



**Royal Bank of Canada**

**Pillar 3 Report**

**As at July 31, 2023**

**TABLE OF CONTENTS**

<b>CAUTION REGARDING FORWARD-LOOKING STATEMENTS</b> .....	<b>1</b>
<b>ABOUT ROYAL BANK OF CANADA</b> .....	<b>1</b>
<b>CAPITAL FRAMEWORK</b> .....	<b>1</b>
<b>LEVERAGE FRAMEWORK</b> .....	<b>2</b>
<b>TLAC FRAMEWORK</b> .....	<b>3</b>
<b>DISCLOSURE MAP</b> .....	<b>4</b>
<b>OVERVIEW OF KEY METRICS, RISK MANAGEMENT AND RWA</b> .....	<b>9</b>
KM1: Key Capital and Leverage metrics (at consolidated group level) .....	9
OVA: Bank risk management approach .....	11
OV1: Overview of risk weighted assets (RWA) .....	13
RWA: Risk-Weighted Assets by Regulatory Approach .....	15
<b>LINKAGES BETWEEN FINANCIAL STATEMENTS AND REGULATORY EXPOSURES</b> .....	<b>17</b>
L11: Differences between accounting and regulatory scopes of consolidation and mapping of financial statement categories with regulatory risk categories .....	17
L12: Main sources of differences between regulatory exposure amounts and carrying values in financial statements .....	18
LIA: Explanations of differences between accounting and regulatory exposure amounts .....	19
<b>CAPITAL</b> .....	<b>20</b>
CC1: Composition of Capital .....	20
CC2: Regulatory capital balance sheet .....	23
<b>CREDIT RISK</b> .....	<b>26</b>
CRA: General qualitative information about credit risk.....	26
CR1: Credit quality of assets .....	27
CR2: Changes in stock of defaulted loans and debt securities .....	28
CRB: Additional disclosure related to the credit quality of assets .....	29
CRC: Qualitative disclosure requirements related to credit risk mitigation techniques .....	37
CR3: Credit risk mitigation techniques – overview .....	38
CRD: Qualitative disclosures on banks' use of external credit ratings under the standardized approach for credit risk .....	39
CR4: Standardized approach – credit risk exposure and credit risk mitigation (CRM) effects .....	40
CR5: Standardized approach – exposures by asset classes and risk weights .....	42
CRE: Qualitative disclosures related to internal risk-based (IRB) models.....	48
CR6: A-IRB – Credit risk exposures by portfolio and PD range .....	51
CR6: F-IRB – Credit risk exposures by portfolio and PD range .....	55
CR7: IRB – Effect on RWA of credit derivatives used as CRM techniques.....	61
CR8: RWA flow statements of credit risk exposures .....	62
<b>COUNTERPARTY CREDIT RISK</b> .....	<b>63</b>
CCRA: Qualitative disclosure related to counterparty credit risk .....	63
CCR1: Analysis of counterparty credit risk (CCR) exposure by approach .....	64
CCR2: Credit valuation adjustment (CVA) capital charge .....	65
CCR3: Standardized approach – CCR exposures by regulatory portfolio and risk weights .....	66
CCR4: A-IRB – CCR exposures by portfolio and PD scale.....	68
CCR4: F-IRB – CCR exposures by portfolio and PD scale .....	70
CCR5: Composition of collateral for CCR exposure.....	72
CCR6: Credit derivatives exposures .....	73
CCR7: RWA flow statements of CCR exposures under the Internal Model Method (IMM).....	73
CCR8: Exposures to central counterparties .....	74
<b>SECURITIZATION</b> .....	<b>76</b>
SECA: Qualitative disclosure requirements related to securitization exposures .....	76
SEC1: IRB – Securitization exposures in the banking book.....	77
SEC2: IRB – Securitization exposures in the trading book .....	79
SEC3: Securitization exposures in the banking book and associated regulatory capital requirements – bank acting as originator or as sponsor ..	81
SEC4: Securitization exposures in the banking book and associated capital requirements – bank acting as investor .....	83
<b>MARKET RISK</b> .....	<b>85</b>
MRA: Qualitative disclosure requirements related to market risk.....	85
MRB: Qualitative disclosures for banks using the Internal Models Approach (IMA) .....	87
MR1: Market risk under standardized approach.....	88
MR2: RWA flow statements of market risk exposures under the Internal Models Approach (IMA) .....	89
MR3: IMA values for trading portfolios .....	90



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<b>LEVERAGE .....</b>	<b>91</b>
LR1: Summary comparison of accounting assets vs leverage ratio exposure measure .....	91
LR2: Leverage ratio common disclosure template .....	92
<b>TOTAL LOSS ABSORBING CAPACITY (TLAC) DISCLOSURE REQUIREMENTS .....</b>	<b>93</b>
KM2: Key metrics – TLAC requirements (at resolution group level).....	93
TLAC1: TLAC composition (at resolution group level) .....	94
TLAC2: Material subgroup entity – creditor ranking at legal entity level (G-SIBs only).....	96
TLAC3: Resolution entity – creditor ranking at legal entity level .....	98
<b>OPERATIONAL RISK .....</b>	<b>100</b>
<b>INTEREST RATE RISK IN THE BANKING BOOK .....</b>	<b>100</b>

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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 2022 Annual Report, in other filings with Canadian regulators or the SEC, in reports to shareholders including our Q3 2023 Report to Shareholders, and in other communications. Forward-looking statements are typically identified by words such as “believe”, “expect”, “foresee”, “forecast”, “anticipate”, “intend”, “estimate”, “goal”, “commit”, “target”, “objective”, “plan” and “project” and similar expressions of future or conditional verbs such as “will”, “may”, “might”, “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 that our financial performance objectives, vision and strategic goals will not be achieved and that our actual results may differ materially from such predictions, forecasts, projections, expectations or conclusions. 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 2022 Annual Report and the Risk management section of our Q3 2023 Report to Shareholders. 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 97,000+ 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](http://rbc.com).

Effective the first quarter of 2023, we simplified our reporting structure by eliminating the Investor & Treasury Services segment and moving its former businesses to existing segments. We moved our Investor Services business to our Wealth Management segment, and our Treasury Services and Transaction Banking businesses to our Capital Markets segment. From a reporting perspective, there were no changes to our Personal & Commercial Banking and Insurance segments. 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 (inclusive of the 2017 Basel III reforms) 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; and
- 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 2022 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 December 2018, the BCBS issued its consolidated Pillar 3 disclosure requirements, *Pillar 3 disclosure requirements – updated framework*. The finalized requirements incorporated 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 (SA), and new disclosure requirements on operational risk. On January 31, 2022, OSFI finalized its revised Pillar 3 guideline with an implementation date requirement of April 30, 2023. Beginning Q2 2023, our Pillar 3 disclosures reflect the finalized OSFI disclosure guideline requirements. On November 11, 2021, BCBS finalized revisions to its market risk disclosures. On April 28, 2023, OSFI released for consultation a revised Pillar 3 guideline incorporating market risk and credit valuation adjustment risk (CVA) disclosure requirements. We will incorporate these updated disclosure requirements once finalized.

To address the economic disruption caused by the COVID-19 pandemic in Q2 2020, OSFI announced a series of regulatory capital modifications as described in the Capital management section of our 2020 Annual report and further updated as described in the Capital Management section of our 2021 and 2022 Annual Reports and Q3 2023 Report to Shareholders. 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. 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 2022 Annual Report and as updated in the Capital management section of our Q3 2023 Report to Shareholders. As announced by OSFI on December 8, 2022, effective February 1, 2023, the domestic stability buffer requirement increased to 3.0% of RWA. On June 20, 2023, OSFI announced a further increase to the domestic stability buffer of 50bps to 3.5% of RWA effective November 1, 2023.

On February 1, 2023 (Q2 2023), we adopted OSFI's revised capital and disclosure guidelines incorporating and implementing OSFI's first phase of the adoption of the final BCBS Basel III reforms. The second phase of OSFI's implementation relating to the revised CVA and market risk chapters of the CAR guideline will be effective for us in Q1 2024. The revised CAR guidelines implemented in the beginning of Q2 2023 included the following notable changes:

- For IRB portfolios, elimination of a 6% regulatory scaling factor applied to RWA generated by internal models and introduction of prescribed supervisory parameters applicable to certain asset classes within our wholesale portfolio.
- Adoption of a new Operational risk Standardized Approach framework based on a bank's 3 years of average income and 10 years of historical losses.
- Adoption of a new Standardized Approach framework enhancing risk sensitivity
- Prescribed revisions to the existing regulatory capital floor from 70% to 65% requiring a transition to a new regulatory capital floor of 72.5% of RWA under the SA by 2026. This new regulatory floor will be transitioned over three years, reflecting a regulatory capital floor requirement of 67.5%, 70% and 72.5% in, fiscal 2024, 2025 and 2026, respectively.

Given substantial changes to credit risk and operational risk frameworks, OSFI requires only prospective disclosures under the Pillar 3 guidelines. As such, our comparative figures for Q1 2023 and earlier quarters reflect our capital position under the earlier OSFI CAR guidelines.

Our disclosure for fiscal 2022 for KM1: Key Capital and Leverage metrics template include disclosure of our capital ratios assuming transitional ECL modifications had not been applied, as required by OSFI. This transitional ECL modification is no longer applicable in fiscal 2023.

Refer to the Capital management section of our Q3 2023 Report to Shareholders for further information on upcoming regulatory developments which were announced during the quarter.

## Leverage framework

OSFI's Leverage Requirements (LR) guideline requires banks to disclose their leverage ratio and its underlying components as well as maintain a minimum leverage ratio of 3.5% for domestic systemically important banks (D-SIBs). 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.

The BCBS introduced an additional leverage ratio buffer requirement for global systemically important banks (G-SIB) as part of the Basel III reforms. A G-SIB's 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. This minimum leverage requirement has now been incorporated into OSFI's LR guideline as part of the 3.5% D-SIB requirement.

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 from our total leverage exposure amount. On November 5, 2020, OSFI extended the allowed exclusion of central bank reserves and sovereign-issued securities another eight months to December 31, 2021. On August 12, 2021, OSFI announced that sovereign-issued securities would no longer be eligible for exclusion effective January 1, 2022, but that central bank reserves would continue to be eligible for exclusion until further notice. On September 13, 2022, OSFI announced that central bank reserves would no longer be eligible for exclusion starting April 1, 2023. Our reported leverage figures reflect this guidance. Refer to our Capital management section of our Q3 2023 Report to Shareholders.

Our disclosure for fiscal 2022 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. This transitional ECL modification is no longer applicable in fiscal 2023.

On February 1, 2023, we adopted OSFI's revised LR guideline which incorporates the internationally agreed BCBS leverage reforms with certain jurisdictional amendments. Our leverage calculations reflect the changes prescribed by OSFI. Disclosure requirements for LR were not affected by OSFI's updated Pillar 3 disclosure requirements. Refer to our Leverage disclosures included in this report, as required by OSFI.

## TLAC framework

The Canadian Bail-in regime, including OSFI's Total Loss Absorbing Capacity (TLAC) 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, claims of some creditors whose claims otherwise rank equally with those of the holders holding bail-inable notes would be excluded from a bail-in conversion and thus the holders and beneficial owners of bail-inable notes will have to absorb losses ahead of these other creditors as a result of the bail-in conversion.

TLAC requirements establish two minimum standards, which were 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 LR 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 D-SIBs to maintain a minimum TLAC ratio of 24% (inclusive of the domestic stability buffer (DSB) of 2.5%) and a TLAC leverage ratio of 6.75%. On December 8, 2022, OSFI announced the DSB would further increase to 3% of RWA effective February 1, 2023. Thus, our TLAC ratio minimum requirement beginning Q2 2023 is 24.5%, before considering the countercyclical capital buffer. The TLAC ratio minimum requirement will increase to 25% effective November 1, 2023 reflecting OSFI's additional 50 bps increase discussed in the Capital Framework section above, before considering the countercyclical capital buffer. Our TLAC leverage ratio minimum requirement beginning Q2 2023 is 7.25% reflecting the incorporation of the 50 bps leverage buffer discussed in the Leverage Framework section above.

We began issuing TLAC eligible debt in Q4 2018 and our TLAC ratio is expected to increase through normal course refinancing of maturing debt. More details on our TLAC issuance is available in our Capital management section of our Q3 2023 Report to Shareholders.

In May 2018, OSFI published its TLAC Disclosure guideline for Canadian D-SIBs. The disclosure requirements reflect the BCBS TLAC disclosure requirements. 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. This transitional ECL modification is no longer applicable in fiscal 2023.

**DISCLOSURE MAP**

Pillar 3 Requirement	Pillar 3 Requirement	2022 Annual Report section	Sub-section	2022 Annual Report Reference	
Overview of key metrics, risk management and RWA	KM1				
	a) Business model and risk profile	Top and emerging risks	Top and emerging risks	58-60	
		Risk management overview	Risk management principles	60	
			Risk drivers	60-61	
		Enterprise risk management	Risk governance	61-62	
			Risk appetite	63	
			Risk measurement	63-64	
			Risk control	64-65	
		b) Risk governance structure	Enterprise risk management	Risk governance	61-62
				Risk control	64-65
		c) Communication and enforcement of risk culture within the bank	Enterprise risk management	Culture and conduct risk	96
	d) Scope and main features of risk measurement systems	Enterprise risk management	Risk measurement	63-64	
	e) Risk information reporting	Enterprise risk management	Risk control - <i>Risk monitoring and reporting</i>	65	
	f) Stress testing	Enterprise risk management	Risk measurement – <i>Stress testing</i>	64	
		Market risk	Stress tests	76	
		Systemic risk	Systemic risk	99-100	
	g) Strategies and processes applied to manage, hedge and mitigate risks	Enterprise risk management	Risk appetite	63	
			Risk measurement	63-64	
			Risk control	64-65	
		Credit risk	Overview	66	
			Credit risk measurement	66-67	
			Credit risk assessment	67-69	
			Credit risk mitigation	69	
			Credit risk approval	70	
			Credit risk administration	70	
		Market risk	Market risk controls – FVTPL positions	76	
			Stress tests	76	
			Market risk controls – Interest Rate Risk in the Banking Book (IRRBB) positions	78	
			IRRBB measurement	78	
				Non-trading foreign exchange rate risk	79
		Liquidity and funding risk	Overview	81	
			Risk control	82	
			Risk measurement	82	
			Funding	84-86	
			Liquidity Coverage Ratio (LCR)	88-89	
				Net Stable Funding Ratio (NSFR)	89-91
		Insurance risk	Insurance risk	94	
		Operational risk	Overview	94	
			Operational risk framework	94-96	
		Regulatory compliance risk	Regulatory compliance risk	96-97	
		Strategic risk	Strategic risk	97	
		Reputation risk	Reputation risk	97-98	
		Legal and regulatory environment risk	Legal and regulatory environment risk	98-99	
		Competitive risk	Competitive risk	99	
		Systemic risk	Systemic risk	99-100	
		Environmental and social risk	Environmental and social risk	101-104	
	Consolidated Financial Statements	Note 9 – Derivative financial instruments and hedging activities - <i>Derivatives issued for trading purposes</i>	188		
		Note 9 – Derivative financial instruments and hedging activities - <i>Derivatives issued for other-than-trading purposes</i>	188		
		Note 9 – Derivative financial instruments and hedging activities - <i>Derivative-related credit risk</i>	190-191		
	OV1				



**DISCLOSURE MAP (continued)**

Pillar 3 Requirement	Pillar 3 Requirement	2022 Annual Report section	Sub-section	2022 Annual Report Reference	
Linkages between financial statements and regulatory exposures	LI1				
	LI2				
	LIA				
Composition of Capital	CC1				
	CC2				
	CCA <sup>1</sup>	Main features of regulatory capital instruments and of other TLAC-eligible instruments			
Macroprudential supervisory measures	GSIB <sup>2</sup>	Disclosure of G-SIB indicators			
Credit risk	CRA	a) Translation of the business model into the components of the bank's credit risk profile	Credit risk	Overview	66
				Measurement of economic and regulatory capital - <i>Gross credit risk exposure</i>	67
		b) Criteria and approach used for defining credit risk management policy and for setting credit risk limits	Enterprise risk management	Risk governance	61-62
				Risk appetite	63
			Credit risk	Risk measurement	63-64
				Risk control - <i>Delegated risk approval authorities and risk limits</i>	65
		c) Structure and organization of the credit risk management and control function	Enterprise risk management	Overview	66
				Credit risk assessment	67-69
		d) Interaction between the credit risk management, risk control, compliance and internal audit functions	Enterprise risk management	Credit risk mitigation	69
				Credit risk approval	70
	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	61-62	
			Risk control	64-65	
	CR1				
	CR2				
	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 - <i>Definition of default Credit impaired financial assets (Stage 3)</i>	149
				Note 5 – Loans and allowance for credit losses - <i>Loans past due but not impaired</i>	182
		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 - <i>Loans past due but not impaired</i>	182
		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	147
			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 - <i>Modifications</i>	149-150	

<sup>1</sup> CCA is available at <https://www.rbc.com/investor-relations/regulatory-information.html>.

<sup>2</sup> G-SIB is provided on page 42 of our Q1 2023 Report to Shareholders available at <https://www.rbc.com/investor-relations/regulatory-information.html>.



**DISCLOSURE MAP (continued)**

Pillar 3 Requirement	Pillar 3 Requirement	2022 Annual Report section	Sub-section	2022 Annual Report Reference	
Credit risk (continued)	CRC	Credit risk	Credit risk assessment – <i>Counterparty credit risk</i>	68	
		Consolidated Financial Statements	Note 9 – Derivative financial instruments and hedging activities - <i>Derivative-related credit risk</i>	190-191	
			Note 30 – Offsetting financial assets and financial liabilities	225-226	
		b) Core features of policies and processes for collateral evaluation and management	Credit risk	Credit risk mitigation - <i>Collateral</i>	69
		c) Information about market or credit risk concentrations under the credit risk mitigation instruments used	Credit risk	Credit risk mitigation	69
	Consolidated Financial Statements		Credit risk approval - <i>Credit risk limits</i>	70	
	CR3				
	CRD				
	CR4				
	CR5				
	CR6				
	CR7				
CR8					
CR9 <sup>3</sup>					
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 – <i>Counterparty credit risk</i>	68
		Consolidated Financial Statements	Note 9 – Derivative financial instruments and hedging activities - <i>Derivative-related credit risk</i>	190-191	
			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 – <i>Counterparty credit risk</i>
		c) Policies relating to guarantees and other risk mitigants and assessments concerning counterparty credit risk, including exposures towards CCPs	Credit risk	Credit risk assessment – <i>Counterparty credit risk</i>	68
			Consolidated Financial Statements	Note 9 – Derivative financial instruments and hedging activities - <i>Derivative-related credit risk</i>	190-191
		Consolidated Financial Statements	Note 30 – Offsetting financial assets and financial liabilities	225-226	
	d) Policies with respect to wrong-way risk exposures	Credit risk	Credit risk assessment – <i>Wrong-way risk</i>	69	
	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	87	
	CCR1				
	CCR2				
	CCR3				
	CCR4				
CCR5					
CCR6					
CCR7		n/a	n/a	n/a	
CCR8	f) Exposures to central counterparties				

<sup>3</sup> Requirement for disclosure of this table is only annual.

**DISCLOSURE MAP (continued)**

Pillar 3 Requirement	Pillar 3 Requirement	2022 Annual Report section	Sub-section	2022 Annual Report Reference	
Securitization	SECA	Off-balance sheet arrangements	Off-balance sheet arrangements	56-58	
		a) Objectives in relation to securitization activities	Consolidated Financial Statements	Note 7 – Derecognition of financial assets	182-183
			Consolidated Financial Statements	Note 8 – Structured entities	183-187
		b) List of SPEs where RBC is sponsor / provides implicit support	Consolidated Financial Statements	Note 8 – Structured entities	183-187
		c) Accounting policies for securitization	Consolidated Financial Statements	Note 2 – Summary of significant accounting policies, estimates and judgments – <i>Basis of consolidation</i>	143-144
				Note 2 – Summary of significant accounting policies, estimates and judgments – <i>Derecognition of financial assets</i>	150
			Critical accounting policies and estimates	Consolidation of structured entities	116
		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	114
		e) Use of Basel IAA for capital purposes	Credit risk	n/a	66-75
			Capital management	Regulatory capital approach for securitization exposures	114
	f) Use of other internal assessment for capital purposes	Credit risk	Credit risk assessment	67-69	
	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	Market risk	Market risk controls – FVTPL positions	76	
			Stress tests	76	
			Market risk measures – FVTPL positions	77-78	
			Market risk measures for assets and liabilities of RBC Insurance	78	
			Market risk controls – Interest Rate Risk in the Banking Book (IRRBB) positions	78	
			IRRBB measurement	78	
			Market risk measures – IRRBB Sensitivities	78-79	
	Market risk measures for other material non-trading portfolios	79			
	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 – <i>Hedge accounting</i>	151-152	
	b) Description of the market risk governance structure established to implement the strategies and processes of the bank	Enterprise risk management	Risk governance	61-62	
			Risk appetite	63	
			Risk measurement	63-64	
			Risk control	64-65	
Risk measurement – <i>Stress testing</i>			64		
Culture and conduct risk	96				

**DISCLOSURE MAP (continued)**

Pillar 3 Requirement	Pillar 3 Requirement	2022 Annual Report section	Sub-section	2022 Annual Report Reference	
Market risk (continued)	Description of the relationships and the communication mechanisms between the different parties involved in market risk management	Enterprise risk management	Risk governance	61-62	
			Risk control	64-65	
	MRA (continued)	c) Scope and nature of risk reporting and/or measurement systems	Enterprise risk management	Risk measurement	63-64
				Risk control	64-65
				Risk measurement – <i>Stress testing</i>	64
			Market risk	Market risk controls – FVTPL positions	76
				Stress tests	76
				Market risk measures – FVTPL positions	77-78
				Market risk measures for assets and liabilities of RBC Insurance	78
				Market risk controls – Interest Rate Risk in the Banking Book (IRRBB) positions	78
				IRRBB measurement	78
				Market risk measures – IRRBB Sensitivities	78-79
	Market risk measures for other material non-trading portfolios	79			
	MRB	c) General description of the models (VaR/stressed VaR)	Market risk	Market risk controls – FVTPL positions	76
		g) Description of stress testing applied to the modelling parameters	Market risk	Stress tests	76
MR1					
	MR2				
	MR3				
	MR4 <sup>4</sup>				
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	96	
	b) Description of the advanced measurement approaches for operational risk (AMA) <sup>5</sup>	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 <sup>5</sup>	n/a	n/a	n/a	
Interest rate risk in the banking book		Market risk	Market risk	76-81	

<sup>4</sup> Requirement for disclosure of this table is only semi-annual.

<sup>5</sup> 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)

		a	b	c	d	e	f
	(Millions of Canadian dollars) <sup>1</sup>	July 31 2023	April 30 2023	January 31 2023	October 31 2022	July 31 2022	Q o Q Change (a-b)
	<b>Available capital (amounts)</b>						
1	Common Equity Tier 1 (CET1)	82,892	81,103	78,055	76,945	76,907	1,789
1a	Common Equity Tier 1 with transitional arrangements for ECL provisioning not applied				76,774	76,773	n.a.
2	Tier 1	90,193	88,400	85,357	84,242	84,207	1,793
2a	Tier 1 with transitional arrangements for ECL provisioning not applied				84,071	84,073	n.a.
3	Total capital	101,072	99,540	96,438	93,850	93,857	1,532
3a	Total capital with transitional arrangements for ECL provisioning not applied				93,850	93,857	n.a.
	<b>Risk-weighted assets (amounts)</b>						
4	Total risk-weighted assets (RWA)	585,899	593,533	614,250	609,879	589,050	(7,634)
4a	Total risk-weighted assets (pre-floor)	585,899	593,533	614,250	609,879	589,050	(7,634)
	<b>Risk-based capital ratios as a percentage of RWA</b>						
5	Common Equity Tier 1 ratio (%)	14.1%	13.7%	12.7%	12.6%	13.1%	0.4%
5a	CET1 ratio with transitional arrangements for ECL provisioning not applied (%)				12.6%	13.0%	n.a.
5b	CET1 ratio (%) (pre-floor ratio)	14.1%	13.7%	12.7%	12.6%	13.0%	0.4%
6	Tier 1 ratio (%)	15.4%	14.9%	13.9%	13.8%	14.3%	0.5%
6a	Tier 1 ratio with transitional arrangements for ECL provisioning not applied (%)				13.8%	14.3%	n.a.
6b	Tier 1 ratio (%) (pre-floor ratio)	15.4%	14.9%	13.9%	13.8%	14.3%	0.5%
7	Total capital ratio (%)	17.3%	16.8%	15.7%	15.4%	15.9%	0.5%
7a	Total capital ratio with transitional arrangements for ECL provisioning not applied (%)				15.4%	15.9%	n.a.
7b	Total capital ratio (%) (pre-floor ratio)	17.3%	16.8%	15.7%	15.4%	15.9%	0.5%
	<b>Additional CET1 buffer requirements as a percentage of RWA</b>						
8	Capital conservation buffer requirement (%)	2.5%	2.5%	2.5%	2.5%	2.5%	-
9	Countercyclical buffer requirement (%) <sup>2</sup>	0.1%	0.0%	0.0%	0.0%	0.0%	0.1%
10	Bank G-SIB and/or D-SIB additional requirements (%)	1.0%	1.0%	1.0%	1.0%	1.0%	-
11	Total of bank CET1 specific buffer requirements (%) (row 8 + row 9 + row 10)	3.6%	3.5%	3.5%	3.5%	3.5%	0.1%
12	CET1 available after meeting the bank's minimum capital requirements (row 5 - 8%) (%) <sup>3</sup>	6.1%	5.7%	4.7%	4.6%	5.1%	0.4%
	<b>Basel III leverage ratio</b>						
13	Total Basel III leverage ratio exposure measure	2,142,032	2,116,380	1,921,310	1,898,179	1,839,845	25,652
14	Basel III leverage ratio (row 2 / row 13)	4.2%	4.2%	4.4%	4.4%	4.6%	-
14a	Basel III leverage ratio (row 2a / row 13) with transitional arrangements for ECL provisioning not applied				4.4%	4.6%	n.a.

