loss based on risk appetite in aggregate, at the detailed portfolio level, and for specific asset classes.

Non-exchange traded commodity derivatives

In the normal course of business, we trade non-exchange traded commodity derivative contracts. We control and manage our non-exchange traded commodity derivatives risk through the VaR and stress testing methodologies described above. We use modelling techniques or other valuation methodologies to determine the fair value of these contracts.

The following table provides the fair value, based upon maturity of non-exchange traded commodity contracts:

$ millions, as at October 31, 2019	Positive	Negative	Net
Maturity less than 1 year	$ 453	$ 615	$ (162)
Maturity 1–3 years	394	797	(403)
Maturity 4–5 years	256	254	2
Maturity in excess of 5 years	473	18	455
	$ 1,576	$ 1,684	$ (108)

Non-trading activities

Structural interest rate risk

Structural interest rate risk primarily consists of the risk arising due to mismatches in assets and liabilities, which do not arise from trading and trading-related businesses. Interest rate risk results from differences in the maturities or repricing dates of assets and liabilities, both on- and off-balance sheet, as well as from embedded optionality in retail products. This optionality arises predominantly from the commitment and prepayment exposures of mortgage products, non-maturity deposits and some guaranteed investment certificates products with early redemption features. A variety of cash instruments and derivatives, primarily interest rate swaps, are used to manage these risks.

The Board has oversight of the management of non-trading market risk, sets the market risk appetite and annually approves the market risk limits. GALCO and its subcommittee, the Asset Liability Management Committee, regularly review structural market risk positions and provide senior management oversight.

In addition to Board-approved limits on earnings and economic value exposure, more granular management limits are in place to guide day-to-day management of this risk. The ALM group within Treasury is responsible for the ongoing management of structural market risk across the enterprise, with independent oversight and compliance with non-trading market risk policy provided by Capital Markets Risk Management.

ALM activities are designed to manage the effects of potential interest rate movements while balancing the cost of any hedging activities on the current net revenue. The net interest income sensitivity is a measure of the impact of potential changes in interest rates on the projected 12-month pre-tax net interest income of a portfolio of assets, liabilities and off-balance sheet positions in response to prescribed parallel interest rate movements with interest rates floored at zero.

The following table shows the potential impact over the next 12 months, adjusted for structural assumptions (excluding shareholders' equity in the calculation of the present value of shareholders' equity), estimated prepayments and potential early withdrawals, of an immediate and sustained 100 basis point increase or decrease in all interest rates.

Structural interest rate sensitivity – measures

$ millions (pre-tax), as at October 31		2019		2018
	CAD [1]	USD	CAD [1]	USD
100 basis point increase in interest rates				
Increase (decrease) in net interest income	$ 192	$ 24	$ 170	$ 32
Increase (decrease) in present value of shareholders' equity	(511)	(307)	(396)	(230)
100 basis point decrease in interest rates				
Increase (decrease) in net interest income	(190)	(35)	(246)	(58)
Increase (decrease) in present value of shareholders' equity	388	206	316	269

(1) Includes CAD and other currency exposures.

Foreign exchange risk

Structural foreign exchange risk primarily consists of the risk inherent in: (a) net investments in foreign operations due to changes in foreign exchange rates; and (b) foreign currency denominated risk-weighted assets and foreign currency denominated capital deductions. This risk, predominantly in U.S. dollars, is managed using derivative hedges and by funding the investments in matching currencies. We actively manage this position to ensure that the potential impact on our capital ratios is in accordance with the policy approved by the CRO, while giving consideration to the impact on earnings and shareholders' equity. Structural foreign exchange risk is managed by Treasury under the guidance of GALCO. Compliance with trading and non-trading market risk policy, as well as market risk limits, is monitored daily by Capital Markets Risk Management.

A 1% appreciation of the Canadian dollar would reduce our shareholders' equity as at October 31, 2019 by approximately $153 million (2018: $130 million) on an after-tax basis.

Our non-functional currency denominated earnings are converted into the functional currencies through spot or forward foreign exchange transactions. Typically, there is no significant impact of exchange rate fluctuations on our consolidated statement of income.

We hedge certain foreign currency contractual expenses using derivatives which are accounted for as cash flow hedges. The net change in fair value of these hedging derivatives included in AOCI amounted to a gain of $3 million (2018: $8 million) on an after-tax basis. This amount will be released from AOCI to offset the hedged currency fluctuations as the expenses are incurred.

Derivatives held for ALM purposes

Where derivatives are held for ALM purposes, and when transactions meet the criteria specified under IFRS, we apply hedge accounting for the risks being hedged, as discussed in Notes 12 and 13 to the consolidated financial statements. Derivative hedges that do not qualify for hedge accounting treatment are referred to as economic hedges and are recorded at fair value on the consolidated balance sheet with changes in fair value recognized in the consolidated statement of income.

Economic hedges for other than FVO financial instruments may lead to income volatility because the hedged items are recorded either on a cost or amortized cost basis or recorded at fair value on the consolidated balance sheet with changes in fair value recognized through other comprehensive income. This income volatility may not be representative of the overall risk.

Equity risk

Non-trading equity risk arises primarily in our strategy and corporate development activities and our merchant banking activities. The investments comprise public and private equities, investments in limited partnerships, and equity-accounted investments.

The following table provides the amortized cost and fair values of our non-trading equities:

$ millions, as at October 31		Amortized cost	Fair value
2019	**Equity securities designated at FVOCI**	**$ 533**	**$ 602**
	Equity-accounted investments in associates [1]	**57**	**85**
		$ 590	**$ 687**
2018	Equity securities designated at FVOCI	$ 468	$ 562
	Equity-accounted investments in associates [1]	63	101
		$ 531	$ 663

(1) Excludes our equity-accounted joint ventures. See Note 25 to the consolidated financial statements for further details.

Pension risk

A number of defined benefit pension plans are operated globally. As at October 31, 2019, our consolidated defined benefit pension plans were in a net asset position of $116 million, compared with $311 million as at October 31, 2018. The change in the net asset position of our pension plans is disclosed in Note 18 to the consolidated financial statements.

Our Canadian pension plans represent approximately 90% of our pension plans, the most significant of which is our principal Canadian pension plan (the CIBC Pension Plan). The estimated impact on our Canadian defined benefit obligations of a 100 basis point change in the discount rate is disclosed in Note 18 to the consolidated financial statements.

The MRCC is responsible for sound governance and oversight, and delegates management authority to the Pension Benefits Management Committee (PBMC). An appropriate investment strategy for the CIBC Pension Plan is set through a statement of investment objectives, policies and procedures.

Within Treasury, the Pension Investment Management department is responsible for developing and implementing custom investment strategies to sustainably deliver pension benefits within manageable risk tolerances and capital impact. Key risks include actuarial risks (such as longevity risk), interest rate risk, currency risk, market (investment) risk, and health-care cost inflation risks.

The CIBC Pension Plan principally manages these risk exposures through its liability-driven investment strategy, which includes the use of derivatives for risk management and rebalancing purposes, as well as the ability to enhance returns. The use of derivatives within the CIBC Pension Plan is governed by the plan's derivatives policy that was approved by the PBMC. The fair value of derivatives held in the CIBC Pension Plan is disclosed in Note 18 to the consolidated financial statements.

A principal risk for the CIBC Pension Plan is interest rate risk which it mitigates through a combination of physical bonds and a bond overlay program funded through the use of repurchase agreements. The plan also operates a currency overlay strategy, which may use forwards or similar instruments, to manage and mitigate its currency risk. Investment risk is mitigated through a multi-asset portfolio construction process that diversifies across a variety of market risk drivers.

Liquidity risk

Liquidity risk is the risk of having insufficient cash or its equivalent in a timely and cost-effective manner to meet financial obligations as they come due. Common sources of liquidity risk inherent in banking services include unanticipated withdrawals of deposits, the inability to replace maturing debt, credit and liquidity commitments, and additional pledging or other collateral requirements.

CIBC's approach to liquidity risk management supports our business strategy, aligns with our risk appetite and adheres to regulatory expectations.

Our management strategies, objectives and practices are regularly reviewed to align with changes to the liquidity environment, including regulatory, business and/or market developments. Liquidity risk remains within CIBC's risk appetite.

Governance and management

We manage liquidity risk in a manner that enables us to withstand a liquidity stress event without an adverse impact on the viability of our operations. Actual and anticipated cash flows generated from on- and off-balance sheet exposures are routinely measured and monitored to ensure compliance with established limits. CIBC incorporates stress testing into its management and measurement of liquidity risk. Stress test results assist with the development of our liquidity assumptions, identification of potential constraints to funding planning, and contribute to the design of CIBC's contingency funding plan.

Liquidity risk is managed using the three lines of defence model, and the ongoing management of liquidity risk is the responsibility of the Treasurer, supported by guidance from GALCO.

The Treasurer is responsible for managing the activities and processes required for measurement, reporting and monitoring of CIBC's liquidity risk position – this is the first line of defence.

The Liquidity and Non-Trading Market Risk group within Capital Markets Risk Management provides independent oversight of the measurement, monitoring and control of liquidity risk, as the second line of defence.

Internal audit, as the third line of defence, provides independent assessment of the design and operating effectiveness of liquidity risk management controls, processes and systems. Internal audit reports the results of its assessment to management and the Board.

The GALCO governs CIBC's liquidity risk management, ensuring the liquidity risk management methodologies, assumptions, and key metrics such as the Liquidity Horizon, are regularly reviewed and consider CIBC's business activities. The Liquidity Risk Management Committee, a subcommittee of GALCO, is responsible for ensuring that CIBC's liquidity risk profile is comprehensively measured and managed in alignment with CIBC's strategic direction, risk appetite and regulatory requirements.

The RMC approves CIBC's liquidity risk management policy, and recommends liquidity risk tolerance to the Board through the risk appetite statement.

Policies

Our liquidity risk management policy requires a sufficient amount of available unencumbered liquid assets and diversified funding sources to meet anticipated liquidity needs in both normal and stressed conditions. CIBC branches and subsidiaries possessing unique liquidity characteristics, due to distinct businesses or jurisdictional requirements, maintain local liquidity practices in alignment with CIBC's liquidity risk management policy.

CIBC's pledging policy sets out consolidated limits for the pledging of CIBC's assets across a broad range of financial activities. These limits ensure unencumbered liquid assets are available for liquidity purposes.

We maintain a detailed global contingency funding plan that sets out the strategies for addressing liquidity shortfalls in emergency and unexpected situations, and delineates the requirements necessary to manage a range of stress conditions, establishes lines of responsibility, articulates implementation, and defines escalation procedures, and is aligned to CIBC's risk appetite. In order to reflect CIBC's organizational complexity, regional and subsidiary contingency funding plans are maintained to respond to liquidity stresses unique to the jurisdictions within which CIBC operates, and support CIBC as an enterprise.

Risk measurement

Our liquidity risk tolerance is defined by our risk appetite statement, which is approved annually by the Board, and forms the basis for the delegation of liquidity risk authority to senior management. We use both regulatory-driven and internally developed liquidity risk metrics to measure our liquidity risk exposure. Internally, our liquidity position is measured using the Liquidity Horizon, which combines contractual and behavioural cash flows to measure the future point in time when projected cumulative cash outflows exceed cash inflows under a combined CIBC-specific and market-wide stress scenario. Expected and potential anticipated inflows and outflows of funds generated from on- and off-balance sheet exposures are measured and monitored on a daily basis to ensure compliance with established limits. These cash flows incorporate both contractual and behavioural on- and off-balance sheet cash flows.

Our liquidity measurement system provides liquidity risk exposure reports that include the calculation of the internal liquidity stress tests and regulatory reporting such as the LCR and Net Cumulative Cash Flow (NCCF). Our liquidity management also incorporates the monitoring of our unsecured wholesale funding position and funding capacity.

Risk appetite

CIBC's risk appetite statement ensures prudent management of liquidity risk by outlining qualitative considerations and quantitative metrics including the LCR and Liquidity Horizon. Quantitative metrics are measured and managed to a set of limits approved by Risk Management.

Stress testing

A key component of our liquidity risk management, and complementing our assessments of liquidity risk exposure, is liquidity risk stress testing. Liquidity stress testing involves the application of name-specific and market-wide stress scenarios at varying levels of severity to assess the amount of available liquidity required to satisfy anticipated obligations as they come due. The scenarios model potential liquidity and funding requirements in the event of unsecured wholesale funding and deposit run-off, contingent liquidity utilization, and liquid asset marketability.

Liquid assets

Available liquid assets include unencumbered cash and marketable securities from on- and off-balance sheet sources, that can be used to access funding in a timely fashion. Encumbered liquid assets, composed of assets pledged as collateral and those assets that are deemed restricted due to legal, operational, or other purposes, are not considered as sources of available liquidity when measuring liquidity risk.

Encumbered and unencumbered liquid assets from on- and off-balance sheet sources are summarized as follows:

$ millions, as at October 31		Bank owned liquid assets	Securities received as collateral	Total liquid assets	Encumbered liquid assets	Unencumbered liquid assets [1]
2019	**Cash and deposits with banks**	**$ 17,359**	**$ –**	**$ 17,359**	**$ 784**	**$ 16,575**
	Securities issued or guaranteed by sovereigns, central banks, and multilateral development banks	**85,881**	**86,205**	**172,086**	**100,203**	**71,883**
	Other debt securities	**4,928**	**3,139**	**8,067**	**1,838**	**6,229**
	Equities	**26,441**	**15,766**	**42,207**	**23,623**	**18,584**
	Canadian government guaranteed National Housing Act mortgage-backed securities	**41,378**	**876**	**42,254**	**11,627**	**30,627**
	Other liquid assets [2]	**11,196**	**463**	**11,659**	**6,864**	**4,795**
		$ 187,183	**$ 106,449**	**$ 293,632**	**$ 144,939**	**$ 148,693**
2018	Cash and deposits with banks	$ 17,691	$ –	$ 17,691	$ 686	$ 17,005
	Securities issued or guaranteed by sovereigns, central banks, and multilateral development banks	67,478	74,933	142,411	75,431	66,980
	Other debt securities	6,684	2,092	8,776	1,240	7,536
	Equities	25,018	20,641	45,659	27,859	17,800
	Canadian government guaranteed National Housing Act mortgage-backed securities	39,465	834	40,299	10,182	30,117
	Other liquid assets [2]	6,500	1,598	8,098	6,621	1,477
		$ 162,836	$ 100,098	$ 262,934	$ 122,019	$ 140,915

(1) Unencumbered liquid assets are defined as on-balance sheet assets, assets borrowed or purchased under resale agreements, and other off-balance sheet collateral received less encumbered liquid assets.
(2) Includes cash pledged as collateral for derivatives transactions, select ABS and precious metals.

The following table summarizes unencumbered liquid assets held by CIBC (parent) and its domestic and foreign subsidiaries:

$ millions, as at October 31	**2019**	2018
CIBC (parent)	**$ 108,878**	$ 99,486
Domestic subsidiaries	**8,588**	15,988
Foreign subsidiaries	**31,227**	25,441
	$ 148,693	$ 140,915

Asset haircuts and monetization depth assumptions under a liquidity stress scenario are applied to determine asset liquidity value. Haircuts take into consideration those margins applicable at central banks – such as the Bank of Canada and the Federal Reserve Bank – historical observations, and securities characteristics including asset type, issuer, credit ratings, currency and remaining term to maturity, as well as available regulatory guidance.

Our unencumbered liquid assets increased $7.8 billion from October 31, 2018, primarily due to regular business activities, including deposit growth.

Furthermore, CIBC maintains access eligibility to the Bank of Canada's Emergency Lending Assistance program and the Federal Reserve Bank's Discount Window.

Asset encumbrance

In the course of CIBC's day-to-day operations, securities and other assets are pledged to secure obligations, participate in clearing and settlement systems and other collateral management purposes.

The following table provides a summary of our total on- and off-balance sheet encumbered and unencumbered assets:

		Encumbered		Unencumbered		Total assets
$ millions, as at October 31		Pledged as collateral	Other [1]	Available as collateral	Other [2]	
2019	**Cash and deposits with banks**	**$ –**	**$ 784**	**$ 16,575**	**$ –**	**$ 17,359**
	Securities	**121,349**	**283**	**102,867**	**–**	**224,499**
	Loans, net of allowance [3]	**2,000**	**40,204**	**35,073**	**310,688**	**387,965**
	Other assets	**6,186**	**–**	**1,815**	**56,218**	**64,219**
		$ 129,535	**$ 41,271**	**$ 156,330**	**$ 366,906**	**$ 694,042**
2018	Cash and deposits with banks	$ –	$ 686	$ 17,005	$ –	$ 17,691
	Securities	104,039	130	96,021	–	200,190
	Loans, net of allowance [3]	1,600	44,553	33,499	292,507	372,159
	Other assets	5,071	–	251	52,088	57,410
		$ 110,710	$ 45,369	$ 146,776	$ 344,595	$ 647,450

(1) Includes assets supporting CIBC's long-term funding activities and assets restricted for legal or other reasons, such as restricted cash.
(2) Other unencumbered assets are not subject to any restrictions on their use to secure funding or as collateral, however they are not considered immediately available to existing borrowing programs.
(3) Loans included as available as collateral represent the loans underlying National Housing Act mortgage-backed securities and Federal Home Loan Banks eligible loans.

