Financial Performance and Regulatory Disclosures Q4 2018

Caution regarding forward-looking statements

This document contains certain forward-looking statements with respect to Manulife Bank of Canada's ("MBC" or the "Bank") financial condition, results of operations and business. Forward-looking statements can generally be identified by words such as "will," "expects," "believes," "seeks," "estimates," "potential," "possible," "targeting," and variations of these words and similar expressions.

Forward-looking statements involve inherent risks and uncertainties and, therefore, undue reliance should not be placed on them. Readers are cautioned that a number of factors could cause actual results to differ, in some instances materially, from those anticipated or implied in any forward-looking statement. These factors include changes in general economic conditions in the market in which MBC operates, changes to government policy and regulation, and factors specific to MBC.

The forward-looking statements in this document are, unless otherwise indicated, as of the date they are made. MBC makes no commitment to revise or update any forward-looking statements.

Overview

About Manulife Bank of Canada

MBC is a Schedule I federally chartered bank and a wholly owned subsidiary of The Manufacturers Life Insurance Company ("MLI"), a wholly owned subsidiary of Manulife Financial Corporation ("MFC"). MFC is a publicly traded financial services group. MBC and its wholly owned subsidiary, Manulife Trust Company ("MTC"), provides a wide range of financial products and services including mortgage and investment loans, and deposit products. Platinum Canadian Mortgage Trust ("PCMT") and Platinum Canadian Mortgage Trust II ("PCMT II") were established to provide financing for MBC mortgage products through securitization.

Vision

MBC's vision is to improve the wealth of Canadians by providing efficient and flexible banking solutions and integrating banking into every client's financial plan.

Mission and Values

MFC's mission is to make decisions easier and customers' lives better. MFC's values are the guideposts that help achieve the mission, define who we are and how we work together. These values are:

Obsess about customers
Do the right thing
Think big
Get it done together
Own it
Share your humanity

Financial Performance and Regulatory Disclosures

This document provides information on the Bank's consolidated financial performance and includes pertinent disclosures based on the Basel Committee on Banking Supervision's ("BCBS") Basel II and III frameworks and the Office of the Superintendent of Financial Institutions ("OSFI") B-6 and B-20 guidelines. These disclosures are intended to provide market participants with information regarding the risk profile of MBC and the application of the Basel regulatory requirements, as well as information related to MBC's residential mortgage loans portfolios to enable market participants to evaluate the Bank's residential mortgage underwriting standards.

The financial data presented in this document represents the consolidated financial results for the Bank, its subsidiary, MTC, and structured entities PCMT and PCMT II.

Contents

Overview 1

Financial Performance 2
Key strategic priorities ... 4

Basel III Pillar 3 Disclosures 6
Credit Risk ... 7
Market Risk ... 24
Liquidity Risk ... 27
Operational Risk ... 32
Capital Management ... 33

B20 Disclosures 37

Renumeration 40

Glossary 42

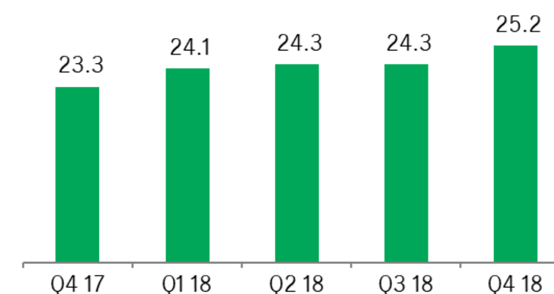
Financial Performance[1]

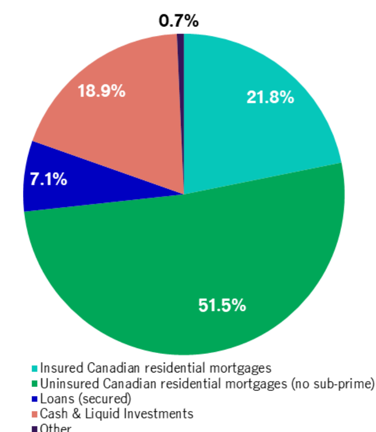
Effective January 1, 2018, the Bank adopted IFRS 9 “Financial Instruments”, which replaces the guidance in IAS 39 “Financial Instruments: Recognition and Measurement”. IFRS 9 includes requirements on 1) Classification and Measurement of financial instruments; 2) Impairment of financial assets; and 3) Hedge accounting. In conjunction with the adoption of IFRS 9, the Bank also adopted the OSFI guideline “IFRS 9 Financial Instruments and Disclosures”, which provides guidance to Federally Regulated Entities on the application of IFRS 9. The OSFI guidelines are effective for the Bank with the adoption of IFRS 9 on January 1, 2018. The Bank applied IFRS 9 on a retrospective basis with no restatement of comparative information. Comparative information for 2017 is reported under IAS 39 and is not comparable to the information presented for 2018.