<sup>1</sup> No ECL modification is allowed in fiscal 2023. For fiscal 2022 quarters the 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 allowed reduced from a 75% after-tax exclusion rate for growth in Stage 1 and Stage 2 allowances in 2020 to a 50% after-tax exclusion rate in 2021 and a 25% after-tax exclusion rate in 2022.

<sup>2</sup> Bank specific countercyclical buffer requirement is the amount which is determined based on our weighted average private sector exposures in jurisdictions identified by the BCBS (Q3/23 0.06%, Q2/23 0.04%, Q1/23 0.03%, Q4/22 0.01%).

<sup>3</sup> 8% reflects minimum capital requirements which includes D-SIB/G-SIB surcharge, and excludes the OSFI Domestic Stability Buffer of 3% effective February 2023 (2.5% previously effective October 2021). Refer to the Capital management section of our Q3 2023 Report to Shareholder.



Our CET1 ratio was 14.1%, up 40 bps from last quarter, mainly reflecting net internal capital generation, share issuances under the Dividend reinvestment plan (DRIP), and the impact of the partial sale of RBC Investor Services operations. Refer to the Financial performance section of our Q3 2023 Report to Shareholders.

Our Tier 1 capital ratio of 15.4% was up 50 bps and our Total capital ratio of 17.3% was up 50 bps, mainly reflecting the factors noted above under the CET1 ratio.

Total RWA decreased by \$8 billion, primarily reflecting the impact of foreign exchange translation, favourable models and methodology updates, as well as the impact of the partial sale of RBC Investor Services operations. These factors were partially offset by the net impact of business growth, including growth in personal and commercial lending in Canada, that was partly offset by a reduction in trading activities. In our CET1 ratio, the impact of foreign exchange translation on RWA is largely mitigated with economic hedges.

Our Leverage ratio of 4.2% was unchanged from last quarter, as net internal capital generation, the impact of the sale, as noted above and share issuances under the DRIP were offset by business-driven growth in leverage exposures.

Leverage exposures increased by \$26 billion, mainly driven by business growth primarily in securities and repo-style transactions. This was partially offset by the impact of foreign exchange translation, as well as the impact of the partial sale of RBC Investor Services operations.

**OVA: Bank risk management approach**

The table below presents an overview of Pillar 3 disclosure requirements that have been met within our 2022 Annual Report and incorporated by reference into this Pillar 3 report. Our 2022 Annual Report is available free of charge on our website at <http://www.rbc.com/investorrelations>

Pillar 3 disclosures requirement		RBC 2022 Annual Report section	Sub-section
a)	Business model and risk profile	Top and emerging risks	Top and emerging risks
		Risk management Overview	Risk management principles
			Risk drivers
		Enterprise risk management	Risk governance
			Risk appetite
			Risk measurement
			Risk control
b)	Risk governance structure	Enterprise risk management	Risk governance Risk control
c)	Communication and enforcement of risk culture within the bank	Operational risk	Culture and conduct risk
d)	Scope and main features of risk measurement systems	Enterprise risk management	Risk measurement
e)	Risk information reporting	Enterprise risk management	Risk control - <i>Risk monitoring and reporting</i>
f)	Stress testing	Enterprise risk management	Risk measurement - <i>Stress testing</i>
		Market risk	Stress tests
		Systemic risk	Systemic risk
g)	Strategies and processes applied to manage, hedge and mitigate risks	Enterprise risk management	Risk appetite
			Risk measurement
			Risk control
		Credit risk	Overview
			Credit risk measurement
			Credit risk assessment
			Credit risk mitigation
			Credit risk approval
			Credit risk administration
		Market risk	Market risk controls - FVTPL positions
			Stress tests
			Market risk controls - Interest Rate Risk in the Banking Book (IRRBB) positions
			IRRBB measurement
			Non-trading foreign exchange rate risk
		Liquidity and funding risk	Overview
			Risk control
			Risk measurement
Funding			
Liquidity Coverage Ratio (LCR)			
Net Stable Funding Ratio (NSFR)			



**OVA: Bank risk management approach (continued)**

	Pillar 3 disclosures requirement	RBC 2022 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 (including climate change)	Environmental and social risk (including climate change)	
		Consolidated Financial Statements		Note 9 - Derivative financial instruments and hedging activities - <i>Derivatives issued for trading purposes</i>
				Note 9 - Derivative financial instruments and hedging activities - <i>Derivatives issued for other-than-trading purposes</i>
	Note 9 - Derivative financial instruments and hedging activities - <i>Derivative-related credit risk</i>			



**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	b1	b2	b3	c	d
		RWA					Minimum capital requirement <sup>1</sup>	RWA
		July 31 2023	April 30 2023	January 31 2023	October 31 2022	July 31 2022	July 31 2023	Change (a-b)
	(Millions of Canadian dollars)							
<b>1</b>	<b>Credit risk (excluding counterparty credit risk)</b>	<b>395,790</b>	<b>398,949</b>	<b>413,636</b>	<b>406,601</b>	<b>391,932</b>	<b>31,663</b>	<b>(3,159)</b>
<b>2</b>	Of which: standardized approach (SA)	115,776	122,325	121,940	121,839	113,005	9,262	(6,549)
<b>3</b>	Of which: foundation internal ratings-based (F-IRB) approach	85,638	90,478				6,851	(4,840)
<b>4</b>	Of which: supervisory slotting approach							
<b>5</b>	Of which: advanced internal rating-based (A-IRB) approach	194,376	186,146	291,696	284,762	278,927	15,550	8,230
<b>6</b>	<b>Counterparty credit risk (CCR)</b>	<b>25,966</b>	<b>28,678</b>	<b>31,667</b>	<b>34,931</b>	<b>34,216</b>	<b>2,077</b>	<b>(2,712)</b>
<b>7</b>	Of which: standardized approach for counterparty credit risk (SA-CCR) <sup>2</sup>	18,786	21,709	21,898	25,749	25,429	1,503	(2,923)
<b>8</b>	Of which: internal model method (IMM)							
<b>9</b>	Of which: other CCR	7,180	6,969	9,769	9,182	8,787	574	211
<b>10</b>	<b>Credit valuation adjustment (CVA)</b>	<b>12,855</b>	<b>14,085</b>	<b>13,469</b>	<b>15,682</b>	<b>14,997</b>	<b>1,028</b>	<b>(1,230)</b>
	Equity positions in banking book <sup>3</sup>			2,790	2,561	2,562		n.a.
<b>11</b>	<b>Equity investments in funds – look-through approach</b>							
<b>12</b>	<b>Equity investments in funds – mandate-based approach</b>	<b>4,412</b>	<b>4,757</b>	<b>3,811</b>	<b>3,419</b>	<b>3,335</b>	<b>353</b>	<b>(345)</b>
	Equity investments in funds – fall-back approach			48	43	110		n.a.
<b>13</b>	<b>Settlement risk</b>	<b>149</b>	<b>94</b>	<b>3,503</b>	<b>978</b>	<b>683</b>	<b>12</b>	<b>55</b>
<b>14</b>	<b>Securitization exposures in banking book</b>	<b>11,371</b>	<b>11,417</b>	<b>13,209</b>	<b>12,543</b>	<b>11,897</b>	<b>910</b>	<b>(46)</b>
<b>15</b>	Of which: securitization IRB approach (SEC-IRBA)	174	174	-	-	-	14	-
<b>16</b>	Of which: securitization external ratings-based approach (SEC-ERBA), including internal assessment approach (IAA)	8,640	8,662	10,109	9,572	9,020	691	(22)
<b>17</b>	Of which: securitization standardized approach (SEC-SA)	2,557	2,581	3,100	2,971	2,877	205	(24)
<b>18</b>	<b>Market risk</b>	<b>37,426</b>	<b>37,685</b>	<b>32,635</b>	<b>35,342</b>	<b>34,551</b>	<b>2,994</b>	<b>(259)</b>
<b>19</b>	Of which: standardized approach (SA)	17,828	20,120	16,149	17,253	17,731	1,426	(2,292)
<b>20</b>	Of which: internal model approaches (IMA)	19,598	17,565	16,486	18,089	16,820	1,568	2,033
<b>21</b>	<b>Capital charge for switch between trading book and banking book</b>							
<b>22</b>	<b>Operational risk</b>	<b>77,741</b>	<b>75,895</b>	<b>78,808</b>	<b>77,639</b>	<b>75,813</b>	<b>6,219</b>	<b>1,846</b>
<b>23</b>	<b>Amounts below the thresholds for deduction (subject to 250% risk weight)</b>	<b>20,189</b>	<b>21,973</b>	<b>20,674</b>	<b>20,140</b>	<b>18,954</b>	<b>1,615</b>	<b>(1,784)</b>
<b>24</b>	Output floor applied	65%	65%					
<b>25</b>	Floor adjustment (before application of transitional cap)	-	-	-	-	-	-	-
<b>26</b>	<b>Floor adjustment (after application of transitional cap)</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>27</b>	<b>Total (1 + 6 + 10 + 11 + 12 + 13 + 14 + 18 + 21 + 22 + 23 + 26)</b>	<b>585,899</b>	<b>593,533</b>	<b>614,250</b>	<b>609,879</b>	<b>589,050</b>	<b>46,871</b>	<b>(7,634)</b>

<sup>1</sup> The minimum capital requirements for each category can be calculated by multiplying the total RWA by 8% as per OSFI CAR guidelines.

<sup>2</sup> Includes RWA associated with CCP exposures, which EAD is calculated based on SA-CCR.

<sup>3</sup> Equity exposures are now included in the Standardized Approach as per OSFI CAR guidelines, refer to CR 4 and CR 5.



Total RWA decreased by \$8 billion or 1.3%, driven by the following:

**Credit risk**

RWA decreased by \$3 billion, mainly reflecting the favourable impact of foreign exchange translation, the transition of our US retail portfolio to advanced internal ratings based approach and other model updates, and the partial sale of RBC Investor Services operations offset by business growth primarily in our personal and commercial lending in Canada. The impact of foreign exchange translation on RWA is largely mitigated with economic hedges in our CET1 ratio.

**Counterparty credit risk**

RWA decreased by \$2.7 billion, mainly due to client driven activity.

**Securitization exposures in banking book**

RWA remained flat this quarter.

**Market risk**

RWA remained flat this quarter, mainly driven by reduced exposures in our equity and interest rate derivatives portfolio offset by higher exposures in our fixed income portfolios.

**Operational risk**

RWA increased \$1.8 billion, mainly driven by business 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 <sup>1</sup>	Q3/2023							Q3/2023	Risk-weighted assets All-in Basis			
	Risk-weighted assets All-in Basis							Capital requirements	Risk-weighted assets All-in Basis			
	Exposure <sup>2</sup>	Average of risk weights <sup>3</sup>	Standardized Approach	Advanced Approach (A-IRB)	Foundation Approach (F-IRB)	Other	Total <sup>4</sup>	Total <sup>4</sup>	Q2/2023 Total <sup>4</sup>	Q1/2023 Total <sup>4</sup>	Q4/2022 Total <sup>4</sup>	Q3/2022 Total <sup>4</sup>
(Millions of Canadian dollars, except percentage and per share amounts)												
<b>Credit risk <sup>5</sup></b>												
Lending-related and other												
Residential mortgages	559,498	8%	3,695	41,457		-	45,152	3,612	47,607	41,491	41,662	40,392
Other retail (Personal, Credit cards and Small business treated as retail)	212,114	29%	5,153	55,315		-	60,468	4,837	59,454	65,735	65,506	64,404
Business (Corporate, Commercial, Medium-sized enterprises and Non-bank financial institutions)	481,734	49%	73,009	87,549	77,635	-	238,193	19,055	239,031	244,620	238,823	227,105
Sovereign (Government)	356,570	4%	2,802	10,055		-	12,857	1,029	13,408	16,489	15,910	15,393
Bank	31,911	44%	5,946	-	8,003	-	13,949	1,116	14,157	5,566	5,483	5,644
<b>Total lending-related and other</b>	<b>1,641,827</b>	<b>23%</b>	<b>90,605</b>	<b>194,376</b>	<b>85,638</b>	<b>-</b>	<b>370,619</b>	<b>29,649</b>	<b>373,657</b>	<b>373,901</b>	<b>367,384</b>	<b>352,938</b>
Trading - related												
Repo-style transactions	1,096,190	1%	67	229	6,807	77	7,180	574	6,969	9,225	8,668	8,294
Derivatives - including CVA	117,432	27%	426	2,740	14,942	13,533	31,641	2,531	35,793	34,255	40,138	39,086
<b>Total trading-related</b>	<b>1,213,622</b>	<b>3%</b>	<b>493</b>	<b>2,969</b>	<b>21,749</b>	<b>13,610</b>	<b>38,821</b>	<b>3,105</b>	<b>42,762</b>	<b>43,480</b>	<b>48,806</b>	<b>47,380</b>
<b>Total lending-related and other and trading-related</b>	<b>2,855,449</b>	<b>14%</b>	<b>91,098</b>	<b>197,345</b>	<b>107,387</b>	<b>13,610</b>	<b>409,440</b>	<b>32,754</b>	<b>416,419</b>	<b>417,381</b>	<b>416,190</b>	<b>400,318</b>
Banking book equities <sup>6</sup>	4,923	201%	9,904	-		-	9,904	792	10,197	6,273	5,682	5,667
Securitization exposures	67,507	17%	5,246	6,125		-	11,371	910	11,417	13,209	12,543	11,897
Regulatory scaling factor <sup>7</sup>										18,544	18,267	17,961
Other assets	32,574	123%				40,017	40,017	3,201	41,920	47,400	44,216	42,843
<b>Total credit risk</b>	<b>2,960,453</b>	<b>16%</b>	<b>106,248</b>	<b>203,470</b>	<b>107,387</b>	<b>53,627</b>	<b>470,732</b>	<b>37,657</b>	<b>479,953</b>	<b>502,807</b>	<b>496,898</b>	<b>478,686</b>
<b>Market risk <sup>8,9</sup></b>												
Interest rate			2,525	12,092		-	14,617	1,169	15,510	11,825	13,256	12,034
Equity			1,697	574		-	2,271	182	4,067	3,523	4,001	4,292
Foreign exchange			3,558	201		-	3,759	301	3,964	3,642	3,735	2,996
Commodities			1,224	116		-	1,340	107	1,159	1,392	1,750	2,627
Specific risk			8,824	1,621		-	10,445	836	9,272	8,401	8,411	8,110
Incremental risk charge <sup>10, 11</sup>			-	4,994		-	4,994	400	3,713	3,852	4,189	4,492
<b>Total market risk</b>			<b>17,828</b>	<b>19,598</b>		<b>-</b>	<b>37,426</b>	<b>2,995</b>	<b>37,685</b>	<b>32,635</b>	<b>35,342</b>	<b>34,551</b>
<b>Operational risk</b>			<b>77,741</b>				<b>77,741</b>	<b>6,219</b>	<b>75,895</b>	<b>78,808</b>	<b>77,639</b>	<b>75,813</b>
<b>Total risk-weighted assets (RWA)</b>	<b>2,960,453</b>		<b>201,817</b>	<b>223,068</b>	<b>107,387</b>	<b>53,627</b>	<b>585,899</b>	<b>46,871</b>	<b>593,533</b>	<b>614,250</b>	<b>609,879</b>	<b>589,050</b>

<sup>1</sup>Calculated using OSFI CAR guidelines incorporating Basel III reforms.

<sup>2</sup>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.

<sup>3</sup>Represents the average of counterparty risk weights within a particular category.

<sup>4</sup>The minimum capital requirements, before countercyclical capital buffer for each category can be calculated by multiplying the total RWA by 8% as per OSFI CAR guidelines.

<sup>5</sup>For credit risk, a majority of our portfolio use the A-IRB and F-IRB approaches under the Internal Ratings Based (IRB) Approach and the remainder use the Standardized Approach.



<sup>6</sup> 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 Q3/23, the amount of publicly-traded equity exposures was \$2,268 million and private equity exposures amounted to \$2,658 million. Direct Equity exposure was risk weighted using a 250% rate as prescribed under section 4.1.8 (\$5,492 million RWA) of the CAR and Equity Investments in Funds was risk weighted under section 4.1.22 using Mandate Based Approach (\$4,412 million RWA).

<sup>7</sup> 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. This scaling factor is no longer applicable after Q1 2023 on adoption of the Basel III Reforms by OSFI.

<sup>8</sup> 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.

<sup>9</sup> 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.

<sup>10</sup> The incremental risk charge (IRC) was \$317 million as at Q3/23. The average was \$386 million, high was \$515 million and low was \$223 million for Q3/23. 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.

<sup>11</sup> 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**
**L11: 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 July 31, 2023

	a	b	c	d	e	f	g
			Carrying values of items: <sup>1</sup>				
	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
<i>(Millions of Canadian dollars)</i>							
<b>Assets</b>							
<b>Cash and due from banks</b>	80,358	80,358	80,335	-	-	-	23
<b>Interest-bearing deposits with banks</b>	87,650	87,650	87,650	-	-	-	-
<b>Securities</b>							
Trading	176,603	164,175	5,212	-	59	158,899	5
Investment, net of applicable allowance	196,022	192,254	181,141	-	11,137	-	(24)
	372,625	356,429	186,353	-	11,196	158,899	(19)
<b>Assets purchased under reverse repurchase agreements and securities borrowed</b>	347,151	347,151	-	347,152	-	-	(1)
<b>Loans</b>							
Retail	561,212	560,705	560,705	-	-	-	-
Wholesale <sup>3</sup>	278,997	276,699	260,393	1,515	10,167	2,572	2,052
	840,209	837,404	821,098	1,515	10,167	2,572	2,052
Allowance for loan losses	(4,495)	(4,495)	-	-	-	-	(4,495)
	835,714	832,909	821,098	1,515	10,167	2,572	(2,443)
<b>Segregated fund net assets</b>	2,921	-	-	-	-	-	-
<b>Other</b>							
Customers' liability under acceptances	19,365	19,365	19,406	-	-	-	(41)
Derivatives <sup>2</sup>	115,914	115,309	-	115,309	-	105,125	-
Premises and equipment, net	6,793	6,779	6,779	-	-	-	-
Goodwill	12,299	12,299	-	-	-	-	12,299
Other intangibles	5,892	5,744	-	-	-	-	5,744
Other assets	71,052	74,738	37,479	25,115	-	8,657	3,487
	231,315	234,234	63,664	140,424	-	113,782	21,489
<b>Total assets<sup>2</sup></b>	<b>1,957,734</b>	<b>1,938,731</b>	<b>1,239,100</b>	<b>489,091</b>	<b>21,363</b>	<b>275,253</b>	<b>19,049</b>
<b>Liabilities and equity</b>							
<b>Deposits</b>							
Personal	434,047	434,047	-	-	-	-	434,047
Business and government	736,730	737,272	-	-	-	-	737,272
Bank	44,894	44,894	-	-	-	-	44,894
	1,215,671	1,216,213	-	-	-	-	1,216,213
<b>Segregated fund net liabilities</b>	2,921	-	-	-	-	-	-
<b>Other</b>							
Acceptances	19,407	19,407	-	-	-	-	19,407
Obligations related to securities sold short	36,653	36,653	-	-	-	-	36,653
Obligations related to assets sold under repurchase agreements and securities loaned	334,465	333,614	-	333,614	-	-	-
Derivatives <sup>2</sup>	117,244	117,244	-	117,244	-	109,019	-
Insurance claims and policy benefit liabilities	12,700	-	-	-	-	-	-
Other liabilities	95,042	91,342	-	-	-	-	91,342
	615,511	598,260	-	450,858	-	109,019	147,402
<b>Subordinated debentures</b>	11,202	11,202	-	-	-	-	11,202
<b>Total liabilities<sup>2</sup></b>	<b>1,845,305</b>	<b>1,825,675</b>	<b>-</b>	<b>450,858</b>	<b>-</b>	<b>109,019</b>	<b>1,374,817</b>
<b>Equity attributable to shareholders</b>							
Preferred shares	7,330	7,330	-	-	-	-	7,330
Common shares	18,512	18,512	-	-	-	-	18,512
Retained earnings	82,011	81,967	-	-	-	-	81,967
Other components of equity	4,481	5,152	-	-	-	-	5,152
	112,334	112,961	-	-	-	-	112,961
<b>Non-controlling interests</b>	95	95	-	-	-	-	95
<b>Total equity</b>	<b>112,429</b>	<b>113,056</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>113,056</b>
<b>Total liabilities and equity<sup>2</sup></b>	<b>1,957,734</b>	<b>1,938,731</b>	<b>-</b>	<b>450,858</b>	<b>-</b>	<b>109,019</b>	<b>1,487,873</b>

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

<sup>2</sup> 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.

<sup>3</sup> 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 July 31, 2023

	a	b	c	d	e
(Millions of Canadian dollars)	Total	Credit risk framework	Securitization framework	Counterparty credit risk framework	Market risk framework
<b>1</b> <b>Asset carrying value amount under scope of regulatory consolidation (as per template L11)<sup>1</sup></b>	<b>1,919,682</b>	<b>1,239,100</b>	<b>21,363</b>	<b>489,091</b>	<b>275,253</b>
2 Liabilities carrying value amount under regulatory scope of consolidation (as per template L11) <sup>1</sup>	450,858	-	-	450,858	109,019
3 Total net amount under regulatory scope of consolidation	1,468,824	1,239,100	21,363	38,233	166,234
4 Off-balance sheet amounts <sup>2</sup>	1,654,212	433,871	44,983	1,175,358	-
5 Differences due to Fair Value adjustment	4,008	3,977	-	31	-
6 Differences due to different netting rules, other than those already included in row 2	1,706	1,706	-	-	-
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	1,831	670	1,161	-	-
<b>10</b> <b>Exposure amounts considered for regulatory purposes</b>	<b>3,130,581</b>	<b>1,679,324</b>	<b>67,507</b>	<b>1,213,622</b>	<b>166,234</b>

<sup>1</sup> Amount reflects Table L11 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.

<sup>2</sup> 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 OSFI's 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 7 Settlement and Counterparty risk framework. On November 1, 2018, OSFI adopted the BCBS Standardized Approach for measuring Counterparty credit risk (SA-CCR) for derivative regulatory exposures and we adopted this methodology for our derivative regulatory exposures. OSFI further updated SA-CCR for the Basel III reforms as released by OSFI on January 31, 2022. 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 the 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 6 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, and further updated for the Basel III reforms as released by OSFI on January 31, 2022.

