Royal Bank of Canada

Pillar 3 Report

As at October 31, 2021

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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 2021 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, vision and strategic goals will not be achieved. We caution readers not to place undue reliance on these statements as a number of risk factors could cause our actual results to differ materially from the expectations expressed in such forward-looking statements. Additional information about certain risk factors can be found in the Caution regarding forward-looking statements and risk sections of our 2021 Annual Report and the Risk management and Impact of COVID-19 pandemic sections of our 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 88,000+ employees who leverage their imaginations and insights to 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 17 million clients in Canada, the U.S. and 27 other countries. Learn more at rbc.com.

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, as well as our corporate treasury function.

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 risk, counterparty credit risk, market risk, operational risk, and securitizations exposures. Refer to the "Capital management" section of our 2021 Annual Report for further information on calculation approaches. Refer to the following sections in this report for further information on:

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

Capital framework (continued)

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 were 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. In addition, this Pillar 3 report provides disclosure required under OSFI's May 2018 Capital Disclosure Requirements Guideline.

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.

In December 2018, the BCBS issued its third and final phase (phase three) of the Pillar 3 disclosure requirements, *Pillar 3 disclosure requirements – updated framework.* This phase incorporates revisions and additions to the Pillar 3 framework arising from the finalization of the Basel III reforms in December 2017, such as additional disclosure requirements comparing RWA as determined by banks' internal models against results based on the Standardized Approach, and new disclosure requirements on asset encumbrance and capital distribution constraints. The phase three requirements, together with the phase one and two disclosure requirements released in January 2015 and March 2017, respectively, complete the Pillar 3 framework. On March 27, 2020, OSFI announced that it would delay its implementation of the phase three BCBS Pillar 3 disclosure requirements to January 31, 2023. On March 11, 2021, OSFI released for public consultation its draft revised Pillar 3 guideline incorporating the domestic implementation of all three phases to be effective in fiscal 2023. Our Pillar 3 disclosures will be updated to reflect the finalized OSFI guideline requirements. On November 11, 2021, BCBS finalized revisions to its market risk disclosures which we expect OSFI will also incorporate into its disclosure requirements for market risk, the framework which is effective in Q1 2024.

Effective November 1, 2018, OSFI adopted the BCBS frameworks related to the Standardized Approach for measuring counterparty credit risk (SA-CCR), capital requirements for bank exposures to central counterparties (CCPs) and the revised securitization framework as incorporated in OSFI's Capital Adequacy Requirements (CAR) guideline.

On November 1, 2019, the impact of adoption of IFRS 16 *Leases*, and removal of allowed grandfathering and transitioning treatment for certain securitization and counterparty credit risk exposures was incorporated in our measurement of regulatory capital. In addition, we adopted, the Standardized Approach for consolidated regulatory reporting of operational risk as the use of the Advanced Measurement Approach was discontinued by OSFI. This Pillar 3 report reflects the CAR guideline requirements for all periods, including prior period comparatives.

To address the economic disruption caused by the COVID-19 pandemic in Q2 2020, OSFI announced a series of regulatory capital modifications which are described in more detail in our Capital management section of our 2021 Annual Report. Announced changes included the reduction of the domestic stability buffer to 1% of total RWA while also providing transitional expected credit loss (ECL) modifications over 3 years and risk-weight exclusions for certain exposures. In addition, OSFI also allowed delaying for six months, from the date of deferral, the past due treatment of all loan deferrals requested by clients. On August 31, 2020, OSFI amended this deferral treatment allowing any deferrals issued on or after August 31 to September 30, 2020 to only be exempt from past due treatment for a period of 3 months. Therefore, any deferrals given to clients on or after October 1, 2020 must follow the past due treatment required under the CAR guidelines. Our reported figures reflect this guidance and further updated guidance from OSFI including the raising of the domestic stability buffer to 2.5% effective October 31, 2021, as fully described in our Capital management section of our 2021 Annual Report.

Since Q2 2020, our disclosure for KM1: Key Capital and Leverage metrics template includes disclosure of our capital ratios assuming transitional ECL modifications had not been applied, as required by OSFI.

Refer to the Capital Management section of our 2021 Annual Report for further information on upcoming regulatory reforms which were announced during the quarter.

Leverage framework

On October 30, 2014, OSFI issued its "Leverage Requirements (LR) Guideline", which reflected its adoption of the BCBS "Basel III leverage ratio framework and disclosure requirement" effective the first fiscal quarter of 2015. The LR guideline requires banks to disclose their leverage ratio and its underlying components. The leverage ratio is defined as the capital measure divided by the leverage exposure measure. The capital measure is defined as Tier 1 capital and the leverage exposure measure is the sum of (a) on-balance sheet exposures; (b) derivative exposures; (c) securities financing transaction (SFT) exposures and (d) off-balance sheet items.

Unmanaged leverage can lead to unwarranted corrective measures due to excessive exposure growth or capital reduction, causing detriment to the bank's balance sheet and overall shareholders wealth. Maintaining a prescribed minimum level of leverage helps neutralize leverage risk in the event of unexpected economic crises. OSFI requires maintenance of a minimum leverage ratio of 3% at all times.

On October 30, 2018, OSFI published its updated LR Guideline, effective November 1, 2018. The revisions aligned the LR guideline with OSFI's adoption of the BCBS *"Standardized approach for measuring counterparty credit risk exposures"* and *Revisions to the securitization framework"*. On November 1, 2019, the impact of adoption of IFRS 16 *Leases*, was incorporated into our leverage ratio.

In addition to the pre-existing 3% leverage ratio minimum requirement, the BCBS has introduced an additional leverage ratio buffer requirement for global systemically-important banks (G-SIB) as part of their Basel III reforms *"Basel III: Finalizing post-crisis reforms* (December 2017)*"*. The G-SIB leverage ratio must be met with Tier 1 capital and is set at 50% of a G-SIB's higher-loss absorbency risk-weighted requirement. On July 16, 2018 OSFI announced that all Canadian D-SIBs will be held to the 3.5% minimum leverage requirements including RBC which has been designated a G-SIB.

On November 20, 2018, OSFI updated its Leverage disclosure guidelines, which are based on BCBS phase two disclosure requirements, to reflect the revisions to the LR and CAR guidelines mentioned above. Refer to our Leverage disclosures included in this report, as required by OSFI.

To address the economic disruption caused by the COVID-19 pandemic in Q2 2020, OSFI announced two leverage ratio modifications. The first leverage ratio modification required the exclusion of central bank reserves and sovereign-issued securities that qualify as high quality liquid assets from our total leverage exposure amount for a period of one year ending April 30, 2021. The second modification required the exclusion of loans issued under the US Government Payment Protection Program (PPP) from our total leverage exposure amount. On Nov. 5, 2020, OSFI extended the allowed exclusion of central bank reserves and sovereign-issued securities another eight months to December 31, 2021. On Aug. 12, 2021 OSFI announced that sovereign-issued securities would no longer be eligible for exclusion effective Jan. 1, 2022 but that central bank reserves would continue to eligible for exclusion until further notice. Our reported leverage figures reflect this guidance as fully described in our Capital management section of our 2021 Annual Report.

Since Q2 2020, our disclosure of LR2: Leverage ratio common disclosure template includes disclosure of our leverage ratio assuming transitional ECL modification had not been applied, as required by OSFI.

TLAC framework

The Canadian Bail-in regime, including OSFI's Total Loss Absorbing Capacity (TLAC) Framework Guideline, came into effect on September 23, 2018. The purpose of the TLAC requirement is to address the sufficiency of a Canadian D-SIB's loss absorbing capacity in supporting its recapitalization in the event of its failure. TLAC is defined as the aggregate of Tier 1 capital, Tier 2 capital, and other TLAC instruments (senior bail-in debt), which includes senior unsecured debt with an original term to maturity of greater than 400 days and remaining term to maturity of greater than 365 days. Under the Bail-in regime, bail-in debt, which would ordinarily rank equally to Other Liabilities in liquidation, is subject to conversion under statutory resolution powers whereas Other Liabilities are not subject to such conversion.

TLAC requirements establish two minimum standards; which are required to be met effective November 1, 2021: the risk-based TLAC ratio, which builds on the risk-based capital ratios described in the CAR guideline, and the TLAC leverage ratio, which builds on the leverage ratio described in OSFI's Leverage Requirements guideline. The risk-based TLAC ratio is defined as TLAC divided by Total risk-weighted assets (RWA) while the TLAC leverage ratio is defined as TLAC divided by the Leverage ratio exposure. OSFI requires systemically important banks to maintain a minimum TLAC ratio of 22.5% (inclusive of the revised domestic stability buffer of 1.0% since Q2 2020) and a TLAC leverage ratio of 6.75%. The TLAC ratio requirements increased to 24% in Q4 2021 reflecting the 1.5% increase of the DSB effective October 31, 2021. We began issuing TLAC eligible debt in Q4 2018 and our TLAC ratio is expected to increase through normal course refinancing of maturing debt.

In May 2018, OSFI published its TLAC Disclosure Guideline for Canadian D-SIBs. The disclosure requirements reflect the BCBS TLAC disclosure requirements as outlined in the BCBS March 2017 phase two requirements mentioned above. Refer to our TLAC disclosures included in this report, as required by OSFI.

To reflect the transitional ECL modification provided by OSFI, as discussed in the Capital framework and Leverage framework sections above, since Q2 2020 our disclosure of KM2: Key metrics – TLAC requirements includes both our TLAC ratio and TLAC leverage ratio assuming the transitional ECL modification had not been applied, as required by OSFI.

DISCLOSURE MAP

Pillar 3 Requirement	Pillar 3 Requirement		2021 Annual Report section	Sub-section	2021 Annual Report Reference
Overview of key metrics, risk management and RWA	KM1				
	OVA	a) Business model and risk profile	Impact of COVID-19 pandemic	Impact of pandemic risk factor	18
			Top and emerging risks	Top and emerging risks	52-54
			Risk management overview	Risk management principles	55
				Risk drivers	55
			Enterprise risk management	Risk governance	56
				Risk appetite	57
				Risk measurement	57-58
				Risk control	58-59
		b) Risk governance structure	Enterprise risk management	Risk governance	56
				Risk control	58-59
		c) Communication and enforcement of risk culture within the bank	Enterprise risk management	Culture and conduct risk	59-60
		d) Scope and main features of risk measurement systems	Enterprise risk management	Risk measurement	57-58
		e) Risk information reporting	Enterprise risk management	Risk control - *Risk monitoring and reporting*	59
		f) Stress testing	Enterprise risk management	Risk measurement – *Stress testing*	58
			Market risk	Stress tests	73
			Systemic risk	Systemic risk	96
		g) Strategies and processes applied to manage, hedge and mitigate risks	Enterprise risk management	Risk appetite	57
				Risk measurement	57-58
				Risk control	58-59
			Credit risk	Overview	60-61
				Credit risk measurement	61
				Credit risk assessment	62-64
				Credit risk mitigation	64
				Credit risk approval	65
				Credit risk administration	65
			Market risk	Market risk controls – FVTPL positions	73
				Stress tests	73
				Market risk controls – Interest Rate Risk in the Banking Book (IRRBB) positions	75
				IRRBB measurement	75
				Non-trading foreign exchange rate risk	76
			Liquidity and funding risk	Overview	78
				Risk control	79
				Risk measurement	79
				Funding	81-83
				Liquidity Coverage Ratio (LCR)	85-86
				Net Stable Funding Ratio (NSFR)	86-88
			Insurance risk	Insurance risk	91
			Operational risk	Overview	91
				Operational risk framework	91-92
			Regulatory compliance risk	Regulatory compliance risk	93
			Strategic risk	Strategic risk	93
			Reputation risk	Reputation risk	93-94
			Legal and regulatory environment risk	Legal and regulatory environment risk	94-95
			Competitive risk	Competitive risk	95
			Systemic risk	Systemic risk	96
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			Consolidated Financial Statements	Note 8 – Derivative financial instruments and hedging activities - *Derivatives issued for trading purposes*	182
				Note 8 – Derivative financial instruments and hedging activities - *Derivatives issued for other-than-trading purposes*	182-183
				Note 8 – Derivative financial instruments and hedging activities - *Derivative-related credit risk*	185-186
	OV1				

DISCLOSURE MAP (continued)

Pillar 3 Requirement	Pillar 3 Requirement		2021 Annual Report section	Sub-section	2021 Annual Report Reference
Linkages between financial statements and regulatory exposures	LI1				
	LI2				
	LIA				
Composition of Capital	CC1				
	CC2				
	CCA [1]	Main features of regulatory capital instruments and of other TLAC-eligible instruments			
Credit risk	CRA	a) Translation of the business model into the components of the bank's credit risk profile	Credit risk	Overview	60-61
				Measurement of economic and regulatory capital - *Gross credit risk exposure*	62
		b) Criteria and approach used for defining credit risk management policy and for setting credit risk limits	Enterprise risk management	Risk governance	56
				Risk appetite	57
				Risk measurement	57-58
				Risk control - *Delegated authorities and risk limits*	59
			Credit risk	Overview	60-61
				Credit risk assessment	62-64
				Credit risk mitigation	64
				Credit risk approval	65
		c) Structure and organization of the credit risk management and control function	Enterprise risk management	Risk governance	56
				Risk control	58-59
		d) Interaction between the credit risk management, risk control, compliance and internal audit functions	Enterprise risk management	Risk governance	56
		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	56
				Risk control - *Risk monitoring and reporting*	59
	CR1				
	CR2 [2]				
	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 - Allowance for credit losses - *Definition of default* *Credit impaired financial assets (Stage 3)*	145
				Note 5 – Loans and allowance for credit losses - *Loans past due but not impaired*	177
		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 5 – Loans and allowance for credit losses - *Loans past due but not impaired*	177
		c) Description of methods used for determining accounting provisions for credit losses	Consolidated Financial Statements	Note 2 – Summary of significant accounting policies, estimates and judgments - Allowance for credit losses	143-146
		Description of the categorization of ECL accounting provisions (general and specific) for standardized approach exposures	n/a	n/a – For regulatory calculations under both the Standardized and IRB approaches, the IFRS 9 stage 3 allowances are considered to be specific allowances and the IFRS 9 stage 1 and stage 2 allowances are considered to be general allowances	
		d) The bank's own definition of a restructured exposure	Consolidated Financial Statements	Note 2 – Summary of significant accounting policies, estimates and judgments - Allowance for credit losses - *Modifications*	146

[1] CCA is available at https://www.rbc.com/investor-relations/regulatory-information.html.

[2] Requirement for disclosure of this table is only semi-annual.

DISCLOSURE MAP (continued)

Pillar 3 Requirement	Pillar 3 Requirement		2021 Annual Report section	Sub-section	2021 Annual Report Reference
Credit risk (continued)	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	Credit risk assessment – *Counterparty credit risk*	63
			Consolidated Financial Statements	Note 8 – Derivative financial instruments and hedging activities - *Derivative-related credit risk*	185-186
				Note 29 – Offsetting financial assets and financial liabilities	221-222
		b) Core features of policies and processes for collateral evaluation and management	Credit risk	Credit risk mitigation - *Collateral*	64
		c) Information about market or credit risk concentrations under the credit risk mitigation instruments used	Credit risk	Credit risk mitigation	64
				Credit risk approval - *Credit risk limits*	65
			Consolidated Financial Statements	Note 8 – Derivative financial instruments and hedging activities	182-191
	CR3 [2]				
	CRD				
	CR4				
	CR5				
	CRE				
	CR6				
	CR7				
	CR8				
	CR9 [3]				
	CR10		n/a	n/a	n/a
Counterparty credit risk	CCRA	a) Risk management objectives and policies related to counterparty credit risk	Credit risk	Credit risk assessment – *Counterparty credit risk*	63
			Consolidated Financial Statements	Note 8 – Derivative financial instruments and hedging activities - *Derivative-related credit risk*	185-186
		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*	63
		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*	63
			Consolidated Financial Statements	Note 8 – Derivative financial instruments and hedging activities - *Derivative-related credit risk*	185-186
			Consolidated Financial Statements	Note 29 – Offsetting financial assets and financial liabilities	221-222
		d) Policies with respect to wrong-way risk exposures	Credit risk	Credit risk assessment – *Wrong-way risk*	64
		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	84
	CCR1				
	CCR2				
	CCR3				
	CCR4				
	CCR5 [2]				
	CCR6				
	CCR7		n/a	n/a	n/a
	CCR8	f) Exposures to central counterparties			

[2] Requirement for disclosure of this table is only semi-annual.
[3] Requirement for disclosure of this table is only annual.

DISCLOSURE MAP (continued)

Pillar 3 Requirement	Pillar 3 Requirement		2021 Annual Report section	Sub-section	2021 Annual Report Reference
Securitization	SECA	a) Objectives in relation to securitization activities	Off-balance sheet arrangements	Off-balance sheet arrangements	50-52
			Consolidated Financial Statements	Note 6 – Derecognition of financial assets	177-178
			Consolidated Financial Statements	Note 7 – Structured entities	178-181
		b) List of SPEs where RBC is sponsor / provides implicit support	Consolidated Financial Statements	Note 7 – Structured entities	178-181
		c) Accounting policies for securitization	Consolidated Financial Statements	Note 2 – Summary of significant accounting policies, estimates and judgments – *Basis of consolidation*	138-139
				Note 2 – Summary of significant accounting policies, estimates and judgments – *Derecognition of financial assets*	146-147
			Critical accounting policies and estimates	Consolidation of structured entities	111
		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	108-109
		e) Use of Basel IAA for capital purposes	Credit risk	n/a	60-72
			Capital Management	Regulatory capital approach for securitization exposures	108-109
		f) Use of other internal assessment for capital purposes	Credit risk	Credit risk assessment	62-64
	SEC1	Securitization exposures in the banking book			
	SEC2	Securitization activities in the trading book			
	SEC3	Securitization exposures in the banking book and associated regulatory capital requirements - bank acting as originator or as sponsor			
	SEC4	Securitization exposures in the banking book and associated capital requirements - bank acting as investor			
Market risk	MRA	a) Processes implemented to identify, measure, monitor and control the bank's market risks	Market risk	Market risk controls – FVTPL positions	73
				Stress tests	73
				Market risk measures – FVTPL positions	73-74
				Market risk measures for assets and liabilities of RBC Insurance	74
				Market risk controls – Interest Rate Risk in the Banking Book (IRRBB) positions	75
				IRRBB measurement	75
				Market risk measures – IRRBB Sensitivities	75
				Market risk measures for other material non-trading portfolios	76
		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*	147-148
		b) Description of the market risk governance structure established to implement the strategies and processes of the bank	Enterprise risk management	Risk governance	56
				Risk appetite	57
				Risk measurement	57-58
				Risk control	58-59
				Risk measurement – *Stress testing*	58
				Culture and conduct risk	59-60

DISCLOSURE MAP (continued)

Pillar 3 Requirement	Pillar 3 Requirement		2021 Annual Report section	Sub-section	2021 Annual Report Reference
Market risk (continued)	MRA (continued)	Description of the relationships and the communication mechanisms between the different parties involved in market risk management	Enterprise risk management	Risk governance	56
				Risk control	58-59
		c) Scope and nature of risk reporting and/or measurement systems	Enterprise risk management	Risk measurement	57-58
				Risk control	58-59
				Risk measurement – *Stress testing*	58
			Market risk	Market risk controls – FVTPL positions	73
				Stress tests	73
				Market risk measures – FVTPL positions	73-74
				Market risk measures for assets and liabilities of RBC Insurance	74
				Market risk controls – Interest Rate Risk in the Banking Book (IRRBB) positions	75
				IRRBB measurement	75
				Market risk measures – IRRBB Sensitivities	75
				Market risk measures for other material non-trading portfolios	76
	MRB	c) General description of the models (VaR/stressed VaR)	Market risk	Market risk controls – FVTPL positions	73
		g) Description of stress testing applied to the modelling parameters	Market risk	Stress tests	73
	MR1				
	MR2				
	MR3				
	MR4 [2]				
Leverage	LR1				
	LR2				
Total loss absorbing capacity	KM2				
	TLAC1				
	TLAC2				
	TLAC3				
Operational Risk		a) Details of the approach for operational risk capital assessment for which the bank qualifies	Operational risk	Operational risk capital	92
		b) Description of the advanced measurement approaches for operational risk (AMA)[4]	n/a	n/a	n/a
		c) For banks using the AMA, a description of the use of insurance for the purpose of mitigating operational risk[4]	n/a	n/a	n/a
Interest rate risk in the banking book			Market risk	Market risk	72-78

[2] Requirement for disclosure of this table is only semi-annual.

[4] Effective November 1, 2019, OSFI discontinued the AMA approach.

OVERVIEW OF KEY METRICS, RISK MANAGEMENT AND RWA

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

	(Millions of Canadian dollars)[1]	a October 31 2021	b July 31 2021	c October 31 2020	d YoY Change (a-c)
	Available capital (amounts)				
1	Common Equity Tier 1 (CET1)	75,583	73,822	68,082	7,501
1a	Common Equity Tier 1 with transitional arrangements for ECL provisioning not applied	75,163	73,264	66,635	8,528
2	Tier 1	82,246	81,218	74,005	8,241
2a	Tier 1 with transitional arrangements for ECL provisioning not applied	81,826	80,659	72,559	9,267
3	Total capital	92,026	90,736	84,928	7,098
3a	Total capital with transitional arrangements for ECL provisioning not applied	92,026	90,736	84,928	7,098
	Risk-weighted assets (amounts)				
4	Total risk-weighted assets (RWA)	552,541	543,047	546,242	6,299
	Risk-based capital ratios as a percentage of RWA				
5	Common Equity Tier 1 ratio	13.7%	13.6%	12.5%	1.2%
5a	Common Equity Tier 1 ratio with transitional arrangements for ECL provisioning not applied	13.6%	13.5%	12.2%	1.4%
6	Tier 1 ratio	14.9%	15.0%	13.5%	1.4%
6a	Tier 1 ratio with transitional arrangements for ECL provisioning not applied	14.8%	14.9%	13.3%	1.5%
7	Total capital ratio	16.7%	16.7%	15.5%	1.2%
7a	Total capital ratio with transitional arrangements for ECL provisioning not applied	16.7%	16.7%	15.5%	1.2%
	Additional CET1 buffer requirements as a percentage of RWA				
8	Capital conservation buffer requirement	2.5%	2.5%	2.5%	-
9	Countercyclical buffer requirement[2]	0.0%	0.0%	0.0%	-
10	Bank G-SIB and/or D-SIB additional requirements	1.0%	1.0%	1.0%	-
11	Total of bank CET1 specific buffer requirements (row 8 + row 9 + row 10)	3.5%	3.5%	3.5%	-
12	CET1 available after meeting the bank's minimum capital requirements (row 5 - 8%)[3]	5.7%	5.6%	4.5%	1.2%
	Basel III leverage ratio				
13	Total Basel III leverage ratio exposure measure	1,662,044	1,633,233	1,552,863	109,181
14	Basel III leverage ratio (row 2 / row 13)	4.9%	5.0%	4.8%	0.1%
14a	Basel III leverage ratio (row 2a / row 13) with transitional arrangements for ECL provisioning not applied	4.9%	4.9%	4.7%	0.2%

[1] This table incorporates the impact of expected credit loss (ECL) accounting on regulatory capital including transitional ECL provisioning modification granted by OSFI on Mar. 27, 2020. This ECL provisioning modification reduced from a 75% after-tax exclusion rate for growth in Stage 1 and Stage 2 allowances allowed in 2020 to only a 50% after-tax exclusion rate allowed for 2021. In Q1 2022 this rate will further reduce to only a 25% after-tax allowed exclusion which will cease after Q4 2022

[2] Bank specific countercyclical buffer requirement for Q4 2021 was not material, the amount which is determined based on our private sector exposures in jurisdictions identified by BCBS.

