SUPPLEMENTARY REGULATORY CAPITAL AND PILLAR 3 DISCLOSURE

FOURTH QUARTER 2019

(unaudited)

For more information:

Ghislain Parent, Chief Financial Officer and Executive Vice-President Finance, Tel: 514 394-6807

Jean Dagenais, Senior Vice-President Finance, Tel: 514 394-6233

Linda Boulanger, Vice-President Investor Relations, Tel: 514 394-0296

Claude Breton, Vice-President Communications and Corporate Social Responsibility, Tel: 514 394-8644

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Notes to users

1) This *Supplementary Regulatory Capital and Pillar 3 Disclosure* document is unaudited and should be read in conjunction with the 2019 Annual Report. All amounts are in millions of Canadian dollars, unless otherwise stated.

2) The information provided in this document is subject to the same level of internal review and internal control processes as the information provided by the Bank for its financial reporting.

3) Financial information is available through the Report to Shareholders for all quarters of 2019 and also in the document entitled *Supplementary Financial Information* which are available on the Bank's website at nbc.ca. Prior reporting periods are also available on the Bank's website.

4) For certain prescribed tables formats where line or column items have zero balances, such items have not been presented.

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n.a. Not applicable
(1) Information available on the Bank's website at nbc.ca.
(2) These pages are included in the document entitled *Supplementary Financial Information - Fourth Quarter 2019*

KM2 – Key Metrics - TLAC Requirements[1]

(unaudited) (millions of Canadian dollars)

		2019			
		Q4	Q3	Q2	Q1
		a			
1	Total loss-absorbing capacity (TLAC) available	16,826	15,378	13,977	12,547
2	Total RWA at the level of the resolution group	83,039	80,984	79,008	77,036
3	TLAC ratio: TLAC as a percentage of RWA (row 1 / row 2) (%)	20.3%	19.0%	17.7%	16.3%
4	Leverage ratio exposure measure at the level of the resolution group	308,902	303,961	296,118	286,655
5	TLAC Leverage Ratio: TLAC as a percentage of leverage ratio exposure measure (row1 / row4) (%)	5.4%	5.1%	4.7%	4.4%
6a	Does the subordination exemption in the antepenultimate paragraph of Section 11 of the FSB TLAC Term Sheet apply?	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
6c	If the capped subordination exemption applies, the amount of funding issued that ranks pari passu with Excluded Liabilities and that is recognised as external TLAC, divided by funding issued that ranks pari passu with Excluded Liabilities and that would be recognised as external TLAC if no cap was applied (%)	n.a.	n.a.	n.a.	n.a.

(1) Minimum TLAC ratios will be required starting November 1, 2021. Lines 1, 3 and 5 incorporate the full impact of expected credit loss accounting on regulatory capital. Lines 1a, 3a and 5a have been excluded from this table as OSFI does not provide transitional arrangement for the adoption of IFRS 9 ECL.

OV1 – Overview of RWA[1]

(unaudited) (millions of Canadian dollars)

The following table provides an overview of total RWA forming the denominator of the risk-based capital requirements. Further breakdowns of RWA are presented in subsequent parts.

		Q4 2019	Q3 2019	Q2 2019	Q1 2019	Q4 2018	Q4 2019
		a	b	b	b	b	c
		RWA[1]	RWA[1]	RWA[1]	RWA[1]	RWA[1]	Minimum capital requirement[2]
1	**Credit risk (excluding counterparty credit risk)**	**59,583**	**57,539**	**56,069**	**55,090**	**54,467**	**4,766**
2	Of which: standardised approach (SA)	11,651	10,144	10,251	9,588	9,341	932
3	Of which: foundation internal ratings-based (F-IRB) approach	–	–	–	–	–	–
4	Of which: supervisory slotting approach	–	–	–	–	–	–
5	Of which: advanced internal ratings-based (A-IRB) approach	47,932	47,395	45,818	45,502	45,126	3,834
6	**Counterparty credit risk (CCR)**	**4,800**	**5,332**	**5,234**	**4,443**	**3,044**	**384**
7	Of which: standardised approach for counterparty credit risk[3]	3,568	4,060	4,087	3,405	2,245	285
8	Of which: internal model method (IMM)	–	–	–	–	–	–
9	Of which: other CCR	1,071	1,079	966	762	601	86
9a	Of which: exposures to central counterparties	161	193	181	276	198	13
10	**Credit valuation adjustment (CVA)**	**1,200**	**1,139**	**1,151**	**1,020**	**405**	**96**
11	**Equity positions under the simple risk weight approach[4]**	**1,121**	**1,074**	**943**	**924**	**926**	**90**
12	**Equity investments in funds – look-through approach**	**105**	**121**	**108**	**101**	**105**	**8**
13	**Equity investments in funds – mandate-based approach**	**–**	**–**	**–**	**–**	**–**	**–**
14	**Equity investments in funds – fall-back approach**	**–**	**–**	**86**	**75**	**70**	**–**
15	**Settlement risk**	**57**	**33**	**94**	**41**	**46**	**5**
16	**Securitization exposures in banking book**	**388**	**455**	**439**	**468**	**413**	**31**
16a	Of which: subject to the transitional arrangement	(188)	(188)	(188)	(543)	–	(15)
17	Of which: securitization IRB approach (SEC-IRBA)[5]	37	40	50	45	390	3
18	Of which: securitization external ratings-based approach (SEC-ERBA), including internal assessment approach (IAA)[6]	463	477	449	966	23	37
19	Of which: securitization standardised approach (SEC-SA)	76	126	128	–	–	6
20	**Market risk**	**4,276**	**3,972**	**3,788**	**3,964**	**3,435**	**342**
21	Of which: standardised approach (SA)	890	983	927	1,041	1,072	71
22	Of which: internal model approach (IMA)	3,386	2,989	2,861	2,923	2,363	271
23	**Capital charge for switch between trading book and banking book**	**–**	**–**	**–**	**–**	**–**	**–**
24	**Operational risk**	**11,509**	**11,319**	**11,096**	**10,910**	**10,743**	**921**
25	**Amounts below the thresholds for deduction (subject to 250% risk weight)**	**–**	**–**	**–**	**–**	**–**	**–**
26	**Floor adjustment**	**–**	**–**	**–**	**–**	**–**	**–**
27	**Total (1+6+10+11+12+13+14+15+16+20+23+24+25+26)**	**83,039**	**80,984**	**79,008**	**77,036**	**73,654**	**6,643**

(1) Risk weighted assets including the 1.06 scaling factor.
(2) The capital requirement is equal to 8% of risk weighted assets.
(3) Standardised approach (SA-CCR) for measuring exposure at default for counterparty credit risk is applicable in Q1-2019. Before it entered into force, NBC reported information corresponding to the Current Exposures Method.
(4) Banking Book Equities that are not equity investments in funds (EIF) are treated under the materiality exemption and consequently reported in OV1 row 11 as the materiality exemption is available for AIRB banks.
(5) Q4 2018 values represent the IRB rating based approach (RBA) method applicable at this point in time.
(6) Q4 2018 values represent the IRB supervisory Formula Approach (SFA) method applicable at this point in time.

LI1 – Differences Between Accounting and Regulatory Scopes of Consolidation and Mapping of Financial Statements with Regulatory Risk Categories(1)

(unaudited) (millions of Canadian dollars)

For the following tables columns a) and b) enable users to identify the differences between the scope of accounting consolidation and the scope of regulatory consolidation; and columns c) to g) break down how the amounts reported in banks' financial statements (rows) correspond to regulatory risk categories.

	Q4 2019						
	a	b	c	d	e	f	g
			Carrying values of items(2)				
	Carrying values as reported in published financial statements	Carrying values under scope of regulatory consolidation	Subject to credit risk framework	Subject to counterparty credit risk framework	Subject to the securitization framework	Subject to the market risk framework	Not subject to capital requirements or subject to deduction from capital
Assets							
Cash and deposits with financial institutions	13,698	13,698	13,698	–	–	579	–
Securities							
At fair value through profit or loss	61,823	63,538	3,580	–	12	59,946	–
At fair value through other comprehensive income	10,648	20,043	20,034	–	9	–	–
At amortized cost	9,755	10,042	8,897	–	1,145	–	–
	82,226	93,623	32,511	–	1,166	59,946	–
Securities purchased under reverse repurchase agreements and securities borrowed	17,723	19,229	–	19,229	–	–	–
Loans and acceptances							
Residential mortgage	57,171	31,550	31,550	–	–	–	–
Personal	36,944	36,944	36,944	–	–	–	–
Credit card	2,322	2,322	814	–	668	–	840
Business and government	50,599	50,599	50,599	–	–	238	–
	147,036	121,415	119,907	–	668	238	840
Customers' liability under acceptances	6,893	6,893	6,893	–	–	–	–
Allowances for credit losses	(678)	(189)	(189)	–	–	–	–
	153,251	128,119	126,611	–	668	238	840
Other							
Derivative financial instruments(3)	8,129	8,332	–	8,332	–	7,134	–
Investments in associates and joint ventures	385	416	416	–	–	–	–
Premises and equipment	490	490	490	–	–	–	–
Goodwill	1,412	1,510	–	–	–	–	1,510
Intangible assets	1,406	1,148	–	–	–	–	1,148
Other assets	2,738	2,681	2,673	–	–	–	8
	14,560	14,577	3,579	8,332	–	7,134	2,666
Total assets	**281,458**	**269,246**	**176,399**	**27,561**	**1,834**	**67,897**	**3,506**
Liabilities							
Deposits	189,566	189,566	–	–	–	9,869	179,697
Other							
Acceptances	6,893	6,893	–	–	–	–	6,893
Obligations related to securities sold short	12,849	12,849	–	–	–	12,849	–
Obligations related to securities sold under repurchase agreements and securities loaned	21,900	22,867	–	22,867	–	–	–
Derivative financial instruments(3)	6,852	7,267	–	7,267	–	6,123	–
Liabilities related to transferred receivables	21,312	21,312	–	–	–	–	21,312
Other liabilities	6,177	6,177	–	–	–	24	6,153
	75,983	77,365	–	30,134	–	18,996	34,358
Subordinated debt	773	773	–	–	–	–	773
Total liabilities	**266,322**	**267,704**	**–**	**30,134**	**–**	**28,865**	**214,828**

(1) The basis of consolidation used for financial accounting purposes, described in note 1 to the 2019 Annual Report audited consolidated financial statements, may differ from regulatory purposes. The regulatory consolidation does not include structured entities, where significant risk has been transferred to third parties nor subsidiaries and associates engaged in insurance activities.
(2) The sum of amounts in columns c) to g) may not equal the amounts in column b) as some items may be subject to regulatory capital charges in more than one risk category.
(3) Derivatives financial instruments are subject to both counterparty credit risk and market risk frameworks.

LI2 – Main Sources of Differences Between Regulatory Exposure Amounts and Carrying Values in Financial Statements

(unaudited) (millions of Canadian dollars)

The following table provides information on the main sources of differences (other than due to different scopes of consolidation which are shown in table LI1) between the financial statements' carrying value amounts and the exposure amounts used for regulatory purposes.

		Q4 2019				
		a	b	c	d	e
			Items subject to[1] :			
		Total	Credit risk framework	Securitization framework	Counterparty credit risk framework	Market risk framework
1	**Asset carrying value amount under scope of regulatory consolidation (as per template LI1)**	**265,740**	**176,399**	**1,834**	**27,561**	**67,897**
2	Liabilities carrying value amount under scope of regulatory consolidation (as per template LI1)	52,876	–	–	30,134	28,865
3	Total net amount under regulatory scope of consolidation	212,864	176,399	1,834	(2,573)	39,032
4	*Gross-up for repo-style transactions*[2]	45,734	–	–	45,734	–
5	*Potential future exposures (PFE)*[3]	11,115	–	–	11,115	–
6	*Off-balance sheet amounts*[4]	186,182	44,891	2,930	110,302	–
7	*Differences due to different netting rules, other than those already included in row 2 including collateral*	1,992	–	–	1,992	–
8	VaR amounts for Securities Financing Transactions (SFTs)	2,757	–	–	2,757	–
9	*Differences in valuations*	–	–	–	–	–
10	*Collateral for SFTs*	(148,168)	–	–	(148,168)	–
11	**Exposure amounts considered for regulatory purposes**[5]	**312,476**	**221,290**	**4,764**	**21,159**	**39,032**

(1) The sum of amounts in columns b) to e) may not equal the amounts in column a) as some items may be subject to regulatory capital charges in more than one risk category.
(2) Is equal to two times the Obligations related to securities sold under repurchase agreements and securities loaned subject to counterparty credit risk framework from table LI1.
(3) The PFE amount is presented after the alpha of 1.4.
(4) Original off-balance sheet amounts are presented in column (a) while in columns (b) through [e] exposures are after application of credit conversion factors (CCFs).
(5) The aggregate amount considered as a starting point of the RWA calculation.

CC1 – Composition of Regulatory Capital

(unaudited) (millions of Canadian dollars)

			2019				2018			
			Q4	Q3	Q2	Q1	Q4	Q3	Q2	Q1
		Reference[1]								
	Common Equity Tier 1 capital: instruments and reserves									
1	Directly issued qualifying common share capital plus related contributed surplus[2]	a + a'	3,000	2,967	2,953	2,933	2,879	2,878	2,920	2,913
2	Retained earnings	b	9,312	9,044	8,889	8,695	8,472	8,404	8,018	7,785
3	Accumulated other comprehensive income and other reserves	c	16	59	50	65	175	159	139	110
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	–	22	18	15	13	10	10	8
6	**Common Equity Tier 1 capital before regulatory adjustments**		**12,328**	**12,092**	**11,910**	**11,708**	**11,539**	**11,451**	**11,087**	**10,816**
	Regulatory adjustments to Common Equity Tier 1 capital									
7	Prudential valuation adjustments		–	–	–	–	–	–	–	–
8	Goodwill (net of related tax liability)	e -w	(1,510)	(1,510)	(1,675)	(1,671)	(1,671)	(1,668)	(1,671)	(1,662)
9	Intangible assets other than mortgage-servicing rights	f - x	(1,148)	(1,111)	(1,177)	(1,139)	(1,121)	(1,099)	(1,100)	(1,073)
10	Deferred tax assets excluding those arising from temporary differences (net of related tax liability)	g	–	–	–	–	–	–	–	–
11	Accumulated other comprehensive income related to cash flow hedges	h	6	(32)	6	(48)	(151)	(138)	(137)	(152)
12	Shortfall of total provisions to expected losses	i	–	–	–	–	–	–	–	–
13	Securitisation gain on sale		–	–	–	–	–	–	–	–
14	Gains (losses) due to changes in own credit risk on fair valued liabilities	j	24	41	35	(23)	32	39	62	81
15	Defined benefit pension plan assets (net of related tax liability)	k - y	(8)	(5)	(7)	(5)	(11)	(93)	(4)	(3)
16	Investments in own shares (if not already netted off contributed surplus on reported balance sheet)		–	–	–	–	(9)	(3)	(1)	(5)
17	Reciprocal cross holdings in common equity		–	–	–	–	–	–	–	–
18	Non-significant investments in capital of banking, financial and insurance entities, net of eligible short positions (amount above 10% threshold)	l	–	–	–	–	–	–	–	–
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)	m	–	–	–	–	–	–	–	–
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	n	–	–	–	–	–	–	–	–
24	of which: mortgage servicing rights		–	–	–	–	–	–	–	–
25	of which: deferred tax assets arising from temporary differences	o	–	–	–	–	–	–	–	–
26	Other deductions or regulatory adjustments to CET1 as determined by OSFI (including regulatory adjustments in respect of own use property)		–	–	–	–	–	–	–	–
27	Regulatory adjustments applied to Common Equity Tier 1 due to insufficient Additional Tier 1 and Tier 2 to cover deductions		–	–	–	–	–	–	–	–
28	**Total regulatory adjustments to Common equity Tier 1**		**(2,636)**	**(2,617)**	**(2,818)**	**(2,886)**	**(2,931)**	**(2,962)**	**(2,851)**	**(2,814)**
29	**Common Equity Tier 1 capital (CET1)**		**9,692**	**9,475**	**9,092**	**8,822**	**8,608**	**8,489**	**8,236**	**8,002**
	Additional Tier 1 capital: instruments									
30	Directly issued qualifying Additional Tier 1 instruments plus related contributed surplus[2]		2,450	2,450	2,450	2,450	2,450	2,450	2,150	2,150
31	of which: classified as equity under applicable accounting standards	v + z	2,450	2,450	2,450	2,450	2,450	2,450	2,150	2,150
32	of which: classified as liabilities under applicable accounting standards	p	–	–	–	–	–	–	–	–
33	Directly issued capital instruments subject to phase out from Additional Tier 1[2]	v' + z' + p	350	350	350	350	350	350	750	750
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)	q	–	5	4	3	3	2	2	2
35	of which: instruments issued by subsidiaries subject to phase out		–	–	–	–	–	–	–	–
36	**Additional Tier 1 capital before regulatory adjustments**		**2,800**	**2,805**	**2,804**	**2,803**	**2,803**	**2,802**	**2,902**	**2,902**

(1) Reconciliation with Balance Sheet is presented on pages 12 to 13.
(2) A complete list of capital instruments and their main features is now available on the Bank's website at nbc.ca under *Investor Relations › Capital & Debt Information › Main Features of Regulatory Capital Instruments.*

CC1 – Composition of Regulatory Capital (continued)

(unaudited) (millions of Canadian dollars)

		Reference[1]	2019 Q4	2019 Q3	2019 Q2	2019 Q1	2018 Q4	2018 Q3	2018 Q2	2018 Q1
	Additional Tier 1 capital: regulatory adjustments									
37	Investments in own Additional Tier 1 instruments		–	–	–	–	–	–	–	–
38	Reciprocal cross holdings in Additional Tier 1 instruments		–	–	–	–	–	–	–	–
39	Non-significant investments in the capital of banking, financial and insurance entities, net of eligible short positions (amount above 10% threshold)		–	–	–	–	–	–	–	–
40	Significant investments in the capital of banking, financial and insurance entities that are outside the scope of regulatory consolidation, net of eligible short positions		–	–	–	–	–	–	–	–
41	Other deductions from Tier 1 capital as determined by OSFI		–	–	–	(1)	(1)	(1)	(1)	(1)
41a	of which: Reverse mortgages		–	–	–	(1)	(1)	(1)	(1)	(1)
42	Regulatory adjustments applied to Additional Tier 1 due to insufficient Tier 2 to cover deductions		–	–	–	–	–	–	–	–
43	**Total regulatory adjustments to Additional Tier 1 capital**		**–**	**–**	**–**	**(1)**	**(1)**	**(1)**	**(1)**	**(1)**
44	**Additional Tier 1 capital (AT1)**		**2,800**	**2,805**	**2,804**	**2,802**	**2,802**	**2,801**	**2,901**	**2,901**
45	**Tier 1 capital (T1 = CET1 + AT1)**		**12,492**	**12,280**	**11,896**	**11,624**	**11,410**	**11,290**	**11,137**	**10,903**
	Tier 2 capital: instruments and allowances									
46	Directly issued qualifying Tier 2 instruments plus related contributed surplus[2]	r	750	750	750	750	750	750	750	–
47	Directly issued capital instruments subject to phase out from Tier 2[2]	r'	9	9	9	9	9	9	9	8
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)	s	–	6	5	4	4	3	3	2
49	of which: instruments issued by subsidiaries subject to phase out		–	–	–	–	–	–	–	–
50	Allowances for credit losses	t	189	183	185	188	179	155	164	154
51	**Tier 2 capital before regulatory adjustments**		**948**	**948**	**949**	**951**	**942**	**917**	**926**	**164**
	Tier 2 capital: regulatory adjustments									
52	Investments in own Tier 2 instruments		–	–	–	–	–	–	–	–
53	Reciprocal cross holdings in Tier 2 instruments and Other TLAC-eligible instruments		–	–	–	–	–	–	–	–
54	Non-significant investments in the capital of banking, financial and insurance entities and Other TLAC-eligible instruments issued by G-SIBs and Canadian D-SIBs that are outside the scope of regulatory consolidation, where the institution does not own more than 10% of the issued common share capital of the entity (amount above 10% threshold)		(74)	(35)	(55)	(28)	–	–	–	–
54a	[Reporting row for G-SIBs and D-SIBs only] 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 no longer meets the conditions		(74)	(35)	(55)	(28)	–	–	–	–
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	**Total regulatory adjustments to Tier 2 capital**		**(74)**	**(35)**	**(55)**	**(28)**	–	–	–	–
58	**Tier 2 capital (T2)**		**874**	**913**	**894**	**923**	**942**	**917**	**926**	**164**
59	**Total capital (TC = T1 + T2)**		**13,366**	**13,193**	**12,790**	**12,547**	**12,352**	**12,207**	**12,063**	**11,067**

(1) Reconciliation with Balance Sheet is presented on pages 12 to 13.