Restrictions on the flow of funds

Our subsidiaries are not subject to significant restrictions that would prevent transfers of funds, dividends or capital distributions. However, certain subsidiaries have different capital and liquidity requirements, established by applicable banking and securities regulators.

We monitor and manage our capital and liquidity requirements across these entities to ensure that resources are used efficiently and entities are in compliance with local regulatory and policy requirements.

Liquidity coverage ratio

The objective of the LCR is to promote short-term resilience of a bank's liquidity risk profile, ensuring that it has adequate unencumbered high quality liquid resources to meet its liquidity needs in a 30-day acute stress scenario. Canadian banks are required to achieve a minimum LCR value of 100%. CIBC is in compliance with this requirement.

In accordance with the calibration methodology contained in OSFI's liquidity adequacy requirements (LAR) guidelines, CIBC reports the LCR to OSFI on a monthly basis. The ratio is calculated as follows:

$$\frac{\text{Total High Quality Liquid Assets (HQLA)}}{\text{Total net cash outflows over the next 30 calendar days}} \geq 100\%$$

The LCR's numerator consists of unencumbered HQLA, which follow an OSFI-defined set of eligibility criteria that considers fundamental and market-related characteristics, and relative ability to operationally monetize assets on a timely basis during a period of stress. CIBC's centrally-managed liquid asset portfolio includes those liquid assets reported in the HQLA, such as central government treasury bills and bonds, central bank deposits and high-rated sovereign, agency, provincial, and corporate securities. Asset eligibility limitations inherent in the LCR metric do not necessarily reflect CIBC's internal assessment of its ability to monetize its marketable assets under stress.

The ratio's denominator reflects net cash outflows expected in the LCR's stress scenario over the 30-calendar-day period. Expected cash outflows represent LCR-defined withdrawal or draw-down rates applied against outstanding liabilities and off-balance sheet commitments, respectively. Significant contributors to CIBC's LCR outflows include business and financial institution deposit run-off, draws on undrawn lines of credit and unsecured debt maturities. Cash outflows are partially offset by cash inflows, which are calculated at LCR-prescribed inflow rates, and include performing loan repayments and maturing non-HQLA marketable assets.

The LCR is disclosed using a standard OSFI-prescribed disclosure template.

	$ millions, average of the three months ended October 31, 2019	**Total unweighted value** [1]	**Total weighted value** [2]
HQLA			
1	HQLA	**n/a**	**$ 119,440**
Cash outflows			
2	Retail deposits and deposits from small business customers, of which:	**$ 157,628**	**10,598**
3	Stable deposits	**73,788**	**2,214**
4	Less stable deposits	**83,840**	**8,384**
5	Unsecured wholesale funding, of which:	**141,785**	**69,206**
6	Operational deposits (all counterparties) and deposits in networks of cooperative banks	**47,194**	**11,504**
7	Non-operational deposits (all counterparties)	**73,598**	**36,709**
8	Unsecured debt	**20,993**	**20,993**
9	Secured wholesale funding	**n/a**	**6,198**
10	Additional requirements, of which:	**101,231**	**24,396**
11	Outflows related to derivative exposures and other collateral requirements	**12,388**	**5,829**
12	Outflows related to loss of funding on debt products	**3,320**	**3,320**
13	Credit and liquidity facilities	**85,523**	**15,247**
14	Other contractual funding obligations	**2,796**	**2,796**
15	Other contingent funding obligations	**286,860**	**5,430**
16	Total cash outflows	**n/a**	**118,624**
Cash inflows			
17	Secured lending (e.g. reverse repos)	**67,149**	**7,013**
18	Inflows from fully performing exposures	**17,597**	**8,904**
19	Other cash inflows	**7,518**	**7,518**
20	Total cash inflows	**$ 92,264**	**$ 23,435**
			Total adjusted value
21	Total HQLA	**n/a**	**$ 119,440**
22	Total net cash outflows	**n/a**	**$ 95,189**
23	LCR	**n/a**	**125 %**
	$ millions, average of the three months ended July 31, 2019		Total adjusted value
24	Total HQLA	n/a	$ 117,910
25	Total net cash outflows	n/a	$ 91,332
26	LCR	n/a	129 %

(1) Unweighted inflow and outflow values are calculated as outstanding balances maturing or callable within 30 days of various categories or types of liabilities, off-balance sheet items or contractual receivables.
(2) Weighted values are calculated after the application of haircuts (for HQLA) and inflow and outflow rates prescribed by OSFI.
n/a Not applicable as per the LCR common disclosure template.

Our average LCR as at October 31, 2019 decreased to 125% from 129% in the prior quarter, mainly due to higher net cash outflows, partially offset by an increase in HQLA.

CIBC considers the impact of its business decisions on the LCR and other liquidity risk metrics that it regularly monitors as part of a robust liquidity risk management function. Variables that can impact the ratio month-over-month include, but are not limited to, items such as wholesale funding activities and maturities, strategic balance sheet initiatives, and transactions and market conditions affecting collateral. Furthermore, CIBC reports the LCR to OSFI in multiple currencies, and thus measures the extent of potential currency mismatch under the ratio. CIBC predominantly operates in major currencies with deep and fungible foreign exchange markets.

Reporting of the LCR is calibrated centrally by CIBC Treasury, in conjunction with CIBC's SBUs and other functional groups.

Funding

CIBC funds its operations with client-sourced deposits, supplemented with a wide range of wholesale funding.

CIBC's principal approach aims to fund its consolidated balance sheet with deposits primarily raised from personal and commercial banking channels. Personal deposits accounted for $178.1 billion as at October 31, 2019 (2018: $163.9 billion). CIBC maintains a foundation of relationship-based core deposits, whose stability is regularly evaluated through internally developed statistical assessments.

We routinely access a range of short-term and long-term secured and unsecured funding sources diversified by geography, depositor type, instrument, currency and maturity. We raise long-term funding from existing programs including covered bonds, asset securitizations and unsecured debt.

CIBC continuously evaluates opportunities to diversify into new funding products and investor segments in an effort to maximize funding flexibility and minimize concentration and financing costs. We regularly monitor wholesale funding levels and concentrations to internal limits consistent with our desired liquidity risk profile.

GALCO and RMC review and approve CIBC's funding plan, which incorporates projected asset and liability growth, funding maturities, and output from our liquidity position forecasting.

The following table provides the contractual maturities at carrying values of CIBC's wholesale funding sources:

$ millions, as at October 31, 2019	Less than 1 month	1–3 months	3–6 months	6–12 months	Less than 1 year total	1–2 years	Over 2 years	Total
Deposits from banks [1]	**$ 1,391**	**$ 57**	**$ 112**	**$ 3**	**$ 1,563**	**$ –**	**$ –**	**$ 1,563**
Certificates of deposit and commercial paper	**6,641**	**9,412**	**17,611**	**17,666**	**51,330**	**399**	**–**	**51,729**
Bearer deposit notes and bankers' acceptances	**641**	**1,209**	**3,427**	**65**	**5,342**	**–**	**–**	**5,342**
Asset-backed commercial paper	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Senior unsecured medium-term notes [2]	**3,101**	**2,049**	**1,804**	**6,271**	**13,225**	**7,913**	**23,907**	**45,045**
Senior unsecured structured notes	**–**	**–**	**–**	**247**	**247**	**–**	**–**	**247**
Covered bonds/asset-backed securities								
Mortgage securitization	**–**	**520**	**794**	**719**	**2,033**	**3,677**	**11,384**	**17,094**
Covered bonds	**–**	**1,469**	**–**	**1,852**	**3,321**	**4,400**	**11,133**	**18,854**
Cards securitization	**–**	**–**	**1,317**	**856**	**2,173**	**774**	**–**	**2,947**
Subordinated liabilities	**–**	**–**	**–**	**–**	**–**	**–**	**4,684**	**4,684**
Other	**263**	**20**	**–**	**–**	**283**	**–**	**5**	**288**
	$ 12,037	**$ 14,736**	**$ 25,065**	**$ 27,679**	**$ 79,517**	**$ 17,163**	**$ 51,113**	**$ 147,793**
Of which:								
Secured	**$ –**	**$ 1,989**	**$ 2,111**	**$ 3,427**	**$ 7,527**	**$ 8,851**	**$ 22,517**	**$ 38,895**
Unsecured	**12,037**	**12,747**	**22,954**	**24,252**	**71,990**	**8,312**	**28,596**	**108,898**
	$ 12,037	**$ 14,736**	**$ 25,065**	**$ 27,679**	**$ 79,517**	**$ 17,163**	**$ 51,113**	**$ 147,793**
October 31, 2018	$ 12,815	$ 18,208	$ 20,495	$ 29,167	$ 80,685	$ 17,421	$ 52,711	$ 150,817

(1) Includes non-negotiable term deposits from banks.
(2) Includes wholesale funding liabilities which are subject to conversion under bail-in regulations. See the "Capital management" section for additional details.

CIBC's wholesale funding is diversified by currency as demonstrated in the table that follows:

$ billions, as at October 31	**2019**		2018	
CAD	**$ 49.2**	**33 %**	$ 49.6	33 %
USD	**73.0**	**50**	80.8	54
Other	**25.6**	**17**	20.4	13
	$ 147.8	**100 %**	$ 150.8	100 %

Our funding volumes decreased modestly relative to 2018 in response to CIBC's business and liquidity strategies. We do not anticipate any events, commitments or demands that will materially impact our ability to raise funds through deposits or wholesale funding.

We manage liquidity risk in a manner that enables us to withstand severe liquidity stress events. Wholesale funding may present higher run-off risks in stress situations, for which we maintain significant portfolios of unencumbered liquid assets. See the "Liquid assets" section for additional details.

Funding plan

Our funding plan is updated at least quarterly, or in response to material changes in underlying assumptions and business developments. The plan incorporates projected asset and liability growth from our ongoing operations, and the output from our liquidity position forecasting.

Credit ratings

CIBC's access to and cost of wholesale funding are dependent on multiple factors, among them credit ratings provided by rating agencies. Rating agencies' opinions are based upon internal methodologies, and are subject to change based on factors including, but not limited to, financial strength, competitive position, macroeconomic backdrop and liquidity positioning.

Our credit ratings are summarized in the following table:

As at October 31, 2019	DBRS	Fitch	Moody's	S&P
Deposit/Counterparty [1]	**AA**	**AA-**	**Aa2**	**A+**
Legacy senior debt [2]	**AA**	**AA-**	**Aa2**	**A+**
Senior debt [3]	**AA(L)**	**AA-**	**A2**	**BBB+**
Subordinated indebtedness	**A(H)**	**A+**	**Baa1**	**BBB+**
Subordinated indebtedness – NVCC [4]	**A(L)**	**A+**	**Baa1**	**BBB**
Preferred shares – NVCC [4]	**Pfd-2**	**n/a**	**Baa3**	**P-3(H)**
Short-term debt	**R-1(H)**	**F1+**	**P-1**	**A-1**
Outlook	**Stable**	**Stable**	**Stable**	**Stable**

(1) DBRS Long-Term Issuer Rating; Moody's Long-Term Deposit and Counterparty Risk Assessment Rating; S&P's Issuer Credit Rating; Fitch Long-Term Issuer Default and Derivative Counterparty Rating.
(2) Includes senior debt issued prior to September 23, 2018 as well as senior debt issued on or after September 23, 2018 which is not subject to the bail-in regulations.
(3) Comprises liabilities which are subject to conversion under the bail-in regulations.
(4) Comprises instruments which are treated as NVCC in accordance with OSFI's capital adequacy guidelines.
n/a Not applicable.

Additional collateral requirements for rating downgrades

We are required to deliver collateral to certain derivative counterparties in the event of a downgrade to our current credit risk rating. The collateral requirement is based on MTM exposure, collateral valuations, and collateral arrangement thresholds, as applicable. The following table presents the additional cumulative collateral requirements for rating downgrades:

$ billions, as at October 31	2019	2018
One-notch downgrade	**$ 0.1**	$ 0.1
Two-notch downgrade	**0.2**	0.2 [1]
Three-notch downgrade	**0.3**	0.3 [1]

(1) Restated.

Regulatory developments concerning liquidity

OSFI's LAR guideline became effective in 2015. It is shaped by the BCBS' liquidity standards, and includes the LCR, net stable funding ratio (NSFR) and other liquidity monitoring tools, including the OSFI-designed supervisory tool known as the NCCF. OSFI uses the LAR and associated metrics to assess individual banks' liquidity adequacy.

On October 31, 2014, the BCBS published its final NSFR guideline. In April 2019, OSFI issued updated NSFR guidelines following industry and public consultation, clarifying details of the NSFR implementation and its application to the Canadian financial industry. D-SIBs will implement the updated NSFR guidelines beginning January 2020, with public disclosures required to be produced beginning in the first quarter of 2021.

Consistent with the requirements above, we submit the LCR and NCCF to OSFI on a monthly basis and the NSFR on a quarterly basis. We provide the LCR and NSFR to the BCBS twice annually.

Contractual obligations

Contractual obligations give rise to commitments of future payments affecting our short- and long-term liquidity and capital resource needs. These obligations include financial liabilities, credit and liquidity commitments, and other contractual obligations.

Assets and liabilities

The following table provides the contractual maturity profile of our on-balance sheet assets, liabilities and equity at their carrying values. Contractual analysis is not representative of CIBC's liquidity risk exposure, however this information serves to inform CIBC's management of liquidity risk, and provide input when modelling a behavioural balance sheet.

$ millions, as at October 31, 2019	Less than 1 month	1–3 months	3–6 months	6–9 months	9–12 months	1–2 years	2–5 years	Over 5 years	No specified maturity	Total
Assets										
Cash and non-interest-bearing deposits with banks	**$ 3,840**	**$ –**	**$ –**	**$ –**	**$ –**	**$ –**	**$ –**	**$ –**	**$ –**	**$ 3,840**
Interest-bearing deposits with banks	**13,519**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**13,519**
Securities	**5,316**	**3,800**	**3,228**	**2,554**	**2,578**	**9,669**	**41,252**	**25,768**	**27,145**	**121,310**
Cash collateral on securities borrowed	**3,664**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**3,664**
Securities purchased under resale agreements	**31,179**	**18,164**	**5,874**	**464**	**430**	**–**	**–**	**–**	**–**	**56,111**
Loans										
Residential mortgages	**2,457**	**4,652**	**10,505**	**15,312**	**13,379**	**46,194**	**106,660**	**9,106**	**387**	**208,652**
Personal	**774**	**562**	**983**	**992**	**879**	**208**	**2,610**	**2,999**	**33,644**	**43,651**
Credit card	**268**	**536**	**804**	**804**	**804**	**3,214**	**6,325**	**–**	**–**	**12,755**
Business and government	**14,731**	**4,844**	**4,829**	**5,407**	**4,300**	**16,600**	**40,627**	**14,103**	**20,357**	**125,798**
Allowance for credit losses	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**(1,915)**	**(1,915)**
Derivative instruments	**2,883**	**3,588**	**1,475**	**943**	**744**	**2,598**	**3,757**	**7,907**	**–**	**23,895**
Customers' liability under acceptances	**8,242**	**880**	**42**	**2**	**1**	**–**	**–**	**–**	**–**	**9,167**
Other assets	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**31,157**	**31,157**
	$ 86,873	**$ 37,026**	**$ 27,740**	**$ 26,478**	**$ 23,115**	**$ 78,483**	**$ 201,231**	**$ 59,883**	**$ 110,775**	**$ 651,604**
October 31, 2018	$ 71,919	$ 28,094	$ 22,273	$ 28,495	$ 19,833	$ 83,405	$ 187,178	$ 53,821	$ 102,081	$ 597,099
Liabilities										
Deposits (1)	**$ 19,732**	**$ 27,662**	**$ 43,422**	**$ 30,962**	**$ 25,002**	**$ 28,356**	**$ 49,713**	**$ 11,800**	**$ 249,063**	**$ 485,712**
Obligations related to securities sold short	**15,635**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**15,635**
Cash collateral on securities lent	**1,822**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**1,822**
Obligations related to securities sold under repurchase agreements	**39,746**	**11,207**	**460**	**242**	**146**	**–**	**–**	**–**	**–**	**51,801**
Derivative instruments	**3,605**	**3,790**	**683**	**1,828**	**929**	**3,287**	**4,694**	**6,297**	**–**	**25,113**
Acceptances	**8,263**	**880**	**42**	**2**	**1**	**–**	**–**	**–**	**–**	**9,188**
Other liabilities	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**19,069**	**19,069**
Subordinated indebtedness	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**4,684**	**–**	**4,684**
Equity	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**38,580**	**38,580**
	$ 88,803	**$ 43,539**	**$ 44,607**	**$ 33,034**	**$ 26,078**	**$ 31,643**	**$ 54,407**	**$ 22,781**	**$ 306,712**	**$ 651,604**
October 31, 2018	$ 78,258	$ 33,933	$ 36,399	$ 32,776	$ 27,726	$ 29,779	$ 56,793	$ 19,607	$ 281,828	$ 597,099

(1) Comprises $178.1 billion (2018: $163.9 billion) of personal deposits; $296.4 billion (2018: $282.7 billion) of business and government deposits and secured borrowings; and $11.2 billion (2018: $14.4 billion) of bank deposits.