[3] 8% reflects minimum capital requirements which includes D-SIB/G-SIB surcharge, and excludes the OSFI Domestic Stability Buffer of 2.5% effective October 2021. Refer to our 2021 Annual Report.

2021 vs. 2020

Our CET1 ratio was 13.7%, up 120 bps from last year, mainly reflecting internal capital generation, partially offset by higher RWA and the impact of lower capital modification related to the eligible Stage 1 and Stage 2 allowances.

Our Tier 1 capital ratio of 14.9% was up 140 bps, reflecting the factors noted above under the CET1 ratio. Our Tier 1 ratio was also positively impacted by the issuance of Limited Recourse Capital Notes (LRCNs), partially offset by the redemption of preferred shares.

Our Total capital ratio of 16.7% was up 120 bps, reflecting the factors noted above under the Tier 1 capital ratio.

During the year, RWA was up $6 billion, mainly reflecting business growth in wholesale lending, including loan underwriting commitments, client-driven trading activity, residential mortgages and personal lending. These factors were partially offset by the net impact of models and methodology updates, the impact of foreign exchange translation and net credit migration in wholesale and retail portfolios. The models and methodology updates mainly include recalibration of the probability of default parameters in our wholesale portfolio, partially offset by an increase in SVaR multipliers reflecting the unwinding of temporary measures introduced by OSFI in response to the COVID-19 pandemic and transitional methodology changes to the securitization framework. The impact of foreign exchange translation on RWA is largely mitigated with economic hedges in our CET1 ratio.

Our Leverage ratio of 4.9% was up 10 bps, mainly reflecting internal capital generation and the issuance of LRCNs, partially offset by growth in leverage exposures, the redemption of preferred shares and the impact of lower capital modification as noted above under the CET1 ratio.

Leverage exposures increased by $109 billion mainly driven by business growth in loans, interest-bearing deposits with banks, securities, undrawn commitments, repo-style transactions and derivatives, partially offset by the impact of foreign exchange translation and higher regulatory modifications for central bank reserves and sovereign-issued securities qualifying as HQLA.

OVA: Bank risk management approach

The table below presents an overview of Pillar 3 disclosure requirements that have been met within our 2021 Annual Report and incorporated by reference into this Pillar 3 report. Our 2021 Annual Report is available free of charge on our website at http://www.rbc.com/investorrelations

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OVA: Bank risk management approach (continued)

Pillar 3 disclosures requirement		RBC 2021 Annual Report section	Sub-section
g)	Strategies and processes applied to manage, hedge and mitigate risks (continued)	Insurance risk	Insurance risk
		Operational risk	Overview
			Operational risk framework
		Regulatory compliance risk	Regulatory compliance risk
		Strategic risk	Strategic risk
		Reputation risk	Reputation risk
		Legal and regulatory environment risk	Legal and regulatory environment risk
		Competitive risk	Competitive risk
		Systemic risk	Systemic risk
		Environmental and social risk	Environmental and social 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	d	e
		RWA			Minimum capital requirement[1]	RWA
	(Millions of Canadian dollars)	October 31 2021	July 31 2021	October 31 2020	October 31 2021	Change (YoY)
1	**Credit risk (excluding counterparty credit risk)**	**354,442**	**350,857**	**361,605**	**28,355**	**(7,163)**
2	Of which Standardized approach (SA)	102,186	96,735	93,289	8,175	8,897
3	Of which Internal rating-based (IRB) approach	252,256	254,122	268,316	20,180	(16,060)
4	**Counterparty credit risk (CCR)**	**53,791**	**51,674**	**54,315**	**4,303**	**(524)**
4a	Of which other CCR	10,102	8,963	10,057	808	45
4b	Credit valuation adjustment (CVA)	18,104	18,466	18,171	1,448	(67)
5	Of which Standardised approach for counterparty credit risk (SA-CCR)[2]	25,585	24,245	26,087	2,047	(502)
6	Of which Internal model method (IMM)	-	-	-	-	-
7	Equity positions in banking book under market-based approach	2,814	2,780	2,324	225	490
8	Equity investments in funds – look-through approach	-	-	-	-	-
9	Equity investments in funds – mandate-based approach	2,944	2,880	2,902	236	42
10	Equity investments in funds – fall-back approach	45	35	-	4	45
11	Settlement risk	1,492	445	191	119	1,301
12	**Securitisation exposures in banking book**	**10,328**	**10,640**	**11,489**	**826**	**(1,161)**
12a	Of which transitional grandfathering adjustment	-	-	-	-	-
13	Of which IRB ratings-based approach (SEC-IRBA)	-	-	330	-	(330)
14	Of which External ratings-based approach (SEC-ERBA)	7,982	8,182	8,938	638	(956)
15	Of which Standardized approach (SEC-SA)	2,346	2,458	2,221	188	125
16	**Market risk**	**34,806**	**34,149**	**27,374**	**2,784**	**7,432**
17	Of which Standardized approach (SA)	13,330	11,372	12,089	1,066	1,241
18	Of which Internal model approaches (IMA)	21,476	22,777	15,285	1,718	6,191
19	**Operational risk**	**73,593**	**72,828**	**70,047**	**5,887**	**3,546**
20	Of which Basic Indicator Approach	-	-	-	-	-
21	Of which Standardized Approach	73,593	72,828	70,047	5,887	3,546
22	Of which Advanced Measurement Approach[3] (AMA)	-	-	-	-	-
23	Amounts below the thresholds for deduction (subject to 250% risk weight)	18,286	16,759	15,995	1,463	2,291
24	Floor adjustment	-	-	-	-	-
25	**Total (1+4+7+8+9+10+11+12+16+19+23+24)**	**552,541**	**543,047**	**546,242**	**44,202**	**6,299**

[1] The minimum capital requirements for each category can be calculated by multiplying the total RWA by 8% as per OSFI CAR guidelines.
[2] Includes RWA associated with CCP exposures, which EAD is calculated based on SA-CCR.
[3] Effective November 1, 2019, OSFI discontinued the AMA approach.

2021 vs. 2020

Total RWA increased by $6.3 billion or 1.1%, driven by the following:

Credit risk
RWA decreased by $7.2 billion, mainly driven by favourable impact of wholesale parameter changes, foreign exchange translation and net credit upgrades partly offset by business growth in wholesale lending including loan underwriting commitments, residential mortgages and personal lending and reclassification of some of our wholesale clients to retail.

Counterparty credit risk
RWA decreased by $0.5 billion, mainly due to client driven activity in our trading businesses partly offset by favourable wholesale parameter changes and foreign exchange translation.

Securitization exposures in banking book
RWA decreased by $1.2 billion, mainly driven by our originated credit card portfolio moving to retail in Q1 2021, given our holdings did not meet the required risk transference requirements under the new Securitization framework, partly offset by business growth.

Market risk
RWA increased $7.4 billion, mainly driven by the reversal of SVaR capital multiplier as per OSFI guidance and client driven trading activity.

Operational risk
RWA increased $3.5 billion, mainly driven by average revenue growth.

RWA: Risk-Weighted Assets by Regulatory Approach

The following table provides details of our risk-weighted assets by type of risk and regulatory approach.

TOTAL CAPITAL RISK-WEIGHTED ASSETS [1]	Q4/2021						Q4/2021	Risk-weighted assets All-in Basis			
	Risk-weighted assets All-in Basis						Capital requirements				
(Millions of Canadian dollars, except percentage and per share amounts)	Exposure [2]	Average of risk weights [3]	Standardized approach	IRB approach	Other	Total [4]	Total [4]	Q3/2021 Total [4]	Q2/2021 Total [4]	Q1/2021 Total [4]	Q4/2020 Total [4]
Credit risk [5]											
Lending-related and other											
Residential mortgages	328,787	8%	9,975	16,768	-	26,743	2,139	25,988	24,565	24,895	24,604
Other retail (Personal, Credit cards and Small business treated as retail)	356,586	20%	6,548	65,089	-	71,637	5,731	71,720	70,661	72,112	60,544
Business (Corporate, Commercial, Medium-sized enterprises											
and Non-bank financial institutions)	400,607	50%	58,233	142,320	-	200,553	16,044	197,356	210,611	210,677	218,803
Sovereign (Government)	325,994	4%	3,640	10,772	-	14,412	1,153	15,742	15,527	15,878	15,371
Bank	26,231	18%	1,728	3,028	-	4,756	380	4,413	4,758	5,739	5,228
Total lending-related and other	**1,438,205**	**22%**	**80,124**	**237,977**	**-**	**318,101**	**25,447**	**315,219**	**326,122**	**329,301**	**324,550**
Trading - related											
Repo-style transactions	962,491	1%	54	9,415	68	9,537	763	8,463	12,126	10,731	9,496
Derivatives - including CVA	104,524	41%	2,049	21,882	18,446	42,377	3,390	41,457	43,306	44,110	42,917
Total trading-related	**1,067,015**	**5%**	**2,103**	**31,297**	**18,514**	**51,914**	**4,153**	**49,920**	**55,432**	**54,841**	**52,413**
Total lending-related and other and trading-related	**2,505,220**	**15%**	**82,227**	**269,274**	**18,514**	**370,015**	**29,600**	**365,139**	**381,554**	**384,142**	**376,963**
Banking book equities [6]	3,951	139%	-	5,474	-	5,474	438	5,373	5,088	5,166	4,931
Securitization exposures	63,617	16%	5,069	5,259	-	10,328	826	10,640	10,424	10,780	11,489
Regulatory scaling factor [7]	n.a.	n.a.	n.a.	16,485	-	16,485	1,319	16,461	17,746	17,795	17,385
Other assets	29,753	141%	n.a.	n.a.	41,840	41,840	3,348	38,457	38,045	40,279	38,053
Total credit risk	**2,602,541**	**17%**	**87,296**	**296,492**	**60,354**	**444,142**	**35,531**	**436,070**	**452,857**	**458,162**	**448,821**
Market risk [8,9]											
Interest rate			2,760	11,620	-	14,380	1,150	13,047	10,063	8,126	7,841
Equity			1,822	2,356	-	4,178	334	5,179	4,814	4,073	3,628
Foreign exchange			2,524	559	-	3,083	247	3,210	2,748	2,601	2,917
Commodities			692	70	-	762	61	504	270	279	287
Specific risk			5,532	2,069	-	7,601	608	7,133	6,256	6,285	5,985
Incremental risk charge [10, 11]			-	4,802	-	4,802	384	5,076	6,466	7,085	6,716
Total market risk			**13,330**	**21,476**	**-**	**34,806**	**2,784**	**34,149**	**30,617**	**28,449**	**27,374**
Operational risk			**73,593**	**-**	**n.a.**	**73,593**	**5,887**	**72,828**	**72,133**	**70,908**	**70,047**
Total risk-weighted assets (RWA)	**2,602,541**		**174,219**	**317,968**	**60,354**	**552,541**	**44,202**	**543,047**	**555,607**	**557,519**	**546,242**

[1] Calculated using guidelines issued by OSFI under the Basel III All-in framework.

[2] Total exposure represents exposure at default (EAD) which is the expected gross exposure upon the default of an obligor. This amount excludes any allowance against impaired loans or partial write-offs and does not reflect the impact of credit risk mitigation. Exposures acquired through the Federal Reserve Paycheck Protection Program lending facility have been excluded, as required by OSFI.

[3] Represents the average of counterparty risk weights within a particular category.

[4] The minimum capital requirements for each category can be calculated by multiplying the total RWA by 8% as per OSFI CAR guidelines.

[5] For credit risk, a majority of our portfolios use the Internal Ratings Based (IRB) Approach and the remainder use the Standardized Approach.

[6] CAR guidelines define banking book equities based on the economic substance of the transaction rather than the legal form or accounting treatment associated with the financial instrument. As such, differences exist in the identification of equity securities held in the banking book and those reported in the financial statements. Banking book equities are financial instruments held for investment purposes and are not part of our trading book, consisting of publicly-traded and private equities, partnership units, venture capital and derivative instruments tied to equity interests.
As at Q4/21, the amount of publicly-traded equity exposures was $1,650 million and private equity exposures amounted to $2,302 million. Total exposure represents EAD, which is the expected gross exposure upon the default of an obligor.
Under OSFI guidelines, the Simple Risk Weight method under the Market-based Approach is being used to calculate RWA for direct equity exposures ($2,766 million). The calculation of RWA for Equity Investments in Funds ($1,185 million) uses the Mandate-based and Fall-Back Approaches.

[7] The scaling factor represents a calibration adjustment of 6% as prescribed by OSFI under the Basel III framework and is applied to RWA amounts for credit risk assessed under the IRB Approach.

[8] For market risk RWA measurement, we use an internal models approach where we have obtained regulatory approval, and a standardized approach for products yet to be approved. For standardized approach, we use internally validated models.

[9] Regulatory capital for our correlation trading portfolios is determined through the standardized approach as prescribed by OSFI. Therefore, we do not have a Comprehensive Risk Charge for these portfolios. Our securitization and resecuritization positions in our trading book also have capital requirements under the standardized approach. The changes in value due to market and credit risk in the securitization and resecuritization in the trading book are managed through the daily mark-to-market process. Furthermore, we employ market risk measures such as sensitivities to changes in option-adjusted spreads and underlying asset prices as well as value-at-risk (VaR) and stress testing measures.

[10] The incremental risk charge (IRC) was $384 million as at Q4/21. The average was $383 million, high was $469 million and low was $295 million for Q4/21. The IRC is measured over a one-year horizon at a 99.9% confidence level. We utilize a technique known as the Monte Carlo simulation process to generate a statistically relevant number of loss scenarios due to ratings migration and default in order to establish the losses at that confidence level. We also make certain assumptions about position liquidity (the length of time to close out a position) within the model that range from a floor of three months to maximum of one year. The determination of liquidity is based on issuer type and credit rating. Credit rating migration and default probabilities (PD) are based on historical data.

[11] The models are subject to the same internal independent vetting and validation procedures used for all regulatory capital models. Important assumptions are re-reviewed at least annually. Due to the long time horizon and high confidence level of the risk measure, we do not perform back-testing as we do for the VaR measure.

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, 2021

	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	113,846	113,846	113,846	-	-	-	-
Interest-bearing deposits with banks	79,638	79,638	79,638	-	-	-	-
Securities							
Trading	139,240	127,259	5,819	-	34	121,406	-
Investment, net of applicable allowance	145,484	142,611	131,549	-	11,085	-	(23)
	284,724	269,870	137,368	-	11,119	121,406	(23)
Assets purchased under reverse repurchase agreements and securities borrowed	307,903	307,903	-	307,904	-	-	(1)
Loans							
Retail	503,598	503,272	503,272	-	-	-	-
Wholesale[3]	218,066	215,741	196,246	2,557	8,081	5,885	2,972
	721,664	719,013	699,518	2,557	8,081	5,885	2,972
Allowance for loan losses	(4,089)	(4,089)	-	-	-	-	(4,089)
	717,575	714,924	699,518	2,557	8,081	5,885	(1,117)
Segregated fund net assets	2,666	-	-	-	-	-	-
Other							
Customers' liability under acceptances	19,798	19,798	19,873	-	-	-	(75)
Derivatives[2]	95,541	96,215	-	96,215	-	91,808	-
Premises and equipment, net	7,424	7,406	7,406	-	-	-	-
Goodwill	10,854	10,854	-	-	-	-	10,854
Other intangibles	4,471	4,346	-	-	-	-	4,346
Other assets	61,883	64,991	29,770	24,787	-	7,630	2,804
	199,971	203,610	57,049	121,002	-	99,438	17,929
Total assets[2]	**1,706,323**	**1,689,791**	**1,087,419**	**431,463**	**19,200**	**226,729**	**16,788**
Liabilities and equity							
Deposits							
Personal	362,488	362,488	-	-	-	-	362,488
Business and government	696,353	697,057	-	-	-	-	697,057
Bank	41,990	41,990	-	-	-	-	41,990
	1,100,831	1,101,535	-	-	-	-	1,101,535
Segregated fund net liabilities	2,666	-	-	-	-	-	-
Other							
Acceptances	19,873	19,873	-	-	-	-	19,873
Obligations related to securities sold short	37,841	37,841	-	-	-	-	37,841
Obligations related to assets sold under repurchase agreements and securities loaned	262,201	262,201	-	262,201	-	-	-
Derivatives[2]	91,439	91,439	-	91,439	-	89,159	-
Insurance claims and policy benefit liabilities	12,816	-	-	-	-	-	-
Other liabilities	70,301	68,334	-	-	-	-	68,334
	494,471	479,688	-	353,640	-	89,159	126,048
Subordinated debentures	9,593	9,593	-	-	-	-	9,593
Total liabilities[2]	1,607,561	1,590,816	-	353,640	-	89,159	1,237,176
Equity attributable to shareholders							
Preferred shares	6,684	6,684	-	-	-	-	6,684
Common shares	17,655	17,655	-	-	-	-	17,655
Retained earnings	71,795	71,778	-	-	-	-	71,778
Other components of equity	2,533	2,763	-	-	-	-	2,763
	98,667	98,880	-	-	-	-	98,880
Non-controlling interests	95	95	-	-	-	-	95
Total equity	98,762	98,975	-	-	-	-	98,975
Total liabilities and equity[2]	**1,706,323**	**1,689,791**	**-**	**353,640**	**-**	**89,159**	**1,336,151**

[1] Column c to g reflect a further breakout of column b by providing the respective CAR guideline frameworks utilized and OSFI COVID-19 guidance.

[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.

[3] Amount includes exposure related to the US Government Paycheck Protection Program which are excluded from risk-weighting as per OSFI COVID-19 guidance.

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, 2021

		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]**	**1,673,003**	**1,087,419**	**19,200**	**431,463**	**226,729**
2	Liabilities carrying value amount under regulatory scope of consolidation (as per template LI1)[1]	353,640	-	-	353,640	89,159
3	Total net amount under regulatory scope of consolidation	1,319,363	1,087,419	19,200	77,823	137,570
4	Off-balance sheet amounts[2]	1,416,717	383,145	44,417	989,154	-
5	Differences due to Fair Value adjustment	(187)	(225)	-	38	-
6	Differences due to different netting rules, other than those already included in row 2	1,529	1,529	-	-	-
7	Differences due to consideration of provisions	-	-	-	-	-
8	Differences due to prudential filters	-	-	-	-	-
9	Difference due to accounting and risk treatment of securitizations and other items	41	41	-	-	-
10	**Exposure amounts considered for regulatory purposes**	**2,737,463**	**1,471,909**	**63,617**	**1,067,015**	**137,570**

[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 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), 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. On November 1, 2018, OSFI adopted the BCBS Standardized Approach for measuring Counterparty credit risk for derivative regulatory exposures and we have adopted this methodology for our derivative regulatory exposures. The main differences between the accounting and regulatory amounts for Counterparty credit risk 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 regulatory carrying values are determined based on the BCBS revised securitization framework adopted by OSFI on November 1, 2018.

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 2021 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.

CAPITAL

CC1: Composition of Capital

The following table provides details of our regulatory capital and required regulatory adjustments under OSFI's CAR guidelines. Reconciliation references to CC2 of where these items are located on our IFRS and regulatory balance sheet are also included.

