Royal Bank of Canada

Pillar 3 Report

As at October 31, 2018

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Caution regarding forward-looking statements

From time to time, we make written or oral forward-looking statements within the meaning of certain securities laws, including the "safe harbour" provisions of the United States Private Securities Litigation Reform Act of 1995 and any applicable Canadian securities legislation. We may make forward-looking statements in this Pillar 3 Report, our 2018 Annual Report, in other filings with Canadian regulators or the SEC, in other reports to shareholders and in other communications. Forward-looking statements are typically identified by words such as "believe", "expect", "foresee", "forecast", "anticipate", "intend", "estimate", "goal", "plan" and "project" and similar expressions of future or conditional verbs such as "will", "may", "should", "could" or "would". By their very nature, forward-looking statements require us to make assumptions and are subject to inherent risks and uncertainties, which give rise to the possibility that our predictions, forecasts, projections, expectations or conclusions will not prove to be accurate, that our assumptions may not be correct and that our financial performance and management objectives will not be achieved. We caution readers not to place undue reliance on these statements as a number of risk factors could cause our actual results to differ materially from the expectations expressed in such forward-looking statements. Additional information about certain risk factors can be found in the risk sections of our 2018 Annual Report. When relying on our forward-looking statements to make decisions with respect to us, investors and others should carefully consider these risk factors as well as other uncertainties and potential events. Except as required by law, we do not undertake to update any forward-looking statement, whether written or oral, that may be made from time to time by us or on our behalf.

About Royal Bank of Canada

Royal Bank of Canada is a global financial institution with a purpose-driven, principles-led approach to delivering leading performance. Our success comes from the 84,000+ employees who bring our vision, values and strategy to life so we can help our clients thrive and communities prosper. As Canada's biggest bank, and one of the largest in the world based on market capitalization, we have a diversified business model with a focus on innovation and providing exceptional experiences to our 16 million clients in Canada, the U.S. and 34 other countries.

Our business segments include Personal & Commercial Banking, Wealth Management, Insurance, Investor & Treasury Services, and Capital Markets. Our business segments are supported by Corporate Support, which consists of Technology & Operations and Functions. Technology & Operations provides the technological and operational foundation required to effectively deliver products and services to our clients, while Functions includes our finance, human resources, risk management, internal audit and other functional groups.

Capital framework

Our consolidated regulatory capital requirements are determined by guidelines issued by the Office of the Superintendent of the Financial Institutions (OSFI), which are based on the Basel III framework adopted by the Basel Committee on Banking Supervision (BCBS).

The Basel III framework integrates three "Pillars" to establish a robust foundation for banking supervision and financial stability:

- Pillar 1 prescribes minimum capital requirements and addresses capital adequacy, including standards for calculating risk-weighted assets (RWA);
- Pillar 2 requires the establishment of internal assessment processes and supervisory review to evaluate the risk profile and capital adequacy of banks;
- Pillar 3 enhances the consistency and comparability of risk and capital profiles between banks and across jurisdictions for market participants through meaningful disclosures.

Under Basel III, banks use defined approaches to calculate their minimum regulatory capital required to support various risks and exposure types including credit, counterparty credit, market, operational, and securitizations exposures. We determine our regulatory leverage ratio based on OSFI's Leverage Requirements (LR) Guideline, which reflects the BCBS Basel III leverage ratio requirements. Refer to the "Capital management" section of our 2018 Annual Report for further information on calculation approaches. Refer to the following sections in this report for further information on the respective approaches:

- Credit Risk
- Counterparty Credit Risk
- Market Risk
- Operational Risk
- Securitization Exposures

In January 2015, the BCBS published the "Revised Pillar 3 Disclosure Requirements" (Revised Standards) to encourage market discipline through regulatory disclosure requirements. The Revised Standards require comprehensive disclosure of our risks and regulatory capital including our methodologies used in calculating capital requirements instituted under Pillar 1. Existing requirements in the areas of credit risk, counterparty credit risk and securitization activities are replaced by the Revised Standards. OSFI mandated the domestic implementation of the first phase of the Revised Standards for Canadian domestic systemically important banks (D-SIBs) for the reporting period ending October 31, 2018. This Pillar 3 report provides disclosures reflective of this first phase of the Revised Standards.

Capital framework (continued)

In March 2017, the BCBS issued its second phase of the Pillar 3 disclosure requirements entitled, "Pillar 3 disclosure requirements – consolidated and enhanced framework". The disclosure standard consolidates all existing Pillar 3 disclosure requirements of the Basel III framework, including the leverage and liquidity ratios disclosure templates. OSFI has not yet released the implementation date for the BCBS phase two disclosure requirements. Refer to the "Capital management" section of our 2018 Annual Report for further information on other upcoming regulatory reforms.

DISCLOSURE MAP

Pillar 3 Requirement	Pillar 3 Requirement		2018 Annual Report section	Sub-section	2018 Annual Report Reference	Frequency of Disclosure
Overview of key metrics, risk management and RWA	KM1					Quarterly
	OVA	a) Business model and risk profile	Risk management - Overview	Objectives and Risk Management Principles	49	Annual
				Risk pyramid	50	Annual
			Top and emerging risks	Top and emerging risks	50-51	Annual
			Enterprise risk management	Risk governance	52	Annual
				Risk appetite	53	Annual
				Risk measurement	53	Annual
				Risk control	54	Annual
		b) Risk governance structure	Enterprise risk management	Risk governance	52	Annual
				Risk control	54	Annual
		c) Communication and enforcement of risk culture within the bank	Enterprise risk management	Risk conduct and culture	55	Annual
		d) Scope and main features of risk measurement systems	Enterprise risk management	Risk measurement	53	Annual
		e) Risk information reporting	Enterprise risk management	Risk control – *Reporting*	55	Annual
		f) Stress testing	Enterprise risk management	Risk measurement – *Stress testing*	53-54	Annual
			Market risk	Stress tests	67	Annual
			Systemic risk	n/a	87-88	Annual
		g) Strategies and processes applied to manage, hedge and mitigate risks	Enterprise risk management	Risk appetite	53	Annual
				Risk measurement	53	Annual
				Risk control	54	Annual
			Credit risk	Overview	56	Annual
				Credit risk measurement	56	Annual
				Credit risk assessment	57-58	Annual
				Credit risk mitigation	59	Annual
				Credit risk approval	59	Annual
				Credit risk administration	59	Annual
			Market risk	Market risk controls – FVTPL positions	67	Annual
				Value-at-Risk and Stressed Value-at-Risk	67	Annual
				Stress tests	67	Annual
				Market risk controls – Structural Interest Rate Risk (SIRR)	69	Annual
				SIRR measurement	69	Annual
				Non-trading foreign exchange rate risk	70	Annual
			Liquidity and funding risk	Overview	72	Annual
				Risk control	73	Annual
				Risk measurement	73	Annual
				Funding	75	Annual
				Liquidity coverage ratio	79	Annual
			Insurance risk	Insurance risk	83	Annual
			Operational risk	Overview	83	Annual
				Operational risk framework	83	Annual
			Regulatory compliance risk	Regulatory compliance risk	85	Annual
			Strategic risk	Strategic risk	85	Annual
			Reputation risk	Reputation risk	85	Annual
			Competitive risk	Competitive risk	87	Annual
			Systemic risk	Systemic risk	87-88	Annual
			Consolidated Financial Statements	Note 8 – Derivative financial instruments and hedging activities - *Derivatives issued for trading purposes*	171	Annual
				Note 8 – Derivative financial instruments and hedging activities - *Derivatives issued for other than trading purposes*	171	Annual
				Note 8 – Derivative financial instruments and hedging activities - *Derivative-related credit risk*	173-174	Annual
	OV1					Quarterly

DISCLOSURE MAP (continued)

Pillar 3 Requirement	Pillar 3 Requirement		2018 Annual Report section	Sub-section	2018 Annual Report Reference	Frequency of Disclosure
Linkages between financial statements and regulatory exposures	LI1					Annual
	LI2					Annual
	LIA					Annual
Credit risk	CRA	a) Translation of the business model into the components of the bank's credit risk profile	Credit risk	Overview	56	Annual
				Gross credit risk exposure	57	Annual
		b) Criteria and approach used for defining credit risk management policy and for setting credit risk limits	Enterprise risk management	Risk governance	52	Annual
				Risk appetite	53	Annual
				Risk measurement	53	Annual
				Risk control - *Authorities and limits*	55	Annual
			Credit risk	Overview	56	Annual
				Credit risk assessment	57-58	Annual
				Credit risk mitigation	59	Annual
				Credit risk approval	59	Annual
		c) Structure and organization of the credit risk management and control function	Enterprise risk management	Risk governance	52	Annual
				Risk control	54	Annual
		d) Interaction between the credit risk management, risk control, compliance and internal audit functions	Enterprise risk management	Risk governance	52	Annual
		e) Scope and content of the reporting on credit risk exposure to the executive management and to the board of directors	Enterprise risk management	Risk governance	52	Annual
				Risk control - *Reporting*	55	Annual
	CR1					Semi-annual
	CR2					Semi-annual
	CRB	a) The scope and definitions of "past due" and "impaired" exposures used for accounting purposes and the differences, if any, between the definition of past due and default for accounting and regulatory purposes.	Consolidated Financial Statements	Note 2 – Summary of significant accounting policies, estimates and judgments - *Definition of default* *Credit impaired financial assets (Stage 3)*	125	Annual
		b) The extent of past-due exposures (more than 90 days) that are not considered to be impaired and the reasons for this.	Consolidated Financial Statements	Note 2 – Summary of significant accounting policies, estimates and judgments - *Definition of default*	125	Annual
		c) Description of methods used for determining impairments.	Consolidated Financial Statements	Note 2 – Summary of significant accounting policies, estimates and judgments - *Allowance for credit losses*	123-126, 129	Annual
		d) The bank's own definition of a restructured exposure.	Consolidated Financial Statements	Note 2 – Summary of significant accounting policies, estimates and judgments - *Modifications*	126	Annual
	CRC	a) Core features of policies and processes for, and an indication of the extent to which the bank makes use of, on– and off–balance sheet netting	Credit risk	Counterparty credit risk	58	Annual
			Consolidated Financial Statements	Note 8 – Derivative financial instruments and hedging activities – *Derivative-related credit risk*	173-174	Annual
			Consolidated Financial Statements	Note 30 – Offsetting financial assets and financial liabilities	207-208	Annual
		b) Core features of policies and processes for collateral evaluation and management	Credit risk	Credit risk mitigation - *Collateral*	59	Annual
		c) Information about market or credit risk concentrations under the credit risk mitigation instruments used	Credit risk	Credit risk mitigation	59	Annual
				Credit risk approval - *Credit risk limits*	59	Annual
			Consolidated Financial Statements	Note 8 – Derivative financial instruments and hedging activities	170-178	Annual

DISCLOSURE MAP (continued)

Pillar 3 Requirement	Pillar 3 Requirement		2018 Annual Report section	Sub-section	2018 Annual Report Reference	Frequency of Disclosure
Credit risk (continued)	CR3					Semi-annual
	CRD					Annual
	CR4					Semi-annual
	CR5					Semi-annual
	CRE					Annual
	CR6					Semi-annual
	CR7					Semi-annual
	CR8					Quarterly
	CR9					Annual
	CR10		n/a	n/a	n/a	Semi-annual
Counterparty credit risk	CCRA	a) Risk management objectives and policies related to counterparty credit risk	Credit risk	Credit risk assessment – *Counterparty credit risk*	58	Annual
			Consolidated Financial Statements	Note 8 – Derivative financial instruments and hedging activities – *Derivative-related credit risk*	173-174	Annual
			Consolidated Financial Statements	Note 2 – Summary of significant accounting policies, estimates and judgements – *Derivatives*	126, 129, 133-134	Annual
		b) The method used to assign the operating limits defined in terms of internal capital for counterparty credit exposures and for CCP exposures	Credit risk	Credit risk assessment – *Counterparty credit risk*	58	Annual
		c) Policies relating to guarantees and other risk mitigants and assessments concerning counterparty credit risk, including exposures towards CCPs	Credit risk	Credit risk assessment – *Counterparty credit risk*	58	Annual
			Consolidated Financial Statements	Note 8 – Derivative financial instruments and hedging activities – *Derivative-related credit risk*	173-174	Annual
			Consolidated Financial Statements	Note 30 – Offsetting financial assets and financial liabilities	207-208	Annual
		d) Policies with respect to wrong-way risk exposures	Credit risk	Credit risk assessment – *Counterparty credit risk*	58	Annual
		e) The impact in terms of the amount of collateral that the bank would be required to provide given a credit rating downgrade	Liquidity and funding risk	Credit ratings	78	Annual
	CCR1					Semi-annual
	CCR2					Semi-annual
	CCR3					Semi-annual
	CCR4					Semi-annual
	CCR5					Semi-annual
	CCR6					Semi-annual
	CCR7		n/a	n/a	n/a	Quarterly
	CCR8	f) Exposures to central counterparties				Semi-annual

DISCLOSURE MAP (continued)

Pillar 3 Requirement	Pillar 3 Requirement		2018 Annual Report section	Sub-section	2018 Annual Report Reference	Frequency of Disclosure
Securitization	SECA	a) Objectives in relation to securitization activities	Off-balance sheet arrangements	Off-balance sheet arrangements	47-49	Annual
			Consolidated Financial Statements	Note 6 – Derecognition of financial assets	166	Annual
			Consolidated Financial Statements	Note 7 – Structured entities	167-170	Annual
		b) List of SPEs where RBC is sponsor / provides implicit support	Consolidated Financial Statements	Note 7 – Structured entities	167-170	Annual
		c) Accounting policies for securitization	Consolidated Financial Statements	Note 2 – Summary of significant accounting policies, estimates and judgments – Basis of consolidation	121-122	Annual
				Note 2 – Summary of significant accounting policies, estimate and judgments – Derecognition of financial assets	133	Annual
			Critical accounting policies and estimates	Consolidation of structured entities	102	Annual
		d) the names of external credit assessment institution (ECAIs) used for securitizations and the types of securitization exposure for which each agency is used	Capital Management (also refer to CRD in this document)	Regulatory capital approach for securitization exposures	98-99	Annual
		e) Use of Basel IAA for capital purposes	Credit risk	n/a	56-59	Annual
			Capital Management	Regulatory capital approach for securitization exposures	98-99	Annual
		f) Use of other internal assessment for capital purposes	Credit risk	Credit risk assessment	57-58	Annual
	SEC1	Securitization exposures in the banking book				Semi-annual
	SEC2	Securitization activities in the trading book				Semi-annual
	SEC3	Securitization exposures in the banking book and associated regulatory capital requirements - bank acting as originator or as sponsor				Semi-annual
	SEC4	Securitization exposures in the banking book and associated capital requirements - bank acting as investor				Semi-annual
Market risk	MRA	a) Processes implemented to identify, measure, monitor and control the bank's market risks	Market risk	Market risk controls – FVTPL positions	67	Annual
				Stress Tests	67	Annual
				Market risk measures – FVTPL positions	68	Annual
				Market risk measures for other FVTPL positions – Assets and liabilities of RBC Insurance	69	Annual
				Market risk controls – Structural Interest Rate Risk (SIRR) positions	69	Annual
				SIRR measurement	69	Annual
				Market risk measures – Structural Interest Rate Sensitivities	69	Annual
				Market risk measures for other material non-trading portfolios	70	Annual
		Policies for hedging risk and strategies/processes for monitoring the continuing effectiveness of hedges	Consolidated Financial Statements	Note 2 – Summary of significant accounting policies, estimates and judgements – *Hedge accounting*	134	Annual
		b) Description of the market risk governance structure established to implement the strategies and processes of the bank	Enterprise risk management	Risk Governance	52	Annual
				Risk Appetite	53	Annual
				Risk Measurement	53	Annual
				Risk Control	54	Annual
				Stress Testing	53-54	Annual
				Risk Conduct and Culture	55	Annual
		Description of the relationships and the communication mechanisms between the different parties involved in market risk management	Enterprise risk management	Risk governance	52	Annual
				Risk Control	54	Annual