The changes in the contractual maturity profile were primarily due to the natural migration of maturities and also reflect the impact of our regular business activities.

Credit-related commitments

The following table provides the contractual maturity of notional amounts of off-balance sheet credit-related commitments. Since a significant portion of commitments are expected to expire without being drawn upon, the total of the contractual amounts is not representative of future liquidity requirements.

$ millions, as at October 31, 2019	Less than 1 month	1–3 months	3–6 months	6–9 months	9–12 months	1–2 years	2–5 years	Over 5 years	No specified maturity (1)	Total
Securities lending (2)	**$ 36,233**	**$ 4,564**	**$ 3,423**	**$ –**	**$ –**	**$ –**	**$ –**	**$ –**	**$ –**	**$ 44,220**
Unutilized credit commitments	**1,055**	**5,844**	**2,645**	**4,047**	**3,191**	**13,963**	**49,350**	**2,867**	**158,076**	**241,038**
Backstop liquidity facilities	**–**	**8,685**	**1,089**	**587**	**464**	**32**	**–**	**13**	**–**	**10,870**
Standby and performance letters of credit	**1,812**	**2,491**	**1,876**	**3,421**	**2,148**	**789**	**853**	**99**	**–**	**13,489**
Documentary and commercial letters of credit	**76**	**85**	**26**	**8**	**22**	**–**	**7**	**–**	**–**	**224**
Other commitments to extend credit	**2,937**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**2,937**
	$ 42,113	**$ 21,669**	**$ 9,059**	**$ 8,063**	**$ 5,825**	**$ 14,784**	**$ 50,210**	**$ 2,979**	**$ 158,076**	**$ 312,778**
October 31, 2018 (3)	$ 43,191	$ 22,587	$ 11,367	$ 6,716	$ 4,879	$ 11,622	$ 47,445	$ 2,449	$ 150,139	$ 300,395

(1) Includes $122.0 billion (2018: $116.5 billion) of personal, home equity and credit card lines, which are unconditionally cancellable at our discretion.
(2) Excludes securities lending of $1.8 billion (2018: $2.7 billion) for cash because it is reported on the consolidated balance sheet.
(3) Certain prior period amounts have been revised from those previously presented.

Other contractual obligations

The following table provides the contractual maturities of other contractual obligations affecting our funding needs:

$ millions, as at October 31, 2019	Less than 1 month	1–3 months	3–6 months	6–9 months	9–12 months	1–2 years	2–5 years	Over 5 years	Total
Operating leases (1)	**$ 42**	**$ 84**	**$ 127**	**$ 127**	**$ 130**	**$ 529**	**$ 1,255**	**$ 3,253**	**$ 5,547**
Purchase obligations (2)	**102**	**214**	**223**	**189**	**161**	**451**	**619**	**89**	**2,048**
Pension contributions (3)	**17**	**33**	**49**	**49**	**49**	**–**	**–**	**–**	**197**
Underwriting commitments	**60**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**60**
Investment commitments	**1**	**4**	**–**	**–**	**4**	**1**	**8**	**240**	**258**
	$ 222	**$ 335**	**$ 399**	**$ 365**	**$ 344**	**$ 981**	**$ 1,882**	**$ 3,582**	**$ 8,110**
October 31, 2018	$ 331	$ 304	$ 370	$ 347	$ 342	$ 970	$ 1,964	$ 3,751	$ 8,379

(1) Includes rental payments, related taxes and estimated operating expenses.
(2) Obligations that are legally binding agreements whereby we agree to purchase products or services with specific minimum or baseline quantities defined at fixed, minimum or variable prices over a specified period of time are defined as purchase obligations. Purchase obligations are included through to the termination date specified in the respective agreements, even if the contract is renewable. Many of the purchase agreements for goods and services include clauses that would allow us to cancel the agreement prior to expiration of the contract within a specific notice period. However, the amount above includes our obligations without regard to such termination clauses (unless actual notice of our intention to terminate the agreement has been communicated to the counterparty). The table excludes purchases of debt and equity instruments that settle within standard market time frames.
(3) Includes estimated minimum funding contributions for our funded defined benefit pension plans in Canada, the U.S., the U.K., and the Caribbean. Estimated minimum funding contributions are included only for the next annual period as the minimum contributions are affected by various factors, such as market performance and regulatory requirements, and therefore are subject to significant variability.

Other risks

Strategic risk

Strategic risk is the risk of ineffective or improper implementation of business strategies, including mergers and acquisitions. It includes the potential financial loss due to the failure of organic growth initiatives or failure to respond appropriately to changes in the business environment. For additional details on acquisition risk, see the "Top and emerging risks" section.

Oversight of strategic risk is the responsibility of the ExCo and the Board. At least annually, the CEO outlines the process and presents the strategic business plan to the Board for review and approval. The Board reviews the plan in light of management's assessment of emerging market trends, the competitive environment, potential risks and other key issues.

One of the tools for measuring, monitoring and controlling strategic risk is attribution of economic capital against this risk. Our economic capital models include a strategic risk component for those businesses utilizing capital to fund an acquisition or a significant organic growth strategy.

Insurance risk

Insurance risk is the risk of losses arising from the uncertainty of the timing and size of insurance claims. Unfavourable actual experience could emerge due to adverse fluctuations in timing, size and frequency of actual claims (e.g., mortality, morbidity), policyholder behaviour (e.g., cancellation of coverage), or associated expenses.

Insurance contracts provide financial compensation to the beneficiary in the event of an insured risk occurring in exchange for premiums. We are exposed to insurance risk in our life insurance business and in our reinsurance business within the respective subsidiaries.

Senior management of the insurance and reinsurance subsidiaries have primary responsibility for managing insurance risk with oversight by Risk Management. The insurance and reinsurance subsidiaries also have their own boards of directors, and an independent Appointed Actuary who provide additional input to risk management oversight. Processes and oversight are in place to manage the risk to our insurance business. Underwriting risk on business assumed is managed through risk policies that limit exposure to an individual life, to certain types of business and to regions.

Our risk governance practices ensure strong independent oversight and control of risk within the insurance businesses. The subsidiaries' boards outline the internal risk and control structure to manage insurance risk, which includes risk, capital and control policies, processes as well as limits and governance. Senior management of the insurance and reinsurance subsidiaries and Risk Management attend the subsidiaries' board meetings.

Operational risk

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

As part of the normal course of business, CIBC is exposed to operational risks in its business activities and external environment. Our comprehensive Operational Risk Management Policy, supported by policies, tools, systems and governance structure, is used to mitigate operational risks. We continuously monitor our operational risk profile to ensure we are operating within CIBC's approved risk appetite.

Governance and management

Operational risk is managed through the three lines of defence model and articulated in the Operational Risk Management Policy.

(i) As the first line of defence, CIBC's SBUs and functional groups own the risks and are accountable and responsible for identifying and assessing risks inherent in their activities in accordance with the CIBC risk appetite. In addition, they establish and maintain controls to mitigate such risks. The first line of defence may include control groups within the relevant area to facilitate the control framework and other risk-related processes. Control groups provide subject matter expertise to the business lines and/or implement and maintain enterprise-wide control programs and activities. While control groups collaborate with the lines of business in identifying and managing risk, they also challenge risk decisions and risk mitigation strategies.

(ii) The second line of defence is independent from the first line of defence and provides an enterprise-wide view of specific risk types, guidance and effective challenge to risk and control activities. Risk Management is the primary second line of defence. Risk Management may leverage or rely on subject matter expertise of other groups (e.g., third parties or control groups) to better inform their independent assessments, as appropriate.

(iii) As the third line of defence, CIBC's internal audit function provides reasonable assurance of the design and operating effectiveness of CIBC's controls, processes and systems. Internal audit reports the results of its assessment to management and the Board.

A strong risk culture and communication between the three lines of defence are important characteristics of effective risk management.

Global Operational Risk Management (GORM) oversees CIBC's operational risk exposures. The Head of GORM chairs the Operational Risk and Control Committee (ORCC), a subcommittee of the GRC, with representation from SBUs and functional groups. The ORCC is a management forum providing oversight of CIBC's operational risk and internal control environment. Its Chair reports significant operational risk matters to the GRC and RMC.

Operational risk management approach

Information transparency, timely escalation, clear accountability and a robust internal control environment are the principles forming the basis of the Operational Risk Management Policy, which supports and governs the processes of identifying, measuring, mitigating, monitoring, and reporting operational risks. We mitigate operational losses by consistently applying risk-based approaches and employing risk-specific assessment tools. Regular review of our risk governance structure ensures clarity of, and ownership in, key risk areas.

Risk measurement

CIBC's business lines regularly conduct reviews of operational risks inherent in their products, services or processes and assess ways to mitigate and manage them in alignment with CIBC's risk appetite. These reviews include using business process maps, risk and control self-assessments, audit findings, operational risk scenarios, past internal and external loss events, key risk indicators trends, change initiative risk assessments and in-depth risk reviews to form a holistic operational risk profile for the business lines. Under the three lines of defence model, GORM and relevant control groups challenge business lines' risk assessments and mitigation actions.

Operational loss is one of the key operational risk metrics informing us of areas of heightened risk. We collect and analyze internal operational loss event data for themes and trends. The occurrence of a material or potential material loss triggers an investigation to determine the root causes of the incident and the effectiveness of existing mitigating controls, as well as the identification of any additional mitigating actions. Additionally, we monitor the external environment for emerging or potential risks to CIBC. The analysis of material operational risk events is performed by the first line of defence and the outputs of the analysis are subject to formal independent challenge by our second line of defence. The analysis of material operational risk events forms one component of our ongoing operational risk reporting to senior management and the Board.

Business lines conduct change initiative risk assessment on risks inherent to the initiatives (for example, new product launches or major system changes). Identified risks and related mitigation actions are challenged by GORM, as well as control groups, to ensure residual risks remain within the approved risk appetite.

We use both the AMA, a risk-sensitive method prescribed by the BCBS, and the standardized method to quantify our operational risk exposure in the form of operational risk regulatory capital. Our AMA model determines operational risk capital using historical loss data, projected loss data from our loss scenario analysis and the assessment of internal control risks impacting our business environment. The standardized method is also used as agreed with local regulators. Our current AMA model, along with the standardized method, was approved for capital reporting commencing in fiscal 2016.

Under AMA, operational risk capital represents the "worst-case loss" within a 99.9% confidence level. The aggregate risk to CIBC is less than the sum of the individual parts, as the likelihood that all business groups across all regions experience a worst-case loss in every loss category in the same year is extremely low. To adjust for the fact that all risks are not 100% correlated, we incorporate a portfolio effect to ensure that the aggregated risk is representative of the total bank-wide risk. The process for determining correlations considers both internal and external historical correlations and takes into account the uncertainty surrounding correlation estimates.

Under Basel AMA, the recognition of insurance as a risk mitigant may be considered in the measure of operational risk used for regulatory minimum capital requirements. Although our current insurance policies are tailored to provide earnings protection from potential high-severity losses, we do not reflect mitigation through insurance or any other risk transfer mechanism in our AMA model.

In advance of the Basel III capital reforms, institutions that are currently approved to use the AMA for operational risk capital are required to report using the current standardized approach for fiscal year 2020 (see the "Capital management" section for further details).

Back-testing

To ensure the AMA model is performing effectively and maintaining predictability, we back-test capital calculation results each quarter. The back-testing exercise assesses the model's performance against internal loss data. The overall AMA methodology is also independently validated by the Model Validation group to ensure that the applied assumptions are reasonable. The validation exercise includes modelling the relevant internal loss data using alternative methods and comparing the results to the model. The model will be updated to address identified gaps, as appropriate.

Risk mitigation

Our primary tool for mitigating operational risk exposure is a robust internal control environment. Our internal control framework outlines key principles, structure and processes underpinning CIBC's approach to managing risks through effective controls. Under our framework, all key controls are subject to ongoing testing and review to ensure they effectively mitigate our operational risk exposures. In addition, our corporate insurance program affords extra protection from loss while our global business continuity management program ensures that under conditions of interruption or crisis, CIBC's critical business functions could continue to operate and normal operations are restored in a highly effective and efficient manner.

Risk monitoring and reporting

Both forward-looking key risk indicators (KRIs) as well as backward-looking key performance indicators provide insight into CIBC's risk exposure and are used to monitor the main drivers of exposure associated with key operational risks and their adherence to the operational risk appetite. KRIs assist in early detection of potential operational risk events by identifying unfavourable trends and highlighting controls that may not be functioning effectively. Business lines are required to identify and implement KRIs for material risk exposures on an ongoing basis. Escalation triggers are used to highlight risk exposures requiring additional attention from senior management and/or the Board. The second line of defence challenges the selection of KRIs and the appropriateness of thresholds.

Our risk monitoring processes support a transparent risk-reporting program, informing both senior management and the Board on our control environment, operational risk exposures, and mitigation strategies.

Technology, information and cyber security risk

We are also exposed to cyber threats and the associated financial, reputation and business interruption risks. For additional information on these risks and our mitigation strategies, see the "Top and emerging risks" section.

Reputation, conduct and legal risk

Our reputation and financial soundness are of fundamental importance to us and to our clients, shareholders and employees.

Reputation risk is the risk of negative publicity regarding our business conduct or practices which, whether true or not, could significantly harm our reputation as a leading financial institution, or could materially and adversely affect our business, operations or financial condition.

Conduct risk is the risk that actions or omissions of the organization, employees, contingent workers and/or suppliers do not meet the standards of our desired culture and values, or could materially and adversely affect our business, operations or financial condition.

Legal risk is risk of financial loss arising from one or more of the following factors: (a) civil, criminal or regulatory enforcement proceedings against us; (b) our failure to correctly document, enforce or comply with contractual obligations; (c) failure to comply with our legal obligations to customers, investors, employees, counterparties or other stakeholders; (d) failure to take appropriate legal measures to protect our assets or security interests; or (e) misconduct by our employees or agents.

The RMC, together with the Reputation and Legal Risks Committee, Reputation Risk Committee and GRC, provides oversight of the management of reputation and legal risks. The identification, consideration and prudent, proactive management of potential reputation and legal risks is a key responsibility of CIBC and all of our employees.

Our Reputation Risk Management Framework, Global Reputation and Legal Risks Policy and Conduct Risk Framework set standards for safeguarding our reputation through pro-active identification, measurement and management of potential reputation, conduct and legal risks. These policies are supplemented by business procedures for identifying and escalating transactions to the Reputation and Legal Risks Committee that could pose material reputation risk and/or legal risk.

Regulatory compliance risk

Regulatory compliance risk is the risk of CIBC's potential non-conformance with applicable regulatory requirements.

Our regulatory compliance philosophy is to manage and mitigate regulatory compliance risk through the promotion of a strong risk culture within the parameters established by CIBC's Risk Appetite Statement. The foundation of this approach is a comprehensive Regulatory Compliance Management (RCM) framework. The RCM framework, owned by the Senior Vice-President, Chief Compliance Officer and Global Regulatory Affairs, and approved by the RMC, maps regulatory requirements to internal policies, procedures and controls that govern regulatory compliance.

Our Compliance department is responsible for the development and maintenance of a comprehensive regulatory compliance program, including oversight of the RCM framework. This department is independent of business management and reports regularly to the RMC.

Primary responsibility for compliance with all applicable regulatory requirements rests with senior management of the business and functional groups, and extends to all employees. The Compliance department's activities support those groups, with particular emphasis on regulatory requirements that govern the relationship between CIBC and its clients, or that help protect the integrity of the capital markets.

See the "Regulatory developments" section for further details.

Environmental and related social risk

Environmental and related social risk is the risk of financial loss or damage to reputation associated with environmental issues including related social issues, whether arising from our credit and investment activities or related to our own operations. Our corporate environmental policy, originally approved by the Board in 1993, with the most recent biennial update and approval by our CRO in 2018, commits CIBC to responsible conduct in all activities to protect and conserve the environment; safeguard the interests of all stakeholders from unacceptable levels of environmental risk; and support the principles of sustainable development.

Within CIBC's Risk Management function, the Enterprise and Conduct Risk group provides independent oversight of the measurement, monitoring and control of environmental risk. This group is led by the Senior Vice-President, Enterprise & Conduct Risk, who has direct accountability to the CRO for conduct and environmental risk oversight.

Our environmental risk management team is responsible for developing environmental strategy, setting environmental performance standards and targets, and reporting on performance. There is also an enterprise-wide Environmental Management Committee, comprised of senior executives from our SBUs and functional groups, that meets quarterly and provides input into our environmental strategy and provides oversight of CIBC's environmental initiatives.

The corporate environmental policy is addressed by an integrated corporate environmental management program that is under the overall management of the environmental risk management team. Environmental and related social evaluations are integrated into our credit and investment risk assessment processes, with environmental and related social risk management standards and procedures in place for all sectors. In addition, environmental and related social risk assessments in project finance, project-related corporate and bridge loans are required, in accordance with our commitment to the Equator Principles, which are a voluntary set of guidelines for financial institutions based on the screening criteria of the International Finance Corporation. We adopted the Equator Principles in 2003. An escalation process is in place for transactions with the potential to have significant environmental and related social risk, with escalation up to the Reputation and Legal Risks Committee for senior executive review, if required.