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 2022 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		Cross Reference of Current Quarter to Regulatory Capital Balance Sheet (CC2)	Q3/23	Q2/23	Q1/23	Q4/22	Q3/22
(Millions of Canadian dollars, except percentage and otherwise noted)							
<b>Common Equity Tier 1 capital (CET1): Instruments and Reserves</b>							
1	Directly issued qualifying common share capital (and equivalent for non-joint stock companies) plus related stock surplus	a+a'	18,721	18,068	17,141	17,162	17,327
2	Retained earnings	b+b'	81,802	80,115	78,182	77,859	76,230
3	Accumulated other comprehensive income (and other reserves)	c-c'	4,481	5,755	5,040	5,725	3,011
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	10	11	10	11	10
6	<b>Common Equity Tier 1 capital before regulatory adjustments</b>		<b>105,014</b>	<b>103,949</b>	<b>100,373</b>	<b>100,757</b>	<b>96,578</b>
<b>Common Equity Tier 1 capital: Regulatory adjustments</b>							
7	Prudential valuation adjustments		29	26	-	-	-
8	Goodwill (net of related tax liability)	e+e'-t+e''	12,161	12,359	12,096	12,135	10,806
9	Other intangibles other than mortgage-servicing rights (net of related tax liability)	f+f'-v+f''	4,737	4,927	4,858	4,887	3,566
10	Deferred tax assets excluding those arising from temporary differences (net of related tax liability)	g	228	227	254	278	232
11	Cash flow hedge reserve	h	1,891	1,889	1,998	2,394	1,431
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	822	1,262	879	1,893	1,371
15	Defined benefit pension fund net assets (net of related tax liability)	k-u	2,226	2,119	2,233	2,395	2,399
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		28	37	-	(170)	(134)
27	Regulatory adjustments applied to Common Equity Tier 1 due to insufficient Additional Tier 1 and Tier 2 to cover deductions		-	-	-	-	-
28	<b>Total regulatory adjustments to Common Equity Tier 1</b>		<b>22,122</b>	<b>22,846</b>	<b>22,318</b>	<b>23,812</b>	<b>19,671</b>
29	<b>Common Equity Tier 1 capital (CET1)</b>		<b>82,892</b>	<b>81,103</b>	<b>78,055</b>	<b>76,945</b>	<b>76,907</b>
29a	<b>Common Equity Tier 1 Capital (CET1)</b> with transitional arrangements for ECL provisioning not applied					76,774	76,773
<b>Additional Tier 1 capital (AT1): Instruments</b>							
30	Directly issued qualifying Additional Tier 1 instruments plus related stock surplus		7,299	7,295	7,300	7,294	7,297
31	of which: classified as equity under applicable accounting standards	n'+n'''	7,299	7,295	7,300	7,294	7,297
32	of which: classified as liabilities under applicable accounting standards		-	-	-	-	-



Composition of Capital Template <i>continued</i>		Cross Reference of Current Quarter to Regulatory Capital Balance Sheet (CC2)	Q3/23	Q2/23	Q1/23	Q4/22	Q3/22
(Millions of Canadian dollars, except percentage and otherwise noted)							
33	<i>Directly issued capital instruments subject to phase out from Additional Tier 1</i>	<b>x'+n"</b>	-	-	-	-	-
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)	<b>o</b>	2	2	2	3	3
35	<i>of which: instruments issued by subsidiaries subject to phase out</i>		-	-	-	-	-
36	<b>Additional Tier 1 capital before regulatory adjustments</b>		7,301	7,297	7,302	7,297	7,300
<b>Additional Tier 1 capital: Regulatory adjustments</b>							
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	<i>of which: reverse mortgages</i>		-	-	-	-	-
42	Regulatory adjustments applied to Additional Tier 1 due to insufficient Tier 2 to cover deductions		-	-	-	-	-
43	<b>Total regulatory adjustments to Additional Tier 1 capital</b>		-	-	-	-	-
44	<b>Additional Tier 1 Capital (AT1)</b>		7,301	7,297	7,302	7,297	7,300
45	<b>Tier 1 capital (T1 = CET1 + AT1)</b>		90,193	88,400	85,357	84,242	84,207
45a	Tier 1 capital with transitional arrangements for ECL provisioning not applied					84,071	84,073
<b>Tier 2 Capital: Instruments and Provisions</b>							
46	Directly issued qualifying Tier 2 instruments plus related stock surplus	<b>q" + q''''</b>	9,572	9,788	9,780	8,587	8,741
47	<i>Directly issued capital instruments subject to phase out from Tier 2</i>	<b>q''</b>	-	-	-	-	-
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)	<b>r + q''''</b>	3	3	3	3	3
49	<i>of which: instruments issued by subsidiaries subject to phase out</i>	<b>q''''</b>	-	-	-	-	-
50	Collective allowances	<b>s</b>	1,304	1,349	1,298	1,018	906
51	<b>Tier 2 capital before regulatory adjustments</b>		10,879	11,140	11,081	9,608	9,650
<b>Tier 2 Capital: Regulatory adjustments</b>							
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 instruments issued by G-SIBs and Canadian D-SIBs that are outside the scope of regulatory consolidation		-	-	-	-	-
56	Other deductions from Tier 2 capital		-	-	-	-	-
57	<b>Total regulatory adjustments to Tier 2 capital</b>		-	-	-	-	-
58	<b>Tier 2 capital (T2)</b>		10,879	11,140	11,081	9,608	9,650
59	<b>Total capital (TC = T1 + T2)</b>		101,072	99,540	96,438	93,850	93,857
59a	Total Capital with transitional arrangements for ECL provisioning not applied					93,850	93,857
60	<b>Total risk-weighted assets</b>		585,899	593,533	614,250	609,879	589,050
60a	<b>Common Equity Tier 1 (CET1) Capital RWA</b>		585,899	593,533	614,250	609,879	589,050
60b	<b>Tier 1 Capital RWA</b>		585,899	593,533	614,250	609,879	589,050
60c	<b>Total Capital RWA</b>		585,899	593,533	614,250	609,879	589,050



Composition of Capital Template <i>continued</i>		Cross Reference of Current Quarter to Regulatory Capital Balance Sheet (CC2)	Q3/23	Q2/23	Q1/23	Q4/22	Q3/22
(Millions of Canadian dollars, except percentage and otherwise noted)							
<b>Capital ratios</b>							
61	Common Equity Tier 1 (as a percentage of risk-weighted assets)		14.1%	13.7%	12.7%	12.6%	13.1%
61a	CET1 Ratio with transitional arrangements for ECL provisioning not applied					12.6%	13.0%
62	Tier 1 (as a percentage of risk-weighted assets)		15.4%	14.9%	13.9%	13.8%	14.3%
62a	Tier 1 Capital Ratio with transitional arrangements for ECL provisioning not applied					13.8%	14.3%
63	Total capital (as a percentage of risk-weighted assets)		17.3%	16.8%	15.7%	15.4%	15.9%
63a	Total Capital Ratio with transitional arrangements for ECL provisioning not applied					15.4%	15.9%
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)		8.1%	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 <sup>2</sup>		0.1%	0.0%	0.0%	0.0%	0.0%
67	of which: G-SIB buffer <sup>1</sup>		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)		6.0%	5.7%	4.7%	4.6%	5.1%
<b>OSFI target (minimum + capital conservation buffer + D-SIB surcharge (if applicable))</b>							
69	Common Equity Tier 1 target ratio		8.1%	8.0%	8.0%	8.0%	8.0%
70	Tier 1 capital target ratio		9.6%	9.5%	9.5%	9.5%	9.5%
71	Total capital target ratio		11.6%	11.5%	11.5%	11.5%	11.5%
<b>Amounts below the thresholds for deduction (before risk-weighting)</b>							
72	Non-significant investments in the capital and Other TLAC-eligible instruments of other financial entities		990	395	448	600	769
73	Significant investments in the common stock of financials		6,289	6,739	6,642	6,533	5,960
74	Mortgage servicing rights (net of related tax liability)		-	-	-	-	-
75	Deferred tax assets arising from temporary differences (net of related tax liability)		1,490	1,704	1,628	1,523	1,622
<b>Applicable caps on the inclusion of allowances in Tier 2</b>							
76	Allowances eligible for inclusion in Tier 2 in respect of exposures subject to standardized approach (prior to application of cap)		780	688	900	874	781
77	Cap on inclusion of allowances in Tier 2 under standardized approach		780	688	900	874	781
78	Allowances eligible for inclusion in Tier 2 in respect of exposures subject to internal ratings-based approach (prior to application of cap)		3,235	3,229	2,831	2,693	2,609
79	Cap on inclusion of allowances in Tier 2 under internal ratings-based approach		3,235	3,229	2,831	2,693	2,609

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

<sup>2</sup> Bank specific countercyclical buffer requirement is the amount which is determined based on our weighted average private sector exposures in jurisdictions identified by the BCBS (Q3/23 0.06%, Q2/23 0.04%, Q1/23 0.03%, Q4/22 0.01%).



**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)	Q3/23	
		Balance sheet as in Report to Shareholders	Under regulatory scope of consolidation
<b>Assets</b>			
Cash and due from banks		80,358	80,358
Interest-bearing deposits with banks		87,650	87,650
Securities, net of applicable allowance		372,625	356,429
<i>Non-significant investments in capital of other financial institutions not exceeding regulatory thresholds</i>			990
<i>Other securities</i>			355,439
Assets purchased under reverse repurchase agreements and securities borrowed		347,151	347,151
Loans			
Retail		561,212	560,705
Wholesale		278,997	276,699
Allowance for loan losses		(4,495)	(4,495)
<i>Collective allowance reflected in Tier 2 regulatory capital <sup>1</sup></i>	<b>s</b>		(1,304)
<i>Shortfall of allowances to expected loss <sup>2</sup></i>	<b>i</b>		-
<i>Allowances not reflected in regulatory capital</i>			(3,191)
		835,714	832,909
Segregated fund net assets		2,921	-
Other			
Customers' liability under acceptances		19,365	19,365
Derivatives		115,914	115,309
Premises and equipment, net		6,793	6,779
Goodwill	<b>e</b>	12,299	12,299
<i>Goodwill related to insurance and joint ventures</i>	<b>e'</b>		-
Other intangibles	<b>f</b>	5,892	5,744
<i>Other intangibles related to insurance and joint ventures</i>	<b>f'</b>		148
Other		71,052	74,738
<i>Significant investments in other financial institutions and insurance subsidiaries</i>			6,289
<i>of which: exceeding regulatory thresholds</i>	<b>l</b>		-
<i>of which: not exceeding regulatory thresholds</i>			6,289
<i>Defined - benefit pension fund net assets</i>	<b>k</b>		3,071
<i>Deferred tax assets</i>			1,622
<i>of which: deferred tax assets excluding those arising from temporary differences</i>	<b>g</b>		228
<i>of which: deferred tax assets arising from temporary differences exceeding regulatory thresholds</i>	<b>m</b>		-
<i>of which: deferred tax liabilities related to permitted tax netting</i>			(1,706)
<i>of which: deferred tax assets - other temporary differences</i>			3,100
Other assets			63,756
<i>of which: relates to assets of operations held for sale – Goodwill</i>	<b>e''</b>		-
<i>of which: relates to assets of operations held for sale – Intangibles</i>	<b>f''</b>		-
<b>Total assets</b>		<b>1,957,734</b>	<b>1,938,731</b>

<sup>1</sup> Collective allowance includes Stage 1 and Stage 2 ACL on financial assets.

<sup>2</sup> Expected loss as defined under the Basel III framework.



Regulatory capital balance sheet <i>continued</i>	Cross Reference to Basel III Regulatory Capital Components (CC1)	Q3/23	
		Balance sheet as in Report to Shareholders	Under regulatory scope of consolidation
(Millions of Canadian dollars)			
<b>Liabilities</b>			
Deposits			
Personal		434,047	434,047
Business and government		736,730	737,272
Bank		44,894	44,894
		1,215,671	1,216,213
Segregated fund net liabilities		2,921	-
Other			
Acceptances		19,407	19,407
Obligations related to securities sold short		36,653	36,653
Obligations related to assets sold under repurchase agreements and securities loaned		334,465	333,614
Derivatives		117,244	117,244
Insurance claims and policy benefit liabilities		12,700	-
Other liabilities		95,042	91,342
<i>Gains and losses due to changes in own credit risk on fair value liabilities</i>	j		822
<i>Deferred tax liabilities</i>			439
<i>of which: related to goodwill</i>	t		138
<i>of which: related to intangibles</i>	v		1,155
<i>of which: related to pensions</i>	u		846
<i>of which: relates to permitted tax netting</i>			(1,700)
<i>of which: other deferred tax liabilities</i>	w		-
<i>Other Liabilities</i>			90,081
Subordinated debentures	q	11,202	11,202
<i>Regulatory capital amortization of maturing debentures</i>	q <sup>''''</sup>		(1,187)
<i>Subordinated debentures not allowed for regulatory capital</i>	q'		1,630
<i>Subordinated debentures used for regulatory capital:</i>			10,759
<i>of which: are qualifying</i>	q''		10,759
<i>of which: are subject to phase out directly issued capital:</i>	q'''		-
<i>of which: are subject to phase out issued by subsidiaries and held by 3rd party</i>	q <sup>''''</sup>		-
<b>Total liabilities</b>		<b>1,845,305</b>	<b>1,825,675</b>
<b>Equity attributable to shareholders</b>		<b>112,334</b>	<b>112,961</b>
Common shares	a	18,512	18,512
<i>of which are treasury - common shares</i>			(158)
Retained earnings		82,011	81,967
<i>of which relates to contributed surplus</i>	a'		209
<i>of which relates to retained earnings for capital purposes</i>	b		81,758
<i>of which relates to insurance and joint ventures</i>	b'		44
Other components of equity	c	4,481	5,152
<i>Gains and losses on derivatives designated as cash flow hedges</i>	h		1,892
<i>Unrealized foreign currency translation gains and losses, net of hedging activities</i>			4,556
<i>Other reserves allowed for regulatory capital</i>			(1,296)
<i>of which relates to Insurance</i>	c'		671
Preferred shares and other equity instruments	n	7,330	7,330
<i>of which: are qualifying</i>	n'		7,300
<i>of which: are subject to phase out</i>	n''		-
<i>of which portion are not allowed for regulatory capital</i>			23
<i>of which: are qualifying treasury - preferred shares</i>			(1)
<i>of which: are qualifying treasury - other</i>	n'''		8
<i>of which: are subject to phase out treasury - preferred shares</i>			-



Regulatory capital balance sheet <i>continued</i>	Cross Reference to Basel III Regulatory Capital Components (CC1)	Q3/23	
		Balance sheet as in Report to Shareholders	Under regulatory scope of consolidation
(Millions of Canadian dollars)			
<b>Non-controlling interests</b>	<b>x</b>	<b>95</b>	<b>95</b>
<i>of which: are qualifying</i>			
<i>portion allowed for inclusion into CET1</i>	<b>d</b>		10
<i>portion allowed for inclusion into Tier 1 capital</i>	<b>o</b>		2
<i>portion allowed for inclusion into Tier 2 capital</i>	<b>r</b>		3
<i>of which: are subject to phase out</i>	<b>x'</b>		-
<i>of which: portion not allowed for regulatory capital</i>			80
<b>Total equity</b>		<b>112,429</b>	<b>113,056</b>
<b>Total liabilities and equity</b>		<b>1,957,734</b>	<b>1,938,731</b>

		Equity	Assets
<b>Insurance subsidiaries <sup>1</sup></b>	<b>Principal activities</b>		
Assured Assistance Inc.	Service provider for insurance claims	2	-
Royal Bank of Canada Insurance Company Limited	Life, annuity, trade credit, title and property reinsurance company provides coverage to international clients	2,097	1,386
RBC (Barbados) Services Company Ltd	Investment management, reinsurance transaction support and corporate services to Royal Bank of Canada Insurance Company Ltd.	1	-
RBC Insurance Agency Ltd.	Distribution of H&A products through AVIVA	44	35
RBC Insurance Company (Cayman) Limited	Life, annuity reinsurance company provides coverage to international clients	-	-
RBC Insurance Company of Canada	Property and casualty insurance company	137	123
RBC Insurance Holdings Inc.	Holding company	1	-
RBC Insurance Services Inc.	Service provider for insurance companies listed and the bank (creditor)	84	87
RBC Life Insurance Company	Life and health insurance company	3,754	23,493
RBC Commercial Insurance Agency Inc.	Provides commercial insurance policies for basic contents, commercial liability, errors and omissions, and cybersecurity coverage	-	-
<b>Total</b>		<b>6,120</b>	<b>25,124</b>

<sup>1</sup> 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 2022 Annual Report and incorporated by reference into this Pillar 3 report. Our 2022 Annual Report is available free of charge on our website at <http://www.rbc.com/investorrelations>

Pillar 3 disclosures requirement		RBC 2022 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 - <i>Gross credit risk exposure</i>
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 – <i>Delegated risk approval authorities and risk limits</i>
		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 – <i>Risk monitoring and reporting</i>



**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 July 31, 2023

		a	b	c	d		e	f	g
		Gross carrying values of		Allowances/ impairments <sup>2</sup>	Of which ECL accounting provisions for credit losses on SA exposures		Of which ECL accounting provisions for credit losses on IRB exposures	Net values (a+b-c)	
		Defaulted exposures <sup>1</sup>	Non-defaulted exposures		Allocated in regulatory category of Specific <sup>3</sup>	Allocated in regulatory category of General <sup>3</sup>			
	(Millions of Canadian dollars)								
1	Loans <sup>4</sup>	3,384	817,714	4,495	117	356	4,022	816,603	
2	Debt Securities	-	183,510	24	-	-	24	183,486	
2a	Equity Securities		2,843					2,843	
3	Off-Balance Sheet exposures <sup>5</sup>	573	324,979	445	-	-	445	325,107	
<b>4</b>	<b>Total</b>	<b>3,957</b>	<b>1,329,046</b>	<b>4,964</b>	<b>117</b>	<b>356</b>	<b>4,491</b>	<b>1,328,039</b>	

<sup>1</sup> Definition of default as per the CAR guidelines and recent OSFI COVID-19 guidance.

<sup>2</sup> Reflects Stage 1, 2 and 3 allowances under IFRS 9, excluding ACL on fair value through OCI on financial instruments.

<sup>3</sup> Regulatory category of specific allowance reflects IFRS 9 Stage 3 allowances. Regulatory category of general allowances reflects Stage 1 & 2 allowances.

<sup>4</sup> Includes exposures related to operations held for sale that have been reclassified to Other Assets on our balance sheet.

<sup>5</sup> 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 April 30, 2023

		a	b	c	d		e	f	g
		Gross carrying values of		Allowances/ impairments <sup>2</sup>	Of which ECL accounting provisions for credit losses on SA exposures		Of which ECL accounting provisions for credit losses on IRB exposures	Net values (a+b-c)	
		Defaulted exposures <sup>1</sup>	Non-defaulted exposures		Allocated in regulatory category of Specific <sup>3</sup>	Allocated in regulatory category of General <sup>3</sup>			
	(Millions of Canadian dollars)								
1	Loans <sup>4</sup>	3,066	812,172	4,332	107	308	3,917	810,906	
2	Debt Securities	-	171,002	22	-	-	22	170,980	
2a	Equity Securities		2,860					2,860	
3	Off-Balance Sheet exposures <sup>5</sup>	574	330,867	425	-	-	425	331,016	
<b>4</b>	<b>Total</b>	<b>3,640</b>	<b>1,316,901</b>	<b>4,779</b>	<b>107</b>	<b>308</b>	<b>4,364</b>	<b>1,315,762</b>	

<sup>1</sup> Definition of default as per the CAR guidelines and recent OSFI COVID-19 guidance.

<sup>2</sup> Reflects Stage 1, 2 and 3 allowances under IFRS 9, excluding ACL on fair value through OCI on financial instruments.

<sup>3</sup> Regulatory category of specific allowance reflects IFRS 9 Stage 3 allowances. Regulatory category of general allowances reflects Stage 1 & 2 allowances.

<sup>4</sup> Includes exposures related to operations held for sale that have been reclassified to Other Assets on our balance sheet.

<sup>5</sup> 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 three months ended July 31, 2023

	(Millions of Canadian dollars)	a
<b>1</b>	<b>Defaulted loans and debt securities at the end of April 30, 2023</b>	<b>3,066</b>
2	Loans and debt securities that have defaulted since the last reporting period	851
3	Returned to non-defaulted status	(226)
4	Amounts written off	(446)
5	Other changes	139
<b>6</b>	<b>Defaulted loans and debt securities at the end of July 31, 2023 (1+2-3-4+5)</b>	<b>3,384</b>

For the three months ended April 30, 2023

	(Millions of Canadian dollars)	a
<b>1</b>	<b>Defaulted loans and debt securities at the end of January 31, 2023</b>	<b>2,183</b>
2	Loans and debt securities that have defaulted since the last reporting period	827
3	Returned to non-defaulted status	(89)
4	Amounts written off	(660)
5	Other changes	805
<b>6</b>	<b>Defaulted loans and debt securities at the end of April 30, 2023 (1+2-3-4+5)</b>	<b>3,066</b>

**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 2022 Annual Report and incorporated by reference into this Pillar 3 report. Our 2022 Annual Report is available free of charge on our website at <http://www.rbc.com/investorrelations>

	<b>Pillar 3 disclosures requirement</b>	<b>RBC 2022 Annual Report section</b>	<b>Sub-section</b>
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  Description of the categorization of ECL accounting provisions (general and specific) for standardized approach exposures	Consolidated Financial Statements  n/a	Note 2 - Summary of significant accounting policies, estimates and judgments Allowance for credit losses  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 July 31, 2023

(Millions of Canadian dollars)	a	b	c	d	e
	On-balance sheet amount	Credit Risk <sup>1,2</sup>		Counterparty Credit Risk <sup>5</sup>	
		Undrawn	Other <sup>4</sup>	Repo-style Transaction	Derivatives
<b>Retail</b>					
Residential secured <sup>6</sup>	446,440	113,025			
Qualifying revolving	35,233	108,651			
Other retail	47,389	20,585	138		
<b>Total Retail</b>	<b>529,062</b>	<b>242,261</b>	<b>138</b>		
<b>Wholesale</b>					
Agriculture	10,938	2,762	45	-	76
Automotive	11,285	8,138	587	-	1,327
Banking	75,458	2,969	1,315	92,447	36,111
Consumer Discretionary	18,104	9,183	592	-	1,253
Consumer Staples	8,015	6,282	517	-	1,814
Oil and Gas	6,521	8,491	1,649	-	2,692
Financial Services	48,293	22,675	4,385	80,439	18,844
Financing Products	3,857	1,172	842	194	1,949
Forest Products	1,492	989	281	-	32
Governments	289,063	7,112	1,768	17,144	6,110
Industrial Products	11,441	9,306	654	-	742
Information Technology	5,301	6,822	354	97	694
Investments	24,186	4,153	688	-	281
Mining and Metals	1,952	3,509	952	-	313
Public Works and Infrastructure	2,759	1,671	591	-	135
Real Estate and Related	97,983	21,114	1,560	-	843
Other Services	29,062	13,414	2,510	-	769
Telecommunication and Media	8,571	6,043	124	-	2,762
Transportation	7,543	6,340	976	-	1,939
Utilities	15,020	19,185	6,215	-	4,206
Other Sectors	7,366	2,050	982	56	19,190
<b>Total Wholesale</b>	<b>684,210</b>	<b>163,380</b>	<b>27,587</b>	<b>190,377</b>	<b>102,082</b>
<b>Total Exposure<sup>1</sup></b>	<b>1,213,272</b>	<b>405,641</b>	<b>27,725</b>	<b>190,377</b>	<b>102,082</b>
<b>By Geography<sup>7</sup></b>					
Canada	731,356	301,219	10,535	74,031	37,406
United States	348,400	76,414	12,077	57,907	22,655
Europe	65,766	21,063	2,395	30,433	29,664
Other International	67,750	6,945	2,718	28,006	12,357
<b>Total Exposure<sup>1,7</sup></b>	<b>1,213,272</b>	<b>405,641</b>	<b>27,725</b>	<b>190,377</b>	<b>102,082</b>
<b>By Maturity</b>					
Unconditionally cancellable	53,279	275,545	-	-	-
Within 1 year	269,555	25,511	7,559	190,377	41,628
1 to 5 year	751,546	99,598	18,626	-	39,697
Over 5 years	138,892	4,987	1,540	-	20,757
<b>Total Exposure<sup>1</sup></b>	<b>1,213,272</b>	<b>405,641</b>	<b>27,725</b>	<b>190,377</b>	<b>102,082</b>

<sup>1</sup> Excludes securitization and other assets not subject to standardized or IRB approach. Also excludes exposures acquired through the US Government Paycheck Protection Program (PPP).

<sup>2</sup> 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.

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

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

<sup>5</sup> 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.

<sup>6</sup> Includes residential mortgages and HELOC. Effective Q2 2023 includes investor mortgages as per updated CAR guidelines.

<sup>7</sup> 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 April 30, 2023

(Millions of Canadian dollars)	a	b	c	d	e
	On-balance sheet amount	Credit Risk <sup>1,2</sup>		Counterparty Credit Risk <sup>5</sup>	
		Undrawn	Other <sup>4</sup>	Repo-style Transaction	Derivatives
<b>Retail</b>					
Residential secured <sup>6</sup>	443,491	107,469			
Qualifying revolving	34,036	108,173			
Other retail	46,242	20,074	136		
<b>Total Retail</b>	<b>523,769</b>	<b>235,716</b>	<b>136</b>		
<b>Wholesale</b>					
Agriculture	11,080	2,593	41	-	108
Automotive	11,009	7,975	509	-	1,238
Banking	76,248	3,363	2,557	94,286	41,646
Consumer Discretionary	19,037	9,323	549	-	1,225
Consumer Staples	7,807	6,055	339	-	1,753
Oil and Gas	6,138	8,758	1,672	-	2,540
Financial Services	51,669	22,919	4,048	75,055	22,122
Financing Products	4,384	1,266	858	240	1,621
Forest Products	1,502	937	249	-	58
Governments	306,199	7,076	1,959	24,377	6,039
Industrial Products	11,054	9,774	697	-	748
Information Technology	4,604	7,363	290	134	772
Investments	24,293	4,217	699	58	366
Mining and Metals	1,855	3,340	924	-	318
Public Works and Infrastructure	2,780	1,706	609	-	172
Real Estate and Related	97,541	20,173	1,566	-	1,007
Other Services	29,336	13,149	2,841	9	964
Telecommunication and Media	8,565	6,602	94	-	2,604
Transportation	7,443	6,040	994	-	1,834
Utilities	14,992	19,408	4,889	-	4,730
Other Sectors	6,849	2,104	560	69	14,843
<b>Total Wholesale</b>	<b>704,385</b>	<b>164,141</b>	<b>26,944</b>	<b>194,228</b>	<b>106,708</b>
<b>Total Exposure<sup>1</sup></b>	<b>1,228,154</b>	<b>399,857</b>	<b>27,080</b>	<b>194,228</b>	<b>106,708</b>
<b>By Geography<sup>7</sup></b>					
Canada	729,900	296,853	9,789	72,318	34,644
United States	333,380	74,405	10,878	58,379	24,408
Europe	93,461	21,729	4,226	36,081	33,486
Other International	71,413	6,870	2,187	27,450	14,170
<b>Total Exposure<sup>1,7</sup></b>	<b>1,228,154</b>	<b>399,857</b>	<b>27,080</b>	<b>194,228</b>	<b>106,708</b>
<b>By Maturity</b>					
Unconditionally cancellable	52,934	268,033	-	-	-
Within 1 year	300,545	25,844	8,009	194,228	51,756
1 to 5 year	731,323	100,123	17,617	-	33,284
Over 5 years	143,352	5,857	1,454	-	21,668
<b>Total Exposure<sup>1</sup></b>	<b>1,228,154</b>	<b>399,857</b>	<b>27,080</b>	<b>194,228</b>	<b>106,708</b>

<sup>1</sup> Excludes securitization and other assets not subject to standardized or IRB approach. Also excludes exposures acquired through the US Government Paycheck Protection Program (PPP).

<sup>2</sup> 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.

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

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

<sup>5</sup> 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.

<sup>6</sup> Includes residential mortgages and HELOC. Effective Q2 2023 includes investor mortgages as per updated CAR guidelines.

<sup>7</sup> 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 July 31, 2023

Impaired exposures by geography <sup>1</sup> and portfolio (Millions of Canadian dollars)	Gross impaired exposures	Allowance <sup>2</sup>	Net impaired exposures
<b>Canada</b>			
Retail	870	253	617
Wholesale	565	184	381
Securities	-	-	-
<b>Total - Canada</b>	<b>1,435</b>	<b>437</b>	<b>998</b>
<b>United States</b>			
Retail	42	4	38
Wholesale	1,284	334	950
Securities	-	-	-
<b>Total - United States</b>	<b>1,326</b>	<b>338</b>	<b>988</b>
<b>Other International</b>			
Retail	184	92	92
Wholesale	339	133	206
Securities	141	(26)	167
<b>Total - Other International</b>	<b>664</b>	<b>199</b>	<b>465</b>
<b>Total</b>			
Retail	1,096	349	747
Wholesale	2,188	651	1,537
Securities	141	(26)	167
<b>Total impaired exposures</b>	<b>3,425</b>	<b>974</b>	<b>2,451</b>

<sup>1</sup> Geographic information is based on residence of borrower.