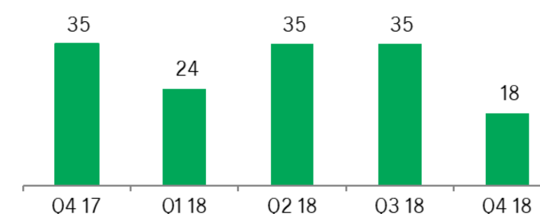
MBC ended the quarter with assets of $25.2 billion, an increase of $0.9 billion, or 4%, as compared to September 30, 2018, and increased by $1.9 billion, or 8%, as compared to December 31, 2017. The increase over prior year was primarily driven by an increase in net lending assets, driven by strong sales results and enhancement to the Banks' retention program, and higher liquidity, reflecting expansion of securitization programs and strong deposit growth.

Regulatory changes, economic headwinds and a softening home purchase market continue to challenge the business environment and increase competitive pressures. The Bank's record of stable earnings is an indication of the success of its unique business model, which offers Canadians efficient and flexible banking solutions, and reflects the positive impacts of foundational initiatives and improved retention and customer experience programs.

Net income of $18 million for the three months ended December 31, 2018, decreased by $17 million, or 49% as compared to the three months ended September 30, 2018, driven by lower net investment gains and higher operating expenses, partially offset by higher net interest income. Net income decreased $17 million, or 49% as compared to the three months ended December 31, 2017, driven by lower net investment gains mainly due to the recognition of unrealized losses as a result of the adoption of IFRS 9 effective January 1, 2018, partially offset by higher net interest income. Net income of $112 million for the year ended December 31, 2018, decreased by $28 million, or 20% as compared to the year ended December 31, 2017. The decrease in net income over 2017 is primarily driven by lower net investment gains and higher operating expenses, partially offset by higher net interest income, driven by interest rate increases and growth in lending assets.





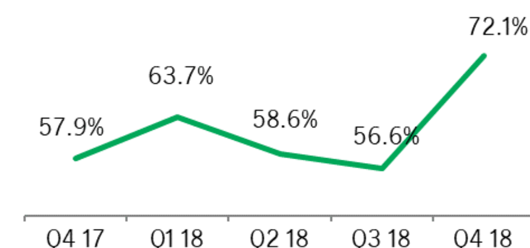


[1] Financial performance information is provided to enable a reader to assess the Bank’s unaudited results of operations and financial condition for the three-month period ended December 30, 2018 and for the year ended December 31, 2018.

The Banks' efficiency ratio at December 31, 2018 of 72.1% was higher, as compared with 56.6% reported in September 30, 2018, and higher as compared with 57.9% reported in December 31, 2017. The increase over prior quarter is primarily driven by lower investment gains and higher operating expenses, partially offset by higher net interest income. The increase over the prior year is due to lower investment gains, partially offset by higher net interest income.

MBC has no exposure to European sovereign debt or to the sub-prime mortgage market.

Efficiency Ratio



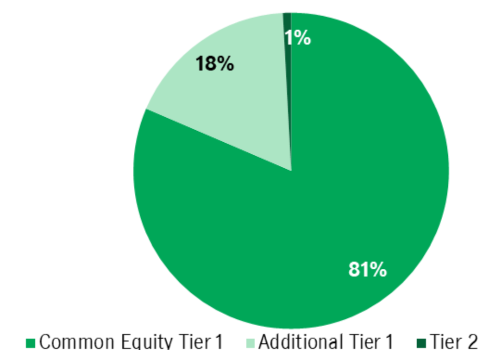
Capital

Basel III Common Equity Tier 1 ("CET1") ratio, Tier 1 capital ratio and Total capital ratio were 13.5 per cent, 16.4 per cent and 16.6 per cent, respectively, as at December 31, 2018, well in excess of minimum regulatory capital requirements.

Risk weighted assets as at December 31, 2018, were approximately $7.8 billion, an increase of $0.3 billion, or 4%, as compared to September 30, 2018. The increase was primarily driven by higher liquidity, growth in lending assets and higher corporate exposures. Risk weighted assets as at December 31, 2018, increased $0.6 billion, or 8%, as compared with December 31, 2017, primarily driven by residential mortgage growth and higher bank and corporate exposures.