We also conduct ongoing research and benchmarking on environmental issues such as climate change as they may pertain to responsible lending practices. We are a participant in the CDP (formerly Carbon Disclosure Project) climate change program, which promotes corporate disclosure to the investment community on greenhouse gas emissions and climate change management.

We are also a supporter of the reporting framework developed by the Task Force on Climate-related Financial Disclosures (TCFD), which provides guidance for voluntary, consistent climate-related risk disclosures. In 2019, CIBC published its first climate-related disclosure aligned to the TCFD recommendations and structured around its four core elements. Our TCFD report, available at https://www.cibc.com/content/dam/about_cibc/inside_cibc/environment/building-a-sustainable-future-report-en.pdf provides details as to how CIBC is identifying and managing both physical and transition risks associated with climate change. In addition, we are a member of the United Nations Environment Programme Finance Initiative (UNEP FI), which has a mission to promote sustainable finance and is guiding our approach to assessing climate change risks, as well as identifying opportunities associated with transitioning to a low carbon economy.

In 2018, CIBC Asset Management Inc. became a signatory to the United Nations-supported Principles for Responsible Investment, which commit signatories to incorporate environmental and social issues into investment analysis and decision making across all investment classes.

The environmental risk management team works closely with our main business units and functional groups to ensure that high standards of environmental responsibility are applied to the banking services that we provide to our clients, the relationships we have with our stakeholders, and to the way we manage our facilities.

More information on our environmental governance, policy, management and performance can be found in our Corporate Responsibility Report, which is available at https://www.cibc.com/content/cibcpublic/en/about-cibc/corporate-responsibility.html.

The information provided on our website does not form a part of this document.

Accounting and control matters

Critical accounting policies and estimates

A summary of significant accounting policies is presented in Note 1 to the consolidated financial statements. Certain accounting policies require us to make judgments and estimates, some of which may relate to matters that are uncertain. Changes in the judgments and estimates required in the critical accounting policies discussed below could have a material impact on our financial results. We have established control procedures to ensure accounting policies are applied consistently and processes for changing methodologies are well controlled.

CIBC adopted IFRS 15 "Revenue from Contracts with Customers" (IFRS 15) as at November 1, 2018 in place of prior guidance, including IAS 18 "Revenue" (IAS 18) and IFRIC 13 "Customer Loyalty Programmes" (IFRIC 13). We applied IFRS 15 on a modified retrospective basis. As permitted, we did not restate our prior period comparative consolidated financial statements, which are reported under the prior guidance. The application of IFRS 15 did not significantly impact our critical accounting policies.

CIBC adopted IFRS 9 "Financial Instruments" (IFRS 9) in place of IAS 39 "Financial Instruments: Recognition and Measurement" (IAS 39) in 2018 to comply with OSFI's advisory that requires that D-SIBs adopt IFRS 9 for their annual periods beginning on November 1, 2017, one year earlier than required by the International Accounting Standards Board (IASB). We applied IFRS 9 on a retrospective basis. As permitted, we did not restate our prior period comparative consolidated financial statements. Amounts reported relating to periods ended on or before October 31, 2017 are reported under IAS 39 and are therefore not comparable to the information presented for 2018 or 2019. IFRS 9 impacted our critical accounting policies in two principal areas: classification and measurement and impairment.

Use and classification of financial instruments

As a financial institution, our assets and liabilities primarily comprise financial instruments, which include deposits, securities, loans, derivatives, acceptances, repurchase agreements, and subordinated indebtedness.
We use these financial instruments for both trading and non-trading activities. Trading activities primarily include the purchase and sale of securities, transacting in foreign exchange and derivative instruments in the course of facilitating client trades and taking proprietary trading positions with the objective of income generation. Non-trading activities generally include the business of lending, investing, funding, and ALM.

The use of financial instruments may either introduce or mitigate exposures to market, credit and/or liquidity risks. See the "Management of risk" section for details on how these risks are managed.

Financial instruments are accounted for according to their classification. Judgment is applied in determining the appropriate classification of financial instruments under IFRS 9, in particular as it relates to the assessment of whether debt financial assets meet the solely payment of principal and interest (SPPI) test, and the assessment of the business model used to manage financial assets. For details on the accounting for these instruments under IFRS 9 and the differences from IAS 39, see Note 2 to the consolidated financial statements.

Accounting for AFS securities under IAS 39

AFS securities included debt and equity securities.

AFS securities were measured at fair value, with the difference between the fair value and the amortized cost included in AOCI. Only equities that did not have a reliably measurable fair value were carried at cost. We had determined that all of our equity securities had reliable fair values.

AFS securities were subject to quarterly reviews to assess whether or not there was an impairment. The assessment of impairment depended on whether the instrument was debt or equity in nature. AFS debt securities were identified as impaired when there was objective observable evidence concerning the inability to collect the contractual principal or interest. Factors that were reviewed for impairment assessment included, but were not limited to, operating performance and future expectations, liquidity and capital adequacy, external credit ratings, deterioration in underlying asset quality, industry valuation levels for comparable entities, and any changes in market and economic outlook.

For AFS equity instruments, objective evidence of impairment existed if there had been a significant or prolonged decline in the fair value of the investment below its cost. In making the impairment assessment, we also considered whether there had been significant adverse changes to the technological, market, economic, or legal environments in which the issuer operates or if the issuer was experiencing significant financial difficulty.

Realized gains and losses on disposal and write-downs to reflect impairment in the value of AFS securities were recorded in the consolidated statement of income. Previously recognized impairment losses for debt securities (but not equity securities) were reversed if a subsequent increase in fair value could be objectively identified and was related to an event occurring after the impairment loss was recognized. Once an AFS equity security was impaired, all subsequent declines in fair value were charged directly to income.

Accounting for FVOCI securities under IFRS 9

FVOCI securities include debt securities that meet the SPPI criteria and the "Hold to collect and for sale" business model and equity securities that are designated at FVOCI upon initial recognition. Impairment of equity securities designated at FVOCI is not required under IFRS 9 because unrealized gains or losses are recognized in Other comprehensive income (OCI) and are directly reclassified to retained earnings upon disposition of the equity securities with no recycling to profit or loss.

Similar to the accounting for AFS debt securities under IAS 39, FVOCI debt securities under IFRS 9 are measured at fair value, with the difference between the fair value and the amortized cost included in AOCI. However, unlike IAS 39, FVOCI debt securities are subject to the expected credit losses impairment model under IFRS 9. For more details, refer to "Allowance for credit losses under IFRS 9" section below and Note 1 to the consolidated financial statements.

Determination of fair value of financial instruments

Under IFRS 9, debt and equity securities mandatorily measured and designated at FVTPL (IAS 39: Debt and equity trading securities), business and government loans mandatorily measured and designated at FVTPL (IAS 39: Trading business and government loans), obligations related to securities sold short, derivative contracts, FVOCI securities (IAS 39: AFS securities) and FVO financial instruments are carried at fair value. FVO financial instruments include certain debt securities, certain secured borrowings, structured deposits and business and government deposits. Retail mortgage interest rate commitments are also designated as FVO financial instruments.

The transition to IFRS 9 did not impact the definition of fair value, which is defined as the price that would be received to sell an asset or paid to transfer a liability at the measurement date in an orderly arm's-length transaction between market participants in the principal market under current market

conditions (i.e., the exit price). Fair value measurements are categorized into levels within a fair value hierarchy based on the nature of the valuation inputs (Level 1, 2 or 3). We have an established and documented process for determining fair value. Fair value is based on unadjusted quoted prices in an active market for the same instrument, where available (Level 1). If active market prices or quotes are not available for an instrument, fair value is then based on valuation models in which the significant inputs are observable (Level 2) or in which one or more of the significant inputs are non-observable (Level 3). Estimating fair value requires the application of judgment. The type and level of judgment required is largely dependent on the amount of observable market information available. For instruments valued using internally developed models that use significant non-observable market inputs and are therefore classified within Level 3 of the hierarchy, the judgment used to estimate fair value is more significant than when estimating the fair value of instruments classified within Levels 1 and 2. To ensure that valuations are appropriate, a number of policies and controls are in place, including independent validation of valuation inputs to external sources such as exchange quotes, broker quotes or other management-approved independent pricing sources.

The following table presents amounts, in each category of financial instruments, which are valued using valuation techniques based on Level 3 inputs. For further details of the valuation of and sensitivity associated with Level 3 financial assets and liabilities, see Note 2 to the consolidated financial statements.

$ millions, as at October 31	2019		2018	
	Level 3	**Total (1)**	Level 3	Total (1)
Assets				
Securities mandatorily measured and designated at FVTPL and loans mandatorily measured at FVTPL	**$ 1,034**	**1.4 %**	$ 833	1.2 %
Debt securities measured at FVOCI and equity securities designated at FVOCI	**291**	**0.6**	285	0.8
Derivative instruments	**412**	**1.7**	222	1.0
	$ 1,737	**1.1 %**	$ 1,340	1.0 %
Liabilities				
Deposits and other liabilities (2)	**$ 601**	**5.4 %**	$ 423	5.3 %
Derivative instruments	**268**	**1.1**	359	1.7
	$ 869	**1.7 %**	$ 782	1.8 %

(1) Represents the percentage of Level 3 assets and liabilities over total assets and liabilities for each reported category that are carried on the consolidated balance sheet at fair value.
(2) Includes FVO deposits and bifurcated embedded derivatives.

Note 2 to the consolidated financial statements presents the valuation methods used to determine fair value showing separately those financial instruments that are carried at fair value on the consolidated balance sheet and those that are not.

In order to reflect the observed market practice of pricing collateralized and uncollateralized derivatives, our valuation approach uses overnight indexed swap curves as the discount rate in the valuation of collateralized derivatives and market cost of funding in the valuation of uncollateralized derivatives. The use of a market cost of funds curve reduces the fair value of uncollateralized derivative assets incremental to the reduction in fair value for credit risk already reflected through the CVA. In contrast, the use of a market cost of funds curve reduces the fair value of uncollateralized derivative liabilities in a manner that generally includes adjustments for our own credit. As market practices continue to evolve in regard to derivative valuation, further adjustments may be required in the future.

Fair value adjustments

We apply judgment in establishing valuation adjustments that take into account various factors that may have an impact on the valuation of financial instruments that are carried at fair value on the consolidated balance sheet. Such factors include, but are not limited to, the bid-offer spread, illiquidity due to lack of market depth and other market risks, parameter uncertainty, model risk, and credit risk.

The establishment of fair value adjustments involves estimates that are based on accounting processes and judgments by management. We evaluate the adequacy of the fair value adjustments on an ongoing basis. The level of fair value adjustments could change as events warrant and may not reflect ultimate realizable amounts.

As at October 31, 2019, the total valuation adjustments related to financial instruments carried at fair value on the consolidated balance sheet was $231 million (2018: $243 million), primarily related to credit risk, bid-offer spreads, and parameter uncertainty of our derivative assets and liabilities.

Impairment of financial assets

Allowance for credit losses under IAS 39

We established and maintained an allowance for credit losses that was considered the best estimate of probable credit-related losses existing in our portfolio of on- and off-balance sheet loan exposures, giving due regard to current conditions.

The allowance for credit losses consisted of individual and collective components.

Individual allowances

The majority of our business and government loan portfolios were assessed for impairment on an individual loan basis. Individual allowances were established when impaired loans were identified within the individually assessed portfolios. A loan was classified as impaired when we were of the opinion that there was no longer reasonable assurance of the full and timely collection of contractual principal and interest. The individual allowance was the amount required to reduce the carrying value of an impaired loan to its estimated realizable amount. This was determined by discounting the expected future cash flows at the effective interest rate inherent in the loan.

Individual allowances were not established for portfolios that were collectively assessed, including most retail portfolios.

Collective allowances

Consumer and certain small business allowances

Residential mortgages, credit card loans, personal loans, and certain small business loan portfolios consist of large numbers of homogeneous balances of relatively small amounts, for which we took a portfolio approach to establish the collective allowance under IAS 39. As it was not practical to review each individual loan, we utilized a formula basis, by reference to historical ratios of write-offs to current accounts and balances in arrears. For residential mortgages, personal loans and certain small business loans, this historical loss experience enabled CIBC to determine appropriate PD and LGD parameters, which were used in the calculation of the portion of the collective allowance for current accounts. For credit card loans, non-current residential mortgages, personal loans and certain small business loans, the historical loss experience enabled CIBC to calculate flows to write off in our models that determine the collective allowance that pertained to these loans.

We also considered estimates of the time periods over which losses that were present would be identified and a provision taken, our view of current economic and portfolio trends, and evidence of credit quality improvements or deterioration. On a regular basis, the parameters that affected the allowance calculation were updated, based on our experience and the economic environment.

Business and government allowances
For groups of individually assessed loans for which no objective evidence of impairment had been identified on an individual basis, a collective allowance was provided for losses which we estimated were inherent in the portfolio at the reporting date, but not yet specifically identified from an individual assessment of the loan.

The methodology for determining the appropriate level of the collective allowance incorporated a number of factors, including the size of the portfolios, expected loss rates, and relative risk profiles. We also considered estimates of the time periods over which losses that were present would be identified and a provision taken, our view of current economic and portfolio trends, and evidence of credit quality improvements or deterioration. On a regular basis, the parameters that affected the collective allowance calculation were updated, based on our experience and the economic environment. Expected loss rates for business loan portfolios were based on the risk rating of each credit facility and on the PD factors associated with each risk rating, as well as estimates of LGD. The PD factors reflected our historical loss experience and were supplemented by data derived from defaults in the public debt markets. Historical loss experience was adjusted based on observable data to reflect the effects of current conditions. LGD estimates were based on our experience over past years.

Allowance for credit losses under IFRS 9

The new impairment guidance sets out an expected credit loss (ECL) model applicable to all debt instrument financial assets classified as amortized cost or FVOCI. In addition, the ECL model applies to loan commitments and financial guarantees that are not measured at FVTPL.

Incurred loss versus expected loss methodology
The application of ECL significantly changed our credit loss methodology and models. ECL allowances represent credit losses that reflect an unbiased and probability-weighted amount which is determined by evaluating a range of possible outcomes, the time value of money and reasonable and supportable information about past events, current conditions and forecasts of future economic conditions. The incurred loss model under IAS 39 incorporated a single best estimate, the time value of money and information about past events and current conditions. The objective of IFRS 9 is to record lifetime losses on all financial instruments which have experienced a significant increase in credit risk since their initial recognition. As a result, ECL allowances are measured at amounts equal to either: (i) 12-month ECL; or (ii) lifetime ECL for those financial instruments which have experienced a significant increase in credit risk since initial recognition. The incurred loss model recognized lifetime credit losses when there is objective evidence of impairment and also allowances for incurred but not identified credit losses. Because of the inclusion of relative credit deterioration criteria and consideration of forward-looking information, lifetime ECLs are recognized earlier under IFRS 9.

For our business and government portfolios, the individually assessed allowances for impaired instruments recognized under IAS 39 were generally replaced by stage 3 allowances under IFRS 9, while the collective allowances for performing financial instruments were generally replaced by either stage 1 or stage 2 allowances under IFRS 9. For our retail portfolios, the portion of our collective allowances that related to impaired financial instruments under IAS 39 was generally replaced by stage 3 allowances, while the performing portion of our collective allowances was generally replaced by either stage 1 or stage 2 allowances under IFRS 9.

Key drivers of expected credit loss
The ECL impairment requirements of IFRS 9 require that we make judgments and estimates related to matters that are uncertain. In particular, the ECL requirements of IFRS 9 incorporate the following elements that are subject to a high level of judgment:
- Determining when a significant increase in credit risk of a loan has occurred;
- Measuring both 12-month and lifetime credit losses; and
- Forecasting forward-looking information for multiple scenarios and determining the probability weighting of each scenario.

In addition, the interrelationship between these elements is also subject to a high degree of judgment. Changes in the judgments and estimates related to IFRS 9 can have a significant impact on the level of ECL allowance recognized and the period-over-period volatility of the provision for credit losses. Changes in a particular period could have a material impact on our financial results. See Note 5 to our consolidated financial statements for more information concerning the high level of judgment inherent in the estimation of ECL allowance under IFRS 9.

Use of the regulatory framework
Our ECL model leverages the data, systems and processes that are used to calculate Basel expected losses regulatory adjustments for the portion of our portfolios under the AIRB approach. Appropriate adjustments are made to the Basel parameters to meet IFRS 9 requirements, including the conversion of through-the-cycle and downturn parameters used in the Basel regulatory calculations to point-in-time parameters used under IFRS 9 that consider forward-looking information. In addition, credit losses under IFRS 9 are for 12 months for stage 1 financial instruments and lifetime for stage 2 and stage 3 financial instruments, as compared with 12 months for AIRB portfolios under Basel. The main adjustments necessary to Basel risk parameters are explained in the table below:

	Regulatory Capital	*IFRS 9*
PD	Through-the-cycle PD represents long-run average PD throughout a full economic cycle	Point-in-time 12-month or lifetime PD based on current conditions and relevant forward-looking assumptions
LGD	Downturn LGD based on losses that would be expected in an economic downturn and subject to certain regulatory floors Discounted using the cost of capital	Unbiased probability-weighted LGD based on estimated LGD including impact of relevant forward-looking assumptions such as changes in collateral value Discounted using the original effective interest rate
EAD	Based on the drawn balance plus expected utilization of any undrawn portion prior to default, and cannot be lower than the drawn balance	Amortization and repayment of principal and interest from the balance sheet date to the default date is also captured
Other		ECL is discounted from the default date to the reporting date

Attribution of provision for credit losses
As part of the adoption of IFRS 9, we recognize provision for credit losses on both impaired (stage 3) and performing (stages 1 and 2) loans in the respective SBUs. In 2017 and prior periods, provision for credit losses on performing loans was recognized in Corporate and Other, with the exception of provision for credit losses related to CIBC Bank USA, which was recognized in U.S. Commercial Banking and Wealth Management, and provision for credit

losses on: (i) performing residential mortgages greater than 90 days delinquent; and (ii) performing personal loans and scored small business loans greater than 30 days delinquent, which was recognized in Canadian Personal and Small Business Banking.