<sup>2</sup> Allowance reflects only Stage 3 IFRS 9 allowances and includes allowances on acquired credit-impaired loans and securities.

As at April 30, 2023

Impaired exposures by geography <sup>1</sup> and portfolio (Millions of Canadian dollars)	Gross impaired exposures	Allowance <sup>2</sup>	Net impaired exposures
<b>Canada</b>			
Retail	823	230	593
Wholesale	613	177	436
Securities	-	-	-
<b>Total - Canada</b>	<b>1,436</b>	<b>407</b>	<b>1,029</b>
<b>United States</b>			
Retail	35	4	31
Wholesale	958	302	656
Securities	-	-	-
<b>Total - United States</b>	<b>993</b>	<b>306</b>	<b>687</b>
<b>Other International</b>			
Retail	192	95	97
Wholesale	272	107	165
Securities	150	(25)	175
<b>Total - Other International</b>	<b>614</b>	<b>177</b>	<b>437</b>
<b>Total</b>			
Retail	1,050	329	721
Wholesale	1,843	586	1,257
Securities	150	(25)	175
<b>Total impaired exposures</b>	<b>3,043</b>	<b>890</b>	<b>2,153</b>

<sup>1</sup> Geographic information is based on residence of borrower.

<sup>2</sup> 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 <sup>1</sup> and portfolio (Millions of Canadian dollars)	For the three months ended July 31, 2023	For the three months ended April 30, 2023
<b>Canada</b>		
Retail	233	220
Wholesale	23	11
<b>Total Canada</b>	<b>256</b>	<b>231</b>
<b>United States<sup>2</sup></b>		
Retail	3	4
Wholesale	95	41
<b>Total United States</b>	<b>98</b>	<b>45</b>
<b>Other International</b>		
Retail	2	-
Wholesale <sup>2</sup>	(1)	2
<b>Total Other International</b>	<b>1</b>	<b>2</b>
<b>Total</b>		
Retail	238	224
Wholesale	117	54
<b>Total net write-offs</b>	<b>355</b>	<b>278</b>

<sup>1</sup> Geographic information is based on residence of borrower.

<sup>2</sup> 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 July 31, 2023

Impaired exposures by portfolio and sector (Millions of Canadian dollars)	Gross impaired exposures	Allowance <sup>1</sup>	Net impaired exposures
<b>Retail</b>			
Residential mortgages	619	146	473
Personal	245	124	121
Small business	232	79	153
<b>Total Retail</b>	<b>1,096</b>	<b>349</b>	<b>747</b>
<b>Wholesale</b>			
Agriculture	54	18	36
Automotive	16	4	12
Banking	3	1	2
Consumer Discretionary	228	82	146
Consumer Staples	163	51	112
Oil and Gas <sup>2</sup>	67	84	(17)
Financial Services	98	29	69
Financial Products	-	-	-
Forest Products	10	3	7
Governments	15	-	15
Industrial Products	149	51	98
Information Technology	14	6	8
Investments	58	5	53
Mining and Metals	1	1	-
Public Works and Infrastructure	13	6	7
Real Estate and Related	965	167	798
Other Services	209	85	124
Telecommunication and Media	56	41	15
Transportation	41	10	31
Utilities	-	-	-
Other	28	7	21
<b>Total Wholesale</b>	<b>2,188</b>	<b>651</b>	<b>1,537</b>
<b>Total impaired loans and acceptances</b>	<b>3,284</b>	<b>1,000</b>	<b>2,284</b>
Securities	141	(26)	167
<b>Total impaired exposures</b>	<b>3,425</b>	<b>974</b>	<b>2,451</b>

<sup>1</sup> Allowance reflects only Stage 3 IFRS 9 allowances and includes allowances on acquired credit-impaired loans and securities.<sup>2</sup> Allowance includes expected credit losses for undrawn letters of credit.

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

As at April 30, 2023

<b>Impaired exposures by portfolio and sector</b>	Gross impaired exposures	Allowance <sup>1</sup>	Net impaired exposures
(Millions of Canadian dollars)			
<b>Retail</b>			
Residential mortgages	587	139	448
Personal	256	120	136
Small business	207	70	137
<b>Total Retail</b>	<b>1,050</b>	<b>329</b>	<b>721</b>
<b>Wholesale</b>			
Agriculture	44	17	27
Automotive	21	3	18
Banking	3	1	2
Consumer Discretionary	317	112	205
Consumer Staples	202	58	144
Oil and Gas	69	66	3
Financial Services	100	30	70
Financial Products	-	-	-
Forest Products	6	2	4
Governments	13	1	12
Industrial Products	95	27	68
Information Technology	7	2	5
Investments	23	3	20
Mining and Metals	10	9	1
Public Works and Infrastructure	28	8	20
Real Estate and Related	502	126	376
Other Services	231	65	166
Telecommunication and Media	40	34	6
Transportation	97	11	86
Utilities	-	-	-
Other	35	11	24
<b>Total Wholesale</b>	<b>1,843</b>	<b>586</b>	<b>1,257</b>
<b>Total impaired loans and acceptances</b>	<b>2,893</b>	<b>915</b>	<b>1,978</b>
Securities	150	(25)	175
<b>Total impaired exposures</b>	<b>3,043</b>	<b>890</b>	<b>2,153</b>

<sup>1</sup> 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. 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 July 31, 2023

(Millions of Canadian dollars)	30 to 89 days	90 days and greater	Total
Retail	1,643	167	1,810
Wholesale	1,062	63	1,125
<b>Total</b>	<b>2,705</b>	<b>230</b>	<b>2,935</b>

As at April 30, 2023

(Millions of Canadian dollars)	30 to 89 days	90 days and greater	Total
Retail	1,422	169	1,591
Wholesale	1,042	61	1,103
<b>Total</b>	<b>2,464</b>	<b>230</b>	<b>2,694</b>

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

Restructured exposures actively benefitting from modified contractual terms as at Jul 31, 2023 are not material (Apr 30, 2023 – not material).

**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 2022 Annual Report and incorporated by reference into this Pillar 3 report. Our 2022 Annual Report is available free of charge on our website at <http://www.rbc.com/investorrelations>

Pillar 3 disclosures requirement	RBC 2022 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 – <i>Counterparty credit risk</i>
	Consolidated Financial Statements	Note 9 - Derivative financial instruments and hedging activities – <i>Derivative-related credit risk</i>
		Note 30 - Offsetting financial assets and financial liabilities
b) Core features of policies and processes for collateral evaluation and management	Credit risk	Credit risk mitigation – <i>Collateral</i>
c) Information about market or credit risk concentrations under the credit risk mitigation instruments used	Credit risk	Credit risk mitigation
		Credit risk approval – <i>Credit risk limits</i>
	Consolidated Financial Statements	Note 9 - 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 and equity 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 July 31, 2023

		a	b	c	d	f
	(Millions of Canadian dollars)	Exposures unsecured: carrying amount	Exposures to be secured <sup>1</sup>	Exposures secured by collateral <sup>1</sup>	Exposures secured by financial guarantees <sup>1,2</sup>	Exposures secured by credit derivatives
1	Loans <sup>3</sup>	184,098	632,505	492,478	140,027	-
2	Debt securities	166,270	17,216	16,942	274	-
2a	Equity securities	2,843	-	-	-	-
<b>3</b>	<b>Total</b>	<b>350,367</b>	<b>649,722</b>	<b>509,422</b>	<b>140,300</b>	<b>-</b>
4	Of which defaulted <sup>4</sup>	1,448	1,159	600	559	-

<sup>1</sup> Column c and d are a subset of column b (b = c + d).

<sup>2</sup> 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.

<sup>3</sup> Securitized mortgages that do not qualify as securitized under IFRS or regulatory capital requirements are recognized as collateralized in column c.

<sup>4</sup> Defaulted exposures are net of Stage 3 allowances.

As at April 30, 2023

		a	b	c	d	f
	(Millions of Canadian dollars)	Exposures unsecured: carrying amount	Exposures to be secured <sup>1</sup>	Exposures secured by collateral <sup>1</sup>	Exposures secured by financial guarantees <sup>1,2</sup>	Exposures secured by credit derivatives
1	Loans <sup>3</sup>	181,210	629,696	496,599	133,097	-
2	Debt securities	154,712	16,268	16,025	243	-
2a	Equity securities	2,860	-	-	-	-
<b>3</b>	<b>Total</b>	<b>335,922</b>	<b>645,965</b>	<b>512,624</b>	<b>133,341</b>	<b>-</b>
4	Of which defaulted <sup>4</sup>	955	1,412	878	534	-

<sup>1</sup> Column c and d are a subset of column b (b = c + d).

<sup>2</sup> 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.

<sup>3</sup> Securitized mortgages that do not qualify as securitized under IFRS or regulatory capital requirements are recognized as collateralized in column c.

<sup>4</sup> 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 securitization's 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 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:

Standardized Risk Weight Category	Long-term rating				
	S&P	Moody's	Fitch	DBRS	Kroll
<b>Long Term</b>					
(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 reviews the list of acceptable rating agencies and will reflect any changes in allowed rating agencies in its update of 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 July 31, 2023

	(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 <sup>1</sup>	35,332	378	35,386	69	95	0.3%
2	Public sector entities (PSEs)	12,939	423	28,991	157	2,705	9.3%
3	Multilateral development banks	4,110	-	4,110	-	-	-
4	Banks	4,924	2,052	6,273	560	5,633	82.4%
	Of which: securities firms and other financial institutions treated as banks	1,890	1,423	3,311	349	2,863	78.2%
5	Covered bonds	1,484	-	1,484	-	298	20.1%
6	Corporates <sup>1</sup>	69,643	54,083	57,198	13,082	64,845	92.3%
	Of which: securities firms and other financial institutions treated as corporates	2,016	2,587	2,016	921	2,706	92.1%
	Of which: specialised lending	-	-	-	-	-	-
7	Subordinated debt, equity and other capital	2,750	1,002	2,750	401	5,496	174.4%
8	Retail	5,693	5,386	5,693	1,441	4,824	67.6%
9	Real estate <sup>1,3</sup>	35,372	28	17,894	5	11,318	63.2%
	Of which: general RRE	20,328	28	3,156	5	1,355	42.9%
	Of which: IPRRE	3,691	-	3,393	-	2,161	63.7%
	Of which: other RRE	-	-	-	-	-	-
	Of which: general CRE	11,320	-	11,315	-	7,767	68.6%
	Of which: IPCRE	32	-	32	-	35	109.4%
	Of which: land acquisition, development and construction	-	-	-	-	-	-
10	Reverse mortgages	-	-	-	-	-	-
11	Mortgage-backed securities <sup>2</sup>						
12	Defaulted exposures	615	30	613	4	886	143.6%
13	Other assets	23,722	-	23,722	-	19,676	82.9%
<b>14</b>	<b>Total</b>	<b>196,584</b>	<b>63,382</b>	<b>184,114</b>	<b>15,719</b>	<b>115,776</b>	<b>57.9%</b>

<sup>1</sup> 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.

<sup>2</sup> Mortgage-backed securities exposure and RWA are included in Sovereign or PSE to reflect ultimate risk.

<sup>3</sup> Reflects transition of our US retail portfolio to A-IRB in Q3 2023. Refer to CR6.



As at April 30, 2023

	(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 <sup>1</sup>	35,823	388	45,260	75	137	0.3%
2	Public sector entities (PSEs)	13,334	427	18,585	150	2,741	14.6%
3	Multilateral development banks	4,404	-	4,404	-	-	-
4	Banks	4,631	2,477	5,951	592	5,289	80.8%
	Of which: securities firms and other financial institutions treated as banks	1,324	1,803	2,717	360	2,295	74.6%
5	Covered bonds	1,558	-	1,558	-	313	20.1%
6	Corporates <sup>1</sup>	69,873	54,834	57,134	14,652	66,261	92.3%
	Of which: securities firms and other financial institutions treated as corporates	2,064	2,478	2,064	879	2,721	92.5%
	Of which: specialised lending	-	-	-	-	-	-
7	Subordinated debt, equity and other capital	2,780	891	2,780	356	5,444	173.6%
8	Retail	5,832	5,698	5,832	1,492	4,944	67.5%
9	Real estate <sup>1</sup>	63,482	35	46,286	8	16,414	35.5%
	Of which: general RRE	49,915	-	33,031	8	7,312	22.1%
	Of which: IPRRE	3,804	-	3,496	-	2,216	63.4%
	Of which: other RRE	-	-	-	-	-	-
	Of which: general CRE	9,728	-	9,724	-	6,848	70.4%
	Of which: IPCRE	35	-	35	-	38	108.6%
	Of which: land acquisition, development and construction	-	-	-	-	-	-
10	Reverse mortgages	-	-	-	-	-	-
11	Mortgage-backed securities <sup>2</sup>						
12	Defaulted exposures	651	33	649	5	933	142.7%
13	Other assets	24,401	-	24,401	-	19,849	81.3%
14	<b>Total</b>	<b>226,769</b>	<b>64,783</b>	<b>212,840</b>	<b>17,330</b>	<b>122,325</b>	<b>53.1%</b>

<sup>1</sup> 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.

<sup>2</sup> Mortgage-backed securities exposure and RWA are included in Sovereign or PSE to reflect ultimate risk.



**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 July 31, 2023 (in millions of Canadian dollars)

		0%	20%	50%	100%	150%	Other	Total credit exposures amount (post CCF and post-CRM)				
1	Sovereigns and their central banks	35,359	-	-	95	-	-	35,454				
2	Public sector entities (PSEs)	0%	20%	50%	100%	150%	Other	Total credit exposures amount (post CCF and post-CRM)				
		16,052	12,987	-	109	-	-	29,148				
3	Multilateral development banks	0%	20%	30%	50%	100%	150%	Other	Total credit exposures amount (post CCF and post-CRM)			
		4,110	-	-	-	-	-	4,110				
4	Banks	20%	30%	40%	50%	75%	100%	150%	Other	Total credit exposures amount (post CCF and post-CRM)		
		142	407	-	10	-	4,853	-	1,421	6,833		
	Of which: securities firms and other financial institutions	1	-	-	-	-	2,238	-	1,421	3,660		
5	Covered bonds	20%	30%	40%	50%	75%	100%	150%	Other	Total credit exposures amount (post CCF and post-CRM)		
		1,479	4	-	-	-	1	-	-	1,484		
6	Corporates	20%	50%	65%	75%	80%	85%	100%	130%	150%	Other	Total credit exposures amount (post CCF and post-CRM)
		1,525	16	-	983	-	27,979	39,306	-	471	-	70,280
	Of which: securities firms and other financial institutions	-	-	-	-	-	-	1,405	-	-	-	1,405
	Of which: specialised lending	-	-	-	-	-	-	-	-	-	-	-
7	Subordinated debt, equity and other capital	0%	20%	100%	250%	400%	Other	Total credit exposures amount (post CCF and post-CRM)				
		180	291	840	1,838	-	2	3,151				
8	Retail	15%	75%	100%	Other	Total credit exposures amount (post CCF and post-CRM)						
		878	6,256	-	-	7,134						



As at July 31, 2023 (in millions of Canadian dollars)

		20%	25%	30%	35%	40%	45%	50%	55%	60%	65%	70%	75%	85%	90%	100%	105%	110%	150%	Other	Total credit exposure amount (post-CCF and post-CRM)
9	Real estate <sup>1</sup>	284	217	536	1,402	3	269	810	-	7,107	1,373	923	2,185	1,381	1	1,377	-	31	-	-	17,899
	Of which: general RRE	284	217	394	1,273	3	67	-	-	-	-	923	-	-	-	-	-	-	-	-	3,161
	Of which: IPRRE	-	-	142	128	-	269	743	-	11	-	-	2,100	-	-	-	-	-	-	-	3,393
	Of which: other RRE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Of which: general CRE	-	-	-	-	-	-	-	-	7,097	1,373	-	86	1,382	-	1,377	-	-	-	-	11,315
	Of which: IPCRE	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	31	-	-	32
	Of which: land acquisition, development and construction	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

<sup>1</sup> Reflects transition of our US retail portfolio to A-IRB in Q3 2023. Refer to CR6.

		20%	25%	30%	35%	40%	45%	50%	55%	60%	65%	70%	75%	85%	90%	100%	105%	110%	150%	Other	Total credit exposure amount (post-CCF and post-CRM)
10	Reverse mortgages																				

		20%	25%	30%	35%	40%	45%	50%	55%	60%	65%	70%	75%	85%	90%	100%	105%	110%	150%	Other	Total credit exposure amount (post-CCF and post-CRM)
11	Mortgage-backed securities <sup>1</sup>			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

<sup>1</sup> Mortgage-backed securities exposure and RWA are included in Sovereign or PSE to reflect ultimate risk.

		50%	100%	150%	Other	Total credit exposures amount (post CCF and post-CRM)
12	Defaulted exposures	-	80	537	-	617

		0%	20%	100%	1250%	Others	Total credit exposures amount (post CCF and post-CRM)
13	Other assets	4,046	-	19,676	-	-	23,722



As at July 31, 2023 (in millions of Canadian dollars)

Exposure amounts and CCFs applied to off-balance sheet exposures, categorised based on risk bucket of converted exposures					
		a	b	c	d
		On-balance sheet exposure	Off-balance sheet exposure (pre-CCF)	Weighted average CCF*	Exposure (post-CCF and post-CRM)
1	Less than 40%	78,202	3,772	27.0%	79,902
2	40 - 70%	12,588	32	21.0%	11,929
3	75 - 80%	8,672	2,590	30.0%	9,424
4	85%	25,929	12,088	35.0%	29,361
5	90 - 100%	68,391	44,597	26.0%	66,338
6	105 - 130%	31	-	-	31
7	150%	1,095	292	35.0%	1,010
8	250%	1,833	10	40.0%	1,838
9	400%				
10	1250%				
11	<b>Total exposures</b>	<b>196,741</b>	<b>63,381</b>	<b>28.0%</b>	<b>199,833</b>

\* Weighting is based on off-balance sheet exposure (pre-CCF).



As at April 30, 2023 (in millions of Canadian dollars)

		0%	20%	50%	100%	150%	Other	Total credit exposures amount (post CCF and post-CRM)				
1	Sovereigns and their central banks	45,198	-	-	137	-	-	45,335				
2	Public sector entities (PSEs)	0%	20%	50%	100%	150%	Other	Total credit exposures amount (post CCF and post-CRM)				
		5,251	13,428	-	56	-	-	18,735				
3	Multilateral development banks	0%	20%	30%	50%	100%	150%	Other	Total credit exposures amount (post CCF and post-CRM)			
		4,404	-	-	-	-	-	-	4,404			
4	Banks	20%	30%	40%	50%	75%	100%	150%	Other	Total credit exposures amount (post CCF and post-CRM)		
		144	490	-	33	-	4,484	-	1,392	6,543		
		Of which: securities firms and other financial institutions	2	-	-	-	-	1,682	-	1,392	3,076	
5	Covered bonds	20%	30%	40%	50%	75%	100%	150%	Other	Total credit exposures amount (post CCF and post-CRM)		
		1,554	3	-	-	-	1	-	-	1,558		
6	Corporates	20%	50%	65%	75%	80%	85%	100%	130%	150%	Other	Total credit exposures amount (post CCF and post-CRM)
		1,554	18	-	597	-	28,744	40,495	-	378	-	71,786
		Of which: securities firms and other financial institutions	-	1	-	-	-	-	1,460	-	-	-
	Of which: specialised lending	-	-	-	-	-	-	-	-	-	-	-
7	Subordinated debt, equity and other capital	0%	20%	100%	250%	400%	Other	Total credit exposures amount (post CCF and post-CRM)				
		146	356	807	1,825	-	2	3,136				
8	Retail	15%	75%	100%	Other	Total credit exposures amount (post CCF and post-CRM)						
		915	6,409	-	-	7,324						



As at April 30, 2023 (in millions of Canadian dollars)

		20%	25%	30%	35%	40%	45%	50%	55%	60%	65%	70%	75%	85%	90%	100%	105%	110%	150%	Other	Total credit exposure amount (post-CCF and post-CRM)
9	Real estate	30,313	197	531	1,288	3	269	879	-	5,260	1,511	925	2,237	1,449	-	1,397	-	35	-	-	46,294
	Of which: general RRE	30,313	197	378	1,158	3	65	-	-	-	-	925	-	-	-	-	-	-	-	-	33,039
	Of which: IPRRE	-	-	153	130	-	269	814	-	10	-	-	2,120	-	-	-	-	-	-	-	3,496
	Of which: other RRE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Of which: general CRE	-	-	-	-	-	-	-	-	5,250	1,511	-	117	1,449	-	1,397	-	-	-	-	9,724
	Of which: IPCRE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	35	-	-	35
	Of which: land acquisition, development and construction	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

		20%	25%	30%	35%	40%	45%	50%	55%	60%	65%	70%	75%	85%	90%	100%	105%	110%	150%	Other	Total credit exposure amount (post-CCF and post-CRM)
10	Reverse mortgages																				

		20%	25%	30%	35%	40%	45%	50%	55%	60%	65%	70%	75%	85%	90%	100%	105%	110%	150%	Other	Total credit exposure amount (post-CCF and post-CRM)
11	Mortgage-backed securities <sup>1</sup>			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

<sup>1</sup> Mortgage-backed securities exposure and RWA are included in Sovereign or PSE to reflect ultimate risk.

		50%	100%	150%	Other	Total credit exposures amount (post CCF and post-CRM)
12	Defaulted exposures	-	96	558	-	654

		0%	20%	100%	1250%	Others	Total credit exposures amount (post CCF and post-CRM)
13	Other assets	4,343	261	19,797	-	-	24,401



As at April 30, 2023 (in millions of Canadian dollars)

Exposure amounts and CCFs applied to off-balance sheet exposures, categorised based on risk bucket of converted exposures					
		a	b	c	d
		On-balance sheet exposure	Off-balance sheet exposure (pre-CCF)	Weighted average CCF*	Exposure (post-CCF and post-CRM)
1	Less than 40%	108,737	3,812	27.0%	110,380
2	40 - 70%	10,864	83	33.0%	10,287
3	75 - 80%	8,448	2,887	28.0%	9,242
4	85%	26,472	12,620	35.0%	30,193
5	90 - 100%	68,380	45,036	25.0%	67,270
6	105 - 130%	35	-	-	35
7	150%	995	335	37.0%	938
8	250%	1,820	12	40.0%	1,825
9	400%				
10	1250%				
11	<b>Total exposures</b>	<b>225,751</b>	<b>64,785</b>	<b>27.0%</b>	<b>230,170</b>

\* Weighting is based on off-balance sheet exposure (pre-CCF).

**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.

The IRB credit risk parameters are reviewed, at a minimum, annually and more frequently if deemed necessary by an independent validation team within the bank. In addition, quarterly monitoring and back-testing procedures are performed to compare the realized results with established estimates by the model development team.

**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. This table reflects the methodology outlined by OSFI for IRB banks to determine whether they are meeting the 80% threshold calculation minimum requirement.

As at July 31, 2023

EAD (in %)	EAD covered by the various approaches			
	Standardized Approach <sup>1</sup>	Advanced Approach (A-IRB)	Foundation Approach (F-IRB)	Other
<b>Retail</b>				
Residential secured	1%	99%	-	-
Qualifying revolving	1%	99%	-	-
Other retail	9%	91%	-	-
<b>Wholesale</b>				
Corporate	18%	42%	40%	-
Sovereign	16%	84%	-	-
Bank	21%	-	79%	-
<b>Equity</b>	100%	-	-	-
<b>Total credit risk</b>	11%	76%	13%	-
<b>Counterparty credit risk</b>	-	9%	43%	48%
<b>Securitization</b>	35%	65%	-	-
<b>Other assets not subject to Standardized or IRB Approaches</b>	-	-	-	100%
<b>Total<sup>2</sup></b>	10%	66%	24%	-

<sup>1</sup> Standardized Approach includes assumptions and waivers granted by OSFI based on an OSFI approved rollout plan.

<sup>2</sup> The total for this table is calculated using OSFI's guidance on what exposures are included in the 80% Threshold Calculation for IRB banks.

As at April 30, 2023

EAD (in %)	EAD covered by the various approaches			
	Standardized Approach <sup>1</sup>	Advanced Approach (A-IRB)	Foundation Approach (F-IRB)	Other
<b>Retail</b>				
Residential secured	8%	92%	-	-
Qualifying revolving	1%	99%	-	-
Other retail	10%	90%	-	-
<b>Wholesale</b>				
Corporate	18%	40%	42%	-
Sovereign	15%	85%	-	-
Bank	19%	-	81%	-
<b>Equity</b>	100%	-	-	-
<b>Total credit risk</b>	13%	74%	13%	-
<b>Counterparty credit risk</b>	-	12%	47%	41%
<b>Securitization</b>	36%	64%	-	-
<b>Other assets not subject to Standardized or IRB Approaches</b>	-	-	-	100%
<b>Total<sup>2</sup></b>	12%	64%	24%	-

<sup>1</sup> Standardized Approach includes assumptions and waivers granted by OSFI based on an OSFI approved rollout plan. Q2 presentation has been revised to align with Q3 EAD post CRM presentation.

<sup>2</sup> The total for this table is calculated using OSFI's guidance on what exposures are included in the 80% Threshold Calculation for IRB banks.



**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: A-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 A-IRB approach, broken down by asset class and PD range.