Refer to the Capital Management section for further discussion on regulatory capital, capital ratios and risk weighted assets.

Regulatory Capital Breakdown



Total risk-weighted assets

~$ 7.8 Billion

Total capital

~$ 1.3 Billion

CET1 Capital Ratio

13.5%

Tier 1 Capital Ratio

16.4%

Total Capital Ratio

16.6%

Credit ratings

As at December 31, 2018, the long-term and short-term credit ratings remained the same as for the year ended December 31, 2017. As at April 27, 2018, Standard & Poor's reaffirmed Manulife Bank's long-term deposit rating of A+ and its short-term deposit rating of A-1[2]. As at October 23, 2018, DBRS reaffirmed the Bank's long-term senior debt and long-term deposit ratings of A (high) and its short-term deposit rating of R-1 (middle)[3].

Standard & Poor's	
Short-term rating	A-1
Long-term rating	A+
DBRS	
Short-term rating	R-1 (middle)
Long-term rating	A(high)

Key strategic priorities

MBC continues to focus on strengthening and growing its core business and customer service, while expanding into complementary products and services to meet a broader range of customer needs. The Bank's priorities include:

- Retain and deepen customer relationships;
- Lead in customer experience, digital and digitization;
- Disruptive products and services that align to the best interest of our customers;
- Diversity distribution;
- Acquire new younger digitally inclined customers;
- Drive channel efficiencies through digital/automation and variable cost model; and
- Build high performing, motivated teams to deliver on growth strategies.

[2] Long-term debt rated A has "strong capacity to meet financial commitments, but somewhat susceptible to adverse economic conditions and changes in circumstances." A is the third highest rating out of 10. A short-term issuer credit rating of A-1 denotes "a strong capacity to meet its financial commitments." A-1 is Standard & Poor's highest short term rating category.

[3] Long-term debt rated A is "of satisfactory credit quality and protection of interest and principal is still substantial." A is the third-highest rating out of ten. Each rating category (except AAA and D) is denoted by the subcategories "high" and "low". The absence of either a "high" or "low" designation indicates the rating is in the "middle" of the category. Short-term debt rated R-1 (middle) is of "superior credit quality and typically exemplifies above-average strength in key areas of consideration for the timely repayment of short-term liabilities." The rating R-1 (middle) is the second-highest rating out of 10.

Financial Performance

As at balances	IFRS 9 [1] Q4 2018	Q3 2018	Q2 2018	Q1 2018	IAS 39 Q4 2017
ASSETS					
Cash, cash equivalents and restricted cash	**$ 3,022**	$ 2,408	$ 2,605	$ 2,916	$ 2,306
Debt securities	**266**	240	277	247	245
Equity securities	**166**	183	183	169	227
	$ 3,454	$ 2,831	$ 3,065	$ 3,332	$ 2,778
Mortgage loans	**$ 19,828**	$ 19,619	$ 19,390	$ 18,959	$ 18,690
Other loans	**1,797**	1,788	1,806	1,775	1,737
	$ 21,625	$ 21,407	$ 21,196	$ 20,734	$ 20,427
Other assets	**$ 107**	$ 65	$ 58	$ 66	$ 63
Total assets	**$ 25,186**	$ 24,303	$ 24,319	$ 24,132	$ 23,268
LIABILITIES and EQUITY					
Liabilities					
Demand deposits	**$ 12,459**	$ 11,784	$ 11,950	$ 11,818	$ 11,902
Term deposits	**7,452**	7,542	7,417	7,424	6,489
	$ 19,911	$ 19,326	$ 19,367	$ 19,242	$ 18,391
Notes payable	**3,774**	3,524	3,523	3,523	3,523
Other liabilities	**172**	188	183	145	135
Total liabilities	**$ 23,857**	$ 23,038	$ 23,073	$ 22,910	$ 22,049
Equity					
Issued share capital					
Preferred shares	**$ 229**	$ 229	$ 229	$ 229	$ 229
Common shares	**217**	217	217	217	217
Contributed surplus	**226**	165	165	165	165
Retained earnings	**657**	654	634	611	603
Accumulated other comprehensive income	**-**	-	1	-	5
Total equity	**$ 1,329**	$ 1,265	$ 1,246	$ 1,222	$ 1,219
Total liabilities and equity	**$ 25,186**	$ 24,303	$ 24,319	$ 24,132	$ 23,268