Provision for credit losses recognized directly on our consolidated statement of income is in respect to financial instruments classified as loans and bankers' acceptances. Provision for credit losses for FVOCI debt securities and amortized cost securities are recognized in gains (losses) from debt securities measured at FVOCI and amortized cost, net in the consolidated statement of income.

Hedge accounting

The IFRS 9 hedge accounting guidance is intended to better align the accounting with risk management activities. However, IFRS 9 allows the existing hedge accounting requirements under IAS 39 to continue in place of the hedge accounting requirements under IFRS 9. As permitted, we have elected to not adopt the IFRS 9 hedge accounting requirements and instead have retained the IAS 39 hedge accounting requirements. As required, we have adopted the hedge accounting disclosure requirements under amendments to IFRS 7 that were effective in 2018.

Securitizations and structured entities

Securitization of our own assets

Under IFRS 10 "Consolidated Financial Statements" (IFRS 10), judgment is exercised in determining whether an investor controls an investee including assessing whether the investor has: (i) power over the investee; (ii) exposure, or rights, to variable returns from its involvement with the investee; and (iii) the ability to affect those returns through its power over the investee.

We sponsor several structured entities (SEs) that have purchased and securitized our own assets including Cards II Trust and Crisp Trust, which we consolidate under IFRS 10.

We also securitize our own mortgage assets through a government-sponsored securitization program. We sell these securitized assets to a government-sponsored securitization vehicle that we do not consolidate, as well as to other third parties. IFRS 9 provides guidance on when to derecognize financial assets. A financial asset is derecognized when the contractual rights to receive cash flows from the asset have expired, or when we have transferred the rights to receive cash flows from the asset such that:

- We have transferred substantially all the risks and rewards of the asset; or
- We have neither transferred nor retained substantially all the risks and rewards of the asset, but have transferred control of the asset.

We have determined that our securitization activities related to residential mortgages and cards receivables are accounted for as secured borrowing transactions because we have not met the aforementioned criteria.

We also sell certain U.S. commercial mortgages to third parties that qualify for derecognition because we have transferred substantially all the risks and rewards of the mortgages and have no continuous involvement after the transfer.

Securitization of third-party assets

We also sponsor several SEs that purchase pools of third-party assets. We consider a number of factors in determining whether CIBC controls these SEs. We monitor the extent to which we support these SEs, through direct investment in the debt issued by the SEs and through the provision of liquidity protection to the other debtholders, to assess whether we should consolidate these entities.

IFRS 10 also requires that we reconsider our consolidation assessment if facts and circumstances relevant to the entities indicate that there are changes to one or more of the three elements of control described above. Factors that trigger reassessment include, but are not limited to, significant changes in ownership structure of the entities, changes in contractual or governance arrangements, provision of a liquidity facility beyond the original terms, transactions with the entities that were not contemplated originally and changes in the financing structure of the entities.

Specifically, in relation to our multi-seller conduits, we would reconsider our consolidation assessment if our level of interest in the ABCP issued by the conduits changes significantly, or in the rare event that the liquidity facility that we provide to the conduits is drawn or amended.

A significant increase in our holdings of the outstanding commercial paper issued by the conduits would become more likely in a scenario in which the market for bank-sponsored ABCP suffered a significant deterioration such that the conduits were unable to roll their ABCP.

For additional information on the securitizations of our own assets and third-party assets, see the "Off-balance sheet arrangements" section and Note 6 to the consolidated financial statements.

Asset impairment

Goodwill

As at October 31, 2019, we had goodwill of $5,449 million (2018: $5,564 million). Goodwill is not amortized, but is tested, at least annually, for impairment by comparing the recoverable amount of the cash-generating unit (CGU) to which goodwill has been allocated, with the carrying amount of the CGU including goodwill. Any deficiency is recognized as impairment of goodwill. The recoverable amount of a CGU is defined as the higher of its estimated fair value less cost to sell and its value in use. Goodwill is also required to be tested for impairment whenever there are indicators that it may be impaired.

Estimation of the recoverable amount is an area of significant judgment. Recoverable amounts are estimated using internally developed models which require the use of significant assumptions including forecasted earnings, discount rates, growth rates, forecasted regulatory capital requirements, and price-earnings multiples. Reductions in the estimated recoverable amount could arise from various factors, such as reductions in forecasted cash flows, an increase in the assumed level of required capital, and any adverse changes to the discount rate or terminal growth rates either in isolation or in any combination thereof. Where our estimated recoverable amount is not significantly in excess of the carrying amount of the CGU, additional judgment is required, and reductions in the recoverable amount are more likely to result in an impairment charge.

In the fourth quarter of 2019 we performed our annual impairment test of CIBC FirstCaribbean and determined that the estimated recoverable amount of the CIBC FirstCaribbean CGU was less than its carrying amount as a result of our assessment of the valuation implied by the expected sale of CIBC's controlling interest in CIBC FirstCaribbean. As a result, we recognized a goodwill impairment charge of $135 million, which reduced the carrying amount of the goodwill relating to the CIBC FirstCaribbean CGU to $278 million (US$211 million) as at October 31, 2019.

Reductions in the estimated recoverable amount of the CIBC FirstCaribbean CGU could arise from various factors, including closing adjustments related to the planned sale of CIBC's controlling interest in CIBC FirstCaribbean and other changes in market conditions.

For additional information, see Note 3 and Note 8 to our consolidated financial statements.

Other intangible assets and long-lived assets

As at October 31, 2019, we had other intangible assets with an indefinite life of $142 million (2018: $142 million). Acquired intangible assets are separately recognized if the benefits of the intangible assets are obtained through contractual or other legal rights, or if the intangible assets can be sold, transferred, licensed, rented, or exchanged. Determining the useful lives of intangible assets requires judgment and fact-based analysis.

Intangible assets with an indefinite life are not amortized but are assessed for impairment by comparing the recoverable amount to the carrying amount. An impairment test is required at least annually, or whenever there are indicators that these assets may be impaired.

Long-lived assets and other identifiable intangible assets with a definite life are amortized over their estimated useful lives. These assets are tested for impairment whenever events or changes in circumstances indicate that the carrying amount is higher than the recoverable amount. The recoverable amount is defined as the higher of the estimated fair value less cost to sell and value in use.

Determining the recoverable amount of intangible assets and long-lived assets is an area of judgment as we estimate the future cash flows expected to result from the use of the asset and, where appropriate, cash flows arising from the asset's eventual disposition.

For additional details, see Note 8 to the consolidated financial statements.

Income taxes

We are subject to income tax laws in the various jurisdictions where we operate, and the tax laws in those jurisdictions are potentially subject to different interpretations by us and the relevant taxation authority, which gives rise to uncertainty. We use judgment in the estimation of income taxes and deferred tax assets and liabilities. As a result, management judgment is applied in the interpretation of the relevant tax laws and in estimating the provision for current and deferred income taxes. For tax positions where there is uncertainty regarding the ultimate determination of the tax impact, including positions which are under audit, dispute or appeal, we recognize provisions to consider this uncertainty based on our best estimate of the amount expected to be paid based on an assessment of the relevant factors.

Deferred tax assets or liabilities are determined for each temporary difference based on the tax rates that are expected to be in effect in the period that the assets are realized or the liabilities are settled. Deferred tax liabilities are generally recognized for all taxable temporary differences unless the temporary differences relate to our net investments in foreign operations (NIFOs) and will not reverse in the foreseeable future.

We are required to assess whether it is probable that our deferred tax assets will be realized prior to their expiration and, based on all of the available evidence, determine if any portion of our deferred tax assets should not be recognized. The factors used to assess the probability of realization are based on our past experience of income and capital gains, forecasts of future net income before income taxes, available tax planning strategies that could be implemented to realize the deferred tax assets, and the remaining expiration period of tax loss carryforwards. In addition, for deductible temporary differences arising from our NIFOs, we must consider whether the temporary difference will reverse in the foreseeable future. Although realization is not assured, we believe, based on all of the available evidence, it is probable that the recognized deferred tax assets will be realized.

Income tax accounting impacts all of our reporting segments. For further details on our income taxes, see Note 19 to the consolidated financial statements.

Contingent liabilities and provisions

Legal proceedings and other contingencies

In the ordinary course of its business, CIBC is a party to a number of legal proceedings, including regulatory investigations, in which claims for substantial monetary damages are asserted against CIBC and its subsidiaries. Legal provisions are established if, in the opinion of management, it is both probable that an outflow of economic benefits will be required to resolve the matter, and a reliable estimate can be made of the amount of the obligation. If the reliable estimate of probable loss involves a range of potential outcomes within which a specific amount appears to be a better estimate, that amount is accrued. If no specific amount within the range of potential outcomes appears to be a better estimate than any other amount, the mid-point in the range is accrued. In some instances, however, it is not possible to determine whether an obligation is probable or to reliably estimate the amount of loss, in which case no accrual can be made.

While there is inherent difficulty in predicting the outcome of legal proceedings, based on current knowledge and in consultation with legal counsel, we do not expect the outcome of these matters, individually or in aggregate, to have a material adverse effect on our consolidated financial statements. However, the outcome of these matters, individually or in aggregate, may be material to our operating results for a particular reporting period. We regularly assess the adequacy of CIBC's litigation accruals and make the necessary adjustments to incorporate new information as it becomes available.

CIBC considers losses to be reasonably possible when they are neither probable nor remote. It is reasonably possible that CIBC may incur losses in addition to the amounts recorded when the loss accrued is the mid-point of a range of reasonably possible losses, or the potential loss pertains to a matter in which an unfavourable outcome is reasonably possible but not probable.

A description of significant ongoing matters to which CIBC is a party can be found in Note 22 to the consolidated financial statements. The provisions disclosed in Note 22 include all of CIBC's accruals for legal matters as at October 31, 2019, including amounts related to the significant legal proceedings described in that note and to other legal matters.

CIBC believes the estimate of the aggregate range of reasonably possible losses, in excess of the amounts accrued, for its significant legal proceedings, where it is possible to make such an estimate, is from nil to approximately $1.1 billion as at October 31, 2019. This estimated aggregate range of reasonably possible losses is based upon currently available information for those significant proceedings in which CIBC is involved, taking into account CIBC's best estimate of such losses for those cases for which an estimate can be made. CIBC's estimate involves significant judgment, given the varying stages of the proceedings and the existence of multiple defendants in many of such proceedings whose share of the liability has yet to be determined. The range does not include potential punitive damages and interest. The matters underlying the estimated range as at October 31, 2019 consist of the significant legal matters disclosed in Note 22 to the consolidated financial statements. The matters underlying the estimated range will change from time to time, and actual losses may vary significantly from the current estimate. For certain matters, CIBC does not believe that an estimate can currently be made as many of them are in preliminary stages and certain matters have no specific amount claimed. Consequently, these matters are not included in the range.

Post-employment and other long-term benefit plan assumptions

We sponsor a number of benefit plans to eligible employees, including registered and supplemental pension plans, and post-retirement medical and dental plans (other post-employment benefit plans). We also continue to sponsor a long-term disability income replacement plan and associated medical and dental benefits (collectively, other long-term benefit plans). The long-term disability plan was closed to new claims effective June 1, 2004.

The calculation of net defined benefit plan expense and obligations depends on various actuarial assumptions such as discount rates, health-care cost trend rates, turnover of employees, projected salary increases, retirement age, and mortality rates. The actuarial assumptions used for determining the net defined benefit plan expense for a fiscal year are set at the beginning of the annual reporting period, are reviewed in accordance with accepted actuarial practice and are approved by management.

The discount rate assumption used in measuring the net defined benefit plan expense and obligations reflects market yields, as of the measurement date, on high quality debt instruments with a currency and term to maturity that match the currency and expected timing of benefit payments. Our discount rate is estimated by developing a yield curve based on high quality corporate bonds. While there is a deep market of high quality corporate bonds denominated in Canadian dollars with short and medium terms to maturity, there is not a deep market in bonds with terms to maturity that match the timing of all the expected benefit payments for all of our Canadian plans. As a result, for our Canadian pension, other post-employment and other long-term benefit plans, we estimate the yields of high quality corporate bonds with longer-term maturities by extrapolating current yields on bonds with short- and medium-term durations along the yield curve. Judgment is required in constructing the yield curve, and as a result, different methodologies applied in constructing the yield curve can give rise to different discount rates.

For further details of our annual pension and other post-employment expense and obligations, see Note 18 and Note 1 to the consolidated financial statements.

Accounting developments

Transition to IFRS 16

IFRS 16 "Leases", issued in January 2016, replaces IAS 17 "Leases", and is effective for annual periods beginning on or after January 1, 2019, which for us will be on November 1, 2019. As a lessee, the new standard will result in on-balance sheet recognition for most leases that are considered operating leases under IAS 17, which will result in a gross-up of the consolidated balance sheet through the recognition of a liability for the present value of future lease payments (i.e. lease liability) and an asset representing the right to use the underlying asset (i.e. right-of-use asset). We will no longer recognize the impacted lease payments through operating expenses; instead, we will recognize depreciation expense on the right-of-use asset and interest expense on the lease liability in the consolidated statement of income. Accounting for leases by lessors remains mostly unchanged from IAS 17. However, on transition, intermediate lessors are required to reassess subleases by reference to the right-of-use asset arising from the head lease that could result in on-balance sheet recognition for certain subleases previously classified as operating subleases. The application of IFRS 16 mainly will apply to our office and banking centre leases, as well as certain subleases previously classified as operating subleases.

We expect to adopt IFRS 16 for the fiscal year beginning November 1, 2019 using the modified retrospective method, with no restatement of comparative periods.

As at November 1, 2019, the adoption of IFRS 16 is expected to result in the recognition of approximately $1.6 billion of right-of-use assets and corresponding lease liabilities on our consolidated balance sheet. The reassessment of certain subleases related to a previously recognized finance lease property, a portion of which is rented out and considered investment property, is expected to result in an increase of approximately $0.1 billion as a result of the recognition of additional sublease-related assets, net of the derecognition of amounts related to the corresponding head lease. As at November 1, 2019, the after-tax impact to retained earnings as a result of adopting IFRS 16 is expected to be an increase of $0.1 billion, and the impact to our CET1 ratio is expected to be a reduction of approximately 2 basis points.

In addition, the following permitted recognition exemptions and practical expedients have been applied:

- A single discount rate curve has been applied to portfolios of leases with reasonably similar characteristics at the date of application.
- In contracts where we are the lessee, we have not reassessed contracts that were identified as finance leases under the previous accounting standard (IAS 17).
- We have elected to exclude leases of assets considered as low value and certain short-term leases.
- We have applied the onerous lease provisions recognized as at October 31, 2019 as an alternative to performing an impairment review of our right-of-use assets as at November 1, 2019. Where an onerous lease provision was recorded on a lease, the right-of-use asset has been reduced by the amount of that provision on transition and no further impairment review was performed.
- We have elected not to separate lease and non-lease components of a lease contract when calculating the lease liability and corresponding right-of-use asset for certain classes of assets. Non-lease components may consist of, but are not limited to, common area maintenance expenses and utility charges. Other occupancy costs not within the scope of IFRS 16 will continue to be recorded as operating expenses.

The actual impacts of the initial application of IFRS 16 may vary from our estimates based on final application and testing of the internal control over financial reporting related to IFRS 16, as well as revisions to the accounting policies and judgments, including application of practical expedients. We have updated our accounting systems and internal control processes in response to the standard, and are in the final stages of testing and acceptance for our transition to IFRS 16.

IFRIC 23 "Uncertainty over Income Tax Treatments" (IFRIC 23)

In June 2017, the IASB issued IFRIC 23, which clarifies the accounting for uncertainties in income taxes. IFRIC 23 is effective for annual reporting periods beginning on or after January 1, 2019, which for us is on November 1, 2019.

There will be no impact to our consolidated financial statements as a result of adopting IFRIC 23.