(2) A complete list of capital instruments and their main features is now available on the Bank's website at nbc.ca under *Investor Relations › Capital & Debt Information › Main Features of Regulatory Capital Instruments.*

CC1 – Composition of Regulatory Capital (continued)

(unaudited) (millions of Canadian dollars)

		2019				2018			
		Q4	Q3	Q2	Q1	Q4	Q3	Q2	Q1
60	**Total risk-weighted assets**	**83,039**	**80,984**	**79,008**	**77,036**	**73,685**	**73,331**	**72,895**	**71,362**
60a	Common Equity Tier 1 Capital RWA (CET1)	83,039	80,984	79,008	77,036	73,654	73,268	72,834	71,179
60b	Tier 1 Capital RWA	83,039	80,984	79,008	77,036	73,670	73,300	72,865	71,271
60c	Total capital RWA	83,039	80,984	79,008	77,036	73,685	73,331	72,895	71,362
	Capital ratios								
61	Common Equity Tier 1 (as a percentage of risk weighted assets)	11.7%	11.7%	11.5%	11.5%	11.7%	11.6%	11.3%	11.2%
62	Tier 1 (as a percentage of risk weighted assets)	15.0%	15.2%	15.1%	15.1%	15.5%	15.4%	15.3%	15.3%
63	Total capital (as a percentage of risk weighted assets)	16.1%	16.3%	16.2%	16.3%	16.8%	16.7%	16.6%	15.5%
64	Institution-specific buffer requirement (minimum CET1 requirement plus capital conservation buffer plus G-SIB buffer requirement plus D-SIB buffer requirement expressed as a percentage of risk weighted assets)	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%
65	of which: capital conservation buffer requirement	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%
66	of which: bank-specific countercyclical buffer	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
67	of which: G-SIB buffer requirement	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
67a	of which: D-SIBs buffer requirement	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
68	Common Equity Tier 1 available to meet buffers (as a percentage of risk weighted assets)	11.7%	11.7%	11.5%	11.5%	11.7%	11.6%	11.3%	11.2%
	OSFI target (minimum + capital conservation buffer + D-SIB buffer)[1]								
69	Common Equity Tier 1 all-in target ratio	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%
70	Tier 1 capital all-in target ratio	9.5%	9.5%	9.5%	9.5%	9.5%	9.5%	9.5%	9.5%
71	Total capital all-in target ratio	11.5%	11.5%	11.5%	11.5%	11.5%	11.5%	11.5%	11.5%
	Amounts below the thresholds for deduction (before risk weighting)								
72	Non-significant investments in the capital and other TLAC-eligible instruments of other financials entities	527	530	551	549	311	366	481	658
73	Significant investments in the common stock of financials	318	339	301	287	270	255	241	235
74	Mortgage servicing rights (net of related tax liability)	–	–	–	–	–	–	–	–
75	Deferred tax assets arising from temporary differences (net of related tax liabilities)	171	154	37	42	38	43	58	50
	Applicable caps on the inclusion of allowances in Tier 2								
76	Allowance eligible for inclusion in Tier 2 in respect of exposures subject to standardised approach (prior to application of cap)	81	71	71	70	67	66	68	61
77	Cap on inclusion of allowances in Tier 2 under standardised approach	118	103	102	97	90	89	90	83
78	Allowance eligible for inclusion in Tier 2 in respect of exposures subject to internal ratings-based approach (prior to application of cap)	108	112	114	118	112	89	96	93
79	Cap on inclusion of allowances in Tier 2 under internal ratings-based approach	347	345	336	326	314	307	308	310
	Capital instruments subject to phase-out arrangements (only applicable between January 1, 2013 and January 1, 2022)								
80	Current cap on CET1 instruments subject to phase out arrangements	–	–	–	–	–	–	–	–
81	Amount excluded from CET1 due to cap (excess over cap after redemptions and maturities)	–	–	–	–	–	–	–	–
82	Current cap on AT1 instruments subject to phase out arrangements	581	581	581	581	775	775	775	775
83	Amount excluded from AT1 due to cap (excess over cap after redemptions and maturities)	–	–	–	–	–	–	–	–
84	Current cap on T2 instruments subject to phase out arrangements	715	715	715	715	953	953	953	953
85	Amount excluded from T2 due to cap (excess over cap after redemptions and maturities)	–	–	–	–	–	–	–	–

(1) Do not include the domestic stability buffer.

CC2 – Reconciliation of Regulatory Capital to Balance Sheet[1]

(unaudited) (millions of Canadian dollars)

	Q4 2019		
	Cross - Reference to Definition of Capital[2]	As in Report to Shareholders	Under scope of regulatory consolidation
Assets			
Cash and deposits with financial institutions		13,698	13,698
Securities		82,226	93,623
Non-significant investments in capital of other financial institutions reflected in regulatory capital	l	–	–
Other securities		82,226	93,623
Assets purchased under reverse repurchase agreements and securities borrowed		17,723	19,229
Loans			
Residential mortgage		57,171	31,550
Personal		36,944	36,944
Credit card		2,322	2,322
Business and government		50,599	50,599
Customers' liability under acceptances		6,893	6,893
Less: Allowances for credit losses		(678)	(189)
Allowance reflected in Tier 2 regulatory capital	t	–	(189)
Shortfall of allowances to expected loss	i	–	–
Allowances not reflected in regulatory capital		–	(489)
Other assets			
Derivative financial instruments		8,129	8,332
Other		6,431	6,245
Goodwill	e	–	1,510
Intangibles assets	f	–	1,406
Deferred tax assets		**–**	**823**
Deferred tax assets excluding those arising from temporary differences	g	–	–
Deferred tax assets arising from temporary differences exceeding regulatory thresholds	o	–	–
Deferred tax assets - realize through loss carrybacks		–	652
Deferred tax assets - other temporary differences		–	171
Defined-benefit pension fund net assets	k	**–**	**11**
Significant investments in other financial institutions		**–**	**318**
Significant investments exceeding regulatory thresholds	m + n	–	–
Significant investments not exceeding regulatory thresholds		–	318
Other		**–**	**2,177**
Total assets		**281,458**	**269,246**

(1) The basis of consolidation used for financial accounting purposes, described in note 1 to the 2019 Annual Report audited consolidated financial statements, may differ from regulatory purposes. The regulatory consolidation does not include structured entities, where significant risk has been transferred to third parties nor subsidiaries and associates engaged in insurance activities. Total assets of National Bank Life Insurance Company and other insurance subsidiaries are $173 million and $17 million respectively.

(2) The references identify balance sheet components which are used in calculation of regulatory capital on pages 9 to 11.

CC2 – Reconciliation of Regulatory Capital to Balance Sheet[1] (continued)

(unaudited) (millions of Canadian dollars)

	Q4 2019		
	Cross - Reference to Definition of Capital[2]	As in Report to Shareholders	Under scope of regulatory consolidation
Liabilities			
Deposits		189,566	189,566
Derivatives financials instruments		6,852	7,267
Other liabilities		69,131	70,098
Gains and losses due to changes in own credit risk on fair value liabilities	j	–	(24)
Deferred tax liabilities		**–**	**5**
Related to goodwill	w	–	–
Related to intangibles	x	–	258
Related to pensions	y	–	3
Other deferred tax liabilities		–	(256)
Other		–	70,117
Subordinated debt		**773**	**773**
Regulatory capital amortization of maturing debentures		–	–
Fair value adjustment and unamortized issuance cost		–	14
Subordinated debentures not allowed for regulatory capital	s	–	–
Subordinated debentures used for regulatory capital		**–**	**759**
Allowed for inclusion in Tier 2 capital	r	–	750
Subject to phase out	r'	–	9
Total liabilities		**266,322**	**267,704**
Equity Attributable to Shareholders		**14,778**	**14,778**
Common shares	a	–	2,949
Contributed surplus	a'	–	51
Retained earnings	b	–	9,312
Accumulated Other Comprehensive Income (loss)	c	–	16
Net gains (losses) on instruments designated as cash flow hedges	h	–	(6)
Net foreign currency translation adjustments		–	8
Other		–	14
Preferred shares		**–**	**2,450**
of which: are qualifying	v	–	2,450
of which: are subject to phase out	v'	–	–
Non-controlling interest		**358**	**359**
Innovative instruments		**–**	**359**
of which: are qualifying		–	–
of which: are subject to phase out	p'	–	350
Other		–	9
Portion allowed for inclusion into CET1	d	**–**	**–**
Portion allowed for inclusion into Tier 1 capital	q	**–**	**–**
Portion allowed for inclusion into Tier 2 capital	s	**–**	**–**
Portion not allowed for regulatory capital		**–**	**–**
Total Equity		**15,136**	**15,137**
Total Liabilities and Equity		**281,458**	**282,841**

(1) The basis of consolidation used for financial accounting purposes, described in note 1 to the 2019 Annual Report audited consolidated financial statements, may differ from regulatory purposes. The regulatory consolidation does not include structured entities, where significant risk has been transferred to third parties nor subsidiaries and associates engaged in insurance activities. Total assets of National Bank Life Insurance Company and other insurance subsidiaries are $173 million and $17 million respectively.
(2) The references identify balance sheet components which are used in calculation of regulatory capital on pages 9 to 11.

TLAC1 – TLAC Composition[1]

(unaudited) (millions of Canadian dollars)

		2019			
		Q4	Q3	Q2	Q1
	Regulatory capital elements of TLAC and adjustments				
1	Common Equity Tier 1 capital (CET1)	9,692	9,475	9,092	8,822
2	Additional Tier 1 capital (AT1) before TLAC adjustments	2,800	2,805	2,804	2,803
3	AT1 ineligible as TLAC as issued out of subsidiaries to third parties[2]	–	–	–	–
4	Other adjustments	–	–	–	(1)
5	AT1 instruments eligible under the TLAC framework	2,800	2,805	2,804	2,802
6	Tier 2 capital (T2) before TLAC adjustments	948	948	949	951
7	Amortised portion of T2 instruments where remaining maturity > 1 year	–	–	–	–
8	T2 capital ineligible as TLAC as issued out of subsidiaries to third parties[2]	–	–	–	–
9	Other adjustments	(74)	(35)	(55)	(28)
10	T2 instruments eligible under the TLAC framework	874	913	894	923
11	**TLAC arising from regulatory capital**	13,366	13,193	12,790	12,547
	Non-regulatory capital elements of TLAC				
12	External TLAC instruments issued directly by the bank and subordinated to excluded liabilities	–	–	–	–
13	External TLAC instruments issued directly by the bank which are not subordinated to excluded liabilities but meet all other TLAC term sheet requirements	3,467	2,185	1,196	–
14	Of which: amount eligible as TLAC after application of the caps	–	–	–	–
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**	3,467	2,185	1,196	–
	Non-regulatory capital elements of TLAC: adjustments				
18	TLAC before deductions	16,833	15,378	13,986	12,547
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	(7)	–	(9)	–
21	Other adjustments to TLAC	–	–	–	–
22	**TLAC available after deductions**	16,826	15,378	13,977	12,547
	Risk-weighted assets and leverage exposure measure for TLAC purposes				
23	Total risk-weighted assets adjusted as permitted under the TLAC regime	83,039	80,984	79,008	77,036
24	Leverage exposure measure	308,902	303,961	296,118	286,655
	TLAC ratios and buffers				
25	TLAC ratio (as a percentage of risk-weighted assets adjusted as permitted under the TLAC regime)	20.3%	19.0%	17.7%	16.3%
26	TLAC Leverage ratio (as a percentage of leverage exposure)	5.4%	5.1%	4.7%	4.4%
27	CET1 (as a percentage of risk-weighted assets) available after meeting the resolution group's minimum capital and TLAC requirements	n.a.	n.a.	n.a.	n.a.
28	Institution-specific buffer requirement (capital conservation buffer plus countercyclical buffer plus higher loss absorbency, expressed as a percentage of risk-weighted assets)	3.5%	3.5%	3.5%	3.5%
29	Of which: capital conservation buffer	2.5%	2.5%	2.5%	2.5%
30	Of which: bank specific countercyclical buffer	–	–	–	–
31	Of which: D-SIB \ G-SIB buffer	1.0%	1.0%	1.0%	1.0%

(1) Minimum TLAC ratios will be required starting November 1st, 2021.

(2) AT1 and T2 capital issued out of subsidiaries to third parties will be eligible as TLAC up to January 1st, 2022.

TLAC3 – Creditor Ranking at Legal Entity Level[1]

(unaudited) (millions of Canadian dollars)

		Q4 2019						Q3 2019					
		Creditor ranking					Sum (1 to 5)	Creditor ranking					Sum (1 to 5)
		1			4[2]	5[3]		1			4[2]	5[3]	
		Most junior	2	3	Most senior			Most junior	2	3	Most senior		
1	**Description of creditor ranking**	Common shares	Preferred shares	Subordinated debt	Bail-in debt	Other liabilities excluding Bail-in debt		Common shares	Preferred shares	Subordinated debt	Bail-in debt	Other liabilities excluding Bail-in debt	
2	Total capital and liabilities net of credit risk mitigation	2,949	2,450	759	3,467	–	9,625	2,914	2,450	759	2,185	–	8,308
3	Subset of row 2 that are excluded liabilities	–	–	–	7	–	7	–	–	–	–	–	–
4	**Total capital and liabilities less excluded liabilities (row 2 minus row 3)**	2,949	2,450	759	3,460	–	9,618	2,914	2,450	759	2,185	–	8,308
5	Subset of row 4 that are potentially eligible as TLAC	2,949	2,450	759	3,460	–	9,618	2,914	2,450	759	2,185	–	8,308
6	Subset of row 5 with 1 year ≤ residual maturity < 2 years	–	–	–	682	–	682	–	–	–	682	–	682
7	Subset of row 5 with 2 years ≤ residual maturity < 5 years	–	–	–	2,778	–	2,778	–	–	–	1,503	–	1,503
8	Subset of row 5 with 5 years ≤ residual maturity < 10 years	–	–	750	–	–	750	–	–	750	–	–	750
9	Subset of row 5 residual maturity ≥ 10 years, but excluding perpetual securities	–	–	9	–	–	9	–	–	9	–	–	9
10	Subset of row 5 that is perpetual securities	2,949	2,450	–	–	–	5,399	2,914	2,450	–	–	–	5,364

		Q2 2019						Q1 2019					
		Creditor ranking					Sum (1 to 5)	Creditor ranking					Sum (1 to 5)
		1			4[2]	5[3]		1			4[2]	5[3]	
		Most junior	2	3	Most senior			Most junior	2	3	Most senior		
1	**Description of creditor ranking**	Common shares	Preferred shares	Subordinated debt	Bail-in debt	Other liabilities excluding Bail-in debt		Common shares	Preferred shares	Subordinated debt	Bail-in debt	Other liabilities excluding Bail-in debt	
2	Total capital and liabilities net of credit risk mitigation	2,901	2,450	759	1,196	–	7,306	2,880	2,450	759	–	–	6,089
3	Subset of row 2 that are excluded liabilities	–	–	–	9	–	9	–	–	–	–	–	–
4	**Total capital and liabilities less excluded liabilities (row 2 minus row 3)**	2,901	2,450	759	1,187	–	7,297	2,880	2,450	759	–	–	6,089
5	Subset of row 4 that are potentially eligible as TLAC	2,901	2,450	759	1,187	–	7,297	2,880	2,450	759	–	–	6,089
6	Subset of row 5 with 1 year ≤ residual maturity < 2 years	–	–	–	696	–	696	–	–	–	–	–	–
7	Subset of row 5 with 2 years ≤ residual maturity < 5 years	–	–	–	491	–	491	–	–	–	–	–	–
8	Subset of row 5 with 5 years ≤ residual maturity < 10 years	–	–	750	–	–	750	–	–	750	–	–	750
9	Subset of row 5 residual maturity ≥ 10 years, but excluding perpetual securities	–	–	9	–	–	9	–	–	9	–	–	9
10	Subset of row 5 that is perpetual securities	2,901	2,450	–	–	–	5,351	2,880	2,450	–	–	–	5,330

(1) This table provides creditors of the legal entity National Bank of Canada with information regarding their ranking in its liabilities structure.
(2) Bail-in Debt is reflected as subordinated to Other Liabilities. Under the Bail-in Regime, Bail-in Debt which would ordinarily rank equally to Other Liabilities in liquidation, is subject to conversion under statutory resolution powers whereas Other Liabilities are not subject to such conversion.
(3) OSFI doesn't require to complete this column at this time.

LR1 – Summary Comparison of Accounting Assets vs Leverage Ratio Exposure Measure

(unaudited) (millions of Canadian dollars)

		2019				2018			
		Q4	Q3	Q2	Q1	Q4	Q3	Q2	Q1
	Accounting assets vs. leverage ratio exposure								
1	Total consolidated assets as per published financial statements	281,458	276,312	269,106	263,355	262,471	257,637	256,259	251,065
2	Adjustment for investments in banking, financial, insurance or commercial entities that are consolidated for accounting purposes but outside the scope of regulatory consolidation	3	28	4	(3)	(15)	(33)	(58)	(68)
3	Adjustment for securitized exposures that meet the operational requirements for the recognition of risk transference(1)	(897)	(894)	(890)	(904)	–	–	–	–
4	Adjustment for fiduciary assets recognised on the balance sheet pursuant to the operative accounting framework but excluded from the leverage ratio exposure measure	–	–	–	–	–	–	–	–
5	Adjustment for derivative financial instruments(2)	5,873	5,237	5,814	3,808	2,684	2,939	3,090	3,635
6	Adjustment for securities financing transactions (i.e. repos and similar secured lending)(2)	3,164	4,052	3,278	1,920	1,123	3,062	2,516	(488)
7	Adjustment for off-balance sheet items (i.e. conversion to credit equivalent amounts of off-balance sheet exposures)	24,141	23,436	22,940	23,050	22,163	21,492	21,795	20,713
8	Other adjustments	(4,840)	(4,210)	(4,134)	(4,571)	(4,089)	(4,401)	(4,776)	(5,298)
9	**Leverage Ratio Exposure**	**308,902**	**303,961**	**296,118**	**286,655**	**284,337**	**280,696**	**278,826**	**269,559**

(1) OSFI's October 2018 Leverage Requirements Guideline now allows for the exclusion of securitized exposures that meet the operational requirements for risk transference. This exclusion is not applicable for prior quarters.

(2) Adjustments due to differences between accounting and regulatory netting standards.