	Composition of Capital Template (Millions of Canadian dollars, except percentage and otherwise noted)	**Cross Reference of Current Quarter to Regulatory Capital Balance Sheet (CC2)**	**Q4/21**	**Q3/21**	**Q2/21**	**Q1/21**	**Q4/20**
Common Equity Tier 1 capital (CET1): Instruments and Reserves							
1	Directly issued qualifying common share capital (and equivalent for non-joint stock companies) plus related stock surplus	**a+a'**	17,887	17,885	17,927	17,883	17,732
2	Retained earnings	**b+b'**	71,563	68,722	65,925	62,506	59,573
3	Accumulated other comprehensive income (and other reserves)	**c-c'**	2,533	2,196	1,683	2,545	3,414
4	*Directly issued capital subject to phase out from CET1 (only applicable to non-joint stock companies)*		-	-	-	-	-
5	Common share capital issued by subsidiaries and held by third parties (amount allowed in group CET1)	**d**	11	11	11	12	12
6	**Common Equity Tier 1 capital before regulatory adjustments**		**91,994**	**88,814**	**85,546**	**82,946**	**80,731**
	Common Equity Tier 1 capital: Regulatory adjustments						
7	Prudential valuation adjustments		-	-	-	-	-
8	Goodwill (net of related tax liability)	**e+e'+m'-t**	10,734	10,791	10,686	10,984	11,198
9	Other intangibles other than mortgage-servicing rights (net of related tax liability)	**f+f'-v**	3,656	3,669	3,671	3,906	3,999
10	Deferred tax assets excluding those arising from temporary differences (net of related tax liability)	**g**	222	174	170	184	181
11	Cash flow hedge reserve	**h**	566	(300)	(205)	(907)	(1,079)
12	Shortfall of provisions to expected losses	**i**	-	-	-	-	-
13	Securitization gain on sale		-	-	-	-	-
14	Gains and losses due to changes in own credit risk on fair valued liabilities	**j**	(258)	(341)	(374)	(474)	(314)
15	Defined benefit pension fund net assets (net of related tax liability)	**k-u**	1,909	1,557	1,448	673	111
16	Investments in own shares (if not already netted off paid-in capital on reported balance sheet)		-	-	-	-	-
17	Reciprocal cross holdings in common equity		-	-	-	-	-
18	Non-significant investments in the capital of banking, financial and insurance entities, net of eligible short positions (amount above 10% threshold)		-	-	-	-	-
19	Significant investments in the common stock of banking, financial and insurance entities that are outside the scope of regulatory consolidation, net of eligible short positions (amount above 10% threshold)		-	-	-	-	-
20	Mortgage servicing rights (amount above 10% threshold)		-	-	-	-	-
21	Deferred tax assets arising from temporary differences (amount above 10% threshold, net of related tax liability)		-	-	-	-	-
22	Amount exceeding the 15% threshold		-	-	-	-	-
23	of which: significant investments in the common stock of financials	**l**	-	-	-	-	-
24	of which: mortgage servicing rights		-	-	-	-	-
25	of which: deferred tax assets arising from temporary differences	**m**	-	-	-	-	-
26	Other deductions or regulatory adjustments to CET1 as determined by OSFI		(418)	(558)	(820)	(975)	(1,447)
27	Regulatory adjustments applied to Common Equity Tier 1 due to insufficient Additional Tier 1 and Tier 2 to cover deductions		-	-	-	-	-
28	**Total regulatory adjustments to Common Equity Tier 1**		16,411	14,992	14,576	13,391	12,649
29	**Common Equity Tier 1 capital (CET1)**		**75,583**	**73,822**	**70,970**	**69,555**	**68,082**
29a	**Common Equity Tier 1 Capital (CET1)** with transitional arrangements for ECL provisioning not applied		75,163	73,264	70,150	68,579	66,635
Additional Tier 1 capital (AT1): Instruments							
30	Directly issued qualifying Additional Tier 1 instruments plus related stock surplus		6,661	7,393	7,167	7,175	5,921
31	of which: classified as equity under applicable accounting standards	**n'+n'''**	6,661	7,393	7,167	7,175	5,921
32	of which: classified as liabilities under applicable accounting standards		-	-	-	-	-

Composition of Capital Template *continued* (Millions of Canadian dollars, except percentage and otherwise noted)		**Cross Reference of Current Quarter to Regulatory Capital Balance Sheet (CC2)**	**Q4/21**	**Q3/21**	**Q2/21**	**Q1/21**	**Q4/20**
33	*Directly issued capital instruments subject to phase out from Additional Tier 1*	**x+n"**	-	-	-	-	-
34	Additional Tier 1 instruments (and CET1 instruments not included in row 5) issued by subsidiaries and held by third parties (amount allowed in group AT1)	**o**	2	3	2	3	2
35	*of which: instruments issued by subsidiaries subject to phase out*		-	-	-	-	-
36	**Additional Tier 1 capital before regulatory adjustments**		6,663	7,396	7,169	7,178	5,923
	Additional Tier 1 capital: Regulatory adjustments						
37	Investments in own Additional Tier 1 instruments		-	-	-	-	-
38	Reciprocal cross holdings in Additional Tier 1 instruments		-	-	-	-	-
39	Non-significant investments in the capital of banking, financial and insurance entities, net of eligible short positions (amount above 10% threshold)		-	-	-	-	-
40	Significant investments in the capital of banking, financial and insurance entities that are outside the scope of regulatory consolidation, net of eligible short positions		-	-	-	-	-
41	Other deductions from Tier 1 capital as determined by OSFI		-	-	-	-	-
41a	of which: reverse mortgages		-	-	-	-	-
42	Regulatory adjustments applied to Additional Tier 1 due to insufficient Tier 2 to cover deductions		-	-	-	-	-
43	**Total regulatory adjustments to Additional Tier 1 capital**		-	-	-	-	-
44	**Additional Tier 1 Capital (AT1)**		**6,663**	**7,396**	**7,169**	**7,178**	**5,923**
45	**Tier 1 capital (T1 = CET1 + AT1)**		**82,246**	**81,218**	**78,139**	**76,733**	**74,005**
45a	**Tier 1 capital** with transitional arrangements for ECL provisioning not applied		81,826	80,659	77,319	75,757	72,559
Tier 2 Capital: Instruments and Provisions							
46	Directly issued qualifying Tier 2 instruments plus related stock surplus	**q"+q'''''**	8,443	7,890	7,866	8,005	9,049
47	*Directly issued capital instruments subject to phase out from Tier 2*	**q'''**	448	452	470	478	488
48	Tier 2 instruments (and CET1 and AT1 instruments not included in rows 5 or 34) issued by subsidiaries and held by third parties (amount allowed in group Tier 2)	**r+q''''**	26	27	27	28	29
49	*of which: instruments issued by subsidiaries subject to phase out*	**q''''**	*23*	*24*	*24*	*25*	*26*
50	Collective allowances	**s**	863	1,149	1,134	1,299	1,357
51	**Tier 2 capital before regulatory adjustments**		**9,780**	**9,518**	**9,497**	**9,810**	**10,923**
	Tier 2 Capital: Regulatory adjustments						
52	Investments in own Tier 2 instruments		-	-	-	-	-
53	Reciprocal cross holdings in Tier 2 instruments and Other TLAC-eligible Instruments		-	-	-	-	-
54	Non-significant investments in the capital of banking, financial and insurance entities, and Other TLAC-eligible instruments issued by G-SIBs and Canadian D-SIBs that are outside the scope of regulatory consolidation, where the institution does not own more than 10% of the issued common share capital of the entity (amount above 10% threshold)		-	-	-	-	-
54a	Non-significant investments in the other TLAC-eligible instruments issued by G-SIBs and Canadian D-SIBs, where the institution does not own more than 10% of the issued common share capital of the entity: amount previously designated for the 5% threshold but that no longer meets the conditions.		-	-	-	-	-
55	Significant investments in the capital of banking, financial and insurance entities and Other TLAC-eligible instuments issued by G-SIBs and Canadian D-SIBs that are outside the scope of regulatory consolidation		-	-	-	-	-
56	Other deductions from Tier 2 capital		-	-	-	-	-
57	**Total regulatory adjustments to Tier 2 capital**		-	-	-	-	-
58	**Tier 2 capital (T2)**		**9,780**	**9,518**	**9,497**	**9,810**	**10,923**
59	**Total capital (TC = T1 + T2)**		**92,026**	**90,736**	**87,636**	**86,543**	**84,928**
59a	**Total Capital** with transitional arrangements for ECL provisioning not applied		92,026	90,736	87,636	86,543	84,928
60	**Total risk-weighted assets**		**552,541**	**543,047**	**555,607**	**557,519**	**546,242**
60a	**Common Equity Tier 1 (CET1) Capital RWA**		**552,541**	**543,047**	**555,607**	**557,519**	**546,242**
60b	**Tier 1 Capital RWA**		**552,541**	**543,047**	**555,607**	**557,519**	**546,242**
60c	**Total Capital RWA**		**552,541**	**543,047**	**555,607**	**557,519**	**546,242**

Composition of Capital Template *continued* (Millions of Canadian dollars, except percentage and otherwise noted)		Cross Reference of Current Quarter to Regulatory Capital Balance Sheet (CC2)	Q4/21	Q3/21	Q2/21	Q1/21	Q4/20
Capital ratios							
61	Common Equity Tier 1 (as a percentage of risk-weighted assets)		13.7%	13.6%	12.8%	12.5%	12.5%
61a	CET1 Ratio with transitional arrangements for ECL provisioning not applied		13.6%	13.5%	12.6%	12.3%	12.2%
62	Tier 1 (as a percentage of risk-weighted assets)		14.9%	15.0%	14.1%	13.8%	13.5%
62a	Tier 1 Capital Ratio with transitional arrangements for ECL provisioning not applied		14.8%	14.9%	13.9%	13.6%	13.3%
63	Total capital (as a percentage of risk-weighted assets)		16.7%	16.7%	15.8%	15.5%	15.5%
63a	Total Capital Ratio with transitional arrangements for ECL provisioning not applied		16.7%	16.7%	15.8%	15.5%	15.5%
64	Buffer (minimum CET1 requirement plus capital conservation buffer plus G-SIB buffer requirement plus D-SIB buffer expressed as a percentage of risk-weighted assets)		8.0%	8.0%	8.0%	8.0%	8.0%
65	of which: capital conservation buffer		2.5%	2.5%	2.5%	2.5%	2.5%
66	of which: bank-specific countercyclical buffer		0.0%	0.0%	0.0%	0.0%	0.0%
67	of which: G-SIB buffer[1]		1.0%	1.0%	1.0%	1.0%	1.0%
67a	of which: D-SIB buffer		0.0%	0.0%	0.0%	0.0%	0.0%
68	Common Equity Tier 1 available to meet buffers (as a percentage of risk-weighted assets)		13.7%	13.6%	12.8%	12.5%	12.5%
OSFI target (minimum + capital conservation buffer + D-SIB surcharge (if applicable))							
69	Common Equity Tier 1 target ratio		8.0%	8.0%	8.0%	8.0%	8.0%
70	Tier 1 capital target ratio		9.5%	9.5%	9.5%	9.5%	9.5%
71	Total capital target ratio		11.5%	11.5%	11.5%	11.5%	11.5%
Amounts below the thresholds for deduction (before risk-weighting)							
72	Non-significant investments in the capital and Other TLAC-eligible instruments of other financials entities		761	780	348	659	549
73	Significant investments in the common stock of financials		5,799	5,480	5,423	5,348	5,221
74	Mortgage servicing rights (net of related tax liability)		-	-	-	-	-
75	Deferred tax assets arising from temporary differences (net of related tax liability)		1,515	1,224	1,129	995	1,177
Applicable caps on the inclusion of allowances in Tier 2							
76	Allowances eligible for inclusion in Tier 2 in respect of exposures subject to standardized approach (prior to application of cap)		861	906	948	1,028	1,075
77	Cap on inclusion of allowances in Tier 2 under standardized approach		861	906	948	1,028	1,075
78	Allowances eligible for inclusion in Tier 2 in respect of exposures subject to internal ratings-based approach (prior to application of cap)		2,925	3,251	3,879	4,159	4,271
79	Cap on inclusion of allowances in Tier 2 under internal ratings-based approach		2,925	3,251	3,879	4,159	4,271
Capital instruments subject to phase-out arrangements (only applicable between 1 Jan 2013 and 1 Jan 2022)							
80	*Current cap on CET1 instruments subject to phase out arrangements*		-	-	-	-	-
81	*Amounts excluded from CET1 due to cap (excess over cap after redemptions and maturities)*		-	-	-	-	-
82	*Current cap on AT1 instruments subject to phase out arrangements*		739	739	739	739	1,478
83	*Amounts excluded from AT1 due to cap (excess over cap after redemptions and maturities)*		-	-	-	-	-
84	*Current cap on T2 instruments subject to phase out arrangements*		919	919	919	919	1,838
85	*Amounts excluded from T2 due to cap (excess over cap after redemptions and maturities)*		-	-	-	-	-

[1] Capital surcharge, equal to the higher of our D-SIB surcharge and the BCBS's G-SIB surcharge, is applicable to risk-weighted capital.

CC2: Regulatory capital balance sheet

The following table provides a reconciliation of our regulatory capital elements as reported in CC1 with our balance sheet prepared in accordance with IFRS and our regulatory balance sheet.

Regulatory capital balance sheet (Millions of Canadian dollars)	**Cross Reference to Basel III Regulatory Capital Components (CC1)**	**Q4/21** Balance sheet as in Report to Shareholders	**Q4/21** Under regulatory scope of consolidation
Assets			
Cash and due from banks		113,846	113,846
Interest-bearing deposits with banks		79,638	79,638
Securities, net of applicable allowance		284,724	269,870
Non-significant investments in capital of other financial institutions not exceeding regulatory thresholds			761
Other securities			269,109
Assets purchased under reverse repurchase agreements and securities borrowed		307,903	307,903
Loans			-
Retail		503,598	503,272
Wholesale		218,066	215,741
Allowance for loan losses		(4,089)	(4,089)
Collective allowance reflected in Tier 2 regulatory capital [1]	s		(863)
Shortfall of allowances to expected loss [2]	i		-
Allowances not reflected in regulatory capital			(3,226)
		717,575	714,924
Segregated fund net assets		2,666	-
Other			
Customers' liability under acceptances		19,798	19,798
Derivatives		95,541	96,215
Premises and equipment, net		7,424	7,406
Goodwill	e	10,854	10,854
Goodwill related to insurance and joint ventures	e'		-
Other intangibles	f	4,471	4,346
Other intangibles related to insurance and joint ventures	f'		125
Other		61,883	64,991
Significant investments in other financial institutions and insurance subsidiaries			5,799
of which: exceeding regulatory thresholds	l		-
of which: not exceeding regulatory thresholds			5,799
Defined - benefit pension fund net assets	k		2,583
Deferred tax assets			1,979
of which: deferred tax assets excluding those arising from temporary differences	g		222
of which: deferred tax assets arising from temporary differences exceeding regulatory thresholds	m		-
of which: deferred tax liabilities related to permitted tax netting			(1,529)
of which: deferred tax assets - other temporary differences			3,286
Other assets			54,630
of which: relates to assets of operations held for sale – Goodwill	m'		-
Total assets		**1,706,323**	**1,689,791**

[1] Collective allowance includes Stage 1 and Stage 2 ACL on financial assets.

[2] Expected loss as defined under the Basel III framework.

Regulatory capital balance sheet *continued* (Millions of Canadian dollars)	Cross Reference to Basel III Regulatory Capital Components (CC1)	Q4/21 Balance sheet as in Report to Shareholders	Under regulatory scope of consolidation
Liabilities			
Deposits			
Personal		362,488	362,488
Business and government		696,353	697,057
Bank		41,990	41,990
		1,100,831	1,101,535
Segregated fund net liabilities		2,666	-
Other			
Acceptances		19,873	19,873
Obligations related to securities sold short		37,841	37,841
Obligations related to assets sold under repurchase agreements and securities loaned		262,201	262,201
Derivatives		91,439	91,439
Insurance claims and policy benefit liabilities		12,816	-
Other liabilities		70,301	68,334
Gains and losses due to changes in own credit risk on fair value liabilities	j		(258)
Deferred tax liabilities			74
of which: related to goodwill	t		120
of which: related to intangibles	v		815
of which: related to pensions	u		674
of which: relates to permitted tax netting			(1,535)
of which: other deferred tax liabilities			-
Other Liabilities			68,518
Subordinated debentures	q	9,593	9,593
Regulatory capital amortization of maturing debentures	q'''''		(371)
Subordinated debentures not allowed for regulatory capital	q'		679
Subordinated debentures used for regulatory capital:			9,285
of which: are qualifying	q''		8,814
of which: are subject to phase out directly issued capital:	q'''		448
of which: are subject to phase out issued by subsidiaries and held by 3rd party	q''''		23
Total liabilities		**1,607,561**	**1,590,816**
Equity attributable to shareholders		**98,667**	**98,880**
Common shares	a	17,655	17,655
of which are treasury - common shares			(73)
Retained earnings		71,795	71,778
of which relates to contributed surplus	a'		232
of which relates to retained earnings for capital purposes	b		71,546
of which relates to insurance and joint ventures	b'		17
Other components of equity	c	2,533	2,763
Gains and losses on derivatives designated as cash flow hedges	h		566
Unrealized foreign currency translation gains and losses, net of hedging activities			2,055
Other reserves allowed for regulatory capital			142
of which relates to Insurance	c'		230
Preferred shares and other equity instruments	n	6,684	6,684
of which: are qualifying	n'		6,700
of which: are subject to phase out	n''		-
of which portion are not allowed for regulatory capital			23
of which: are qualifying treasury - preferred shares	n'''		(39)
of which: are subject to phase out treasury - preferred shares			-

Regulatory capital balance sheet *continued* (Millions of Canadian dollars)	Cross Reference to Basel III Regulatory Capital Components (CC1)	Q4/21 Balance sheet as in Report to Shareholders	Q4/21 Under regulatory scope of consolidation
Non-controlling interests		**95**	**95**
of which: are qualifying			
portion allowed for inclusion into CET1	**d**		11
portion allowed for inclusion into Tier 1 capital	**o**		2
portion allowed for inclusion into Tier 2 capital	**r**		3
of which: are subject to phase out	**x**		-
of which: portion not allowed for regulatory capital			79
Total equity		**98,762**	**98,975**
Total liabilities and equity		**1,706,323**	**1,689,791**

Insurance subsidiaries [1]	**Principal activities**	**Equity**	**Assets**
Assured Assistance Inc.	Service provider for insurance claims	1	-
Royal Bank of Canada Insurance Company Limited	Life, annuity, trade credit, title and property reinsurance company provides coverage to international clients	-	-
RBC (Barbados) Services Comp	The company provides investment management, reinsurance transaction support and corporate services to Royal Bank of Canada Insurance Company Ltd.	2,193	838
RBC Insurance Agency Ltd.	Distribution of H&A products through AVIVA	36	40
RBC Insurance Company (Cayman) Limited	Life, annuity reinsurance company provides coverage to international clients	-	-
RBC Insurance Company of Canada	Property and casualty insurance company	120	111
RBC Insurance Holdings Inc.	Holding company	1	-
RBC Insurance Services Inc.	Service provider for insurance companies listed and the bank (creditor)	78	77
RBC Life Insurance Company	Life and health insurance company	2,937	20,832
		5,366	21,898

[1] The list of legal entities that are included within the accounting scope of consolidation but excluded from the regulatory scope of consolidation.

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 2021 Annual Report and incorporated by reference into this Pillar 3 report. Our 2021 Annual Report is available free of charge on our website at http://www.rbc.com/investorrelations

	Pillar 3 disclosures requirement	RBC 2021 Annual Report section	Sub-section
a)	Translation of the business model into the components of the bank's credit risk profile	Credit risk	Overview
			Measurement of economic and regulatory capital - *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 – *Delegated authorities and risk 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 – *Risk monitoring and 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, 2021

		a	b	c	d	e	f	g
		Gross carrying values of			Of which ECL accounting provisions on SA exposures			
	(Millions of Canadian dollars)	Defaulted exposures[1]	Non-defaulted exposures	Allowances/ impairments[2]	Allocated in regulatory category of Specific[3]	Allocated in regulatory category of General[3]	Of which ECL accounting provisions on IRB exposures	Net values (a+b-c)
1	Loans	2,209	697,309	4,089	75	853	3,161	695,429
2	Debt Securities	-	135,650	23	-	5	18	135,627
3	Off-Balance Sheet exposures[4]	819	282,298	277	-	2	275	282,840
4	**Total**	**3,028**	**1,115,257**	**4,389**	**75**	**860**	**3,454**	**1,113,896**

[1] Definition of default as per the CAR guidelines and recent OSFI COVID-19 guidance.

[2] Reflects Stage 1, 2 and 3 allowances under IFRS 9, excluding ACL on fair value through OCI on financial instruments.

[3] Regulatory category of specific allowance reflects IFRS 9 Stage 3 allowances. Regulatory category of general allowances reflects Stage 1 & 2 allowances.

[4] 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.

As at July 31, 2021

		a	b	c	d	e	f	g
		Gross carrying values of			Of which ECL accounting provisions on SA exposures			
	(Millions of Canadian dollars)	Defaulted exposures[1]	Non-defaulted exposures	Allowances/ impairments[2]	Allocated in regulatory category of Specific[3]	Allocated in regulatory category of General[3]	Of which ECL accounting provisions on IRB exposures	Net values (a+b-c)
1	Loans	2,375	680,404	4,588	81	896	3,611	678,191
2	Debt Securities	-	125,612	25	-	7	18	125,587
3	Off-Balance Sheet exposures[4]	700	280,338	242	-	2	240	280,796
4	**Total**	**3,075**	**1,086,354**	**4,855**	**81**	**905**	**3,869**	**1,084,574**

[1] Definition of default as per the CAR guidelines and recent OSFI COVID-19 guidance.

[2] Reflects Stage 1, 2 and 3 allowances under IFRS 9, excluding ACL on fair value through OCI on financial instruments.

[3] Regulatory category of specific allowance reflects IFRS 9 Stage 3 allowances. Regulatory category of general allowances reflects Stage 1 & 2 allowances.

[4] 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, 2021

	(Millions of Canadian dollars)	a
1	**Defaulted loans and debt securities at the end of April 30, 2021**	**2,606**
2	Loans and debt securities that have defaulted since the last reporting period	946
3	Returned to non-defaulted status	(497)
4	Amounts written off	(554)
5	Other changes	(292)
6	**Defaulted loans and debt securities at the end of October 31, 2021**	**2,209**

For the six months ended April 30, 2021

	(Millions of Canadian dollars)	a
1	**Defaulted loans and debt securities at the end of October 31, 2020**	**3,206**
2	Loans and debt securities that have defaulted since the last reporting period	684
3	Returned to non-defaulted status	(175)
4	Amounts written off	(615)
5	Other changes	(494)
6	**Defaulted loans and debt securities at the end of April 30, 2021**	**2,606**

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 2021 Annual Report and incorporated by reference into this Pillar 3 report. Our 2021 Annual Report is available free of charge on our website at http://www.rbc.com/investorrelations

Pillar 3 disclosures requirement		RBC 2021 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 Allowance for credit losses - Definition of default Credit impaired financial assets (Stage 3) Note 5 – Loans and allowances for credit losses Loans past due but not impaired
b)	Extent of past due exposures	Consolidated Financial Statements	Note 5 – Loans and allowances for credit losses Loans past due but not impaired
c)	Description of methods used for determining accounting provisions for credit losses	Consolidated Financial Statements	Note 2 - Summary of significant accounting policies, estimates and judgments Allowance for credit losses
	Description of the categorization of ECL accounting provisions (general and specific) for standardized approach exposures	n/a	n/a - For regulatory calculations under both the Standardized and IRB approaches, the IFRS 9 stage 3 allowances are considered to be specific allowances and the IFRS 9 stage 1 and stage 2 allowances are considered to be general allowances
d)	Definition of a restructured exposure	Consolidated Financial Statements	Note 2 - Summary of significant accounting policies, estimates and judgments Allowance for credit losses - 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 industry, geographical areas and residual maturity. Our classification below reflects the Basel regulatory defined exposure classes. Amounts shown below reflect Exposures at default (EAD), which is the amount expected to be owed by an obligor at the time of default.

As at October 31, 2021

	a	b	c	d	e
	Credit Risk[1,2]			Counterparty Credit Risk[5]	
	On-balance sheet amount	Off-balance sheet amount[3]		Repo-style Transaction	Derivatives
(Millions of Canadian dollars)		Undrawn	Other[4]		
Retail					
Residential secured[6]	362,793	96,609			
Qualifying revolving	30,080	90,932			
Other retail	85,362	19,422	146		
Total Retail	**478,235**	**206,963**	**146**		
Wholesale					
Agriculture	9,400	1,756	30	-	84
Automotive	6,288	9,184	173	-	1,124
Banking	37,053	4,545	765	117,996	30,888
Consumer Discretionary	14,792	9,380	573	-	698
Consumer Staples	6,254	6,949	180	-	1,058
Oil and Gas	5,678	10,328	1,474	-	7,493
Financial Services	32,977	19,252	2,623	64,593	16,262
Financing Products	11,277	2,405	485	388	848
Forest Products	969	991	201	-	17
Governments	293,250	4,794	1,533	23,536	5,692
Industrial Products	7,308	8,933	594	-	811
Information Technology	3,591	5,715	237	49	5,447
Investments	22,238	3,201	412	12	174
Mining and Metals	993	3,730	952	-	237
Public Works and Infrastructure	1,427	1,963	391	-	239
Real Estate and Related	76,141	14,223	1,568	-	1,176
Other Services	23,872	13,362	1,860	47	1,316
Telecommunication and Media	5,294	9,748	598	-	1,976
Transportation	6,151	6,832	1,319	-	1,426
Utilities	9,059	17,152	4,131	-	4,464
Other Sectors	3,084	1,139	7	7	6,960
Total Wholesale	**577,096**	**155,582**	**20,106**	**206,628**	**88,390**
Total Exposure[1]	**1,055,331**	**362,545**	**20,252**	**206,628**	**88,390**
By Geography[7]					
Canada	693,700	264,708	9,141	88,523	27,978
United States	245,929	69,295	7,866	54,617	27,270
Europe	62,509	22,667	1,991	42,483	25,757
Other International	53,193	5,875	1,254	21,005	7,385
Total Exposure[1,7]	**1,055,331**	**362,545**	**20,252**	**206,628**	**88,390**
By Maturity					
Unconditionally cancellable	70,446	233,713	138	-	-
Within 1 year	393,003	26,315	11,796	206,628	41,545
1 to 5 year	499,818	93,614	7,124	-	28,644
Over 5 years	92,064	8,903	1,194	-	18,201
Total Exposure[1]	**1,055,331**	**362,545**	**20,252**	**206,628**	**88,390**

[1] Excludes securitization, banking book equities and other assets not subject to standardized or IRB approach. Also excludes exposures acquired through the US Government Paycheck Protection Program (PPP).