DISCLOSURE MAP (continued)

Pillar 3 Requirement	Pillar 3 Requirement		2018 Annual Report section	Sub-section	2018 Annual Report Reference	Frequency of Disclosure
Market risk (continued)	MRA (continued)	c) Scope and nature of risk reporting and/or measurement systems	Enterprise risk management	Risk Measurement	53	Annual
				Risk Control	54	Annual
				Stress Testing	53-54	Annual
			Market risk	Market risk controls – FVTPL positions	67	Annual
				Stress Tests	67	Annual
				Market risk measures – FVTPL positions	68	Annual
				Market risk measures for other FVTPL positions - Assets and liabilities of RBC Insurance	69	Annual
				Market risk controls – Structural Interest Rate Risk (SIRR) positions	69	Annual
				SIRR measurement	69	Annual
				Market risk measures – Structural Interest Rate Sensitivities	69	Annual
				Market risk measures for other material non-trading portfolios	70	Annual
	MRB	c) General description of the models (VaR/stressed VaR)	Market risk	Market risk controls – FVTPL positions	67	Annual
		g) Description of stress testing applied to the modelling parameters	Market risk	Stress Tests	67	Annual
	MR1					Semi-annual
	MR2					Quarterly
	MR3					Semi-annual
	MR4					Semi-annual
Operational risk		a) Details of the approach for operational risk capital assessment for which the bank qualifies	Operational risk	Operational risk capital	84	Annual
			Capital management	Attributed capital in the context of our business activities	97-98	Annual
		b) Description of the advanced measurement approaches for operational risk (AMA)	Operational risk	Operational risk capital	84	Annual
			Capital management	Attributed capital in the context of our business activities	97-98	Annual
		c) Description of the use of insurance for the purpose of mitigating operational risk	Operational risk	Operational risk capital	84	Annual
Interest rate risk in the banking book			Market risk	Market risk	67-72	Annual

OVERVIEW OF KEY METRICS, RISK MANAGEMENT AND RWA

KM1: Key Capital and Leverage metrics (at consolidated group level)

		a	b	c
	(Millions of Canadian dollars)	October 31 2018	July 31 2018	Change
	Available capital (amounts)			
1	Common Equity Tier 1 (CET1)	57,001	55,054	1,947
2	Tier 1	63,279	61,332	1,947
3	Total capital	72,494	70,525	1,969
	Risk-weighted assets (amounts)			
4	Total risk-weighted assets (RWA)	496,459	498,896	(2,437)
	Risk-based capital ratios as a percentage of RWA			
5	Common Equity Tier 1 ratio	11.5%	11.1%	0.4%
6	Tier 1 ratio	12.8%	12.3%	0.5%
7	Total capital ratio	14.6%	14.1%	0.5%
	Additional CET1 buffer requirements as a percentage of RWA			
8	Capital conservation buffer requirement	2.5%	2.5%	
9	Countercyclical buffer requirement	-	-	
10	Bank G-SIB and/or D-SIB additional requirements	1.0%	1.0%	
11	Total of bank CET1 specific buffer requirements (row 8 + row 9 + row 10)	3.5%	3.5%	
12	CET1 available after meeting the bank's minimum capital requirements (row 5 - 8%)[1]	3.5%	3.1%	0.4%
	Basel III leverage ratio			
13	Total Basel III leverage ratio exposure measure	1,450,769	1,413,899	36,870
14	Basel III leverage ratio (row 2 / row 13)	4.4%	4.3%	0.1%

[1] 8% reflects minimum capital requirements which includes D-SIB/G-SIB surcharge. Refer to our Capital Management section of our 2018 Annual Report

OVA: Bank risk management approach

The table below presents an overview of Pillar 3 disclosure requirements that have been met within our 2018 Annual Report and incorporated by reference into this Pillar 3 report. Our 2018 Annual Report is available free of charge on our website at http://www.rbc.com/investorrelations

Pillar 3 disclosures requirement		RBC 2018 Annual Report section	Sub-section
a)	Business model and risk profile	Risk management overview	Objectives and Risk Management Principles
			Risk pyramid
		Top and emerging risks	Top and emerging risks
		Enterprise risk management	Risk governance
			Risk appetite
			Risk measurement
			Risk control
b)	Risk governance structure	Enterprise risk management	Risk governance
			Risk control
c)	Communication and enforcement of risk culture within the bank	Enterprise risk management	Risk conduct and culture
d)	Scope and main features of risk measurement systems	Enterprise risk management	Risk measurement
e)	Risk information reporting	Enterprise risk management	Risk control – *Reporting*
f)	Stress testing	Enterprise risk management	Risk measurement – *Stress testing*
		Market risk	Stress tests
		Systemic risk	n/a
g)	Strategies and processes applied to manage, hedge and mitigate risks	Enterprise risk management	Risk appetite
			Risk measurement
			Risk control
		Credit risk	Overview
			Credit risk measurement
			Credit risk assessment
			Credit risk mitigation
			Credit risk approval
			Credit risk administration
		Market risk	Market risk controls – FVTPL positions
			Value-at-Risk and Stressed Value-at-Risk
			Stress tests
			Market risk controls – Structural Interest Rate Risk (SIRR) positions
			SIRR measurement
			Non-trading foreign exchange rate risk
		Liquidity and funding risk	Overview
			Risk control
			Risk measurement
			Funding
			Liquidity coverage ratio
		Insurance risk	Insurance risk
		Operational risk	Overview
			Operational risk framework
		Regulatory compliance risk	Regulatory compliance risk
		Strategic risk	Strategic risk
		Reputation risk	Reputation risk
		Competitive risk	Competitive risk
		Systemic risk	Systemic risk
		Consolidated Financial Statements	Note 8 - Derivative financial instruments and hedging activities – *Derivatives issued for trading purposes*
			Note 8 - Derivative financial instruments and hedging activities – *Derivatives issued for other-than-trading purposes*
			Note 8 - Derivative financial instruments and hedging activities – *Derivative-related credit risk*

OV1: Overview of risk weighted assets (RWA)

The following table presents an overview of our RWA and the related minimum capital requirements by risk type.

		a	b	c
		RWA[1]		Minimum capital requirements[2]
	(Millions of Canadian dollars)	October 31 2018	July 31 2018	October 31 2018
1	**Credit risk (excluding counterparty credit risk)**	**331,613**	**337,456**	**26,529**
2	of which standardized approach (SA)	77,266	76,394	6,181
3	of which internal rating-based (IRB) approach	254,347	261,062	20,348
4	**Counterparty credit risk (CCR)**	**43,443**	**44,899**	**3,476**
4a	of which other CCR	30,108	31,319	2,409
4b	Credit valuation adjustment (CVA)[3]	13,335	13,580	1,067
5	of which standardized approach for counterparty credit risk (SA-CCR)	-	-	-
6	of which internal model method (IMM)	-	-	-
7	**Equity positions in banking book under market-based approach**	**2,209**	**2,373**	**177**
8	**Equity investments in funds – look-through approach**	**-**	**-**	**-**
9	**Equity investments in funds – mandate-based approach**	**2,075**	**2,064**	**166**
10	**Equity investments in funds – fall-back approach**	**125**	**-**	**10**
11	**Settlement risk**	**498**	**655**	**40**
12	**Securitization exposures in banking book**	**10,320**	**8,383**	**826**
12a	of which: securitization external ratings-based approach (SEC-ERBA), including internal assessment approach (IAA)	-	-	-
13	of which IRB ratings-based approach (RBA)	10,320	8,383	826
14	of which IRB Supervisory Formula Approach (SFA)	-	-	-
15	of which SA/simplified supervisory formula approach (SSFA)	-	-	-
16	**Market risk**	**32,209**	**29,921**	**2,577**
17	of which standardized approach (SA)	12,976	12,133	1,038
18	of which internal model approaches (IMA)	19,233	17,788	1,539
19	**Operational risk**	**62,716**	**61,498**	**5,018**
20	of which Basic Indicator Approach	-	-	-
21	of which Standardized Approach	5,194	5,020	416
22	of which Advanced Measurement Approach	57,522	56,478	4,602
23	**Amounts below the thresholds for deduction (subject to 250% risk weight)**	**11,251**	**11,647**	**900**
24	**Floor adjustment**	**-**	**-**	**-**
25	**Total (1+4+7+8+9+10+11+12+16+19+23+24)**	**496,459**	**498,896**	**39,719**

[1] Amount represents Total capital risk-weighted assets. RWA includes a calibration adjustment of 1.06% as prescribed by OSFI under the Basel III framework and is applied to RWA amounts for credit risk assessed under the IRB Approach. This requirement will be reflected in all subsequent tables where IRB credit risk RWA is reported.

[2] Amount reflects BCBS 8% minimum capital requirements determined as RWA x 8% (i.e. column a x 8 %).

[3] Amount reflects allowed phase-in of CVA of 86%.

LINKAGES BETWEEN FINANCIAL STATEMENTS AND REGULATORY EXPOSURES

LI1: Differences between accounting and regulatory scopes of consolidation and mapping of financial statement categories with regulatory risk categories

The following table provides the differences between carrying values presented in our financial statements prepared in accordance with International Financial Reporting Standards (IFRS) and our regulatory exposures. It further breaks down the amounts in our financial statements into regulatory risk categories.

As at October 31, 2018

	a	b	c	d	e	f	g
			Carrying values of items:[1]				
(Millions of Canadian dollars)	Carrying values as reported in published financial statements	Carrying values under scope of regulatory consolidation	Subject to credit risk framework	Subject to counterparty credit risk framework	Subject to the securitization framework	Subject to the market risk framework	Not subject to capital requirements / or subject to deduction from capital
Assets							
Cash and due from banks	30,209	30,207	30,207	-	-	-	-
Interest-bearing deposits with banks	36,471	36,471	36,471	-	-	-	-
Securities							
Trading	128,258	120,162	1,432	-	187	118,543	-
Investment, net of applicable allowance	94,608	92,555	79,685	-	12,870	-	-
	222,866	212,717	81,117	-	13,057	118,543	-
Assets purchased under reverse repurchase agreements and securities borrowed	294,602	294,602	-	294,602	-	-	-
Loans							
Retail	399,452	399,167	389,534	-	-	-	9,633
Wholesale	180,278	178,280	166,566	479	6,474	3,477	1,284
	579,730	577,447	556,100	479	6,474	3,477	10,917
Allowance for loan losses	(2,912)	(2,912)	-	-	-	-	(2,912)
	576,818	574,535	556,100	479	6,474	3,477	8,005
Segregated fund net assets	1,368	-	-	-	-	-	-
Other							
Customers' liability under acceptances	15,641	15,641	15,641	-	-	-	-
Derivatives[2]	94,039	94,125	-	94,125	-	91,192	-
Premises and equipment, net	2,832	2,829	2,829	-	-	-	-
Goodwill	11,137	11,137	-	-	-	-	11,137
Other intangibles	4,687	4,603	-	-	-	-	4,603
Other assets	44,064	45,480	37,554	4,593	23	2,608	702
	172,400	173,815	56,024	98,718	23	93,800	16,442
Total assets[2]	**1,334,734**	**1,322,347**	**759,919**	**393,799**	**19,554**	**215,820**	**24,447**
Liabilities and equity							
Deposits							
Personal	270,154	270,154	-	-	-	-	270,154
Business and government	534,371	534,492	-	-	-	-	534,492
Bank	32,521	32,521	-	-	-	-	32,521
	837,046	837,167	-	-	-	-	837,167
Segregated fund net liabilities	1,368	-	-	-	-	-	-
Other							
Acceptances	15,662	15,662	-	-	-	-	15,662
Obligations related to securities sold short	32,247	32,247	-	-	-	-	32,247
Obligations related to assets sold under repurchase agreements and securities loaned	206,814	206,814	-	206,814	-	-	-
Derivatives[2]	90,238	90,238	-	90,238	-	87,761	-
Insurance claims and policy benefit liabilities	10,000	-	-	-	-	-	-
Other liabilities	52,273	51,077	-	-	-	-	51,077
	407,234	396,038	-	297,052	-	87,761	98,986
Subordinated debentures	9,131	9,131	-	-	-	-	9,131
Total liabilities[2]	1,254,779	1,242,336	-	297,052	-	87,761	945,284
Equity attributable to shareholders							
Preferred shares	6,309	6,309	-	-	-	-	6,309
Common shares	17,617	17,617	-	-	-	-	17,617
Retained earnings	51,112	51,114	-	-	-	-	51,114
Other components of equity	4,823	4,877	-	-	-	-	4,877
	79,861	79,917	-	-	-	-	79,917
Non-controlling interests	94	94	-	-	-	-	94
Total equity	79,955	80,011	-	-	-	-	80,011
Total liabilities and equity[2]	**1,334,734**	**1,322,347**	**-**	**297,052**	**-**	**87,761**	**1,025,295**

[1] Column c to g reflect a further breakout of column b by providing the respective CAR guideline frameworks utilized.

[2] Derivative assets and liabilities are subject to both counterparty credit risk and market risk framework – hence column b will not equal to the sum of column c to g.

LI2: Main sources of differences between regulatory exposure amounts and carrying values in financial statements

The following table provides the key differences between the exposure amounts for regulatory purposes and the accounting carrying values as presented in our financial statements that are within the scope of regulatory consolidation.

As at October 31, 2018

		a	b	c	d	e
			Items subject to:			
	(Millions of Canadian dollars)	Total	Credit risk framework	Securitization framework	Counterparty credit risk framework	Market risk framework
1	**Asset carrying value amount under scope of regulatory consolidation (as per template LI1)[1]**	**1,297,900**	**759,919**	**19,554**	**393,799**	**215,820**
2	Liabilities carrying value amount under regulatory scope of consolidation (as per template LI1)[1]	297,052	-	-	297,052	87,761
3	Total net amount under regulatory scope of consolidation	1,000,848	759,919	19,554	96,747	128,059
4	Off-balance sheet amounts[2]	1,114,918	306,189	42,215	766,514	-
5	Differences due to Fair Value adjustment	299	299	-	-	(3,429)
6	Differences due to different netting rules, other than those already included in row 2	995	995	-	-	-
7	Differences due to consideration of provisions	306	306	-	-	-
8	Differences due to prudential filters	-	-	-	-	-
9	Difference due to accounting and risk treatment of securitizations and other items	5,195	3,626	1,569	-	-
10	**Exposure amounts considered for regulatory purposes**	**2,122,561**	**1,071,334**	**63,338**	**863,261**	**124,630**

[1] Amount reflects Table LI1 columns (c), (d), (e) and (f) from the previous page. Derivative assets and liabilities are subject to both counterparty credit risk and market risk framework – hence column a will not equal to the sum of column b to e.

[2] Off-balance sheet amounts reflect the application of credit conversion factors.

LIA: Explanations of differences between accounting and regulatory exposure amounts

Our consolidated balance sheet (“accounting balance sheet”) is prepared in compliance with International Financial Reporting Standards (IFRS) as issued by the International Accounting Standards Board. We leverage our accounting balance sheet to apply the required regulatory requirements prescribed by OSFI to determine our regulatory capital consolidated balance sheet.

In Template LI1: Differences between accounting and regulatory scopes of consolidation and mapping of financial statement categories with regulatory risk categories, we identify the differences between our IFRS consolidated accounting balance sheet (column a in LI1) and our regulatory capital consolidated balance sheet (column b in LI1). Our regulatory capital consolidated balance sheet, on which capital adequacy requirements are determined, reflects all of our consolidated subsidiaries except for our insurance subsidiaries as prescribed by OSFI’s CAR guidelines.

In Template LI2: Main sources of differences between regulatory exposure amounts and carrying values in financial statements, we quantify measurement differences other than regulatory consolidation.

Our banking book regulatory carrying values reflect our IFRS accounting balance sheet values except for our fair valued loans and debt securities carried at fair value through other comprehensive income (FVOCI) (available for sale (AFS) under IAS 39), which under the Credit risk framework, are measured at amortized cost. Off-balance sheet regulatory asset values reflect prescribed conversion factors and undrawn amounts.