LR2 – Leverage Ratio Common Disclosure Template

(unaudited) (millions of Canadian dollars)

		2019				2018			
		Q4	Q3	Q2	Q1	Q4	Q3	Q2	Q1
	Leverage ratio common disclosure								
	On-balance sheet exposures								
1	On-balance sheet items (excluding derivatives, SFTs and grandfathered securitization exposures but including collateral)	254,653	252,885	243,584	239,966	235,541	233,308	229,728	224,863
2	Gross-up for derivatives collateral provided where deducted from balance sheet assets pursuant to the operative accounting	–	–	–	–	–	–	–	–
3	(Deductions of receivables assets for cash variation margin provided in derivative transactions)	(2,120)	(1,434)	(1,113)	(1,544)	(938)	(981)	(930)	(1,313)
4	(Asset amounts deducted in determining Basel III Tier 1 capital)	(2,661)	(2,659)	(2,852)	(2,865)	(3,003)	(3,003)	(2,914)	(2,897)
5	**Total on-balance sheet exposures** (excluding derivatives and SFTs) (sum of rows 1 to 4)	**249,872**	**248,792**	**239,619**	**235,557**	**231,600**	**229,324**	**225,884**	**220,653**
	Derivative exposures								
6	Replacement cost associated with all derivative transactions (where applicable net of eligible cash variation margin and/or with bilateral netting)	2,868	3,095	3,007	2,483	3,897	4,034	4,270	3,991
7	Add-on amounts for PFE associated with all derivative transactions	11,115	10,638	10,058	8,463	7,373	6,502	6,725	8,166
8	(Exempted CCP leg of client-cleared trade exposures)	–	–	–	–	–	–	–	–
9	Adjusted effective notional amount of written credit derivatives	19	20	23	20	22	29	–	4
10	(Adjusted effective notional offsets and add-on deductions for written credit derivatives)	–	–	–	–	–	–	–	–
11	**Total derivative exposures (sum of rows 6 to 10)**	**14,002**	**13,753**	**13,088**	**10,966**	**11,292**	**10,565**	**10,995**	**12,161**
	Securities financing transaction exposures								
12	Gross SFT assets (with no recognition of netting), after adjusting for sale accounting transactions	17,723	13,928	17,193	15,162	18,159	16,253	17,636	16,520
13	(Netted amounts of cash payables and cash receivables of gross SFT assets)	(1,038)	(883)	(662)	(2,063)	(2,974)	(1,127)	(2,196)	(4,637)
14	CCR exposure for SFTs assets	4,202	4,935	3,940	3,983	4,097	4,189	4,712	4,149
15	Agent transaction exposures	–	–	–	–	–	–	–	–
16	**Total securities financing transaction exposures (sum of rows 12 to 15)**	**20,887**	**17,980**	**20,471**	**17,082**	**19,282**	**19,315**	**20,152**	**16,032**
	Other off-balance sheet exposures								
17	Off-balance sheet exposure at gross notional amount	75,558	72,873	71,962	71,491	70,091	68,195	68,811	66,194
18	(Adjustments for conversion to credit equivalent amounts)	(51,417)	(49,437)	(49,022)	(48,441)	(47,928)	(46,703)	(47,016)	(45,481)
19	**Off-balance sheet items (sum of rows 17 and 18)**	**24,141**	**23,436**	**22,940**	**23,050**	**22,163**	**21,492**	**21,795**	**20,713**
	Capital and Total Exposures								
20	**Tier 1 capital**	**12,492**	**12,280**	**11,896**	**11,624**	**11,410**	**11,290**	**11,137**	**10,903**
21	**Total Exposures (sum of rows 5, 11, 16 and 19)**	**308,902**	**303,961**	**296,118**	**286,655**	**284,337**	**280,696**	**278,826**	**269,559**
	Leverage Ratio								
22	**Basel III leverage ratio**	**4.0%**	**4.0%**	**4.0%**	**4.1%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**

CR1 – Credit Quality of Assets[1]

(unaudited) (millions of Canadian dollars)

The following tables provide a comprehensive picture of the credit quality of a bank's (on- and off-balance sheet) assets.

		Q4 2019							Q3 2019						
		a	b	c	d	e	f	g	a	b	c	d	e	f	g
		Gross carrying values[2] of		Allowances for credit losses[4]	Of which ECL accounting provisions for credit losses on SA exposures[5]		Of which ECL accounting provisions for credit losses on IRB exposures[5]	Net values (a+b-c)	Gross carrying values[2] of		Allowances for credit losses[4]	Of which ECL accounting provisions for credit losses on SA exposures[5]		Of which ECL accounting provisions for credit losses on IRB exposures[5]	Net values (a+b-c)
		Default exposures[3]	Non-default exposures		Allocated in regulatory category of Specific	Allocated in regulatory category of General			Default exposures[3]	Non-default exposures		Allocated in regulatory category of Specific	Allocated in regulatory category of General		
1	Loans[6]	656	137,240	680	22	32	626	137,216	636	133,921	688				133,869
2	Debt Securities	–	21,740	1	–	–	1	21,739	–	18,382	1				18,381
3	Off-balance-sheet commitments[7]	25	72,829	74	–	2	72	72,780	14	70,027	76				69,965
4	**Total**	**681**	**231,809**	**755**	**22**	**34**	**699**	**231,735**	**650**	**222,330**	**765**				**222,215**

		Q2 2019							Q1 2019						
		a	b	c	d	e	f	g	a	b	c	d	e	f	g
		Gross carrying values[2] of		Allowances for credit losses[4]	Of which ECL accounting provisions for credit losses on SA exposures[5]		Of which ECL accounting provisions for credit losses on IRB exposures[5]	Net values (a+b-c)	Gross carrying values[2] of		Allowances for credit losses[4]	Of which ECL accounting provisions for credit losses on SA exposures[5]		Of which ECL accounting provisions for credit losses on IRB exposures[5]	Net values (a+b-c)
		Default exposures[3]	Non-default exposures		Allocated in regulatory category of Specific	Allocated in regulatory category of General			Default exposures[3]	Non-default exposures		Allocated in regulatory category of Specific	Allocated in regulatory category of General		
1	Loans[6]	596	129,857	684				129,769	572	129,558	665				129,465
2	Debt Securities	–	16,360	1				16,359	–	16,791	1				16,790
3	Off-balance-sheet commitments[7]	24	69,391	62				69,353	22	68,892	62				68,852
4	**Total**	**620**	**215,608**	**747**				**215,481**	**594**	**215,241**	**728**				**215,107**

(1) Excluding insurances subsidiaries and securitization exposures.
(2) Gross carrying values of on- and off-balance sheet items that give rise to a credit risk exposure according to the Basel framework (gross of CCF or CRM techniques).
(3) Definition of default as per the CAR guidelines.
(4) Represent allowances for credit losses according to IFRS 9.
(5) Following the BCBS Technical Amendments to Pillar 3 disclosure requirements and as required by OSFI, allowance for credit losses granularity is presented on a prospective basis, starting Q4 2019.
(6) Including deposits with financial institutions.
(7) For completeness purposes, revocable commitments are included.

CR2 – Changes in Stock of Defaulted Loans and Debt Securities

(unaudited) (millions of Canadian dollars)

The following table identifies the change in a bank's stock of defaulted exposures, the flows between non-defaulted and defaulted exposure categories and reductions in the stock of defaulted exposures due to write-offs.

		Q4 2019	Q3 2019	Q2 2019	Q1 2019
		a	a	a	a
1	Defaulted loans[1] and debt securities at beginning	636	596	572	593
2	Loans and debt securities that have defaulted since the last reporting period	255	246	200	226
3	Returned to non-defaulted status since the last reporting period	(32)	(48)	(32)	(47)
4	Amounts written off	(108)	(78)	(80)	(85)
5	Other changes[2]	(95)	(80)	(64)	(115)
6	**Defaulted loans[1] and debt securities at end**	**656**	**636**	**596**	**572**

(1) Including deposits with financial institutions.
(2) Including net repayments and foreign exchange movements.

CR3 – Credit Risk Mitigation Techniques - Overview

(unaudited) (millions of Canadian dollars)

The following tables disclose the extent of use of credit risk mitigation techniques.

		Q4 2019					Q3 2019				
		a	b1	b	d	f	a	b1	b	d	f
		Exposures unsecured: carrying amount(1)	Exposures subject to risk mitigation techniques(1)	Exposures secured by collateral	Exposures secured by financial guarantees	Exposures secured by credit derivatives	Exposures unsecured: carrying amount(1)	Exposures subject to risk mitigation techniques(1)	Exposures secured by collateral	Exposures secured by financial guarantees	Exposures secured by credit derivatives
1	Loans(2)	74,199	63,670	61,023	2,516	–	70,646	63,885	58,392	5,388	–
2	Debt securities	21,740	–	–	–	–	18,382	–	–	–	–
3	**Total**	**95,939**	**63,670**	**61,023**	**2,516**	**–**	**89,028**	**63,885**	**58,392**	**5,388**	**–**
4	Of which defaulted	388	207	178	27	–	339	227	195	30	–

		Q2 2019					Q1 2019				
		a	b1	b	d	f	a	b1	b	d	f
		Exposures unsecured: carrying amount(1)	Exposures subject to risk mitigation techniques(1)	Exposures secured by collateral	Exposures secured by financial guarantees	Exposures secured by credit derivatives	Exposures unsecured: carrying amount(1)	Exposures subject to risk mitigation techniques(1)	Exposures secured by collateral	Exposures secured by financial guarantees	Exposures secured by credit derivatives
1	Loans(2)	68,496	61,937	56,564	5,279	–	68,659	61,438	56,140	5,220	–
2	Debt securities	16,360	–	–	–	–	16,791	–	–	–	–
3	**Total**	**84,856**	**61,937**	**56,564**	**5,279**	**–**	**85,450**	**61,438**	**56,140**	**5,220**	**–**
4	Of which defaulted	332	239	206	31	–	290	243	204	36	–

(1) Carrying amounts of on-balance sheet exposures are net of all three ECL Stages.
(2) Including deposits with financial institutions.

Distribution of Gross Credit Risk Exposure (Non-Retail Portfolio by Industries)

(unaudited) (millions of Canadian dollars)

	2019																	
	Q4						Q3						Q2					
	EAD - Gross Exposure(1)																	
	Drawn	Undrawn commitments	Other	Repo-style transactions	OTC Derivatives	Total	Drawn	Undrawn commitments	Other	Repo-style transactions	OTC Derivatives	Total	Drawn	Undrawn commitments	Other	Repo-style transactions	OTC Derivatives	Total
Non-Retail Portfolio																		
Agriculture	5,437	337	4	–	–	5,778	5,294	327	4	–	–	5,625	5,080	316	4	–	–	5,400
Oil & Gas and Pipelines(2)	4,326	3,601	284	–	–	8,211	4,249	3,554	283	–	–	8,086	3,974	3,557	275	–	–	7,806
Oil and Gas	*2,799*	*2,070*	*143*	–	–	*5,012*	*2,819*	*2,194*	*143*	–	–	*5,156*	*2,659*	*2,158*	*147*	–	–	*4,964*
Pipelines & Other	*1,527*	*1,531*	*141*	–	–	*3,199*	*1,430*	*1,360*	*140*	–	–	*2,930*	*1,315*	*1,399*	*128*	–	–	*2,842*
Mining	669	1,081	159	–	–	1,909	770	917	153	–	–	1,840	687	937	135	–	–	1,759
Utilities	3,807	2,435	775	–	–	7,017	3,444	2,274	786	–	–	6,504	3,672	2,169	790	–	–	6,631
Construction Non-Real Estate(2)(3)	1,387	1,188	87	–	–	2,662	1,442	983	102	–	–	2,527	1,393	867	118	–	–	2,378
Manufacturing(2)	6,250	2,036	217	–	–	8,503	6,086	2,101	207	–	–	8,394	5,878	2,151	218	–	–	8,247
Wholesale	2,137	851	47	–	–	3,035	2,217	739	54	–	–	3,010	2,593	603	56	–	–	3,252
Retail	3,202	1,172	47	–	–	4,421	3,214	1,259	45	–	–	4,518	3,333	1,162	44	–	–	4,539
Transportation(2)	1,694	845	80	39	–	2,658	1,581	750	74	14	–	2,419	1,537	775	71	8	–	2,391
Communications	1,553	936	200	–	–	2,689	1,634	856	200	–	–	2,690	1,394	882	627	–	–	2,903
Finance and Insurance	30,450	4,102	1,335	138,430	1,982	176,299	26,933	4,069	1,582	135,303	1,676	169,563	23,261	3,706	1,732	113,243	1,572	143,514
Real Estate and Construction Real Estate(2)(4)	11,083	2,961	247	–	–	14,291	11,198	2,889	250	–	–	14,337	11,092	2,813	236	–	–	14,141
Professional Services	1,624	760	363	–	–	2,747	1,809	683	356	–	–	2,848	1,668	623	354	–	–	2,645
Education & Health Care(2)	3,393	1,150	7	1	–	4,551	3,352	1,318	8	1	–	4,679	3,242	1,401	8	2	–	4,653
Other Services	4,880	1,248	398	–	–	6,526	4,691	1,313	381	6	–	6,391	4,420	1,406	356	–	–	6,182
Government	3,652	1,437	3	15,320	175	20,587	4,150	1,322	3	16,780	205	22,460	4,596	1,353	3	15,269	197	21,418
Other	6,966	34	627	1,365	–	8,992	4,828	33	342	1,056	–	6,259	4,726	33	128	1,268	–	6,155
Total – Non-retail(5)	**92,510**	**26,174**	**4,880**	**155,155**	**2,157**	**280,876**	**86,892**	**25,387**	**4,830**	**153,160**	**1,881**	**272,150**	**82,546**	**24,754**	**5,155**	**129,790**	**1,769**	**244,014**

(1) EAD amounts are after securitization and exclude trading related portfolio.
(2) The presentation of certain borrower categories has been changed in Q1 2019. Comparative figures have been revised.
(3) Including civil engineering, public private partnership and project finance loans.
(4) Including residential mortgages 5 units and more.
(5) This total excludes SME retail exposure.

Distribution of Gross Credit Risk Exposure (Non-Retail Portfolio by Industries) (continued)

(unaudited) (millions of Canadian dollars)

	2019						2018											
	Q1						Q4						Q3					
	EAD - Gross Exposure[1]																	
	Drawn	Undrawn commitments	Other	Repo-style transactions	OTC Derivatives	Total	Drawn	Undrawn commitments	Other	Repo-style transactions	OTC Derivatives	Total	Drawn	Undrawn commitments	Other	Repo-style transactions	OTC Derivatives	Total
Non-Retail Portfolio																		
Agriculture	4,919	288	4	–	–	5,211	4,794	321	4	–	–	5,119	4,657	327	6	–	–	4,990
Oil & Gas and Pipelines[2]	4,445	3,402	253	–	–	8,100	4,131	3,384	245	–	–	7,760	3,850	3,490	225	8	–	7,573
Oil and Gas	*2,792*	*2,035*	*147*	*–*	*–*	*4,974*	*2,582*	*2,058*	*151*	*–*	*–*	*4,791*	*2,458*	*2,148*	*131*	*8*	*–*	*4,745*
Pipelines & Other	*1,653*	*1,367*	*106*	*–*	*–*	*3,126*	*1,549*	*1,326*	*94*	*–*	*–*	*2,969*	*1,392*	*1,342*	*94*	*–*	*–*	*2,828*
Mining	915	976	146	–	–	2,037	959	878	137	–	–	1,974	808	838	120	–	–	1,766
Utilities	3,239	1,910	774	–	–	5,923	3,145	1,861	754	–	–	5,760	2,905	1,866	720	–	1	5,492
Construction Non-Real Estate[2][3]	1,215	585	109	–	–	1,909	1,236	427	122	–	–	1,785	1,388	370	91	–	–	1,849
Manufacturing[2]	5,294	1,999	217	–	–	7,510	5,283	1,878	233	–	–	7,394	5,029	1,751	242	–	–	7,022
Wholesale	2,092	700	55	–	–	2,847	2,102	693	52	–	–	2,847	2,128	578	56	–	–	2,762
Retail	3,349	1,018	46	–	–	4,413	2,970	1,052	43	–	–	4,065	2,973	1,128	41	–	–	4,142
Transportation[2]	1,514	1,066	69	19	–	2,668	1,488	1,070	71	31	–	2,660	1,446	1,013	67	30	–	2,556
Communications	1,560	816	819	–	–	3,195	1,608	644	193	–	–	2,445	1,627	646	194	–	–	2,467
Finance and Insurance	26,530	3,665	1,444	105,098	3,418	140,155	28,673	3,606	1,118	113,436	4,138	150,971	25,243	3,295	846	115,720	3,614	148,718
Real Estate and Construction Real Estate[2][4]	10,484	2,747	244	–	–	13,475	11,107	2,748	204	–	–	14,059	10,312	2,405	194	–	–	12,911
Professional Services	1,519	774	360	–	–	2,653	1,384	704	372	–	–	2,460	1,365	653	345	–	–	2,363
Education & Health Care[2]	3,326	1,318	7	2	–	4,653	3,153	1,219	8	3	–	4,383	3,175	1,030	7	6	–	4,218
Other Services	4,497	1,473	348	15	–	6,333	4,481	1,320	350	1	1	6,153	4,602	1,236	331	3	–	6,172
Government	4,489	1,438	3	20,389	232	26,551	2,119	1,288	3	19,979	46	23,435	5,448	1,183	12	19,611	447	26,701
Other	3,839	32	482	822	–	5,175	3,355	32	471	410	13	4,281	3,089	32	505	1,081	–	4,707
Total – Non-retail[5]	**83,226**	**24,207**	**5,380**	**126,345**	**3,650**	**242,808**	**81,988**	**23,125**	**4,380**	**133,860**	**4,198**	**247,551**	**80,045**	**21,841**	**4,002**	**136,459**	**4,062**	**246,409**

(1) EAD amounts are after securitization and exclude trading related portfolio.
(2) The presentation of certain borrower categories has been changed in Q1 2019. Comparative figures have been revised.
(3) Including civil engineering, public private partnership and project finance loans.
(4) Including residential mortgages 5 units and more.
(5) This total excludes SME retail exposure.