[2] EAD for Standardized exposures are reported net of Stage 3 allowances and EAD for IRB exposures are reported gross of all allowances for credit loss and partial write-off as per regulatory definitions.

[3] EAD for Undrawn credit commitments and other off-balance sheet amounts are reported after the application of credit conversion factors.

[4] Includes other off-balance sheet exposures such as letters of credit & guarantees.

[5] 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. Exchange traded derivatives are included in Other Sectors.

[6] Includes residential mortgages and home equity lines of credit.

[7] Geographic profile is based on the country of residence of the borrower.

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

As at July 31, 2021

	a	b	c	d	e
	Credit Risk[1,2]			Counterparty Credit Risk[5]	
	On-balance sheet amount	Off-balance sheet amount[3]		Repo-style Transaction	Derivatives
(Millions of Canadian dollars)		Undrawn	Other[4]		
Retail					
Residential secured[6]	355,375	94,709			
Qualifying revolving	29,541	91,148			
Other retail	82,238	18,979	140		
Total Retail	**467,154**	**204,836**	**140**		
Wholesale					
Agriculture	9,311	1,742	30	-	82
Automotive	6,630	8,369	151	-	987
Banking	35,994	4,425	733	110,817	28,001
Consumer Discretionary	14,416	10,622	467	-	718
Consumer Staples	4,995	6,974	177	-	2,096
Oil and Gas	6,756	10,054	1,478	-	5,996
Financial Services	28,001	18,774	2,720	63,010	17,114
Financing Products	8,244	1,838	489	415	951
Forest Products	1,474	913	186	-	27
Governments	289,806	4,825	1,679	32,667	5,860
Industrial Products	7,226	8,907	587	-	770
Information Technology	5,039	5,869	256	-	5,268
Investments	21,998	3,263	435	14	157
Mining and Metals	1,860	3,844	948	-	215
Public Works and Infrastructure	1,373	1,951	405	-	255
Real Estate and Related	74,568	13,789	1,520	-	1,249
Other Services	25,104	13,306	1,700	26	1,512
Telecommunication and Media	5,609	8,770	602	-	1,910
Transportation	6,045	8,867	1,240	-	1,396
Utilities	8,237	17,360	4,173	-	3,693
Other Sectors	1,712	1,119	4	9	6,138
Total Wholesale	**564,398**	**155,581**	**19,980**	**206,958**	**84,395**
Total Exposure[1]	**1,031,552**	**360,417**	**20,120**	**206,958**	**84,395**
By Geography[7]					
Canada	680,378	264,811	9,116	84,521	27,229
United States	238,052	65,970	7,831	46,696	25,302
Europe	69,608	24,516	1,897	44,410	24,075
Other International	43,514	5,120	1,276	31,331	7,789
Total Exposure[1,7]	**1,031,552**	**360,417**	**20,120**	**206,958**	**84,395**
By Maturity					
Unconditionally cancellable	69,534	232,090	132	-	-
Within 1 year	382,139	30,347	12,060	206,958	40,946
1 to 5 year	497,688	91,631	6,859	-	26,542
Over 5 years	82,191	6,349	1,069	-	16,907
Total Exposure[1]	**1,031,552**	**360,417**	**20,120**	**206,958**	**84,395**

1 Excludes securitization, banking book equities and other assets not subject to standardized or IRB approach. Also excludes exposures acquired through the US Government Paycheck Protection Program (PPP).

2 EAD for Standardized exposures are reported net of Stage 3 allowances and EAD for IRB exposures are reported gross of all allowances for credit loss and partial write-off as per regulatory definitions.

3 EAD for Undrawn credit commitments and other off-balance sheet amounts are reported after the application of credit conversion factors.

4 Includes other off-balance sheet exposures such as letters of credit & guarantees.

5 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. Exchange traded derivatives are included in Other Sectors.

6 Includes residential mortgages and home equity lines of credit.

7 Geographic profile is based on the country of residence of the borrower.

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, 2021

Impaired exposures by geography[1] and portfolio (Millions of Canadian dollars)	Gross impaired exposures	Allowance[2]	Net impaired exposures
Canada			
Retail	716	150	566
Wholesale	555	182	373
Securities	-	-	-
Total - Canada	**1,271**	**332**	**939**
United States			
Retail	23	3	20
Wholesale	412	126	286
Securities	-	-	-
Total - United States	**435**	**129**	**306**
Other International			
Retail	212	107	105
Wholesale	390	129	261
Securities	150	(12)	162
Total - Other International	**752**	**224**	**528**
Total			
Retail	951	260	691
Wholesale	1,357	437	920
Securities	150	(12)	162
Total impaired exposures	**2,458**	**685**	**1,773**

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

[2] Allowance reflects only Stage 3 IFRS 9 allowances and includes allowances on acquired credit-impaired loans and securities.

As at July 31, 2021

Impaired exposures by geography[1] and portfolio (Millions of Canadian dollars)	Gross impaired exposures	Allowance[2]	Net impaired exposures
Canada			
Retail	740	163	577
Wholesale	566	199	367
Securities	-	-	-
Total - Canada	**1,306**	**362**	**944**
United States			
Retail	23	1	22
Wholesale	585	143	442
Securities	-	-	-
Total - United States	**608**	**144**	**464**
Other International			
Retail	226	116	110
Wholesale	421	160	261
Securities	151	(10)	161
Total - Other International	**798**	**266**	**532**
Total			
Retail	989	280	709
Wholesale	1,572	502	1,070
Securities	151	(10)	161
Total impaired exposures	**2,712**	**772**	**1,940**

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

[2] Allowance reflects only Stage 3 IFRS 9 allowances and includes allowances on acquired credit-impaired loans and securities.

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

Net write-offs by geography[1] and portfolio (Millions of Canadian dollars)	For the three months ended October 31, 2021	For the three months ended July 31, 2021
Canada		
Retail	129	149
Wholesale	20	16
Total Canada	**149**	**165**
United States[2]		
Retail	2	1
Wholesale	23	-
Total United States	**25**	**1**
Other International		
Retail	3	(2)
Wholesale[2]	19	-
Total Other International	**22**	**(2)**
Total		
Retail	134	148
Wholesale	62	16
Total net write-offs	**196**	**164**

[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, 2021

Impaired exposures by portfolio and sector (Millions of Canadian dollars)	Gross impaired exposures	Allowance[1]	Net impaired exposures
Retail			
Residential mortgages	645	138	507
Personal	197	88	109
Small business	109	34	75
Total Retail	**951**	**260**	**691**
Wholesale			
Agriculture	11	3	8
Automotive	8	2	6
Banking	-	-	-
Consumer Discretionary	274	37	237
Consumer Staples	32	8	24
Oil and Gas	131	91	40
Financial Services	77	22	55
Financial Products	-	-	-
Forest Products	4	1	3
Governments	25	3	22
Industrial Products	35	13	22
Information Technology	5	1	4
Investments	31	-	31
Mining and Metals	3	1	2
Public Works and Infrastructure	6	2	4
Real Estate and Related	314	72	242
Other Services	220	116	104
Telecommunication and Media	6	9	(3)
Transportation	137	42	95
Utilities	-	-	-
Other	38	14	24
Total Wholesale	**1,357**	**437**	**920**
Total impaired loans and acceptances	**2,308**	**697**	**1,611**
Securities	150	(12)	162
Total impaired exposures	**2,458**	**685**	**1,773**

[1] Allowance reflects only Stage 3 IFRS 9 allowances and includes allowances on acquired credit-impaired loans and securities.

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

As at July 31, 2021

Impaired exposures by portfolio and sector (Millions of Canadian dollars)	Gross impaired exposures	Allowance[1]	Net impaired exposures
Retail			
Residential mortgages	671	156	515
Personal	211	90	121
Small business	107	34	73
Total Retail	**989**	**280**	**709**
Wholesale			
Agriculture	10	3	7
Automotive	16	7	9
Banking	-	-	-
Consumer Discretionary	287	52	235
Consumer Staples	74	11	63
Oil and Gas	196	122	74
Financial Services	77	22	55
Financial Products	-	-	-
Forest Products	4	1	3
Governments	14	2	12
Industrial Products	34	14	20
Information Technology	30	14	16
Investments	32	1	31
Mining and Metals	3	1	2
Public Works and Infrastructure	9	3	6
Real Estate and Related	286	73	213
Other Services	303	119	184
Telecommunication and Media	5	1	4
Transportation	150	41	109
Utilities	-	-	-
Other	42	15	27
Total Wholesale	**1,572**	**502**	**1,070**
Total impaired loans and acceptances	**2,561**	**782**	**1,779**
Securities	151	(10)	161
Total impaired exposures	**2,712**	**772**	**1,940**

[1] Allowance reflects only Stage 3 IFRS 9 allowances and includes allowances on acquired credit-impaired loans and securities.

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. Loans under payment deferral programs resulting from COVID-19 have been re-aged to current and are not aged further during the deferral period. Subsequent to the payment deferral period, loans will commence re-aging from current. Amounts presented may include loans past due as a result of administrative processes, such as mortgage loans on which payments are restrained pending payout due to sale or refinance, which can fluctuate based on business volumes. Past due loans arising from administrative processes are not representative of the borrowers' ability to meet their payment obligations. The table excludes loans less than 30 days past due as they are not generally representative of the borrowers' ability to meet their payment obligations.

As at October 31, 2021

(Millions of Canadian dollars)	30 to 89 days	90 days and greater	Total
Retail	1,105	137	1,242
Wholesale	1,230	-	1,230
Total	**2,335**	**137**	**2,472**

As at July 31, 2021

(Millions of Canadian dollars)	30 to 89 days	90 days and greater	Total
Retail	1,033	130	1,163
Wholesale	619	2	621
Total	**1,652**	**132**	**1,784**

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

Due to the impact of the COVID-19 pandemic, we established relief programs to help personal and business banking clients manage the challenges of the COVID-19 pandemic through payment deferrals, interest rate reductions, covenant waivers, and refinancing or credit restructuring. In some cases, the original terms of the associated financial asset were renegotiated or otherwise modified, resulting in changes to the contractual terms of the financial asset that affect the contractual cash flows. For the majority of these programs, the modified terms were temporary in nature with the original terms resuming after a set period of time.

The following table provides a breakdown of restructured exposures between impaired and not impaired that were actively benefitting from modified contractual terms as at the reporting period date. Balances for loans that were modified in a temporary program that have returned to the original terms are not included below.

	As at October 31, 2021		As at July 31, 2021	
(Millions of Canadian dollars)	Not Impaired	Impaired	Not Impaired	Impaired
Retail	85	1	261	3
Wholesale	280	214	478	177

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 2021 Annual Report and incorporated by reference into this Pillar 3 report. Our 2021 Annual Report is available free of charge on our website at http://www.rbc.com/investorrelations

Pillar 3 disclosures requirement		RBC 2021 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	Credit risk assessment – *Counterparty credit risk*
		Consolidated Financial Statements	Note 8 - Derivative financial instruments and hedging activities – *Derivative-related credit risk*
			Note 29 - 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, 2021

		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[4]	185,173	403,618	398,117	106,638	101,480	-	-
2	Debt securities	112,043	23,584	23,584	-	-	-	-
3	**Total**	**297,216**	**427,202**	**421,701**	**106,638**	**101,480**	**-**	**-**
4	Of which defaulted[5]	638	848	848	359	328	-	-

[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.

[4] Securitized mortgages that do not qualify as securitized under IFRS or regulatory capital requirements are recognized as collateralized in column b and column c.

[5] Defaulted exposures are net of Stage 3 allowances.

As at April 30, 2021

		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[4]	169,759	372,853	371,013	108,367	103,333	-	-
2	Debt securities	100,876	17,395	17,395	-	-	-	-
3	**Total**	**270,635**	**390,248**	**388,408**	**108,367**	**103,333**	**-**	**-**
4	Of which defaulted[5]	636	1,083	1,083	358	348	-	-

[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.

[4] Securitized mortgages that do not qualify as securitized under IFRS or regulatory capital requirements are recognized as collateralized in column b and column c.

[5] Defaulted exposures are net of Stage 3 allowances.

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 exposures 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 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, 2021

	(Millions of Canadian dollars, except as otherwise noted)	a	b	c	d	e	f
		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]	34,966	357	51,819	9	635	1.2%
2	Non-central government public sector entities	17,233	373	17,259	183	3,001	17.2%
3	Multilateral development banks	2,168	-	2,168	-	-	-
4	Banks	4,113	398	4,114	194	1,070	24.8%
5	Securities firms[1]	2,774	1,626	3,953	750	1,396	29.7%
6	Corporates[1]	60,055	38,062	49,796	7,741	56,593	98.4%
7	Regulatory retail portfolios	8,004	5,054	8,004	291	6,480	78.1%
8	Secured by residential property[1]	42,903	-	24,946	-	9,477	38.0%
9	Secured by commercial real estate	-	-	-	-	-	-
10	Equity	-	-	-	-	-	-
11	Past-due loans	460	-	457	-	668	146.2%
12	Higher-risk categories	309	769	309	227	804	150.0%
13	Other assets	21,500	-	21,500	-	22,062	102.6%
14	**Total**	**194,485**	**46,639**	**184,325**	**9,395**	**102,186**	**52.7%**

[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. Exposures acquired through the US Government Paycheck Protection Program have been excluded, as required by OSFI.

As at July 31, 2021

	(Millions of Canadian dollars, except as otherwise noted)	a	b	c	d	e	f
		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]	33,110	324	50,212	9	203	0.4%
2	Non-central government public sector entities	16,383	377	16,414	185	2,883	17.4%
3	Multilateral development banks	1,783	-	1,783	-	-	-
4	Banks	3,666	365	3,666	180	887	23.1%
5	Securities firms[1]	3,099	1,350	4,274	619	1,441	29.5%
6	Corporates[1]	56,249	37,660	46,518	7,930	53,553	98.4%
7	Regulatory retail portfolios	7,712	4,995	7,712	299	6,263	78.2%
8	Secured by residential property[1]	41,939	-	23,723	-	9,039	38.1%
9	Secured by commercial real estate	-	-	-	-	-	-
10	Equity	-	-	-	-	-	-
11	Past-due loans	504	-	503	-	741	147.3%
12	Higher-risk categories	191	261	191	123	471	150.0%
13	Other assets	21,201	-	21,201	-	21,254	100.2%
14	**Total**	**185,837**	**45,332**	**176,197**	**9,345**	**96,735**	**52.1%**

[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. Exposures acquired through the US Government Paycheck Protection Program have been excluded, as required by OSFI.

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, 2021

		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	51,285	-	-	-	-	-	543	-	-	51,828
2	Non-central government public sector entities	2,438	-	14,887	-	3	-	114	-	-	17,442
3	Multilateral development banks	2,168	-	-	-	-	-	-	-	-	2,168
4	Banks	-	-	3,846	-	322	-	140	-	-	4,308
5	Securities firms	-	-	3,653	-	771	-	280	-	-	4,704
6	Corporates	-	-	89	1,322	24	-	56,101	-	-	57,537
7	Regulatory retail portfolios	-	-	-	-	-	7,259	1,035	-	-	8,294
8	Secured by residential property	-	-	-	23,082	-	1,864	-	-	-	24,946
9	Secured by commercial real estate	-	-	-	-	-	-	-	-	-	-
10	Equity	-	-	-	-	-	-	-	-	-	-
11	Past-due loans	1	-	-	-	-	-	35	422	-	457
12	Higher-risk categories	-	-	-	-	-	-	-	536	-	536
13	Other assets	3,031	-	-	-	-	-	18,157	-	312	21,500
14	**Total**	**58,923**	**-**	**22,475**	**24,404**	**1,120**	**9,123**	**76,405**	**958**	**312**	**193,720**

As at July 31, 2021

		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	50,019	-	(1)	-	-	-	203	-	-	50,221
2	Non-central government public sector entities	2,574	-	13,926	-	2	-	97	-	-	16,599
3	Multilateral development banks	1,783	-	-	-	-	-	-	-	-	1,783
4	Banks	-	-	3,674	-	38	-	133	-	-	3,846
5	Securities firms	-	-	3,824	-	786	-	283	-	-	4,893
6	Corporates	-	-	78	1,262	24	-	53,084	-	-	54,448
7	Regulatory retail portfolios	-	-	-	-	-	6,995	1,016	-	-	8,011
8	Secured by residential property	-	-	-	21,884	-	1,840	-	-	-	23,723
9	Secured by commercial real estate	-	-	-	-	-	-	-	-	-	-
10	Equity	-	-	-	-	-	-	-	-	-	-
11	Past-due loans	1	-	-	-	-	-	25	477	-	503
12	Higher-risk categories	-	-	-	-	-	-	-	314	-	314
13	Other assets	3,457	-	-	-	-	-	17,439	-	305	21,201
14	**Total**	**57,834**	**-**	**21,501**	**23,146**	**850**	**8,835**	**72,280**	**791**	**305**	**185,542**

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 wholesale 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, as well as data-driven modelling. PD estimates are designed to be a long-run average of our experience across the economic cycle with margins of conservatism related to the likely range of errors. 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 reviewed, 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, 2021

	EAD covered by the various approaches		
EAD (in %)	Standardized Approach[1]	IRB Approach	Other
Retail			
Residential secured	13%	87%	-
Qualifying revolving	-	100%	-
Other retail	4%	96%	-
Wholesale	-	-	-
Corporate	17%	83%	-
Sovereign	17%	83%	-
Bank	6%	94%	-
Securitization	38%	62%	-
Trading	1%	99%	-
Equity	-	100%	-
Other assets not subject to Standardized or IRB Approaches	-	-	100%
Total	9%	90%	1%

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

As at July 31, 2021

	EAD covered by the various approaches		
EAD (in %)	Standardized Approach[1]	IRB Approach	Other
Retail			
Residential secured	13%	87%	-
Qualifying revolving	-	100%	-
Other retail	4%	96%	-
Wholesale	-	-	-
Corporate	16%	84%	-
Sovereign	16%	84%	-
Bank	7%	93%	-
Securitization	36%	64%	-
Trading	2%	98%	-
Equity	-	100%	-
Other assets not subject to Standardized or IRB Approaches	-	-	100%
Total	9%	90%	1%

[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 Credit Models Governance Committee and approved by RBC's senior risk management committee.

Back-testing of Parameters and Model Performance

The IRB credit risk parameters are reviewed, 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. In cases where the actual results exceed predefined thresholds, a review of the results will be conducted and documented which may lead to a re-calibration of the parameters. Any recommended changes to the parameters would be approved by the Credit Models Governance Committee, and OSFI as applicable.

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, 2021

			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	258,126	23,262	53.72	351,513	0.01	1,553	17.84	1.27	11,332	3.0	11	
		0.15 to < 0.25	191	83	55.38	238	0.24	77	25.39	1.68	62	26.0	-	
		0.25 to < 0.50	357	11	49.06	362	0.49	424	26.31	2.74	162	45.0	-	
		0.50 to < 0.75	-	-	-	-	-	-	-	-	-	-	-	
		0.75 to < 2.50	112	28	21.88	118	1.12	62	34.23	3.17	98	83.0	-	
		2.50 to < 10.00	11	8	58.68	16	2.78	10	38.68	2.19	17	109.0	-	
		10.00 to < 100.00	1	-	91.93	-	20.37	5	44.74	1.06	1	233.0	-	
		100.00 (default)	72	1	6.70	72	100.00	2	44.97	2.50	-	1.0	40	
	Total Sovereigns		**258,870**	**23,393**	**53.69**	**352,319**	**0.04**	**2,133**	**17.87**	**1.27**	**11,672**	**3.0**	**51**	**40**
2	**Banks**													
		0.00 to < 0.15	16,706	2,557	46.07	27,114	0.05	238	33.23	2.10	4,814	18.0	4	
		0.15 to < 0.25	136	50	54.11	184	0.24	23	37.29	2.85	83	45.0	-	
		0.25 to < 0.50	257	116	36.51	301	0.49	26	41.46	1.08	170	56.0	1	
		0.50 to < 0.75	-	-	-	-	-	-	-	-	-	-	-	
		0.75 to < 2.50	98	320	51.16	261	1.28	33	43.33	1.75	251	96.0	1	
		2.50 to < 10.00	59	7	50.39	63	3.07	9	39.25	1.94	78	123.0	1	
		10.00 to < 100.00	-	-	-	-	29.65	3	45.00	1.00	1	276.0	-	
		100.00 (default)	-	-	-	-	100.00	-	60.00	2.50	-	795.0	-	
	Total Banks		**17,256**	**3,050**	**46.37**	**27,923**	**0.07**	**332**	**33.46**	**2.09**	**5,397**	**19.0**	**7**	**-**
3	**Corporates**													
		0.00 to < 0.15	59,999	176,131	51.41	149,581	0.10	20,537	39.66	2.25	36,329	24.3	57	
		0.15 to < 0.25	23,858	28,325	50.30	35,842	0.24	7,625	36.48	2.32	14,195	39.6	32	
		0.25 to < 0.50	23,742	22,011	50.67	32,975	0.49	7,107	33.94	2.78	17,965	54.5	56	
		0.50 to < 0.75	-	-	-	-	-	-	-	-	-	-	-	
		0.75 to < 2.50	57,881	55,622	48.77	74,751	1.37	20,629	34.76	2.29	56,423	75.5	356	
		2.50 to < 10.00	11,239	18,842	47.65	17,021	3.97	7,709	35.64	2.65	18,555	109.0	238	
		10.00 to < 100.00	1,171	464	51.43	1,273	26.88	1,262	36.15	2.06	2,334	183.3	124	
		100.00 (default)	1,080	863	26.96	1,112	100.00	1,129	37.15	2.10	2,617	235.3	295	
	Total Corporates		**178,970**	**302,258**	**50.49**	**312,555**	**1.14**	**65,998**	**37.28**	**2.35**	**148,418**	**47.5**	**1,158**	**463**
4	**Total Wholesale**		**455,096**	**328,701**	**50.68**	**692,797**	**0.54**	**68,463**	**27.26**	**1.79**	**165,487**	**24.0**	**1,216**	**503**

[1] Refer to "Internal ratings map" under the Credit Risk Assessment section in our 2021 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. In addition, Retail obligors include borrowers where the portion of the exposure has been securitized given CAR guideline requirements related to retained interests. 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. Retail borrowers with both Visa and Mastercard are counted as one borrower in the asset class qualifying revolving retail.