Regulatory carrying values for our Counterparty credit risk related to our derivative assets and liabilities, assets purchased under reverse repurchase agreements and securities borrowed and obligations related to assets sold under repurchase agreements and securities loaned are determined using OSFI’s CAR guidelines Chapter 4 Settlement and Counterparty risk framework. The main differences between the accounting and regulatory amounts relate to regulatory inclusion of potential future exposure amounts and differences in allowed IFRS and regulatory netting rules, and also application of financial collateral in the calculation of regulatory exposure amount.

The regulatory carrying value of exposures subject to the securitization framework includes our on-balance sheet third party securitization holdings as well as our securitized credit card exposures which meet the risk transference requirements under the CAR guidelines Chapter 7 but are not considered securitized for the purposes of our IFRS accounting balance sheet.

Our trading book regulatory carrying values are determined as prescribed under the CAR guidelines Chapter 9. We employ OSFI’s prudent valuation guidance requirements, as stated in CAR Chapter 9 section 9.8 to our trading book. Refer to our 2018 Annual Report - Risk Management section which provides further insight into how we measure our market risk and the linkage of market risk to selected balance sheet items.

CREDIT RISK

CRA: General qualitative information about credit risk

The table below presents an overview of Pillar 3 disclosure requirements that have been met within our 2018 Annual Report and incorporated by reference into this Pillar 3 report. Our 2018 Annual Report is available free of charge on our website at http://www.rbc.com/investorrelations

	Pillar 3 disclosures requirement	RBC 2018 Annual Report section	Sub-section
a)	Translation of the business model into the components of the bank's credit risk profile	Credit risk	Overview
			Gross credit risk exposure
b)	Criteria and approach used for defining credit risk management policy and for setting credit risk limits	Enterprise risk management	Risk governance
			Risk appetite
			Risk measurement
			Risk control - *Authorities and limits*
		Credit risk	Overview
			Credit risk assessment
			Credit risk mitigation
			Credit risk approval
c)	Structure and organization of the credit risk management and control function	Enterprise risk management	Risk governance
			Risk control
d)	Interaction between the credit risk management, risk control, compliance and internal audit functions	Enterprise risk management	Risk governance
e)	Scope and content of the reporting on credit risk exposure to the executive management and to the board of directors	Enterprise risk management	Risk governance
			Risk control - *Reporting*

CR1: Credit quality of assets

The following table presents a comprehensive view of the credit quality of our on- and off-balance sheet assets.

As at October 31, 2018

		a	b	c	d
		Gross carrying values of			
	(Millions of Canadian dollars)	Defaulted exposures[1]	Non-defaulted exposures	Allowances/impairments[2]	Net values (a+b-c)
1	Loans	2,027	554,073	700	555,400
2	Debt Securities	-	79,190	-	79,190
3	Off-Balance Sheet exposures[3]	289	255,609	-	255,898
4	**Total**	**2,316**	**888,872**	**700**	**890,488**

[1] Definition of default as per the CAR guidelines.

[2] Reflects Stage 3 IFRS 9 allowances only.

[3] Off balance sheet amounts are before the application of credit conversion factors and reflect guarantees given and irrevocable loan commitments. Revocable loan commitments are excluded as per BCBS requirements.

CR2: Changes in stock of defaulted loans and debt securities

The following table presents our defaulted exposure balances, the flows between non-defaulted and defaulted exposure categories and reductions in the defaulted exposure balances due to write-offs.

For the six months ended October 31, 2018

	(Millions of Canadian dollars)	a
1	**Defaulted loans and debt securities at the end of the previous reporting period**	**2,402**
2	Loans and debt securities that have defaulted since the last reporting period	207
3	Returned to non-defaulted status	(148)
4	Amounts written off	(841)
5	Other changes	407
6	**Defaulted loans and debt securities at the end of the reporting period**	**2,027**

CRB: Additional disclosure related to the credit quality of assets

The table below presents an overview of Pillar 3 disclosure requirements that have been met within our 2018 Annual Report and incorporated by reference into this Pillar 3 report. Our 2018 Annual Report is available free of charge on our website at http://www.rbc.com/investorrelations

Pillar 3 disclosures requirement		RBC 2018 Annual Report section	Sub-section
a)	Definitions of past due and impaired exposures	Consolidated Financial Statements	Note 2 - Summary of significant accounting policies, estimates and judgments "Definition of default" "Credit impaired financial assets (Stage 3)"
b)	Extent of past due exposures	Consolidated Financial Statements	Note 2 - Summary of significant accounting policies, estimates and judgments "Definition of default"
c)	Description of methods used for determining impairments	Consolidated Financial Statements	Note 2 - Summary of significant accounting policies, estimates and judgments "Allowance for credit losses"
d)	Definition of a restructured exposure	Consolidated Financial Statements	Note 2 - Summary of significant accounting policies, estimates and judgments "Modifications"

CRB: Additional disclosure related to the credit quality of assets (continued)

(e) Breakdown of exposures by geographical areas, industry and residual maturity

The following table provides a breakdown of our credit risk exposures by geographical areas, industry and residual maturity. Our classification below reflects the Basel regulatory defined exposure classes. Amounts shown below reflects Exposures at default (EAD).

As at October 31, 2018

	a	b	c	d	e
	Credit Risk[1]			Counterparty Credit Risk CCR[4]	
		Off-balance sheet amount[2]			
(Millions of Canadian dollars)	On-balance sheet amount	Undrawn	Other[3]	Repo-style Transaction	Derivatives
Retail					
Residential secured[5]	298,555	59,840			
Qualifying revolving	24,223	65,617			
Other retail	54,170	12,693	52		
Total Retail	**376,948**	**138,150**	**52**		
Wholesale					
Agriculture	8,510	1,760	43	-	45
Automotive	8,936	6,435	345	-	504
Banking	47,868	1,734	549	52,394	26,313
Consumer Discretionary	15,784	7,928	587	-	293
Consumer Staples	4,662	6,316	517	-	672
Oil & gas	6,186	10,704	1,483	-	1,717
Financial Services	25,798	22,345	2,164	110,246	30,580
Financing Products	1,234	1,269	359	-	352
Forest Products	1,140	933	89	-	23
Governments	110,192	7,566	1,798	9,476	7,182
Industrial Products	7,751	8,219	686	-	455
Information Technology	4,843	5,152	178	15	1,967
Investments	16,157	956	389	11	157
Mining & Metals	1,486	3,886	917	-	184
Public Works & Infrastructure	1,899	1,836	425	-	115
Real Estate & Related	54,490	11,832	1,338	-	385
Other services	23,892	12,452	877	2	551
Telecom & Media	7,957	12,116	134	-	1,534
Transportation	5,861	5,600	2,185	-	1,270
Utilities	9,357	19,598	3,561	-	2,581
Other sectors	1,931	303	1	126	11,898
Total Wholesale	**365,934**	**148,940**	**18,625**	**172,270**	**88,778**
Total Exposure[1]	**742,882**	**287,090**	**18,677**	**172,270**	**88,778**
By Geography					
Canada	510,445	205,875	9,387	78,172	29,195
United States	147,543	60,172	7,981	41,897	16,059
Europe	54,061	18,450	1,150	48,874	39,719
Other International	30,833	2,593	159	3,327	3,805
Total Exposure[1]	**742,882**	**287,090**	**18,677**	**172,270**	**88,778**
By Maturity					
Unconditionally cancellable	352,685	136,478	51	-	-
Within 1 year	173,225	50,952	9,496	172,270	31,377
1 to 5 year	180,322	92,337	7,798	-	34,286
Over 5 years	36,650	7,323	1,332	-	23,115
Total Exposure[1]	**742,882**	**287,090**	**18,677**	**172,270**	**88,778**

[1] Excludes securitization, banking book equities and other assets not subject to standardized or IRB approach.
[2] Off balance sheet amounts are after the application of credit conversion factors.
[3] Includes other off-balance sheet exposures such as letters of credit & guarantees.
[4] Counterparty credit risk EAD reflects exposure amount after netting. Collateral is included in EAD for repo-style transactions to the extent allowed by regulatory guidelines.
[5] Includes residential mortgages and home equity lines of credit.

CRB: Additional disclosure related to the credit quality of assets (continued)

(f) Amounts of impaired exposures (according to the definition used by the bank for accounting purposes) and related allowances and write-offs, broken down by geographical areas and industry

The following tables provide a breakdown of impaired exposures by geographical areas and industry.

As at October 31, 2018

Impaired exposures by geography[1] and portfolio (Millions of Canadian dollars)	Gross impaired exposures	Allowance[2]	Net impaired exposures
Canada			
Retail	723	168	555
Wholesale	396	92	304
Securities	-	-	-
Total - Canada	**1,119**	**260**	**859**
United States			
Retail	23	1	22
Wholesale	401	164	237
Securities	-	-	-
Total - United States	**424**	**165**	**259**
Other International			
Retail	327	166	161
Wholesale	313	109	204
Securities	125	-	125
Total - Other International	**765**	**275**	**490**
Total			
Retail	1,073	335	738
Wholesale	1,110	365	745
Securities	125	-	125
Total impaired exposures	**2,308**	**700**	**1,608**

[1] Geographic information is based on residence of borrower.

[2] Allowance reflects only Stage 3 IFRS 9 allowances.

Net write-offs by geography[1] and portfolio (Millions of Canadian dollars)	For the year ended October 31, 2018
Canada	
Retail	942
Wholesale	83
United States[2]	
Retail	4
Wholesale	19
Other International	
Retail	24
Wholesale	40
Total	
Retail	970
Wholesale	142
Total net write-offs	**1,112**

[1] Geographic information is based on residence of borrower.

[2] Includes acquired credit-impaired loans related to the acquisition of City National.

CRB: Additional disclosure related to the credit quality of assets (continued)

As at October 31, 2018

Impaired exposures by portfolio and sector (Millions of Canadian dollars)	Gross impaired exposures	Allowance[1]	Net impaired exposures
Retail			
Residential mortgages	726	176	550
Personal	303	141	162
Small business	44	18	26
Wholesale			
Business			
Agriculture	29	2	27
Automotive	7	4	3
Consumer goods	68	20	48
Energy			
Oil and gas	231	76	155
Utilities	7	1	6
Financing products	78	21	57
Forest products	9	5	4
Health services	6	6	-
Holding and investments	10	5	5
Industrial products	42	11	31
Mining and metals	2	-	2
Non-bank financial services	20	-	20
Other services	140	47	93
Real estate and related	293	97	196
Technology and media	10	11	(1)
Transportation and environment	91	36	55
Other	67	23	44
Sovereign	-	-	-
Bank	-	-	-
Total impaired loans	**2,183**	**700**	**1,483**
Securities	125	-	125
Total impaired exposures	**2,308**	**700**	**1,608**

[1] Allowance reflects only Stage 3 IFRS 9 allowances.

CRB: Additional disclosure related to the credit quality of assets (continued)

(g) Ageing analysis of accounting past-due exposures

The following table provides the ageing of our retail and wholesale past due exposures.

As at October 31, 2018

(Millions of Canadian dollars)	1 to 29 days	30 to 89 days	90 days and greater	Total
Retail	2,995	1,402	179	4,576
Wholesale	1,246	468	-	1,714
Total	**4,241**	**1,870**	**179**	**6,290**

(h) Breakdown of restructured exposures between impaired and not impaired exposures

Amounts are deemed not significant for disclosure.

CRC: Qualitative disclosure requirements related to credit risk mitigation techniques

The table below presents an overview of Pillar 3 disclosure requirements that have been met within our 2018 Annual Report and incorporated by reference into this Pillar 3 report. Our 2018 Annual Report is available free of charge on our website at http://www.rbc.com/investorrelations

Pillar 3 disclosures requirement		RBC 2018 Annual Report section	Sub-section
a)	Core features of policies and processes for, and an indication of the extent to which the bank makes use of, on- and off-balance sheet netting	Credit risk	Counterparty credit risk
		Consolidated Financial Statements	Note 8 - Derivative financial instruments and hedging activities – *Derivative-related credit risk*
			Note 30 - Offsetting financial assets and financial liabilities
b)	Core features of policies and processes for collateral evaluation and management	Credit risk	Credit risk mitigation - *Collateral*
c)	Information about market or credit risk concentrations under the credit risk mitigation instruments used	Credit risk	Credit risk mitigation
			Credit risk approval – *Credit risk limits*
		Consolidated Financial Statements	Note 8 - Derivative financial instruments and hedging activities

CR3: Credit risk mitigation techniques – overview

We utilize allowed regulatory credit mitigation techniques to reduce capital requirements associated with our balance sheet exposures. The following table presents a detailed breakdown of our unsecured and secured loan and debt securities exposures. Secured exposures are mitigated by way of additional collateral or guarantees being requested of the borrower. We sometimes also utilize credit derivatives to mitigate our on-balance sheet exposures.

As at October 31, 2018

		a	b	c	d	e	f	g
	(Millions of Canadian dollars)	Exposures unsecured: carrying amount	Exposures secured by collateral	Exposures secured by collateral, of which: secured amount[1]	Exposures secured by financial guarantees[2]	Exposures secured by financial guarantees, of which: secured amount[3]	Exposures secured by credit derivatives	Exposures secured by credit derivatives, of which: secured amount
1	Loans	187,975	255,724	247,148	111,693	72,407	8	8
2	Debt securities	60,906	18,284	18,284	-	-	-	-
3	**Total**	**248,881**	**274,008**	**265,432**	**111,693**	**72,407**	**8**	**8**
4	Of which defaulted	582	790	790	238	237	-	-

[1] Column c is a subset of column b.

[2] Credit mitigation allocation for multi-secured exposures is made by way of order of priority of available mitigation to be utilized: financial guarantees portion first followed by collateral for any remaining balance.

[3] Column e is a subset of column d.

CRD: Qualitative disclosures on banks' use of external credit ratings under the standardized approach for credit risk

As detailed in section CR4, certain of our portfolios RWA amounts are calculated as per OSFI's CAR Guideline Standardized Approach requirements. OSFI's Standardized Approach methodology allows for the reliance on the external credit ratings of counterparties, issued by independent rating agencies, for the determination of RWA. Five external rating agencies ratings, namely, Standard & Poor's (S&P), Moody's Investors Service, Fitch Rating Services, DBRS and Kroll Bond Rating Agency, Inc. have been approved by OSFI. Currently, external ratings are used to determine the RWA amounts associated with our wholesale exposures under the asset classes of corporate, sovereign, public sector entities, multilateral development banks, banks and securities firms. As well, external ratings are used for determining the risk weighting for certain of our securitizations exposures.

External ratings utilized from the above-mentioned rating agencies are either an issuer rating or an issue-specific rating. We rely on an issue-specific rating if it is available for the purposes of determining RWA for the exposure we hold. We utilize the issuer rating only for our exposures which rank pari-passu with senior claims of the issuer.

Our supervisor, OSFI specifies in its CAR guideline the required standard mapping of long term external ratings of the above rating agencies to an equivalent risk weight. We rely on OSFI's mapping to determine the appropriate risk buckets for our Standardized Approach portfolios under the guideline. OSFI's current mapping of external rating agencies rating is reflected in the table below:

	Long-term rating				
Standardized Risk Weight Category	**S&P**	**Moody's**	**Fitch**	**DBRS**	**Kroll**
Long Term					
(AAA to AA-)	AAA to AA-	AAA to AA3	AAA to AA-	AAA to AA (low)	AAA to AA-
(A+ to A-)	A+ to A-	A1 to A3	A+ to A-	A(high) to A(low)	A+ to A-
(BBB+ to BBB-)	BBB+ to BBB-	BAA1 to BAA3	BBB+ to BBB-	BBB(high) to BBB(low)	BBB+ to BBB-
(BB+ to BB-)	BB+ to BB-	BA1 to BA3	BB+ to BB-	BB(high) to BB(low)	BB+ to BB-
(B+ to B-)	B+ to B-	B1 to B3	B+ to B-	B(high) to B(low)	B+ to B-
(Below B-)	Below B-	Below B3	Below B-	CCC or lower	Below B-

We understand that OSFI annually reviews the list of acceptable rating agencies and will reflect any changes in allowed rating agencies in its annual update to the CAR guidelines.