Gross Credit Risk Exposure at Default in Europe[1]

(unaudited) (millions of Canadian dollars)

	2019																	
	Q4						Q3						Q2					
	Drawn	Undrawn commitments	Repo-style transactions[2]	OTC derivatives	Other off-balance sheet items[3]	Total	Drawn	Undrawn commitments	Repo-style transactions[2]	OTC derivatives	Other off-balance sheet items[3]	Total	Drawn	Undrawn commitments	Repo-style transactions[2]	OTC derivatives	Other off-balance sheet items[3]	Total
Greece	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Ireland	71	22	690	1	–	**784**	72	20	252	1	–	**345**	61	37	257	–	–	**355**
Italy	–	1	–	–	1	**2**	–	1	–	–	1	**2**	–	–	–	–	2	**2**
Portugal	–	–	–	–	–	**–**	–	–	–	–	–	**–**	–	–	–	–	–	**–**
Spain	1	38	33	1	39	**112**	–	38	–	2	38	**78**	–	–	14	–	40	**54**
Total GIIPS	**72**	**61**	**723**	**2**	**40**	**898**	**72**	**59**	**252**	**3**	**39**	**425**	**61**	**37**	**271**	**–**	**42**	**411**
France	25	76	2,527	–	52	**2,680**	22	98	1,706	–	51	**1,877**	25	52	1,325	1	49	**1,452**
Germany	175	34	–	30	27	**266**	166	10	–	35	–	**211**	152	44	19	28	23	**266**
United Kingdom	872	15	27,374	2,125	1	**30,387**	495	3	27,546	1,960	1	**30,005**	513	21	17,154	1,722	1	**19,411**
Other Europe	118	22	2,696	210	9	**3,055**	218	22	2,939	227	11	**3,417**	118	3	1,999	176	11	**2,307**
Total – Credit Risk[4]	**1,262**	**208**	**33,320**	**2,367**	**129**	**37,286**	**973**	**192**	**32,443**	**2,225**	**102**	**35,935**	**869**	**157**	**20,768**	**1,927**	**126**	**23,847**

Adjustment to exposure for collateral	Drawn	Undrawn commitments	Net Repo-Style transactions and OTC derivatives	Other off-balance sheet items[3]	Total	Drawn	Undrawn commitments	Net Repo-Style transactions and OTC derivatives	Other off-balance sheet items[3]	Total	Drawn	Undrawn commitments	Net Repo-Style transactions and OTC derivatives	Other off-balance sheet items[3]	Total
Total – Net Credit Risk[4]	**1,262**	**208**	**1,267**	**129**	**2,866**	**973**	**192**	**750**	**102**	**2,017**	**869**	**157**	**671**	**126**	**1,823**

	2019						2018											
	Q1						Q4						Q3					
	Drawn	Undrawn commitments	Repo-style transactions[2]	OTC derivatives	Other off-balance sheet items[3]	Total	Drawn	Undrawn commitments	Repo-style transactions[2]	OTC derivatives	Other off-balance sheet items[3]	Total	Drawn	Undrawn commitments	Repo-style transactions[2]	OTC derivatives	Other off-balance sheet items[3]	Total
Greece	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Ireland	52	22	317	–	1	**392**	54	19	6,578	6	–	**6,657**	49	14	6,135	3	–	**6,201**
Italy	–	–	–	–	–	**–**	–	–	99	–	1	**100**	–	–	200	–	1	**201**
Portugal	–	–	–	–	40	**40**	–	–	–	–	–	**–**	–	–	–	–	–	**–**
Spain	1	–	14	–	–	**15**	1	–	–	1	42	**44**	1	–	–	3	40	**44**
Total GIIPS	**53**	**22**	**331**	**–**	**41**	**447**	**55**	**19**	**6,677**	**7**	**43**	**6,801**	**50**	**14**	**6,335**	**6**	**41**	**6,446**
France	22	36	1,349	1	29	**1,437**	14	39	1,579	2	262	**1,896**	13	41	1,300	2	250	**1,606**
Germany	148	45	–	24	253	**470**	143	51	–	8	27	**229**	140	59	–	8	37	**244**
United Kingdom	786	–	16,612	941	4	**18,343**	538	–	18,101	3,015	3	**21,657**	384	–	18,156	1,733	2	**20,275**
Other Europe	100	4	1,643	169	9	**1,925**	87	4	1,837	102	9	**2,039**	51	4	153	98	9	**315**
Total – Credit Risk[4]	**1,109**	**107**	**19,935**	**1,135**	**336**	**22,622**	**837**	**113**	**28,194**	**3,134**	**344**	**32,622**	**638**	**118**	**25,944**	**1,847**	**339**	**28,886**

Adjustment to exposure for collateral	Drawn	Undrawn commitments	Net Repo-Style transactions and OTC derivatives	Other off-balance sheet items[3]	Total	Drawn	Undrawn commitments	Net Repo-Style transactions and OTC derivatives	Other off-balance sheet items[3]	Total	Drawn	Undrawn commitments	Net Repo-Style transactions and OTC derivatives	Other off-balance sheet items[3]	Total
Total – Net Credit Risk[4]	**1,109**	**107**	**587**	**336**	**2,139**	**837**	**113**	**2,185**	**344**	**3,479**	**638**	**118**	**1,291**	**339**	**2,386**

(1) Exposure at default is the expected gross exposure upon the default of an obligor. This amount is before any specific allowance or partial write-offs and does not reflect the impact of credit risk mitigation and collateral held. This table excludes Equity exposures.
(2) Represents securities purchased under reverse repurchase agreements and sold under repurchase agreements, and securities borrowed and loaned.
(3) Letters of guarantee and credit that represent the Bank's commitment to make payments in the event that a client cannot meet its financial obligations to third parties.
(4) For drawn, undrawn and Other off-balance sheet exposures, eligible financial collateral is taken into account in the Bank's Loss Given Default (LGD) models.

CR4 – Standardised Approach - Credit Risk Exposure and Credit Risk Mitigation (CRM) Effects(1)

(unaudited) (millions of Canadian dollars)

The following tables illustrate the effect of CRM on standardised approach capital requirements' calculations. RWA density provides a synthetic metric on riskiness of each portfolio.

		Q4 2019						Q3 2019					
		a	b	c	d	e	f	a	b	c	d	e	f
		Exposures before CCF and CRM		Exposures post-CCF and CRM				Exposures before CCF and CRM		Exposures post-CCF and CRM			
	Assets classes	On-balance sheet amount	Off-balance sheet amount	On-balance sheet amount	Off-balance sheet amount	RWA	RWA density	On-balance sheet amount	Off-balance sheet amount	On-balance sheet amount	Off-balance sheet amount	RWA	RWA density
1	Sovereigns and their central banks	1,654	49	1,654	–	–	0%	1,444	49	1,444	–	496	34%
2	Non-central government public sector entities	–	–	–	–	–	0%	–	–	–	–	–	0%
3	Multilateral development banks	95	–	95	–	–	0%	95	–	95	–	–	0%
4	Financial institutions	1,922	2,507	1,922	129	615	30%	667	2,583	667	237	452	50%
5	Securities firms	–	–	–	–	–	0%	–	–	–	–	–	0%
6	Corporates	3,575	972	3,575	250	2,623	69%	3,058	645	3,058	109	1,986	63%
7	Regulatory retail portfolios	4,580	1,550	4,580	309	2,843	58%	4,821	92	4,821	18	1,987	41%
8	Secured by residential property	5,137	82	5,137	32	1,927	37%	4,782	38	4,782	19	1,802	38%
9	Secured by commercial real estate	136	–	136	–	136	100%	118	–	118	–	118	100%
10	Equity	–	–	–	–	–	0%	–	–	–	–	–	0%
11	Past-due loans	34	5	34	–	23	68%	35	3	35	–	24	69%
12	Higher-risk categories	4	–	4	–	6	150%	4	–	4	–	6	150%
13	Other assets(2)	3,861	–	3,861	–	3,478	90%	3,329	–	3,329	–	3,273	98%
14	**Total**	**20,998**	**5,165**	**20,998**	**720**	**11,651**	**54%**	**18,353**	**3,410**	**18,353**	**383**	**10,144**	**54%**

		Q2 2019						Q1 2019					
		a	b	c	d	e	f	a	b	c	d	e	f
		Exposures before CCF and CRM		Exposures post-CCF and CRM				Exposures before CCF and CRM		Exposures post-CCF and CRM			
	Assets classes	On-balance sheet amount	Off-balance sheet amount	On-balance sheet amount	Off-balance sheet amount	RWA	RWA density	On-balance sheet amount	Off-balance sheet amount	On-balance sheet amount	Off-balance sheet amount	RWA	RWA density
1	Sovereigns and their central banks	1,293	47	1,293	–	786	61%	998	48	998	–	648	65%
2	Non-central government public sector entities	–	–	–	–	–	0%	–	–	–	–	–	0%
3	Multilateral development banks	20	–	20	–	–	0%	20	–	20	–	–	0%
4	Financial institutions	444	2,546	444	202	496	77%	433	2,752	433	364	635	80%
5	Securities firms	–	–	–	–	–	0%	–	–	–	–	–	0%
6	Corporates	3,022	570	3,022	95	1,933	62%	2,817	474	2,817	39	1,700	60%
7	Regulatory retail portfolios	4,943	86	4,943	17	2,000	40%	5,150	–	5,150	–	2,102	41%
8	Secured by residential property	4,406	39	4,406	19	1,669	38%	4,049	39	4,049	20	1,548	38%
9	Secured by commercial real estate	108	–	108	–	108	100%	75	–	75	–	75	100%
10	Equity	–	–	–	–	–	0%	–	–	–	–	–	0%
11	Past-due loans	32	16	32	–	21	66%	33	14	33	–	21	64%
12	Higher-risk categories	4	–	4	–	7	175%	4	–	4	–	6	150%
13	Other assets(2)	3,223	–	3,223	–	3,231	100%	2,910	–	2,910	–	2,853	98%
14	**Total**	**17,495**	**3,304**	**17,495**	**333**	**10,251**	**57%**	**16,489**	**3,327**	**16,489**	**423**	**9,588**	**57%**

(1) Excluding items subject to securitization and counterparty credit risk frameworks.

(2) For completeness purposes, row 13 "Other assets" is populated with all other assets except exposures that are subject to direct capital deductions and those that are treated in the off-balance sheet calculations.

CR5 – Standardised Approach - Exposures by Asset Classes and Risk Weights(1)

(unaudited) (millions of Canadian dollars)

The following tables present the breakdown of credit risk exposures under the standardised approach by asset class and risk weight (corresponding to the riskiness attributed to the exposure according to standardised approach).

Q4 2019

		a	b	c	d	e	f	g	h	i	j
	Asset classes / Risk weight	0%	10%	20%	35%	50%	75%	100%	150%	Others	Total credit exposures amount(2)
1	Sovereigns and their central banks	1,654	–	–	–	–	–	–	–	–	1,654
2	Non-central government public sector entities	–	–	–	–	–	–	–	–	–	–
3	Multilateral development banks	95	–	–	–	–	–	–	–	–	95
4	Financial institutions	–	–	1,795	–	–	–	256	–	–	2,051
5	Securities firms	–	–	–	–	–	–	–	–	–	–
6	Corporates	1,202	–	–	–	–	–	2,623	–	–	3,825
7	Regulatory retail portfolios	1,099	–	–	–	–	3,790	–	–	–	4,889
8	Secured by residential property	686	–	–	3,607	9	829	38	–	–	5,169
9	Secured by commercial real estate	–	–	–	–	–	–	136	–	–	136
10	Equity	–	–	–	–	–	–	–	–	–	–
11	Past-due loans	12	–	–	–	–	–	21	1	–	34
12	Higher-risk categories	–	–	–	–	–	–	–	4	–	4
13	Other assets(3)	704	–	515	–	–	–	2,153	–	489	3,861
14	**Total**	**5,452**	**–**	**2,310**	**3,607**	**9**	**4,619**	**5,227**	**5**	**489**	**21,718**

Q3 2019

		a	b	c	d	e	f	g	h	i	j
	Asset classes / Risk weight	0%	10%	20%	35%	50%	75%	100%	150%	Others	Total credit exposures amount(2)
1	Sovereigns and their central banks	948	–	–	–	–	–	496	–	–	1,444
2	Non-central government public sector entities	–	–	–	–	–	–	–	–	–	–
3	Multilateral development banks	95	–	–	–	–	–	–	–	–	95
4	Financial institutions	–	–	564	–	–	–	340	–	–	904
5	Securities firms	–	–	–	–	–	–	–	–	–	–
6	Corporates	1,181	–	–	–	–	–	1,986	–	–	3,167
7	Regulatory retail portfolios	2,191	–	–	–	–	2,648	–	–	–	4,839
8	Secured by residential property	678	–	–	3,244	9	833	37	–	–	4,801
9	Secured by commercial real estate	–	–	–	–	–	–	118	–	–	118
10	Equity	–	–	–	–	–	–	–	–	–	–
11	Past-due loans	11	–	–	–	–	–	23	1	–	35
12	Higher-risk categories	–	–	–	–	–	–	–	4	–	4
13	Other assets(3)	657	–	174	–	–	–	2,005	–	493	3,329
14	**Total**	**5,761**	**–**	**738**	**3,244**	**9**	**3,481**	**5,005**	**5**	**493**	**18,736**

Q2 2019

		a	b	c	d	e	f	g	h	i	j
	Asset classes / Risk weight	0%	10%	20%	35%	50%	75%	100%	150%	Others	Total credit exposures amount(2)
1	Sovereigns and their central banks	507	–	–	–	–	–	786	–	–	1,293
2	Non-central government public sector entities	–	–	–	–	–	–	–	–	–	–
3	Multilateral development banks	20	–	–	–	–	–	–	–	–	20
4	Financial institutions	–	–	188	–	–	–	458	–	–	646
5	Securities firms	–	–	–	–	–	–	–	–	–	–
6	Corporates	1,183	–	–	–	–	–	1,934	–	–	3,117
7	Regulatory retail portfolios	2,292	–	–	–	–	2,668	–	–	–	4,960
8	Secured by residential property	620	–	–	2,986	11	758	50	–	–	4,425
9	Secured by commercial real estate	–	–	–	–	–	–	108	–	–	108
10	Equity	–	–	–	–	–	–	–	–	–	–
11	Past-due loans	11	–	–	–	–	–	20	1	–	32
12	Higher-risk categories	–	–	–	–	–	–	–	4	–	4
13	Other assets(3)	499	–	–	–	–	–	2,386	–	338	3,223
14	**Total**	**5,132**	**–**	**188**	**2,986**	**11**	**3,426**	**5,742**	**5**	**338**	**17,828**

Q1 2019

		a	b	c	d	e	f	g	h	i	j
	Asset classes / Risk weight	0%	10%	20%	35%	50%	75%	100%	150%	Others	Total credit exposures amount(2)
1	Sovereigns and their central banks	347	–	–	–	5	–	646	–	–	998
2	Non-central government public sector entities	–	–	–	–	–	–	–	–	–	–
3	Multilateral development banks	20	–	–	–	–	–	–	–	–	20
4	Financial institutions	–	–	202	–	–	–	595	–	–	797
5	Securities firms	–	–	–	–	–	–	–	–	–	–
6	Corporates	1,156	–	–	–	–	–	1,700	–	–	2,856
7	Regulatory retail portfolios	2,347	–	–	–	–	2,803	–	–	–	5,150
8	Secured by residential property	547	–	–	2,751	11	721	39	–	–	4,069
9	Secured by commercial real estate	–	–	–	–	–	–	75	–	–	75
10	Equity	–	–	–	–	–	–	–	–	–	–
11	Past-due loans	12	–	–	–	–	–	20	1	–	33
12	Higher-risk categories	–	–	–	–	–	–	–	4	–	4
13	Other assets(3)	550	–	–	–	–	–	2,031	–	329	2,910
14	**Total**	**4,979**	**–**	**202**	**2,751**	**16**	**3,524**	**5,106**	**5**	**329**	**16,912**

(1) Excluding items subject to securitization and counterparty credit risk frameworks. In the wholesale portfolio, for sovereign and banks asset classes, risk weights are based on external credit ratings issued by independent rating agencies (Moody's, Standard & Poor's, Fitch or DBRS) approved by our supervisor, OSFI.

(2) Post-CCF and Post-CRM.

(3) For completeness purposes, row 13 "Other assets" is populated with all other assets except exposures that are subject to direct capital deductions and those that are treated in the off-balance sheet calculations.

CR6 – IRB - Credit Risk Exposures by Portfolio and PD Range

(unaudited) (millions of Canadian dollars)

The following tables provide the main parameters used for the calculation of capital requirements for IRB models. The purpose of disclosing these parameters is to enhance the transparency of banks' RWA calculations and the reliability of regulatory measures.

	Q4 2019												
		a	b	c	d	e	f	g	h	i	j	k	l
	PD scale[1]	Original on-balance sheet gross exposure	Off-balance sheet exposures pre CCF[2]	Average CCF[3]	EAD post CRM and post-CCF	Average PD[4]	Number of obligors[5]	Average LGD[6]	Average maturity[7]	RWA[8]	RWA density[9]	EL[10]	Allowances for credit losses
Residential Mortgages and HELOCs – insured	0.00 to < 0.15	780	–	–	780	0.07%	53,452	5.9%		9	1.1%	–	
	0.15 to < 0.25	334	–	–	334	0.20%	17,743	5.4%		8	2.3%	–	
	0.25 to < 0.50	502	–	–	502	0.36%	20,505	6.4%		21	4.2%	–	
	0.50 to < 0.75	289	–	–	289	0.60%	9,271	6.6%		18	6.3%	–	
	0.75 to < 2.50	422	–	–	422	1.32%	14,027	7.9%		54	12.7%	–	
	2.50 to < 10.00	148	–	–	148	4.33%	4,150	6.6%		29	19.9%	–	
	10.00 to < 100.00	60	–	–	60	28.27%	1,414	3.0%		11	17.6%	–	
	100.00 (Default)	35	–	–	35	100.00%	602	3.0%		5	15.0%	2	
	Sub-total	2,570	–	–	2,570	2.70%	121,164	6.3%		155	6.0%	2	3
Residential Mortgages and HELOCs – uninsured	0.00 to < 0.15	24,487	14,376	50%	31,626	0.07%	196,837	19.6%		1,137	3.6%	4	
	0.15 to < 0.25	6,467	986	68%	7,139	0.19%	31,425	22.0%		659	9.2%	3	
	0.25 to < 0.50	5,939	911	70%	6,572	0.34%	26,307	22.6%		921	14.0%	5	
	0.50 to < 0.75	2,448	198	72%	2,591	0.61%	10,183	22.5%		555	21.4%	4	
	0.75 to < 2.50	2,305	222	69%	2,458	1.29%	10,969	22.3%		841	34.2%	7	
	2.50 to < 10.00	668	50	68%	702	4.52%	3,830	21.5%		488	69.4%	7	
	10.00 to < 100.00	189	4	122%	193	23.85%	1,213	22.9%		251	130.2%	10	
	100.00 (Default)	91	3	86%	93	100.00%	707	21.6%		132	141.8%	12	
	Sub-total	42,594	16,750	52%	51,374	0.54%	281,471	20.6%		4,984	9.7%	52	36
Qualifying revolving retail	0.00 to < 0.15	723	5,324	40%	2,873	0.05%	704,204	77.6%		81	2.8%	1	
	0.15 to < 0.25	187	379	75%	471	0.19%	204,518	83.4%		44	9.4%	1	
	0.25 to < 0.50	305	327	73%	544	0.36%	181,889	80.4%		77	14.2%	2	
	0.50 to < 0.75	217	155	77%	336	0.63%	75,335	76.5%		73	21.7%	2	
	0.75 to < 2.50	601	250	79%	798	1.43%	258,658	81.8%		347	43.5%	10	
	2.50 to < 10.00	413	51	105%	467	4.52%	223,005	85.4%		469	100.4%	17	
	10.00 to < 100.00	70	4	63%	73	22.42%	30,381	83.6%		164	223.6%	14	
	100.00 (Default)	24	–	5%	24	100.00%	4,197	72.6%		50	208.5%	14	
	Sub-total	2,540	6,490	47%	5,586	1.42%	1,682,187	79.6%		1,305	23.4%	61	196
Other retail	0.00 to < 0.15	2,051	2,043	45%	2,977	0.06%	118,678	50.9%		276	9.3%	1	
	0.15 to < 0.25	824	214	67%	967	0.20%	46,048	54.3%		229	23.7%	1	
	0.25 to < 0.50	1,403	250	71%	1,579	0.36%	77,925	56.9%		562	35.6%	3	
	0.50 to < 0.75	1,058	199	81%	1,219	0.63%	54,037	59.0%		624	51.2%	5	
	0.75 to < 2.50	2,978	219	75%	3,143	1.38%	195,759	62.2%		2,340	74.5%	28	
	2.50 to < 10.00	966	59	76%	1,011	4.33%	70,111	65.6%		1,017	100.6%	29	
	10.00 to < 100.00	273	4	72%	276	18.59%	15,379	64.9%		396	143.6%	33	
	100.00 (Default)	103	3	70%	105	100.00%	6,923	57.8%		188	178.6%	49	
	Sub-total	9,656	2,991	54%	11,277	2.31%	584,860	57.8%		5,632	49.9%	149	138

(1) Prescribed PD bands based on BIS document on Revised Pillar 3 disclosure requirements issued in January 2015.
(2) Represents the exposure value without taking into account value adjustments and provisions, conversion factors and the effect of credit risk mitigation techniques.
(3) Represents the EAD post-credit conversion factor (CCF) for off-balance sheet exposure to total off-balance sheet exposure pre CCF.
(4) Represents the obligor grade PD weighted by EAD.
(5) Represents the number of retail accounts.
(6) Represents the obligor grade LGD (net of any CRM effect) weighted by EAD.
(7) Represents the obligor maturity in years weighted by EAD. This parameter needs to be filled in only when it is used for the RWA calculation.
(8) Risk weighted assets including the 1.06 scaling factor.
(9) Total risk-weighted assets to EAD post-CRM.
(10) The expected losses (EL) as calculated according to paragraphs 375 - 379 of the Basel framework.