	IFRS 9 [1] 2018 Q4	2018 Q3	2018 Q2	2018 Q1	IAS 39 2017 Q4	IFRS 9 [1] Fiscal 2018	IAS 39 Fiscal 2017
Revenue							
Interest income	**$ 217**	$ 207	$ 193	$ 185	$ 176	$ 802	$ 653
Interest expense	**112**	104	96	89	81	401	288
Net interest income	**$ 105**	$ 103	$ 97	$ 96	$ 95	$ 401	$ 365
Fee income	**$ 9**	$ 10	$ 10	$ 9	$ 10	$ 38	$ 40
Net (losses) gains on securities	**(21)**	(2)	8	(11)	14	(26)	31
Non-interest income	**$ (12)**	$ 8	$ 18	$ (2)	$ 24	$ 12	$ 71
Total revenue	**$ 93**	$ 111	$ 115	$ 94	$ 119	$ 413	$ 436
Provision for credit losses on lending assets	**2**	-	1	2	1	5	5
Non-interest expense	**67**	63	67	60	71	257	242
Net income before income tax	**$ 24**	$ 48	$ 47	$ 32	$ 47	$ 151	$ 189
Income tax expense	**6**	13	12	8	12	39	49
Net income	**$ 18**	$ 35	$ 35	$ 24	$ 35	$ 112	$ 140

[1] Effective January 1, 2018 the Bank adopted IFRS 9. The full transitional impact was recognized as an adjustment to to opening retained earnings as of January 1, 2018. Comparative information for 2017 is reported under IAS 39.

The tables above are a summary of MBC's unaudited consolidated financial statements and are consistent with the unaudited consolidated financial statements filed with OSFI with classification differences due to summarization of results.

Basel III Pillar 3 Disclosures[4]

MBC is a Schedule I bank regulated by OSFI. MTC is a federally incorporated trust company licensed to operate in Canada with full trust and loan company powers under the Trust and Loan Companies Act (Canada) and is also regulated by OSFI. Canadian Deposit-taking Institutions are subject to OSFI's Capital Adequacy Requirements ("CAR") guideline, which reflects the capital requirements that have been approved by the BCBS reform commonly referred to as Basel III. OSFI's capital requirements are applied at the consolidated MBC level. Refer to the Capital Management section for further details.

Regulatory approaches used to determine capital requirements

Credit risk

Banks are permitted a choice of two methodologies in determining the capital requirements for credit risk: the Internal Ratings Based ("IRB") or Standardized Approach. Under the IRB Approach, banks are permitted to determine risk weightings for on and off-balance sheet exposures using internal risk formulas. The Standardized Approach requires banks to use assessments from qualifying rating agencies to determine risk weightings. MBC and MTC apply the Standardized Approach when determining capital requirements for credit risk.

Market risk

Market risk capital is calculated using one of two methodologies: the Standardized Approach or Internal Models. MBC and MTC utilize the Standardized Approach, as applicable.

Operational risk

Banks are permitted to apply one of three approaches to calculate capital requirements for operational risk. The Basic Indicator Approach requires banks to hold operational risk capital equal to the average over the previous three years of a fixed percentage of positive annual gross income. The Standardized Approach divides the bank's business activities into eight business lines. For each business line, gross income is multiplied by an assigned factor, and the total capital charge is calculated as the three year average of the simple summation of regulatory capital charges across the business lines in each year. The Advanced Measurement Approach uses a bank's own internal operational risk measurement system based on prescribed quantitative and qualitative criteria to determine capital requirements and is subject to supervisory approval. MBC and MTC collectively apply the Basic Indicator Approach to determine operational risk capital requirements.

The following sections outline the Bank's risk management framework and include pertinent disclosures under Basel III Pillar 3 and under OSFI Guideline B-6 Liquidity Principles and B-20 Residential Mortgage Underwriting Practices and Procedures for MBC and MTC.

[4] The financial information included in this Pillar 3 regulatory disclosures below are unaudited and in millions of Canadian dollars, unless otherwise stated.

Credit Risk

Credit risk is the risk of loss due to the inability or unwillingness of a borrower or counterparty to fulfil its payment obligations.

Key risk factors

Credit risk is one of the most significant risks to the Bank's business, and exists in its lending activities, investment activities and derivative transactions.

Risk management strategy

Policies establish exposure limits by borrower, quality rating, industry, and geographic region. The Bank currently does not participate in the credit derivative market and does not have exposure to credit default swaps. The Chief Risk Officer ("CRO") and the Manulife Bank Executive Risk Committee set out objectives related to the overall quality and diversification of lending portfolios and establish criteria for the selection of counterparties and intermediaries. The CRO monitors compliance with all credit policies and limits.