CR4: Standardized approach – credit risk exposure and credit risk mitigation (CRM) effects

The following table provides the effect of CRM on the calculation of capital requirements under the standardized approach. It presents on balance sheet and off-balance sheet exposures before and after credit conversion factors (CCF) and CRM as well as associated RWA and RWA density by asset classes. As noted in CRD, the external ratings of the counterparty is relied on to determine the prescribed regulatory risk weight to be assigned.

As at October 31, 2018

		a	b	c	d	e	f
	(Millions of Canadian dollars, except as otherwise noted)	Exposures before CCF and CRM		Exposures post-CCF and CRM		RWA and RWA density	
	Asset Classes	On-balance sheet amount	Off-balance sheet amount	On-balance sheet amount	Off-balance sheet amount	RWA	RWA density
1	Sovereigns and their central banks[1]	16,011	324	33,542	5	9	-
2	Non-central government public sector entities	8,904	31	8,927	15	1,842	20.6%
3	Multilateral development banks	367	-	367	-	-	-
4	Banks	4,164	317	4,164	125	1,168	27.2%
5	Securities firms[1]	1,327	2,406	2,339	1,114	1,084	31.4%
6	Corporates[1]	44,961	26,759	38,360	6,123	44,429	100.00%
7	Regulatory retail portfolios	7,013	3,915	7,013	1,497	6,836	80.3%
8	Secured by residential property[1]	35,187	-	16,669	-	6,530	39.2%
9	Secured by commercial real estate	-	-	-	-	-	-
10	Equity	-	-	-	-	-	-
11	Past-due loans	449	1	447	1	604	134.8%
12	Higher-risk categories	452	391	452	183	952	150.00%
13	Other assets	12,678	-	12,678	-	13,812	108.9%
14	**Total**	**131,513**	**34,144**	**124,958**	**9,063**	**77,266**	**57.7%**

[1] When CRM is available in the form of an eligible guarantee, the portion that is covered by the guarantee will attract the risk weight of the protection provider and will be reflected in the protection provider's asset class in column c and d.

CR5: Standardized approach – exposures by asset classes and risk weights

The following table presents the breakdown of credit risk exposures under the standardized approach by asset classes and risk weight.

As at October 31, 2018

		a	b	c	d	e	f	g	h	i	j
	Risk weight / Asset Classes (Millions of Canadian dollars)	0%	10%	20%	35%	50%	75%	100%	150%	Others	Total credit exposures amount (post CCF and post-CRM)
1	Sovereigns and their central banks	33,534	-	-	-	11	-	3	-	-	33,547
2	Non-central government public sector entities	-	-	8,829	-	75	-	38	-	-	8,942
3	Multilateral development banks	367	-	-	-	-	-	-	-	-	367
4	Banks	-	-	3,898	-	8	-	384	-	-	4,289
5	Securities firms	-	-	2,424	-	862	-	167	-	-	3,453
6	Corporates	-	-	56	-	34	-	44,393	-	-	44,483
7	Regulatory retail portfolios	-	-	-	-	-	6,697	1,814	-	-	8,511
8	Secured by residential property	-	-	-	14,932	-	1,737	-	-	-	16,669
9	Secured by commercial real estate	-	-	-	-	-	-	-	-	-	-
10	Equity	-	-	-	-	-	-	-	-	-	-
11	Past-due loans	-	-	-	-	-	-	135	312	-	447
12	Higher-risk categories	-	-	-	-	-	-	-	635	-	635
13	Other assets	1,790	-	-	-	-	-	10,634	-	254	12,678
14	**Total**	**35,691**	**-**	**15,207**	**14,932**	**990**	**8,434**	**57,568**	**947**	**254**	**134,021**

CRE: Qualitative disclosures related to internal risk-based (IRB) models

In measuring credit risk to determine regulatory capital, two principal approaches applied are: the Internal Ratings Based (IRB) approach and the Standardized approach. The majority of our credit risk exposures are reported under the IRB approach, as approved by OSFI. The remainder of our portfolios are reported under the Standardized approach. The Standardized approach uses risk weights prescribed by OSFI to calculate RWA for credit risk exposures.

Under the IRB approach, we determine our own estimates for Probability of Default (PD), Loss Given Default (LGD) and Exposure at Default (EAD). They are the key credit parameters that form the basis of our credit risk measures. Internal ratings for borrower facilities and their corresponding estimates are used for credit approval, risk management, internal capital allocations, and corporate governance functions. In addition, the IRB parameter estimates are critical inputs for enterprise and regulatory stress-testing.

In accordance with the IRB approach for credit risk, models are designed for wholesale and retail portfolios. For Wholesale portfolios, a PD is estimated for each internal borrower grade and LGD and EAD parameters are estimated for each credit facility. For Retail portfolios, borrowers are risk rated using internal credit scoring models. Credit scores are one of the key drivers for segmentation of the portfolios into pools. Retail PD, EAD and LGD parameters are estimated at the pool level. All IRB approach regulatory capital models for wholesale and retail credit risk are subject to approval by the Office of the Superintendent of Financial Institutions (OSFI).

Credit parameter estimates are based on our internal historical default and loan loss experience and are augmented by external data where appropriate. We employ a two-dimensional risk rating system for the majority of our credit portfolios. The first dimension is oriented to the risk of borrower default and quantified through the PD assigned to the borrower. The second dimension captures transaction-specific factors such as collateral, product type, and seniority, and is quantified by LGD and EAD estimates that apply at the credit facility level.

PD is an estimated percentage that represents the likelihood of default of an obligor within a given time period for a specific rating grade or for a particular pool of exposure. Each obligor is assigned a Borrower Risk Rating (BRR), reflecting an assessment of the credit quality of the obligor and each BRR has a PD calibrated against it. The assignment of BRRs is based on the evaluation of the obligor's business risk and financial risk and is based on fundamental credit analysis. PD estimates are designed to be a conservative reflection of our experience through an economic cycle, including periods of economic downturn. The BRR differentiates the riskiness of obligors and represents our evaluation of the obligors' ability and willingness to meet their contractual obligations on time over a three-year time horizon.

EAD is an amount expected to be owed by an obligor at the time of default. EAD is estimated based on the current exposure to the obligor and the possible future changes in that exposure driven by factors such as the nature of the credit commitment. Rates are estimated to reflect an economic downturn, with added conservatism to reflect data and statistical uncertainties identified in the modelling process.

LGD is an estimated percentage of EAD that is not expected to be recovered during the collection and recovery process. Each credit facility is assigned an LGD rate reflective of the extent of losses anticipated in the event the obligor defaults. Factors used in estimating LGD include seniority of debt, collateral security, and the industry sector in which the obligor operates. Estimated LGD rates draw primarily on internal loss experience and appropriate external data is used to supplement the estimation process when necessary. LGD rates are estimated to reflect conditions that might be expected to prevail in an economic downturn, with additional conservatism added to reflect data limitations and statistical uncertainties identified in the estimation process.

Estimates of PD, LGD and EAD are updated and then validated and back-tested by an independent validation team within the bank on an annual basis. In addition, quarterly monitoring and back-testing procedures are performed.

CRE: Qualitative disclosures related to internal risk-based (IRB) models (continued)

EAD Covered by the Various Approaches

The following table outlines the percentage of our EAD covered by the IRB and Standardized approaches for each of our portfolios. The Foundation Internal Ratings Based (FIRB) approach is currently not applied.

As at October 31, 2018

	EAD covered by the various approaches		
EAD (in %)	Standardized Approach[1]	IRB Approach	Other
Retail			
Residential secured	14%	86%	-
Qualifying revolving	-	100%	-
Other retail	5%	95%	-
Wholesale	-	-	-
Corporate	15%	85%	-
Sovereign	18%	82%	-
Bank	5%	95%	-
Equity	-	100%	-
Other assets not subject to Standardized or IRB Approaches	-	-	100%
Total	**11%**	**87%**	**2%**

[1] Standardized Approach includes assumptions and waivers granted by OSFI based on an OSFI approved rollout plan.

CRE: Qualitative disclosures related to internal risk-based (IRB) models (continued)

Parameters Governance

The techniques used to develop models are in accordance with banking industry standards and regulatory requirements. We calibrate our models to ensure that variations of default rates through an economic cycle are included in the underlying data. We also build conservatism into our model development process to reflect statistical uncertainties.

Our models have Model Development Owners (MDO) who are accountable for the development and performance of models within the framework set by our policies, standards and procedures. MDOs are responsible for collecting, defining and documenting model requirements, collecting and reviewing data, testing and evaluating, designing model performance monitoring, and documenting.

Our models are required to be independently reviewed and comprehensively evaluated by the Enterprise Model Risk Management (EMRM) team. EMRM is responsible for the review and challenge of the methodology underpinning the estimation of the parameters. EMRM issues a report at the end of each validation exercise that documents the scope, approach and findings of the review. The parameters reviewed by EMRM are presented to the Rating Models Governance Committee and other senior risk management committees for effective challenge and review prior to ultimate approval by the Risk Committee of the Board of Directors.

Stress Testing of Parameters and Model Performance

The IRB credit parameters are subject to quarterly back-testing, the results of which are reported to OSFI. The purpose of the back-testing is to track and assess actual performance against the estimated parameters. This ensures that the assumptions used to derive the parameters are reflective of current and expected conditions and that any significant new data or technical and/or methodological advances are incorporated. If the quarterly review indicates a substantial change in conditions or the actual results are outside acceptable tolerance limits, a full review may be triggered earlier than the annual schedule. Stress testing methods are used in the back-testing of parameters and the calibration of the models is reviewed if predefined thresholds are breached.

Credit risk parameters are estimated, at a minimum, annually and more frequently if deemed necessary. In order to ensure that any material events are identified in a timely fashion, we engage in regular monitoring of realized results against established estimates. Any changes resulting from this monitoring process are appropriately documented. When changes arise outside of the annual estimation cycle, each change is reviewed by the Rating Models Governance Committee.

CR6: IRB – Credit risk exposures by portfolio and PD range

The following table provides the key parameters used for the calculation of capital requirements for credit risk exposures under the IRB approach, broken down by asset class and PD range.

As at October 31, 2018

			a	b	c	d	e	f	g	h	i	j	k	l
	(Millions of Canadian dollars, except as otherwise noted)	PD scale[1]	Original on-balance sheet gross exposure	Off-balance sheet exposures pre CCF	Average CCF (%)	EAD post CRM and post-CCF	Average PD (%)	Number of obligors[2]	Average LGD (%)	Average maturity (in years)	RWA	RWA density (%)	EL	Provisions[3]
	Asset Classes													
1	**Sovereigns**													
		0.00 to < 0.15	102,992	27,007	56.03	171,023	0.03	1,859	19.60	1.34	9,472	6.0	10	
		0.15 to < 0.25	135	408	67.32	375	0.23	101	39.99	2.73	175	47.0	-	
		0.25 to < 0.50	353	110	53.64	402	0.32	81	43.86	1.62	206	51.0	1	
		0.50 to < 0.75	-	-	-	-	-	-	-	-	-	-	-	
		0.75 to < 2.50	67	18	38.01	74	1.15	55	33.45	2.75	56	77.0	-	
		2.50 to < 10.00	10	22	42.94	14	3.19	75	37.15	3.14	17	121.0	-	
		10.00 to < 100.00	-	-	65.00	-	13.37	2	25.00	1.12	-	117.0	-	
		100.00 (default)	1	-	-	1	100.00	3	20.08	2.50	-	2.0	-	
	Total Sovereigns		103,558	27,565	56.17	171,889	0.03	2,176	19.71	1.34	9,926	6.0	11	3
2	**Banks**													
		0.00 to < 0.15	28,277	2,677	44.47	36,548	0.06	238	33.86	2.06	6,980	19.0	7	
		0.15 to < 0.25	1,447	414	45.65	1,863	0.23	44	36.53	1.52	822	44.0	2	
		0.25 to < 0.50	1,160	201	48.70	1,601	0.35	70	45.16	2.40	1,182	74.0	3	
		0.50 to < 0.75	-	-	-	-	-	-	-	-	-	-	-	
		0.75 to < 2.50	396	1,264	42.11	933	0.98	101	30.68	3.18	674	72.0	3	
		2.50 to < 10.00	43	61	34.65	64	5.96	15	42.39	1.51	105	164.0	2	
		10.00 to < 100.00	4	37	35.58	17	22.24	13	44.77	1.00	44	266.0	2	
		100.00 (default)	-	-	-	-	100.00	1	60.00	2.50	-	795.0	-	
	Total Banks		31,327	4,654	43.91	41,026	0.12	482	34.37	2.08	9,807	24.0	19	-
3	**Corporates excl. Specialized Lending**													
		0.00 to < 0.15	24,614	108,848	57.25	84,685	0.09	9,090	41.04	2.50	23,112	27.0	30	
		0.15 to < 0.25	10,854	29,927	58.89	27,328	0.23	4,644	41.97	2.78	13,619	50.0	26	
		0.25 to < 0.50	30,349	48,298	51.72	53,851	0.61	14,909	38.99	2.63	30,511	57.0	80	
		0.50 to < 0.75	-	-	-	-	-	-	-	-	-	-	-	
		0.75 to < 2.50	58,615	58,669	42.85	79,721	1.21	30,470	35.58	2.51	60,358	76.0	340	
		2.50 to < 10.00	20,953	25,686	44.43	28,638	3.71	27,532	36.30	2.62	30,251	106.0	384	
		10.00 to < 100.00	1,159	613	47.70	1,270	20.97	1,514	35.43	1.88	2,143	169.0	93	
		100.00 (default)	760	328	14.50	868	100.00	1,163	36.59	1.95	1,867	215.0	287	
	Total Corporates excl. Specialized Lending		147,304	272,369	52.07	276,361	1.28	89,322	38.64	2.56	161,861	59.0	1,240	424

[1] Refer to "Internal ratings map" under the Credit Risk Assessment section in our 2018 Annual Report MD&A.

[2] Number of obligors is defined as the number of borrowers in each PD band. For Retail exposures, a borrower can appear in multiple PD bands if the borrower has more than one type of product with the bank. Wholesale obligors are reflected as unique borrowers. For example, sovereign obligors include central banks or agencies, public sector entities and multilateral development banks which are each reflected as unique borrowers in the sovereign asset class.

[3] Provisions reflect only IFRS 9 Stage 3 allowances under the IRB portfolio.