[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, 2021

			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													
5	**Retail insured exposure secured by real estate[4]**													
		0.00 to < 0.15	17,220			1,341	0.14	113,998	16.50		72	5.0	-	
		0.15 to < 0.25	-			-	-	-	-		-	-	-	
		0.25 to < 0.50	44,115			1,749	0.32	187,421	18.66		196	11.0	1	
		0.50 to < 0.75	530			-	-	-	-		-	-	-	
		0.75 to < 2.50	7,782			167	1.24	34,094	13.39		34	20.0	-	
		2.50 to < 10.00	3,733			-	4.65	18,184	10.48		-	16.0	-	
		10.00 to < 100.00	719			-	-	2,495	-		-	-	-	
		100.00 (default)	277			-	-	1,301	-		-	-	-	
	Total Retail insured exposure secured by real estate		**74,376**			**3,257**	**0.29**	**357,493**	**17.50**		**302**	**9.0**	**1**	**2**
6	**Uninsured residential mortgages**													
		0.00 to < 0.15	189,083	343	100.00	189,426	0.13	688,126	17.22		9,860	5.0	41	
		0.15 to < 0.25	140	63	100.00	203	0.22	104	72.24		67	33.0	-	
		0.25 to < 0.50	63	291	100.00	354	0.33	218	15.43		37	10.0	-	
		0.50 to < 0.75	-	-	-	-	-	-	-		-	-	-	
		0.75 to < 2.50	18,412	282	100.00	18,694	0.91	58,207	18.70		4,353	23.0	32	
		2.50 to < 10.00	4,278	26	100.00	4,304	4.07	18,434	17.71		2,364	55.0	31	
		10.00 to < 100.00	774	1	100.00	775	22.68	3,424	17.04		732	94.0	30	
		100.00 (default)	199	-	-	199	100.00	984	17.15		60	30.0	32	
	Total Uninsured residential mortgages		**212,949**	**1,006**	**100.00**	**213,955**	**0.45**	**769,497**	**17.41**		**17,473**	**8.0**	**166**	**34**

[1] Refer to "Internal ratings map" under the Credit Risk Assessment section in our 2021 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. In addition, Retail obligors include borrowers where the portion of the exposure has been securitized given CAR guideline requirements related to retained interests. 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. Retail borrowers with both Visa and Mastercard are counted as one borrower in the asset class qualifying revolving retail.

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

[4] Retail insured exposures secured by real estate includes residential mortgages and other retail. Residential mortgages reflect 98% of this category. Exposures are insured with government and/or private insurance providers.

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

As at October 31, 2021

	(Millions of Canadian dollars, except as otherwise noted)	PD scale[1]	a Original on-balance sheet gross exposure	b Off-balance sheet exposures pre CCF	c Average CCF (%)	d EAD post CRM and post-CCF	e Average PD (%)	f Number of obligors[2]	g Average LGD (%)	h Average maturity (in years)	i RWA	j RWA density (%)	k EL	l Provisions[3]
	Asset Classes													
7	**HELOCs**													
		0.00 to < 0.15	31,651	102,670	91.51	125,606	0.08	794,695	24.45		6,634	5.0	25	
		0.15 to < 0.25	-	-	-	-	-	-	-		-	-	-	
		0.25 to < 0.50	-	-	-	-	-	-	-		-	-	-	
		0.50 to < 0.75	2,267	1,483	92.72	3,643	0.71	43,338	24.99		961	26.0	6	
		0.75 to < 2.50	-	-	-	-	-	-	-		-	-	-	
		2.50 to < 10.00	952	276	95.97	1,217	4.34	14,320	24.77		935	77.0	13	
		10.00 to < 100.00	89	7	109.88	97	36.09	804	25.28		144	148.0	9	
		100.00 (default)	63	1	-	63	100.00	557	25.35		34	54.0	16	
	Total HELOCs		**35,022**	**104,437**	**91.54**	**130,626**	**0.21**	**853,714**	**24.47**		**8,708**	**7.0**	**69**	**16**
8	**Qualifying revolving retail**													
		0.00 to < 0.15	7,114	52,729	77.12	47,777	0.12	4,720,066	93.95		3,224	7.0	52	
		0.15 to < 0.25	8,848	40,575	84.10	42,973	0.18	3,258,722	88.12		3,976	9.0	69	
		0.25 to < 0.50	922	5,783	96.78	6,519	0.39	3,673,085	88.14		1,113	17.0	22	
		0.50 to < 0.75	22	115	94.03	130	0.59	7,876	100.49		35	27.0	1	
		0.75 to < 2.50	8,004	9,617	82.99	15,985	1.29	2,387,159	91.15		7,071	44.0	188	
		2.50 to < 10.00	4,355	2,854	80.27	6,646	3.75	1,453,481	90.53		6,252	94.0	224	
		10.00 to < 100.00	773	304	55.09	940	29.35	422,099	91.76		2,537	270.0	253	
		100.00 (default)	41	4	-	41	100.00	26,559	87.09		117	284.0	27	
	Total Qualifying revolving retail		**30,079**	**111,981**	**81.20**	**121,011**	**0.77**	**15,949,047**	**91.00**		**24,325**	**20.0**	**836**	**27**
9	**Other retail**													
		0.00 to < 0.15	37,615	3,595	86.00	40,716	0.12	148,897	28.00		3,288	8.1	13	
		0.15 to < 0.25	3,085	8,063	86.00	10,037	0.21	132,435	80.00		3,490	34.8	16	
		0.25 to < 0.50	9,749	2,278	107.00	12,187	0.32	512,731	67.00		4,809	39.5	27	
		0.50 to < 0.75	1,170	732	96.00	1,874	0.59	103,184	84.00		1,302	69.5	9	
		0.75 to < 2.50	15,953	4,379	95.00	20,124	1.19	586,117	60.00		13,743	68.3	150	
		2.50 to < 10.00	5,722	1,770	91.00	7,327	3.94	251,224	62.00		6,907	94.3	178	
		10.00 to < 100.00	1,441	308	99.00	1,747	23.80	39,221	64.00		2,275	130.2	324	
		100.00 (default)	88	2	-	88	100.00	3,747	66.00		147	167.0	50	
	Total Other retail		**74,823**	**21,127**	**91.00**	**94,100**	**1.22**	**1,777,556**	**50.00**		**35,961**	**38.2**	**767**	**48**
10	**Total retail**		**427,249**	**238,551**	**91.91**	**562,949**	**0.59**	**19,707,307**	**40.32**	**-**	**86,769**	**15.4**	**1,839**	**127**
	Total		**882,345**	**567,252**	**68.02**	**1,255,746**	**0.56**	**19,775,770**	**33.11**	**1.79**	**252,256**	**20.0**	**3,055**	**630**

[1] Refer to "Internal ratings map" under the Credit Risk Assessment section in our 2021 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. In addition, Retail obligors include borrowers where the portion of the exposure has been securitized given CAR guideline requirements related to retained interests. 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. Retail borrowers with both Visa and Mastercard are counted as one borrower in the asset class qualifying revolving retail.

[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 July 31, 2021

			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	255,140	23,491	54.42	349,988	0.02	1,531	24.94	1.29	13,352	4.0	13	
		0.15 to < 0.25	180	101	53.51	236	0.24	68	25.27	1.56	59	25.0	-	
		0.25 to < 0.50	348	15	51.45	356	0.49	436	26.39	2.67	159	45.0	-	
		0.50 to < 0.75	-	-	-	-	-	-	-	-	-	-	-	
		0.75 to < 2.50	112	24	30.11	117	1.12	63	34.55	3.19	98	83.0	-	
		2.50 to < 10.00	17	8	38.18	20	2.76	9	36.11	2.58	21	106.0	-	
		10.00 to < 100.00	1	-	91.67	-	20.59	5	44.72	1.20	1	235.0	-	
		100.00 (default)	73	1	7.02	73	100.00	2	44.69	2.50	-	1.0	41	
	Total Sovereigns		**255,871**	**23,640**	**54.39**	**350,790**	**0.04**	**2,114**	**24.95**	**1.29**	**13,690**	**4.0**	**54**	**41**
2	**Banks**													
		0.00 to < 0.15	16,042	2,986	44.62	26,401	0.05	230	33.52	1.90	4,298	16.0	4	
		0.15 to < 0.25	103	52	53.69	148	0.24	19	40.01	2.78	69	47.0	-	
		0.25 to < 0.50	258	107	37.60	303	0.49	19	41.41	1.14	173	57.0	1	
		0.50 to < 0.75	-	-	-	-	-	-	-	-	-	-	-	
		0.75 to < 2.50	234	164	50.95	319	1.17	38	41.11	1.46	278	87.0	2	
		2.50 to < 10.00	20	17	50.00	29	2.78	5	52.42	1.91	47	161.0	-	
		10.00 to < 100.00	-	-	-	-	30.80	5	45.00	1.05	1	278.0	-	
		100.00 (default)	-	-	-	-	100.00	-	60.00	2.50	-	795.0	-	
	Total Banks		**16,657**	**3,326**	**44.87**	**27,200**	**0.07**	**316**	**33.75**	**1.89**	**4,866**	**18.0**	**7**	**-**
3	**Corporates**													
		0.00 to < 0.15	57,556	171,322	51.50	145,726	0.08	19,859	40.03	2.24	35,267	24.2	49	
		0.15 to < 0.25	23,098	29,216	49.70	35,093	0.24	7,413	36.69	2.33	13,904	39.6	31	
		0.25 to < 0.50	23,147	21,455	51.96	32,238	0.49	7,015	34.61	2.66	17,591	54.6	56	
		0.50 to < 0.75	-	-	-	-	-	-	-	-	-	-	-	
		0.75 to < 2.50	58,197	59,599	48.36	76,881	1.35	20,966	34.68	2.25	57,389	74.7	361	
		2.50 to < 10.00	12,595	18,403	48.08	18,048	3.91	7,668	35.49	2.63	19,620	108.7	247	
		10.00 to < 100.00	1,224	473	50.71	1,239	26.13	1,364	36.79	1.98	2,280	184.0	120	
		100.00 (default)	1,151	750	33.53	1,211	100.00	1,172	36.68	2.21	2,783	229.8	300	
	Total Corporates		**176,968**	**301,218**	**50.52**	**310,436**	**1.17**	**65,457**	**37.47**	**2.32**	**148,834**	**47.9**	**1,164**	**531**
4	**Total Wholesale**		**449,496**	**328,184**	**50.74**	**688,426**	**0.55**	**67,887**	**30.94**	**1.78**	**167,390**	**24.0**	**1,225**	**572**

[1] Refer to "Internal ratings map" under the Credit Risk Assessment section in our 2020 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. In addition, Retail obligors include borrowers where the portion of the exposure has been securitized given CAR guideline requirements related to retained interests. 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. Retail borrowers with both Visa and Mastercard are counted as one borrower in the asset class qualifying revolving retail.

[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 July 31, 2021

			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													
5	**Retail insured exposure secured by real estate[4]**													
		0.00 to < 0.15	18,144			1,408	0.14	118,609	16.50		76	5.0	-	
		0.15 to < 0.25	-			-	-	-	-		-	-	-	
		0.25 to < 0.50	43,978			1,685	0.32	188,272	18.13		184	11.0	1	
		0.50 to < 0.75	509			-	-	305	-		-	-	-	
		0.75 to < 2.50	8,119			177	1.24	35,832	13.41		36	20.0	-	
		2.50 to < 10.00	3,887			-	4.24	19,117	10.48		-	16.0	-	
		10.00 to < 100.00	751			-	14.77	2,654	10.48		-	22.0	-	
		100.00 (default)	293			-	-	1,361	-		-	-	-	
	Total Retail insured exposure secured by real estate		**75,681**			**3,270**	**0.29**	**366,150**	**17.17**		**296**	**9.0**	**1**	**2**
6	**Uninsured residential mortgages**													
		0.00 to < 0.15	181,307	319	100.00	181,626	0.13	672,392	17.22		9,455	5.0	40	
		0.15 to < 0.25	90	37	100.00	127	0.22	87	72.24		42	33.0	-	
		0.25 to < 0.50	60	292	100.00	352	0.33	231	15.50		36	10.0	-	
		0.50 to < 0.75	-	-	-	-	-	-	-		-	-	-	
		0.75 to < 2.50	18,390	279	100.00	18,669	0.91	59,563	18.51		4,303	23.0	31	
		2.50 to < 10.00	4,454	15	100.00	4,469	4.15	19,266	17.59		2,460	55.0	33	
		10.00 to < 100.00	841	1	100.00	842	23.05	3,700	17.22		807	96.0	34	
		100.00 (default)	215	-	-	215	100.00	1,042	16.85		26	12.0	39	
	Total Uninsured residential mortgages		**205,357**	**943**	**100.00**	**206,300**	**0.48**	**756,281**	**17.38**		**17,129**	**8.0**	**177**	**42**

[1] Refer to “Internal ratings map” under the Credit Risk Assessment section in our 2020 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. In addition, Retail obligors include borrowers where the portion of the exposure has been securitized given CAR guideline requirements related to retained interests. 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. Retail borrowers with both Visa and Mastercard are counted as one borrower in the asset class qualifying revolving retail.

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

[4] Retail insured exposures secured by real estate includes residential mortgages and other retail. Residential mortgages reflect 98% of this category. Exposures are insured with government and/or private insurance providers.

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

As at July 31, 2021

			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													
7	**HELOCs**													
		0.00 to < 0.15	31,333	100,650	91.52	123,447	0.08	784,054	24.49		6,531	5.0	25	
		0.15 to < 0.25	-	-	-	-	-	-	-		-	-	-	
		0.25 to < 0.50	-	-	-	-	-	-	-		-	-	-	
		0.50 to < 0.75	2,298	1,475	92.81	3,667	0.71	44,174	25.03		969	26.0	7	
		0.75 to < 2.50	-	-	-	-	-	-	-		-	-	-	
		2.50 to < 10.00	1,007	286	96.09	1,282	4.48	14,960	24.90		1,007	79.0	14	
		10.00 to < 100.00	92	8	108.24	101	35.19	834	25.00		148	147.0	9	
		100.00 (default)	72	1	-	72	100.00	622	25.82		42	58.0	19	
	Total HELOCs		**34,802**	**102,420**	**91.55**	**128,569**	**0.23**	**844,644**	**24.51**		**8,697**	**7.0**	**74**	**19**
8	**Qualifying revolving retail**													
		0.00 to < 0.15	6,812	52,207	77.14	47,086	0.12	4,689,078	93.95		3,176	7.0	51	
		0.15 to < 0.25	8,626	40,931	84.11	43,052	0.18	3,269,119	88.12		3,984	9.0	69	
		0.25 to < 0.50	910	5,777	96.49	6,485	0.39	3,615,750	88.22		1,108	17.0	22	
		0.50 to < 0.75	22	117	93.90	131	0.59	7,933	100.47		36	27.0	1	
		0.75 to < 2.50	7,962	9,875	82.99	16,157	1.30	2,422,888	91.14		7,159	44.0	190	
		2.50 to < 10.00	4,458	2,985	80.59	6,863	3.75	1,505,529	90.57		6,462	94.0	231	
		10.00 to < 100.00	707	293	55.60	869	29.33	413,065	91.61		2,340	269.0	233	
		100.00 (default)	46	4	-	46	100.00	26,827	86.94		132	288.0	30	
	Total Qualifying revolving retail		**29,543**	**112,189**	**81.24**	**120,689**	**0.77**	**15,950,189**	**90.98**		**24,397**	**20.0**	**827**	**30**
9	**Other retail**													
		0.00 to < 0.15	37,391	3,459	86.00	40,366	0.12	145,264	33.00		3,981	9.9	16	
		0.15 to < 0.25	2,990	7,800	86.00	9,715	0.21	128,309	80.00		3,377	34.8	16	
		0.25 to < 0.50	8,293	2,180	107.00	10,632	0.33	498,513	70.00		4,437	41.7	25	
		0.50 to < 0.75	1,037	731	96.00	1,739	0.59	101,696	86.00		1,234	71.0	9	
		0.75 to < 2.50	15,416	4,355	95.00	19,558	1.25	593,437	61.00		13,669	69.9	150	
		2.50 to < 10.00	5,361	1,814	90.00	7,002	3.86	256,690	67.00		7,103	101.4	182	
		10.00 to < 100.00	1,461	296	100.00	1,757	23.27	38,865	64.00		2,273	129.4	313	
		100.00 (default)	85	2	-	85	100.00	4,194	67.00		139	163.5	49	
	Total Other retail		**72,034**	**20,637**	**91.00**	**90,854**	**1.24**	**1,766,968**	**53.00**		**36,213**	**39.9**	**760**	**46**
10	**Total retail**		**417,417**	**236,189**	**91.82**	**549,682**	**0.61**	**19,684,232**	**41.09**	**-**	**86,732**	**15.8**	**1,839**	**139**
	Total		**866,913**	**564,373**	**67.93**	**1,238,108**	**0.58**	**19,752,119**	**35.45**	**1.78**	**254,122**	**21.0**	**3,064**	**711**

[1] Refer to "Internal ratings map" under the Credit Risk Assessment section in our 2020 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. In addition, Retail obligors include borrowers where the portion of the exposure has been securitized given CAR guideline requirements related to retained interests. 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. Retail borrowers with both Visa and Mastercard are counted as one borrower in the asset class qualifying revolving retail.

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

In Q3 2021, our annual update to Wholesale Parameters, as approved by OSFI, resulted in reductions of Wholesale PDs. Corporate PD changes also reflect the recalibration of our overall Corporate PDs given the migration of some Corporate exposures to Retail, as noted in our Q1 2021 disclosure. In addition, improvements in credit quality also affected our Corporate PDs.

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, 2021

		a	b
	(Millions of Canadian dollars)	**Pre-credit derivatives RWA**	**Actual RWA**
2	Sovereign - AIRB	-	-
4	Banks - AIRB	-	-
6	Corporate - AIRB	-	-
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**	**-**	**-**

As at July 31, 2021

		a	b
	(Millions of Canadian dollars)	**Pre-credit derivatives RWA**	**Actual RWA**
2	Sovereign - AIRB	-	-
4	Banks - AIRB	-	-
6	Corporate - AIRB	-	-
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**	**-**	**-**

CR8: RWA flow statements of credit risk exposures

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

		RWA amounts[1]	
	(Millions of Canadian dollars)	**As at October 31, 2021**	**As at July 31, 2021**
1	**RWA as at end of previous reporting period**	**384,396**	**395,252**
2	Asset size[2]	10,006	14,970
3	Asset quality[3]	(2,043)	(1,604)
4	Model updates[4]	(445)	(26,140)
5	Methodology and policy[5]	-	-
6	Acquisitions and disposals	-	-
7	Foreign exchange movements	(1,641)	2,524
8	Other	77	(606)
9	**RWA as at end of reporting period**	**390,350**	**384,396**

[1] RWA flow amounts include 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, 2021

	a	b	c					d	e	f		g	h	i
	(Millions of Canadian dollars, except as otherwise noted) Asset Classes	PD Range[1]	External rating equivalent					Weighted average PD[2]	Arithmetic average PD by obligors[2]	Number of obligors[3]		Defaulted obligors in the year[4,6]	of which: new defaulted obligors in the year[5,6]	Average historical annual default rate
			S&P	Moody's	Fitch	DBRS	Kroll			End of previous year	End of the year			
1	**Sovereigns**													
		0.00 to < 0.15	AAA to A-	Aaa to A3	AAA to A-	AAA to AL	AAA to A-	0.01	0.06	1,515	1,553	1	-	-
		0.15 to < 0.25	BBB+ to BBB	Baa1 to Baa2	BBB+ to BBB	BBBH to BBB	BBB+ to BBB	0.24	0.24	182	77	-	-	-
		0.25 to < 0.50	BBB- to BB+	Baa3 to Ba1	BBB- to BB+	BBBL to BBH	BBB- to BB+	0.49	0.50	73	424	-	-	-
		0.50 to < 0.75	BB	Ba2	BB	BB	BB	-	-	151	-	-	-	-
		0.75 to < 2.50	BB- to B+	Ba3 to B1	BB- to B+	BBL to BH	BB- to B+	1.12	1.23	195	62	-	-	-
		2.50 to < 10.00	B to CCC+	B2 to Caa1	B to CCC+	BL to CCCH	B to CCC+	2.78	4.63	14	10	-	-	0.63%
		10.00 to < 100.00	CCC to CC	Caa2 to Ca	CCC or CC	CCC or CC	CCC or CC	20.37	28.90	4	5	-	-	2.50%
		100.00 (default)	C or lower	C or lower	C or lower	C or lower	C or lower	100.00	100.00	2	2	-	-	-
	Total Sovereigns							**0.04**	**0.37**	**2,136**	**2,133**	**1**	**-**	
2	**Banks**													
		0.00 to < 0.15	AAA to A-	Aaa to A3	AAA to A-	AAA to AL	AAA to A-	0.05	0.08	168	238	-	-	-
		0.15 to < 0.25	BBB+ to BBB	Baa1 to Baa2	BBB+ to BBB	BBBH to BBB	BBB+ to BBB	0.24	0.24	52	23	-	-	-
		0.25 to < 0.50	BBB- to BB+	Baa3 to Ba1	BBB- to BB+	BBBL to BBH	BBB- to BB+	0.49	0.50	13	26	-	-	-
		0.50 to < 0.75	BB	Ba2	BB	BB	BB	-	-	23	-	-	-	-
		0.75 to < 2.50	BB- to B+	Ba3 to B1	BB- to B+	BBL to BH	BB- to B+	1.28	1.40	34	33	-	-	-
		2.50 to < 10.00	B to CCC+	B2 to Caa1	B to CCC+	BL to CCCH	B to CCC+	3.07	4.06	20	9	-	-	-
		10.00 to < 100.00	CCC to CC	Caa2 to Ca	CCC or CC	CCC or CC	CCC or CC	29.65	22.78	9	3	-	-	2.86%
		100.00 (default)	C or lower	C or lower	C or lower	C or lower	C or lower	100.00	-	1	-	-	-	-
	Total Banks							**0.07**	**0.57**	**320**	**332**	**-**	**-**	

[1] Refer to "Internal ratings map" under the Credit Risk Assessment section in our 2021 Annual Report MD&A.

[2] Weighted average PD means PD (after CRM) weighted by EAD as at October 31, 2021. Arithmetic average PD is the sum of all the PDs (after CRM) over the number of accounts as at October 31, 2021.

[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] Retail insured exposures secured by real estate includes residential mortgages and other retail. Residential mortgages reflect 98% of this category. Exposures are insured with government and/or private insurance providers.