The Bank establishes policies and procedures to provide an independent assessment of the existence, quality and value of the credit portfolios, the integrity of the credit process, and to promote the detection of related problems. Internal audit performs periodic assessments of compliance with credit policies and procedures of credit granting and investment originating units.

The Board of Directors of both MBC and MTC ("Board of Directors") are responsible for reviewing and approving all key credit risk management policies. A review system sensitized to prescribed total credit exposure and risk rating thresholds is in place and is maintained with the intent that:

- The borrower's current financial condition is known;
- Collateral security is adequate and enforceable relative to the borrower's current circumstances;
- Credits are in compliance with covenants and margins;
- Early identification and classification of at risk credit is possible;
- Current information regarding the quality of the loan portfolio is available; and
- Higher risk credits are reviewed in order to assess the risk of default.

The Bank's risk rating systems are designed to assess and monitor credit risk. The risk assessment and monitoring processes for the lending portfolio and derivatives contracts are described below.

Lending portfolio

MBC's flagship product, Manulife One, is an all-in-one banking solution that combines a client's savings and borrowings into one Home Equity Line of Credit ("HELOC") product. This can include a client's traditional mortgage loan, personal loan, lines of credit, chequing and savings accounts, and credit card debt. The Proactive Account Monitoring ("PAM") program is a client engagement program that uses predictive indicators of potential default to select accounts for proactive remediation. High risk clients are contacted before they enter arrears and are encouraged to undertake actions to reduce their borrowing and maintain their good standing.

As at December 31, 2018, the residential mortgage loans portfolio includes $16.6 billion of Manulife One accounts (December 31, 2017 - $15.7 billion), with the remaining comprising primarily of amortizing residential mortgage loans. Insured mortgages are insured against loss caused by borrower default under a loan secured by real property. Insurance is provided by the Canada Mortgage and Housing Corporation ("CMHC") or other authorized insurers.

Derivative counterparties

Derivative financial instrument contracts are entered into for asset-liability management purposes to better match the cash flows resulting from different re-pricing, currency and maturity dates of assets and liabilities. The Bank employs defensive hedging strategies to reduce risks in the banking book.

Interest rate risk is the risk that changing interest rates will adversely impact MBC's financial results. The Bank primarily uses vanilla interest rate swaps, where fixed and floating interest payments based on a specified amount of notional principal for a specified time period are exchanged with a swap counterparty. Foreign exchange risk refers to losses that could result from changes in foreign exchange rates arising from assets and liabilities that are denominated in foreign currency.

MBC limits the types of authorized derivatives and application strategies. Approval is required from MBC's Asset Liability Committee ("ALCO") and MFC's Global ALCO for derivative application strategies and they regularly monitor hedge effectiveness. Counterparties are required to post collateral to cover positive market positions (refer to the Collateral Management section within this document). The derivative counterparty exposure is measured as net potential credit exposure, which takes into consideration mark-to-market values of all transactions with each counterparty and net of any collateral held. Market standard valuation methodologies are used for over the counter ("OTC") derivatives. Key variables impacting valuations include the Banker's Acceptance ("BA"), swap rates and foreign currency. Inputs to models are consistent with what market participants would use when pricing the instruments and are deemed observable. Inputs that are not observable in the market or cannot be derived principally from, or corroborated by, observable market data include broker quotes and inputs that are outside the observable portion. These unobservable inputs may involve significant management judgment or estimation. It should be noted that even when unobservable, inputs are based on assumptions deemed appropriate given the circumstances and consistent with what market participants would use when pricing such instruments. The Bank has not used unobservable inputs in the valuation of OTC derivatives held as at December 31, 2018.

A portion of the swaps qualify as fair value hedges for accounting purposes. Accordingly, the gains or losses recognized on derivatives are offset by the corresponding gains or losses recognized on the hedged items in income. In the fourth quarter of 2018, a net gain of $0.3 million (net gain of nil for the fourth quarter of 2017) was recognized in income for swaps due to hedge ineffectiveness and a net loss of $0.02 million for the year ended December 31, 2018 (a net gain of $0.2 million for the year ended December 31, 2017).

Risk control and mitigation

Diversification

MBC's credit risk governance policies require an acceptable level of diversification. Limits are in place for several portfolio dimensions including industry, geography, single-name concentrations and transaction-specific limits. Although the Bank's credit portfolio is heavily weighted to Canadian residential mortgage and other loans, the portfolio is well-diversified geographically within Canada. Credit risk exposures are monitored for concentration risk and such findings are reported to the Board of Directors, the Risk Committee and MLI's credit risk management department on a quarterly basis. Quantitative tables at the end of this section break down MBC's major credit exposure by counterparty, location and residual contractual maturities.