CR6: IRB – Credit risk exposures by portfolio and PD range (continued)

As at October 31, 2018

			a	b	c	d	e	f	g	h	i	j	k	l
	(Millions of Canadian dollars, except as otherwise noted)	PD scale[1]	Original on-balance sheet gross exposure	Off-balance sheet exposures pre CCF	Average CCF (%)	EAD post CRM and post-CCF	Average PD (%)	Number of obligors[2]	Average LGD (%)	Average maturity (in years)	RWA	RWA density (%)	EL	Provisions[3]
	Asset Classes													
4	**Corporate - Specialized Lending**													
		0.00 to < 0.15	451	240	58.05	595	0.13	7	36.82	3.25	209	35.0	-	
		0.15 to < 0.25	25	192	61.56	144	0.23	3	39.27	5.00	94	66.0	-	
		0.25 to < 0.50	2,196	371	59.78	2,418	0.44	70	28.61	3.11	1,199	50.0	3	
		0.50 to < 0.75	-	-	-	-	-	-	-	-	-	-	-	
		0.75 to < 2.50	4,609	439	40.26	4,779	0.93	84	32.13	3.82	3,873	81.0	15	
		2.50 to < 10.00	3	-	-	-	2.64	1	30.00	1.98	-	83.0	-	
		10.00 to < 100.00	-	-	-	-	-	-	-	-	-	-	-	
		100.00 (default)	-	-	-	-	-	-	-	-	-	-	-	
	Total Corporate Specialized Lending		7,284	1,242	53.20	7,936	0.71	165	31.54	3.58	5,375	68.0	18	-
5	**Total Wholesale**		**289,473**	**305,830**	**52.83**	**497,212**	**0.74**	**92,145**	**31.63**	**2.12**	**186,969**	**38.0**	**1,288**	**427**
6	**Retail residential mortgages excl. HELOCs**													
		0.00 to < 0.15	116,154	238	100.00	114,009	0.06	519,908	16.07		3,266	3.0	12	
		0.15 to < 0.25	46,603	153	100.00	35,659	0.23	179,443	18.99		3,167	9.0	15	
		0.25 to < 0.50	16,957	167	100.00	2,692	0.45	72,663	21.41		412	16.0	2	
		0.50 to < 0.75	18,002	47	100.00	15,476	0.65	73,936	19.66		3,001	20.0	20	
		0.75 to < 2.50	8,803	107	100.00	353	1.10	42,860	25.54		81	34.0	1	
		2.50 to < 10.00	14,566	46	100.00	7,820	4.22	76,017	19.48		4,791	62.0	63	
		10.00 to < 100.00	1,860	-	100.00	978	42.71	9,075	18.47		860	88.0	77	
		100.00 (default)	412	-	-	193	100.00	2,672	19.49		111	57.0	32	
	Total Retail residential mortgages excl. HELOCs		223,357	758	100.00	177,180	0.83	976,574	17.23		15,689	9.0	222	33
7	**HELOCs**													
		0.00 to < 0.15	23,667	71,383	72.42	75,363	0.05	586,545	21.26		2,314	3.0	8	
		0.15 to < 0.25	9,206	8,556	67.53	14,984	0.21	153,544	21.25		1,389	9.0	7	
		0.25 to < 0.50	-	-	-	-	-	-	-		-	-	-	
		0.50 to < 0.75	4,339	2,033	64.84	5,657	0.73	67,949	22.04		1,338	24.0	9	
		0.75 to < 2.50	-	-	-	-	-	-	-		-	-	-	
		2.50 to < 10.00	2,203	361	61.05	2,423	4.97	31,099	22.08		1,862	77.0	27	
		10.00 to < 100.00	362	100	67.44	430	44.24	3,764	21.22		440	103.0	41	
		100.00 (default)	108	1	-	108	100.00	925	23.96		81	74.0	25	
	Total HELOCs		39,885	82,434	71.67	98,965	0.53	843,826	21.33		7,424	8.0	117	25

[1] Refer to "Internal ratings map" under the Credit Risk Assessment section in our 2018 Annual Report MD&A.

[2] Number of obligors is defined as the number of borrowers in each PD band. For Retail exposures, a borrower can appear in multiple PD bands if the borrower has more than one type of product with the bank. Wholesale obligors are reflected as unique borrowers. For example, sovereign obligors include central banks or agencies, public sector entities and multilateral development banks which are each reflected as unique borrowers in the sovereign asset class.

[3] Provisions reflect only IFRS 9 Stage 3 allowances under the IRB portfolio.

CR6: IRB – Credit risk exposures by portfolio and PD range (continued)

As at October 31, 2018

			a	b	c	d	e	f	g	h	i	j	k	l
	(Millions of Canadian dollars, except as otherwise noted)	PD scale[1]	Original on-balance sheet gross exposure	Off-balance sheet exposures pre CCF	Average CCF (%)	EAD post CRM and post-CCF	Average PD (%)	Number of obligors[2]	Average LGD (%)	Average maturity (in years)	RWA	RWA density (%)	EL	Provisions[3]
	Asset Classes													
8	**Other retail excl. Qualifying revolving retail**													
		0.00 to < 0.15	16,241	5,742	99.38	21,935	0.08	481,274	49.29		2,431	11.0	9	
		0.15 to < 0.25	9,768	1,353	97.74	11,046	0.20	338,873	54.43		2,457	22.0	11	
		0.25 to < 0.50	5,030	715	100.05	5,683	0.45	217,618	66.86		2,720	48.0	17	
		0.50 to < 0.75	2,254	720	116.73	3,092	0.63	136,800	53.72		1,398	45.0	10	
		0.75 to < 2.50	8,236	1,918	98.68	9,930	1.21	518,091	74.01		8,338	84.0	86	
		2.50 to < 10.00	4,843	789	94.77	5,332	4.00	331,274	73.09		5,932	111.0	155	
		10.00 to < 100.00	629	25	93.69	470	43.41	23,829	66.67		793	169.0	140	
		100.00 (default)	104	1	-	80	100.00	3,086	65.46		142	178.0	42	
	Total Other retail excl. Qualifying revolving retail		47,105	11,263	99.88	57,568	1.22	2,050,845	58.88		24,211	42.0	470	42
9	**Qualifying revolving retail**													
		0.00 to < 0.15	8,483	46,719	95.10	52,915	0.08	6,345,031	88.71		2,383	5.0	36	
		0.15 to < 0.25	464	403	109.58	906	0.17	57,029	78.54		69	8.0	1	
		0.25 to < 0.50	1,828	6,613	107.42	8,932	0.34	3,371,429	87.84		1,367	15.0	27	
		0.50 to < 0.75	3,048	4,282	95.12	7,121	0.59	784,376	86.21		1,650	23.0	36	
		0.75 to < 2.50	6,438	7,706	97.12	13,923	1.50	3,590,109	89.29		6,761	49.0	186	
		2.50 to < 10.00	3,342	2,010	96.75	5,286	4.80	1,686,755	89.97		5,887	111.0	226	
		10.00 to < 100.00	555	158	86.55	692	38.74	551,565	89.12		1,755	254.0	241	
		100.00 (default)	66	2	-	66	100.00	45,703	85.78		182	274.0	43	
	Total Qualifying revolving retail		24,224	67,893	96.65	89,841	1.01	16,431,997	88.49		20,054	22.0	796	43
10	**Total retail**		**334,571**	**162,348**	**92.66**	**423,554**	**0.85**	**20,303,242**	**38.96**	**-**	**67,378**	**16.0**	**1,605**	**143**
	Total		**624,044**	**468,178**	**63.37**	**920,766**	**0.79**	**20,395,387**	**35.00**	**2.12**	**254,347**	**27.6**	**2,893**	**570**

[1] Refer to “Internal ratings map” under the Credit Risk Assessment section in our 2018 Annual Report MD&A.

[2] Number of obligors is defined as the number of borrowers in each PD band. For Retail exposures, a borrower can appear in multiple PD bands if the borrower has more than one type of product with the bank. Wholesale obligors are reflected as unique borrowers. For example, sovereign obligors include central banks or agencies, public sector entities and multilateral development banks which are each reflected as unique borrowers in the sovereign asset class.

[3] Provisions reflect only IFRS 9 Stage 3 allowances under the IRB portfolio.

CR6: Memo Item: Retail Insured Exposures

As at October 31, 2018

			a	b	c	d	e	f	g	h	i	j	k
	(Millions of Canadian dollars, except as otherwise noted)	PD scale[1]	Original on-balance sheet gross exposure	Off-balance sheet exposures pre CCF	Average CCF (%)	EAD post CRM and Post CCF	Average PD (%)	Average LGD (%)	Average maturity (in years)	RWA	RWA density (%)	EL	Provisions[2]
1	**Sovereigns**												
		0.00 to < 0.15	-	-	-	47,645	0.01	15.06	-	1,411	3.00	1	
		0.15 to < 0.25	-	-	-	-	-	-	-	-	-	-	
		0.25 to < 0.50	-	-	-	-	-	-	-	-	-	-	
		0.50 to < 0.75	-	-	-	-	-	-	-	-	-	-	
		0.75 to < 2.50	-	-	-	-	-	-	-	-	-	-	
		2.50 to < 10.00	-	-	-	-	-	-	-	-	-	-	
		10.00 to < 100.00	-	-	-	-	-	-	-	-	-	-	
		100.00 (default)	-	-	-	-	-	-	-	-	-	-	
	Total Sovereigns		-	-	-	47,645	0.01	15.06	-	1,411	3.00	1	13
2	**Corporates excl. Specialized Lending**												
		0.00 to < 0.15	-	-	-	78	0.10	19.02	-	23	30.00	-	
		0.15 to < 0.25	-	-	-	-	-	-	-	-	-	-	
		0.25 to < 0.50	-	-	-	-	-	-	-	-	-	-	
		0.50 to < 0.75	-	-	-	-	-	-	-	-	-	-	
		0.75 to < 2.50	-	-	-	-	-	-	-	-	-	-	
		2.50 to < 10.00	-	-	-	-	-	-	-	-	-	-	
		10.00 to < 100.00	-	-	-	-	-	-	-	-	-	-	
		100.00 (default)	-	-	-	-	-	-	-	-	-	-	
	Total Corporates excl. SMEs and Specialized Lending		-	-	-	78	0.10	19.02	-	23	30.00	-	-
3	**Retail insured residential & commercial mortgages & HELOCs**												
		0.00 to < 0.15	37,542	-	-	35,148	0.09	10.07	-	746	2.00	3	
		0.15 to < 0.25	12,185	-	-	1,043	0.17	11.39	-	42	4.00	-	
		0.25 to < 0.50	14,907	-	-	411	0.38	13.04	-	34	8.00	-	
		0.50 to < 0.75	2,769	-	-	192	0.65	10.83	-	19	10.00	-	
		0.75 to < 2.50	9,145	-	-	390	1.17	21.31	-	102	26.00	1	
		2.50 to < 10.00	7,305	-	-	252	4.00	25.84	-	121	48.00	4	
		10.00 to < 100.00	1,074	-	-	9	26.00	79.09	-	14	156.00	2	
		100.00 (default)	250	-	-	8	100.00	78.05	-	4	50.00	6	
	Total Retail insured residential & commercial mortgages & HELOCs		85,177	-	-	37,453	0.16	10.40	-	1,082	3.00	16	6
	Total		**85,177**	-	-	**85,176**	**0.08**	**13.01**	**-**	**2,516**	**3.00**	**17**	**19**

[1] Refer to “Internal ratings map” under the Credit Risk Assessment section in our 2018 Annual Report MD&A.

[2] Provisions reflect only IFRS 9 Stage 3 allowances under the IRB portfolio.

CR7: IRB – Effect on RWA of credit derivatives used as CRM techniques

The following table provides the effect of credit derivatives used as mitigation techniques in determining RWA amounts.

As at October 31, 2018

		a	b
	(Millions of Canadian dollars)	Pre-credit derivatives RWA	Actual RWA
2	Sovereign - AIRB	-	-
4	Banks - AIRB	-	-
6	Corporate - AIRB	95	90
8	Specialised lending - AIRB	-	-
9	Retail - qualifying revolving (QRRE)	-	-
10	Retail - residential mortgage exposures	-	-
11	Retail - SME	-	-
12	Other retail exposures	-	-
14	Equity - AIRB	-	-
16	Purchased receivables - AIRB	-	-
17	**Total**	**95**	**90**

CR8: RWA flow statements of credit risk exposures under IRB

The following table presents the changes in Standardized and IRB RWA amounts over the reporting period for the key drivers of credit risk.

As at October 31, 2018

	(Millions of Canadian dollars)	RWA amounts[1]
1	**RWA as at end of previous reporting period**	**366,581**
2	Asset size[2]	3,359
3	Asset quality[3]	286
4	Model updates[4]	(8,709)
5	Methodology and policy[5]	-
6	Acquisitions and disposals	-
7	Foreign exchange movements	2,212
8	Other	(2,337)
9	**RWA as at end of reporting period**	**361,392**

[1] RWA flow amounts reflect both IRB and Standardized Approach figures reflecting our approved roll-out plan for transition to IRB.

[2] Organic changes in portfolio size and composition (including new business and maturing loans).

[3] Quality of book changes caused by experience such as underlying customer behaviour or demographics and credit mitigation.

[4] Updates to the model to reflect recent experience, model implementation, change in model scope or any change to address model malfunctions including changes through model calibrations/realignments.

[5] Methodology changes to the calculations driven by regulatory policy changes.

CR9: IRB – Backtesting of probability of default (PD) per portfolio

The following table presents a comparison of the PD used in our IRB models with the effective default rates of the bank's obligors in order to validate the reliability of our PD calculations.

As at October 31, 2018

	a	b	c					d	e	f		g	h	i
	(Millions of Canadian dollars, except as otherwise noted)		External rating equivalent							Number of obligors[3]			of which:	
	Asset Classes	PD Range[1]	S&P	Moody's	Fitch	DBRS	Kroll	Weighted average PD[2]	Arithmetic average PD by obligors[2]	End of previous year[7]	End of the year	Defaulted obligors in the year[4,6]	new defaulted obligors in the year[5,6]	Average historical annual default rate
1	**Sovereigns**													
		0.00 to < 0.15	AAA to A-	Aaa to A3	AAA to A-	AAA to AL	AAA to A-	0.03%	0.08%	1,827	1,859	-	-	-
		0.15 to < 0.25	BBB+ to BBB	Baa1 to Baa2	BBB+ to BBB	BBBH to BBB	BBB+ to BBB	0.23%	0.23%	111	101	-	-	-
		0.25 to < 0.50	BBB- to BB+	Baa3 to Ba1	BBB- to BB+	BBBL to BBH	BBB- to BB+	0.32%	0.34%	81	81	-	-	-
		0.50 to < 0.75	BB	Ba2	BB	BB	BB	-	-	-	-	-	-	1.05%
		0.75 to < 2.50	BB- to B+	Ba3 to B1	BB- to B+	BBL to BH	BB- to B+	1.15%	1.33%	47	55	-	-	-
		2.50 to < 10.00	B to CCC+	B2 to Caa1	B to CCC+	BL to CCCH	B to CCC+	3.19%	3.63%	58	75	-	-	0.20%
		10.00 to < 100.00	CCC to CC	Caa2 to Ca	CCC or CC	CCC or CC	CCC or CC	13.37%	17.56%	3	2	1	1	5.00%
		100.00 (default)	C or lower	C or lower	C or lower	C or lower	C or lower	100.00%	100.00%	2	3	-	-	-
	Total sovereigns							0.03%	0.23%	2,129	2,176	1	1	
2	**Banks**													
		0.00 to < 0.15	AAA to A-	Aaa to A3	AAA to A-	AAA to AL	AAA to A-	0.06%	0.09%	205	238	-	-	-
		0.15 to < 0.25	BBB+ to BBB	Baa1 to Baa2	BBB+ to BBB	BBBH to BBB	BBB+ to BBB	0.23%	0.23%	43	44	-	-	-
		0.25 to < 0.50	BBB- to BB+	Baa3 to Ba1	BBB- to BB+	BBBL to BBH	BBB- to BB+	0.35%	0.38%	70	70	-	-	-
		0.50 to < 0.75	BB	Ba2	BB	BB	BB	-	-	-	-	-	-	-
		0.75 to < 2.50	BB- to B+	Ba3 to B1	BB- to B+	BBL to BH	BB- to B+	0.98%	1.15%	67	101	-	-	-
		2.50 to < 10.00	B to CCC+	B2 to Caa1	B to CCC+	BL to CCCH	B to CCC+	5.96%	6.56%	20	15	-	-	-
		10.00 to < 100.00	CCC to CC	Caa2 to Ca	CCC or CC	CCC or CC	CCC or CC	22.24%	20.62%	11	13	-	-	2.00%
		100.00 (default)	C or lower	C or lower	C or lower	C or lower	C or lower	100.00%	100.00%	1	1	-	-	-
	Total banks							0.12%	0.81%	417	482	-	-	
3	**Corporates excl. specialized lending**													
		0.00 to < 0.15	AAA to A-	Aaa to A3	AAA to A-	AAA to AL	AAA to A-	0.09%	0.10%	7,451	9,090	-	-	0.02%
		0.15 to < 0.25	BBB+ to BBB	Baa1 to Baa2	BBB+ to BBB	BBBH to BBB	BBB+ to BBB	0.23%	0.23%	4,266	4,644	-	-	0.03%
		0.25 to < 0.50	BBB- to BB+	Baa3 to Ba1	BBB- to BB+	BBBL to BBH	BBB- to BB+	0.61%	0.40%	13,987	14,909	5	3	0.05%
		0.50 to < 0.75	BB	Ba2	BB	BB	BB	-	-	-	-	15	12	0.09%
		0.75 to < 2.50	BB- to B+	Ba3 to B1	BB- to B+	BBL to BH	BB- to B+	1.21%	1.27%	30,848	30,470	106	60	0.31%
		2.50 to < 10.00	B to CCC+	B2 to Caa1	B to CCC+	BL to CCCH	B to CCC+	3.71%	4.13%	24,788	27,532	321	178	0.94%
		10.00 to < 100.00	CCC to CC	Caa2 to Ca	CCC or CC	CCC or CC	CCC or CC	20.97%	19.33%	1,521	1,514	263	180	9.25%
		100.00 (default)	C or lower	C or lower	C or lower	C or lower	C or lower	100.00%	100.00%	1,210	1,163	-	-	-
	Total corporates excl. specialized lending							1.28%	3.33%	84,071	89,322	710	433	

[1] Refer to "Internal ratings map" under the Credit Risk Assessment section in our 2018 Annual Report MD&A.