As at July 31, 2023

		a	b	c	d	e	f	g	h	i	j	k	l
	PD scale <sup>1</sup>	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 <sup>2</sup>	Average LGD (%)	Average maturity (in years)	RWA	RWA density (%)	EL	Provisions <sup>3</sup>
<b>Asset Classes</b>													
<b>1</b>	<b>Sovereigns</b>												
	0.00 to < 0.15	287,284	24,665	65.15	364,816	0.02	976	12.63	2.04	9,856	2.7	9	
	0.15 to < 0.25	55	15	63.09	64	0.24	38	29.56	2.57	20	31.7	-	
	0.25 to < 0.50	386	19	65.44	398	0.46	224	17.09	2.72	105	26.3	-	
	0.50 to < 0.75	-	-	-	-	-	-	-	-	-	-	-	
	0.75 to < 2.50	87	11	60.76	93	1.26	26	31.84	2.89	66	70.9	-	
	2.50 to < 10.00	1	6	64.79	5	2.84	9	26.31	1.14	3	63.7	-	
	10.00 to < 100.00	-	3	64.91	2	18.68	8	43.93	1.01	4	213.6	-	
	100.00 (default)	39	-	-	39	100.00	7	44.99	2.50	-	0.5	35	
	<b>Total Sovereigns</b>	<b>287,852</b>	<b>24,719</b>	<b>65.15</b>	<b>365,417</b>	<b>0.03</b>	<b>1,288</b>	<b>12.65</b>	<b>2.04</b>	<b>10,054</b>	<b>2.8</b>	<b>44</b>	<b>36</b>
<b>2</b>	<b>Corporates</b>												
	0.00 to < 0.15	25,312	36,644	65.10	50,906	0.09	20,943	35.39	1.85	8,193	16.1	16	
	0.15 to < 0.25	14,102	9,021	54.61	17,408	0.24	7,876	35.10	1.98	5,326	30.6	15	
	0.25 to < 0.50	15,610	8,011	55.95	19,646	0.44	7,542	34.69	2.00	8,136	41.4	30	
	0.50 to < 0.75	-	-	-	-	-	-	-	-	-	-	-	
	0.75 to < 2.50	54,412	32,145	54.08	63,462	1.25	19,786	34.04	2.03	39,656	62.5	272	
	2.50 to < 10.00	11,227	6,476	54.01	11,834	4.22	6,372	35.03	2.09	10,936	92.4	176	
	10.00 to < 100.00	1,477	420	60.01	1,553	25.07	1,570	39.92	2.00	2,825	181.9	153	
	100.00 (default)	867	147	24.59	825	100.00	1,281	40.93	2.18	1,591	192.8	275	
	<b>Total Corporates</b>	<b>123,007</b>	<b>92,864</b>	<b>58.62</b>	<b>165,634</b>	<b>1.62</b>	<b>65,370</b>	<b>34.80</b>	<b>1.97</b>	<b>76,663</b>	<b>46.3</b>	<b>937</b>	<b>1,245</b>
<b>3</b>	<b>Corporate – Specialised Lending</b>												
	0.00 to < 0.15	3,722	2,416	60.11	5,053	0.10	115	37.68	2.95	1,416	28.0	2	
	0.15 to < 0.25	5,020	1,410	56.72	5,820	0.24	163	27.02	2.68	1,717	29.5	4	
	0.25 to < 0.50	5,844	448	57.83	6,140	0.46	298	26.30	2.67	2,267	36.9	7	
	0.50 to < 0.75	-	-	-	-	-	-	-	-	-	-	-	
	0.75 to < 2.50	5,935	1,428	59.01	6,712	1.09	207	27.66	2.97	3,598	53.6	20	
	2.50 to < 10.00	187	5	49.89	154	5.34	5	31.63	1.69	148	96.2	3	
	10.00 to < 100.00	-	-	-	-	-	-	-	-	-	-	-	
	100.00 (default)	627	35	20.00	634	100.00	5	33.83	2.63	1,741	274.7	75	
	<b>Total Corporate – Specialised Lending</b>	<b>21,335</b>	<b>5,742</b>	<b>58.57</b>	<b>24,513</b>	<b>3.11</b>	<b>793</b>	<b>29.42</b>	<b>2.81</b>	<b>10,887</b>	<b>44.4</b>	<b>111</b>	<b>151</b>
<b>4</b>	<b>Total Wholesale</b>	<b>432,194</b>	<b>123,325</b>	<b>59.92</b>	<b>555,564</b>	<b>0.64</b>	<b>67,451</b>	<b>19.99</b>	<b>2.05</b>	<b>97,604</b>	<b>17.6</b>	<b>1,092</b>	<b>1,432</b>

<sup>1</sup> Refer to "Internal ratings map" under the Credit Risk Assessment section in our 2022 Annual Report MD&A.

<sup>2</sup> 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.

<sup>3</sup> Provisions reflect IFRS 9, Stage 1, 2 & 3 allowances under IRB portfolio.



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

As at July 31, 2023

		a	b	c	d	e	f	g	h	i	j	k	l
(Millions of Canadian dollars, except as otherwise noted)	PD scale <sup>1</sup>	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 <sup>2</sup>	Average LGD (%)	Average maturity (in years)	RWA	RWA density (%)	EL	Provisions <sup>3</sup>
Asset Classes													
5	<b>Retail - Residential mortgage exposures</b>												
	0.00 to < 0.15	318,434	126,488	86.91	428,363	0.12	1,605,429	20.81		25,287	5.9	109	
	0.15 to < 0.25	12,701	62	100.00	9,627	0.15	88,787	16.09		517	5.4	2	
	0.25 to < 0.50	45,781	415	100.00	10,992	0.36	175,928	15.00		1,051	9.6	6	
	0.50 to < 0.75	751	-	-	751	0.51	2,645	25.41		151	20.0	1	
	0.75 to < 2.50	30,378	2,324	91.72	26,771	0.88	123,903	22.02		6,887	25.7	52	
	2.50 to < 10.00	10,664	375	91.38	7,971	4.11	55,054	20.20		4,584	57.5	65	
	10.00 to < 100.00	3,024	128	109.02	2,569	26.73	11,312	21.14		2,783	108.3	145	
	100.00 (default)	561	2	5.00	408	100.00	2,685	20.36		198	48.5	76	
	<b>Total Retail - Residential mortgage exposures</b>	<b>422,294</b>	<b>129,794</b>	<b>87.08</b>	<b>487,452</b>	<b>0.46</b>	<b>2,065,743</b>	<b>20.65</b>		<b>41,458</b>	<b>8.5</b>	<b>456</b>	<b>354</b>
5a	<b>Of which: Retail - Retail insured exposure secured by real estate</b>												
	0.00 to < 0.15	-	-	-	-	-	-	-		-	-	-	-
	0.15 to < 0.25	12,560			9,424	0.15	88,694	15.08		465	4.9	2	
	0.25 to < 0.50	42,214			7,011	0.33	172,523	11.51		471	6.7	3	
	0.50 to < 0.75	-			-	-	-	-		-	-	-	-
	0.75 to < 2.50	5,759			20	1.13	26,530	15.37		4	20.8	-	
	2.50 to < 10.00	3,040			4	4.32	17,205	15.09		2	44.4	-	
	10.00 to < 100.00	597			3	38.88	2,918	15.63		2	73.9	-	
	100.00 (default)	155			2	100.00	942	14.41		4	180.2	-	
	<b>Total Retail – Insured exposure secured by real estate</b>	<b>64,325</b>			<b>16,464</b>	<b>0.25</b>	<b>308,812</b>	<b>13.56</b>		<b>948</b>	<b>5.8</b>	<b>5</b>	<b>7</b>
5b	<b>Of which: Retail - uninsured mortgages</b>												
	0.00 to < 0.15	286,541	902	100.00	287,443	0.14	759,377	19.00		16,893	5.9	75	
	0.15 to < 0.25	141	62	100.00	203	0.16	93	62.93		52	25.6	-	
	0.25 to < 0.50	3,393	242	100.00	3,634	0.41	3,006	21.04		520	14.3	3	
	0.50 to < 0.75	751	-	-	751	0.51	2,645	25.41		151	20.0	1	
	0.75 to < 2.50	22,348	500	100.00	22,848	0.90	57,697	21.14		5,745	25.1	44	
	2.50 to < 10.00	6,627	31	100.00	6,658	4.05	22,503	19.09		3,592	53.9	50	
	10.00 to < 100.00	2,118	-	-	2,118	26.56	5,664	20.16		2,188	103.3	113	
	100.00 (default)	314	-	-	314	100.00	1,048	18.67		144	46.0	53	
	<b>Total Retail – uninsured mortgages</b>	<b>322,233</b>	<b>1,737</b>	<b>100.00</b>	<b>323,969</b>	<b>0.55</b>	<b>852,033</b>	<b>19.23</b>		<b>29,285</b>	<b>9.0</b>	<b>339</b>	<b>269</b>

<sup>1</sup> Refer to "Internal ratings map" under the Credit Risk Assessment section in our 2022 Annual Report MD&A.

<sup>2</sup> 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.

<sup>3</sup> Provisions reflect IFRS 9, Stage 1, 2 & 3 allowances under IRB portfolio.



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

As at July 31, 2023

		a	b	c	d	e	f	g	h	i	j	k	l
(Millions of Canadian dollars, except as otherwise noted)	PD scale <sup>1</sup>	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 <sup>2</sup>	Average LGD (%)	Average maturity (in years)	RWA	RWA density (%)	EL	Provisions <sup>3</sup>
<b>Asset Classes</b>													
5c	<b>Of which: HELOCs</b>												
	0.00 to < 0.15	31,893	125,586	86.81	140,920	0.10	846,052	24.49		8,394	6.0	34	
	0.15 to < 0.25	-	-	-	-	-	-	-		-	-	-	
	0.25 to < 0.50	173	173	100.00	346	0.34	441	22.46		60	17.3	-	
	0.50 to < 0.75	-	-	-	-	-	-	-		-	-	-	
	0.75 to < 2.50	2,272	1,824	89.45	3,903	0.76	39,677	27.25		1,137	29.1	8	
	2.50 to < 10.00	997	344	90.60	1,309	4.38	15,347	25.86		991	75.7	15	
	10.00 to < 100.00	309	128	109.02	449	27.41	2,730	25.78		593	132.2	32	
	100.00 (default)	92	2	5.00	92	100.00	695	26.24		50	54.1	23	
	<b>Total HELOC</b>	<b>35,736</b>	<b>128,057</b>	<b>86.90</b>	<b>147,019</b>	<b>0.30</b>	<b>904,942</b>	<b>24.58</b>		<b>11,225</b>	<b>7.6</b>	<b>112</b>	<b>77</b>
6	<b>Qualifying revolving retail</b>												
	0.00 to < 0.15	8,954	58,478	89.09	61,053	0.09	5,695,216	93.20		3,008	4.9	49	
	0.15 to < 0.25	8,984	40,374	84.96	43,284	0.18	2,040,958	90.12		3,748	8.7	69	
	0.25 to < 0.50	851	5,787	87.01	5,886	0.34	3,687,857	90.87		862	14.7	18	
	0.50 to < 0.75	2,899	7,241	89.03	9,346	0.60	1,043,969	93.92		2,269	24.3	53	
	0.75 to < 2.50	7,973	7,818	88.46	14,889	1.62	2,212,508	91.51		7,473	50.2	220	
	2.50 to < 10.00	4,017	2,546	91.43	6,345	4.38	1,193,627	92.65		6,324	99.7	257	
	10.00 to < 100.00	1,094	420	109.16	1,552	30.13	496,774	90.58		3,308	213.2	429	
	100.00 (default)	78	1	5.19	78	100.00	54,441	87.33		167	213.4	55	
	<b>Total Qualifying revolving retail</b>	<b>34,850</b>	<b>122,665</b>	<b>87.71</b>	<b>142,433</b>	<b>0.89</b>	<b>16,425,350</b>	<b>91.98</b>		<b>27,159</b>	<b>19.1</b>	<b>1,150</b>	<b>1,485</b>
7	<b>Retail - SME</b>												
	0.00 to < 0.15	627	3,951	102.91	4,694	0.06	228,932	99.16		807	17.2	3	
	0.15 to < 0.25	408	4,166	93.59	4,307	0.22	110,338	69.81		1,299	30.2	7	
	0.25 to < 0.50	445	1,502	104.51	2,015	0.31	126,856	99.09		1,060	52.5	5	
	0.50 to < 0.75	2,063	68	99.28	1,851	0.54	9,158	37.32		522	28.2	4	
	0.75 to < 2.50	6,318	3,358	95.37	8,650	1.16	219,463	61.92		5,694	65.8	61	
	2.50 to < 10.00	2,732	979	98.12	3,353	5.24	116,465	59.61		2,932	87.5	98	
	10.00 to < 100.00	228	45	112.48	230	40.33	17,397	75.09		373	162.3	70	
	100.00 (default)	219	11	11.80	82	100.00	2,952	68.60		53	64.5	58	
	<b>Total Retail - SME</b>	<b>13,040</b>	<b>14,080</b>	<b>98.14</b>	<b>25,182</b>	<b>1.90</b>	<b>831,561</b>	<b>71.20</b>		<b>12,740</b>	<b>50.6</b>	<b>306</b>	<b>261</b>
8	<b>Other retail</b>												
	0.00 to < 0.15	4,110	2,834	100.18	6,950	0.08	17,018	54.26		817	11.8	3	
	0.15 to < 0.25	2,211	3,474	85.27	5,174	0.17	21,582	85.02		1,620	31.3	8	
	0.25 to < 0.50	8,824	2	97.15	8,825	0.31	331,659	66.62		3,155	35.7	18	
	0.50 to < 0.75	224	237	99.80	461	0.55	1,587	84.88		295	64.1	2	
	0.75 to < 2.50	10,588	482	91.74	10,446	1.12	316,821	61.25		6,912	66.2	76	
	2.50 to < 10.00	2,180	40	89.45	2,114	4.30	98,175	67.49		2,057	97.3	60	
	10.00 to < 100.00	424	10	88.23	319	37.15	21,784	72.61		503	158.1	84	
	100.00 (default)	79	-	5.00	58	100.00	3,798	68.86		56	96.6	35	
	<b>Total Other retail</b>	<b>28,640</b>	<b>7,079</b>	<b>92.19</b>	<b>34,347</b>	<b>1.25</b>	<b>812,424</b>	<b>65.61</b>		<b>15,415</b>	<b>44.9</b>	<b>286</b>	<b>331</b>
9	<b>Total retail</b>	<b>498,824</b>	<b>273,618</b>	<b>88.06</b>	<b>689,414</b>	<b>0.64</b>	<b>20,135,078</b>	<b>39.47</b>		<b>96,772</b>	<b>14.0</b>	<b>2,198</b>	<b>2,431</b>
10	<b>Total A-IRB</b>	<b>931,018</b>	<b>396,943</b>	<b>79.32</b>	<b>1,244,978</b>	<b>0.64</b>	<b>20,202,529</b>	<b>30.78</b>	<b>2.05</b>	<b>194,376</b>	<b>15.6</b>	<b>3,290</b>	<b>3,863</b>

<sup>1</sup> Refer to "Internal ratings map" under the Credit Risk Assessment section in our 2022 Annual Report MD&A.



<sup>2</sup> 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.

<sup>3</sup> Provisions reflect IFRS 9, Stage 1, 2 & 3 allowances under IRB portfolio.



**CR6: F-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 F-IRB approach adopted in Q2 2023, broken down by asset class and PD range. Only Banks and Large Corporates are currently required to follow the Foundation Approach under the CAR guidelines with all other IRB exposures allowed under A-IRB.

As at July 31, 2023

		a	b	c	d	e	f	g	h	i	j	k	l
	(Millions of Canadian dollars, except as otherwise noted)	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 <sup>2</sup>	Average LGD (%)	Average maturity (in years)	RWA	RWA density (%)	EL	Provisions <sup>3</sup>
<b>Asset Classes</b>													
<b>1</b>	<b>Banks</b>												
	0.00 to < 0.15	23,049	3,276	41.91	31,729	0.06	226	39.52	2.50	7,536	23.8	8	
	0.15 to < 0.25	97	94	29.19	146	0.24	16	65.44	3.10	122	83.9	-	
	0.25 to < 0.50	24	374	33.72	148	0.46	31	27.30	1.10	52	35.5	-	
	0.50 to < 0.75	-	-	-	-	-	-	-	-	-	-	-	
	0.75 to < 2.50	156	169	29.34	227	1.03	32	61.48	1.72	262	115.2	1	
	2.50 to < 10.00	11	42	40.02	27	2.64	7	44.98	1.36	30	110.2	-	
	10.00 to < 100.00	-	1	10.00	-	29.26	3	45.00	1.00	-	241.0	-	
	100.00 (default)	-	-	-	-	100.00	4	45.00	2.50	-	562.5	-	
	<b>Total Banks</b>	<b>23,337</b>	<b>3,956</b>	<b>40.27</b>	<b>32,277</b>	<b>0.07</b>	<b>319</b>	<b>39.74</b>	<b>2.49</b>	<b>8,002</b>	<b>24.8</b>	<b>10</b>	<b>4</b>
<b>2</b>	<b>Corporates</b>												
	0.00 to < 0.15	45,374	178,364	40.14	116,588	0.08	5,118	41.65	2.45	30,765	26.4	39	
	0.15 to < 0.25	11,517	19,090	39.18	18,154	0.24	759	42.97	2.84	9,803	54.0	19	
	0.25 to < 0.50	6,251	12,321	41.60	9,869	0.46	613	37.38	2.74	5,804	58.8	17	
	0.50 to < 0.75	-	-	-	-	-	-	-	-	-	-	-	
	0.75 to < 2.50	17,097	28,655	40.52	26,379	1.25	1,488	37.35	2.81	22,699	86.0	124	
	2.50 to < 10.00	3,581	7,422	40.92	5,371	4.16	864	34.19	2.69	5,732	106.7	75	
	10.00 to < 100.00	235	410	48.29	365	29.47	78	39.70	1.52	767	209.9	43	
	100.00 (default)	294	461	61.28	497	100.00	47	33.24	1.50	2,066	415.4	-	
	<b>Total Corporates</b>	<b>84,349</b>	<b>246,723</b>	<b>40.26</b>	<b>177,223</b>	<b>0.76</b>	<b>8,967</b>	<b>40.65</b>	<b>2.56</b>	<b>77,636</b>	<b>43.8</b>	<b>316</b>	<b>290</b>
<b>3</b>	<b>Total F-IRB</b>	<b>107,686</b>	<b>250,679</b>	<b>40.26</b>	<b>209,500</b>	<b>0.65</b>	<b>9,286</b>	<b>40.51</b>	<b>2.55</b>	<b>85,638</b>	<b>40.9</b>	<b>326</b>	<b>294</b>



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

As at April 30, 2023

		a	b	c	d	e	f	g	h	i	j	k	l
	PD scale <sup>1</sup>	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 <sup>2</sup>	Average LGD (%)	Average maturity (in years)	RWA	RWA density (%)	EL	Provisions <sup>3</sup>
<b>Asset Classes</b>													
1	<b>Sovereigns</b>												
	0.00 to < 0.15	304,914	25,522	64.54	383,760	0.02	988	12.56	1.99	10,321	2.7	10	
	0.15 to < 0.25	46	16	66.01	57	0.24	34	32.18	2.35	19	33.5	-	
	0.25 to < 0.50	389	25	63.86	405	0.46	231	17.16	2.62	106	26.0	-	
	0.50 to < 0.75	-	-	-	-	-	-	-	-	-	-	-	
	0.75 to < 2.50	92	16	57.71	101	1.23	36	30.27	2.88	68	67.3	-	
	2.50 to < 10.00	3	7	66.23	8	4.16	12	43.41	1.31	10	124.4	-	
	10.00 to < 100.00	1	3	64.73	4	18.59	6	34.20	1.38	6	168.5	-	
	100.00 (default)	39	-	-	39	100.00	6	44.97	2.50	-	0.2	35	
	<b>Total Sovereigns</b>	<b>305,484</b>	<b>25,589</b>	<b>64.54</b>	<b>384,374</b>	<b>0.03</b>	<b>1,313</b>	<b>12.58</b>	<b>1.99</b>	<b>10,530</b>	<b>2.7</b>	<b>45</b>	<b>36</b>
2	<b>Corporates</b>												
	0.00 to < 0.15	26,567	32,453	62.31	48,747	0.09	20,919	34.94	1.91	8,009	16.4	15	
	0.15 to < 0.25	18,031	9,223	55.29	21,249	0.24	8,121	34.03	2.06	6,381	30.0	17	
	0.25 to < 0.50	18,117	7,785	56.14	21,939	0.45	7,760	32.69	2.19	8,753	39.9	32	
	0.50 to < 0.75	-	-	-	-	-	-	-	-	-	-	-	
	0.75 to < 2.50	58,394	32,119	54.44	67,503	1.24	19,770	33.61	2.12	41,880	62.0	282	
	2.50 to < 10.00	10,811	6,521	53.46	11,177	4.45	6,200	35.20	2.12	10,548	94.4	175	
	10.00 to < 100.00	1,176	348	59.79	1,199	25.13	1,390	39.45	2.00	2,173	181.2	118	
	100.00 (default)	1,130	127	19.29	1,083	100.00	1,240	40.13	2.28	2,850	263.2	261	
	<b>Total Corporates</b>	<b>134,226</b>	<b>88,576</b>	<b>57.46</b>	<b>172,897</b>	<b>1.68</b>	<b>65,400</b>	<b>34.11</b>	<b>2.06</b>	<b>80,594</b>	<b>46.6</b>	<b>900</b>	<b>1,272</b>
3	<b>Corporate – Specialised Lending</b>												
	0.00 to < 0.15	886	612	58.46	1,243	0.10	71	31.00	2.90	287	23.1	-	
	0.15 to < 0.25	2,280	273	59.96	2,444	0.24	117	28.76	2.92	822	33.6	2	
	0.25 to < 0.50	2,564	347	52.24	2,746	0.46	209	27.65	2.60	1,118	40.7	3	
	0.50 to < 0.75	-	-	-	-	-	-	-	-	-	-	-	
	0.75 to < 2.50	862	298	60.60	1,043	1.15	36	32.08	2.78	718	68.8	4	
	2.50 to < 10.00	-	-	-	-	-	-	-	-	-	-	-	
	10.00 to < 100.00	-	-	-	-	-	-	-	-	-	-	-	
	100.00 (default)	100	10	20.00	102	100.00	1	40.00	1.28	55	54.0	36	
	<b>Total Corporate – Specialised Lending</b>	<b>6,692</b>	<b>1,540</b>	<b>57.49</b>	<b>7,578</b>	<b>1.76</b>	<b>434</b>	<b>29.33</b>	<b>2.76</b>	<b>3,000</b>	<b>39.6</b>	<b>45</b>	<b>59</b>
4	<b>Total Wholesale</b>	<b>446,402</b>	<b>115,705</b>	<b>59.03</b>	<b>564,849</b>	<b>0.56</b>	<b>67,147</b>	<b>19.39</b>	<b>2.03</b>	<b>94,124</b>	<b>16.7</b>	<b>990</b>	<b>1,367</b>

<sup>1</sup> Refer to "Internal ratings map" under the Credit Risk Assessment section in our 2022 Annual Report MD&A.

<sup>2</sup> 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.

<sup>3</sup> Provisions reflect IFRS 9, Stage 1, 2 & 3 allowances under IRB portfolio.

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

As at April 30, 2023

		a	b	c	d	e	f	g	h	i	j	k	l
(Millions of Canadian dollars, except as otherwise noted)	PD scale <sup>1</sup>	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 <sup>2</sup>	Average LGD (%)	Average maturity (in years)	RWA	RWA density (%)	EL	Provisions <sup>3</sup>
<b>Asset Classes</b>													
5	<b>Retail - Residential mortgage exposures</b>												
	0.00 to < 0.15	291,966	121,008	86.56	396,709	0.13	1,582,467	20.97		24,043	6.1	105	
	0.15 to < 0.25	12,890	62	100.00	10,293	0.15	91,669	16.00		549	5.3	3	
	0.25 to < 0.50	42,667	275	100.00	5,960	0.33	176,255	11.69		408	6.8	2	
	0.50 to < 0.75	775	-	-	775	0.51	2,692	25.07		153	19.8	1	
	0.75 to < 2.50	27,874	2,130	91.49	24,223	0.87	119,599	21.29		5,956	24.6	45	
	2.50 to < 10.00	10,647	367	91.12	7,870	4.12	56,010	20.36		4,588	58.3	66	
	10.00 to < 100.00	2,339	88	109.52	1,912	25.29	9,498	20.70		2,040	106.7	99	
	100.00 (default)	463	1	5.00	315	100.00	2,584	20.53		136	43.1	64	
	<b>Total Retail - Residential mortgage exposures</b>	<b>389,621</b>	<b>123,931</b>	<b>86.71</b>	<b>448,057</b>	<b>0.42</b>	<b>2,040,774</b>	<b>20.74</b>		<b>37,873</b>	<b>8.5</b>	<b>385</b>	<b>372</b>
5a	<b>Of which: Retail - Retail insured exposure secured by real estate</b>												
	0.00 to < 0.15	-	-	-	-	-	-	-		-	-	-	-
	0.15 to < 0.25	12,743	-	-	10,083	0.15	91,573	15.02		496	4.9	2	
	0.25 to < 0.50	42,651	-	-	5,669	0.33	175,391	11.56		382	6.7	2	
	0.50 to < 0.75	-	-	-	-	-	-	-		-	-	-	-
	0.75 to < 2.50	5,620	-	-	20	1.14	27,009	15.25		4	20.8	-	
	2.50 to < 10.00	3,115	-	-	4	4.33	17,847	15.49		2	45.6	-	
	10.00 to < 100.00	526	-	-	2	37.59	2,662	15.58		2	74.5	-	
	100.00 (default)	150	-	-	2	100.00	956	13.78		4	172.3	-	
	<b>Total Retail – Insured exposure secured by real estate</b>	<b>64,805</b>			<b>15,780</b>	<b>0.24</b>	<b>315,438</b>	<b>13.78</b>		<b>890</b>	<b>5.6</b>	<b>4</b>	<b>6</b>
5b	<b>Of which: Retail - uninsured mortgages</b>												
	0.00 to < 0.15	260,763	694	100.00	261,457	0.14	742,113	19.75		16,510	6.3	74	
	0.15 to < 0.25	148	62	100.00	210	0.16	96	62.93		54	25.5	-	
	0.25 to < 0.50	16	275	100.00	291	0.34	902	14.23		26	8.8	-	
	0.50 to < 0.75	775	-	-	775	0.51	2,692	25.07		153	19.8	1	
	0.75 to < 2.50	20,002	423	100.00	20,426	0.89	54,420	20.76		4,995	24.5	38	
	2.50 to < 10.00	6,544	31	100.00	6,575	4.06	22,681	19.62		3,668	55.8	52	
	10.00 to < 100.00	1,550	3	100.00	1,553	25.09	4,459	20.10		1,616	104.0	77	
	100.00 (default)	230	-	-	230	100.00	962	19.12		97	42.0	42	
	<b>Total Retail – uninsured mortgages</b>	<b>290,028</b>	<b>1,488</b>	<b>100.00</b>	<b>291,517</b>	<b>0.50</b>	<b>828,325</b>	<b>19.86</b>		<b>27,119</b>	<b>9.3</b>	<b>284</b>	<b>285</b>

<sup>1</sup> Refer to "Internal ratings map" under the Credit Risk Assessment section in our 2022 Annual Report MD&A.