Interest Rate Benchmark Reform: Amendments to IFRS 9, IAS 39 and IFRS 7

As discussed in the "Other regulatory developments" section, certain regulatory actions have led to uncertainties with respect to the long-term viability of certain interest rate benchmarks. The IASB is addressing the interest rate benchmark reform and its effects on financial reporting in two phases. The first phase focuses on issues affecting financial reporting in the period before the interest rate benchmark reform, and the second phase focuses on potential issues that might affect financial reporting once the existing rate is replaced with an alternative rate. In September 2019, the IASB finalized phase one through the issuance of "Interest Rate Benchmark Reform: Amendments to IFRS 9, IAS 39 and IFRS 7", which provides relief for specific hedge accounting requirements to address uncertainties in the period before the interest rate benchmark reform, and provides specific disclosure requirements for the affected hedging relationships. The amendments are effective for annual periods beginning on or after January 1, 2020. As permitted under IFRS 9, we

have elected to continue to apply the hedge accounting requirements of IAS 39. Therefore, the amendments will apply to IAS 39 and IFRS 7 for us, mandatorily effective on November 1, 2020. Earlier application is permitted.

We continue to evaluate the impact of the amendments to IAS 39 and IFRS 7 on our consolidated financial statements. The IASB has commenced discussions related to the second phase of the project and we continue to monitor the developments in this area.

Conceptual Framework for Financial Reporting

In March 2018, the IASB issued a revised version of its "Conceptual Framework for Financial Reporting" (Conceptual Framework). The Conceptual Framework sets out the fundamental concepts that underlie the preparation and presentation of financial statements and serves to guide the IASB in developing IFRS standards. The Conceptual Framework also assists entities in developing accounting policies when no IFRS standard applies to a particular transaction, and more broadly, the Conceptual Framework helps entities to understand and interpret the standards. The Conceptual Framework is effective for annual periods beginning on or after January 1, 2020, which for us will be on November 1, 2020. Early application is permitted.

We are currently assessing the impact of the Conceptual Framework on our consolidated financial statements.

Transition to IFRS 17

IFRS 17 "Insurance Contracts" (IFRS 17), issued in May 2017, replaces IFRS 4 "Insurance Contracts", and was originally effective for annual periods beginning on or after January 1, 2021, which for us is on November 1, 2021. In June 2019, the IASB released an exposure draft proposing amendments to IFRS 17, including the expected proposal to defer the effective date from reporting periods beginning on or after January 1, 2021 to January 1, 2022. The IASB plans to finalize the amendments to IFRS 17 in 2020, subsequent to the comment period ended September 2019. IFRS 17 provides comprehensive guidance on the recognition, measurement, presentation and disclosure of insurance contracts.

We continue to evaluate the impact of IFRS 17 on our consolidated financial statements.

Other regulatory developments

Reforms to interest rate benchmarks

Various interest rate and other indices that are deemed to be "benchmarks" are the subject of international regulatory guidance and proposals for reform. The U.K.'s Financial Conduct Authority announced in July 2017 that it would not compel banks to submit LIBOR rates after December 2021. This may cause LIBOR and other current benchmarks to disappear entirely, perform differently than in the past, create disincentives for market participants to continue to administer and contribute to certain benchmarks, or have other consequences which cannot be predicted. Accordingly, this uncertainty in respect of relevant benchmarks may adversely affect the value of, return on, or trading market for contracts linked to any such benchmark.

A significant number of CIBC's derivative, lending and deposit contracts reference various interest rate benchmarks, including contracts with maturity dates which extend beyond December 2021. CIBC also holds securities that reference interest rate benchmarks.

In response to the proposed reforms to interest rate benchmarks, CIBC has established an Enterprise IBOR Transition Program (the "Program") that is supported by a formal governance structure and dedicated working groups that include stakeholders from frontline businesses as well as functional groups such as Technology and Operations, Risk Management, Legal, and Finance, to assess the impact across all of our products. A comprehensive initial impact assessment of contracts that reference various interbank offered rates (IBOR) has been completed to inform an enterprise-wide project plan to support the Program. Key features of this plan include:

- Development of detailed business-level remediation plans for affected contracts, processes and systems;
- An enterprise-wide communication strategy which includes both external and internal stakeholders; and
- Formalization of an enterprise-wide exposure management process.

An IBOR Steering Committee has been established with responsibility for oversight and execution of the Program, including:

- Ensuring key project milestones are met;
- Providing direction and guidance on a holistic basis;
- Reviewing and resolving key issues and risks; and
- Ensuring that our transition strategies and any transition actions remain consistent with CIBC's overall strategy, risk appetite, and control framework.

The Program provides regular updates to senior management, including ExCo.

CIBC continues to actively engage with the industry through various working groups to ensure alignment with market developments in relevant jurisdictions, and will continue to monitor developments in this area including accounting developments intended to address interest rate benchmark reform as discussed under the "Accounting developments" section.

For a discussion of other regulatory developments, see the "Taxes", "Capital management", and "Management of risk" sections.

Client Focused Reforms

In October 2019, the Canadian Securities Administrators published "Reforms to Enhance the Client-Registrant Relationship", an amendment to *National Instrument 31-103 and* its companion policy (referred to as the "Client Focused Reforms"), which is intended to raise the standard of conduct required for registered dealers and advisors to ensure that registrants put client interests' first. The Client Focused Reforms are supported by the introduction of a know-your-product provision and enhancements to the know-your-client, suitability, conflicts of interest, and relationship disclosure information requirements.

The Client Focused Reforms will come into effect on December 31, 2019 and will be phased in over a two-year period. These requirements will impact our Canadian Commercial Banking and Wealth Management and Canadian Personal and Small Business Banking SBUs and we expect to implement changes to our policies and procedures to comply with these requirements.

CDIC – Deposit protection modernization

In April 2019, the Canadian federal government approved changes to the *Canada Deposit Insurance Corporation Act* intended to strengthen and modernize deposit protection. The changes will occur in two phases. The first phase, effective on April 30, 2020, includes changes to extend CDIC coverage to foreign currency deposits and deposits with terms greater than 5 years and to eliminate coverage for travellers' cheques. The second phase, effective on April 30, 2021, includes additional changes such as providing separate coverage for certain registered plans and introducing new requirements for deposits held in trust.

Related-party transactions

We have various processes in place to ensure that the relevant related-party information is identified and reported to the CGC of the Board on a quarterly basis, as required by the *Bank Act* (Canada). The CGC has the responsibility for reviewing our policies and practices in identifying transactions with our related parties that may materially affect us, and reviewing the associated procedures for promoting compliance with the *Bank Act* (Canada).

In the ordinary course of business, we provide banking services and enter into transactions with related parties on terms similar to those offered to unrelated parties. Related parties include key management personnel[(1)], their close family members, and entities that they or their close family members control or jointly control. Related parties also include associates and joint ventures accounted for under the equity method, and post-employment benefit plans for CIBC employees. Loans to these related parties are made in the ordinary course of business and on substantially the same terms as for comparable transactions with unrelated parties. We offer a subsidy on annual fees and preferential interest rates on credit card balances to senior officers which is the same offer extended to all employees of CIBC. In addition, CIBC offers deferred share and other plans to non-employee directors, executives, and certain other key employees. Details of our compensation of key management personnel[(1)] and our investments in equity-accounted associates and joint ventures are disclosed in Notes 24, 17, 18 and 25 to the consolidated financial statements.

(1) Key management personnel are defined as those persons having authority and responsibility for planning, directing and controlling the activities of CIBC directly or indirectly and comprise the members of the Board (referred to as directors), and ExCo and certain named officers per the *Bank Act* (Canada) (collectively referred to as senior officers). Board members who are also ExCo members are included as senior officers.

Policy on the Scope of Services of the Shareholders' Auditor

The "Policy on the Scope of Services of the Shareholders' Auditor" sets out the parameters for the engagement of the shareholders' auditor by CIBC that are consistent with applicable law, including the U.S. Sarbanes-Oxley Act of 2002 and SEC rules. The policy requires the Audit Committee's pre-approval of all work performed by the shareholders' auditor and prohibits CIBC from engaging the shareholders' auditor for "prohibited" services. The Audit Committee is also accountable for the oversight of the work of the shareholders' auditor and for an annual assessment of the engagement team's qualifications, performance and independence, including lead audit partner rotation. The Audit Committee is also responsible for conducting a periodic comprehensive review of the external auditor at least every five years. The Audit Committee's oversight activities over the shareholders' auditor are disclosed in our Management Proxy Circular.

Controls and procedures

Disclosure controls and procedures

CIBC's disclosure controls and procedures are designed to provide reasonable assurance that relevant information is accumulated and communicated to CIBC's management, including the President and Chief Executive Officer and the Chief Financial Officer, to allow timely decisions regarding required disclosure.

CIBC's management, with the participation of the President and Chief Executive Officer and the Chief Financial Officer, has evaluated the effectiveness of CIBC's disclosure controls and procedures as at October 31, 2019 (as defined in the rules of the SEC and the Canadian Securities Administrators). Based on that evaluation, the President and Chief Executive Officer and the Chief Financial Officer have concluded that such disclosure controls and procedures were effective.

Management's annual report on internal control over financial reporting

CIBC's management is responsible for establishing and maintaining adequate internal control over financial reporting for CIBC.

Internal control over financial reporting is a process designed by, or under the supervision of, the President and Chief Executive Officer and the Chief Financial Officer and effected by the Board, management and other personnel to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with IFRS as issued by the IASB. CIBC's internal control over financial reporting includes those policies and procedures that: (i) pertain to the maintenance of records, that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of CIBC; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with IFRS as issued by the IASB, and that receipts and expenditures of CIBC are being made only in accordance with authorizations of CIBC's management and directors; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of CIBC's assets that could have a material effect on the financial statements.

All internal control systems, no matter how well designed, have inherent limitations. Therefore, even those systems determined to be effective can provide only reasonable assurance with respect to financial statement preparation and presentation.

CIBC's management has used the Internal Control – Integrated Framework that was published in 2013 by the COSO as the basis to evaluate the effectiveness of CIBC's internal control over financial reporting.

As at October 31, 2019, management assessed the effectiveness of CIBC's internal control over financial reporting and concluded that such internal control was effective and that there were no material weaknesses in CIBC's internal control over financial reporting that have been identified by management.

Ernst & Young LLP, the external auditor, has audited the consolidated financial statements of CIBC for the year ended October 31, 2019, and has also issued a report on internal control over financial reporting under standards of the Public Company Accounting Oversight Board (United States).

Changes in internal control over financial reporting

There have been no changes in CIBC's internal control over financial reporting during the year ended October 31, 2019 that have materially affected, or are reasonably likely to materially affect, its internal control over financial reporting.

Supplementary annual financial information

Average balance sheet, net interest income and margin

	Average balance			Interest			Average rate		
$ millions, for the year ended October 31	**2019**	2018	2017	**2019**	2018	2017	**2019**	2018	2017
Domestic assets [1]									
Cash and deposits with banks	**$ 7,156**	$ 5,541	$ 3,294	**$ 164**	$ 95	$ 31	**2.29 %**	1.71 %	0.94 %
Securities	**66,954**	58,854	57,923	**1,852**	1,434	1,390	**2.77**	2.44	2.40
Securities borrowed or purchased under resale agreements	**23,950**	25,320	27,406	**496**	404	276	**2.07**	1.60	1.01
Loans Residential mortgages	**203,575**	204,536	194,350	**6,347**	5,740	4,698	**3.12**	2.81	2.42
Personal and credit card	**53,490**	52,314	49,901	**4,012**	3,731	3,378	**7.50**	7.13	6.77
Business and government	**63,131**	54,298	48,060	**2,434**	1,824	1,429	**3.86**	3.36	2.97
Total loans	**320,196**	311,148	292,311	**12,793**	11,295	9,505	**4.00**	3.63	3.25
Other interest-bearing assets	**3,837**	2,041	1,024	**128**	12	5	**3.34**	0.59	0.49
Derivative instruments	**10,248**	11,660	11,687	**–**	–	–	**–**	–	–
Customers' liability under acceptances	**10,170**	10,038	9,435	**–**	–	–	**–**	–	–
Other non-interest-bearing assets	**17,386**	15,007	14,185	**–**	–	–	**–**	–	–
Total domestic assets	**459,897**	439,609	417,265	**15,433**	13,240	11,207	**3.36**	3.01	2.69
Foreign assets [1]									
Cash and deposits with banks	**13,305**	14,283	18,451	**232**	187	149	**1.74**	1.31	0.81
Securities	**49,059**	43,300	34,265	**927**	835	500	**1.89**	1.93	1.46
Securities borrowed or purchased under resale agreements	**35,491**	29,719	19,228	**978**	649	219	**2.76**	2.18	1.14
Loans Residential mortgages	**3,815**	3,401	2,711	**201**	176	140	**5.27**	5.17	5.16
Personal and credit card	**1,435**	1,266	916	**105**	98	83	**7.32**	7.74	9.06
Business and government	**55,443**	47,117	32,719	**2,819**	2,319	1,295	**5.08**	4.92	3.96
Total loans	**60,693**	51,784	36,346	**3,125**	2,593	1,518	**5.15**	5.01	4.18
Other interest-bearing assets	**555**	265	137	**2**	1	–	**0.36**	0.38	–
Derivative instruments	**13,419**	12,387	12,646	**–**	–	–	**–**	–	–
Other non-interest-bearing assets	**7,297**	7,094	4,027	**–**	–	–	**–**	–	–
Total foreign assets	**179,819**	158,832	125,100	**5,264**	4,265	2,386	**2.93**	2.69	1.91
Total assets	**$ 639,716**	$ 598,441	$ 542,365	**$ 20,697**	$ 17,505	$ 13,593	**3.24 %**	2.93 %	2.51 %
Domestic liabilities [1]									
Deposits Personal	**$ 157,537**	$ 148,143	$ 143,640	**$ 1,861**	$ 1,299	$ 851	**1.18 %**	0.88 %	0.59 %
Business and government	**153,092**	134,382	129,851	**3,033**	1,378	1,008	**1.98**	1.03	0.78
Bank	**1,915**	2,188	2,256	**29**	26	13	**1.51**	1.19	0.58
Secured borrowings	**39,111**	43,085	38,642	**1,037**	952	613	**2.65**	2.21	1.59
Total deposits	**351,655**	327,798	314,389	**5,960**	3,655	2,485	**1.69**	1.12	0.79
Derivative instruments	**10,790**	11,207	11,960	**–**	–	–	**–**	–	–
Acceptances	**10,171**	10,039	9,436	**–**	–	–	**–**	–	–
Obligations related to securities sold short	**15,412**	14,708	13,400	**285**	269	224	**1.85**	1.83	1.67
Obligations related to securities lent or sold under repurchase agreements	**15,995**	13,699	9,178	**477**	329	130	**2.98**	2.40	1.42
Other liabilities	**14,621**	13,754	11,782	**9**	(7)	(3)	**0.06**	(0.05)	(0.03)
Subordinated indebtedness	**4,549**	3,645	3,088	**193**	170	138	**4.24**	4.66	4.47
Total domestic liabilities	**423,193**	394,850	373,233	**6,924**	4,416	2,974	**1.64**	1.12	0.80
Foreign liabilities [1]									
Deposits Personal	**15,543**	13,511	10,182	**193**	114	66	**1.24**	0.84	0.65
Business and government	**97,429**	101,583	83,461	**2,068**	2,319	1,274	**2.12**	2.28	1.53
Bank	**12,277**	12,543	16,105	**197**	152	128	**1.60**	1.21	0.79
Secured borrowings	**226**	–	–	**4**	–	–	**1.77**	–	–
Total deposits	**125,475**	127,637	109,748	**2,462**	2,585	1,468	**1.96**	2.03	1.34
Derivative instruments	**14,130**	11,905	12,942	**–**	–	–	**–**	–	–
Obligations related to securities sold short	**1,089**	592	389	**6**	3	2	**0.55**	0.51	0.51
Obligations related to securities lent or sold under repurchase agreements	**35,413**	27,364	17,125	**721**	407	124	**2.04**	1.49	0.72
Other liabilities	**3,014**	2,420	1,810	**28**	25	44	**0.93**	1.03	2.43
Subordinated indebtedness	**150**	151	194	**5**	4	4	**3.33**	2.65	2.06
Total foreign liabilities	**179,271**	170,069	142,208	**3,222**	3,024	1,642	**1.80**	1.78	1.15
Total liabilities	**602,464**	564,919	515,441	**10,146**	7,440	4,616	**1.68**	1.32	0.90
Shareholders' equity	**37,072**	33,336	26,726	**–**	–	–	**–**	–	–
Non-controlling interests	**180**	186	198	**–**	–	–	**–**	–	–
Total liabilities and equity	**$ 639,716**	$ 598,441	$ 542,365	**$ 10,146**	$ 7,440	$ 4,616	**1.59 %**	1.24 %	0.85 %
Net interest income and margin				**$ 10,551**	$ 10,065	$ 8,977	**1.65 %**	1.68 %	1.66 %
Additional disclosures: Non-interest-bearing deposit liabilities									
Domestic	**$ 48,478**	$ 47,879	$ 45,691						
Foreign	**14,582**	14,311	9,159						

(1) Classification as domestic or foreign is based on domicile of debtor or customer.