[2] Weighted average PD means PD (after CRM) weighted by EAD as at October 31, 2018. Arithmetic average PD is the sum of all the PDs (after CRM) over the number of accounts as at October 31, 2018.

[3] Number of obligors is defined as the number of borrowers in each PD band. For Retail exposures, a borrower can appear in multiple PD bands if the borrower has more than one type of product with the bank. Wholesale obligors are reflected as unique borrowers. For example, sovereign obligors include central banks or agencies, public sector entities and multilateral development banks which are each reflected as unique borrowers in the sovereign asset class.

[4] Number of defaulted obligors in the year includes i) existing obligors not in default at the beginning of the year who went into default during the year; and ii) new obligors in the year who went into default.

[5] Number of new defaulted obligors in the year reflects the amount in column g that relates to new obligors in the year who went into default.

[6] Defaulted obligors reflects obligors who were in default after 90 days that have either returned to performing status or were written-off. For example, unadvised overdraft facilities have been included that returned to performing status.

[7] Number of obligors by PD range for the prior year has been updated to align with current period PD methodology updates.

CR9: IRB – Backtesting of probability of default (PD) per portfolio (continued)

As at October 31, 2018

	a	b	c					d	e	f		g	h	i
	(Millions of Canadian dollars, except as otherwise noted)		External rating equivalent							Number of obligors[3]				
	Asset Classes	PD Range[1]	S&P	Moody's	Fitch	DBRS	Kroll	Weighted average PD[2]	Arithmetic average PD by obligors[2]	End of previous year[7]	End of the year	Defaulted obligors in the year[4,6]	of which: new defaulted obligors in the year[5,6]	Average historical annual default rate
4	**Corporate - specialized lending**													
		0.00 to < 0.15	AAA to A-	Aaa to A3	AAA to A-	AAA to AL	AAA to A-	0.13%	0.18%	9	7	-	-	-
		0.15 to < 0.25	BBB+ to BBB	Baa1 to Baa2	BBB+ to BBB	BBBH to BBB	BBB+ to BBB	0.23%	0.23%	5	3	-	-	-
		0.25 to < 0.50	BBB- to BB+	Baa3 to Ba1	BBB- to BB+	BBBL to BBH	BBB- to BB+	0.44%	0.46%	90	70	-	-	-
		0.50 to < 0.75	BB	Ba2	BB	BB	BB	-	-	-	-	-	-	-
		0.75 to < 2.50	BB- to B+	Ba3 to B1	BB- to B+	BBL to BH	BB- to B+	0.93%	0.93%	184	84	-	-	0.65%
		2.50 to < 10.00	B to CCC+	B2 to Caa1	B to CCC+	BL to CCCH	B to CCC+	2.64%	2.64%	3	1	-	-	-
		10.00 to < 100.00	CCC to CC	Caa2 to Ca	CCC or CC	CCC or CC	CCC or CC	-	-	-	-	-	-	-
		100.00 (default)	C or lower	C or lower	C or lower	C or lower	C or lower	-	-	-	-	-	-	-
	Total corporate - specialized lending							0.71%	0.66%	291	165	-	-	
5	**Retail residential mortgages excl. HELOGs**													
		0.00 to < 0.15						0.06%	0.07%	497,374	519,908	208	2	0.01%
		0.15 to < 0.25						0.23%	0.21%	180,048	179,443	-	-	0.03%
		0.25 to < 0.50						0.45%	0.36%	73,987	72,663	117	2	0.03%
		0.50 to < 0.75						0.65%	0.65%	76,241	73,936	109	1	0.03%
		0.75 to < 2.50						1.10%	0.84%	44,340	42,860	380	12	0.30%
		2.50 to < 10.00						4.22%	3.72%	68,977	76,017	336	2	0.64%
		10.00 to < 100.00						42.71%	44.67%	5,488	9,075	2,227	29	9.30%
		100.00 (default)						100.00%	100.00%	2,826	2,672	-	-	-
	Total retail residential mortgages excl. HELOCs							0.83%	1.17%	949,281	976,574	3,377	48	

[1] Refer to "Internal ratings map" under the Credit Risk Assessment section in our 2018 Annual Report MD&A.
[2] Weighted average PD means PD (after CRM) weighted by EAD as at October 31, 2018. Arithmetic average PD is the sum of all the PDs (after CRM) over the number of accounts as at October 31, 2018.
[3] Number of obligors is defined as the number of borrowers in each PD band. For Retail exposures, a borrower can appear in multiple PD bands if the borrower has more than one type of product with the bank. Wholesale obligors are reflected as unique borrowers. For example, sovereign obligors include central banks or agencies, public sector entities and multilateral development banks which are each reflected as unique borrowers in the sovereign asset class.
[4] Number of defaulted obligors in the year includes i) existing obligors not in default at the beginning of the year who went into default during the year; and ii) new obligors in the year who went into default.
[5] Number of new defaulted obligors in the year reflects the amount in column g that relates to new obligors in the year who went into default.
[6] Defaulted obligors reflects obligors who were in default after 90 days that have either returned to performing status or were written-off. For example, unadvised overdraft facilities have been included that returned to performing status.
[7] Number of obligors by PD range for the prior year has been updated to align with current period PD methodology updates.

CR9: IRB – Backtesting of probability of default (PD) per portfolio (continued)

As at October 31, 2018

	a	b	c					d	e	f		g	h	i
	(Millions of Canadian dollars, except as otherwise noted)		External rating equivalent							Number of obligors[3]			of which: new defaulted obligors in the year[5,6]	
	Asset Classes	PD Range[1]	S&P	Moody's	Fitch	DBRS	Kroll	Weighted average PD[2]	Arithmetic average PD by obligors[2]	End of previous year[7]	End of the year	Defaulted obligors in the year[4,6]		Average historical annual default rate
6	**HELOCs**													
		0.00 to < 0.15						0.05%	0.05%	511,175	586,545	164	1	0.02%
		0.15 to < 0.25						0.21%	0.21%	142,123	153,554	-	-	-
		0.25 to < 0.50						-	-	-	-	-	-	-
		0.50 to < 0.75						0.73%	0.73%	61,067	67,949	-	-	0.06%
		0.75 to < 2.50						-	-	-	-	92	-	0.33%
		2.50 to < 10.00						4.97%	4.97%	21,763	31,099	318	1	1.02%
		10.00 to < 100.00						44.24%	45.72%	1,916	3,764	807	8	10.16%
		100.00 (default)						100.00%	100.77%	985	925	-	-	-
	Total HELOCs							0.53%	0.64%	739,029	843,836	1,381	10	
7	**Other retail excl. qualifying revolving retail**													
		0.00 to < 0.15						0.08%	0.08%	286,661	481,274	65	10	0.06%
		0.15 to < 0.25						0.20%	0.19%	302,179	338,863	10	-	0.04%
		0.25 to < 0.50						0.45%	0.46%	213,776	217,618	635	50	0.11%
		0.50 to < 0.75						0.63%	0.59%	76,216	136,800	8	1	0.09%
		0.75 to < 2.50						1.21%	1.26%	466,065	518,091	2,028	604	0.46%
		2.50 to < 10.00						4.00%	4.01%	267,020	331,274	1,912	238	1.21%
		10.00 to < 100.00						43.41%	41.07%	28,008	23,829	5,950	1,027	6.95%
		100.00 (default)						100.00%	100.00%	4,896	3,086	-	-	-
	Total other retail excl. qualifying revolving retail							1.22%	1.77%	1,644,821	2,050,835	10,608	1,930	
8	**Qualifying revolving retail[6]**													
		0.00 to < 0.15						0.08%	0.07%	5,548,104	6,345,031	-	-	-
		0.15 to < 0.25						0.17%	0.17%	31,405	57,029	991	60	0.04%
		0.25 to < 0.50						0.34%	0.31%	3,217,194	3,371,429	991	17	0.03%
		0.50 to < 0.75						0.59%	0.58%	598,782	784,376	12	3	0.05%
		0.75 to < 2.50						1.50%	1.56%	3,329,434	3,590,109	12,251	718	0.30%
		2.50 to < 10.00						4.80%	4.84%	1,501,333	1,686,755	26,684	2,477	1.70%
		10.00 to < 100.00						38.74%	41.41%	397,307	551,565	165,810	50,813	20.06%
		100.00 (default)						100.00%	100.00%	45,250	45,703	-	-	-
	Total qualifying revolving retail							1.01%	2.59%	14,668,809	16,431,997	206,739	54,088	

[1] Refer to "Internal ratings map" under the Credit Risk Assessment section in our 2018 Annual Report MD&A.

[2] Weighted average PD means PD (after CRM) weighted by EAD as at October 31, 2018. Arithmetic average PD is the sum of all the PDs (after CRM) over the number of accounts as at October 31, 2018.

[3] Number of obligors is defined as the number of borrowers in each PD band. For Retail exposures, a borrower can appear in multiple PD bands if the borrower has more than one type of product with the bank. Wholesale obligors are reflected as unique borrowers. For example, sovereign obligors include central banks or agencies, public sector entities and multilateral development banks which are each reflected as unique borrowers in the sovereign asset class.

[4] Number of defaulted obligors in the year includes i) existing obligors not in default at the beginning of the year who went into default during the year; and ii) new obligors in the year who went into default.

[5] Number of new defaulted obligors in the year reflects the amount in column g that relates to new obligors in the year who went into default.

[6] Defaulted obligors reflects obligors who were in default after 90 days that have either returned to performing status or were written-off. For example, unadvised overdraft facilities have been included that returned to performing status.

[7] Number of obligors by PD range for the prior year has been updated to align with current period PD methodology updates.

COUNTERPARTY CREDIT RISK

CCRA: Qualitative disclosure related to counterparty credit risk

The table below presents an overview of Pillar 3 disclosure requirements that have been met within our 2018 Annual Report and incorporated by reference into this Pillar 3 report. Our 2018 Annual Report is available free of charge on our website at http://www.rbc.com/investorrelations

Pillar 3 disclosures requirement		RBC 2018 Annual Report section	Sub-section
a)	Risk management objectives and policies related to counterparty credit risk	Credit Risk	Credit risk assessment – *Counterparty credit risk*
		Consolidated Financial Statements	Note 8 - Derivative financial instruments and hedging activities – *Derivative-related credit risk*
			Note 2 - Summary of significant accounting policies, estimates and judgements – *Derivatives*
b)	The method used to assign the operating limits defined in terms of internal capital for counterparty credit exposures and for CCP exposures	Credit Risk	Credit risk assessment – *Counterparty credit risk*
c)	Policies relating to guarantees and other risk mitigants and assessments concerning counterparty credit risk, including exposures towards CCPs	Credit Risk	Credit risk assessment – *Counterparty credit risk*
		Consolidated Financial Statements	Note 8 - Derivative financial instruments and hedging activities – *Derivative-related credit risk*
			Note 30 - Offsetting financial assets and financial liabilities
d)	Policies with respect to wrong-way risk exposures	Credit Risk	Credit risk assessment – *Counterparty credit risk*
e)	The impact in terms of the amount of collateral that the bank would be required to provide given a credit rating downgrade	Liquidity and funding risk	Credit ratings

CCR1: Analysis of counterparty credit risk (CCR) exposure by approach

The following table provides a comprehensive view of the methods used to calculate counterparty credit risk exposures and the main parameters used within each method, if applicable. Refer to CCR 8 for our central counterparty clearing house exposures. Figures below reflect both house and client trades.

As at October 31, 2018

		a	b	c	d	e	f
	(Millions of Canadian dollars, except as otherwise noted)	Replacement Cost	Potential future exposure	EEPE	Alpha used for computing regulatory EAD	EAD post-CRM	RWA[1]
1	SA-CCR (for derivatives)				1.4		
1a	Current Exposure Method (CEM - for derivatives)	27,702	37,877			63,903	19,234
2	Internal Model Method (for derivatives and SFTs)						
3	Simple Approach for credit risk mitigation (for SFTs)						
4	Comprehensive Approach for credit risk mitigation (for SFTs)					170,562	10,254
5	VaR for SFTs						
6	**Total**						**29,488**

[1] RWA includes a calibration adjustment of 1.06% as prescribed by OSFI under the Basel III framework.

CCR2: Credit valuation adjustment (CVA) capital charge

The following table presents a breakdown of the CVA capital charge by advanced and standardized approaches.

As at October 31, 2018

		a	b
	(Millions of Canadian dollars)	EAD post-CRM	RWA[1]
	Total portfolios subject to the Advanced CVA capital charge		
1	(i) VaR component (including the 3x multiplier)		
2	(ii) Stressed VaR component (including the 3x multiplier)		
3	All portfolios subject to the Standardized CVA capital Charge	64,008	13,335
4	**Total subject to the CVA capital charge**	**64,008**	**13,335**

[1] RWA reflects OSFI permitted CVA phase-in of 86% for Total Capital in 2018. CVA phase-in is no longer applicable in 2019.

CCR3: Standardized approach – CCR exposures by regulatory portfolio and risk weights

The following table presents a breakdown of counterparty credit risk exposures calculated according to the standardized approach by portfolio and risk weight.

As at October 31, 2018

	a	b	c	d	e	f	g	h	i
Risk weight / Regulatory portfolio (Millions of Canadian dollars)	0%	10%	20%	50%	75%	100%	150%	Others	Total credit exposure
Sovereigns	-	-	-	-	-	-	-	-	-
Non-central government public sector entities (PSEs)	-	-	-	-	-	-	-	-	-
Multilateral development banks (MDBs)	-	-	-	-	-	-	-	-	-
Banks	-	-	30	-	-	27	-	-	57
Securities firms	-	-	-	-	-	7	-	-	7
Corporates	-	-	625	-	-	626	-	-	1,251
Regulatory retail portfolios	-	-	-	-	-	-	-	-	-
Other assets	-	-	-	-	-	-	-	-	-
Total	**-**	**-**	**655**	**-**	**-**	**660**	**-**	**-**	**1,315**

CCR4: IRB – CCR exposures by portfolio and PD scale

The following table presents a detailed view of CCR exposures subject to IRB approach by asset classes and PD scale.