<sup>2</sup> 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.

<sup>3</sup> Provisions reflect IFRS 9, Stage 1, 2 & 3 allowances under IRB portfolio.





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

As at April 30, 2023

		a	b	c	d	e	f	g	h	i	j	k	l
	PD scale <sup>1</sup>	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 <sup>2</sup>	Average LGD (%)	Average maturity (in years)	RWA	RWA density (%)	EL	Provisions <sup>3</sup>
<b>Asset Classes</b>													
5c	<b>Of which: HELOCs</b>												
	0.00 to < 0.15	31,202	120,314	86.48	135,252	0.10	839,967	23.33		7,533	5.6	31	
	0.15 to < 0.25	-	-	-	-	-	-	-		-	-	-	
	0.25 to < 0.50	-	-	-	-	-	-	-		-	-	-	
	0.50 to < 0.75	-	-	-	-	-	-	-		-	-	-	
	0.75 to < 2.50	2,252	1,707	89.38	3,777	0.76	38,560	24.15		958	25.4	7	
	2.50 to < 10.00	987	336	90.31	1,291	4.40	15,482	24.16		918	71.1	14	
	10.00 to < 100.00	262	85	109.85	356	26.07	2,377	23.35		423	118.6	22	
	100.00 (default)	83	1	5.00	83	100.00	666	24.61		36	43.0	22	
	<b>Total HELOC</b>	<b>34,786</b>	<b>122,443</b>	<b>86.55</b>	<b>140,759</b>	<b>0.28</b>	<b>897,052</b>	<b>23.36</b>		<b>9,868</b>	<b>7.0</b>	<b>96</b>	<b>81</b>
6	<b>Qualifying revolving retail</b>												
	0.00 to < 0.15	8,514	57,584	89.11	59,828	0.09	5,632,105	93.18		2,946	4.9	48	
	0.15 to < 0.25	8,692	40,788	84.98	43,355	0.18	2,057,048	90.12		3,754	8.7	69	
	0.25 to < 0.50	804	5,723	87.01	5,784	0.34	3,653,163	90.82		848	14.7	18	
	0.50 to < 0.75	2,760	7,132	88.96	9,104	0.60	1,018,660	93.89		2,208	24.3	51	
	0.75 to < 2.50	7,740	7,888	88.38	14,711	1.62	2,209,337	91.47		7,380	50.2	218	
	2.50 to < 10.00	3,946	2,626	91.41	6,346	4.40	1,200,730	92.64		6,343	99.9	258	
	10.00 to < 100.00	1,085	427	104.45	1,531	30.20	463,509	91.12		3,295	215.1	427	
	100.00 (default)	71	1	5.26	71	100.00	41,320	87.43		183	257.4	47	
	<b>Total Qualifying revolving retail</b>	<b>33,612</b>	<b>122,169</b>	<b>87.68</b>	<b>140,730</b>	<b>0.89</b>	<b>16,275,872</b>	<b>91.96</b>		<b>26,957</b>	<b>19.2</b>	<b>1,136</b>	<b>1,445</b>
7	<b>Retail - SME</b>												
	0.00 to < 0.15	602	3,788	102.94	4,502	0.06	220,854	99.14		775	17.2	3	
	0.15 to < 0.25	367	3,978	93.60	4,090	0.22	106,902	69.83		1,234	30.2	6	
	0.25 to < 0.50	422	1,482	104.37	1,969	0.31	124,106	99.07		1,037	52.7	6	
	0.50 to < 0.75	1,955	56	99.01	1,742	0.54	8,780	37.08		488	28.0	4	
	0.75 to < 2.50	6,160	3,387	95.55	8,543	1.16	218,843	62.10		5,637	66.0	60	
	2.50 to < 10.00	2,747	980	97.92	3,369	5.21	115,193	59.13		2,922	86.7	97	
	10.00 to < 100.00	194	44	111.57	201	40.68	16,549	77.39		333	165.6	62	
	100.00 (default)	196	8	11.68	68	100.00	2,503	72.56		52	76.7	48	
	<b>Total Retail - SME</b>	<b>12,643</b>	<b>13,723</b>	<b>98.16</b>	<b>24,484</b>	<b>1.85</b>	<b>813,730</b>	<b>71.14</b>		<b>12,478</b>	<b>51.0</b>	<b>286</b>	<b>254</b>
8	<b>Other retail</b>												
	0.00 to < 0.15	4,191	2,759	100.00	6,950	0.08	17,045	53.80		808	11.6	3	
	0.15 to < 0.25	2,020	3,343	85.24	4,870	0.17	20,611	85.72		1,540	31.6	7	
	0.25 to < 0.50	8,713	2	97.43	8,713	0.31	332,748	66.53		3,112	35.7	18	
	0.50 to < 0.75	228	210	99.72	438	0.55	1,527	84.90		281	64.1	2	
	0.75 to < 2.50	9,897	474	91.61	9,710	1.12	306,842	60.51		6,352	65.4	70	
	2.50 to < 10.00	2,184	34	88.50	2,107	4.29	100,131	67.49		2,050	97.3	60	
	10.00 to < 100.00	412	12	89.40	303	34.29	22,208	72.92		484	159.7	74	
	100.00 (default)	75	-	96.06	56	100.00	3,445	68.30		87	158.1	34	
	<b>Total Other retail</b>	<b>27,720</b>	<b>6,834</b>	<b>92.11</b>	<b>33,147</b>	<b>1.21</b>	<b>804,557</b>	<b>65.28</b>		<b>14,714</b>	<b>44.4</b>	<b>268</b>	<b>327</b>
9	<b>Total retail</b>	<b>463,596</b>	<b>266,657</b>	<b>87.88</b>	<b>646,418</b>	<b>0.62</b>	<b>19,934,933</b>	<b>40.44</b>		<b>92,022</b>	<b>14.2</b>	<b>2,075</b>	<b>2,398</b>
10	<b>Total A-IRB</b>	<b>909,998</b>	<b>382,362</b>	<b>79.15</b>	<b>1,211,267</b>	<b>0.59</b>	<b>20,002,080</b>	<b>30.63</b>	<b>2.03</b>	<b>186,146</b>	<b>15.4</b>	<b>3,065</b>	<b>3,765</b>

<sup>1</sup> Refer to "Internal ratings map" under the Credit Risk Assessment section in our 2022 Annual Report MD&A.



<sup>2</sup> 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.

<sup>3</sup> Provisions reflect IFRS 9, Stage 1, 2 & 3 allowances under IRB portfolio.



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

As at April 30, 2023

		a	b	c	d	e	f	g	h	i	j	k	l
	PD scale <sup>1</sup>	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 <sup>2</sup>	Average LGD (%)	Average maturity (in years)	RWA	RWA density (%)	EL	Provisions <sup>3</sup>
<b>Asset Classes</b>													
1	<b>Banks</b>												
	0.00 to < 0.15	23,067	4,851	54.76	33,149	0.06	254	41.28	2.39	7,986	24.1	8	
	0.15 to < 0.25	111	99	27.78	150	0.24	16	66.02	3.24	132	87.7	-	
	0.25 to < 0.50	16	388	32.97	142	0.46	30	23.37	1.08	42	29.3	-	
	0.50 to < 0.75	-	-	-	-	-	-	-	-	-	-	-	
	0.75 to < 2.50	186	174	31.06	262	1.13	37	60.95	1.87	313	119.1	2	
	2.50 to < 10.00	58	12	44.64	62	2.66	7	45.00	1.30	71	115.6	1	
	10.00 to < 100.00	-	-	-	-	20.13	3	45.00	1.00	-	250.6	-	
	100.00 (default)	-	1	100.00	1	100.00	6	45.00	1.02	5	562.5	-	
	<b>Total Banks</b>	<b>23,438</b>	<b>5,525</b>	<b>51.99</b>	<b>33,766</b>	<b>0.08</b>	<b>353</b>	<b>41.47</b>	<b>2.38</b>	<b>8,549</b>	<b>25.4</b>	<b>11</b>	<b>4</b>
2	<b>Corporates</b>												
	0.00 to < 0.15	51,662	183,659	40.42	125,793	0.08	5,405	41.01	2.44	32,858	26.1	42	
	0.15 to < 0.25	11,771	18,612	39.93	18,280	0.24	770	42.05	2.90	9,732	53.2	18	
	0.25 to < 0.50	6,847	14,504	41.76	11,423	0.46	656	36.87	2.79	6,770	59.3	19	
	0.50 to < 0.75	-	-	-	-	-	-	-	-	-	-	-	
	0.75 to < 2.50	17,481	30,627	40.51	27,556	1.25	1,431	36.91	2.95	23,716	86.1	127	
	2.50 to < 10.00	3,412	7,605	41.61	5,457	3.92	834	34.36	2.81	5,840	107.0	72	
	10.00 to < 100.00	360	325	40.06	447	28.63	79	39.59	1.61	934	209.2	51	
	100.00 (default)	305	478	63.48	528	100.00	46	31.49	1.61	2,078	393.6	-	
	<b>Total Corporates</b>	<b>91,838</b>	<b>255,810</b>	<b>40.55</b>	<b>189,484</b>	<b>0.74</b>	<b>9,221</b>	<b>40.04</b>	<b>2.58</b>	<b>81,928</b>	<b>43.2</b>	<b>329</b>	<b>312</b>
3	<b>Total F-IRB</b>	<b>115,276</b>	<b>261,335</b>	<b>40.79</b>	<b>223,250</b>	<b>0.65</b>	<b>9,574</b>	<b>40.13</b>	<b>2.55</b>	<b>90,477</b>	<b>40.6</b>	<b>340</b>	<b>316</b>

**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. Currently no credit derivatives are used for mitigation.

As at July 31, 2023

	(Millions of Canadian dollars)	a	b
		Pre-credit derivatives RWA	Actual RWA
1	Sovereign - F-IRB	-	-
2	Sovereign - A-IRB	-	-
3	Banks - F-IRB	-	-
4	Banks - A-IRB	-	-
5	Other securities firms treated as Bank - F-IRB	-	-
6	Other securities firms treated as Bank - A-IRB	-	-
7	Corporate - F-IRB	-	-
8	Corporate - A-IRB	-	-
9	Other securities firms treated as Corporate - F-IRB	-	-
10	Other securities firms treated as Corporate - A-IRB	-	-
11	Specialised lending - F-IRB	-	-
12	Specialised lending - A-IRB	-	-
13	Retail - qualifying revolving (QRRE)	-	-
14	Retail - residential mortgage exposures	-	-
15	Retail - SME	-	-
16	Other retail exposures	-	-
17	Equity - F-IRB	-	-
18	Equity - A-IRB	-	-
19	Purchased receivables - F-IRB	-	-
20	Purchased receivables - A-IRB	-	-
21	<b>Total</b>	-	-

As at April 30, 2023

	(Millions of Canadian dollars)	a	b
		Pre-credit derivatives RWA	Actual RWA
1	Sovereign - F-IRB	-	-
2	Sovereign - A-IRB	-	-
3	Banks - F-IRB	-	-
4	Banks - A-IRB	-	-
5	Other securities firms treated as Bank - F-IRB	-	-
6	Other securities firms treated as Bank - A-IRB	-	-
7	Corporate - F-IRB	-	-
8	Corporate - A-IRB	-	-
9	Other securities firms treated as Corporate - F-IRB	-	-
10	Other securities firms treated as Corporate - A-IRB	-	-
11	Specialised lending - F-IRB	-	-
12	Specialised lending - A-IRB	-	-
13	Retail - qualifying revolving (QRRE)	-	-
14	Retail - residential mortgage exposures	-	-
15	Retail - SME	-	-
16	Other retail exposures	-	-
17	Equity - F-IRB	-	-
18	Equity - A-IRB	-	-
19	Purchased receivables - F-IRB	-	-
20	Purchased receivables - A-IRB	-	-
21	<b>Total</b>	-	-



**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 <sup>1</sup>	
(Millions of Canadian dollars)		As at July 31, 2023	As at April 30, 2023
<b>1</b>	<b>RWA as at end of previous reporting period</b>	<b>437,132</b>	<b>457,605</b>
2	Asset size <sup>2</sup>	2,735	457
3	Asset quality <sup>3</sup>	1,396	1,038
4	Model updates <sup>4</sup>	(1,681)	1,317
5	Methodology and policy <sup>5</sup>	(1,100)	(26,659)
6	Acquisitions and disposals	(1,152)	-
7	Foreign exchange movements	(5,382)	3,633
8	Other	(95)	(259)
<b>9</b>	<b>RWA as at end of reporting period</b>	<b>431,853</b>	<b>437,132</b>

<sup>1</sup> RWA flow amounts include both IRB and Standardized Approach figures reflecting our approved roll-out plan for transition to IRB.

<sup>2</sup> Organic changes in portfolio size and composition (including new business and maturing loans).

<sup>3</sup> Quality of book changes caused by experience such as underlying customer behaviour or demographics and credit mitigation.

<sup>4</sup> 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.

<sup>5</sup> Methodology changes to the calculations driven by regulatory policy changes.

**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 2022 Annual Report and incorporated by reference into this Pillar 3 report. Our 2022 Annual Report is available free of charge on our website at <http://www.rbc.com/investorrelations>

Pillar 3 disclosures requirement		RBC 2022 Annual Report section	Sub-section
a)	Risk management objectives and policies related to counterparty credit risk	Credit risk	Credit risk assessment – <i>Counterparty credit risk</i>
		Consolidated Financial Statements	Note 9 - Derivative financial instruments and hedging activities – <i>Derivative-related credit risk</i>
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 – <i>Counterparty credit risk</i>
c)	Policies relating to guarantees and other risk mitigants and assessments concerning counterparty credit risk, including exposures towards CCPs	Credit risk	Credit risk assessment – <i>Counterparty credit risk</i>
		Consolidated Financial Statements	Note 9 - Derivative financial instruments and hedging activities – <i>Derivative-related credit risk</i> Note 30 - Offsetting financial assets and financial liabilities
d)	Policies with respect to wrong-way risk exposures	Credit risk	Credit risk assessment – <i>Wrong-way risk</i>
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 July 31, 2023

		a	b	c	d	e	f
		Replacement Cost	Potential future exposure	EEPE	Alpha used for computing regulatory EAD	EAD post-CRM	RWA
	(Millions of Canadian dollars, except as otherwise noted)						
1	SA-CCR (for derivatives)	16,496	37,425		1.4	75,152	18,108
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)					186,540	7,103
5	Value-at-Risk (VaR) for SFTs						
<b>6</b>	<b>Total</b>						<b>25,211</b>

As at April 30, 2023

		a	b	c	d	e	f
		Replacement Cost	Potential future exposure	EEPE	Alpha used for computing regulatory EAD	EAD post-CRM	RWA
	(Millions of Canadian dollars, except as otherwise noted)						
1	SA-CCR (for derivatives)	19,485	39,168		1.4	81,739	21,115
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)					191,254	6,910
5	Value-at-Risk (VaR) for SFTs						
<b>6</b>	<b>Total</b>						<b>28,025</b>

**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 July 31, 2023

(Millions of Canadian dollars)		a	b
		EAD post-CRM <sup>1</sup>	RWA <sup>1</sup>
	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	75,489	12,855
<b>4</b>	<b>Total subject to the CVA capital charge</b>	<b>75,489</b>	<b>12,855</b>

<sup>1</sup> 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 April 30, 2023

(Millions of Canadian dollars)		a	b
		EAD post-CRM <sup>1</sup>	RWA <sup>1</sup>
	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	82,113	14,085
<b>4</b>	<b>Total subject to the CVA capital charge</b>	<b>82,113</b>	<b>14,085</b>

<sup>1</sup> 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 July 31, 2023

	a	b	c	d	e	f	g	h	i	j	k	l	m	n
Risk weight	0%	10%	20%	30%	40%	50%	75%	80%	85%	100%	130%	150%	Others	Total credit exposure
Regulatory portfolio (Millions of Canadian dollars)														
Sovereigns	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Non-central government public sector entities (PSEs)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Multilateral development banks (MDBs)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Banks	-	-	1	17	-	-	-	-	-	5	-	-	-	23
Securities firms and other financial institutions treated as Banks	-	-	-	-	-	-	-	-	-	16	-	-	-	16
Corporates	-	-	1	-	-	6	-	-	85	385	-	-	-	477
Of which: specialised lending	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Securities firms and other financial institutions treated as Corporate	-	-	-	-	-	-	-	-	-	6	-	-	-	6
Regulatory retail portfolios	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other assets	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total</b>	-	-	<b>2</b>	<b>17</b>	-	<b>6</b>	-	-	<b>85</b>	<b>412</b>	-	-	-	<b>522</b>



**CCR3: Standardized approach – CCR exposures by regulatory portfolio and risk weights (continued)**

As at April 30, 2023

	a	b	c	d	e	f	g	h	i	j	k	l	m	n
Risk weight <sup>1</sup>	0%	10%	20%	30%	40%	50%	75%	80%	85%	100%	130%	150%	Others	Total credit exposure
Regulatory portfolio (Millions of Canadian dollars)														
Sovereigns	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Non-central government public sector entities (PSEs)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Multilateral development banks (MDBs)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Banks	-	-	1	11	-	-	-	-	-	6	-	-	-	18
Securities firms and other financial institutions treated as Banks	-	-	-	-	-	8	-	-	-	29	-	-	-	29
Corporates	-	-	2	-	-	-	-	-	145	1,663	-	-	-	1,818
Of which: specialised lending	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Securities firms and other financial institutions treated as Corporate	-	-	-	-	-	-	-	-	-	12	-	-	-	12
Regulatory retail portfolios	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other assets	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total</b>	-	-	<b>3</b>	<b>11</b>	-	<b>8</b>	-	-	<b>145</b>	<b>1,710</b>	-	-	-	<b>1,877</b>

<sup>1</sup> Presentation has been revised to align with Q3.

**CCR4: A-IRB – CCR exposures by portfolio and PD scale**

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

As at July 31, 2023

(Millions of Canadian dollars, except as otherwise noted)	PD scale <sup>1</sup>	a	b	c	d	e	f	g
		EAD post-CRM	Average PD (%)	Number of obligors	Average LGD (%)	Average maturity (in years)	RWA	RWA density (%)
<b>Asset classes</b>								
<b>Sovereigns</b>	0.00 to < 0.15	33,522	0.04	290	10.90	1.46	1,043	3.1
	0.15 to < 0.25	27	0.24	8	40.00	1.02	8	30.1
	0.25 to < 0.50	12	0.46	4	36.65	1.27	5	42.1
	0.50 to < 0.75	-	-	-	-	-	-	-
	0.75 to < 2.50	3	0.86	4	40.00	1.36	2	64.7
	2.50 to < 10.00	-	-	-	-	-	-	-
	10.00 to < 100.00	-	-	-	-	-	-	-
	100.00 (default)	2	100.00	1	40.00	1.00	8	500.0
<b>Total sovereigns</b>		<b>33,566</b>	<b>0.05</b>	<b>307</b>	<b>10.93</b>	<b>1.46</b>	<b>1,066</b>	<b>3.2</b>
<b>Corporates</b>	0.00 to < 0.15	13,098	0.07	928	7.87	0.69	453	3.5
	0.15 to < 0.25	222	0.24	185	35.27	3.10	88	39.6
	0.25 to < 0.50	174	0.46	189	32.94	1.67	73	41.6
	0.50 to < 0.75	-	-	-	-	-	-	-
	0.75 to < 2.50	1,231	1.46	488	36.09	1.94	915	74.3
	2.50 to < 10.00	199	5.49	111	48.39	3.53	360	181.0
	10.00 to < 100.00	7	31.26	10	40.08	1.43	15	211.3
	100.00 (default)	-	100.00	1	40.00	1.00	-	500.0
<b>Total corporates</b>		<b>14,931</b>	<b>0.28</b>	<b>1,912</b>	<b>11.45</b>	<b>0.88</b>	<b>1,903</b>	<b>12.7</b>
<b>Total</b>		<b>48,497</b>	<b>0.12</b>	<b>2,219</b>	<b>11.09</b>	<b>1.28</b>	<b>2,969</b>	<b>6.1</b>

<sup>1</sup> Refer to "Internal ratings map" in the Credit risk assessment section in our 2022 Annual Report MD&A.

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

As at April 30, 2023

(Millions of Canadian dollars, except as otherwise noted)	PD scale <sup>1</sup>	a	b	c	d	e	f	g
		EAD post-CRM	Average PD (%)	Number of obligors	Average LGD (%)	Average maturity (in years)	RWA	RWA density (%)
<b>Asset classes</b>								
<b>Sovereigns</b>	0.00 to < 0.15	39,177	0.05	304	7.99	1.29	998	2.5
	0.15 to < 0.25	29	0.24	8	40.04	1.04	9	30.4
	0.25 to < 0.50	20	0.46	5	35.78	1.48	9	42.4
	0.50 to < 0.75	-	-	-	-	-	-	-
	0.75 to < 2.50	2	0.84	4	40.00	2.48	2	76.8
	2.50 to < 10.00	-	-	-	-	-	-	-
	10.00 to < 100.00	-	-	-	-	-	-	-
	100.00 (default)	27	100.00	1	40.00	1.00	134	500.0
<b>Total sovereigns</b>		<b>39,254</b>	<b>0.12</b>	<b>322</b>	<b>8.06</b>	<b>1.29</b>	<b>1,151</b>	<b>2.9</b>
<b>Corporates</b>								
	0.00 to < 0.15	14,462	0.07	1,170	10.78	0.84	669	4.6
	0.15 to < 0.25	257	0.24	204	35.68	3.64	112	43.7
	0.25 to < 0.50	221	0.46	179	34.80	2.07	102	46.1
	0.50 to < 0.75	-	-	-	-	-	-	-
	0.75 to < 2.50	1,588	1.48	449	37.45	2.26	1,280	80.6
	2.50 to < 10.00	255	5.83	111	50.15	3.77	497	195.0
	10.00 to < 100.00	10	31.19	10	40.02	1.68	21	211.9
	100.00 (default)	-	100.00	3	44.59	1.00	-	557.3
<b>Total corporates</b>		<b>16,794</b>	<b>0.32</b>	<b>2,126</b>	<b>14.62</b>	<b>1.08</b>	<b>2,682</b>	<b>16.0</b>
<b>Total</b>		<b>56,048</b>	<b>0.18</b>	<b>2,448</b>	<b>10.02</b>	<b>1.23</b>	<b>3,833</b>	<b>6.8</b>

<sup>1</sup> Refer to "Internal ratings map" in the Credit risk assessment section in our 2022 Annual Report MD&A.

**CCR4: F-IRB – CCR exposures by portfolio and PD scale**

The following table presents a detailed view of CCR exposures subject to F-IRB approach adopted Q2 2023 by asset classes and PD scale. Only Banks and Large Corporates are currently required to follow the Foundation Approach under the CAR guidelines with all other IRB exposures allowed under A-IRB.

As at July 31, 2023

(Millions of Canadian dollars, except as otherwise noted)	PD scale <sup>1</sup>	a	b	c	d	e	f	g
		EAD post-CRM	Average PD (%)	Number of obligors	Average LGD (%)	Average maturity (in years)	RWA	RWA density (%)
<b>Asset classes</b>								
<b>Banks</b>								
	0.00 to < 0.15	105,286	0.06	272	11.89	0.74	5,485	5.2
	0.15 to < 0.25	199	0.24	25	40.92	1.52	89	45.0
	0.25 to < 0.50	2,175	0.46	16	4.03	0.56	103	4.7
	0.50 to < 0.75	-	-	-	-	-	-	-
	0.75 to < 2.50	354	1.26	28	19.01	0.57	118	33.3
	2.50 to < 10.00	1	3.04	2	45.00	0.58	1	104.0
	10.00 to < 100.00	-	-	-	-	-	-	-
	100.00 (default)	6	100.00	2	45.00	1.26	33	562.5
<b>Total banks</b>		<b>108,021</b>	<b>0.08</b>	<b>345</b>	<b>11.81</b>	<b>0.74</b>	<b>5,829</b>	<b>5.4</b>
<b>Corporates</b>								
	0.00 to < 0.15	97,619	0.07	7,349	32.15	0.78	11,436	11.7
	0.15 to < 0.25	2,224	0.24	357	40.68	1.31	878	39.5
	0.25 to < 0.50	2,028	0.46	136	42.33	1.58	1,227	60.5
	0.50 to < 0.75	-	-	-	-	-	-	-
	0.75 to < 2.50	2,618	1.21	212	41.96	1.23	2,171	82.9
	2.50 to < 10.00	157	4.05	58	40.96	1.93	195	123.9
	10.00 to < 100.00	7	19.74	4	40.00	1.00	13	195.7
	100.00 (default)	-	-	-	-	-	-	-
<b>Total corporates</b>		<b>104,653</b>	<b>0.11</b>	<b>8,116</b>	<b>32.78</b>	<b>0.82</b>	<b>15,920</b>	<b>15.2</b>
<b>Total</b>		<b>212,674</b>	<b>0.10</b>	<b>8,461</b>	<b>22.13</b>	<b>0.78</b>	<b>21,749</b>	<b>10.2</b>

<sup>1</sup> Refer to "Internal ratings map" in the Credit risk assessment section in our 2022 Annual Report MD&A.