CR6 – IRB - Credit Risk Exposures by Portfolio and PD Range (continued)

(unaudited) (millions of Canadian dollars)

	Q4 2019												
		a	b	c	d	e	f	g	h	i	j	k	l
	PD scale[1]	Original on-balance sheet gross exposure	Off-balance sheet exposures pre CCF[2]	Average CCF[3]	EAD post CRM and post-CCF	Average PD[4]	Number of obligors[5]	Average LGD[6]	Average maturity[7]	RWA[8]	RWA density[9]	EL[10]	Allowances for credit losses
Corporate	0.00 to < 0.15	1,592	3,561	76%	5,440	0.09%	741	46.2%	2.45	1,394	25.7%	2	
	0.15 to < 0.25	11,712	8,346	84%	21,924	0.20%	3,654	37.5%	2.61	7,408	33.8%	16	
	0.25 to < 0.50	9,906	4,930	90%	15,929	0.36%	2,388	35.1%	2.46	6,661	41.8%	20	
	0.50 to < 0.75	7,624	2,477	81%	11,092	0.56%	2,641	33.0%	2.21	4,953	44.6%	20	
	0.75 to < 2.50	14,225	3,081	83%	18,503	1.15%	6,180	33.4%	1.94	10,793	58.3%	72	
	2.50 to < 10.00	2,343	355	79%	2,929	4.65%	1,295	28.4%	1.66	2,244	76.6%	39	
	10.00 to < 100.00	215	27	70%	242	16.98%	61	32.6%	1.07	349	144.4%	14	
	100.00 (Default)	382	213	2%	599	100.00%	200	27.5%	1.23	580	96.9%	112	
	Sub-total	47,999	22,990	83%	76,658	1.51%	17,160	35.5%	2.29	34,382	44.8%	295	322
Sovereign	0.00 to < 0.15	28,939	4,470	97%	34,857	0.01%	575	8.9%	2.44	563	1.6%	–	
	0.15 to < 0.25	–	–	–	–	–	–	–	–	–	–	–	
	0.25 to < 0.50	–	–	–	–	–	–	–	–	–	–	–	
	0.50 to < 0.75	–	–	–	–	–	–	–	–	–	–	–	
	0.75 to < 2.50	–	–	–	–	–	–	–	–	–	–	–	
	2.50 to < 10.00	63	9	89%	72	5.07%	4	14.1%	1.00	31	44.0%	1	
	10.00 to < 100.00	–	–	–	–	–	–	–	–	–	–	–	
	100.00 (Default)	–	–	–	–	–	–	–	–	–	–	–	
	Sub-total	29,002	4,479	97%	34,929	0.02%	579	8.9%	2.43	594	1.7%	1	2
Financial institutions	0.00 to < 0.15	2,901	388	–	3,400	0.06%	67	48.1%	1.42	640	18.9%	1	
	0.15 to < 0.25	226	263	95%	489	0.21%	22	26.2%	1.53	104	21.2%	–	
	0.25 to < 0.50	20	83	90%	154	0.36%	10	12.4%	1.53	23	15.4%	–	
	0.50 to < 0.75	3	25	50%	28	0.56%	5	50.1%	1.44	19	67.4%	–	
	0.75 to < 2.50	109	6	100%	127	0.86%	14	45.6%	1.00	93	73.5%	1	
	2.50 to < 10.00	1	–	–	1	3.15%	3	47.9%	1.00	1	153.1%	–	
	10.00 to < 100.00	–	–	–	–	–	–	–	–	–	–	–	
	100.00 (Default)	–	–	–	–	–	–	–	–	–	–	–	
	Sub-total	3,260	765	45%	4,199	0.11%	121	44.2%	1.43	880	21.0%	2	2
Total (all portfolio)		**137,621**	**54,465**	**68%**	**186,593**	**0.99%**	**2,687,542**	**29.3%**	**2.30**	**47,932**	**24.1%**	**562**	**699**

(1) Prescribed PD bands based on BIS document on Revised Pillar 3 disclosure requirements issued in January 2015.
(2) Represents the exposure value without taking into account value adjustments and provisions, conversion factors and the effect of credit risk mitigation techniques.
(3) Represents the EAD post-credit conversion factor (CCF) for off-balance sheet exposure to total off-balance sheet exposure pre CCF.
(4) Represents the obligor grade PD weighted by EAD.
(5) Represents the number of individual borrowers.
(6) Represents the obligor grade LGD (net of any CRM effect) weighted by EAD.
(7) Represents the obligor maturity in years weighted by EAD. This parameter needs to be filled in only when it is used for the RWA calculation.
(8) Risk weighted assets including the 1.06 scaling factor.
(9) Total risk-weighted assets to EAD post-CRM.
(10) The expected losses (EL) as calculated according to paragraphs 375 - 379 of the Basel framework.

CR6 – IRB - Credit Risk Exposures by Portfolio and PD Range (continued)

(unaudited) (millions of Canadian dollars)

	Q4 2018												
		a	b	c	d	e	f	g	h	i	j	k	l
	PD scale[1]	Original on-balance sheet gross exposure	Off-balance sheet exposures pre CCF[2]	Average CCF[3]	EAD post CRM and post-CCF	Average PD[4]	Number of obligors[5]	Average LGD[6]	Average maturity[7]	RWA[8]	RWA density[9]	EL[10]	Allowances for credit losses
Residential Mortgages and HELOCs – insured	0.00 to < 0.15	781	–	–	781	0.08%	51,552	6.8%		11	1.4%	–	
	0.15 to < 0.25	368	–	–	368	0.20%	19,669	6.9%		11	3.0%	–	
	0.25 to < 0.50	505	–	–	505	0.36%	22,937	6.2%		20	4.0%	–	
	0.50 to < 0.75	293	–	–	293	0.61%	10,021	5.3%		15	5.0%	–	
	0.75 to < 2.50	455	–	–	455	1.34%	16,044	4.0%		27	6.2%	–	
	2.50 to < 10.00	157	–	–	157	4.58%	4,588	3.4%		17	10.9%	–	
	10.00 to < 100.00	73	–	–	73	29.33%	1,618	3.0%		13	17.3%	1	
	100.00 (Default)	45	–	–	45	100.00%	741	2.8%		4	8.4%	2	
	Sub-total	2,677	–	–	2,677	3.17%	127,170	5.7%		118	4.4%	3	7
Residential Mortgages and HELOCs – uninsured	0.00 to < 0.15	22,074	13,509	50%	28,788	0.07%	186,609	23.0%		1,216	4.2%	5	
	0.15 to < 0.25	6,131	909	68%	6,749	0.19%	30,702	24.5%		693	10.3%	3	
	0.25 to < 0.50	5,675	850	70%	6,274	0.35%	26,260	24.6%		963	15.3%	5	
	0.50 to < 0.75	2,226	201	72%	2,371	0.61%	9,714	25.0%		563	23.7%	4	
	0.75 to < 2.50	2,281	220	71%	2,436	1.27%	11,040	24.6%		915	37.6%	8	
	2.50 to < 10.00	680	42	76%	712	4.54%	3,891	23.8%		543	76.3%	8	
	10.00 to < 100.00	195	2	111%	197	23.95%	1,355	25.0%		282	143.1%	11	
	100.00 (Default)	90	2	138%	92	100.00%	655	22.6%		160	172.5%	10	
	Sub-total	39,352	15,735	53%	47,619	0.57%	270,226	23.6%		5,335	11.2%	54	32
Qualifying revolving retail	0.00 to < 0.15	768	5,966	43%	3,332	0.05%	895,632	81.5%		93	2.8%	1	
	0.15 to < 0.25	208	413	55%	435	0.20%	117,492	83.7%		42	9.6%	1	
	0.25 to < 0.50	350	495	58%	636	0.36%	148,785	83.6%		94	14.8%	2	
	0.50 to < 0.75	241	184	64%	359	0.63%	71,453	79.5%		81	22.5%	2	
	0.75 to < 2.50	701	282	67%	889	1.45%	236,145	84.1%		402	45.2%	11	
	2.50 to < 10.00	455	62	99%	516	4.47%	234,061	86.5%		520	100.8%	20	
	10.00 to < 100.00	83	4	84%	86	24.58%	32,158	85.7%		200	232.4%	19	
	100.00 (Default)	23	–	2%	23	100.00%	3,898	69.2%		35	150.6%	14	
	Sub-total	2,829	7,406	47%	6,276	1.39%	1,739,624	82.6%		1,467	23.4%	70	188
Other retail	0.00 to < 0.15	2,153	1,871	44%	2,986	0.07%	109,622	48.4%		267	8.9%	1	
	0.15 to < 0.25	807	198	70%	946	0.20%	43,211	52.7%		217	22.9%	1	
	0.25 to < 0.50	1,358	241	72%	1,531	0.37%	75,981	56.9%		548	35.8%	3	
	0.50 to < 0.75	1,075	197	81%	1,235	0.63%	53,529	58.2%		624	50.5%	5	
	0.75 to < 2.50	2,929	327	76%	3,172	1.38%	206,716	63.4%		2,400	75.6%	28	
	2.50 to < 10.00	958	67	74%	1,008	4.33%	70,018	65.3%		1,010	100.3%	29	
	10.00 to < 100.00	213	4	65%	216	20.39%	13,355	66.5%		328	151.8%	29	
	100.00 (Default)	105	2	56%	106	100.00%	7,063	58.0%		209	197.5%	49	
	Sub-total	9,598	2,907	55%	11,200	2.27%	579,495	57.2%		5,603	50.0%	145	137

(1) Prescribed PD bands based on BIS document on Revised Pillar 3 disclosure requirements issued in January 2015.
(2) Represents the exposure value without taking into account value adjustments and provisions, conversion factors and the effect of credit risk mitigation techniques.
(3) Represents the EAD post-credit conversion factor (CCF) for off-balance sheet exposure to total off-balance sheet exposure pre CCF.
(4) Represents the obligor grade PD weighted by EAD.
(5) Represents the number of retail accounts.
(6) Represents the obligor grade LGD (net of any CRM effect) weighted by EAD.
(7) Represents the obligor maturity in years weighted by EAD. This parameter needs to be filled in only when it is used for the RWA calculation.
(8) Risk weighted assets including the 1.06 scaling factor.
(9) Total risk-weighted assets to EAD post-CRM.
(10) The expected losses (EL) as calculated according to paragraphs 375 - 379 of the Basel framework.

CR6 – IRB - Credit Risk Exposures by Portfolio and PD Range (continued)

(unaudited) (millions of Canadian dollars)

		Q4 2018											
		a	b	c	d	e	f	g	h	i	j	k	l
	PD scale(1)	Original on-balance sheet gross exposure	Off-balance sheet exposures pre CCF(2)	Average CCF(3)	EAD post CRM and post-CCF	Average PD(4)	Number of obligors(5)	Average LGD(6)	Average maturity(7)	RWA(8)	RWA density(9)	EL(10)	Allowances for credit losses
Corporate	0.00 to < 0.15	1,813	2,117	81%	4,153	0.09%	749	48.3%	2.04	1,025	24.7%	2	
	0.15 to < 0.25	12,930	8,423	87%	23,291	0.20%	3,664	36.7%	2.84	7,871	33.8%	17	
	0.25 to < 0.50	8,489	4,884	76%	14,395	0.36%	2,234	36.0%	2.39	5,990	41.6%	19	
	0.50 to < 0.75	6,108	1,698	86%	8,309	0.56%	2,493	33.9%	2.08	3,737	45.0%	16	
	0.75 to < 2.50	12,836	2,358	87%	16,258	1.14%	6,221	34.9%	2.00	9,939	61.1%	64	
	2.50 to < 10.00	2,021	291	67%	2,467	4.80%	1,163	28.7%	1.95	2,049	83.1%	36	
	10.00 to < 100.00	194	10	97%	205	16.72%	69	32.9%	1.12	298	145.5%	11	
	100.00 (Default)	356	5	70%	367	100.00%	202	21.1%	1.24	235	64.0%	104	
	Sub-total	44,747	19,786	83%	69,445	1.23%	16,795	36.1%	2.36	31,144	44.8%	269	277
Sovereign	0.00 to < 0.15	26,125	4,487	97%	31,607	0.01%	583	9.2%	2.38	533	1.7%	–	
	0.15 to < 0.25	–	–	–	–	–	–	–	–	–	–	–	
	0.25 to < 0.50	–	–	–	–	–	–	–	–	–	–	–	
	0.50 to < 0.75	–	–	–	–	–	–	–	–	–	–	–	
	0.75 to < 2.50	–	–	–	–	–	–	–	–	–	–	–	
	2.50 to < 10.00	74	2	62%	77	5.07%	1	14.1%	1.00	34	44.0%	1	
	10.00 to < 100.00	–	–	–	–	–	–	–	–	–	–	–	
	100.00 (Default)	–	–	–	–	–	–	–	–	–	–	–	
	Sub-total	26,199	4,489	97%	31,684	0.02%	584	9.2%	2.37	567	1.8%	1	2
Financial institutions	0.00 to < 0.15	2,146	301	–	2,585	0.06%	72	42.4%	1.48	422	16.3%	1	
	0.15 to < 0.25	1,247	7	–	1,254	0.23%	15	13.0%	1.02	157	12.5%	–	
	0.25 to < 0.50	238	130	87%	368	0.36%	16	33.7%	1.19	163	44.1%	–	
	0.50 to < 0.75	76	12	100%	88	0.53%	3	45.4%	1.00	55	65.4%	–	
	0.75 to < 2.50	86	1	100%	87	1.31%	17	49.3%	1.00	94	108.8%	1	
	2.50 to < 10.00	1	–	–	1	3.15%	4	47.3%	1.00	1	151.1%	–	
	10.00 to < 100.00	–	–	–	–	–	–	–	–	–	–	–	
	100.00 (Default)	–	–	–	–	–	–	–	–	–	–	–	
	Sub-total	3,794	451	28%	4,383	0.17%	127	33.4%	1.30	892	20.3%	2	2
Total (all portfolio)		**129,196**	**50,774**	**67%**	**173,284**	**0.90%**	**2,734,021**	**30.3%**	**2.30**	**45,126**	**26.0%**	**544**	**645**

(1) Prescribed PD bands based on BIS document on Revised Pillar 3 disclosure requirements issued in January 2015.
(2) Represents the exposure value without taking into account value adjustments and provisions, conversion factors and the effect of credit risk mitigation techniques.
(3) Represents the EAD post-credit conversion factor (CCF) for off-balance sheet exposure to total off-balance sheet exposure pre CCF.
(4) Represents the obligor grade PD weighted by EAD.
(5) Represents the number of individual borrowers.
(6) Represents the obligor grade LGD (net of any CRM effect) weighted by EAD.
(7) Represents the obligor maturity in years weighted by EAD. This parameter needs to be filled in only when it is used for the RWA calculation.
(8) Risk weighted assets including the 1.06 scaling factor.
(9) Total risk-weighted assets to EAD post-CRM.
(10) The expected losses (EL) as calculated according to paragraphs 375 - 379 of the Basel framework.

CR8 – RWA Flow Statements of Credit Risk Exposures Under IRB

(unaudited) (millions of Canadian dollars)

The following table presents a flow statement explaining variations in the credit risk-weighted assets (RWA) determined under an IRB approach.

		Q4 2019	Q3 2019	Q2 2019	Q1 2019
		a	a	a	a
1	**RWA at beginning**	**49,045**	**47,395**	**47,097**	**46,640**
2	Book size(1)	544	1,511	93	721
3	Book quality(2)	(2)	(127)	49	(254)
4	Model updates(3)	(32)	397	30	–
5	Methodology and policy(4)	–	–	–	–
6	Acquisitions and disposals(5)	–	–	–	–
7	Foreign exchange movements(6)	(9)	(131)	126	(10)
8	Other(7)	–	–	–	–
9	**RWA at end**	**49,546**	**49,045**	**47,395**	**47,097**

(1) Organic changes in book size and composition (including origination of new businesses and maturing loans) excluding acquisitions and disposal of entities.
(2) Changes in the assessed quality of the bank's assets due to changes in borrower risk, such as rating grade migration, parameter recalibration, or similar effects.
(3) Changes due to model implementation, changes in model scope, or any changes intended to address model weaknesses.
(4) Changes due to methodological changes in calculations driven by regulatory policy changes, including both revisions to existing regulations and new regulations.
(5) Changes in book size due to acquisitions and/or divestitures.
(6) Changes driven by market movements such as foreign exchange movements.
(7) This category captures changes that cannot be attributed to any other category.

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

(unaudited) (millions of Canadian dollars)

The following table provides backtesting data to validate the reliability of PD calculations. In particular, the template compares the PD used in IRB capital calculations with the effective default rates of bank obligors. A minimum five-year average annual default rate is required to compare the PD with a "more stable" default rate, although a bank may use a longer historical period that is consistent with its actual risk management practices.

	Q4 2019									
a	b	c		d	e	f		g	h	i
		External rating equivalent				Number of obligors[2]				
Portfolio	PD Range[1]	S&P	Moody's	Weighted average PD	Arithmetic average PD by obligors	End of previous year	End of the year	Defaulted obligors in the year	Of which new defaulted obligors in the year	Average historical annual default rate
Residential Mortgages and HELOCs – insured	0.00 to ‹ 0.15	AAA to BBB+	Aaa to Baa1	0.07%	0.07%	51,552	53,452	23	–	0.05%
	0.15 to ‹ 0.25	BBB	Baa2	0.20%	0.19%	19,669	17,743	20	–	0.13%
	0.25 to ‹ 0.50	BBB-	Baa3	0.36%	0.35%	22,937	20,505	32	–	0.24%
	0.50 to ‹ 0.75	BB+	Ba1	0.60%	0.61%	10,021	9,271	41	1	0.45%
	0.75 to ‹ 2.50	BB to BB-	Ba2 to Ba3	1.32%	1.28%	16,044	14,027	98	2	0.78%
	2.50 to ‹ 10.00	B+ to B-	B1 to B3	4.33%	4.47%	4,588	4,150	147	4	3.24%
	10.00 to ‹ 100.00	CCC+ to CCC-	Caa1 to Caa3	28.27%	26.46%	1,618	1,414	371	1	22.02%
Residential Mortgages and HELOCs – uninsured	0.00 to ‹ 0.15	AAA to BBB+	Aaa to Baa1	0.07%	0.06%	186,609	196,837	54	1	0.04%
	0.15 to ‹ 0.25	BBB	Baa2	0.19%	0.19%	30,702	31,425	50	5	0.12%
	0.25 to ‹ 0.50	BBB-	Baa3	0.34%	0.35%	26,260	26,307	82	2	0.20%
	0.50 to ‹ 0.75	BB+	Ba1	0.61%	0.61%	9,714	10,183	61	–	0.50%
	0.75 to ‹ 2.50	BB to BB-	Ba2 to Ba3	1.29%	1.30%	11,040	10,969	176	4	1.32%
	2.50 to ‹ 10.00	B+ to B-	B1 to B3	4.52%	4.62%	3,891	3,830	228	2	4.69%
	10.00 to ‹ 100.00	CCC+ to CCC-	Caa1 to Caa3	23.85%	24.19%	1,355	1,213	295	2	20.28%
Qualifying revolving retail	0.00 to ‹ 0.15	AAA to BBB+	Aaa to Baa1	0.05%	0.07%	895,632	704,204	411	2	0.04%
	0.15 to ‹ 0.25	BBB	Baa2	0.19%	0.19%	117,492	204,518	148	4	0.12%
	0.25 to ‹ 0.50	BBB-	Baa3	0.36%	0.35%	148,785	181,889	328	15	0.23%
	0.50 to ‹ 0.75	BB+	Ba1	0.63%	0.62%	71,453	75,335	357	16	0.48%
	0.75 to ‹ 2.50	BB to BB-	Ba2 to Ba3	1.43%	1.48%	236,145	258,658	3,824	316	1.20%
	2.50 to ‹ 10.00	B+ to B-	B1 to B3	4.52%	4.10%	234,061	223,005	7,402	92	3.86%
	10.00 to ‹ 100.00	CCC+ to CCC-	Caa1 to Caa3	22.42%	26.81%	32,158	30,381	9,046	26	25.86%
Other retail	0.00 to ‹ 0.15	AAA to BBB+	Aaa to Baa1	0.06%	0.07%	109,622	118,678	96	–	0.05%
	0.15 to ‹ 0.25	BBB	Baa2	0.20%	0.20%	43,211	46,048	58	1	0.12%
	0.25 to ‹ 0.50	BBB-	Baa3	0.36%	0.37%	75,981	77,925	166	10	0.20%
	0.50 to ‹ 0.75	BB+	Ba1	0.63%	0.62%	53,529	54,037	209	9	0.41%
	0.75 to ‹ 2.50	BB to BB-	Ba2 to Ba3	1.38%	1.34%	206,716	195,759	1,791	251	0.84%
	2.50 to ‹ 10.00	B+ to B-	B1 to B3	4.33%	4.22%	70,018	70,111	1,946	107	2.65%
	10.00 to ‹ 100.00	CCC+ to CCC-	Caa1 to Caa3	18.59%	19.35%	13,355	15,379	1,898	41	13.27%

(1) Prescribed PD bands based on BIS document on Revised Pillar 3 disclosure requirements issued in January 2015.