As at October 31, 2018

		a	b	c	d	e	f	g
(Millions of Canadian dollars, except as otherwise noted)	PD scale[1]	EAD post-CRM	Average PD (%)	Number of obligors	Average LGD (%)	Average maturity (in years)	RWA	RWA density (%)
Asset classes								
Sovereigns	0.00 to < 0.15	24,736	0.03	385	10.68	1.83	709	3
	0.15 to < 0.25	40	0.23	15	22.30	1.74	9	21
	0.25 to < 0.50	166	0.34	29	39.49	1.57	67	41
	0.50 to < 0.75	-	-	-	-	-	-	-
	0.75 to < 2.50	5	0.88	6	45.00	1.00	3	73
	2.50 to < 10.00	5	2.73	3	45.00	1.17	6	115
	10.00 to <	-	-	-	-	-	-	-
	100.00 (default)	-	-	-	-	-	-	-
Total sovereigns		24,952	0.04	438	10.90	1.83	794	3
Banks								
	0.00 to < 0.15	106,888	0.09	377	12.68	0.53	7,677	7
	0.15 to < 0.25	17,942	0.23	71	10.45	0.28	1,913	11
	0.25 to < 0.50	11,921	0.33	108	15.19	0.71	2,255	19
	0.50 to < 0.75	-	-	-	-	-	-	-
	0.75 to < 2.50	1,007	0.89	56	5.71	0.16	106	11
	2.50 to < 10.00	4	3.13	10	45.00	1.00	5	126
	10.00 to <	-	-	-	-	-	-	-
	100.00 (default)	-	-	-	-	-	-	-
Total banks		137,762	0.13	622	12.55	0.51	11,956	9
Corporates								
Corporates excl. specialized lending								
	0.00 to < 0.15	53,670	0.07	6,288	35.29	0.83	7,111	13
	0.15 to < 0.25	6,490	0.23	1,194	35.27	1.63	2,495	38
	0.25 to < 0.50	5,999	0.34	1,410	36.95	1.09	2,601	43
	0.50 to < 0.75	-	-	-	-	-	-	-
	0.75 to < 2.50	3,623	1.08	936	35.86	1.73	2,855	79
	2.50 to < 10.00	624	3.18	506	42.96	1.99	761	122
	10.00 to <	13	14.80	11	45.00	1.50	27	218
	100.00 (default)	15	100.00	5	45.00	1.20	91	596
Total corporates excl. specialized lending		70,434	0.21	10,350	35.53	0.98	15,941	23
Total		**233,148**	**0.15**	**11,410**	**19.23**	**0.79**	**28,691**	**12**

[1] Refer to "Internal ratings map" in the Credit risk assessment section in our 2018 Annual Report MD&A.

CCR5: Composition of collateral for CCR exposure

The following table presents a breakdown of collateral posted or received to support or reduce the CCR exposures related to derivative transactions or securities financing transactions (SFTs), including transactions cleared through a central counterparty clearing house (CCP).

As at October 31, 2018

	a	b	c	d	e	f
	Collateral used in derivative transactions				Collateral used in SFTs	
	Fair value of collateral received		Fair value of posted collateral		Fair value of collateral received	Fair value of posted collateral
(Millions of Canadian dollars)	Segregated	Unsegregated	Segregated	Unsegregated		
Cash - domestic currency	5	2,216	3	2,270	20,953	39,164
Cash - other currencies	1,776	15,490	4,755	16,804	207,325	278,038
Domestic sovereign debt	-	886	-	241	104,913	108,065
Other sovereign debt	1,541	3,487	1,819	233	190,457	159,691
Government agency debt	37	294	101	549	68,490	71,746
Corporate bonds	-	139	45	479	27,054	28,299
Equity securities	-	-	-	976	119,214	143,153
Other collateral	-	-	4	-	36,207	7,481
Total	**3,359**	**22,512**	**6,727**	**21,552**	**774,613**	**835,637**

CCR6: Credit derivatives exposures

The following table presents credit derivatives bought or sold by notional and fair values.

As at October 31, 2018

	a	b
(Millions of Canadian dollars)	Protection bought	Protection sold
Notionals		
Single-name credit default swaps	3,564	1,641
Index credit default swaps	3,102	1,958
Total return swaps	-	-
Credit options	-	-
Other credit derivatives	-	-
Total notionals	**6,666**	**3,599**
Fair values		
Positive fair value (asset)	(22)	60
Negative fair value (liability)	90	4

CCR7: RWA flow statements of CCR exposures under the Internal Model Method (IMM)

We currently do not apply the IMM to our counterparty credit risk exposures.

CCR8: Exposures to central counterparties

The following table presents a comprehensive view of our exposures to central counterparty clearing houses (CCPs), including due to operations, margins and contributions to default funds, and related RWA.

As at October 31, 2018

		a	b
	(Millions of Canadian dollars)	EAD (post-CRM)	RWA
1	**Exposures to QCCPs (total)**	**35,301**	**620**
2	Exposures for trades at QCCPs (excluding initial margin and default fund contributions); of which	26,582	543
3	(i) OTC derivatives	13,590	283
4	(ii) Exchange-traded derivatives	11,285	226
5	(iii) Securities financing transactions	1,707	34
6	(iv) Netting sets where cross-product netting has been approved	-	-
7	Segregated initial margin	2,396	
8	Non-segregated initial margin	1,875	37
9	Pre-funded default fund contributions	889	40
10	Unfunded default fund contributions[1]	3,559	-
11	**Exposures to non-QCCPs (total)**		
12	Exposures for trades at non-QCCPs (excluding initial margin and default fund contributions); of which		
13	(i) OTC derivatives		
14	(ii) Exchange-traded derivatives		
15	(iii) Securities financing transactions		
16	(iv) Netting sets where cross-product netting has been approved		
17	Segregated initial margin		
18	Non-segregated initial margin		
19	Pre-funded default fund contributions		
20	Unfunded default fund contributions		

[1] Unfunded default fund contributions are risk weighted at 0%.

SECURITIZATION

SECA: Qualitative disclosure requirements related to securitization exposures

The table below presents an overview of Pillar 3 disclosure requirements that have been met within our 2018 Annual Report and incorporated by reference into this Pillar 3 report. Our 2018 Annual Report is available free of charge on our website at http://www.rbc.com/investorrelations

Pillar 3 disclosures requirement		RBC 2018 Annual Report section	Sub-section
a)	Objectives in relation to securitization activities	Off-balance sheet arrangements	"Off-balance sheet arrangements"
		Consolidated Financial Statements	Note 6 - Derecognition of financial assets
		Consolidated Financial Statements	Note 7 - Structured entities
b)	List of SPEs where RBC is sponsor / provides implicit support	Consolidated Financial Statements	Note 7 - Structured entities
c)	Accounting policies for securitization	Consolidated Financial Statements	Note 2 - Summary of significant accounting policies, estimates and judgments - Basis of consolidation - Derecognition of financial assets
		Critical accounting policies and estimates	Consolidation of structured entities
d)	the names of external credit assessment institution (ECAIs) used for securitizations and the types of securitization exposure for which each agency is used	Capital Management (also refer to CRD in this document)	Regulatory capital approach for securitization exposures
e)	Use of Basel IAA for capital purposes	Credit risk	n/a
		Capital Management	Regulatory capital approach for securitization exposures
f)	Use of other internal assessment for capital purposes	Credit risk	Credit risk assessment

SEC1: IRB – Securitization exposures in the banking book

The following table presents the breakdown of our balance sheet banking book carrying values by our role and type.

As at October 31, 2018

		a	b	c	e	f	g	i	j	k
		Bank acts as originator[1]			Bank acts as sponsor[2]			Bank acts as investor[3]		
(Millions of Canadian dollars)		Traditional	Synthetic	Sub-total	Traditional	Synthetic	Sub-total	Traditional	Synthetic	Sub-total
1	**Retail (total) - of which**	**1,598**	**-**	**1,598**	**35,753**	**-**	**35,753**	**5,573**	**-**	**5,573**
2	residential mortgage	-	-	-	1,671	-	1,671	3,291	-	3,291
3	credit card	1,569	-	1,569	7,487	-	7,487	586	-	586
4	other retail exposures	29	-	29	26,595	-	26,595	1,696	-	1,696
4a	of which student loans	-	-	-	4,204	-	4,204	1,212	-	1,212
4b	of which auto loans and leases	-	-	-	18,664	-	18,664	484	-	484
4c	of which consumer loans	-	-	-	3,727	-	3,727	-	-	-
4d	of which other retail	29	-	29	-	-	-	-	-	-
5	re-securitization	-	-	-	-	-	-	-	-	-
6	**Wholesale (total) – of which**	**-**	**-**	**-**	**12,934**	**-**	**12,934**	**7,478**	**-**	**7,478**
7	loans to corporates	-	-	-	1,939	-	1,939	6,239	-	6,239
8	commercial mortgage	-	-	-	-	-	-	957	-	957
9	lease and receivables	-	-	-	-	-	-	-	-	-
10	other wholesale	-	-	-	8,892	-	8,892	282	-	282
10a	of which dealer floor plan receivable	-	-	-	1,839	-	1,839	-	-	-
10b	of which equipment receivable	-	-	-	2,463	-	2,463	-	-	-
10c	of which trade receivable	-	-	-	668	-	668	-	-	-
10d	of which other wholesale	-	-	-	3,922	-	3,922	282	-	282
11	re-securitization	-	-	-	2,103	-	2,103	-	-	-

1 Bank acts as originator reflects securitization activities in which we securitize our own assets (e.g. Golden credit card securitization).
2 Bank acts as sponsor reflects securitization activities in which RBC works with its client to originate securitization transactions. RBC provides the liquidity and credit enhancement facilities to the SPE.
3 Bank acts as investor reflects purchases of securitization assets from the market.

SEC2: IRB – Securitization exposures in the trading book

The following table presents the breakdown of our balance sheet trading book carrying values by our role and type.

As at October 31, 2018

		a	b	c	e	f	g	i	j	k
		Bank acts as originator[1]			Bank acts as sponsor[2]			Bank acts as investor[3]		
	(Millions of Canadian dollars)	Traditional	Synthetic	Sub-total	Traditional	Synthetic	Sub-total	Traditional	Synthetic	Sub-total
1	**Retail (total) - of which**	**-**	**-**	**-**	**-**	**-**	**-**	**800**	**-**	**800**
2	residential mortgages	-	-	-	-	-	-	760	-	760
3	asset-backed securities	-	-	-	-	-	-	37	-	37
4	commercial mortgages	-	-	-	-	-	-	3	-	3
5	re-securitization	-	-	-	-	-	-	-	-	-
6	**Wholesale (total) - of which**	**-**	**-**	**-**	**-**	**-**	**-**	**9,210**	**-**	**9,210**
7	loans to corporates	-	-	-	-	-	-	853	-	853
7a	of which residential mortgages	-	-	-	-	-	-	74	-	74
7b	of which consumer loans	-	-	-	-	-	-	61	-	61
7c	of which credit cards	-	-	-	-	-	-	45	-	45
7d	of which student loans	-	-	-	-	-	-	45	-	45
7e	of which other	-	-	-	-	-	-	628	-	628
8	commercial mortgages	-	-	-	-	-	-	7,127	-	7,127
9	leases and receivables	-	-	-	-	-	-	448	-	448
10	other wholesale	-	-	-	-	-	-	90	-	90
10a	of which dealer floor plan receivables	-	-	-	-	-	-	42	-	42
10b	of which equipment receivables	-	-	-	-	-	-	48	-	48
11	re-securitization	-	-	-	-	-	-	-	-	-
12	asset-backed securities	-	-	-	-	-	-	692	-	692

[1] Bank acts as originator reflects securitization activities in which we securitize our own assets.

[2] Bank acts as sponsor reflects securitization activities in which RBC works with its client to originate securitization transactions. RBC provides the liquidity and credit enhancement facilities to the SPE.

[3] Bank acts as investor reflects purchases of securitization assets from the market.

SEC3: Securitization exposures in the banking book and associated regulatory capital requirements – bank acting as originator or as sponsor

The following table presents a breakdown of securitization exposures in the banking book by risk weight and by regulatory approach when we act as originator or sponsor, and the associated capital requirements.

As at October 31, 2018

		a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q
		Exposure values (by RW bands)					Exposure values (by regulatory approach)				RWA (by regulatory approach)				Capital charge after cap (by regulatory approach)			
(Millions of Canadian dollars)		≤20% RW	>20% to 50% RW	>50% to 100% RW	>100% to <1250% RW	1250% RW	RBA (incl. IAA)	IRB SFA	SA/SSFA	1250%	RBA (incl. IAA)	IRB SFA	SA/SSFA	1250%	RBA (incl. IAA)	IRB SFA	SA/SSFA	1250%
1	**Total exposures**	**45,729**	**815**	**1,874**	**1,841**	**28**	**50,258**	**-**	**-**	**28**	**8,146**	**-**	**-**	**349**	**652**	**-**	**-**	**28**
2	Traditional securitization	45,729	815	1,874	1,841	28	50,258	-	-	28	8,146	-	-	349	652	-	-	28
3	Of which securitization	45,729	305	281	1,841	28	48,155	-	-	28	6,832	-	-	349	547	-	-	28
4	Of which retail underlying	37,019	305	-	-	28	37,323	-	-	28	3,508	-	-	349	281	-	-	28
5	Of which wholesale	8,710	-	281	1,841	-	10,832	-	-	-	3,324	-	-	-	266	-	-	-
6	Of which re-securitization	-	510	1,593	-	-	2,103	-	-	-	1,314	-	-	-	105	-	-	-
7	Of which senior	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8	Of which non-senior	-	510	1,593	-	-	2,103	-	-	-	1,314	-	-	-	105	-	-	-
9	Synthetic securitization	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	Of which securitization	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	Of which retail underlying	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	Of which wholesale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13	Of which re-securitization	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	Of which senior	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	Of which non-senior	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SEC4: Securitization exposures in the banking book and associated capital requirements – bank acting as investor

The following table presents a breakdown of securitization exposures in the banking book by risk weight and by regulatory approach when we act as investor, and the associated capital requirements.

As at October 31, 2018

		a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q
		Exposure values (by RW bands)					Exposure values (by regulatory approach)				RWA (by regulatory approach)				Capital charge after cap			
	(Millions of Canadian dollars)	≤20% RW	>20% to 50% RW	>50% to 100% RW	>100% to <1250% RW	1250% RW	RBA (including IAA)	IRB SFA	SA/SSFA	1250%	RBA (including IAA)	IRB SFA	SA/SSFA	1250%	RBA (including IAA)	IRB SFA	SA/SSFA	1250%
1	**Total exposures**	**12,940**	**83**	**7**	**-**	**23**	**13,030**	**-**	**-**	**23**	**1,542**	**-**	**-**	**284**	**123**	**-**	**-**	**23**
2	Traditional securitization	12,940	83	7	-	23	13,030	-	-	23	1,542	-	-	284	123	-	-	23
3	Of which securitization	12,940	83	7	-	23	13,030	-	-	23	1,542	-	-	284	123	-	-	23
4	Of which retail underlying	5,461	83	7	-	23	5,551	-	-	23	964	-	-	284	77	-	-	23
5	Of which wholesale	7,479	-	-	-	-	7,479	-	-	-	578	-	-	-	46	-	-	-
6	Of which re-securitization	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7	Of which senior	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8	Of which non-senior	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	Synthetic securitization	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	Of which securitization	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	Of which retail underlying	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	Of which wholesale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13	Of which re-securitization	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	Of which senior	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	Of which non-senior	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

MARKET RISK

MRA: Qualitative disclosure requirements related to market risk

Market risk management strategies and processes

Market risk arises from our trading and non-trading portfolios. The primary objective of trading is to generate an optimal return on our capital while ensuring that risks remains within our risk appetite. Trading activities involve market making, facilitating client transactions and hedging risks generated from these activities.

Market risk also arises from our non-trading portfolio as a result of: managing interest rate risk from client-originating banking products (such as loans and deposits) and related hedge transactions, corporate treasury portfolio used for asset-liability management and liquidity management, exposures designated as Fair Value through Other Comprehensive Income (FVOCI), and exposures from our insurance operations.

To ensure that market risk remains within our risk appetite, we hedge our market risk exposures where appropriate. We use cash and derivative financial instruments, as permitted by regulatory and jurisdictional requirements, to manage the market risk related to our trading and non-trading activities.

The table below presents an overview of Pillar 3 disclosure requirements that have been met within our 2018 Annual Report and incorporated by reference into this Pillar 3 report. Our 2018 Annual Report is available free of charge on our website at http://www.rbc.com/investorrelations

<table>
<tr><th colspan="2">Pillar 3 disclosures requirement</th><th>RBC 2018 Annual Report section</th><th>Sub-Section</th></tr>
<tr><td rowspan="9">a)</td><td rowspan="8">Processes implemented to identify, measure, monitor and control the bank's market risks</td><td rowspan="8">Market Risk</td><td>Market Risk Controls – FVTPL positions</td></tr>
<tr><td>Stress Tests</td></tr>
<tr><td>Market Risk Measures – FVTPL positions</td></tr>
<tr><td>Market Risk Measures for other FVTPL positions – Assets and liabilities of RBC Insurance</td></tr>
<tr><td>Market Risk Controls – Structural Interest Rate Risk (SIRR) positions</td></tr>
<tr><td>SIRR Measurement</td></tr>
<tr><td>Market Risk Measures – Structural Interest Rate Sensitivities</td></tr>
<tr><td>Market risk measures for other material non-trading portfolios</td></tr>
<tr><td>Policies for hedging risk and strategies/processes for monitoring the continuing effectiveness of hedges</td><td>Consolidated Financial Statements</td><td>Note 2 - Summary of significant accounting policies, estimates and judgements – Hedge accounting</td></tr>
</table>

Market risk management structure and organization

The Enterprise Market Risk Management Framework is the governance and control framework for the management of market risk within the bank. The market risk management structure is designed to ensure strong corporate governance over all market risk in the context of each business considering operating environment, industry best practices, and regulatory requirements. Drivers of market risk are considered in the bank's policies, practices and standards which are continuously updated given dynamic market, and regulatory conditions.