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

As at April 30, 2023

(Millions of Canadian dollars, except as otherwise noted)	PD scale <sup>1</sup>	a	b	c	d	e	f	g
		EAD post-CRM	Average PD (%)	Number of obligors	Average LGD (%)	Average maturity (in years)	RWA	RWA density (%)
<b>Asset classes</b>								
<b>Banks</b>								
	0.00 to < 0.15	109,114	0.07	297	12.29	0.75	5,835	5.3
	0.15 to < 0.25	201	0.24	23	40.39	1.63	93	46.2
	0.25 to < 0.50	2,252	0.46	18	3.53	0.55	93	4.1
	0.50 to < 0.75	-	-	-	-	-	-	-
	0.75 to < 2.50	391	1.00	26	20.30	0.60	138	35.2
	2.50 to < 10.00	-	6.40	1	45.00	5.00	-	192.9
	10.00 to < 100.00	-	-	-	-	-	-	-
	100.00 (default)	7	100.00	2	45.00	1.16	39	562.5
<b>Total banks</b>		<b>111,965</b>	<b>0.08</b>	<b>367</b>	<b>12.19</b>	<b>0.74</b>	<b>6,198</b>	<b>5.5</b>
<b>Corporates</b>								
	0.00 to < 0.15	96,280	0.06	7,297	33.17	0.79	11,579	12.0
	0.15 to < 0.25	1,850	0.24	355	42.37	1.41	786	42.5
	0.25 to < 0.50	2,093	0.46	129	42.30	1.66	1,289	61.6
	0.50 to < 0.75	-	-	-	-	-	-	-
	0.75 to < 2.50	2,640	1.24	229	41.40	1.44	2,186	82.8
	2.50 to < 10.00	224	3.79	53	41.35	2.09	282	125.6
	10.00 to < 100.00	16	19.71	4	40.00	1.01	31	195.7
	100.00 (default)	-	-	-	-	-	-	-
<b>Total corporates</b>		<b>103,103</b>	<b>0.12</b>	<b>8,067</b>	<b>33.75</b>	<b>0.83</b>	<b>16,153</b>	<b>15.7</b>
<b>Total</b>		<b>215,068</b>	<b>0.10</b>	<b>8,434</b>	<b>22.52</b>	<b>0.79</b>	<b>22,351</b>	<b>10.4</b>

<sup>1</sup> Refer to "Internal ratings map" in the Credit risk assessment section in our 2022 Annual Report MD&A.

**CCR5: Composition of collateral for CCR exposure**

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

As at July 31, 2023

(Millions of Canadian dollars)	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
	Segregated	Unsegregated	Segregated	Unsegregated		
Cash - domestic currency	89	2,316	132	2,534	44,657	61,352
Cash - other currencies	5,573	17,418	11,939	16,453	387,093	374,041
Domestic sovereign debt	766	1,399	3,927	1,145	125,455	132,895
Other sovereign debt	4,497	2,004	5,631	3,253	294,660	296,223
Government agency debt	616	688	208	2,021	83,562	94,389
Corporate bonds	2,471	985	1,664	6	42,375	52,348
Equity securities	954	-	1,180	3,588	96,671	161,144
Other collateral	-	28	-	-	28,241	6,471
<b>Total</b>	<b>14,966</b>	<b>24,838</b>	<b>24,681</b>	<b>29,000</b>	<b>1,102,714</b>	<b>1,178,863</b>

As at April 30, 2023

(Millions of Canadian dollars)	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
	Segregated	Unsegregated	Segregated	Unsegregated		
Cash - domestic currency	91	2,593	144	3,867	43,078	60,882
Cash - other currencies	5,695	17,950	14,493	18,545	356,384	370,235
Domestic sovereign debt	452	1,114	2,477	487	125,883	125,947
Other sovereign debt	4,723	2,026	5,388	1,613	285,496	266,888
Government agency debt	270	644	384	2,236	88,774	101,258
Corporate bonds	2,117	1,043	2,044	-	40,579	48,928
Equity securities	1,122	29	113	3,662	98,749	159,777
Other collateral	-	-	-	-	27,216	6,915
<b>Total</b>	<b>14,470</b>	<b>25,399</b>	<b>25,043</b>	<b>30,410</b>	<b>1,066,159</b>	<b>1,140,830</b>

**CCR6: Credit derivatives exposures**

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

As at July 31, 2023

(Millions of Canadian dollars)	a	b
	Protection bought	Protection sold
<b>Notionals</b>		
Single-name credit default swaps	10,110	17,840
Index credit default swaps	66,809	51,612
Total return swaps	-	-
Credit options	14,187	12,069
Other credit derivatives	-	-
<b>Total notionals</b>	<b>91,106</b>	<b>81,521</b>
<b>Fair values</b>		
Positive fair value (asset)	55	243
Negative fair value (liability)	48	61

As at April 30, 2023

(Millions of Canadian dollars)	a	b
	Protection bought	Protection sold
<b>Notionals</b>		
Single-name credit default swaps	10,036	16,844
Index credit default swaps	58,854	45,582
Total return swaps	-	-
Credit options	1,009	-
Other credit derivatives	-	-
<b>Total notionals</b>	<b>69,899</b>	<b>62,426</b>
<b>Fair values</b>		
Positive fair value (asset)	105	291
Negative fair value (liability)	22	122

**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 July 31, 2023

(Millions of Canadian dollars)		a	b
		EAD (post-CRM)	RWA
<b>1</b>	<b>Exposures to QCCPs (total)</b>	<b>46,118</b>	<b>755</b>
2	Exposures for trades at QCCPs (excluding initial margin and default fund contributions); of which	30,767	722
3	(i) OTC derivatives	11,426	335
4	(ii) Exchange-traded derivatives	15,504	310
5	(iii) Securities financing transactions	3,837	77
6	(iv) Netting sets where cross-product netting has been approved	-	-
7	Segregated initial margin	6,344	
8	Non-segregated initial margin	1,380	-
	Pre-funded default fund contributions	1,593	33
	Unfunded default fund contributions <sup>1</sup>	6,034	-
<b>9</b>	<b>Exposures to non-QCCPs (total)</b>		
10	Exposures for trades at non-QCCPs (excluding initial margin and default fund contributions); of which		
11	(i) OTC derivatives		
12	(ii) Exchange-traded derivatives		
13	(iii) Securities financing transactions		
14	(iv) Netting sets where cross-product netting has been approved		
15	Segregated initial margin		
16	Non-segregated initial margin		
	Pre-funded default fund contributions		
	Unfunded default fund contributions		

<sup>1</sup> Unfunded default fund contributions are risk weighted at 0%.

**CCR8: Exposures to central counterparties (continued)**

As at April 30, 2023

(Millions of Canadian dollars)		a	b
		EAD (post-CRM)	RWA
<b>1</b>	<b>Exposures to QCCPs (total)</b>	<b>44,599</b>	<b>653</b>
2	Exposures for trades at QCCPs (excluding initial margin and default fund contributions); of which	27,943	619
3	(i) OTC derivatives	10,334	266
4	(ii) Exchange-traded derivatives	14,635	293
5	(iii) Securities financing transactions	2,974	60
6	(iv) Netting sets where cross-product netting has been approved	-	-
7	Segregated initial margin	6,991	
8	Non-segregated initial margin	1,967	-
	Pre-funded default fund contributions	1,628	34
	Unfunded default fund contributions <sup>1</sup>	6,070	-
<b>9</b>	<b>Exposures to non-QCCPs (total)</b>		
10	Exposures for trades at non-QCCPs (excluding initial margin and default fund contributions); of which		
11	(i) OTC derivatives		
12	(ii) Exchange-traded derivatives		
13	(iii) Securities financing transactions		
14	(iv) Netting sets where cross-product netting has been approved		
15	Segregated initial margin		
16	Non-segregated initial margin		
	Pre-funded default fund contributions		
	Unfunded default fund contributions		

<sup>1</sup> 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 2022 Annual Report and incorporated by reference into this Pillar 3 report. Our 2022 Annual Report is available free of charge on our website at <http://www.rbc.com/investorrelations>

Pillar 3 disclosures requirement		RBC 2022 Annual Report section	Sub-section
a)	Objectives in relation to securitization activities	Off-balance sheet arrangements	Off-balance sheet arrangements
		Consolidated Financial Statements	Note 7 - Derecognition of financial assets
		Consolidated Financial Statements	Note 8 - Structured entities
b)	List of SPEs where RBC is sponsor / provides implicit support	Consolidated Financial Statements	Note 8 - 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 July 31, 2023

	a	b	c	d	e	f	g	h	i	j	k	l												
													Bank acts as originator <sup>1</sup>				Bank acts as sponsor <sup>2</sup>				Bank acts as investor <sup>3</sup>			
													Traditional	Of which simple, transparent and comparable (STC)	Synthetic	Sub-total	Traditional	Of which STC	Synthetic	Sub-total	Traditional	Of which STC	Synthetic	Sub-total
(Millions of Canadian dollars)																								
<b>1 Retail (total)</b>	-	-	-	-	<b>35,667</b>	<b>31,070</b>	-	<b>35,667</b>	<b>562</b>	-	-	<b>562</b>												
- of which																								
2 residential mortgage					3,326	2,273		3,326	2	-		2												
3 credit card					5,395	4,369		5,395	-	-		-												
4 other retail exposures					26,946	24,428		26,946	560	-		560												
4a of which student loans					3,185	3,185		3,185	521			521												
4b of which auto loans and leases					17,070	16,241		17,070	39			39												
4c of which consumer loans					6,691	5,002		6,691	-			-												
4d of which other retail					-	-		-	-			-												
5 re-securitization					-	-		-	-			-												
<b>6 Wholesale (total)</b>			<b>1,161</b>	<b>1,161</b>	<b>19,449</b>	<b>12,896</b>		<b>19,449</b>	<b>10,668</b>	-		<b>10,668</b>												
- of which																								
7 loans to corporates			1,161	1,161	3,538	-		3,538	8,092	-		8,092												
8 commercial mortgage					-	-		-	1,471	-		1,471												
9 lease and receivables					-	-		-	-	-		-												
10 other wholesale					15,911	12,896		15,911	1,105	-		1,105												
10a of which dealer floor plan receivable					1,729	1,614		1,729	-	-		-												
10b of which equipment receivable					4,327	4,171		4,327	-	-		-												
10c of which trade receivable					222	222		222	-	-		-												
10d of which other wholesale					9,633	6,889		9,633	1,105	-		1,105												
11 re-securitization																								

<sup>1</sup> Bank acts as originator reflects securitization activities in which we securitize our own assets (e.g. Golden credit card securitization).

<sup>2</sup> 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.

<sup>3</sup> Bank acts as investor reflects purchases of securitization assets from the market.



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

As at April 30, 2023

	a	b	c	d	e	f	g	h	i	j	k	l
	Bank acts as originator <sup>1</sup>				Bank acts as sponsor <sup>2</sup>				Bank acts as investor <sup>3</sup>			
	Traditional	Of which simple, transparent and comparable (STC)	Synthetic	Sub-total	Traditional	Of which STC	Synthetic	Sub-total	Traditional	Of which STC	Synthetic	Sub-total
(Millions of Canadian dollars)												
<b>1</b>	<b>Retail (total)</b>	-	-	-	<b>35,907</b>	<b>31,379</b>	-	<b>35,907</b>	<b>281</b>	-	-	<b>281</b>
	- of which											
2	residential mortgage				2,995	1,923		2,995	2	-		2
3	credit card				5,529	4,469		5,529	-	-		-
4	other retail exposures				27,383	24,987		27,383	279	-		279
4a	of which student loans				3,601	3,601		3,601	239			239
4b	of which auto loans and leases				17,063	16,237		17,063	40			40
4c	of which consumer loans				6,719	5,151		6,719	-			-
4d	of which other retail				-	-		-	-			-
5	re-securitization				-	-		-	-			-
<b>6</b>	<b>Wholesale (total)</b>		<b>1,162</b>	<b>1,162</b>	<b>18,536</b>	<b>12,329</b>		<b>18,536</b>	<b>11,508</b>	-		<b>11,508</b>
	- of which											
7	loans to corporates		1,162	1,162	3,443	-		3,443	10,232	-		10,232
8	commercial mortgage				-	-		-	72	-		72
9	lease and receivables				-	-		-	-	-		-
10	other wholesale				15,093	12,329		15,093	1,204	-		1,204
10a	of which dealer floor plan receivable				1,723	1,609		1,723	-	-		-
10b	of which equipment receivable				4,434	4,275		4,434	-	-		-
10c	of which trade receivable				229	229		229	-	-		-
10d	of which other wholesale				8,707	6,216		8,707	1,204	-		1,204
11	re-securitization											

<sup>1</sup> Bank acts as originator reflects securitization activities in which we securitize our own assets (e.g. Golden credit card securitization).

<sup>2</sup> 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.

<sup>3</sup> 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 July 31, 2023

	(Millions of Canadian dollars)	a	b	c	d	e	f	g	h	i	j	k	l
		Bank acts as originator <sup>1</sup>				Bank acts as sponsor <sup>2</sup>				Bank acts as investor <sup>3</sup>			
		Traditional	Of which STC	Synthetic	Sub-total	Traditional	Of which STC	Synthetic	Sub-total	Traditional	Of which STC	Synthetic	Sub-total
<b>1</b>	<b>Retail (total)</b>	-	-	-	-	-	-	-	-	<b>112</b>	-	-	<b>112</b>
	<b>- of which</b>												
2	residential mortgages	-	-	-	-	-	-	-	-	4	-	-	4
3	credit cards	-	-	-	-	-	-	-	-	18	-	-	18
4	other retail exposures	-	-	-	-	-	-	-	-	90	-	-	90
4a	of which student loans	-	-	-	-	-	-	-	-	22	-	-	22
4b	of which auto loans and leases	-	-	-	-	-	-	-	-	64	-	-	64
4c	of which consumer loans	-	-	-	-	-	-	-	-	4	-	-	4
4d	of which other retail	-	-	-	-	-	-	-	-	-	-	-	-
5	re-securitization	-	-	-	-	-	-	-	-	-	-	-	-
<b>6</b>	<b>Wholesale (total)</b>	-	-	-	-	-	-	-	-	<b>1,136</b>	-	-	<b>1,136</b>
	<b>- of which</b>												
7	loans to corporates	-	-	-	-	-	-	-	-	330	-	-	330
8	commercial mortgages	-	-	-	-	-	-	-	-	9	-	-	9
9	leases and receivables	-	-	-	-	-	-	-	-	-	-	-	-
10	other wholesale exposures	-	-	-	-	-	-	-	-	797	-	-	797
10a	of which dealer floor plan receivables	-	-	-	-	-	-	-	-	-	-	-	-
10b	of which equipment receivables	-	-	-	-	-	-	-	-	4	-	-	4
10c	of which trade receivables	-	-	-	-	-	-	-	-	-	-	-	-
10d	of which other wholesale	-	-	-	-	-	-	-	-	793	-	-	793
11	re-securitization	-	-	-	-	-	-	-	-	-	-	-	-

<sup>1</sup> Bank acts as originator reflects securitization activities in which we securitize our own assets.

<sup>2</sup> 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.

<sup>3</sup> Bank acts as investor reflects purchases of securitization assets from the market.



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

As at April 30, 2023

	(Millions of Canadian dollars)	a	b	c	d	e	f	g	h	i	j	k	l
		Bank acts as originator <sup>1</sup>				Bank acts as sponsor <sup>2</sup>				Bank acts as investor <sup>3</sup>			
		Traditional	Of which STC	Synthetic	Sub-total	Traditional	Of which STC	Synthetic	Sub-total	Traditional	Of which STC	Synthetic	Sub-total
<b>1</b>	<b>Retail (total)</b>	-	-	-	-	-	-	-	-	<b>221</b>	-	-	<b>221</b>
	<b>- of which</b>												
2	residential mortgages	-	-	-	-	-	-	-	-	3	-	-	3
3	credit cards	-	-	-	-	-	-	-	-	14	-	-	14
4	other retail exposures	-	-	-	-	-	-	-	-	204	-	-	204
4a	of which student loans	-	-	-	-	-	-	-	-	36	-	-	36
4b	of which auto loans and leases	-	-	-	-	-	-	-	-	161	-	-	161
4c	of which consumer loans	-	-	-	-	-	-	-	-	7	-	-	7
4d	of which other retail	-	-	-	-	-	-	-	-	-	-	-	-
5	re-securitization	-	-	-	-	-	-	-	-	-	-	-	-
<b>6</b>	<b>Wholesale (total)</b>	-	-	-	-	-	-	-	-	<b>1,105</b>	-	-	<b>1,105</b>
	<b>- of which</b>												
7	loans to corporates	-	-	-	-	-	-	-	-	210	-	-	210
8	commercial mortgages	-	-	-	-	-	-	-	-	26	-	-	26
9	leases and receivables	-	-	-	-	-	-	-	-	-	-	-	-
10	other wholesale exposures	-	-	-	-	-	-	-	-	869	-	-	869
10a	of which dealer floor plan receivables	-	-	-	-	-	-	-	-	-	-	-	-
10b	of which equipment receivables	-	-	-	-	-	-	-	-	1	-	-	1
10c	of which trade receivables	-	-	-	-	-	-	-	-	-	-	-	-
10d	of which other wholesale	-	-	-	-	-	-	-	-	868	-	-	868
11	re-securitization	-	-	-	-	-	-	-	-	-	-	-	-

<sup>1</sup> Bank acts as originator reflects securitization activities in which we securitize our own assets.

<sup>2</sup> 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.

<sup>3</sup> 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 July 31, 2023

	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	
	Exposure values (by RW bands)					Exposure values (by regulatory approach)					RWA (by regulatory approach)				Capital charge after cap (by regulatory approach)			
	≤20% RW	>20% to 50% RW	>50% to 100% RW	>100% to <1250% RW	1250% RW	SEC – IRBA <sup>1</sup>	SEC – ERBA and SEC-IAA	SEC – SA	1250%	SEC – IRBA <sup>1</sup>	SEC – ERBA and SEC-IAA	SEC – SA	1250%	SEC – IRBA <sup>1</sup>	SEC – ERBA and SEC-IAA	SEC – SA	1250%	
(Millions of Canadian dollars)																		
<b>1 Total exposures</b>	<b>50,848</b>	<b>3,446</b>	<b>1,632</b>	<b>351</b>	-	<b>1,161</b>	<b>44,423</b>	<b>10,693</b>	-	<b>174</b>	<b>6,293</b>	<b>2,408</b>	-	<b>14</b>	<b>503</b>	<b>193</b>	-	
2 Traditional securitization	49,687	3,446	1,632	351	-	-	44,423	10,693	-	-	6,293	2,408	-	-	503	193	-	
3 Of which: securitization	49,687	3,446	1,632	351	-	-	44,423	10,693	-	-	6,293	2,408	-	-	503	193	-	
4 Of which: retail underlying	33,619	1,632	219	196	-	-	31,580	4,086	-	-	4,280	510	-	-	342	41	-	
5 Of which: STC	30,619	391	60	-	-	-	28,347	2,723	-	-	3,270	287	-	-	262	23	-	
6 Of which: wholesale	16,068	1,814	1,413	155	-	-	12,843	6,607	-	-	2,013	1,898	-	-	161	152	-	
7 Of which: STC	12,512	135	119	129	-	-	11,268	1,627	-	-	1,636	192	-	-	131	15	-	
8 Of which: re-securitization	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
9 Synthetic securitization	1,161	-	-	-	-	1,161	-	-	-	174	-	-	-	14	-	-	-	
10 Of which: securitization	1,161	-	-	-	-	1,161	-	-	-	174	-	-	-	14	-	-	-	
11 Of which: retail underlying	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
12 Of which: wholesale	1,161	-	-	-	-	1,161	-	-	-	174	-	-	-	14	-	-	-	
13 Of which: re-securitization	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

<sup>1</sup>SEC-IRBA exposures reflect exposures where we have underlying IRB approval currently.





As at April 30, 2023

	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q
	Exposure values (by RW bands)					Exposure values (by regulatory approach)				RWA (by regulatory approach)				Capital charge after cap (by regulatory approach)			
	≤20% RW	>20% to 50% RW	>50% to 100% RW	>100% to <1250% RW	1250% RW	SEC – IRBA <sup>1</sup>	SEC – ERBA and SEC-IAA	SEC – SA	1250%	SEC – IRBA <sup>1</sup>	SEC – ERBA and SEC-IAA	SEC – SA	1250%	SEC – IRBA <sup>1</sup>	SEC – ERBA and SEC-IAA	SEC – SA	1250%
(Millions of Canadian dollars)																	
<b>1 Total exposures</b>	<b>50,169</b>	<b>3,535</b>	<b>1,584</b>	<b>317</b>	-	<b>1,162</b>	<b>44,328</b>	<b>10,115</b>	-	<b>174</b>	<b>6,204</b>	<b>2,338</b>	-	<b>14</b>	<b>496</b>	<b>187</b>	-
2 Traditional securitization	49,007	3,535	1,584	317	-	-	44,328	10,115	-	-	6,204	2,338	-	-	496	187	-
3 Of which: securitization	49,007	3,535	1,584	317	-	-	44,328	10,115	-	-	6,204	2,338	-	-	496	187	-
4 Of which: retail underlying	33,784	1,702	279	143	-	-	32,395	3,512	-	-	4,312	448	-	-	345	36	-
5 Of which: STC	30,895	419	66	-	-	-	29,106	2,274	-	-	3,377	244	-	-	270	20	-
6 Of which: wholesale	15,223	1,833	1,305	174	-	-	11,933	6,603	-	-	1,892	1,890	-	-	151	151	-
7 Of which: STC	11,912	145	124	149	-	-	10,694	1,635	-	-	1,606	206	-	-	128	16	-
8 Of which: re-securitization	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9 Synthetic securitization	1,162	-	-	-	-	1,162	-	-	-	174	-	-	-	14	-	-	-
10 Of which: securitization	1,162	-	-	-	-	1,162	-	-	-	174	-	-	-	14	-	-	-
11 Of which: retail underlying	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12 Of which: wholesale	1,162	-	-	-	-	1,162	-	-	-	174	-	-	-	14	-	-	-
13 Of which: re-securitization	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

<sup>1</sup>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 July 31, 2023

	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q
	Exposure values (by RW bands)					Exposure values (by regulatory approach)				RWA (by regulatory approach)				Capital charge after cap (by regulatory approach)			
	≤20% RW	>20% to 50% RW	>50% to 100% RW	>100% to <1250% RW	1250% RW	SEC – IRBA <sup>1</sup>	SEC – ERBA and SEC-IAA	SEC – SA	1250%	SEC – IRBA <sup>1</sup>	SEC – ERBA and SEC-IAA	SEC – SA	1250%	SEC – IRBA <sup>1</sup>	SEC – ERBA and SEC-IAA	SEC – SA	1250%
(Millions of Canadian dollars)																	
<b>1 Total exposures</b>	<b>11,001</b>	<b>192</b>	<b>-</b>	<b>25</b>	<b>12</b>	<b>-</b>	<b>11,218</b>	<b>-</b>	<b>12</b>	<b>-</b>	<b>2,347</b>	<b>-</b>	<b>149</b>	<b>-</b>	<b>187</b>	<b>-</b>	<b>12</b>
2 Traditional securitization	11,001	192	-	25	12	-	11,218	-	12	-	2,347	-	149	-	187	-	12
3 Of which: securitization	11,001	192	-	25	12	-	11,218	-	12	-	2,347	-	149	-	187	-	12
4 Of which: retail underlying	507	56	-	-	-	-	563	-	-	-	118	-	-	-	9	-	-
5 Of which: STC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6 Of which: wholesale	10,494	136	-	25	12	-	10,655	-	12	-	2,229	-	149	-	178	-	12
7 Of which: STC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8 Of which: re-securitization																	
9 Synthetic securitization																	
10 Of which: securitization																	
11 Of which: retail underlying																	
12 Of which: wholesale																	
13 Of which: re-securitization																	

<sup>1</sup> SEC-IRBA exposures reflect exposures where we have underlying IRB approval currently.