The average quarterly gross exposure for mortgages was $19.5 billion (fourth quarter of 2017 - $18.4 billion) and the 2018 average annual gross exposure for mortgages was $19.1 billion (2017 - $18.1 billion). The average quarterly gross exposure for other loans was $2.0 billion (fourth quarter of 2017 - $1.8 billion) and the 2018 average annual gross exposure for other loans was $1.9 billion (2017 - $1.8 billion). The average quarterly gross exposure for undrawn commitments was $9.8 billion (fourth quarter of 2017 – $9.3 billion) and the 2018 average annual gross exposure for undrawn commitments was $9.5 billion (2017 – $8.9 billion).

Lending portfolio

In the normal course of business, various indirect commitments are outstanding that are not reflected on the Consolidated Statements of Financial Position, including commitments to extend credit in the form of loans or other financing for specific amounts and maturities. These financial commitments are subject to normal credit standards, financial controls and monitoring procedures.

Collateral management

Collateral is an integral part of the Bank's credit risk mitigation in its lending portfolio. The purpose of collateral for credit risk mitigation is to minimize losses that would otherwise be incurred, and the Bank generally requires borrowers to pledge collateral when the Bank advances credit. Residential real estate and liquid investments are examples of acceptable collateral.

Summary of Exposure Covered by Eligible Financial Collateral[5]

		Q4 2018		Q3 2018		Q2 2018		Q1 2018		Q4 2017
Total exposure covered by credit risk mitigation [(1)]	**$**	**1,797**	$	1,788	$	1,806	$	1,775	$	1,737

(1) The maximum exposure is equal to the loan value advanced to a borrower as the value of financial collateral exceeds the amount drawn. The exposure amounts presented relate to loans and are reported net of allowance for credit losses.

Derivatives

The Bank has established policies and limits for managing credit risk exposures that may arise with counterparties when entering into derivative transactions. Gross derivative counterparty exposure is measured as the total fair value (including accrued interest) of all outstanding contracts in gain positions excluding any offsetting contracts in negative positions and the impact of collateral on hand.

The Bank limits the risk of credit losses from derivative counterparties by:

- Establishing a minimum acceptable counterparty credit rating from external rating agencies;
- Entering into master netting arrangements which permit the offsetting of contracts in a loss position in the case of a counterparty default; and
- Entering into Credit Support Annex ("CSA") agreements, whereby collateral must be provided when the exposure exceeds a certain threshold.

The collateral pledged from or to counterparties are primarily investments in the form of government and agency securities. The Bank pledges investments as collateral when the derivative mark-to-market position is negative. When the derivative mark-to-market position is positive, the counterparty is required to pledge investments as collateral. Pledging starts at a certain threshold for each counterparty in accordance with the terms of the CSA. The net market value position of the collateral posted by swap counterparties as at December 31, 2018 was nil (December 31, 2017 – nil). As at December 31, 2018, collateral of $13 million (December 31, 2017 – $16 million) was posted to its swap counterparties due to unfavourable derivative positions for the Bank.

The Bank monitors the encumbrances of liquid assets as part of its Liquidity Risk Management Framework. This is accomplished by stress testing collateral requirements based on interest rate shocks. As at December 31, 2018, the Bank no longer has collateral posting thresholds based on credit rating downgrade scenarios.

[5] Eligible financial collateral includes cash and deposits as well as qualifying debt securities, equities and mutual funds.

Fair Value of Derivative Instruments and Net Derivative Exposure

	Q4 2018		Q3 2018		Q2 2018		Q1 2018		Q4 2017	
	Fair value net (1)	**Net derivative exposure**	Fair value net (1)	Net derivative exposure	Fair value net (1)	Net derivative exposure	Fair value net (1)	Net derivative exposure	Fair value net (1)	Net derivative exposure
Derivative instruments	**$ (14)**	**$ (14)**	$ (23)	$ (23)	$ (18)	$ (18)	$ (18)	$ (18)	$ (16)	$ (16)
Less: accrued interest	**(1)**	**-**	(1)	-	-	-	-	-	-	-
Total	**$ (13)**	**$ (14)**	$ (22)	$ (23)	$ (18)	$ (18)	$ (18)	$ (18)	$ (16)	$ (16)

(1) Net reflects contractual netting at default. Net amount equals the gross positive or gross negative fair value as there are no offsetting positions held.