Volume/rate analysis of changes in net interest income

$ millions		2019/2018			2018/2017		
		Increase (decrease) due to change in:			Increase (decrease) due to change in:		
		Average balance	**Average rate**	**Total**	Average balance	Average rate	Total
Domestic assets (1)							
Cash and deposits with banks		**$ 28**	**$ 41**	**$ 69**	$ 21	$ 43	$ 64
Securities		**197**	**221**	**418**	22	22	44
Securities borrowed or purchased under resale agreements		**(22)**	**114**	**92**	(21)	149	128
Loans	Residential mortgages	**(27)**	**634**	**607**	246	796	1,042
	Personal and credit card	**84**	**197**	**281**	163	190	353
	Business and government	**297**	**313**	**610**	185	210	395
Total loans		**354**	**1,144**	**1,498**	594	1,196	1,790
Other interest-bearing assets		**11**	**105**	**116**	5	2	7
Change in domestic interest income		**568**	**1,625**	**2,193**	621	1,412	2,033
Foreign assets (1)							
Cash and deposits with banks		**(13)**	**58**	**45**	(34)	72	38
Securities		**111**	**(19)**	**92**	132	203	335
Securities borrowed or purchased under resale agreements		**126**	**203**	**329**	119	311	430
Loans	Residential mortgages	**21**	**4**	**25**	36	–	36
	Personal and credit card	**13**	**(6)**	**7**	32	(17)	15
	Business and government	**410**	**90**	**500**	570	454	1,024
Total loans		**444**	**88**	**532**	638	437	1,075
Other interest-bearing assets		**1**	**–**	**1**	–	1	1
Change in foreign interest income		**669**	**330**	**999**	855	1,024	1,879
Total change in interest income		**$ 1,237**	**$ 1,955**	**$ 3,192**	$ 1,476	$ 2,436	$ 3,912
Domestic liabilities (1)							
Deposits	Personal	**$ 82**	**$ 480**	**$ 562**	$ 27	$ 421	$ 448
	Business and government	**192**	**1,463**	**1,655**	35	335	370
	Bank	**(3)**	**6**	**3**	–	13	13
	Secured borrowings	**(88)**	**173**	**85**	70	269	339
Total deposits		**183**	**2,122**	**2,305**	132	1,038	1,170
Obligations related to securities sold short		**13**	**3**	**16**	22	23	45
Obligations related to securities lent or sold under repurchase agreements		**55**	**93**	**148**	64	135	199
Other liabilities		**-**	**16**	**16**	(1)	(3)	(4)
Subordinated indebtedness		**42**	**(19)**	**23**	25	7	32
Change in domestic interest expense		**293**	**2,215**	**2,508**	242	1,200	1,442
Foreign liabilities (1)							
Deposits	Personal	**17**	**62**	**79**	22	26	48
	Business and government	**(95)**	**(156)**	**(251)**	277	768	1,045
	Bank	**(3)**	**48**	**45**	(28)	52	24
	Secured borrowings	**–**	**4**	**4**	–	–	–
Total deposits		**(81)**	**(42)**	**(123)**	271	846	1,117
Obligations related to securities sold short		**3**	**–**	**3**	1	–	1
Obligations related to securities lent or sold under repurchase agreements		**120**	**194**	**314**	74	209	283
Other liabilities		**6**	**(3)**	**3**	15	(34)	(19)
Subordinated indebtedness		**–**	**1**	**1**	(1)	1	–
Change in foreign interest expense		**48**	**150**	**198**	360	1,022	1,382
Total change in interest expense		**$ 341**	**$ 2,365**	**$ 2,706**	$ 602	$ 2,222	$ 2,824
Change in total net interest income		**$ 896**	**$ (410)**	**$ 486**	$ 874	$ 214	$ 1,088

(1) Classification as domestic or foreign is based on domicile of debtor or customer.

Analysis of net loans and acceptances

$ millions, as at October 31	Canada (1) 2019	2018	2017	2016	2015	U.S. (1) 2019	2018	2017	2016	2015
Residential mortgages	**$ 204,383**	$ 203,930	$ 203,787	$ 184,610	$ 166,616	**$ 1,527**	$ 1,152	$ 902	$ –	$ –
Student	**24**	33	50	73	110	**–**	–	–	–	–
Personal	**41,882**	41,473	39,483	36,896	35,412	**435**	356	326	56	51
Credit card	**12,143**	12,060	11,805	11,755	11,279	**35**	36	35	36	37
Total net consumer loans	**258,432**	257,496	255,125	233,334	213,417	**1,997**	1,544	1,263	92	88
Non-residential mortgages	**6,064**	6,426	6,481	6,734	7,120	**115**	39	95	103	333
Financial institutions	**7,565**	6,885	5,403	4,831	4,137	**8,111**	5,529	3,248	2,100	667
Retail and wholesale	**5,720**	5,219	4,496	4,044	3,667	**2,066**	1,914	1,812	290	310
Business services	**7,037**	7,018	6,237	5,312	5,011	**4,570**	3,840	3,567	1,215	814
Manufacturing – capital goods	**2,465**	2,318	1,912	1,663	1,505	**2,399**	2,143	1,559	128	181
Manufacturing – consumer goods	**3,972**	3,294	3,019	2,663	2,626	**958**	695	702	28	22
Real estate and construction (2)	**18,465**	16,297	13,293	11,684	8,644	**16,871**	14,559	13,761	8,554	7,206
Agriculture	**6,965**	6,011	5,558	5,364	4,828	**124**	79	107	44	50
Oil and gas	**5,222**	5,064	4,762	4,532	4,138	**3,190**	2,375	2,198	1,951	1,469
Mining	**1,024**	824	668	722	761	**154**	60	87	242	305
Forest products	**628**	446	464	465	566	**162**	215	209	4	11
Hardware and software	**651**	575	539	267	280	**1,215**	1,082	883	165	167
Telecommunications and cable	**191**	275	281	444	510	**314**	887	756	30	44
Publishing, printing, and broadcasting	**557**	527	291	333	244	**92**	102	117	–	–
Transportation	**2,193**	1,880	1,818	1,630	1,449	**1,263**	893	602	288	183
Utilities	**2,281**	2,291	1,927	1,663	1,621	**1,759**	1,226	1,445	1,237	845
Education, health and social services (2)	**3,221**	2,870	2,937	2,826	2,128	**2,941**	3,040	3,099	–	–
Governments	**857**	954	869	728	541	**127**	92	7	–	–
Others	**–**	–	–	–	–	**–**	–	12	17	69
Stage 1 and 2 allowance for credit losses (2017 and prior: Collective allowance allocated to business and government loans) (3)(4)	**(144)**	(98)	(195)	(215)	(218)	**(138)**	(108)	(83)	(58)	(50)
Total net business and government loans, including acceptances	**74,934**	69,076	60,760	55,690	49,558	**46,293**	38,662	34,183	16,338	12,626
Total net loans and acceptances	**$ 333,366**	$ 326,572	$ 315,885	$ 289,024	$ 262,975	**$ 48,290**	$ 40,206	$ 35,446	$ 16,430	$ 12,714

(1) Classification by country is primarily based on domicile of debtor or customer.
(2) Certain comparative information has been reclassified.
(3) Stage 3 allowance for credit losses (2017 and prior: individual allowance) is allocated to business and government loans, including acceptances, by category above.
(4) Stage 1 and 2 allowances (2017 and prior: collective allowances) are primarily allocated based on the geographic location where they are recorded.

Analysis of net loans and acceptances (continued)

$ millions, as at October 31	Other (1) 2019	2018	2017	2016	2015	Total 2019	2018	2017	2016	2015
Residential mortgages	**$ 2,531**	$ 2,453	$ 2,379	$ 2,467	$ 2,406	**$ 208,441**	$ 207,535	$ 207,068	$ 187,077	$ 169,022
Student	**–**	–	–	–	–	**24**	33	50	73	110
Personal	**757**	715	583	519	476	**43,074**	42,544	40,392	37,471	35,939
Credit card	**157**	159	152	155	150	**12,335**	12,255	11,992	11,946	11,466
Total net consumer loans	**3,445**	3,327	3,114	3,141	3,032	**263,874**	262,367	259,502	236,567	216,537
Non-residential mortgages	**258**	266	218	232	245	**6,437**	6,731	6,794	7,069	7,698
Financial institutions	**2,103**	2,043	841	1,723	3,291	**17,779**	14,457	9,492	8,654	8,095
Retail and wholesale	**467**	438	435	561	548	**8,253**	7,571	6,743	4,895	4,525
Business services	**1,822**	1,675	1,736	1,266	1,370	**13,429**	12,533	11,540	7,793	7,195
Manufacturing – capital goods	**128**	125	432	234	293	**4,992**	4,586	3,903	2,025	1,979
Manufacturing – consumer goods	**61**	92	111	114	119	**4,991**	4,081	3,832	2,805	2,767
Real estate and construction (2)	**1,529**	1,624	1,325	1,391	1,124	**36,865**	32,480	28,379	21,629	16,974
Agriculture	**104**	25	22	24	40	**7,193**	6,115	5,687	5,432	4,918
Oil and gas	**253**	440	555	268	324	**8,665**	7,879	7,515	6,751	5,931
Mining	**642**	710	784	928	446	**1,820**	1,594	1,539	1,892	1,512
Forest products	**–**	–	–	–	–	**790**	661	673	469	577
Hardware and software	**–**	–	20	–	12	**1,866**	1,657	1,442	432	459
Telecommunications and cable	**185**	208	301	359	388	**690**	1,370	1,338	833	942
Publishing, printing, and broadcasting	**81**	85	89	87	79	**730**	714	497	420	323
Transportation	**2,012**	1,642	1,847	1,326	899	**5,468**	4,415	4,267	3,244	2,531
Utilities	**1,744**	647	779	532	785	**5,784**	4,164	4,151	3,432	3,251
Education, health and social services (2)	**34**	28	29	32	32	**6,196**	5,938	6,065	2,858	2,160
Governments	**1,657**	1,598	1,662	1,874	1,611	**2,641**	2,644	2,538	2,602	2,152
Others	**–**	–	–	300	711	**–**	–	12	317	780
Stage 1 and 2 allowance for credit losses (2017 and prior: Collective allowance allocated to business and government loans) (3)(4)	**(73)**	(90)	(73)	(65)	(57)	**(355)**	(296)	(351)	(338)	(325)
Total net business and government loans, including acceptances	**13,007**	11,556	11,113	11,186	12,260	**134,234**	119,294	106,056	83,214	74,444
Total net loans and acceptances	**$ 16,452**	$ 14,883	$ 14,227	$ 14,327	$ 15,292	**$ 398,108**	$ 381,661	$ 365,558	$ 319,781	$ 290,981

(1) Classification by country is primarily based on domicile of debtor or customer.
(2) Certain comparative information has been reclassified.
(3) Stage 3 allowance for credit losses (2017 and prior: individual allowance) is allocated to business and government loans, including acceptances, by category above.
(4) Stage 1 and 2 allowances (2017 and prior: collective allowances) are primarily allocated based on the geographic location where they are recorded.

Summary of allowance for credit losses

$ millions, as at or for the year ended October 31	**2019**	2018 [1]	2017	2016	2015
Balance at beginning of year under IAS 39	**n/a**	$ 1,737	$ 1,813	$ 1,762	$ 1,736
Impact of adopting IFRS 9 at November 1, 2017	**n/a**	63	n/a	n/a	n/a
Balance at beginning of year under IFRS 9	**$ 1,741**	1,800	n/a	n/a	n/a
Provision for credit losses	**1,286**	870	829	1,051	771
Write-offs					
Domestic [2]					
Residential mortgages	**22**	19	21	13	14
Student	**–**	–	–	–	1
Personal and credit card	**897**	866	869	842	781
Other business and government	**30**	37	51	116	42
Foreign [2]					
Residential mortgages	**7**	35	17	21	18
Personal and credit card	**14**	14	19	18	16
Other business and government	**160**	79	80	143	132
Total write-offs	**1,130**	1,050	1,057	1,153	1,004
Recoveries					
Domestic [2]					
Personal and credit card	**173**	174	168	163	171
Other business and government	**6**	6	15	8	8
Foreign [2]					
Residential mortgages	**2**	–	–	–	–
Personal and credit card	**6**	4	5	6	5
Other business and government	**7**	6	5	6	2
Total recoveries	**194**	190	193	183	186
Net write-offs	**936**	860	864	970	818
Interest income on impaired loans	**(40)**	(23)	(26)	(29)	(23)
Foreign exchange and other	**(7)**	(46)	(15)	(1)	96
Balance at end of year	**$ 2,044**	$ 1,741	$ 1,737	$ 1,813	$ 1,762
Comprises:					
Loans	**$ 1,915**	$ 1,639	$ 1,618	$ 1,691	$ 1,670
Undrawn credit facilities and other off-balance sheet exposures	**129**	102	119	122	92
Ratio of net write-offs during the year to average loans outstanding during the year	**0.25 %**	0.24 %	0.26 %	0.33 %	0.30 %

(1) Effective November 1, 2017, all loans that are contractually 90 days in arrears are automatically classified as impaired and as stage 3 under IFRS 9, except for credit card loans which are classified as impaired and are fully written off when payments are contractually 180 days in arrears or at the earlier of the notice of bankruptcy, settlement proposal, or enlistment of credit counselling services. The determination of impairment was generally the same under IAS 39, except (i) residential mortgages guaranteed or insured by a Canadian government (federal or provincial) or a Canadian government agency were not classified as impaired until payments were contractually 365 days in arrears, and (ii) residential mortgages guaranteed or insured by a private insurer, or loans that were fully secured and in the process of collection were not classified as impaired until payments were contractually 180 days in arrears.
(2) Classification as domestic or foreign is primarily based on domicile of debtor or customer.
n/a Not applicable.

Allowance for credit losses on impaired loans as a percentage of gross impaired loans

	Allowance for credit losses [1]					Allowance as a % of gross impaired loans				
$ millions, as at October 31	**2019**	2018 [2]	2017 [3]	2016 [3]	2015 [3]	**2019**	2018 [2]	2017 [3]	2016 [3]	2015 [3]
Domestic [4]										
Residential mortgages	**$ 61**	$ 54	$ 22	$ 20	$ 21	**10.5 %**	10.9 %	7.5 %	8.0 %	9.3 %
Personal loans	**98**	79	110	105	99	**62.4**	57.7	94.8	85.4	91.7
Business and government	**217**	56	43	63	77	**45.8**	41.5	41.7	30.9	42.8
Total domestic	**376**	189	175	188	197	**31.0**	24.6	34.2	32.5	38.4
Foreign [4]										
Residential mortgages	**79**	89	123	148	167	**46.5**	49.4	55.7	56.3	48.0
Personal loans	**30**	30	31	40	46	**63.8**	66.7	56.4	57.1	58.2
Business and government	**159**	174	148	196	236	**36.4**	35.8	28.3	26.2	49.3
Total foreign	**268**	293	302	384	449	**41.0**	41.2	37.8	35.6	49.6
Total allowance	**$ 644**	$ 482	$ 477	$ 572	$ 646	**34.5 %**	32.6 %	36.4 %	34.5 %	45.5 %

(1) Excludes allowance on undrawn credit facilities and other off-balance sheet exposures.
(2) Effective November 1, 2017, all loans that are contractually 90 days in arrears are automatically classified as impaired and as stage 3 under IFRS 9, except for credit card loans which are classified as impaired and are fully written off when payments are contractually 180 days in arrears or at the earlier of the notice of bankruptcy, settlement proposal, or enlistment of credit counselling services. The determination of impairment was generally the same under IAS 39, except (i) residential mortgages guaranteed or insured by a Canadian government (federal or provincial) or a Canadian government agency were not classified as impaired until payments were contractually 365 days in arrears, and (ii) residential mortgages guaranteed or insured by a private insurer, or loans that were fully secured and in the process of collection were not classified as impaired until payments were contractually 180 days in arrears.
(3) Under IAS 39, comprises individual allowance, and collective allowance related to personal, scored small business, and mortgage impaired loans that are greater than 90 days delinquent.
(4) Classification as domestic or foreign is primarily based on domicile of debtor or customer.

Allowance on performing loans as a percentage of net loans and acceptances

$ millions, as at October 31	Allowance for credit losses (1)(2) 2019	2018 (3)	2017	2016	2015	Allowance as a % of net loans and acceptances 2019	2018 (3)	2017	2016	2015
Domestic										
Residential mortgages	**$ 38**	$ 29	$ 34	$ 30	$ 26	**– %**	– %	– %	– %	– %
Personal loans	**415**	362	345	345	316	**1.0**	0.9	0.9	0.9	0.9
Credit cards	**413**	415	383	383	334	**3.4**	3.4	3.2	3.3	3.0
Business and government	**144**	98	187	205	208	**0.2**	0.1	0.3	0.4	0.4
Total domestic	**1,010**	904	949	963	884	**0.3**	0.3	0.3	0.3	0.3
Foreign										
Residential mortgages	**33**	42	24	23	22	**0.8**	1.2	0.7	0.9	0.9
Personal loans	**10**	10	9	7	7	**0.8**	0.9	1.0	1.2	1.3
Credit cards	**7**	3	3	3	4	**3.6**	1.5	1.6	1.6	2.1
Business and government	**211**	198	156	123	107	**0.4**	0.4	0.3	0.4	0.4
Total foreign	**261**	253	192	156	140	**0.4**	0.5	0.4	0.5	0.5
Total stage 1 and 2 allowance (2017 and prior: total allowance)	**$ 1,271**	$ 1,157	$ 1,141	$ 1,119	$ 1,024	**0.3 %**	0.3 %	0.3 %	0.3 %	0.4 %

(1) Excludes allowance on undrawn credit facilities and other off-balance sheet exposures.
(2) Stage 1 and 2 allowances (2017 and prior: collective allowances) are primarily allocated based on the geographic location where they are recorded.
(3) Effective November 1, 2017, all loans that are contractually 90 days in arrears are automatically classified as impaired and as stage 3 under IFRS 9, except for credit card loans which are classified as impaired and are fully written off when payments are contractually 180 days in arrears or at the earlier of the notice of bankruptcy, settlement proposal, or enlistment of credit counselling services. The determination of impairment was generally the same under IAS 39, except (i) residential mortgages guaranteed or insured by a Canadian government (federal or provincial) or a Canadian government agency were not classified as impaired until payments were contractually 365 days in arrears, and (ii) residential mortgages guaranteed or insured by a private insurer, or loans that were fully secured and in the process of collection were not classified as impaired until payments were contractually 180 days in arrears.