(2) Represents the number of retail accounts. The variation in the number of obligors distribution between the end of the year and the end of previous year for Qualifying revolving retail is explained by updates of probability of default models for credit cards in Q3 2019.

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

(unaudited) (millions of Canadian dollars)

	Q4 2019									
a	b	c		d	e	f		g	h	i
		External rating equivalent				Number of obligors[2]				
Portfolio	PD Range[1]	S&P	Moody's	Weighted average PD	Arithmetic average PD by obligors	End of previous year	End of the year	Defaulted obligors in the year	Of which new defaulted obligors in the year	Average historical annual default rate
Corporate										
	0.00 to < 0.15	AAA to BBB+	Aaa to Baa1	0.09%	0.08%	749	741	–	–	0.02%
	0.15 to < 0.25	BBB+ to BBB	Baa1 to Baa2	0.20%	0.21%	3,664	3,654	1	–	0.05%
	0.25 to < 0.50	BBB to BB+	Baa2 to Ba1	0.36%	0.36%	2,234	2,388	2	–	0.12%
	0.50 to < 0.75	BB+	Ba1	0.56%	0.56%	2,493	2,641	1	–	0.13%
	0.75 to < 2.50	BB+ to B+	Ba1 to B1	1.15%	1.16%	6,221	6,180	36	2	0.70%
	2.50 to < 10.00	B+ to B-	B1 to B3	4.65%	4.77%	1,163	1,295	21	1	1.42%
	10.00 to < 100.00	B- to CCC	B3 to Caa2	16.98%	16.73%	69	61	4	–	6.08%
Sovereign	0.00 to < 0.15	AAA to BBB+	Aaa to Baa1	0.01%	0.02%	583	575	–	–	–
	0.15 to < 0.25	BBB+ to BBB	Baa1 to Baa2	–	–	–	–	–	–	–
	0.25 to < 0.50	BBB to BB+	Baa2 to Ba1	–	–	–	–	–	–	–
	0.50 to < 0.75	BB+	Ba1	–	–	–	–	–	–	–
	0.75 to < 2.50	BB+ to B+	Ba1 to B1	–	–	–	–	–	–	–
	2.50 to < 10.00	B+ to B-	B1 to B3	5.07%	5.07%	1	4	–	–	–
	10.00 to < 100.00	B- to CCC	B3 to Caa2	–	–	–	–	–	–	–
Financial Institutions	0.00 to < 0.15	AAA to BBB+	Aaa to Baa1	0.06%	0.06%	72	67	–	–	–
	0.15 to < 0.25	BBB+ to BBB	Baa1 to Baa2	0.21%	0.21%	15	22	–	–	–
	0.25 to < 0.50	BBB to BB+	Baa2 to Ba1	0.36%	0.36%	16	10	–	–	–
	0.50 to < 0.75	BB+	Ba1	0.56%	0.56%	3	5	–	–	–
	0.75 to < 2.50	BB+ to B+	Ba1 to B1	0.86%	1.07%	17	14	–	–	–
	2.50 to < 10.00	B+ to B-	B1 to B3	3.15%	5.07%	4	3	–	–	–
	10.00 to < 100.00	B- to CCC	B3 to Caa2	–	–	–	–	–	–	–

(1) Prescribed PD bands based on BIS document on Revised Pillar 3 disclosure requirements issued in January 2015.

(2) Represents the number of individual borrowers.

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

(unaudited) (million of Canadian dollars)

	Q4 2018									
a	b	c		d	e	f		g	h	i
		External rating equivalent				Number of obligors[2]				
Portfolio	PD Range[1]	S&P	Moody's	Weighted average PD	Arithmetic average PD by obligors	End of previous year	End of the year	Defaulted obligors in the year	Of which new defaulted obligors in the year	Average historical annual default rate
Residential Mortgages and HELOCs – insured	0.00 to < 0.15	AAA to BBB+	Aaa to Baa1	0.08%	0.08%	52,984	51,552	34	1	0.05%
	0.15 to < 0.25	BBB	Baa2	0.20%	0.20%	20,202	19,669	19	–	0.16%
	0.25 to < 0.50	BBB-	Baa3	0.36%	0.35%	23,727	22,937	54	–	0.31%
	0.50 to < 0.75	BB+	Ba1	0.61%	0.61%	10,829	10,021	52	–	0.52%
	0.75 to < 2.50	BB to BB-	Ba2 to Ba3	1.34%	1.31%	16,869	16,044	136	3	0.91%
	2.50 to < 10.00	B+ to B-	B1 to B3	4.58%	4.52%	5,570	4,588	176	2	3.58%
	10.00 to < 100.00	CCC+ to CCC-	Caa1 to Caa3	29.33%	27.21%	1,744	1,618	387	4	21.31%
Residential Mortgages and HELOCs – uninsured	0.00 to < 0.15	AAA to BBB+	Aaa to Baa1	0.07%	0.06%	172,779	186,609	55	–	0.04%
	0.15 to < 0.25	BBB	Baa2	0.19%	0.19%	30,968	30,702	55	8	0.11%
	0.25 to < 0.50	BBB-	Baa3	0.35%	0.35%	26,887	26,260	73	4	0.16%
	0.50 to < 0.75	BB+	Ba1	0.61%	0.61%	10,288	9,714	49	1	0.46%
	0.75 to < 2.50	BB to BB-	Ba2 to Ba3	1.27%	1.28%	12,149	11,040	177	3	1.24%
	2.50 to < 10.00	B+ to B-	B1 to B3	4.54%	4.69%	3,827	3,891	181	1	4.53%
	10.00 to < 100.00	CCC+ to CCC-	Caa1 to Caa3	23.95%	24.08%	1,369	1,355	247	3	18.87%
Qualifying revolving retail	0.00 to < 0.15	AAA to BBB+	Aaa to Baa1	0.05%	0.05%	873,273	895,632	354	2	0.04%
	0.15 to < 0.25	BBB	Baa2	0.20%	0.20%	118,620	117,492	147	4	0.13%
	0.25 to < 0.50	BBB-	Baa3	0.36%	0.35%	152,351	148,785	324	9	0.24%
	0.50 to < 0.75	BB+	Ba1	0.63%	0.62%	73,886	71,453	335	9	0.50%
	0.75 to < 2.50	BB to BB-	Ba2 to Ba3	1.45%	1.50%	311,603	236,145	4,169	333	1.15%
	2.50 to < 10.00	B+ to B-	B1 to B3	4.47%	4.08%	160,765	234,061	6,776	173	3.84%
	10.00 to < 100.00	CCC+ to CCC-	Caa1 to Caa3	24.58%	27.32%	31,441	32,158	8,263	31	24.58%
Other retail	0.00 to < 0.15	AAA to BBB+	Aaa to Baa1	0.07%	0.07%	80,266	109,622	45	–	0.05%
	0.15 to < 0.25	BBB	Baa2	0.20%	0.20%	52,191	43,211	75	–	0.13%
	0.25 to < 0.50	BBB-	Baa3	0.37%	0.37%	87,132	75,981	226	6	0.25%
	0.50 to < 0.75	BB+	Ba1	0.63%	0.62%	60,263	53,529	310	10	0.51%
	0.75 to < 2.50	BB to BB-	Ba2 to Ba3	1.38%	1.33%	199,148	206,716	1,967	213	0.99%
	2.50 to < 10.00	B+ to B-	B1 to B3	4.33%	4.21%	65,725	70,018	1,811	137	3.43%
	10.00 to < 100.00	CCC+ to CCC-	Caa1 to Caa3	20.39%	21.45%	13,834	13,355	1,875	63	15.35%

(1) Prescribed PD bands based on BIS document on Revised Pillar 3 disclosure requirements issued in January 2015.
(2) Represents the number of individual borrowers.

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

(unaudited) (millions of Canadian dollars)

	Q4 2018									
a	b	c		d	e	f		g	h	i
		External rating equivalent			Arithmetic	Number of obligors[2]			Of which new	
Portfolio	PD Range[1]	S&P	Moody's	Weighted average PD	average PD by obligors	End of previous year	End of the year	Defaulted obligors in the year	defaulted obligors in the year	Average historical annual default rate
Corporate										
	0.00 to ‹ 0.15	AAA to BBB+	Aaa to Baa1	0.09%	0.09%	2,026	749	–	–	0.06%
	0.15 to ‹ 0.25	BBB+ to BBB	Baa1 to Baa2	0.20%	0.21%	2,294	3,664	1	–	0.09%
	0.25 to ‹ 0.50	BBB to BB+	Baa2 to Ba1	0.36%	0.36%	2,188	2,234	2	–	0.16%
	0.50 to ‹ 0.75	BB+	Ba1	0.56%	0.56%	2,496	2,493	4	–	0.16%
	0.75 to ‹ 2.50	BB+ to B+	Ba1 to B1	1.14%	1.14%	5,052	6,221	32	4	0.79%
	2.50 to ‹ 10.00	B+ to B-	B1 to B3	4.80%	4.76%	2,068	1,163	29	1	1.47%
	10.00 to ‹ 100.00	B- to CCC	B3 to Caa2	16.72%	16.39%	207	69	12	–	6.33%
Sovereign	0.00 to ‹ 0.15	AAA to BBB+	Aaa to Baa1	0.01%	0.02%	551	583	–	–	–
	0.15 to ‹ 0.25	BBB+ to BBB	Baa1 to Baa2	–	–	–	–	–	–	–
	0.25 to ‹ 0.50	BBB to BB+	Baa2 to Ba1	–	–	–	–	–	–	–
	0.50 to ‹ 0.75	BB+	Ba1	–	–	–	–	–	–	–
	0.75 to ‹ 2.50	BB+ to B+	Ba1 to B1	–	–	–	–	–	–	–
	2.50 to ‹ 10.00	B+ to B-	B1 to B3	5.07%	5.07%	1	1	–	–	–
	10.00 to ‹ 100.00	B- to CCC	B3 to Caa2	–	–	–	–	–	–	–
Financial Institutions	0.00 to ‹ 0.15	AAA to BBB+	Aaa to Baa1	0.06%	0.07%	77	72	–	–	–
	0.15 to ‹ 0.25	BBB+ to BBB	Baa1 to Baa2	0.23%	0.19%	7	15	–	–	–
	0.25 to ‹ 0.50	BBB to BB+	Baa2 to Ba1	0.36%	0.36%	19	16	–	–	–
	0.50 to ‹ 0.75	BB+	Ba1	0.56%	0.56%	16	3	–	–	–
	0.75 to ‹ 2.50	BB+ to B+	Ba1 to B1	1.31%	1.13%	14	17	–	–	–
	2.50 to ‹ 10.00	B+ to B-	B1 to B3	3.15%	4.57%	7	4	–	–	–
	10.00 to ‹ 100.00	B- to CCC	B3 to Caa2	–	–	1	–	–	–	–

(1) Prescribed PD bands based on BIS document on Revised Pillar 3 disclosure requirements issued in January 2015.

(2) Represents the number of individual borrowers.

AIRB Credit Risk Exposure - Back-Testing[1]

(unaudited) (millions of Canadian dollars)

	2019											
	Q4						Q3					
	PD average estimated (%)	PD actual (%)	LGD average estimated (%)[2]	LGD actual (%)[3]	EAD estimated (%)[4]	EAD actual (%)[4]	PD average estimated (%)	PD actual (%)	LGD average estimated (%)[2]	LGD actual (%)[3]	EAD estimated (%)[4]	EAD actual (%)[4]
Retail Portfolio[5]												
Insured residential mortgages[6]	0.78%	0.57%	2.64%	n.a.	n.a.	n.a.	0.77%	0.64%	2.64%	n.a.	n.a.	n.a.
Uninsured residential mortgages incl. HELOCs[7]	0.33%	0.34%	20.79%	7.00%	95.92%	90.44%	0.33%	0.33%	21.11%	7.92%	94.97%	92.74%
Qualifying revolving retail[8]	1.37%	1.21%	85.19%	79.63%	105.72%	102.80%	1.36%	1.23%	85.54%	79.16%	105.23%	102.40%
Other retail	1.62%	1.00%	66.54%	60.65%	95.31%	90.00%	1.60%	1.08%	66.58%	60.99%	95.66%	87.34%
Non-Retail Portfolio[9]												
Corporate	1.03%	0.37%	37.64%	29.80%	82.09%	85.20%	1.02%	0.33%	36.58%	31.11%	81.15%	83.54%
Sovereign[10]	0.05%	0.00%	11.54%	n.a.	88.30%	n.a.	0.05%	0.00%	11.54%	n.a.	88.30%	n.a.
Financial Institutions[10]	0.37%	0.00%	40.75%	n.a.	100.00%	n.a.	0.36%	0.00%	40.75%	n.a.	100.00%	n.a.

	2019											
	Q2						Q1					
	PD average estimated (%)	PD actual (%)	LGD average estimated (%)[2]	LGD actual (%)[3]	EAD estimated (%)[4]	EAD actual (%)[4]	PD average estimated (%)	PD actual (%)	LGD average estimated (%)[2]	LGD actual (%)[3]	EAD estimated (%)[4]	EAD actual (%)[4]
Retail Portfolio[5]												
Insured residential mortgages[6]	0.80%	0.66%	2.64%	n.a.	n.a.	n.a.	0.84%	0.65%	2.64%	n.a.	n.a.	n.a.
Uninsured residential mortgages incl. HELOCs[7]	0.34%	0.31%	21.51%	8.16%	95.95%	78.17%	0.35%	0.34%	21.43%	9.04%	92.60%	80.58%
Qualifying revolving retail	1.34%	1.20%	79.88%	73.65%	100.40%	102.32%	1.35%	1.18%	75.00%	75.80%	100.37%	102.00%
Other retail	1.63%	1.07%	66.80%	59.42%	94.94%	88.39%	1.59%	1.10%	67.01%	62.45%	95.78%	87.90%
Non-Retail Portfolio[9]												
Corporate	1.01%	0.37%	34.65%	30.41%	84.18%	85.45%	1.01%	0.40%	36.57%	29.40%	79.91%	76.06%
Sovereign[10]	0.07%	0.00%	11.54%	n.a.	88.30%	n.a.	0.04%	0.00%	11.54%	n.a.	88.30%	n.a.
Financial Institutions[10]	0.35%	0.00%	40.75%	n.a.	100.00%	n.a.	0.35%	0.00%	40.75%	n.a.	100.00%	n.a.

(1) Estimated PD and actual default rates are consistent with what is presented in table CR9 (presented annually). Actual and estimated LGD and EAD parameters are reported on a one-month lag. For example, for Q4 2019, estimated percentages are as of September 30, 2018 and actual percentages reflect experience in the following 12 months.
(2) Estimated LGD reflects loss estimates under a downturn economic scenario and is based on defaulted accounts.
(3) Actual LGD includes indirect costs and discount rate and is based on defaulted accounts on which recovery process is completed.
(4) Estimated and actual EAD are computed for revolving products only and are based on defaulted accounts.
(5) Retail PD and EAD are based on account weighted average whilst retail LGD is based on exposure weighted average.
(6) Actual LGD for insured residential mortgages is not applicable to reflect the credit risk mitigation from government backed entities.
(7) Actual and estimated EAD for residential mortgage is computed only for HELOCs since the conventional residential mortgages are non-revolving.
(8) Variations of LGD and EAD for Qualifying revolving retail are explained by a revision of the credit cards LGD and EAD models in Q3 2019.
(9) Wholesale and Sovereign's PD is based on borrower weighted average whilst the LGD and EAD are based on facility weighted average.
(10) Actual LGD for the Financial Institutions and Sovereign are not applicable because no defaulted facilities recovery were completed during the period. Actual EAD are not applicable because no default was observed during the period.

CR10 – IRB - Specialised Lending and Equities Under the Simple Risk Weight Method

(unaudited) (millions of Canadian dollars)

	Q4 2019					Q3 2019				
	On-balance sheet amount	Off-balance sheet amount	RW	Exposure amount	RWA	On-balance sheet amount	Off-balance sheet amount	RW	Exposure amount	RWA
Equities under the materiality exemption	1,010	95	100%	1,057	1,121	964	98	100%	1,014	1,074

	Q2 2019					Q1 2019				
	On-balance sheet amount	Off-balance sheet amount	RW	Exposure amount	RWA	On-balance sheet amount	Off-balance sheet amount	RW	Exposure amount	RWA
Equities under the materiality exemption	839	102	100%	890	943	816	110	100%	871	924

CCR1 – Analysis of Counterparty Credit Risk (CCR) Exposure by Approach[1]

(unaudited) (millions of Canadian dollars)

The following tables provide a comprehensive view of the methods used to calculate counterparty credit risk regulatory requirements and the main parameters used within each method.

		Q4 2019						Q3 2019					
		a	b	c	d	e	f	a	b	c	d	e	f
		Replacement cost	Potential future exposure	EEPE[2]	Alpha used for computing regulatory EAD	EAD post-CRM	RWA	Replacement cost	Potential future exposure	EEPE[2]	Alpha used for computing regulatory EAD	EAD post-CRM	RWA
1	SA-CCR (for derivatives)[3]	2,033	6,845		1.4	12,429	3,568	2,203	6,696		1.4	12,459	4,060
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)					–	–					–	–
5	VaR for SFTs					6,933	1,071					7,501	1,079
6	**Total**						**4,639**						**5,139**

		Q2 2019						Q1 2019					
		a	b	c	d	e	f	a	b	c	d	e	f
		Replacement cost	Potential future exposure	EEPE[2]	Alpha used for computing regulatory EAD	EAD post-CRM	RWA	Replacement cost	Potential future exposure	EEPE[2]	Alpha used for computing regulatory EAD	EAD post-CRM	RWA
1	SA-CCR (for derivatives)[3]	2,122	6,460		1.4	12,015	4,087	1,735	5,429		1.4	10,031	3,405
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)					–	–					–	–
5	VaR for SFTs					7,142	966					6,670	762
6	**Total**						**5,053**						**4,167**

(1) Excludes exposure and RWA for qualified central counterparties (QCCPs) and credit valuation adjustment (CVA).
(2) EEPE: Effective Expected Positive Exposure.
(3) Standardised approach (SA-CCR) for measuring exposure at default for counterparty credit risk is applicable starting Q1 2019. In Q4 2018, NBC reported in row 1 information corresponding to the Current Exposures Method.

CCR2 – Credit Valuation Adjustment (CVA) Capital Charge

(unaudited) (millions of Canadian dollars)

The following table provides the CVA regulatory calculations (with a breakdown by standardised and advanced approaches).

		Q4 2019		Q3 2019		Q2 2019		Q1 2019	
		a	b	a	b	a	b	a	b
		EAD post-CRM	RWA	EAD post-CRM	RWA	EAD post-CRM	RWA	EAD post-CRM	RWA
	Total portfolios subject to the Advanced CVA capital charge								
1	(i) VaR component (including the 3 x multiplier)		–		–		–		–
2	(ii) Stressed VaR component (including the 3 x multiplier)		–		–		–		–
3	All portfolios subject to the Standardised CVA capital charge	8,628	1,200	8,652	1,139	8,340	1,151	6,845	1,020
4	**Total subject to the CVA capital charge**	**8,628**	**1,200**	**8,652**	**1,139**	**8,340**	**1,151**	**6,845**	**1,020**

CCR3 – Standardised Approach - CCR Exposures by Regulatory Portfolio and Risk Weights

(unaudited) (millions of Canadian dollars)

The following tables provide a breakdown of counterparty credit risk exposures calculated according to the standardised approach: by portfolio (type of counterparties) and by risk weight (riskiness attributed according to standardised approach).