The table below presents an overview of Pillar 3 disclosure requirements that have been met within our 2018 Annual Report and incorporated by reference into this Pillar 3 report. Our 2018 Annual Report is available free of charge on our website at http://www.rbc.com/investorrelations

<table>
<tr><th colspan="2">Pillar 3 disclosures requirement</th><th>RBC 2018 Annual Report section</th><th>Sub-Section</th></tr>
<tr><td rowspan="8">b)</td><td rowspan="6">Description of the market risk governance structure established to implement the strategies and processes of the bank</td><td rowspan="6">Enterprise Risk Management</td><td>Risk Governance</td></tr>
<tr><td>Risk Appetite</td></tr>
<tr><td>Risk Measurement</td></tr>
<tr><td>Risk Control</td></tr>
<tr><td>Stress Testing</td></tr>
<tr><td>Risk Conduct and Culture</td></tr>
<tr><td rowspan="2">Description of the relationships and the communication mechanisms between the different parties involved in market risk management</td><td rowspan="2">Enterprise Risk Management</td><td>Risk Governance</td></tr>
<tr><td>Risk Control</td></tr>
</table>

MRA: qualitative disclosure requirements related to market risk (continued)

Scope and nature of risk reporting and/or measurement systems

The table below presents an overview of Pillar 3 disclosure requirements that have been met within our 2018 Annual Report and incorporated by reference into this Pillar 3 report. Our 2018 Annual Report is available free of charge on our website at http://www.rbc.com/investorrelations

Pillar 3 disclosures requirement		RBC 2018 Annual Report section	Sub-Section
c)	Scope and nature of risk reporting and/or measurement systems	Enterprise Risk Management	Risk Measurement
			Risk Control
			Stress Testing
		Market Risk	Market Risk Controls – FVTPL positions
			Stress Tests
			Market Risk Measures – FVTPL positions
			Market Risk Measures for other FVTPL positions – Assets and liabilities of RBC Insurance
			Market Risk Controls – Structural Interest Rate Risk (SIRR) positions
			SIRR Measurement
			Market Risk Measures – Structural Interest Rate Sensitivities
			Market Risk Measures for other material non-trading portfolios

MRB: Qualitative disclosures for banks using the internal models approach (IMA)

Internal models used for measuring Market Risk

Measure	Description	Percentage of market risk regulatory capital[1]
Regulatory Value at Risk (VaR)	VaR is a statistical measure of potential loss for a financial portfolio computed at a given level of confidence and over a defined holding period. We measure VaR at the 99th percentile confidence level for a one-day holding period, and then scale up to a ten-day holding period for regulatory capital measurement. The measure is computed daily, using a full-revaluation approach to generate potential profit or loss values arising from historically observed daily market movements. The historical period used to compute VaR comprises of the recent two years of equally weighted market data, and is rolled forward at least monthly. A mix of absolute and relative returns are used in generating the historical market changes.	8%
Stressed VaR (SVaR)	SVaR is calculated daily in a similar manner as VaR, but based on a ten-day holding period directly and using a one year period of extreme volatility. We currently use the historical period from September 2008 to August 2009, given the market volatility during that time in relation to the risks within our portfolio. This historical period is assessed quarterly to ensure that it continues to reflect the one year period of greatest potential loss for our portfolio.	22%
Incremental Risk Charge (IRC)	IRC captures the risk of losses under default or rating changes for issuers of traded instruments. IRC is measured over a one-year horizon at a 99.9% confidence level, and captures different liquidity horizons for instruments and concentrations in issuers under a constant level of risk assumption.	30%

[1] As at October 31, 2018.

VaR and SVaR

The VaR and SVaR models are used for computing regulatory capital for trading book positions across the enterprise, where we have obtained approval from our regulator. We model a general market risk measure, a debt specific risk measure, and an equity total risk measure; along with a total correlated risk measure which combines the above distributions. For portions of our portfolio for which we do not have regulatory approval for models based capital, we use the Standardized Approach to compute regulatory capital.

For management purposes, VaR and SVaR are both computed with one-day holding periods and are applied to all positions that impact the bank's revenue across the trading book and non-trading book. A sensitivity-ladder interpolation approach is applied for some positions instead of full-revaluation, and inactive non-trading book positions are refreshed monthly.

MRB: Qualitative disclosures for banks using the internal models approach (continued)

The table below presents an overview of Pillar 3 disclosure requirements that have been met within our 2018 Annual Report and incorporated by reference into this Pillar 3 report. Our 2018 Annual Report is available free of charge on our website at http://www.rbc.com/investorrelations

Pillar 3 disclosures requirement		RBC 2018 Annual Report section	Sub-Section
c)	General description of the models (VaR/stressed VaR)	Market Risk	Market Risk Controls – FVTPL positions
g)	Description of stress testing applied to the modelling parameters	Market Risk	Stress Tests

The VaR and SVaR models are governed by a model risk governance framework, which requires that models are validated on a regular basis by a model validation group that is independent of the model developers. The VaR and SVaR models are also subject to ongoing model performance monitoring. The VaR model is back tested by comparing marked-to-market revenue to the computed VaR on a daily basis, in order to ensure that actual outcomes in trading revenue do not exceed the VaR projections beyond the expectations of the applied confidence interval. Backtesting is also performed using a hypothetical profit and loss calculation which allows for comparisons to the total correlated VaR, the general market risk VaR, and asset class VaR measures separately.

While the majority of market risks are reflected in our VaR models, there is the potential for certain risks to be inadequately captured. This can occur due to infrastructure limitations, lack of historical market data or missing risk factors within our VaR models. These Risks Not in VaR (RNIV) are identified through backtesting and other model monitoring processes, and are incorporated into the VaR models, where possible. An assessment of residual RNIV materiality is reviewed and monitored against thresholds regularly.

Incremental Risk Charge

Our IRC model is applied to debt instruments, credit products, and credit derivatives within our trading portfolios. A probability modelling technique known as the Monte Carlo simulation process is used to generate a statistically relevant number of loss scenarios due to issuer ratings migration and default in order to establish the losses at that confidence level. These scenarios are determined using a transition probability matrix which is calibrated using recent 20 years of historical issuer ratings migration and default observations. Correlations between issuer regions and sectors are calibrated using five years of historical equity time series data. For the Monte Carlo process, each position is assigned a liquidity horizon (the length of time to close out a position) of three months, six months, or one year, depending on its issuer type, credit rating, and maturity profile.

The IRC model is also subject to the same independent vetting, validation procedures and model risk governance framework as the VaR and SVaR models. Model performance monitoring includes reviews and stress testing of model assumptions, which includes stress testing the historical correlation and liquidity assumptions. Due to the long time horizon and high confidence level of the risk measure, we do not perform back-testing of the IRC model as we do for the VaR measure.

MR1: Market risk under standardized approach

The following table presents the components of the capital requirement under the standardized approach for Market risk.

As at October 31, 2018

	(Millions of Canadian dollars)	a RWA
	Outright products	
1	Interest rate risk (general and specific)	3,774
2	Equity risk (general and specific)	186
3	Foreign exchange risk	857
4	Commodity risk	158
	Options	
5	Simplified approach	-
6	Delta-plus method	-
7	Scenario approach	3,973
8	Securitization	4,028
9	**Total**	**12,976**

MR2: RWA flow statements of market risk exposures under an IMA

The following table presents variations in the Market RWA determined under an internal model approach.

As at October 31, 2018

		a	b	c	d	e	f
	(Millions of Canadian dollars)	VaR	Stressed VaR	IRC	CRM	Other	Total RWA
1	RWA at previous quarter end	2,798	6,658	8,332	-	-	17,788
2	Movement in risk levels[1]	25	85	329	-	-	439
3	Model updates/changes[2]	(184)	151	650	-	-	617
4	Methodology and policy[3]	-	-	-	-	-	-
5	Acquisitions and disposals	-	-	-	-	-	-
6	Foreign exchange movements	(46)	56	379	-	-	389
7	Other	-	-	-	-	-	-
8	RWA at end of Reporting Period	2,593	6,950	9,690	-	-	19,233

[1] Change in risk due to position changes and market movements.

[2] Updates to the model to reflect recent experience, model implementation, change in model scope or any change to address model malfunctions including changes through model calibrations/realignments.

[3] Methodology changes to the calculations driven by regulatory policy changes.

MR3: IMA values for trading portfolios

The following table presents minimum, maximum, average and period-end regulatory 10 day VaR, regulatory 10 day stressed VaR, incremental risk charge and comprehensive risk capital charge. These measures are based on the scope of the global trading book with internal models approach (IMA) approval from OSFI for calculating regulatory market risk capital.

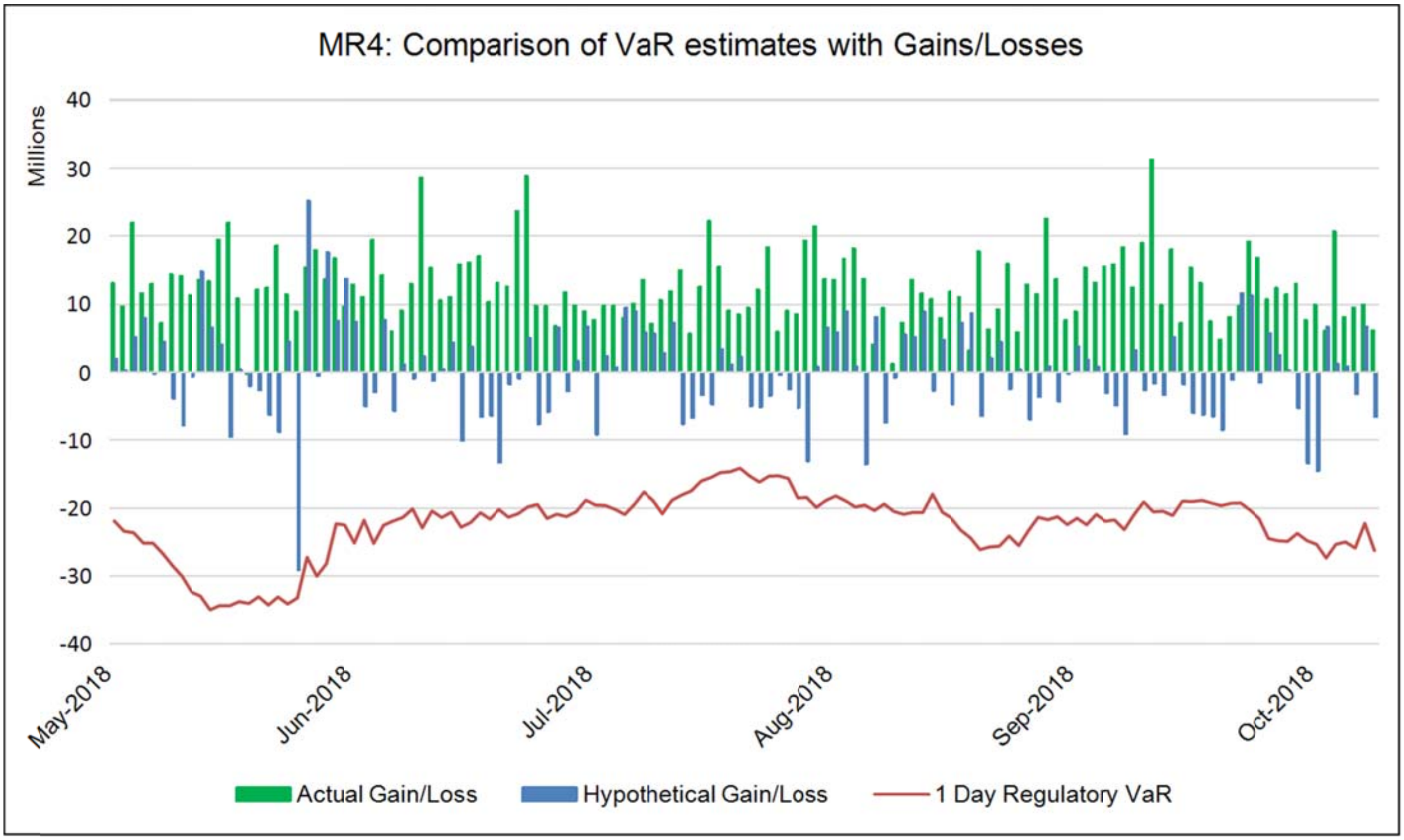
As at October 31, 2018

(Millions of Canadian dollars)		a
VaR (10 day 99%)[1]		Value
1	Maximum value	86
2	Average value	67
3	Minimum value	46
4	Period end	83
Stressed VaR (10 day 99%)[1]		
5	Maximum value	227
6	Average value	184
7	Minimum value	140
8	Period end	152
Incremental Risk Charge (99.9%)		
9	Maximum value	801
10	Average value	637
11	Minimum value	503
12	Period end	775
Comprehensive Risk capital charge (99.9%)		
13	Maximum value	-
14	Average value	-
15	Minimum value	-
16	Period end	-
17	Floor (standardized measurement method)	-

[1] The portfolio included in regulatory VaR and SVaR represents a subset of the portfolio captured in management VaR and SVaR reported in the Market Risk section of the 2018 Annual Report.

MR4: Comparison of VaR estimates with gains/losses

The following graph presents the results of estimates from the 1 day regulatory VaR model with both hypothetical and actual trading outcomes, using the scope of the global trading book with internal models approach (IMA) approval from OSFI for calculating regulatory market risk capital.



Actual Gain/Loss reported in this table is that which occurred as a result of all changes impacting income over the holding period and therefore includes commissions, fees, reserves, and intraday trading. Actual Gain/Loss includes all portfolios for which at least a subset of the risk categories are included in regulatory VaR. Hypothetical Gain/Loss is that which would have occurred if end of day positions remained unchanged, and therefore excludes the elements referenced in Actual Gain/Loss.

Refer to table MRB for further details into our backtesting program and a list of the key models used at the group-wide level with explanations as to the extent they represent the models used at the group-wide level.

During the six month period ending October 31 2018, the bank experienced no backtesting exceptions of regulatory VaR against Actual Gain/Loss or Hypothetical Gain/Loss.

OPERATIONAL RISK

The table below presents an overview of Pillar 3 disclosure requirements that have been met within our 2018 Annual Report and incorporated by reference into this Pillar 3 report. Our 2018 Annual Report is available free of charge on our website at http://www.rbc.com/investorrelations

	Pillar 3 disclosures requirement	RBC 2018 Annual Report section	Sub-section
a)	Details of the approach for operational risk capital assessment for which the bank qualifies	Operational risk	Operational risk capital
		Capital management	Attributed capital in the context of our business activities
b)	Description of the advanced measurement approaches for operational risk (AMA)	Operational risk	Operational risk capital
		Capital management	Attributed capital in the context of our business activities
c)	Description of the use of insurance for the purpose of mitigating operational risk	Operational risk	Operational risk capital

INTEREST RATE RISK IN THE BANKING BOOK

The table below presents an overview of Pillar 3 disclosure requirements that have been met within our 2018 Annual Report and incorporated by reference into this Pillar 3 report. Our 2018 Annual Report is available free of charge on our website at http://www.rbc.com/investorrelations

Pillar 3 disclosures requirement	RBC 2018 Annual Report section	Sub-section
Interest rate risk in the banking book	Market Risk	Market Risk