Net loans and acceptances by geographic location[1]

$ millions, as at October 31	2019	2018	2017	2016	2015
Canada					
Atlantic provinces	**$ 14,578**	$ 14,036	$ 14,194	$ 14,006	$ 13,598
Quebec	**30,113**	28,598	27,027	25,471	23,093
Ontario	**169,073**	165,592	157,987	139,254	125,584
Prairie provinces	**14,680**	13,947	13,746	13,341	12,877
Alberta, Northwest Territories and Nunavut	**45,103**	44,896	44,354	43,308	41,197
British Columbia and Yukon	**60,829**	60,407	59,479	54,567	47,478
Stage 1 and 2 allowance (2017 and prior: collective allowance) allocated to Canada (2)	**(1,010)** (3)	(904) (3)	(902) (4)	(923) (4)	(852) (4)
Total Canada	**333,366**	326,572	315,885	289,024	262,975
U.S.	**48,290**	40,206	35,446	16,430	12,714
Other countries	**16,452**	14,883	14,227	14,327	15,292
Total net loans and acceptances	**$ 398,108**	$ 381,661	$ 365,558	$ 319,781	$ 290,981

(1) Classification by country is primarily based on domicile of debtor or customer.
(2) Stage 1 and 2 allowances (2017 and prior: collective allowances) are primarily allocated based on the geographic location where they are recorded.
(3) Stage 3 allowance for credit losses (2017 and prior: individual allowance) is allocated to provinces above, including acceptances.
(4) Under IAS 39, relates to collective allowance, except for: (i) residential mortgages greater than 90 days delinquent; and (ii) personal loans and scored small business loans greater than 30 days delinquent.

Net impaired loans

$ millions, as at October 31	Canada (1) 2019	2018 (2)	2017	2016	2015	U.S. (1) 2019	2018 (2)	2017	2016	2015
Gross impaired loans										
Residential mortgages	**$ 581**	$ 497	$ 292	$ 251	$ 225	**$ 16**	$ 13	$ 9	$ –	$ –
Student	**1**	2	2	3	5	**–**	–	–	–	–
Personal	**156**	135	114	120	103	**5**	2	2	–	–
Total gross impaired consumer loans	**738**	634	408	374	333	**21**	15	11	–	–
Non-residential mortgages	**3**	3	7	4	4	**–**	–	–	–	–
Financial institutions	**2**	5	–	1	–	**37**	65	8	–	–
Retail, wholesale and business services	**283**	62	38	23	26	**89**	44	52	5	–
Manufacturing – consumer and capital goods	**6**	7	6	19	8	**35**	14	1	–	–
Real estate and construction (3)	**38**	39	33	23	9	**46**	90	137	62	94
Agriculture	**53**	8	9	4	1	**–**	–	–	–	–
Resource-based industries	**46**	1	2	121	126	**69**	54	114	248	1
Telecommunications, media and technology	**2**	2	3	4	2	**2**	2	2	–	–
Transportation	**4**	3	2	1	1	**–**	1	–	–	–
Utilities	**32**	–	–	–	–	**–**	–	–	–	10
Other (3)	**5**	5	3	4	3	**23**	56	45	–	–
Total gross impaired – business and government loans	**474**	135	103	204	180	**301**	326	359	315	105
Total gross impaired loans	**1,212**	769	511	578	513	**322**	341	370	315	105
Other past due loans (4)	**96**	100	337	362	337	**–**	–	–	–	–
Total gross impaired and other past due loans	**$ 1,308**	$ 869	$ 848	$ 940	$ 850	**$ 322**	$ 341	$ 370	$ 315	$ 105
Allowance for credit losses										
Residential mortgages	**$ 61**	$ 54	$ 22	$ 20	$ 21	**$ 3**	$ 2	$ –	$ –	$ –
Student	**–**	–	–	–	–	**–**	–	–	–	–
Personal	**98**	79	110	105	99	**1**	–	–	–	–
Total allowance – consumer loans	**159**	133	132	125	120	**4**	2	–	–	–
Non-residential mortgages	**–**	–	2	2	1	**–**	–	–	–	–
Financial institutions	**1**	–	–	–	–	**1**	14	–	–	–
Retail, wholesale and business services	**151**	26	18	16	19	**28**	27	16	4	–
Manufacturing – consumer and capital goods	**4**	4	5	7	6	**–**	1	–	–	–
Real estate and construction (3)	**16**	15	9	10	7	**28**	41	41	20	27
Agriculture	**24**	4	–	1	–	**–**	–	–	–	–
Resource-based industries	**11**	1	2	21	39	**34**	5	8	8	–
Telecommunications, media and technology	**–**	1	2	3	2	**–**	–	–	–	–
Transportation	**2**	2	2	1	1	**–**	–	–	–	–
Utilities	**5**	–	–	–	–	**–**	–	–	–	6
Other (3)	**3**	3	3	2	2	**10**	–	–	–	–
Total allowance – business and government loans	**217**	56	43	63	77	**101**	88	65	32	33
Total allowance	**$ 376**	$ 189	$ 175	$ 188	$ 197	**$ 105**	$ 90	$ 65	$ 32	$ 33
Net impaired loans										
Residential mortgages	**$ 520**	$ 443	$ 270	$ 231	$ 204	**$ 13**	$ 11	$ 9	$ –	$ –
Student	**1**	2	2	3	5	**–**	–	–	–	–
Personal	**58**	56	4	15	4	**4**	2	2	–	–
Total net impaired consumer loans	**579**	501	276	249	213	**17**	13	11	–	–
Non-residential mortgages	**3**	3	5	2	3	**–**	–	–	–	–
Financial institutions	**1**	5	–	1	–	**36**	51	8	–	–
Retail, wholesale and business services	**132**	36	20	7	7	**61**	17	36	1	–
Manufacturing – consumer and capital goods	**2**	3	1	12	2	**35**	13	1	–	–
Real estate and construction (3)	**22**	24	24	13	2	**18**	49	96	42	67
Agriculture	**29**	4	9	3	1	**–**	–	–	–	–
Resource-based industries	**35**	–	–	100	87	**35**	49	106	240	1
Telecommunications, media and technology	**2**	1	1	1	–	**2**	2	2	–	–
Transportation	**2**	1	–	–	–	**–**	1	–	–	–
Utilities	**27**	–	–	–	–	**–**	–	–	–	4
Other (3)	**2**	2	–	2	1	**13**	56	45	–	–
Total net impaired – business and government loans	**257**	79	60	141	103	**200**	238	294	283	72
Total net impaired loans	**$ 836**	$ 580	$ 336	$ 390	$ 316	**$ 217**	$ 251	$ 305	$ 283	$ 72

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(3) Certain comparative information has been reclassified.
(4) Represents loans where repayment of principal or payment of interest is contractually in arrears between 90 and 180 days.

Net impaired loans (continued)

$ millions, as at October 31	Other [1]					Total				
	2019	2018 [2]	2017	2016	2015	**2019**	2018 [2]	2017	2016	2015
Gross impaired loans										
Residential mortgages	**$ 154**	$ 167	$ 212	$ 263	$ 348	**$ 751**	$ 677	$ 513	$ 514	$ 573
Student	**–**	–	–	–	–	**1**	2	2	3	5
Personal	**42**	43	53	70	79	**203**	180	169	190	182
Total gross impaired consumer loans	**196**	210	265	333	427	**955**	859	684	707	760
Non-residential mortgages	**17**	15	17	17	34	**20**	18	24	21	38
Financial institutions	**–**	1	2	3	5	**39**	71	10	4	5
Retail, wholesale and business services	**43**	52	57	94	141	**415**	158	147	122	167
Manufacturing – consumer and capital goods	**4**	4	5	210	47	**45**	25	12	229	55
Real estate and construction [3]	**59**	72	78	104	139	**143**	201	248	189	242
Agriculture	**–**	1	1	1	3	**53**	9	10	5	4
Resource-based industries	**–**	–	–	–	2	**115**	55	116	369	129
Telecommunications, media and technology	**–**	–	–	–	–	**4**	4	5	4	2
Transportation	**2**	3	4	2	2	**6**	7	6	3	3
Utilities	**–**	–	–	–	1	**32**	–	–	–	11
Other [3]	**11**	12	–	1	–	**39**	73	48	5	3
Total gross impaired – business and government loans	**136**	160	164	432	374	**911**	621	626	951	659
Total gross impaired loans	**332**	370	429	765	801	**1,866**	1,480	1,310	1,658	1,419
Other past due loans [4]	**3**	3	3	3	3	**99**	103	340	365	340
Total gross impaired and other past due loans	**$ 335**	$ 373	$ 432	$ 768	$ 804	**$ 1,965**	$ 1,583	$ 1,650	$ 2,023	$ 1,759
Allowance for credit losses										
Residential mortgages	**$ 76**	$ 87	$ 123	$ 148	$ 167	**$ 140**	$ 143	$ 145	$ 168	$ 188
Student	**–**	–	–	–	–	**–**	–	–	–	–
Personal	**29**	30	31	40	46	**128**	109	141	145	145
Total allowance – consumer loans	**105**	117	154	188	213	**268**	252	286	313	333
Non-residential mortgages	**5**	7	9	12	17	**5**	7	11	14	18
Financial institutions	**–**	1	–	2	3	**2**	15	–	2	3
Retail, wholesale and business services	**18**	28	29	48	65	**197**	81	63	68	84
Manufacturing – consumer and capital goods	**2**	3	3	45	43	**6**	8	8	52	49
Real estate and construction [3]	**30**	39	39	54	68	**74**	95	89	84	102
Agriculture	**–**	1	1	1	3	**24**	5	1	2	3
Resource-based industries	**–**	–	–	–	1	**45**	6	10	29	40
Telecommunications, media and technology	**–**	–	–	–	–	**–**	1	2	3	2
Transportation	**1**	2	2	2	2	**3**	4	4	3	3
Utilities	**–**	–	–	–	1	**5**	–	–	–	7
Other [3]	**2**	5	–	–	–	**15**	8	3	2	2
Total allowance – business and government loans	**58**	86	83	164	203	**376**	230	191	259	313
Total allowance	**$ 163**	$ 203	$ 237	$ 352	$ 416	**$ 644**	$ 482	$ 477	$ 572	$ 646
Net impaired loans										
Residential mortgages	**$ 78**	$ 80	$ 89	$ 115	$ 181	**$ 611**	$ 534	$ 368	$ 346	$ 385
Student	**–**	–	–	–	–	**1**	2	2	3	5
Personal	**13**	13	22	30	33	**75**	71	28	45	37
Total net impaired consumer loans	**91**	93	111	145	214	**687**	607	398	394	427
Non-residential mortgages	**12**	8	8	5	17	**15**	11	13	7	20
Financial institutions	**–**	–	2	1	2	**37**	56	10	2	2
Retail, wholesale and business services	**25**	24	28	46	76	**218**	77	84	54	83
Manufacturing – consumer and capital goods	**2**	1	2	165	4	**39**	17	4	177	6
Real estate and construction [3]	**29**	33	39	50	71	**69**	106	159	105	140
Agriculture	**–**	–	–	–	–	**29**	4	9	3	1
Resource-based industries	**–**	–	–	–	1	**70**	49	106	340	89
Telecommunications, media and technology	**–**	–	–	–	–	**4**	3	3	1	–
Transportation	**1**	1	2	–	–	**3**	3	2	–	–
Utilities	**–**	–	–	–	–	**27**	–	–	–	4
Other [3]	**9**	7	–	1	–	**24**	65	45	3	1
Total net impaired – business and government loans	**78**	74	81	268	171	**535**	391	435	692	346
Total net impaired loans	**$ 169**	$ 167	$ 192	$ 413	$ 385	**$ 1,222**	$ 998	$ 833	$ 1,086	$ 773

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(3) Certain comparative information has been reclassified.
(4) Represents loans where repayment of principal or payment of interest is contractually in arrears between 90 and 180 days.

Deposits

$ millions, for the year ended October 31	Average balance			Interest			Rate		
	2019	2018	2017	**2019**	2018	2017	**2019**	2018	2017
Deposits in domestic bank offices [1]									
Payable on demand									
Personal	**$ 9,939**	$ 10,216	$ 10,567	**$ 17**	$ 15	$ 13	**0.17 %**	0.15 %	0.12 %
Business and government	**43,539**	42,784	41,607	**585**	432	228	**1.34**	1.01	0.55
Bank	**4,517**	4,632	4,419	**3**	1	1	**0.07**	0.02	0.02
Payable after notice									
Personal	**99,859**	98,054	95,035	**855**	644	429	**0.86**	0.66	0.45
Business and government	**44,691**	38,621	34,510	**927**	606	332	**2.07**	1.57	0.96
Bank	**256**	415	359	**4**	6	4	**1.56**	1.45	1.11
Payable on a fixed date									
Personal	**51,522**	43,561	41,688	**1,040**	676	434	**2.02**	1.55	1.04
Business and government	**85,978**	76,674	72,260	**2,063**	1,442	1,040	**2.40**	1.88	1.44
Bank	**1,161**	1,625	1,681	**23**	27	12	**1.98**	1.66	0.71
Secured borrowings	**39,111**	43,085	38,642	**1,037**	952	613	**2.65**	2.21	1.59
Total domestic	**380,573**	359,667	340,768	**6,554**	4,801	3,106	**1.72**	1.33	0.91
Deposits in foreign bank offices									
Payable on demand									
Personal	**1,687**	1,693	1,120	**2**	1	1	**0.12**	0.06	0.09
Business and government	**15,687**	14,149	7,697	**70**	33	8	**0.45**	0.23	0.10
Bank	**13**	10	5	**–**	–	–	**–**	–	–
Payable after notice									
Personal	**6,909**	5,239	3,487	**82**	39	22	**1.19**	0.74	0.63
Business and government	**9,544**	7,740	2,857	**185**	96	18	**1.94**	1.24	0.63
Payable on a fixed date									
Personal	**3,164**	2,891	1,925	**58**	38	18	**1.83**	1.31	0.94
Business and government	**51,082**	55,997	54,381	**1,271**	1,088	656	**2.49**	1.94	1.21
Bank	**8,245**	8,049	11,897	**196**	144	124	**2.38**	1.79	1.04
Secured borrowings	**226**	–	–	**4**	–	–	**1.77**	–	–
Total foreign	**96,557**	95,768	83,369	**1,868**	1,439	847	**1.93**	1.50	1.02
Total deposits	**$ 477,130**	$ 455,435	$ 424,137	**$ 8,422**	$ 6,240	$ 3,953	**1.77 %**	1.37 %	0.93 %

(1) Deposits by foreign depositors in our domestic bank offices amounted to $29.3 billion (2018: $32.3 billion; 2017: $26.8 billion).

Short-term borrowings

$ millions, as at or for the year ended October 31	**2019**	2018	2017
Amounts outstanding at end of year			
Obligations related to securities sold short	**$ 15,635**	$ 13,782	$ 13,713
Obligations related to securities lent or sold under repurchase agreements	**53,623**	33,571	29,995
Total short-term borrowings	**$ 69,258**	$ 47,353	$ 43,708
Obligations related to securities sold short			
Average balance	**$ 16,501**	$ 15,300	$ 13,789
Maximum month-end balance	**18,448**	17,162	15,211
Average interest rate	**1.76 %**	1.78 %	1.64 %
Obligations related to securities lent or sold under repurchase agreements			
Average balance	**$ 51,408**	$ 41,063	$ 26,303
Maximum month-end balance	**57,346**	45,343	33,261
Average interest rate	**2.33 %**	1.79 %	0.97 %

Fees paid to the shareholders' auditor

$ millions, for the year ended October 31	**2019**	2018	2017
Audit fees [1]	**$ 22.3**	$ 26.0	$ 21.1
Audit-related fees [2]	**1.7**	2.5	2.6
Tax fees [3]	**1.9**	2.4	1.1
All other fees [4]	**0.1**	0.1	0.1
Total	**$ 26.0**	$ 31.0	$ 24.9

(1) For the audit of CIBC's annual financial statements and the audit of certain of its subsidiaries, as well as other services normally provided by the principal auditor in connection with CIBC's statutory and regulatory filings. Audit fees also include the audit of internal control over financial reporting under standards of the Public Company Accounting Oversight Board (United States).
(2) For the assurance and related services that are reasonably related to the performance of the audit or review of CIBC's financial statements, including accounting consultation, various agreed upon procedures and translation of financial reports.
(3) For tax compliance and advisory services.
(4) Includes fees for non-audit services.