	Q4 2019									Q3 2019								
	a	b	c	d	e	f	g	h	i	a	b	c	d	e	f	g	h	i
Regulatory portfolio / Risk weight	0%	10%	20%	50%	75%	100%	150%	Others	Total credit exposure	0%	10%	20%	50%	75%	100%	150%	Others	Total credit exposure
Sovereigns	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Non-central government public sector entities (PSEs)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Multilateral development banks (MDBs)	7	–	–	–	–	–	–	–	7	11	–	–	–	–	–	–	–	11
Financial institutions	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Securities firms	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Corporates	–	–	–	–	–	454	–	–	454	–	–	–	–	–	648	–	–	648
Regulatory retail portfolios	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Other assets(1)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Total	**7**	**–**	**–**	**–**	**–**	**454**	**–**	**–**	**461**	**11**	**–**	**–**	**–**	**–**	**648**	**–**	**–**	**659**

	Q2 2019									Q1 2019								
	a	b	c	d	e	f	g	h	i	a	b	c	d	e	f	g	h	i
Regulatory portfolio / Risk weight	0%	10%	20%	50%	75%	100%	150%	Others	Total credit exposure	0%	10%	20%	50%	75%	100%	150%	Others	Total credit exposure
Sovereigns	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Non-central government public sector entities (PSEs)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Multilateral development banks (MDBs)	18	–	–	–	–	–	–	–	18	13	–	–	–	–	–	–	–	13
Financial institutions	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Securities firms	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Corporates	–	–	–	–	–	436	–	–	436	–	–	–	–	–	349	–	–	349
Regulatory retail portfolios	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Other assets(1)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Total	**18**	**–**	**–**	**–**	**–**	**436**	**–**	**–**	**454**	**13**	**–**	**–**	**–**	**–**	**349**	**–**	**–**	**362**

(1) Excluding the exposures to CCPs, which are reported in CCR8.

CCR4 – IRB - CCR Exposures by Portfolio and PD Scale

(unaudited) (millions of Canadian dollars)

The following tables provide all relevant parameters used for the calculation of counterparty credit risk capital requirements for IRB models.

		Q4 2019						
		a	b	c	d	e	f	g
	PD scale[1]	EAD post-CRM	average PD[2]	Number of obligors[3]	Average LGD[4]	Average maturity[5]	RWA	RWA density[6]
Corporate	0.00 to ‹ 0.15	2,541	0.06%	496	53.1%	2.55	265	10.4%
	0.15 to ‹ 0.25	2,113	0.19%	507	48.0%	1.92	845	40.0%
	0.25 to ‹ 0.50	673	0.36%	258	43.4%	2.13	372	55.3%
	0.50 to ‹ 0.75	866	0.56%	201	43.7%	2.99	334	38.6%
	0.75 to ‹ 2.50	816	0.91%	606	47.8%	1.63	692	84.8%
	2.50 to ‹ 10.00	56	4.52%	53	35.8%	1.26	58	103.6%
	10.00 to ‹ 100.00	9	13.84%	6	37.6%	1.61	13	144.4%
	100.00 (Default)	5	100.00%	2	21.6%	4.98	2	40.0%
	Sub-total	7,079	0.41%	2,129	48.7%	2.26	2,581	36.5%
Sovereign	0.00 to ‹ 0.15	5,988	0.03%	171	11.7%	1.52	128	2.1%
	0.15 to ‹ 0.25	2	0.21%	1	11.6%	–	–	–
	0.25 to ‹ 0.50	–	–	–	–	–	–	–
	0.50 to ‹ 0.75	–	–	–	–	–	–	–
	0.75 to ‹ 2.50	7	1.03%	1	12.8%	1.00	2	28.6%
	2.50 to ‹ 10.00	–	–	–	–	–	–	–
	10.00 to ‹ 100.00	–	–	–	–	–	–	–
	100.00 (Default)	–	–	–	–	–	–	–
	Sub-total	5,997	0.04%	173	11.7%	1.51	130	2.2%
Financial institutions	0.00 to ‹ 0.15	5,699	0.06%	57	46.8%	0.74	896	15.7%
	0.15 to ‹ 0.25	1,274	0.16%	33	50.7%	0.25	396	31.1%
	0.25 to ‹ 0.50	45	0.36%	16	48.8%	0.17	20	44.4%
	0.50 to ‹ 0.75	143	0.56%	18	49.0%	0.50	102	71.3%
	0.75 to ‹ 2.50	71	1.15%	23	46.6%	0.77	60	84.5%
	2.50 to ‹ 10.00	–	3.09%	2	38.4%	0.41	–	–
	10.00 to ‹ 100.00	–	–	–	–	–	–	–
	100.00 (Default)	–	–	–	–	–	–	–
	Sub-total	7,232	0.10%	149	47.6%	0.65	1,474	20.4%
Total (sum of portfolios)		**20,308**	**0.19%**	**2,451**	**37.0%**	**1.31**	**4,185**	**20.6%**

(1) Prescribed PD bands based on BIS document on Revised Pillar 3 disclosure requirements issued in January 2015.
(2) Represents the obligor grade PD weighted by EAD.
(3) Represents the number of individual borrowers.
(4) Represents the obligor grade LGD (net of any CRM effect) weighted by EAD.
(5) Represents the obligor maturity in years weighted by EAD. This parameter needs to be filled in only when it is used for the RWA calculation.
(6) Total risk-weighted assets to EAD post-CRM.

CCR4 – IRB - CCR Exposures by Portfolio and PD Scale (continued)

(unaudited) (millions of Canadian dollars)

	Q4 2018							
		a	b	c	d	e	f	g
	PD scale[1]	EAD post-CRM	average PD[2]	Number of obligors[3]	Average LGD[4]	Average maturity[5]	RWA	RWA density[6]
Corporate	0.00 to < 0.15	1,956	0.17%	482	42.7%	2.90	259	13.2%
	0.15 to < 0.25	1,253	0.19%	554	38.0%	2.45	443	35.4%
	0.25 to < 0.50	378	0.36%	271	37.9%	1.95	180	47.6%
	0.50 to < 0.75	363	0.56%	204	49.5%	3.35	142	39.1%
	0.75 to < 2.50	736	0.92%	526	39.6%	2.64	407	55.3%
	2.50 to < 10.00	50	4.00%	49	58.3%	1.22	79	158.0%
	10.00 to < 100.00	1	13.82%	4	37.8%	0.91	1	100.0%
	100.00 (Default)	2	1.00%	1	10.0%	1.00	–	–
	Sub-total	4,739	0.34%	2,091	41.3%	2.68	1,511	31.9%
Sovereign	0.00 to < 0.15	5,286	0.03%	164	9.6%	1.18	82	1.6%
	0.15 to < 0.25	–	0.21%	1	11.6%	–	–	–
	0.25 to < 0.50	–	–	–	–	–	–	–
	0.50 to < 0.75	–	–	–	–	–	–	–
	0.75 to < 2.50	7	1.03%	1	12.8%	1.00	1	14.3%
	2.50 to < 10.00	1	5.07%	1	14.1%	0.05	1	100.0%
	10.00 to < 100.00	–	–	–	–	–	–	–
	100.00 (Default)	–	–	–	–	–	–	–
	Sub-total	5,294	0.04%	167	9.6%	1.18	84	1.6%
Financial institutions	0.00 to < 0.15	5,180	0.06%	52	32.9%	1.11	641	12.4%
	0.15 to < 0.25	495	0.17%	26	41.2%	0.62	140	28.3%
	0.25 to < 0.50	195	0.36%	17	49.7%	0.93	128	65.6%
	0.50 to < 0.75	48	0.56%	13	50.7%	0.14	31	64.6%
	0.75 to < 2.50	81	1.15%	22	32.9%	2.31	55	67.9%
	2.50 to < 10.00	25	3.09%	5	11.4%	1.62	8	32.0%
	10.00 to < 100.00	–	–	–	–	–	–	–
	100.00 (Default)	–	–	–	–	–	–	–
	Sub-total	6,024	0.11%	135	34.2%	1.08	1,003	16.7%
Total (sum of portfolios)		**16,057**	**0.15%**	**2,393**	**28.0%**	**1.53**	**2,598**	**16.2%**

(1) Prescribed PD bands based on BIS document on Revised Pillar 3 disclosure requirements issued in January 2015.
(2) Represents the obligor grade PD weighted by EAD.
(3) Represents the number of individual borrowers.
(4) Represents the obligor grade LGD (net of any CRM effect) weighted by EAD.
(5) Represents the obligor maturity in years weighted by EAD. This parameter needs to be filled in only when it is used for the RWA calculation.
(6) Total risk-weighted assets to EAD post-CRM.

CCR5 – Composition of Collateral for CCR Exposure

(unaudited) (millions of Canadian dollars)

The following tables provide a breakdown of all types of collateral posted or received by banks to support or reduce the counterparty credit risk exposures related to derivative transactions or to SFTs, including transactions cleared through a CCP.

	Q4 2019						Q3 2019					
	a	b	c	d	e	f	a	b	c	d	e	f
	Collateral used in derivative transactions				Collateral used in SFTs		Collateral used in derivative transactions				Collateral used in SFTs(1)	
	Fair value of collateral received		Fair value of posted collateral		Fair value of collateral received	Fair value of posted collateral	Fair value of collateral received		Fair value of posted collateral		Fair value of collateral received	Fair value of posted collateral
	Segregated	Unsegregated	Segregated	Unsegregated			Segregated	Unsegregated	Segregated	Unsegregated		
Cash	–	5,506	–	1,315	25,066	20,889	–	5,732	–	545	19,764	13,928
Securities issued or guaranteed by												
Canadian government	28	36	–	952	16,794	13,141	–	35	–	1,106	10,593	11,486
Canadian provincial and municipal governments	–	78	–	10	11,702	13,953	–	75	–	66	11,464	14,587
U.S. Treasury, other U.S. agencies and other foreign governments	64	54	–	–	33,609	29,870	63	71	–	–	34,661	30,461
Other debt securities	–	29	–	–	1,875	691	–	15	–	–	1,691	446
Equity securities	–	–	–	–	53,522	67,085	–	–	–	–	59,136	69,240
Total	**92**	**5,703**	**–**	**2,277**	**142,568**	**145,629**	**63**	**5,928**	**–**	**1,717**	**137,309**	**140,148**

	Q2 2019						Q1 2019					
	a	b	c	d	e	f	a	b	c	d	e	f
	Collateral used in derivative transactions				Collateral used in SFTs(1)		Collateral used in derivative transactions				Collateral used in SFTs(1)	
	Fair value of collateral received		Fair value of posted collateral		Fair value of collateral received	Fair value of posted collateral	Fair value of collateral received		Fair value of posted collateral		Fair value of collateral received	Fair value of posted collateral
	Segregated	Unsegregated	Segregated	Unsegregated			Segregated	Unsegregated	Segregated	Unsegregated		
Cash	–	5,020	–	660	20,376	17,190	–	5,012	–	1,308	21,324	15,160
Securities issued or guaranteed by												
Canadian government	7	58	–	956	12,440	9,910	2	47	–	662	12,540	13,323
Canadian provincial and municipal governments	–	32	–	51	11,068	13,871	–	80	–	136	13,785	18,647
U.S. Treasury, other U.S. agencies and other foreign governments	64	63	–	7	20,169	15,843	63	59	–	–	19,583	14,396
Other debt securities	–	15	–	–	2,101	1,851	–	14	–	–	2,867	1,175
Equity securities	–	–	–	–	50,418	59,758	–	–	–	–	41,215	52,749
Total	**71**	**5,188**	**–**	**1,674**	**116,572**	**118,423**	**65**	**5,212**	**–**	**2,106**	**111,314**	**115,450**

(1) Figures have been modified to include off-balance-sheet SFT and collateral on cash SFT.

CCR6 – Credit Derivatives Exposures

(unaudited) (millions of Canadian dollars)

The following tables illustrate the extent of a bank's exposures to credit derivative transactions broken down between derivatives purchased or sold.

	Q4 2019		Q3 2019		Q2 2019		Q1 2019	
	a	b	a	b	a	b	a	b
	Protection purchased	Protection sold	Protection purchased	Protection sold	Protection purchased	Protection sold	Protection purchased	Protection sold
Notionals								
Credit default swaps								
Indices, singles names and other	3,959	1,878	3,481	1,255	3,005	936	1,943	252
Tranches on indices	–	–	–	–	–	–	–	–
Total return swaps	142	–	150	–	162	–	161	–
Credit options	–	–	–	–	–	–	–	–
Other credit derivatives	–	–	–	–	–	–	–	–
Total notionals	**4,101**	**1,878**	**3,631**	**1,255**	**3,167**	**936**	**2,104**	**252**
Fair values								
Positive fair value (asset)	–	45	–	34	1	27	5	7
Negative fair value (liability)	(101)	–	(93)	–	(78)	–	(42)	–

CCR8 – Exposures to Central Counterparties (CCP)(1)

(unaudited) (millions of Canadian dollars)

The following table provides a comprehensive picture of the bank's exposures to central counterparties. In particular, the template includes all types of exposures and related capital requirements.

		Q4 2019		Q3 2019		Q2 2019		Q1 2019	
		a	b	a	b	a	b	a	b
		EAD (post-CRM)	RWA	EAD (post-CRM)	RWA	EAD (post-CRM)	RWA	EAD (post-CRM)	RWA
1	**Exposures to QCCPs (total)**		**161**		**193**		**181**		**276**
2	Exposures for trades at QCCPs (excluding initial margin and default fund contributions); of which	1,797	36	1,401	29	1,182	24	1,088	21
3	(i) OTC derivatives	63	1	25	1	36	1	51	1
4	(ii) Exchange-traded derivatives	1,680	34	1,292	26	1,077	22	917	18
5	(iii) Securities financing transactions	54	1	84	2	69	1	120	2
6	(iv) Netting sets where cross-product netting has been approved	–	–	–	–	–	–	–	–
7	Segregated initial margin	733		764		2,117		2,123	
8	Non-segregated initial margin	46	–	44	–	45	–	127	–
9	Pre-funded default fund contributions	168	125	235	164	389	157	482	255
10	Unfunded default fund contributions	–	–	–	–	–	–	–	–

(1) The Bank has no exposure to non-qualifying central counterparties.

SEC1 – Securitization Exposures in the Banking Book

(unaudited) (millions of Canadian dollars)

The following tables present the bank's securitization exposures in its banking book.

Q4 2019		a	b	c	e	f	g	i	j	k
				Bank acts as originator			Bank acts as sponsor			Banks acts as investor[1]
		Traditional	Synthetic[2]	Sub-total	Traditional	Synthetic[2]	Sub-total	Traditional	Synthetic[2]	Sub-total
1	**Retail**	**668**	**–**	**668**	**2,319**	**–**	**2,319**	**759**	**–**	**759**
	Of which :									
2	Residential mortgages	–	–	–	1,792	–	1,792	247	–	247
3	Credit card	668	–	668	–	–	–	12	–	12
4	Other retail exposures	–	–	–	527	–	527	500	–	500
5	Re-securitization	–	–	–	–	–	–	–	–	–
6	**Non-Retail**	**–**	**–**	**–**	**289**	**–**	**289**	**729**	**–**	**729**
	Of which :									
7	Loans to corporates	–	–	–	–	–	–	–	–	–
8	Commercial mortgage	–	–	–	–	–	–	9	–	9
9	Lease and receivables	–	–	–	275	–	275	720	–	720
10	Other wholesale	–	–	–	14	–	14	–	–	–
11	Re-securitization	–	–	–	–	–	–	–	–	–

Q3 2019		a	b	c	e	f	g	i	j	k
				Bank acts as originator			Bank acts as sponsor			Banks acts as investor[1]
		Traditional	Synthetic[2]	Sub-total	Traditional	Synthetic[2]	Sub-total	Traditional	Synthetic[2]	Sub-total
1	**Retail**	**671**	**–**	**671**	**2,452**	**–**	**2,452**	**1,082**	**–**	**1,082**
	Of which :									
2	Residential mortgages	–	–	–	1,940	–	1,940	270	–	270
3	Credit card	671	–	671	–	–	–	12	–	12
4	Other retail exposures	–	–	–	512	–	512	800	–	800
5	Re-securitization	–	–	–	–	–	–	–	–	–
6	**Non-Retail**	**–**	**–**	**–**	**282**	**–**	**282**	**729**	**–**	**729**
	Of which :									
7	Loans to corporates	–	–	–	–	–	–	–	–	–
8	Commercial mortgage	–	–	–	–	–	–	9	–	9
9	Lease and receivables	–	–	–	270	–	270	720	–	720
10	Other wholesale	–	–	–	12	–	12	–	–	–
11	Re-securitization	–	–	–	–	–	–	–	–	–

(1) Represents the investment positions purchased in third-party deals.
(2) The Bank has no synthetic securitization exposure.

SEC1 – Securitization Exposures in the Banking Book (continued)

(unaudited) (millions of Canadian dollars)

The following tables present the bank's securitization exposures in its banking book.

		Q2 2019								
		a	b	c	e	f	g	i	j	k
				Bank acts as originator			Bank acts as sponsor			Banks acts as investor(1)
		Traditional	Synthetic(2)	Sub-total	Traditional	Synthetic(2)	Sub-total	Traditional	Synthetic(2)	Sub-total
1	**Retail**	**675**	**–**	**675**	**2,162**	**–**	**2,162**	**1,148**	**–**	**1,148**
	Of which :									
2	Residential mortgages	–	–	–	1,850	–	1,850	336	–	336
3	Credit card	675	–	675	–	–	–	12	–	12
4	Other retail exposures	–	–	–	312	–	312	800	–	800
5	Re-securitization	–	–	–	–	–	–	–	–	–
6	**Non-Retail**	**–**	**–**	**–**	**282**	**–**	**282**	**730**	**–**	**730**
	Of which :									
7	Loans to corporates	–	–	–	–	–	–	–	–	–
8	Commercial mortgage	–	–	–	–	–	–	10	–	10
9	Lease and receivables	–	–	–	270	–	270	720	–	720
10	Other wholesale	–	–	–	12	–	12	–	–	–
11	Re-securitization	–	–	–	–	–	–	–	–	–

		Q1 2019								
		a	b	c	e	f	g	i	j	k
				Bank acts as originator			Bank acts as sponsor			Banks acts as investor(1)
		Traditional	Synthetic(2)	Sub-total	Traditional	Synthetic(2)	Sub-total	Traditional	Synthetic(2)	Sub-total
1	**Retail**	**661**	**–**	**661**	**2,188**	**–**	**2,188**	**1,111**	**–**	**1,111**
	Of which :									
2	Residential mortgages	–	–	–	1,870	–	1,870	299	–	299
3	Credit card	661	–	661	–	–	–	12	–	12
4	Other retail exposures	–	–	–	318	–	318	800	–	800
5	Re-securitization	–	–	–	–	–	–	–	–	–
6	**Non-Retail**	**–**	**–**	**–**	**278**	**–**	**278**	**672**	**–**	**672**
	Of which :									
7	Loans to corporates	–	–	–	–	–	–	–	–	–
8	Commercial mortgage	–	–	–	–	–	–	12	–	12
9	Lease and receivables	–	–	–	270	–	270	660	–	660
10	Other wholesale	–	–	–	8	–	8	–	–	–
11	Re-securitization	–	–	–	–	–	–	–	–	–

(1) Represents the investment positions purchased in third-party deals.
(2) The Bank has no synthetic securitization exposure.

SEC2 – Securitization Exposures in the Trading Book

(unaudited) (millions of Canadian dollars)

The following tables present the bank's securitization exposures in its trading book.