Credit quality

Policy applicable from January 1, 2018 (IFRS 9)

Effective January 1, 2018, the Bank adopted IFRS 9. Under IFRS 9, impairment of financial assets classified as amortized cost or fair value through other comprehensive income ("FVOCI") is to be calculated through an expected credit loss ("ECL") model, which replaces the previous incurred loss model under IAS 39. The IFRS 9 impairment requirements also apply to certain undrawn loan commitments and financial guarantees[6]. The Bank's financial instruments in scope of the impairment requirements include the Bank's lending assets and off-balance sheet commitments, debt securities and other financial assets measured at FVOCI.

ECL allowances represent credit losses that reflect an unbiased and probability-weighted estimate, determined by evaluating a range of possible outcomes and includes forward-looking information. The inclusion of forward-looking information generally results in earlier recognition of credit losses under IFRS 9 as compared to IAS 39. ECLs are calculated on an individual basis or a collective basis, depending on the nature of the underlying portfolio. Changes in the required ECL allowance are recorded in the provision for credit losses in the Consolidated Statements of Income.

The ECL model measures credit losses using a three-stage approach[7]:

- Stage 1 is comprised of all performing financial instruments which have not experienced a significant increase in credit risk ("SICR") since initial recognition. The determination of SICR varies by product and considers the relative change in the risk of default since origination. 12-month ECLs are recognized for all Stage 1 financial instruments. 12-month ECLs represent the portion of lifetime ECLs that result from default events possible within 12 months of the reporting date.

[6] The ECL for off-balance sheet commitments and undrawn facilities is reported in other liabilities in the Bank's Consolidated Statements of Financial Position.
[7] Financial instruments can migrate in both directions through the stages of the impairment model.

- Stage 2 is comprised of all non-impaired financial instruments which have experienced a SICR since original recognition which is not considered to be in default. Full lifetime ECLs are recognized, which represent ECLs that result from all possible default events over the remaining lifetime of the financial instrument. The remaining lifetime is generally based on a financial instrument's remaining contractual life, except for certain revolving products, where remaining lifetime is based on the period over which the Bank expects to be exposed to credit losses.
- Stage 3 is comprised of financial instruments identified as credit-impaired. Full lifetime ECLs are recognized for Stage 3 financial instruments.

ECLs are measured under four probability-weighted macroeconomic scenarios, which measure the difference between all contractual cash flows that are due to the Bank in accordance with the contract and all the cash flows that the entity expects to receive, discounted at the original effective interest rate. This includes consideration of past events, current market conditions and reasonable supportable information about future economic conditions. The estimation and application of forward-looking information and the assessment of SICR requires significant judgement. Forward-looking macroeconomic variables used in the models are the variables which are most closely related with credit losses in the relevant portfolio. The ECL calculations also include the following elements:

- The probability of default ("PD"); an estimate of the likelihood of default over a given time horizon;
- The loss given default ("LGD"); an estimate of the loss arising in the case where a default occurs at a given time. It is based on the difference between the contractual cash flows due and those the lender expects to receive, including from the realization of collateral (net of expected costs of realization and any amounts legally required to be paid to the borrowers) and other credit enhancements that are integral to the contract terms; and
- The exposure at default ("EAD"); an estimate of the exposure at a future default date, considering expected changes in the exposure after the reporting date.

Financial instruments are written off, either partially or in full, against the related allowance for credit losses when there is no realistic prospect of recovery in respect of those amounts. In subsequent periods, any recoveries of amounts previously written-off are credited to the provision for credit losses.

Policy applicable before January 1, 2018 (IAS 39)

The Bank classifies a loan as impaired when, in the opinion of management, there is objective evidence of impairment due to one or more loss events that have occurred after initial recognition of the loan, with a negative impact on the estimated future cash flows of a loan. Objective evidence of impairment includes indications that the borrower is experiencing significant financial difficulties, or a default or delinquency has occurred. Generally, loans are deemed impaired when contractual payments are more than 90 days past due, except for uninsured mortgage loans, which are classified as impaired at 180 days past due. Government of Canada guaranteed loans are classified as impaired at 365 days past due. When mortgage and other loans are impaired, contractual interest is no longer accrued. Contractual interest accruals are resumed once the contractual payments are no longer in arrears and are considered current.