As at April 30, 2023

	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q																	
																		Exposure values (by RW bands)					Exposure values (by regulatory approach)				RWA (by regulatory approach)				Capital charge after cap (by regulatory approach)			
																		≤20% RW	>20% to 50% RW	>50% to 100% RW	>100% to <1250% RW	1250% RW	SEC – IRBA <sup>1</sup>	SEC – ERBA and SEC-IAA	SEC – SA	1250%	SEC – IRBA <sup>1</sup>	SEC – ERBA and SEC-IAA	SEC – SA	1250%	SEC – IRBA <sup>1</sup>	SEC – ERBA and SEC-IAA	SEC – SA	1250%
(Millions of Canadian dollars)																																		
1	<b>Total exposures</b>	<b>11,566</b>	<b>179</b>	<b>-</b>	<b>25</b>	<b>19</b>	<b>-</b>	<b>11,770</b>	<b>-</b>	<b>19</b>	<b>-</b>	<b>2,458</b>	<b>-</b>	<b>243</b>	<b>-</b>	<b>197</b>	<b>-</b>	<b>19</b>																
2	Traditional securitization	11,566	179	-	25	19	-	11,770	-	19	-	2,458	-	243	-	197	-	19																
3	Of which: securitization	11,566	179	-	25	19	-	11,770	-	19	-	2,458	-	243	-	197	-	19																
4	Of which: retail underlying	263	18	-	-	-	-	281	-	-	-	59	-	-	-	5	-	-																
5	Of which: STC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-																
6	Of which: wholesale	11,303	161	-	25	19	-	11,489	-	19	-	2,399	-	243	-	192	-	19																
7	Of which: STC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-																
8	Of which: re-securitization																																	
9	Synthetic securitization																																	
10	Of which: securitization																																	
11	Of which: retail underlying																																	
12	Of which: wholesale																																	
13	Of which: re-securitization																																	

<sup>1</sup> 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 2022 Annual Report and incorporated by reference into this Pillar 3 report. Our 2022 Annual Report is available free of charge on our website at <http://www.rbc.com/investorrelations>

Pillar 3 disclosures requirement	RBC 2022 Annual Report section	Sub-Section
a) Processes implemented to identify, measure, monitor and control the bank's market risks	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
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

**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 2022 Annual Report and incorporated by reference into this Pillar 3 report. Our 2022 Annual Report is available free of charge on our website at <http://www.rbc.com/investorrelations>

Pillar 3 disclosures requirement	RBC 2022 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 - <i>Stress testing</i>
		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 2022 Annual Report and incorporated by reference into this Pillar 3 report. Our 2022 Annual Report is available free of charge on our website at <http://www.rbc.com/investorrelations>

Pillar 3 disclosures requirement	RBC 2022 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 – <i>Stress testing</i>
	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 <sup>1</sup>
<b>Regulatory Value at Risk (VaR)</b>	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 99 <sup>th</sup> 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.	11%
<b>Stressed VaR (SVaR)</b>	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.	28%
<b>Incremental Risk Charge (IRC)</b>	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.	13%

<sup>1</sup> As at July 31, 2023.

**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.

The table below presents an overview of Pillar 3 disclosure requirements that have been met within our 2022 Annual Report and incorporated by reference into this Pillar 3 report. Our 2022 Annual Report is available free of charge on our website at <http://www.rbc.com/investorrelations>

Pillar 3 disclosures requirement		RBC 2022 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 changes in the mark-to-market amounts 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.

**MRB: Qualitative disclosures for banks using the Internal Models Approach (continued)**
**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.

	(Millions of Canadian dollars)	RWA	
		As at July 31, 2023	As at April 30, 2023
	<b>Outright products</b>		
1	Interest rate risk (general and specific)	7,211	6,787
2	Equity risk (general and specific)	255	716
3	Foreign exchange risk	3,113	3,104
4	Commodity risk	1,041	1,033
	<b>Options</b>		
5	Simplified approach	-	-
6	Delta-plus method	-	-
7	Scenario approach	5,544	7,721
8	<b>Securitization</b>	664	759
9	<b>Total</b>	<b>17,828</b>	<b>20,120</b>

**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 July 31, 2023

	(Millions of Canadian dollars)	a	b	c	d	e	f
		VaR	Stressed VaR	IRC	CRM	Other	Total RWA
1	<b>RWA at previous quarter end</b>	<b>3,141</b>	<b>10,711</b>	<b>3,713</b>	-	-	<b>17,565</b>
2	Movement in risk levels <sup>1</sup>	346	444	1,370	-	-	2,160
3	Model updates/changes <sup>2</sup>	504	(542)	(23)	-	-	(61)
4	Methodology and policy <sup>3</sup>	-	-	-	-	-	-
5	Acquisitions and disposals	-	-	-	-	-	-
6	Foreign exchange movements <sup>4</sup>	-	-	(66)	-	-	(66)
7	Other	-	-	-	-	-	-
8	<b>RWA at end of Reporting Period</b>	<b>3,991</b>	<b>10,613</b>	<b>4,994</b>	-	-	<b>19,598</b>

<sup>1</sup> Change in risk due to position changes and averaging in of prior quarter model updates.

<sup>2</sup> 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.

<sup>3</sup> Methodology changes to the calculations driven by regulatory policy changes. Please note that these changes may be temporary.

<sup>4</sup> Foreign exchange movements for VaR and Stressed VaR are embedded within movement in risk levels.

As at April 30, 2023

	(Millions of Canadian dollars)	a	b	c	d	e	f
		VaR	Stressed VaR	IRC	CRM	Other	Total RWA
1	<b>RWA at previous quarter end</b>	<b>2,761</b>	<b>9,873</b>	<b>3,852</b>	-	-	<b>16,486</b>
2	Movement in risk levels <sup>1</sup>	211	932	(180)	-	-	963
3	Model updates/changes <sup>2</sup>	169	(94)	18	-	-	93
4	Methodology and policy <sup>3</sup>	-	-	-	-	-	-
5	Acquisitions and disposals	-	-	-	-	-	-
6	Foreign exchange movements <sup>4</sup>	-	-	23	-	-	23
7	Other	-	-	-	-	-	-
8	<b>RWA at end of Reporting Period</b>	<b>3,141</b>	<b>10,711</b>	<b>3,713</b>	-	-	<b>17,565</b>

<sup>1</sup> Change in risk due to position changes and averaging in of prior quarter model updates.

<sup>2</sup> 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.

<sup>3</sup> Methodology changes to the calculations driven by regulatory policy changes. Please note that these changes may be temporary.

<sup>4</sup> 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	
<b>VaR (10 day 99%)<sup>1,2</sup></b>		As at July 31, 2023	As at April 30, 2023
1	Maximum value	147	134
2	Average value	114	82
3	Minimum value	72	49
4	Period end	84	115
<b>Stressed VaR (10 day 99%)<sup>1</sup></b>			
5	Maximum value	418	455
6	Average value	280	280
7	Minimum value	131	168
8	Period end	131	234
<b>Incremental Risk Charge (99.9%)</b>			
9	Maximum value	515	453
10	Average value	386	296
11	Minimum value	223	225
12	Period end	317	231
<b>Comprehensive Risk capital charge (99.9%)</b>			
13	Maximum value	-	-
14	Average value	-	-
15	Minimum value	-	-
16	Period end	-	-
17	Floor (standardized measurement method)	-	-

<sup>1</sup> 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 2022 Annual Report.

<sup>2</sup> VaR shown 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.



**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 <sup>1</sup>		Q3/2023	Q2/2023	Q1/2023	Q4/2022	Q3/2022
Summary comparison of accounting assets vs. leverage ratio exposure measure (Millions of Canadian dollars)						
1	<b>Total consolidated assets as per published financial statements</b>	<b>\$1,957,734</b>	<b>\$1,940,302</b>	<b>\$1,933,019</b>	<b>\$1,917,219</b>	<b>1,842,092</b>
2	Adjustment for investments in banking, financial, insurance or commercial entities that are consolidated for accounting purposes but outside the scope of regulatory consolidation	(18,400)	(17,908)	(17,362)	(16,073)	(16,940)
3	Adjustment for securitized exposures that meet the operational requirements for the recognition of risk transfer <sup>2</sup>	-	-	-	-	-
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	(19,177)	(23,699)	(36,321)	(51,188)	(23,150)
6	Adjustment for securities financing transactions (SFT) (i.e. repo assets and similar secured lending)	20,242	17,305	17,762	16,624	15,711
7	Adjustments for off-balance sheet items (i.e., credit equivalent amounts of off-balance sheet exposures)	241,480	242,434	258,399	251,034	239,621
8	Other adjustments <sup>3</sup>	(39,847)	(42,054)	(234,187)	(219,437)	(217,489)
9	<b>Leverage Ratio Exposure</b>	<b>\$2,142,032</b>	<b>\$2,116,380</b>	<b>\$1,921,310</b>	<b>\$1,898,179</b>	<b>1,839,845</b>

<sup>1</sup> Based on OSFI's LR guideline effective Q2 2023.

<sup>2</sup> OSFI's LR guideline allows for the exclusion of securitized exposures that meet the operational requirements for risk transference.

<sup>3</sup> Includes OSFI permitted exclusion of central bank reserves that qualify as high quality liquid assets and exposures related to the US Government Payment Protection Program (PPP). Exclusions for central bank reserves ceased on April 1, 2023.

**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 3.5% at all times.

LEVERAGE RATIO COMMON DISCLOSURE TEMPLATE <sup>1</sup>		Q3/2023	Q2/2023	Q1/2023	Q4/2022	Q3/2022
(Millions of Canadian dollars, except percentages)						
<b>On-balance sheet exposures</b>						
1	On-balance sheet items (excluding derivatives, SFTs and grandfathered securitization exposures, but including collateral)	1,474,682	1,460,662	1,262,959	1,254,962	1,203,354
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)	(18,547)	(20,471)	(21,342)	(26,414)	(20,944)
4	(Asset amounts deducted in determining Basel III Tier 1 capital)	(21,300)	(21,583)	(21,438)	(22,090)	(18,434)
5	<b>Total on-balance sheet exposure (excluding derivatives and SFTs) (sum of lines 1 and 4)</b>	<b>1,434,835</b>	<b>1,418,608</b>	<b>1,220,179</b>	<b>1,206,458</b>	<b>1,163,976</b>
<b>Derivatives exposures</b>						
6	Replacement cost associated with all derivatives transactions (i.e., net of eligible cash variation margin)	27,071	29,666	28,554	41,180	35,086
7	Add-on amounts for potential future exposure (PFE) associated with all derivatives transactions	66,591	68,038	62,973	60,172	62,798
8	(Exempted central counterparty (CCP)-leg of client-cleared trade exposures)	-	-	-	-	-
9	Adjusted effective notional amount of written credit derivatives	3,075	2,746	2,271	1,897	1,023
10	(Adjusted effective notional offsets and add-on deductions for written credit derivatives)	-	-	-	-	-
11	<b>Total derivative exposures (sum of lines 6 to 10)</b>	<b>96,737</b>	<b>100,450</b>	<b>93,798</b>	<b>103,249</b>	<b>98,907</b>
<b>Securities financing transaction exposures</b>						
12	Gross SFT assets recognized for accounting purposes (with no recognition of netting), after adjusting for sale accounting transactions	443,453	437,241	418,383	415,017	416,893
13	(Netted amounts of cash payables and cash receivables of gross SFT assets)	(94,715)	(99,658)	(87,211)	(94,203)	(95,262)
14	Counterparty credit risk (CCR) exposure for SFTs	20,242	17,305	17,762	16,624	15,710
15	Agent transaction exposures	-	-	-	-	-
16	<b>Total securities financing transaction exposures (sum of lines 12 to 15)</b>	<b>368,980</b>	<b>354,888</b>	<b>348,934</b>	<b>337,438</b>	<b>337,341</b>
<b>Other off-balance sheet exposures</b>						
17	Off-balance sheet exposures at gross notional amount	768,822	767,609	749,066	733,563	706,583
18	(Adjustments for conversion to credit equivalent amounts)	(527,342)	(525,175)	(490,667)	(482,529)	(466,962)
19	<b>Off-balance sheet items (sum of lines 17 and 18)</b>	<b>241,480</b>	<b>242,434</b>	<b>258,399</b>	<b>251,034</b>	<b>239,621</b>
<b>Capital and Total Exposures</b>						
20	<b>Tier 1 capital</b>	<b>90,193</b>	<b>88,400</b>	<b>85,357</b>	<b>84,242</b>	<b>84,207</b>
20a	<b>Tier 1 capital with transitional arrangements for ECL provisioning not applied</b>				<b>84,070</b>	<b>84,073</b>
21	<b>Total Exposures (sum of lines 3,11,16 and 19)</b>	<b>2,142,032</b>	<b>2,116,380</b>	<b>1,921,310</b>	<b>1,898,179</b>	<b>1,839,845</b>
<b>Leverage ratio</b>						
22	<b>Basel III leverage ratio</b>	<b>4.2%</b>	<b>4.2%</b>	<b>4.4%</b>	<b>4.4%</b>	<b>4.6%</b>
22a	<b>Basel III leverage ratio with transitional arrangements for ECL provisioning not applied</b>				<b>4.4%</b>	<b>4.6%</b>

<sup>1</sup>Based on OSFI's LR guideline effective Q2 2023.

Our Leverage ratio of 4.2% was unchanged from last quarter, as net internal capital generation, the impact of the partial sale of RBC Investor Services operations, as noted above and share issuances under the DRIP were offset by business-driven growth in leverage exposures.

Leverage exposures increased by \$26 billion, mainly driven by business growth primarily in securities and repo-style transactions. This was partially offset by the impact of foreign exchange translation, as well as the impact of the partial sale of RBC Investor Services operations.

## TOTAL LOSS ABSORBING CAPACITY (TLAC) DISCLOSURE REQUIREMENTS

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

The following summary table provides information about our 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 LR 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 24% (inclusive of the domestic stability buffer of 2.5%) and a TLAC leverage ratio of 6.75%. On December 8, 2022, OSFI announced the DSB would further increase to 3% of RWA effective February 1, 2023. Thus, our TLAC ratio minimum requirement beginning Q2 2023 is 24.5%, before considering the countercyclical capital buffer. The TLAC ratio minimum requirement will increase to 25% effective November 1, 2023, reflecting OSFI's additional 50 bps increase discussed in the Capital Framework section above, before considering the countercyclical capital buffer. Our TLAC leverage ratio minimum requirement beginning Q2 2023 is 7.25% reflecting incorporation of a 50bps leverage buffer discussed in the Leverage Framework section above. 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
		July 31 2023	April 30 2023	January 31 2023	October 31 2022	July 31 2022	Change (a) - (b)
<i>(Millions of Canadian dollars, except as otherwise noted)</i>							
<b>Resolution group<sup>1</sup></b>							
1	Total loss-absorbing capacity (TLAC) available	181,035	183,978	173,179	160,961	162,284	(2,943)
1a	Total loss-absorbing capacity (TLAC) available with transitional arrangements for ECL provisioning not applied	181,035	183,978	173,179	160,961	162,284	(2,943)
2	Total RWA at the level of the resolution group	585,899	593,533	614,250	609,879	589,050	(7,634)
3	TLAC ratio: TLAC as a percentage of RWA (row 1/row 2) (%)	30.9%	31.0%	28.2%	26.4%	27.6%	(0.1)%
3a	TLAC ratio: TLAC as a percentage of RWA (row 1a / row 2) (%) available with transitional arrangements for ECL provisioning not applied				26.4%	27.6%	0.0%
4	Leverage ratio exposure measure at the level of the resolution group	2,142,032	2,116,380	1,921,310	1,898,179	1,839,845	25,652
5	TLAC Leverage Ratio: TLAC as a percentage of leverage ratio exposure measure (row 1/row 4) (%)	8.5%	8.7%	9.0%	8.5%	8.8%	(0.2)%
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				8.5%	8.8%	0.0%
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 be recognized as external TLAC if no cap was applied (%)	N/A	N/A	N/A	N/A	N/A	-

<sup>1</sup> 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 30.9% was down 10 bps, reflecting the factors noted above under KM1, as well as an unfavorable impact from a net decrease in eligible external TLAC instruments.

Our TLAC leverage ratio of 8.5% was down 20 bps, reflecting the factors noted above under the Leverage ratio, as well as an unfavorable impact from a net decrease in eligible external TLAC instruments.

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

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

As at July 31, 2023

(Millions of Canadian dollars, except as otherwise noted)		Amount
	<b>Regulatory capital elements of TLAC and adjustments</b>	
1	Common Equity Tier 1 capital (CET1)	82,892
2	Additional Tier 1 capital (AT1) before TLAC adjustments	7,301
3	AT1 ineligible as TLAC as issued out of subsidiaries to third parties	-
4	Other adjustments	-
5	AT1 instruments eligible under the TLAC framework	7,301
6	Tier 2 capital (T2) before TLAC adjustments	10,879
7	Amortised portion of T2 instruments where remaining maturity > 1 year	1,187
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	12,066
11	TLAC arising from regulatory capital	102,259
	<b>Non-regulatory capital elements of TLAC</b>	
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	79,052
14	Of which: amount eligible as TLAC after application of the caps	79,052
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	79,052
	<b>Non-regulatory capital elements of TLAC: adjustments</b>	
18	TLAC before deductions	181,311
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	(276)
21	Other adjustments to TLAC	-
22	TLAC available after deductions	181,035
	<b>Risk-weighted assets and leverage exposure measure for TLAC purposes</b>	
23	Total risk-weighted assets adjusted as permitted under the TLAC regime	585,899
24	Leverage exposure measure	2,142,032
	<b>TLAC ratios and buffers</b>	
25	TLAC Ratio (as a percentage of risk-weighted assets adjusted as permitted under the TLAC regime, row 22 / row 23)	30.9%
26	TLAC Leverage Ratio (as a percentage of leverage exposure)	8.5%
27	CET1 (as a percentage of risk-weighted assets) available after meeting the resolution group's minimum capital and TLAC requirements	5.6%
28	Institution-specific buffer (capital conservation buffer plus countercyclical buffer plus higher loss absorbency, expressed as a percentage of risk-weighted assets)	3.6%
29	Of which: capital conservation buffer	2.5%
30	Of which: bank specific countercyclical buffer	0.1%
31	Of which: higher loss absorbency	1.0%

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

As at April 30, 2023

(Millions of Canadian dollars, except as otherwise noted)		Amount
<b>Regulatory capital elements of TLAC and adjustments</b>		
1	Common Equity Tier 1 capital (CET1)	81,103
2	Additional Tier 1 capital (AT1) before TLAC adjustments	7,297
3	AT1 ineligible as TLAC as issued out of subsidiaries to third parties	-
4	Other adjustments	-
5	AT1 instruments eligible under the TLAC framework	7,297
6	Tier 2 capital (T2) before TLAC adjustments	11,140
7	Amortised portion of T2 instruments where remaining maturity > 1 year	1,219
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	12,359
11	TLAC arising from regulatory capital	100,759
<b>Non-regulatory capital elements of TLAC</b>		
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	83,817
14	Of which: amount eligible as TLAC after application of the caps	83,817
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	83,817
<b>Non-regulatory capital elements of TLAC: adjustments</b>		
18	TLAC before deductions	184,576
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	(598)
21	Other adjustments to TLAC	-
22	TLAC available after deductions	183,978
<b>Risk-weighted assets and leverage exposure measure for TLAC purposes</b>		
23	Total risk-weighted assets adjusted as permitted under the TLAC regime	593,533
24	Leverage exposure measure	2,116,380
<b>TLAC ratios and buffers</b>		
25	TLAC Ratio (as a percentage of risk-weighted assets adjusted as permitted under the TLAC regime, row 22 / row 23)	31.0%
26	TLAC Leverage Ratio (as a percentage of leverage exposure)	8.7%
27	CET1 (as a percentage of risk-weighted assets) available after meeting the resolution group's minimum capital and TLAC requirements <sup>1</sup>	5.3%
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%

<sup>1</sup> Prior period percentages have been revised to reflect OSFI's current requirements.

**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 on or after 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 July 31, 2023

(Millions of Canadian dollars, except as otherwise noted) Based on US GAAP		Creditor ranking					Sum
		1 (most junior)	2	3	4	5	
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	Bail-in Debt <sup>1</sup>	Other Liabilities excluding Bail-in Debt and Subordinated Debt <sup>2</sup>	
3	Total capital and liabilities net of credit risk mitigation	23,333	-	-	15,363	2,058	40,754
4	Subset of row 3 that are excluded liabilities	-	-	-	-	2,058	2,058
5	Total capital and liabilities less excluded liabilities (row 3 minus row 4)	23,333	-	-	15,363	-	38,696
6	Subset of row 5 that are eligible as TLAC	23,333	-	-	15,363	-	38,696
7	Subset of row 6 with 1 year ≤ residual maturity < 2 years			-	-	-	-
8	Subset of row 6 with 2 years ≤ residual maturity < 5 years			-	9,396	-	9,396
9	Subset of row 6 with 5 years ≤ residual maturity < 10 years			-	5,967	-	5,967
10	Subset of row 6 with residual maturity ≥ 10 years, but excluded perpetual securities			-	-	-	-
11	Subset of row 6 that is perpetual securities	23,333	-	-	-	-	23,333

<sup>1</sup> Under the Bail-in regime, claims of some creditors whose claims otherwise rank equally with those of the holders holding bail-inable notes would be excluded from a bail-in conversion and thus the holders and beneficial owners of bail-inable notes will have to absorb losses ahead of these other creditors as a result of the bail-in conversion. Bail-in-Debt represents TLAC Eligible Long-Term Debt based on U.S. TLAC rules.

<sup>2</sup> Completion of this column is not required by OSFI at this time.



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

As at April 30, 2023

(Millions of Canadian dollars, except as otherwise noted) Based on US GAAP		Creditor ranking					Sum
		1 (most junior)	2	3	4	5	
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	Bail-in Debt <sup>1</sup>	Other Liabilities excluding Bail-in Debt and Subordinated Debt <sup>2</sup>	
3	Total capital and liabilities net of credit risk mitigation	23,803	-	-	15,672	2,100	41,575
4	Subset of row 3 that are excluded liabilities	-	-	-	-	2,100	2,100
5	Total capital and liabilities less excluded liabilities (row 3 minus row 4)	23,803	-	-	15,672	-	39,475
6	Subset of row 5 that are eligible as TLAC	23,803	-	-	15,672	-	39,475
7	Subset of row 6 with 1 year ≤ residual maturity < 2 years			-	-	-	-
8	Subset of row 6 with 2 years ≤ residual maturity < 5 years			-	9,585	-	9,585
9	Subset of row 6 with 5 years ≤ residual maturity < 10 years			-	6,087	-	6,087
10	Subset of row 6 with residual maturity ≥ 10 years, but excluded perpetual securities			-	-	-	-
11	Subset of row 6 that is perpetual securities	23,803	-	-	-	-	23,803

<sup>1</sup> Under the Bail-in regime, claims of some creditors whose claims otherwise rank equally with those of the holders holding bail-inable notes would be excluded from a bail-in conversion and thus the holders and beneficial owners of bail-inable notes will have to absorb losses ahead of these other creditors as a result of the bail-in conversion. Bail-in-Debt represents TLAC Eligible Long-Term Debt based on U.S. TLAC rules.

<sup>2</sup> Completion of this column is not required by OSFI at this time.



**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 July 31, 2023

		Creditor ranking					Sum
		1 (most junior)	2	3	4	5	
(Millions of Canadian dollars, except as otherwise noted)							
1	Description of creditor ranking	Common shares	Preferred shares and Limited Recourse Capital Notes	Subordinated Debt	Bail-in Debt <sup>1</sup>	Other Liabilities excluding Bail-in Debt and Subordinated Debt <sup>2</sup>	
2	Total capital and liabilities net of credit risk mitigation	18,670	7,323	11,932	107,222	-	145,147
3	Subset of row 2 that are excluded liabilities	158	-	51	22,692	-	22,901
4	Total capital and liabilities less excluded liabilities (row 2 minus row 3)	18,512	7,323	11,881	84,530	-	122,246
5	Subset of row 4 that are <i>potentially</i> eligible as TLAC	18,512	7,323	11,881	84,530	-	122,246
6	Subset of row 5 with 1 year ≤ residual maturity < 2 years			-	22,391	-	22,391
7	Subset of row 5 with 2 years ≤ residual maturity < 5 years			1,979	40,660	-	42,639
8	Subset of row 5 with 5 years ≤ residual maturity < 10 years			9,449	14,762	-	24,211
9	Subset of row 5 with residual maturity ≥ 10 years, but excluding perpetual securities			453	6,717	-	7,170
10	Subset of row 5 that is perpetual securities	18,512	7,323	-	-	-	25,835

<sup>1</sup> Under the Bail-in regime, claims of some creditors whose claims otherwise rank equally with those of the holders holding bail-inable notes would be excluded from a bail-in conversion and thus the holders and beneficial owners of bail-inable notes will have to absorb losses ahead of these other creditors as a result of the bail-in conversion.

<sup>2</sup> Completion of this column is not required by OSFI at this time.

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

As at April 30, 2023

		Creditor ranking					Sum
		1	2	3	4	5	
(Millions of Canadian dollars, except as otherwise noted)		(most junior)					
1	Description of creditor ranking	Common shares	Preferred shares and Limited Recourse Capital Notes	Subordinated Debt	Bail-in Debt <sup>1</sup>	Other Liabilities excluding Bail-in Debt and Subordinated Debt <sup>2</sup>	
2	Total capital and liabilities net of credit risk mitigation	17,984	7,323	11,992	100,816	-	138,115
3	Subset of row 2 that are excluded liabilities	128	5	51	12,804	-	12,988
4	Total capital and liabilities less excluded liabilities (row 2 minus row 3)	17,856	7,318	11,941	88,012	-	125,127
5	Subset of row 4 that are <i>potentially</i> eligible as TLAC	17,856	7,318	11,941	88,012	-	125,127
6	Subset of row 5 with 1 year ≤ residual maturity < 2 years			-	29,372	-	29,372
7	Subset of row 5 with 2 years ≤ residual maturity < 5 years			2,032	37,661	-	39,693
8	Subset of row 5 with 5 years ≤ residual maturity < 10 years			9,449	13,145	-	22,594
9	Subset of row 5 with residual maturity ≥ 10 years, but excluding perpetual securities			460	7,834	-	8,294
10	Subset of row 5 that is perpetual securities	17,856	7,318	-	-	-	25,174

<sup>1</sup> Under the Bail-in regime, claims of some creditors whose claims otherwise rank equally with those of the holders holding bail-inable notes would be excluded from a bail-in conversion and thus the holders and beneficial owners of bail-inable notes will have to absorb losses ahead of these other creditors as a result of the bail-in conversion.

<sup>2</sup> 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 2022 Annual Report and incorporated by reference into this Pillar 3 report. Our 2022 Annual Report is available free of charge on our website at <http://www.rbc.com/investorrelations>

Pillar 3 disclosures requirement	RBC 2022 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) <sup>1</sup>	n/a	n/a
c) For banks using the AMA, a description of the use of insurance for the purpose of mitigating operational risk <sup>1</sup>	n/a	n/a

<sup>1</sup> Effective November 1, 2019, OSFI discontinued the AMA approach.

**INTEREST RATE RISK IN THE BANKING BOOK**

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Pillar 3 disclosures requirement	RBC 2022 Annual Report section	Sub-section
Interest rate risk in the banking book	Market Risk	Market Risk