		Q4 2019								
		a	b	c	e	f	g	i	j	k
				Bank acts as originator			Bank acts as sponsor			Banks acts as investor[1]
		Traditional	Synthetic[2]	Sub-total	Traditional	Synthetic[2]	Sub-total	Traditional	Synthetic[2]	Sub-total
1	**Retail**	**5**	**–**	**5**	**12**	**–**	**12**	**13**	**–**	**13**
	Of which :									
2	Residential mortgages	–	–	–	9	–	9	7	–	7
3	Credit card	5	–	5	–	–	–	6	–	6
4	Other retail exposures	–	–	–	3	–	3	–	–	–
5	Re-securitization	–	–	–	–	–	–	–	–	–
6	**Non-Retail**	**–**	**–**	**–**	**1**	**–**	**1**	**15**	**–**	**15**
	Of which :									
7	Loans to corporates	–	–	–	–	–	–	–	–	–
8	Commercial mortgage	–	–	–	–	–	–	12	–	12
9	Lease and receivables	–	–	–	1	–	1	3	–	3
10	Other wholesale	–	–	–	–	–	–	–	–	–
11	Re-securitization	–	–	–	–	–	–	–	–	–

		Q3 2019								
		a	b	c	e	f	g	i	j	k
				Bank acts as originator			Bank acts as sponsor			Banks acts as investor[1]
		Traditional	Synthetic[2]	Sub-total	Traditional	Synthetic[2]	Sub-total	Traditional	Synthetic[2]	Sub-total
1	**Retail**	**1**	**–**	**1**	**2**	**–**	**2**	**19**	**–**	**19**
	Of which :									
2	Residential mortgages	–	–	–	2	–	2	13	–	13
3	Credit card	1	–	1	–	–	–	6	–	6
4	Other retail exposures	–	–	–	–	–	–	–	–	–
5	Re-securitization	–	–	–	–	–	–	–	–	–
6	**Non-Retail**	**–**	**–**	**–**	**–**	**–**	**–**	**21**	**–**	**21**
	Of which :									
7	Loans to corporates	–	–	–	–	–	–	–	–	–
8	Commercial mortgage	–	–	–	–	–	–	12	–	12
9	Lease and receivables	–	–	–	–	–	–	9	–	9
10	Other wholesale	–	–	–	–	–	–	–	–	–
11	Re-securitization	–	–	–	–	–	–	–	–	–

(1) Represents the investment positions purchased in third-party deals.
(2) The Bank has no synthetic securitization exposure.

SEC2 – Securitization Exposures in the Trading Book (continued)

(unaudited) (millions of Canadian dollars)

The following tables present the bank's securitization exposures in its trading book.

		Q2 2019								
		a	b	c	e	f	g	i	j	k
				Bank acts as originator			Bank acts as sponsor			Banks acts as investor(1)
		Traditional	Synthetic(2)	Sub-total	Traditional	Synthetic(2)	Sub-total	Traditional	Synthetic(2)	Sub-total
1	**Retail**	**–**	**–**	**–**	**–**	**–**	**–**	**36**	**–**	**36**
	Of which :									
2	Residential mortgages	–	–	–	–	–	–	28	–	28
3	Credit card	–	–	–	–	–	–	8	–	8
4	Other retail exposures	–	–	–	–	–	–	–	–	–
5	Re-securitization	–	–	–	–	–	–	–	–	–
6	**Non-Retail**	**–**	**–**	**–**	**–**	**–**	**–**	**17**	**–**	**17**
	Of which :									
7	Loans to corporates	–	–	–	–	–	–	–	–	–
8	Commercial mortgage	–	–	–	–	–	–	12	–	12
9	Lease and receivables	–	–	–	–	–	–	5	–	5
10	Other wholesale	–	–	–	–	–	–	–	–	–
11	Re-securitization	–	–	–	–	–	–	–	–	–

		Q1 2019								
		a	b	c	e	f	g	i	j	k
				Bank acts as originator			Bank acts as sponsor			Banks acts as investor(1)
		Traditional	Synthetic(2)	Sub-total	Traditional	Synthetic(2)	Sub-total	Traditional	Synthetic(2)	Sub-total
1	**Retail**	**–**	**–**	**–**	**–**	**–**	**–**	**20**	**–**	**20**
	Of which :									
2	Residential mortgages	–	–	–	–	–	–	8	–	8
3	Credit card	–	–	–	–	–	–	12	–	12
4	Other retail exposures	–	–	–	–	–	–	–	–	–
5	Re-securitization	–	–	–	–	–	–	–	–	–
6	**Non-Retail**	**–**	**–**	**–**	**–**	**–**	**–**	**49**	**–**	**49**
	Of which :									
7	Loans to corporates	–	–	–	–	–	–	–	–	–
8	Commercial mortgage	–	–	–	–	–	–	12	–	12
9	Lease and receivables	–	–	–	–	–	–	37	–	37
10	Other wholesale	–	–	–	–	–	–	–	–	–
11	Re-securitization	–	–	–	–	–	–	–	–	–

(1) Represents the investment positions purchased in third-party deals.
(2) The Bank has no synthetic securitization exposure.

SEC 3 – Securitization Exposures in the Banking Book and Associated Regulatory Capital Requirements[1]
- Bank Acting as Originator or as Sponsor -

(unaudited) (millions of Canadian dollars)

The following tables present securitization in the banking book when the bank acts as originator or sponsor and the associated capital requirements.

		Q4 2019																
		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)[2]				Capital charge after cap			
		≤ 20% RW	> 20% to 50% RW	>50% to 100% RW	>100% to 1250% RW	1250% RW	IRBA	ERBA/IAA	SA/SSFA	1250%	IRBA	ERBA/IAA	SA/SSFA	1250%	IRBA	ERBA/IAA	SA/SSFA	1250%
1	**Total exposures**	**3,223**	**–**	**28**	**25**	**–**	**–**	**3,276**	**–**	**–**	**–**	**385**	**–**	**–**	**–**	**31**	**–**	**–**
2	Traditional securitization	3,223	–	28	25	–	–	3,276	–	–	–	385	–	–	–	31	–	–
3	Of which securitization	3,223	–	28	25	–	–	3,276	–	–	–	385	–	–	–	31	–	–
4	Of which retail underlying	2,934	–	28	25	–	–	2,987	–	–	–	356	–	–	–	29	–	–
5	Of which wholesale	289	–	–	–	–	–	289	–	–	–	29	–	–	–	2	–	–
6	Of which re-securitization	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
7	Of which senior	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
8	Of which non-senior	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

		Q3 2019																
		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)[2]				Capital charge after cap			
		≤ 20% RW	> 20% to 50% RW	>50% to 100% RW	>100% to 1250% RW	1250% RW	IRBA	ERBA/IAA	SA/SSFA	1250%	IRBA	ERBA/IAA	SA/SSFA	1250%	IRBA	ERBA/IAA	SA/SSFA	1250%
1	**Total exposures**	**3,351**	**–**	**28**	**26**	**–**	**–**	**3,405**	**–**	**–**	**–**	**398**	**–**	**–**	**–**	**32**	**–**	**–**
2	Traditional securitization	3,351	–	28	26	–	–	3,405	–	–	–	398	–	–	–	32	–	–
3	Of which securitization	3,351	–	28	26	–	–	3,405	–	–	–	398	–	–	–	32	–	–
4	Of which retail underlying	3,069	–	28	26	–	–	3,123	–	–	–	370	–	–	–	30	–	–
5	Of which wholesale	282	–	–	–	–	–	282	–	–	–	28	–	–	–	2	–	–
6	Of which re-securitization	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
7	Of which senior	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
8	Of which non-senior	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

(1) The Bank has no synthetic securitization exposure.

(2) RWA amounts do not include the transitional arrangement related amount.

SEC 3 – Securitization Exposures in the Banking Book and Associated Regulatory Capital Requirements[1] - Bank Acting as Originator or as Sponsor - (continued)

(unaudited) (millions of Canadian dollars)

The following tables present securitization in the banking book when the bank acts as originator or sponsor and the associated capital requirements.

		Q2 2019																
		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)[2]				Capital charge after cap			
		≤ 20% RW	> 20% to 50% RW	>50% to 100% RW	>100% to 1250% RW	1250% RW	IRBA	ERBA/IAA	SA/SSFA	1250%	IRBA	ERBA/IAA	SA/SSFA	1250%	IRBA	ERBA/IAA	SA/SSFA	1250%
1	**Total exposures**	**3,065**	**–**	**28**	**26**	**–**	**–**	**3,119**	**–**	**–**	**–**	**369**	**–**	**–**	**–**	**30**	**–**	**–**
2	Traditional securitization	3,065	–	28	26	–	–	3,119	–	–	–	369	–	–	–	30	–	–
3	Of which securitization	3,065	–	28	26	–	–	3,119	–	–	–	369	–	–	–	30	–	–
4	Of which retail underlying	2,783	–	28	26	–	–	2,837	–	–	–	341	–	–	–	28	–	–
5	Of which wholesale	282	–	–	–	–	–	282	–	–	–	28	–	–	–	2	–	–
6	Of which re-securitization	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
7	Of which senior	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
8	Of which non-senior	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

		Q1 2019																
		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)[2]				Capital charge after cap			
		≤ 20% RW	> 20% to 50% RW	>50% to 100% RW	>100% to 1250% RW	1250% RW	IRBA	ERBA/IAA	SA/SSFA	1250%	IRBA	ERBA/IAA	SA/SSFA	1250%	IRBA	ERBA/IAA	SA/SSFA	1250%
1	**Total exposures**	**3,074**	**–**	**28**	**25**	**–**	**–**	**3,127**	**–**	**–**	**–**	**371**	**–**	**–**	**–**	**29**	**–**	**–**
2	Traditional securitization	3,074	–	28	25	–	–	3,127	–	–	–	371	–	–	–	29	–	–
3	Of which securitization	3,074	–	28	25	–	–	3,127	–	–	–	371	–	–	–	29	–	–
4	Of which retail underlying	2,795	–	28	25	–	–	2,848	–	–	–	343	–	–	–	27	–	–
5	Of which wholesale	279	–	–	–	–	–	279	–	–	–	28	–	–	–	2	–	–
6	Of which re-securitization	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
7	Of which senior	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
8	Of which non-senior	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

(1) The Bank has no synthetic securitization exposure.

(2) RWA amounts do not include the transitional arrangement related amount.

SEC 4 – Securitization Exposures in the Banking Book and Associated Capital Requirements[1]
- Bank Acting as Investor -

(unaudited) (millions of Canadian dollars)

The following tables present securitization exposures in the banking book where the bank acts as investor and the associated capital requirements.

		Q4 2019																
		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)[2]				Capital charge after cap			
		≤ 20% RW	> 20% to 50% RW	>50% to 100% RW	>100% to 1250% RW	1250% RW	IRBA	ERBA/IAA	SA/SSFA	1250%	IRBA	ERBA/IAA	SA/SSFA	1250%	IRBA	ERBA/IAA	SA/SSFA	1250%
1	**Total exposures**	**1,479**	**–**	**9**	**–**	**–**	**231**	**757**	**500**	**–**	**37**	**78**	**76**	**–**	**3**	**6**	**6**	**–**
2	Traditional securitization	1,479	–	9	–	–	231	757	500	–	37	78	76	–	3	6	6	–
3	Of which securitization	1,479	–	9	–	–	231	757	500	–	37	78	76	–	3	6	6	–
4	Of which retail underlying	759	–	–	–	–	231	28	500	–	37	2	76	–	3	–	6	–
5	Of which wholesale	720	–	9	–	–	–	729	–	–	–	76	–	–	–	6	–	–
6	Of which re-securitization	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
7	Of which senior	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
8	Of which non-senior	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

		Q3 2019																
		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)[2]				Capital charge after cap			
		≤ 20% RW	> 20% to 50% RW	>50% to 100% RW	>100% to 1250% RW	1250% RW	IRBA	ERBA/IAA	SA/SSFA	1250%	IRBA	ERBA/IAA	SA/SSFA	1250%	IRBA	ERBA/IAA	SA/SSFA	1250%
1	**Total exposures**	**1,802**	**–**	**9**	**–**	**–**	**254**	**757**	**800**	**–**	**40**	**79**	**126**	**–**	**3**	**6**	**10**	**–**
2	Traditional securitization	1,802	–	9	–	–	254	757	800	–	40	79	126	–	3	6	10	–
3	Of which securitization	1,802	–	9	–	–	254	757	800	–	40	79	126	–	3	6	10	–
4	Of which retail underlying	1,082	–	–	–	–	254	28	800	–	40	2	126	–	3	–	10	–
5	Of which wholesale	720	–	9	–	–	–	729	–	–	–	77	–	–	–	6	–	–
6	Of which re-securitization	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
7	Of which senior	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
8	Of which non-senior	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

(1) The Bank has no synthetic securitization exposure.

(2) RWA amounts do not include the transitional arrangement related amount.

SEC 4 – Securitization Exposures in the Banking Book and Associated Capital Requirements[1]
- Bank Acting as Investor - (continued)

(unaudited) (millions of Canadian dollars)

The following tables present securitization exposures in the banking book where the bank acts as investor and the associated capital requirements.

		Q2 2019																
		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)[2]				Capital charge after cap			
		≤ 20% RW	> 20% to 50% RW	>50% to 100% RW	>100% to 1250% RW	1250% RW	IRBA	ERBA/IAA	SA/SSFA	1250%	IRBA	ERBA/IAA	SA/SSFA	1250%	IRBA	ERBA/IAA	SA/SSFA	1250%
1	**Total exposures**	**1,868**	**–**	**10**	**–**	**–**	**320**	**758**	**800**	**–**	**50**	**80**	**128**	**–**	**4**	**6**	**10**	**–**
2	Traditional securitization	1,868	–	10	–	–	320	758	800	–	50	80	128	–	4	6	10	–
3	Of which securitization	1,868	–	10	–	–	320	758	800	–	50	80	128	–	4	6	10	–
4	Of which retail underlying	1,148	–	–	–	–	320	28	800	–	50	2	128	–	4	–	10	–
5	Of which wholesale	720	–	10	–	–	–	730	–	–	–	78	–	–	–	6	–	–
6	Of which re-securitization	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
7	Of which senior	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
8	Of which non-senior	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

		Q1 2019																
		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)[2]				Capital charge after cap			
		≤ 20% RW	> 20% to 50% RW	>50% to 100% RW	>100% to 1250% RW	1250% RW	IRBA	ERBA/IAA	SA/SSFA	1250%	IRBA	ERBA/IAA	SA/SSFA	1250%	IRBA	ERBA/IAA	SA/SSFA	1250%
1	**Total exposures**	**971**	**–**	**812**	**–**	**–**	**300**	**1,483**	**–**	**–**	**45**	**595**	**–**	**–**	**4**	**48**	**–**	**–**
2	Traditional securitization	971	–	812	–	–	300	1,483	–	–	45	595	–	–	4	48	–	–
3	Of which securitization	971	–	812	–	–	300	1,483	–	–	45	595	–	–	4	48	–	–
4	Of which retail underlying	311	–	800	–	–	300	811	–	–	45	522	–	–	4	42	–	–
5	Of which wholesale	660	–	12	–	–	–	672	–	–	–	73	–	–	–	6	–	–
6	Of which re-securitization	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
7	Of which senior	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
8	Of which non-senior	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

(1) The Bank has no synthetic securitization exposure.

(2) RWA amounts do not include the transitional arrangement related amount.

Glossary

Advanced Internal Ratings-Based (AIRB) approach	See risk-weighted assets below.
Banking Book Equities	Banking book equities comprise mainly exposures held for strategic and other reasons.
Capital Ratio	The Bank's capital divided by risk-weighted assets. The Bank's capital can be either CET1 Capital, Tier 1 capital or Total capital, producing three different capital ratios.
Common Equity Tier 1 (CET1) capital	Common Equity Tier 1 capital consists of common shareholders' equity less goodwill, intangible assets and other capital deductions. Common Equity Tier 1 capital ratio is calculated by dividing Common Equity Tier 1 capital by risk-weighted assets.
Corporate	All direct credit risk exposures to corporations, partnerships and proprietorships, exposures guaranteed by those entities.
Credit Risk	Credit risk is the risk of a financial loss if an obligor does not fully honor its contractual commitments to the Bank. Obligors may be borrowers, issuers, counterparties or guarantors. Credit risk is the most significant risk facing the Bank in the normal course of business. The Bank is exposed to credit risk not only through its direct lending activities and transactions but also through commitments to extend credit, letters of guarantee, letters of credit, over-the-counter derivatives trading, available-for-sale debt securities, securities purchased under reverse repurchase agreements, deposits with financial institutions, brokerage activities and transactions carrying a settlement risk for the Bank such as irrevocable fund transfers to third parties via electronic payment systems.
Drawn exposure	The amount of credit risk exposure resulting from loans already advanced to the customer.
Exposure at default (EAD)	An estimate of the amount of exposure to a customer at the event of, and at the time of, default.
Financial institutions	All direct credit risk exposures to deposit-taking institutions and regulated securities firms, and exposures guaranteed by those entities.
Leverage ratio	The leverage ratio is calculated by dividing the amount of Tier 1 capital by the total exposure. Total exposure is defined as the sum of on-balance-sheet assets (including derivative exposures and securities financing transaction exposures) and off-balance-sheet items. Assets deducted from Tier 1 capital are also deducted from the total exposure.
Loss given default (LGD)	An estimate of the amount of exposure to a customer that will not be recovered following a default by that customer, expressed as a percentage of the exposure at default.
Market risk	Market risk is the risk of financial loss resulting from adverse movements in underlying market factors. Market risk at the Bank arises from its participation in market-making, trading, investment and asset/liability management activities.
Operational risk	Operational risk is the risk of loss resulting from an inadequacy or a failure ascribable to people, processes, technology or external events. Operational risks are present in every activity of the Bank. Theft, fraud, unauthorized transactions, system errors, human error, amendments to or misinterpretation of acts and regulations, litigation or disputes with clients or property damage are just a few examples of events likely to cause financial loss, harm the Bank's reputation or result in regulatory penalties or sanctions.
Other off-balance sheet	Letters of guarantee, documentary letters of credit and securitized assets that represent the Bank's commitment to make payments in the event that a client cannot meet its financial obligations to third parties.
Other retail	This exposure class includes consumer loans, SME credit card receivables, SME loans (excluding mortgages of five units or more), and other personal loans.
Over-the-counter derivatives (OTC)	The amount of credit risk exposure resulting from derivatives that trade directly between two counterparties, rather than through exchanges.
Probability of default (PD)	An estimate of the likelihood of default for any particular customer which occurs when that customer is not able to repay its obligations as they become contractually due.
Qualifying revolving retail (QRR)	This exposure class includes lines of credit and credit card receivables.
Repo-style transactions	Financial obligations related to securities sold (repos) or repurchased (reverse repos) pursuant to an agreement under which the securities will be repurchased (repos) or resold (reverse repos) on a specified date and at a specified price. Such an agreement is a form of short-term funding (repos) or collateralized lending (reverse repos). Repo-style transactions also include loaned and borrowed securities that are off-balance sheet.
Retail Residential Mortgage	This exposure class includes loans to individuals against residential property (four units or less) and lines of credit secured by equity in residential property (HELOC).
Risk-weighted assets (RWA)	Assets are risk weighted according to the guidelines established by the Office of the Superintendent of Financial Institutions. In the standardized calculation approach, factors are applied to the face value of certain assets in order to reflect comparable risk levels. In the advanced approach, risk-weighted assets are derived from the Bank's internal models which represents the Bank's own assessment of the risks it incurs. Off-balance sheet instruments are converted to balance sheet (or credit) equivalents by adjusting the notional values before applying the appropriate risk-weighting factors.
Scaling Factor	An add-on of 6% is applied as a calibration adjustment to the risk weighted assets amount for credit risk assessed under the AIRB approach.
Sovereign	All direct credit risk exposures to governments, central banks and certain public sector entities, and exposures guaranteed by those entities.
Standardized approach	See risk-weighted assets.
Tier 1 capital	Tier 1 capital ratio consists of Common Equity Tier 1 capital and Additional Tier 1 instruments, namely, eligible non-cumulative preferred shares and the eligible amount of innovative instruments. Tier 1 capital ratio is calculated by dividing Tier 1 capital by risk-weighted assets.
Tier 2 capital	Tier 2 capital mainly includes the qualifying portion of the subordinated debentures and the collective allowance on non-impaired loans eligible for credit risk.
Total capital	Total capital is the sum of Tier 1 and Tier 2 capital. Total capital ratio is calculated by dividing total capital, less adjustments or regulatory deductions, by risk-weighted assets.
Undrawn commitments	The amount of credit risk exposure resulting from loans that have not been advanced to a customer, but which a customer may be entitled to draw in the future.