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

As at October 31, 2021

	a	b	c					d	e	f		g	h	i
	(Millions of Canadian dollars, except as otherwise noted)	PD Range[1]	External rating equivalent					Weighted average PD[2]	Arithmetic average PD by obligors[2]	Number of obligors[3]		Defaulted obligors in the year[4,6]	of which: new defaulted obligors in the year[5,6]	Average historical annual default rate
	Asset Classes		S&P	Moody's	Fitch	DBRS	Kroll			End of previous year	End of the year			
3	**Corporates**													
		0.00 to < 0.15	AAA to A-	Aaa to A3	AAA to A-	AAA to AL	AAA to A-	0.10	0.09	10,269	20,537	2	-	0.02%
		0.15 to < 0.25	BBB+ to BBB	Baa1 to Baa2	BBB+ to BBB	BBBH to BBB	BBB+ to BBB	0.24	0.24	12,713	7,625	5	-	0.09%
		0.25 to < 0.50	BBB- to BB+	Baa3 to Ba1	BBB- to BB+	BBBL to BBH	BBB- to BB+	0.49	0.50	9,925	7,107	6	2	0.15%
		0.50 to < 0.75	BB	Ba2	BB	BB	BB	-	-	10,112	-	-	-	-
		0.75 to < 2.50	BB- to B+	Ba3 to B1	BB- to B+	BBL to BH	BB- to B+	1.37	1.41	23,398	20,629	74	1	0.48%
		2.50 to < 10.00	B to CCC+	B2 to Caa1	B to CCC+	BL to CCCH	B to CCC+	3.97	4.46	18,757	7,709	80	-	1.82%
		10.00 to < 100.00	CCC to CC	Caa2 to Ca	CCC or CC	CCC or CC	CCC or CC	26.88	26.40	3,472	1,262	117	1	15.10%
		100.00 (default)	C or lower	C or lower	C or lower	C or lower	C or lower	100.00	100.00	1,340	1,129	-	-	-
	Total Corporates							**1.14**	**3.29**	**89,986**	**65,998**	**284**	**4**	
4	**Total Wholesale**									**92,442**	**68,463**	**285**	**4**	
5	**Retail residential mortgages excl. HELOCs[7]**													
		0.00 to < 0.15						0.13	0.13	763,952	802,124	253	3	0.03%
		0.15 to < 0.25						0.22	0.22	71	104	-	-	0.01%
		0.25 to < 0.50						0.33	0.32	190,342	187,639	130	1	0.07%
		0.50 to < 0.75						-	-	-	-	-	-	0.15%
		0.75 to < 2.50						0.91	1.06	98,222	92,301	292	12	0.36%
		2.50 to < 10.00						4.27	4.45	44,388	36,618	635	5	1.00%
		10.00 to < 100.00						22.32	25.95	7,364	5,919	1,143	5	12.35%
		100.00 (default)						100.00	100.00	2,425	2,285	-	-	
	Total Retail residential mortgages excl. HELOCs[7]							**0.53**	**0.75**	**1,106,764**	**1,126,990**	**2,453**	**26**	
6	**HELOCs**													
		0.00 to < 0.15						0.08	0.08	757,881	794,695	164	3	0.02%
		0.15 to < 0.25						-	-	-	-	-	-	0.01%
		0.25 to < 0.50						-	-	-	-	-	-	-
		0.50 to < 0.75						0.71	0.71	42,461	43,338	97	-	0.09%
		0.75 to < 2.50						-	-	-	-	-	-	0.11%
		2.50 to < 10.00						4.34	4.22	16,629	14,320	243	3	0.94%
		10.00 to < 100.00						36.09	35.70	980	804	223	-	13.65%
		100.00 (default)						100.00	100.00	845	557	-	-	
	Total HELOCs							**0.21**	**0.28**	**818,796**	**853,714**	**727**	**6**	

[1] Refer to "Internal ratings map" under the Credit Risk Assessment section in our 2021 Annual Report MD&A.

[2] Weighted average PD means PD (after CRM) weighted by EAD as at October 31, 2021. Arithmetic average PD is the sum of all the PDs (after CRM) over the number of accounts as at October 31, 2021.

[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] Retail insured exposures secured by real estate includes residential mortgages and other retail. Residential mortgages reflect 98% of this category. Exposures are insured with government and/or private insurance providers.

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

As at October 31, 2021

	a	b	c					d	e	f		g	h	i
	(Millions of Canadian dollars, except as otherwise noted) Asset Classes	PD Range[1]	External rating equivalent					Weighted average PD[2]	Arithmetic average PD by obligors[2]	Number of obligors[3]		Defaulted obligors in the year[4,6]	of which: new defaulted obligors in the year[5,6]	Average historical annual default rate
			S&P	Moody's	Fitch	DBRS	Kroll			End of previous year	End of the year			
7	**Qualifying revolving retail[6]**													
		0.00 to < 0.15						0.12	0.12	4,702,997	4,720,066	12	1	0.01%
		0.15 to < 0.25						0.18	0.18	3,191,236	3,258,722	1,358	76	0.02%
		0.25 to < 0.50						0.39	0.40	3,613,760	3,673,085	1,901	172	0.03%
		0.50 to < 0.75						0.59	0.59	7,665	7,876	-	-	0.06%
		0.75 to < 2.50						1.29	1.43	2,513,778	2,387,159	4,621	414	0.25%
		2.50 to < 10.00						3.75	4.22	1,587,183	1,453,481	16,049	3,514	1.17%
		10.00 to < 100.00						29.35	31.78	414,481	422,099	123,006	63,493	15.67%
		100.00 (default)						100.00	100.00	24,062	26,559	-	-	
	Total Qualifying revolving retail							**0.77**	**1.74**	**16,055,162**	**15,949,047**	**146,947**	**67,670**	
8	**Other retail**													
		0.00 to < 0.15						0.12	0.13	126,595	148,897	32	1	0.02%
		0.15 to < 0.25						0.21	0.22	111,336	132,435	17	1	0.03%
		0.25 to < 0.50						0.32	0.33	486,294	512,731	274	10	0.08%
		0.50 to < 0.75						0.59	0.60	95,378	103,184	152	45	0.07%
		0.75 to < 2.50						1.19	1.31	596,049	586,117	2,257	252	0.31%
		2.50 to < 10.00						3.94	4.31	263,367	251,224	2,866	412	0.95%
		10.00 to < 100.00						23.80	24.37	35,949	39,221	6,344	1,007	9.23%
		100.00 (default)						100.00	100.00	4,091	3,747	-	-	
	Total Other retail							**1.22**	**1.87**	**1,719,059**	**1,777,556**	**11,942**	**1,728**	
9	**Total retail**									**19,699,781**	**19,707,307**	**162,069**	**69,430**	
	Total									**19,792,223**	**19,775,770**	**162,354**	**69,434**	

[1] Refer to "Internal ratings map" under the Credit Risk Assessment section in our 2021 Annual Report MD&A.

[2] Weighted average PD means PD (after CRM) weighted by EAD as at October 31, 2021. Arithmetic average PD is the sum of all the PDs (after CRM) over the number of accounts as at October 31, 2021.

[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] Retail insured exposures secured by real estate includes residential mortgages and other retail. Residential mortgages reflect 98% of this category. Exposures are insured with government and/or private insurance providers.

Effective Q1 2021, in addition to retail business growth, approximately 31,000 small business commercial clients, reflecting EAD $10 bn and RWA of $5 bn were reclassified from Corporate exposures to Other Retail exposures to align categorization of small business, as defined by the CAR guidelines, as under $1.25 million. In Q3 2021, our annual update to Wholesale Parameters, as approved by OSFI, resulted in reductions of Wholesale PDs. Corporate PD changes also reflect the recalibration of our overall Corporate PDs given the migration of some Corporate exposures to Retail, as noted in our Q1 2021 disclosure.

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 2021 Annual Report and incorporated by reference into this Pillar 3 report. Our 2021 Annual Report is available free of charge on our website at http://www.rbc.com/investorrelations

Pillar 3 disclosures requirement		RBC 2021 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*
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 29 - Offsetting financial assets and financial liabilities
d)	Policies with respect to wrong-way risk exposures	Credit risk	Credit risk assessment – *Wrong-way 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, 2021

		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[1]	RWA[2]
1	SA-CCR (for derivatives)[1,2]	17,888	36,392		1.4	75,763	25,244
1a	Current Exposure Method (CEM - for derivatives)						
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)					203,223	10,033
5	VaR for SFTs						
6	**Total**						**35,277**

[1] Effective Q1 2020, specific wrong way risk is reflected as per OSFI SA-CCR guideline requirement.

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

As at July 31, 2021

		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[1]	RWA[2]
1	SA-CCR (for derivatives)[1,2]	17,667	35,547		1.4	74,236	23,946
1a	Current Exposure Method (CEM - for derivatives)						
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)					203,297	8,890
5	VaR for SFTs						
6	**Total**						**32,836**

[1] Effective Q1 2020, specific wrong way risk is reflected as per OSFI SA-CCR guideline requirement.

[2] 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, 2021

		a	b
	(Millions of Canadian dollars)	EAD post-CRM[1]	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	75,991	18,104
4	**Total subject to the CVA capital charge**	**75,991**	**18,104**

[1] Effective Q1 2019, OSFI has allowed a 0.7 scalar to be applied to the exposure amount determined under SA-CCR for the purpose of determining CVA.

As at July 31, 2021

		a	b
	(Millions of Canadian dollars)	EAD post-CRM[1]	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	74,499	18,466
4	**Total subject to the CVA capital charge**	**74,499**	**18,466**

[1] Effective Q1 2019, OSFI has allowed a 0.7 scalar to be applied to the exposure amount determined under SA-CCR for the purpose of determining CVA.

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, 2021

	a	b	c	d	e	f	g	h	i
Regulatory portfolio (Millions of Canadian dollars) / Risk weight	0%	10%	20%	50%	75%	100%	150%	Others	Total credit exposure
Sovereigns	-	-	-	-	-	-	-	-	-
Non-central government public sector entities (PSEs)	-	-	-	-	-	-	-	-	-
Multilateral development banks (MDBs)	-	-	-	-	-	-	-	-	-
Banks	-	-	6	-	-	106	-	-	112
Securities firms	-	-	126	-	-	95	-	-	221
Corporates	-	-	139	-	-	1,848	-	-	1,987
Regulatory retail portfolios	-	-	-	-	-	-	-	-	-
Other assets	-	-	-	-	-	-	-	-	-
Total	**-**	**-**	**271**	**-**	**-**	**2,049**	**-**	**-**	**2,320**

As at July 31, 2021

	a	b	c	d	e	f	g	h	i
Regulatory portfolio (Millions of Canadian dollars) / Risk weight	0%	10%	20%	50%	75%	100%	150%	Others	Total credit exposure
Sovereigns	-	-	-	-	-	-	-	-	-
Non-central government public sector entities (PSEs)	-	-	-	-	-	-	-	-	-
Multilateral development banks (MDBs)	-	-	-	-	-	-	-	-	-
Banks	-	-	8	-	-	142	-	-	150
Securities firms	-	-	207	-	-	64	-	-	271
Corporates	-	-	43	-	-	1,582	-	-	1,625
Regulatory retail portfolios	-	-	-	-	-	-	-	-	-
Other assets	-	-	-	-	-	-	-	-	-
Total	**-**	**-**	**258**	**-**	**-**	**1,788**	**-**	**-**	**2,046**

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, 2021

		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	35,218	0.04	326	12.21	1.30	1,583	5
	0.15 to < 0.25	103	0.24	8	43.61	1.28	38	37
	0.25 to < 0.50	21	0.50	6	35.60	3.94	19	89
	0.50 to < 0.75	-	-	-	-	-	-	-
	0.75 to < 2.50	9	1.06	4	44.99	2.71	9	109
	2.50 to < 10.00	-	2.74	1	45.00	4.07	-	154
	10.00 to < 100.00	-	-	-	-	-	-	-
	100.00 (default)	-	-	-	-	-	-	-
Total sovereigns		**35,351**	**0.04**	**345**	**12.33**	**1.30**	**1,649**	**5**
Banks								
	0.00 to < 0.15	125,741	0.07	302	12.48	0.69	6,556	5
	0.15 to < 0.25	359	0.24	23	32.98	1.02	123	34
	0.25 to < 0.50	2,145	0.50	19	5.74	0.54	165	8
	0.50 to < 0.75	-	-	-	-	-	-	-
	0.75 to < 2.50	1,412	0.94	31	4.66	0.59	127	9
	2.50 to < 10.00	37	2.74	5	45.00	1.13	43	115
	10.00 to < 100.00	-	-	-	-	-	-	-
	100.00 (default)	-	-	-	-	-	-	-
Total banks		**129,694**	**0.08**	**380**	**12.35**	**0.69**	**7,014**	**5**
Corporates								
	0.00 to < 0.15	93,393	0.06	7,518	34.35	0.75	11,932	13
	0.15 to < 0.25	2,781	0.24	539	42.02	1.53	1,265	45
	0.25 to < 0.50	5,299	0.50	277	42.17	1.73	3,231	61
	0.50 to < 0.75	-	-	-	-	-	-	-
	0.75 to < 2.50	8,680	1.39	643	31.72	1.56	6,174	71
	2.50 to < 10.00	1,437	3.19	217	41.54	2.33	1,818	126
	10.00 to < 100.00	23	29.14	9	29.88	1.77	38	164
	100.00 (default)	14	100.00	2	30.00	1.00	55	398
Total corporates		**111,627**	**0.25**	**9,205**	**34.80**	**0.90**	**24,513**	**22**
Total		**276,672**	**0.07**	**9,930**	**21.41**	**0.85**	**33,176**	**12**

[1] Refer to "Internal ratings map" in the Credit risk assessment section in our 2021 Annual Report MD&A.

CCR4: IRB – CCR exposures by portfolio and PD scale (continued)

As at July 31, 2021

(Millions of Canadian dollars, except as otherwise noted)	PD scale[1]	a EAD post-CRM	b Average PD (%)	c Number of obligors	d Average LGD (%)	e Average maturity (in years)	f RWA	g RWA density (%)
Asset classes								
Sovereigns	0.00 to < 0.15	45,699	0.04	322	9.85	1.17	1,738	4
	0.15 to < 0.25	84	0.24	9	42.78	1.45	31	37
	0.25 to < 0.50	21	0.50	4	35.27	3.21	17	78
	0.50 to < 0.75	-	-	-	-	-	-	-
	0.75 to < 2.50	17	1.02	5	44.99	2.33	17	101
	2.50 to < 10.00	-	2.74	1	45.00	4.43	-	158
	10.00 to < 100.00	-	-	-	-	-	-	-
	100.00 (default)	-	-	-	-	-	-	-
Total sovereigns		**45,821**	**0.04**	**341**	**9.94**	**1.17**	**1,803**	**4**
Banks								
	0.00 to < 0.15	118,035	0.07	300	12.64	0.70	6,256	5
	0.15 to < 0.25	240	0.24	23	37.23	1.66	108	45
	0.25 to < 0.50	1,663	0.50	17	6.54	0.54	145	9
	0.50 to < 0.75	-	-	-	-	-	-	-
	0.75 to < 2.50	1,235	0.98	32	8.62	0.57	192	16
	2.50 to < 10.00	40	2.74	5	45.00	1.16	47	116
	10.00 to < 100.00	-	-	-	-	-	-	-
	100.00 (default)	-	-	-	-	-	-	-
Total banks		**121,213**	**0.08**	**377**	**12.58**	**0.70**	**6,748**	**6**
Corporates								
	0.00 to < 0.15	91,917	0.06	7,500	32.37	0.73	11,196	12
	0.15 to < 0.25	2,873	0.24	526	42.90	1.46	1,314	46
	0.25 to < 0.50	5,484	0.50	291	43.90	2.05	3,667	67
	0.50 to < 0.75	-	-	-	-	-	-	-
	0.75 to < 2.50	6,889	1.41	678	30.59	1.54	4,714	68
	2.50 to < 10.00	1,254	3.43	218	37.25	2.33	1,463	117
	10.00 to < 100.00	20	28.45	8	37.42	2.18	43	213
	100.00 (default)	15	100.00	3	25.92	1.00	50	343
Total corporates		**108,452**	**0.23**	**9,224**	**33.18**	**0.89**	**22,447**	**21**
Total		**275,486**	**0.08**	**9,942**	**20.25**	**0.85**	**30,998**	**11**

[1] Refer to "Internal ratings map" in the Credit risk assessment section in our 2020 Annual Report MD&A.

In Q3 2021, our annual update to Wholesale Parameters, as approved by OSFI, resulted in reductions of Wholesale PDs. Corporate PD changes also reflect the recalibration of our overall Corporate PDs given the migration of some Corporate exposures to Retail, as noted in our Q1 2021 disclosure. In addition, improvements in credit quality also affected our Corporate PDs.

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, 2021

	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	212	3,268	387	1,912	56,741	59,036
Cash - other currencies	4,193	16,566	10,083	18,656	281,894	328,556
Domestic sovereign debt	580	583	1,594	836	143,632	149,433
Other sovereign debt	2,781	1,027	2,245	1,197	251,705	227,893
Government agency debt	313	722	732	1,648	64,978	72,066
Corporate bonds	392	354	325	44	31,334	37,035
Equity securities	-	-	-	472	119,794	160,687
Other collateral	-	19	-	-	27,684	6,122
Total	**8,471**	**22,539**	**15,366**	**24,765**	**977,762**	**1,040,828**

As at April 30, 2021

	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	57	2,535	73	2,000	52,665	51,721
Cash - other currencies	3,298	19,806	8,592	18,940	265,138	330,798
Domestic sovereign debt	495	548	543	732	123,341	130,567
Other sovereign debt	2,776	1,055	3,161	1,271	224,612	202,964
Government agency debt	149	457	327	1,562	84,914	93,027
Corporate bonds	371	411	350	53	27,477	33,063
Equity securities	-	-	-	500	119,812	154,198
Other collateral	-	11	-	-	31,543	5,759
Total	**7,146**	**24,823**	**13,046**	**25,058**	**929,502**	**1,002,097**

CCR6: Credit derivatives exposures

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

As at October 31, 2021

	a	b
(Millions of Canadian dollars)	Protection bought	Protection sold
Notionals		
Single-name credit default swaps	7,611	10,624
Index credit default swaps	15,318	6,324
Total return swaps	-	-
Credit options	2,910	124
Other credit derivatives	-	-
Total notionals	**25,839**	**17,072**
Fair values		
Positive fair value (asset)	14	20
Negative fair value (liability)	29	91

As at July 31, 2021

	a	b
(Millions of Canadian dollars)	Protection bought	Protection sold
Notionals		
Single-name credit default swaps	5,867	13,152
Index credit default swaps	19,860	6,713
Total return swaps	-	-
Credit options	2,496	-
Other credit derivatives	-	-
Total notionals	**28,223**	**19,865**
Fair values		
Positive fair value (asset)	17	479
Negative fair value (liability)	627	115

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, 2021

		a	b
(Millions of Canadian dollars)		EAD (post-CRM)	RWA
1	**Exposures to QCCPs (total)**	**32,166**	**410**
2	Exposures for trades at QCCPs (excluding initial margin and default fund contributions); of which	16,033	383
3	(i) OTC derivatives	6,410	190
4	(ii) Exchange-traded derivatives	6,218	125
5	(iii) Securities financing transactions	3,405	68
6	(iv) Netting sets where cross-product netting has been approved	-	-
7	Segregated initial margin	5,225	
8	Non-segregated initial margin	4,737	-
9	Pre-funded default fund contributions	1,259	27
10	Unfunded default fund contributions[1]	4,912	-
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%.

CCR8: Exposures to central counterparties (continued)

As at July 31, 2021

(Millions of Canadian dollars)		a EAD (post-CRM)	b RWA
1	**Exposures to QCCPs (total)**	**29,431**	**372**
2	Exposures for trades at QCCPs (excluding initial margin and default fund contributions); of which	13,819	345
3	(i) OTC derivatives	4,325	155
4	(ii) Exchange-traded derivatives	5,834	117
5	(iii) Securities financing transactions	3,660	73
6	(iv) Netting sets where cross-product netting has been approved	-	-
7	Segregated initial margin	4,897	
8	Non-segregated initial margin	4,351	-
9	Pre-funded default fund contributions	1,153	27
10	Unfunded default fund contributions[1]	5,211	-
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 2021 Annual Report and incorporated by reference into this Pillar 3 report. Our 2021 Annual Report is available free of charge on our website at http://www.rbc.com/investorrelations

Pillar 3 disclosures requirement		RBC 2021 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, 2021

		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**	**-**	**-**	**-**	**38,040**	**-**	**38,040**	**740**	**-**	**740**
2	residential mortgage	-	-	-	1,383	-	1,383	7	-	7
3	credit card	-	-	-	7,100	-	7,100	370	-	370
4	other retail exposures	-	-	-	29,557	-	29,557	363	-	363
4a	of which student loans	-	-	-	2,499	-	2,499	77	-	77
4b	of which auto loans and leases	-	-	-	21,178	-	21,178	286	-	286
4c	of which consumer loans	-	-	-	5,878	-	5,878	-	-	-
4d	of which other retail	-	-	-	2	-	2	-	-	-
5	re-securitization	-	-	-	-	-	-	-	-	-
6	**Wholesale (total) – of which**	**-**	**-**	**-**	**14,460**	**-**	**14,460**	**10,377**	**-**	**10,377**
7	loans to corporates	-	-	-	2,155	-	2,155	9,734	-	9,734
8	commercial mortgage	-	-	-	-	-	-	230	-	230
9	lease and receivables	-	-	-	-	-	-	-	-	-
10	other wholesale	-	-	-	12,305	-	12,305	413	-	413
10a	of which dealer floor plan receivable	-	-	-	1,981	-	1,981	-	-	-
10b	of which equipment receivable	-	-	-	3,824	-	3,824	-	-	-
10c	of which trade receivable	-	-	-	216	-	216	-	-	-
10d	of which other wholesale	-	-	-	6,284	-	6,284	413	-	413
11	re-securitization	-	-	-	-	-	-	-	-	-

[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.

SEC1: IRB – Securitization exposures in the banking book (continued)

As at July 31, 2021

		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**	**-**	**-**	**-**	**37,569**	**-**	**37,569**	**749**	**-**	**749**
2	residential mortgage	-	-	-	1,404	-	1,404	10	-	10
3	credit card	-	-	-	6,876	-	6,876	358	-	358
4	other retail exposures	-	-	-	29,289	-	29,289	381	-	381
4a	of which student loans	-	-	-	2,956	-	2,956	82	-	82
4b	of which auto loans and leases	-	-	-	20,435	-	20,435	299	-	299
4c	of which consumer loans	-	-	-	5,874	-	5,874	-	-	-
4d	of which other retail	-	-	-	24	-	24	-	-	-
5	re-securitization	-	-	-	-	-	-	-	-	-
6	**Wholesale (total) – of which**	**-**	**-**	**-**	**13,758**	**-**	**13,758**	**10,078**	**-**	**10,078**
7	loans to corporates	-	-	-	2,306	-	2,306	9,342	-	9,342
8	commercial mortgage	-	-	-	-	-	-	241	-	241
9	lease and receivables	-	-	-	-	-	-	-	-	-
10	other wholesale	-	-	-	11,452	-	11,452	495	-	495
10a	of which dealer floor plan receivable	-	-	-	2,029	-	2,029	-	-	-
10b	of which equipment receivable	-	-	-	3,789	-	3,789	-	-	-
10c	of which trade receivable	-	-	-	221	-	221	-	-	-
10d	of which other wholesale	-	-	-	5,413	-	5,413	495	-	495
11	re-securitization	-	-	-	-	-	-	-	-	-

[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, 2021

		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**	**-**	**-**	**-**	**-**	**-**	**-**	**398**	**-**	**398**
2	residential mortgages	-	-	-	-	-	-	19	-	19
3	credit cards	-	-	-	-	-	-	35	-	35
4	other retail exposures	-	-	-	-	-	-	344	-	344
4a	of which student loans	-	-	-	-	-	-	74	-	74
4b	of which auto loans and leases	-	-	-	-	-	-	249	-	249
4c	of which consumer loans	-	-	-	-	-	-	10	-	10
4d	of which other retail	-	-	-	-	-	-	11	-	11
5	re-securitization	-	-	-	-	-	-	-	-	-
6	**Wholesale (total) - of which**	**-**	**-**	**-**	**-**	**-**	**-**	**6,018**	**-**	**6,018**
7	loans to corporates	-	-	-	-	-	-	170	-	170
8	commercial mortgages	-	-	-	-	-	-	4,722	-	4,722
9	leases and receivables	-	-	-	-	-	-	-	-	-
10	other wholesale exposures	-	-	-	-	-	-	1,126	-	1,126
10a	of which dealer floor plan receivables	-	-	-	-	-	-	24	-	24
10b	of which equipment receivables	-	-	-	-	-	-	11	-	11
10c	of which trade receivables	-	-	-	-	-	-	-	-	-
10d	of which other wholesale	-	-	-	-	-	-	1,091	-	1,091
11	re-securitization	-	-	-	-	-	-	-	-	-

[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.

SEC2: IRB – Securitization exposures in the trading book (continued)

As at July 31, 2021

		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**	**-**	**-**	**-**	**-**	**-**	**-**	**259**	**-**	**259**
2	residential mortgages	-	-	-	-	-	-	11	-	11
3	credit cards	-	-	-	-	-	-	44	-	44
4	other retail exposures	-	-	-	-	-	-	204	-	204
4a	of which student loans	-	-	-	-	-	-	44	-	44
4b	of which auto loans and leases	-	-	-	-	-	-	159	-	159
4c	of which consumer loans	-	-	-	-	-	-	1	-	1
4d	of which other retail	-	-	-	-	-	-	-	-	-
5	re-securitization	-	-	-	-	-	-	-	-	-
6	**Wholesale (total) - of which**	**-**	**-**	**-**	**-**	**-**	**-**	**4,968**	**-**	**4,968**
7	loans to corporates	-	-	-	-	-	-	141	-	141
8	commercial mortgages	-	-	-	-	-	-	4,258	-	4,258
9	leases and receivables	-	-	-	-	-	-	-	-	-
10	other wholesale exposures	-	-	-	-	-	-	569	-	569
10a	of which dealer floor plan receivables	-	-	-	-	-	-	11	-	11
10b	of which equipment receivables	-	-	-	-	-	-	32	-	32
10c	of which trade receivables	-	-	-	-	-	-	-	-	-
10d	of which other wholesale	-	-	-	-	-	-	526	-	526
11	re-securitization	-	-	-	-	-	-	-	-	-

[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, 2021

		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[3] (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	SEC – IRBA[1,4]	SEC – ERBA[1,2]	SEC – SA[1]	1250%	SEC – IRBA[1,4]	SEC – ERBA[1,2]	SEC – SA[1]	1250%	SEC – IRBA[1,4]	SEC – ERBA[1,2]	SEC – SA[1]	1250%
1	**Total exposures**	**46,753**	**4,155**	**1,298**	**294**	**-**	**-**	**42,951**	**9,549**	**-**	**-**	**5,730**	**2,346**	**-**	**-**	**459**	**187**	**-**
2	Traditional securitization	46,753	4,155	1,298	294	-	-	42,951	9,549	-	-	5,730	2,346	-	-	459	187	-
3	Of which securitization	46,753	4,155	1,298	294	-	-	42,951	9,549	-	-	5,730	2,346	-	-	459	187	-
4	Of which retail underlying	35,516	2,145	154	225	-	-	32,950	5,090	-	-	4,171	791	-	-	334	63	-
5	Of which wholesale	11,237	2,010	1,144	69	-	-	10,001	4,459	-	-	1,559	1,555	-	-	125	124	-
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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

[1] OSFI adopted BCBS Revised Securitization Framework in Q1 2019. Effective Q1 2020, transitional grandfathering is no longer allowed.

[2] As per disclosure requirements Internal assessment approach (IAA) exposures have been included with securitization external rating based approach.

[3] Under the revised securitization framework, OSFI has removed the 1.06% IRB scalar for securitization exposures not risk weighted at 1250%.

[4] SEC-IRBA exposures reflect exposures where we have underlying IRB approval currently.

As at July 31, 2021

(Millions of Canadian dollars)		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[3] (by regulatory approach)				Capital charge after cap (by regulatory approach)			
		≤20% RW	>20% to 50% RW	>50% to 100% RW	>100% to <1250% RW	1250% RW	SEC – IRBA[1,4]	SEC – ERBA[1,2]	SEC – SA[1]	1250%	SEC – IRBA[1,4]	SEC – ERBA[1,2]	SEC – SA[1]	1250%	SEC – IRBA[1,4]	SEC – ERBA[1,2]	SEC – SA[1]	1250%
1	**Total exposures**	**45,392**	**4,285**	**1,322**	**306**	**22**	**-**	**43,479**	**7,826**	**22**	**-**	**5,896**	**2,186**	**273**	**-**	**472**	**175**	**22**
2	Traditional securitization	45,392	4,285	1,322	306	22	-	43,479	7,826	22	-	5,896	2,186	273	-	472	175	22
3	Of which securitization	45,392	4,285	1,322	306	22	-	43,479	7,826	22	-	5,896	2,186	273	-	472	175	22
4	Of which retail underlying	34,864	2,419	26	237	22	-	33,834	3,713	22	-	4,385	613	273	-	351	49	22
5	Of which wholesale	10,528	1,866	1,296	69	-	-	9,645	4,113	-	-	1,511	1,573	-	-	121	126	-
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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

[1] OSFI adopted BCBS Revised Securitization Framework in Q1 2019. Effective Q1 2020, transitional grandfathering is no longer allowed.

[2] As per disclosure requirements Internal assessment approach (IAA) exposures have been included with securitization external rating based approach.

[3] Under the revised securitization framework, OSFI has removed the 1.06% IRB scalar for securitization exposures not risk weighted at 1250%.

[4] SEC-IRBA exposures reflect exposures where we have underlying IRB approval currently.

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, 2021

		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[3] (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	SEC – IRBA[1,4]	SEC – ERBA[1,2]	SEC – SA[1]	1250%	SEC – IRBA[1,4]	SEC – ERBA[1,2]	SEC – SA[1]	1250%	SEC – IRBA[1,4]	SEC – ERBA[1,2]	SEC – SA[1]	1250%
1	**Total exposures**	**10,940**	**113**	**62**	**2**	**-**	**-**	**11,117**	**-**	**-**	**-**	**2,252**	**-**	**-**	**-**	**180**	**-**	**-**
2	Traditional securitization	10,940	113	62	2	-	-	11,117	-	-	-	2,252	-	-	-	180	-	-
3	Of which securitization	10,940	113	62	2	-	-	11,117	-	-	-	2,252	-	-	-	180	-	-
4	Of which retail underlying	731	-	7	2	-	-	739	-	-	-	139	-	-	-	11	-	-
5	Of which wholesale	10,209	113	55	-	-	-	10,378	-	-	-	2,113	-	-	-	169	-	-
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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

[1] OSFI adopted BCBS Revised Securitization Framework in Q1 2019. Effective Q1 2020, transitional grandfathering is no longer allowed.

[2] As per disclosure requirements Internal assessment approach (IAA) exposures have been included with securitization external rating based approach.

[3] Under the revised securitization framework, OSFI has removed the 1.06% IRB scalar for securitization exposures not risk weighted at 1,250%.

[4] SEC-IRBA exposures reflect exposures where we have underlying IRB approval currently.

As at July 31, 2021

(Millions of Canadian dollars)		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[3] (by regulatory approach)				Capital charge after cap (by regulatory approach)			
		≤20% RW	>20% to 50% RW	>50% to 100% RW	>100% to <1250% RW	1250% RW	SEC – IRBA[1,4]	SEC – ERBA[1,2]	SEC – SA[1]	1250%	SEC – IRBA[1,4]	SEC – ERBA[1,2]	SEC – SA[1]	1250%	SEC – IRBA[1,4]	SEC – ERBA[1,2]	SEC – SA[1]	1250%
1	**Total exposures**	**10,486**	**109**	**218**	**14**	**-**	**-**	**10,827**	**-**	**-**	**-**	**2,285**	**-**	**-**	**-**	**182**	**-**	**-**
2	Traditional securitization	10,486	109	218	14	-	-	10,827	-	-	-	2,285	-	-	-	182	-	-
3	Of which securitization	10,486	109	218	14	-	-	10,827	-	-	-	2,285	-	-	-	182	-	-
4	Of which retail underlying	736	-	10	2	-	-	747	-	-	-	143	-	-	-	11	-	-
5	Of which wholesale	9,750	109	208	12	-	-	10,080	-	-	-	2,142	-	-	-	171	-	-
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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

[1] OSFI adopted BCBS Revised Securitization Framework in Q1 2019. Effective Q1 2020, transitional grandfathering is no longer allowed.

[2] As per disclosure requirements Internal assessment approach (IAA) exposures have been included with securitization external rating based approach.

[3] Under the revised securitization framework, OSFI has removed the 1.06% IRB scalar for securitization exposures not risk weighted at 1,250%.

[4] SEC-IRBA exposures reflect exposures where we have underlying IRB approval currently.

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 remain 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, portfolios used for asset-liability management and liquidity management, exposures designated as 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 2021 Annual Report and incorporated by reference into this Pillar 3 report. Our 2021 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 2021 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 assets and liabilities of RBC Insurance</td></tr>
<tr><td>Market risk controls – Interest Rate Risk in the Banking Book (IRRBB) positions</td></tr>
<tr><td>IRRBB measurement</td></tr>
<tr><td>Market risk measures – IRRBB 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>

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

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 2021 Annual Report and incorporated by reference into this Pillar 3 report. Our 2021 Annual Report is available free of charge on our website at http://www.rbc.com/investorrelations

	Pillar 3 disclosures requirement	RBC 2021 Annual Report section	Sub-Section
b)	Description of the market risk governance structure established to implement the strategies and processes of the bank	Enterprise Risk Management	Risk governance
			Risk appetite
			Risk measurement
			Risk control
			Risk measurement - *Stress testing*
			Culture and conduct risk
	Description of the relationships and the communication mechanisms between the different parties involved in market risk management	Enterprise Risk Management	Risk governance
			Risk control

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 2021 Annual Report and incorporated by reference into this Pillar 3 report. Our 2021 Annual Report is available free of charge on our website at http://www.rbc.com/investorrelations

	Pillar 3 disclosures requirement	RBC 2021 Annual Report section	Sub-Section
c)	Scope and nature of risk reporting and/or measurement systems	Enterprise Risk Management	Risk measurement
			Risk control
			Risk measurement – *Stress testing*
		Market Risk	Market risk controls – FVTPL positions
			Stress tests
			Market risk measures – FVTPL positions
			Market risk measures for assets and liabilities of RBC Insurance
			Market risk controls – Interest Rate Risk in the Banking Book (IRRBB) positions
			IRRBB measurement
			Market risk measures – IRRBB 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 and for regulatory capital measurement we take the more conservative of the one-day holding period scaled up to a ten-day holding period or the direct ten-day holding period. 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 is comprised of the recent two years of equally weighted market data, and is rolled forward on a weekly basis. A mix of absolute and relative returns are used in generating the historical market changes.	24%
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 heightened volatility. We currently use the historical period between 2019 and 2020 covering the market volatility observed during Q2 2020. This historical period chosen reflects the one year period of greatest potential loss for our portfolio.	24%
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.	14%

[1] As at October 31, 2021.

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 2021 Annual Report and incorporated by reference into this Pillar 3 report. Our 2021 Annual Report is available free of charge on our website at http://www.rbc.com/investorrelations

Pillar 3 disclosures requirement		RBC 2021 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 our 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 at least quarterly.

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 eight 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 backtesting 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.

		RWA	
	(Millions of Canadian dollars)	As at October 31, 2021	As at July 31, 2021
	Outright products		
1	Interest rate risk (general and specific)	4,594	3,710
2	Equity risk (general and specific)	162	232
3	Foreign exchange risk	2,363	2,018
4	Commodity risk	689	306
	Options		
5	Simplified approach	-	-
6	Delta-plus method	-	-
7	Scenario approach	4,101	3,940
8	**Securitization**	1,421	1,166
9	**Total**	**13,330**	**11,372**

The Total RWA increase is primarily due to higher inventories in certain fixed income portfolios and elevated Commodity price levels.

MR2: RWA flow statements of market risk exposures under the Internal Models Approach (IMA)

The following table presents variations in the Market RWA determined under the Internal Models Approach.

As at October 31, 2021

		a	b	c	d	e	f
	(Millions of Canadian dollars)	VaR	Stressed VaR	IRC	CRM	Other	Total RWA
1	**RWA at previous quarter end**	**8,476**	**9,225**	**5,076**	**-**	**-**	**22,777**
2	Movement in risk levels[1]	(231)	(758)	(41)	-	-	(1,030)
3	Model updates/changes[2]	(45)	7	(271)	-	-	(309)
4	Methodology and policy[3]	-	-	-	-	-	-
5	Acquisitions and disposals	-	-	-	-	-	-
6	Foreign exchange movements[4]	-	-	38	-	-	38
7	Other	-	-	-	-	-	-
8	**RWA at end of Reporting Period**	**8,200**	**8,474**	**4,802**	**-**	**-**	**21,476**

[1] Change in risk due to position changes and averaging in of prior quarter model updates.

[2] Updates to the model to reflect recent market volatility, 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. Please note that these changes may be temporary.

[4] Foreign exchange movements for VaR and Stressed VaR are embedded within movement in risk levels.

As at July 31, 2021

		a	b	c	d	e	f
	(Millions of Canadian dollars)	VaR	Stressed VaR	IRC	CRM	Other	Total RWA
1	**RWA at previous quarter end**	**9,235**	**3,020**	**6,466**	**-**	**-**	**18,721**
2	Movement in risk levels[1]	(27)	561	(1,352)	-	-	(818)
3	Model updates/changes[2]	(732)	(506)	106	-	-	(1,132)
4	Methodology and policy[3]	-	6,150	-	-	-	6,150
5	Acquisitions and disposals	-	-	-	-	-	-
6	Foreign exchange movements[4]	-	-	(144)	-	-	(144)
7	Other	-	-	-	-	-	-
8	**RWA at end of Reporting Period**	**8,476**	**9,225**	**5,076**	**-**	**-**	**22,777**

[1] Change in risk due to position changes and averaging in of prior quarter model updates.

[2] Updates to the model to reflect recent market volatility, 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. Please note that these changes may be temporary.

[4] Foreign exchange movements for VaR and Stressed VaR are embedded within movement in risk levels.

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.

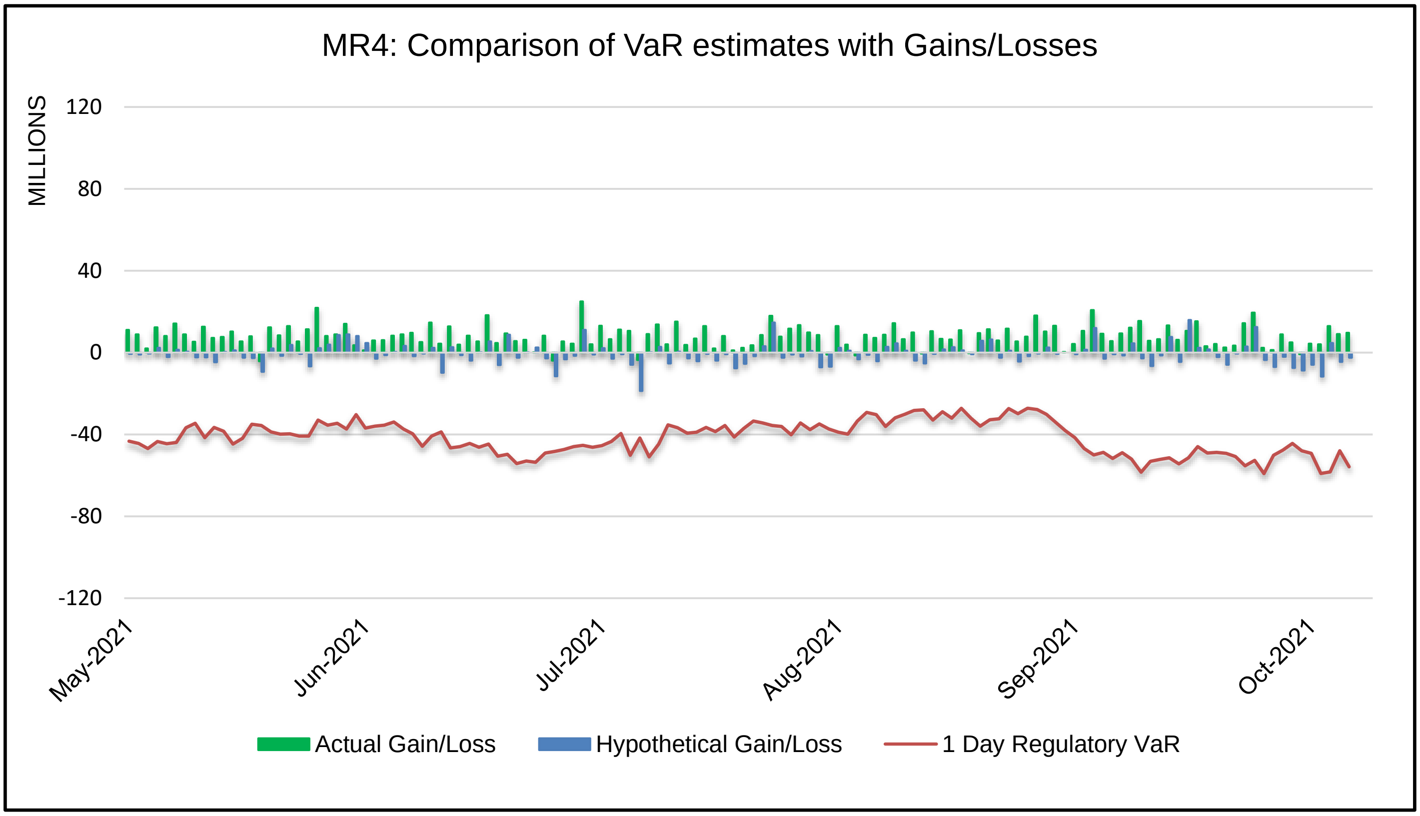
(Millions of Canadian dollars)		Value	
VaR (10 day 99%)[1,2]		As at October 31, 2021	As at July 31, 2021
1	Maximum value	362	302
2	Average value	214	222
3	Minimum value	99	167
4	Period end	260	176
Stressed VaR (10 day 99%)[1]			
5	Maximum value	346	318
6	Average value	217	231
7	Minimum value	107	177
8	Period end	302	195
Incremental Risk Charge (99.9%)			
9	Maximum value	469	610
10	Average value	383	410
11	Minimum value	295	334
12	Period end	384	380
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 2021 Annual Report.

[2] VaR shown this quarter reflects the more conservative of either a one-day holding period scaled up to a ten-day holding period or the direct ten-day holding period.

MR4: Comparison of VaR estimates with gains/losses

The following graph compares the results of the 1 day regulatory VaR model with both hypothetical and actual trading gains and losses, for all trading portfolios included in Internal Models Approach (IMA) based market risk capital.



Actual Gain/Loss reported in this graph is the gain or loss which occurred as a result of all portfolio changes impacting income over the holding period and therefore includes reserves and intraday trading but excludes commissions and fees. Hypothetical Gain/Loss is the gain or loss which would have occurred if end of day positions remained unchanged.

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, 2021, the bank experienced zero backtesting exception of Total Risk VaR against Actual Gain/Loss and zero Hypothetical Gain/Loss breaches.

LEVERAGE

LR1: Summary comparison of accounting assets vs leverage ratio exposure measure

The following table presents a reconciliation of our total assets per our published financial statements to our leverage ratio exposure measure.

	LEVERAGE RATIO[1] Summary comparison of accounting assets vs. leverage ratio exposure measure (Millions of Canadian dollars)	Q4/2021	Q3/2021	Q2/2021	Q1/2021	Q4/2020
1	**Total consolidated assets as per published financial statements**	**$1,706,323**	**1,693,540**	**1,615,316**	**1,671,151**	**1,624,548**
2	Adjustment for investments in banking, financial, insurance or commercial entities that are consolidated for accounting purposes but outside the scope of regulatory consolidation	(17,206)	(16,852)	(15,879)	(16,464)	(16,147)
3	Adjustment for securitized exposures that meet the operational requirements for the recognition of risk transfer[2]	-	-	-	-	(5,528)
4	Adjustment for fiduciary assets recognized on the balance sheet pursuant to the operative accounting framework but excluded from the leverage ratio exposure measure	-	-	-	-	-
5	Adjustments for derivative financial instruments	(4,765)	(15,322)	(12,741)	(28,579)	(30,842)
6	Adjustment for securities financing transactions (SFT) (i.e. repo assets and similar secured lending)	13,907	12,044	19,095	14,314	12,123
7	Adjustments for off-balance sheet items (i.e., credit equivalent amounts of off-balance sheet exposures)	222,658	218,889	213,097	210,955	208,192
8	Other adjustments[3]	(258,873)	(259,066)	(242,611)	(266,043)	(239,483)
9	**Leverage Ratio Exposure**	**$1,662,044**	**1,633,233**	**1,576,277**	**1,585,334**	**1,552,863**

[1] Based on OSFI's Leverage Requirements Guideline issued in October 2018.

[2] OSFI's October 2018 Leverage Requirements Guideline allows for the exclusion of securitized exposures that meet the operational requirements for risk transference. In Q1/2021 transitional methodology changes under the securitization framework did not allow us to recognize risk transference as further explained in SEC 1.

[3] Includes OSFI permitted exclusion of central bank reserves and sovereign-issued securities that qualify as high quality liquid assets and exposures related to the US Government Payment Protection Program (PPP).

LR2: Leverage ratio common disclosure template

The following table presents a detailed breakdown of the components of our leverage ratio. Maintaining a prescribed minimum level of leverage helps neutralizes leverage risk in the event of unexpected economic crises. OSFI requires maintenance of a minimum leverage ratio of 3% at all times.

LEVERAGE RATIO COMMON DISCLOSURE TEMPLATE[1] (Millions of Canadian dollars, except percentages)		Q4/2021	Q3/2021	Q2/2021	Q1/2021	Q4/2020
	On-balance sheet exposures					
1	On-balance sheet items (excluding derivatives, SFTs and grandfathered securitization exposures, but including collateral)	1,057,130	1,025,819	982,497	996,797	967,523
2	Gross-up for derivatives collateral provided where deducted from balance sheet assets pursuant to the operative accounting framework (IFRS)	-	-	-	-	-
3	(Deductions of receivables assets for cash variation margin provided in derivatives transactions)	(16,317)	(16,569)	(16,858)	(16,328)	(17,400)
4	(Asset amounts deducted in determining Basel III Tier 1 capital)	(17,088)	(15,890)	(15,771)	(14,840)	(14,410)
5	**Total on-balance sheet exposure (excluding derivatives and SFTs) (sum of lines 1 and 4)**	**1,023,725**	**993,360**	**949,868**	**965,629**	**935,713**
	Derivatives exposures					
6	Replacement cost associated with all derivatives transactions (i.e., net of eligible cash variation margin)	29,322	28,820	26,967	25,968	28,186
7	Add-on amounts for potential future exposure (PFE) associated with all derivatives transactions	61,188	57,623	57,189	55,546	53,236
8	(Exempted central counterparty (CCP)-leg of client-cleared trade exposures)	-	-	-	-	-
9	Adjusted effective notional amount of written credit derivatives	266	268	339	824	1,225
10	(Adjusted effective notional offsets and add-on deductions for written credit derivatives)	-	-	-	-	-
11	**Total derivative exposures (sum of lines 6 to 10)**	**90,776**	**86,711**	**84,495**	**82,338**	**82,647**
	Securities financing transaction exposures					
12	Gross SFT assets recognized for accounting purposes (with no recognition of netting), after adjusting for sale accounting transactions	388,006	388,202	369,353	357,257	349,971
13	(Netted amounts of cash payables and cash receivables of gross SFT assets)	(77,028)	(65,973)	(59,631)	(45,160)	(35,783)
14	Counterparty credit risk (CCR) exposure for SFTs	13,907	12,044	19,095	14,314	12,123
15	Agent transaction exposures	-	-	-	-	-
16	**Total securities financing transaction exposures (sum of lines 12 to 15)**	**324,885**	**334,273**	**328,817**	**326,411**	**326,311**
	Other off-balance sheet exposures					
17	Off-balance sheet exposures at gross notional amount	660,224	656,218	634,002	626,427	594,156
18	(Adjustments for conversion to credit equivalent amounts)	(437,566)	(437,329)	(420,905)	(415,471)	(385,964)
19	**Off-balance sheet items (sum of lines 17 and 18)**	**222,658**	**218,889**	**213,097**	**210,956**	**208,192**
	Capital and Total Exposures					
20	**Tier 1 capital**	**82,246**	**81,218**	**78,139**	**76,733**	**74,005**
20a	**Tier 1 capital with transitional arrangements for ECL provisioning not applied**	**81,826**	**80,659**	**77,319**	**75,757**	**72,559**
21	**Total Exposures (sum of lines 3,11,16 and 19)**	**1,662,044**	**1,633,233**	**1,576,277**	**1,585,334**	**1,552,863**
	Leverage ratio					
22	**Basel III leverage ratio**	**4.9%**	**5.0%**	**5.0%**	**4.8%**	**4.8%**
22a	**Basel III leverage ratio with transitional arrangements for ECL provisioning not applied**	**4.9%**	**4.9%**	**4.9%**	**4.8%**	**4.7%**

[1] Based on OSFI's Leverage Requirements Guideline issued October 2018.

Our Leverage ratio of 4.9% was up 10 bps year-over-year, mainly reflecting internal capital generation and the issuance of LRCNs, partially offset by growth in leverage exposures, the redemption of preferred shares and the impact of lower capital modification as noted under the CET1 ratio per KM1 section.

Leverage exposures increased by $109 billion mainly driven by business growth in loans, interest-bearing deposits with banks, securities, undrawn commitments, repo-style transactions and derivatives, partially offset by the impact of foreign exchange translation and higher regulatory modifications for central bank reserves and sovereign-issued securities qualifying as HQLA.

TOTAL LOSS ABSORBING CAPACITY (TLAC) DISCLOSURE REQUIREMENTS

KM2: Key metrics – TLAC requirements (at resolution group level)

The following summary table provides information about our total loss-absorbing capacity (TLAC) available, and TLAC requirements applied, at the resolution group level under a Single Point of Entry. TLAC requirements establish two minimum standards, which are required to be met effective November 1, 2021: the risk-based TLAC ratio, which builds on the risk-based capital ratios described in the CAR guideline, and the TLAC leverage ratio, which builds on the leverage ratio described in OSFI's Leverage Requirements guideline. The risk-based TLAC ratio is defined as TLAC divided by total risk-weighted assets (RWA) while the TLAC leverage ratio is defined as TLAC divided by the Leverage ratio exposure. OSFI has provided notification requiring systemically important banks to maintain a minimum TLAC ratio of 22.5% (inclusive of the revised domestic stability buffer of 1% in Q2 2020) and a TLAC leverage ratio of 6.75%. The TLAC ratio requirements increased to 24% in Q4 2021 reflecting the 1.5% increase of the DSB effective October 31, 2021. We began issuing TLAC eligible debt in Q4 2018 and our TLAC ratio is expected to increase through normal course refinancing of maturing debt.

		a	b	c	d	e	f
(Millions of Canadian dollars, except as otherwise noted)		October 31 2021	July 31 2021	April 30 2021	January 31 2021	October 31 2020	Change (a) - (b)
Resolution group[1]							
1	Total loss-absorbing capacity (TLAC) available	142,202	135,029	126,594	125,619	119,832	7,173
1a	Total loss-absorbing capacity (TLAC) available with transitional arrangements for ECL provisioning not applied	142,202	135,029	126,594	125,619	119,832	7,173
2	Total RWA at the level of the resolution group	552,541	543,047	555,607	557,519	546,242	9,494
3	TLAC ratio: TLAC as a percentage of RWA (row 1/row 2) (%)	25.7%	24.9%	22.8%	22.5%	21.9%	0.8%
3a	TLAC ratio: TLAC as a percentage of RWA (row 1a / row 2) (%) available with transitional arrangements for ECL provisioning not applied	25.7%	24.9%	22.8%	22.5%	21.9%	0.8%
4	Leverage ratio exposure measure at the level of the resolution group	1,662,044	1,633,233	1,576,277	1,585,334	1,552,863	28,811
5	TLAC Leverage Ratio: TLAC as a percentage of leverage ratio exposure measure (row 1/row 4) (%)	8.6%	8.3%	8.0%	7.9%	7.7%	0.3%
5a	TLAC Leverage Ratio: TLAC as a percentage of leverage ratio exposure measure (row 1a/row 4) (%) with transitional arrangements for ECL provisioning not applied	8.6%	8.3%	8.0%	7.9%	7.7%	0.3%
6a	Does the subordination exemption in the antepenultimate paragraph of Section 11 of the FSB TLAC Term Sheet apply?	Yes	Yes	Yes	Yes	Yes	-
6b	Does the subordination exemption in the penultimate paragraph of Section 11 of the FSB TLAC Term Sheet apply?	No	No	No	No	No	-
6c	If the capped subordination exemption applies, the amount of funding issued that ranks pari passu with Excluded Liabilities and that is recognized as external TLAC, divided by funding issued that ranks pari passu with Excluded Liabilities and that would recognized as external TLAC if no cap was applied (%)	N/A	N/A	N/A	N/A	N/A	-

[1] Lines 1, 3 and 5 incorporate expected credit loss (ECL) transitional modification provided by OSFI as announced on March 27, 2020. Lines 1a, 3a and 5a represent TLAC available with transitional arrangements for ECL provisioning not applied.

Our TLAC ratio of 25.7% was up by 80 bps quarter-over-quarter, reflecting the increase in available TLAC from net bail-in debt issuance and internal capital generation net of dividends, partly offset by the increase in RWA, as noted in KM1.

Our TLAC leverage ratio of 8.6% was up 30 bps quarter-over-quarter, reflecting the increase in available TLAC, partly offset by the increase in leverage exposure, as noted in LR2.

TLAC1: TLAC composition (at resolution group level)

The following table presents details of the composition of our TLAC.

As at October 31, 2021

(Millions of Canadian dollars, except as otherwise noted)		Amount
	Regulatory capital elements of TLAC and adjustments	
1	Common Equity Tier 1 capital (CET1)	75,583
2	Additional Tier 1 capital (AT1) before TLAC adjustments	6,663
3	AT1 ineligible as TLAC as issued out of subsidiaries to third parties	-
4	Other adjustments	-
5	AT1 instruments eligible under the TLAC framework	6,663
6	Tier 2 capital (T2) before TLAC adjustments	9,780
7	Amortised portion of T2 instruments where remaining maturity > 1 year	459
8	T2 capital ineligible as TLAC as issued out of subsidiaries to third parties	-
9	Other adjustments	-
10	T2 instruments eligible under the TLAC framework	10,239
11	TLAC arising from regulatory capital	92,485
	Non-regulatory capital elements of TLAC	
12	External TLAC instruments issued directly by the bank and subordinated to excluded liabilities	-
13	External TLAC instruments issued directly by the bank which are not subordinated to excluded liabilities but meet all other TLAC term sheet requirements	49,878
14	Of which: amount eligible as TLAC after application of the caps	49,878
15	External TLAC instruments issued by funding vehicles prior to January 1, 2022	-
16	Eligible ex ante commitments to recapitalise a G-SIB in resolution	-
17	TLAC arising from non-regulatory capital instruments before adjustments	49,878
	Non-regulatory capital elements of TLAC: adjustments	
18	TLAC before deductions	142,363
19	Deductions of exposures between MPE resolution groups that correspond to items eligible for TLAC (not applicable to SPE G-SIBs and D-SIBs)	-
20	Deduction of investments in own other TLAC liabilities	(161)
21	Other adjustments to TLAC	-
22	TLAC available after deductions	142,202
	Risk-weighted assets and leverage exposure measure for TLAC purposes	
23	Total risk-weighted assets adjusted as permitted under the TLAC regime	552,541
24	Leverage exposure measure	1,662,044
	TLAC ratios and buffers	
25	TLAC Ratio (as a percentage of risk-weighted assets adjusted as permitted under the TLAC regime, row 22 / row 23)	25.7%
26	TLAC Leverage Ratio (as a percentage of leverage exposure)	8.6%
27	CET1 (as a percentage of risk-weighted assets) available after meeting the resolution group's minimum capital and TLAC requirements	N/A
28	Institution-specific buffer (capital conservation buffer plus countercyclical buffer plus higher loss absorbency, expressed as a percentage of risk-weighted assets)	3.5%
29	Of which: capital conservation buffer	2.5%
30	Of which: bank specific countercyclical buffer	0.0%
31	Of which: higher loss absorbency	1.0%

TLAC1: TLAC composition (at resolution group level) (continued)

As at July 31, 2021

	(Millions of Canadian dollars, except as otherwise noted)	Amount
	Regulatory capital elements of TLAC and adjustments	
1	Common Equity Tier 1 capital (CET1)	73,822
2	Additional Tier 1 capital (AT1) before TLAC adjustments	7,396
3	AT1 ineligible as TLAC as issued out of subsidiaries to third parties	-
4	Other adjustments	-
5	AT1 instruments eligible under the TLAC framework	7,396
6	Tier 2 capital (T2) before TLAC adjustments	9,518
7	Amortised portion of T2 instruments where remaining maturity > 1 year	462
8	T2 capital ineligible as TLAC as issued out of subsidiaries to third parties	-
9	Other adjustments	-
10	T2 instruments eligible under the TLAC framework	9,980
11	TLAC arising from regulatory capital	91,198
	Non-regulatory capital elements of TLAC	
12	External TLAC instruments issued directly by the bank and subordinated to excluded liabilities	-
13	External TLAC instruments issued directly by the bank which are not subordinated to excluded liabilities but meet all other TLAC term sheet requirements	44,043
14	Of which: amount eligible as TLAC after application of the caps	44,043
15	External TLAC instruments issued by funding vehicles prior to January 1, 2022	-
16	Eligible ex ante commitments to recapitalise a G-SIB in resolution	-
17	TLAC arising from non-regulatory capital instruments before adjustments	44,043
	Non-regulatory capital elements of TLAC: adjustments	
18	TLAC before deductions	135,241
19	Deductions of exposures between MPE resolution groups that correspond to items eligible for TLAC (not applicable to SPE G-SIBs and D-SIBs)	-
20	Deduction of investments in own other TLAC liabilities	(212)
21	Other adjustments to TLAC	-
22	TLAC available after deductions	135,029
	Risk-weighted assets and leverage exposure measure for TLAC purposes	
23	Total risk-weighted assets adjusted as permitted under the TLAC regime	543,047
24	Leverage exposure measure	1,633,233
	TLAC ratios and buffers	
25	TLAC Ratio (as a percentage of risk-weighted assets adjusted as permitted under the TLAC regime, row 22 / row 23)	24.9%
26	TLAC Leverage Ratio (as a percentage of leverage exposure)	8.3%
27	CET1 (as a percentage of risk-weighted assets) available after meeting the resolution group's minimum capital and TLAC requirements	N/A
28	Institution-specific buffer (capital conservation buffer plus countercyclical buffer plus higher loss absorbency, expressed as a percentage of risk-weighted assets)	3.5%
29	Of which: capital conservation buffer	2.5%
30	Of which: bank specific countercyclical buffer	0.0%
31	Of which: higher loss absorbency	1.0%

TLAC2: Material subgroup entity – creditor ranking at legal entity level (G-SIBs only)

TLAC 2 is a G-SIB disclosure requirement to provide the ranking of the liability structure of all our material subsidiaries in foreign jurisdictions as defined by the FSB TLAC term sheet. RBC US Group Holdings LLC ("RBC IHC") is a material subsidiary entity for which TLAC 2 disclosure would be required. Effective January 1, 2021, RBC IHC must comply with the Federal Reserve TLAC rules which require reporting of TLAC ratios for calendar quarters commencing June 2021. OSFI has advised RBC it can align its IHC TLAC 2 disclosure requirements to similarly commence in Q3 2021 and will require only disclosure of IHC calendar quarter TLAC ratios. OSFI does require us to disclose TLAC 2 for any other material subsidiary identified, however, at this time RBC IHC is our only material subsidiary.

As at October 31, 2021

	(Millions of Canadian dollars, except as otherwise noted) Based on US GAAP	Creditor ranking					
		1 (most junior)	2	3	4	5	Sum
1	Is the resolution entity the creditor/investor? (yes or no)	yes	-	no	yes	-	-
2	Description of creditor ranking	Common shares	Preferred shares and Limited Recourse Capital Notes	Subordinated Debt [3]	Bail-in Debt[1]	Other Liabilities excluding Bail-in Debt and Subordinated Debt[2]	
3	Total capital and liabilities net of credit risk mitigation	22,056	-	192	12,467	-	34,715
4	Subset of row 3 that are excluded liabilities	-	-	192	-	-	192
5	Total capital and liabilities less excluded liabilities (row 3 minus row 4)	22,056	-	-	12,467	-	34,523
6	Subset of row 5 that are eligible as TLAC	22,056	-	-	12,467	-	34,523
7	Subset of row 6 with 1 year ≤ residual maturity < 2 years			-	-	-	-
8	Subset of row 6 with 2 years ≤ residual maturity < 5 years			-	5,053	-	5,053
9	Subset of row 6 with 5 years ≤ residual maturity < 10 years			-	7,414	-	7,414
10	Subset of row 6 with residual maturity ≥ 10 years, but excluded perpetual securities			-	-	-	-
11	Subset of row 6 that is perpetual securities	22,056	-	-	-	-	22,056

[1] Under the Bail-in Regime, Bail-in Debt which would ordinarily rank equally to Other Liabilities in liquidation, is subject to conversion under statutory resolution powers whereas Other Liabilities are not subject to such conversion.Bail-in-Debt represents TLAC Eligible Long-Term Debt based on U.S. TLAC Rules.

[2] Completion of this column is not required by OSFI at this time.

[3] Subordinated debt was issued by City National Bank before being acquired by RBC, it will mature in July 2022.

TLAC2: Material subgroup entity – creditor ranking at legal entity level (G-SIBs only) (continued)

As at July 31, 2021

(Millions of Canadian dollars, except as otherwise noted) Based on US GAAP		Creditor ranking 1 (most junior)	2	3	4	5	Sum
1	Is the resolution entity the creditor/investor? (yes or no)	yes	-	no	yes	-	-
2	Description of creditor ranking	Common shares	Preferred shares and Limited Recourse Capital Notes	Subordinated Debt [3]	Bail-in Debt[1]	Other Liabilities excluding Bail-in Debt and Subordinated Debt[2]	
3	Total capital and liabilities net of credit risk mitigation	21,588	-	189	11,291	-	33,068
4	Subset of row 3 that are excluded liabilities	-	-	189	-	-	189
5	Total capital and liabilities less excluded liabilities (row 3 minus row 4)	21,588	-	-	11,291	-	32,879
6	Subset of row 5 that are eligible as TLAC	21,588	-	-	11,291	-	32,879
7	Subset of row 6 with 1 year ≤ residual maturity < 2 years			-	-	-	-
8	Subset of row 6 with 2 years ≤ residual maturity < 5 years			-	4,035	-	4,035
9	Subset of row 6 with 5 years ≤ residual maturity < 10 years			-	7,257	-	7,257
10	Subset of row 6 with residual maturity ≥ 10 years, but excluded perpetual securities			-	-	-	-
11	Subset of row 6 that is perpetual securities	21,588	-	-	-	-	21,588

[1] Under the Bail-in Regime, Bail-in Debt which would ordinarily rank equally to Other Liabilities in liquidation, is subject to conversion under statutory resolution powers whereas Other Liabilities are not subject to such conversion.Bail-in-Debt represents TLAC Eligible Long-Term Debt based on U.S. TLAC Rules.

[2] Completion of this column is not required by OSFI at this time.

[3] Subordinated debt was issued by City National Bank before being acquired by RBC, it will mature in July 2022.

TLAC3: Resolution entity – creditor ranking at legal entity level

The following table provides information regarding the ranking of our unsecured liabilities structure at the resolution entity level.

As at October 31, 2021

(Millions of Canadian dollars, except as otherwise noted)		Creditor ranking					
		1	2	3	4	5	Sum
		(most junior)					
1	Description of creditor ranking	Common shares	Preferred shares and Limited Recourse Capital Notes	Subordinated Debt	Bail-in Debt[1]	Other Liabilities excluding Bail-in Debt and Subordinated Debt[2]	
2	Total capital and liabilities net of credit risk mitigation	17,728	6,723	9,647	52,838	-	86,936
3	Subset of row 2 that are excluded liabilities	73	39	30	2,960	-	3,102
4	Total capital and liabilities less excluded liabilities (row 2 minus row 3)	17,655	6,684	9,617	49,878	-	83,834
5	Subset of row 4 that are *potentially* eligible as TLAC	17,655	6,661	9,377	49,878	-	83,571
6	Subset of row 5 with 1 year ≤ residual maturity < 2 years			110	11,157	-	11,267
7	Subset of row 5 with 2 years ≤ residual maturity < 5 years			1,857	27,897	-	29,754
8	Subset of row 5 with 5 years ≤ residual maturity < 10 years			4,231	5,530	-	9,761
9	Subset of row 5 with residual maturity ≥ 10 years, but excluding perpetual securities			3,179	5,294	-	8,473
10	Subset of row 5 that is perpetual securities	17,655	6,661	-	-	-	24,316

[1] Under the Bail-in Regime, Bail-in Debt which would ordinarily rank equally to Other Liabilities in liquidation, is subject to conversion under statutory resolution powers whereas Other Liabilities are not subject to such conversion.

[2] Completion of this column is not required by OSFI at this time.

TLAC3: Resolution entity – creditor ranking at legal entity level (continued)

As at July 31, 2021

(Millions of Canadian dollars, except as otherwise noted)		Creditor ranking 1 (most junior)	2	3	4	5	Sum
1	Description of creditor ranking	Common shares	Preferred shares and Limited Recourse Capital Notes	Subordinated Debt	Bail-in Debt[1]	Other Liabilities excluding Bail-in Debt and Subordinated Debt[2]	
2	Total capital and liabilities net of credit risk mitigation	17,713	7,473	8,915	46,846	-	80,947
3	Subset of row 2 that are excluded liabilities	57	57	18	2,611	-	2,743
4	Total capital and liabilities less excluded liabilities (row 2 minus row 3)	17,656	7,416	8,897	44,235	-	78,204
5	Subset of row 4 that are *potentially* eligible as TLAC	17,656	7,393	8,655	44,235	-	77,939
6	Subset of row 5 with 1 year ≤ residual maturity < 2 years			110	4,627	-	4,737
7	Subset of row 5 with 2 years ≤ residual maturity < 5 years			1,872	32,760	-	34,632
8	Subset of row 5 with 5 years ≤ residual maturity < 10 years			5,242	3,471	-	8,713
9	Subset of row 5 with residual maturity ≥ 10 years, but excluding perpetual securities			1,431	3,377	-	4,808
10	Subset of row 5 that is perpetual securities	17,656	7,393	-	-	-	25,049

[1] Under the Bail-in Regime, Bail-in Debt which would ordinarily rank equally to Other Liabilities in liquidation, is subject to conversion under statutory resolution powers whereas Other Liabilities are not subject to such conversion.

[2] Completion of this column is not required by OSFI at this time.

OPERATIONAL RISK

The table below presents an overview of Pillar 3 disclosure requirements that have been met within our 2021 Annual Report and incorporated by reference into this Pillar 3 report. Our 2021 Annual Report is available free of charge on our website at http://www.rbc.com/investorrelations

Pillar 3 disclosures requirement		RBC 2021 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
b)	Description of the advanced measurement approaches for operational risk (AMA)[1]	n/a	n/a
c)	For banks using the AMA, a description of the use of insurance for the purpose of mitigating operational risk[1]	n/a	n/a

[1] Effective November 1, 2019, OSFI discontinued the AMA approach.

INTEREST RATE RISK IN THE BANKING BOOK

The table below presents an overview of Pillar 3 disclosure requirements that have been met within our 2021 Annual Report and incorporated by reference into this Pillar 3 report. Our 2021 Annual Report is available free of charge on our website at http://www.rbc.com/investorrelations

Pillar 3 disclosures requirement	RBC 2021 Annual Report section	Sub-section
Interest rate risk in the banking book	Market Risk	Market Risk