The Bank maintains allowances which, in management's opinion, should be adequate to absorb credit-related losses in MBC's lending portfolio. Individual allowances are recorded when, due to identified conditions specific to a particular loan, management believes there is objective evidence of impairment as a result of one or more loss events that have occurred after initial recognition of the loan, with a negative impact on the estimated future cash flows of a loan. On a quarterly basis, the Bank assesses whether any objective evidence of impairment exists for any individually assessed loan. The amount of individual allowance is measured as the difference between the asset's carrying amount and the present value of estimated future cash flows discounted at the asset's original effective interest rate and reduced by estimated costs of collection. Expected future cash flows are typically determined in reference to the fair value of collateral security underlying the mortgage and other loans (net of expected costs of realization and any amounts legally required to be paid to the borrowers) or observable market prices for the mortgage and other loans, if available.

A collective allowance is established to cover any impairment that is considered to have occurred in the existing portfolio but cannot be determined on an item-by-item basis. The allowance covers the Bank's core business lines where prudent assessment by the Bank and existing economic and portfolio conditions indicate that losses may be incurred. In making this judgment, management considers observable factors such as economic trends and business conditions, portfolio concentrations, trends in volumes and severity of delinquencies and management's current assessment of factors that may affect the condition of the portfolio. The allowance for losses that are incurred but cannot be determined on an item-by-item basis is calculated using credit risk models that consider PD, LGD, and EAD.

The provision for loan losses is charged to income by an amount necessary to bring the allowance for credit losses to a level determined appropriate by management.

Mortgages and Other Loans by Risk Category [1]

	IFRS 9							
	Q4 2018				Q3 2018			
	Stage 1	Stage 2	Stage 3	Total	Stage 1	Stage 2	Stage 3	Total
Mortgage loans								
1	$ 5,524	$ 1,008	$ -	$ 6,532	$ 4,685	$ 1,846	$ 2	$ 6,533
2	8,705	2,920	-	11,625	6,243	5,162	5	11,410
3	632	174	-	806	583	198	5	786
4 or higher	563	259	-	822	610	257	38	905
Default [3]	-	-	57	57	-	-	-	-
Total mortgage loans	$ 15,424	$ 4,361	$ 57	$ 19,842	$ 12,121	$ 7,463	$ 50	$ 19,634
Allowance for ECLs	$ 2	$ 8	$ 4	$ 14	$ 2	$ 9	$ 4	$ 15
Mortgages, net of allowance	$ 15,422	$ 4,353	$ 53	$ 19,828	$ 12,119	$ 7,454	$ 46	$ 19,619
Other loans [2]								
1	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2	162	-	-	162	152	-	1	153
3	922	435	-	1,357	936	429	1	1,366
4 or higher	247	26	-	273	245	23	2	270
Default [3]	-	-	6	6	-	-	-	-
Total other loans	$ 1,331	$ 461	$ 6	$ 1,798	$ 1,333	$ 452	$ 4	$ 1,789
Allowance for ECLs	$ 1	$ -	$ -	$ 1	$ 1	$ -	$ -	$ 1
Other loans, net of allowance	$ 1,330	$ 461	$ 6	$ 1,797	$ 1,332	$ 452	$ 4	$ 1,788
Total								
1	$ 5,524	$ 1,008	$ -	$ 6,532	$ 4,685	$ 1,846	$ 2	$ 6,533
2	8,867	2,920	-	11,787	6,395	5,162	6	11,563
3	1,554	609	-	2,163	1,519	627	6	2,152
4 or higher	810	285	-	1,095	855	280	40	1,175
Default [3]	-	-	63	63	-	-	-	-
Total mortgage and other loans	$ 16,755	$ 4,822	$ 63	$ 21,640	$ 13,454	$ 7,915	$ 54	$ 21,423
Allowance for ECLs	$ 3	$ 8	$ 4	$ 15	$ 3	$ 9	$ 4	$ 16
Total mortgage and other loans, net of allowance	$ 16,752	$ 4,814	$ 59	$ 21,625	$ 13,451	$ 7,906	$ 50	$ 21,407
Undrawn credit facilities and other off-balance sheet exposures								
1	$ 2,113	$ 804	$ -	$ 2,917	$ 1,568	$ 1,375	$ 1	$ 2,944
2	4,265	1,687	-	5,952	2,825	2,972	2	5,799
3	175	5	-	180	181	6	-	187
4 or higher	792	2	-	794	810	2	-	812
Default [3]	-	-	3	3	-	-	-	-
Total off-balance sheet exposures	$ 7,345	$ 2,498	$ 3	$ 9,846	$ 5,384	$ 4,355	$ 3	$ 9,742
Allowance for ECLs	$ 2	$ 4	$ 1	$ 7	$ 2	$ 4	$ 1	$ 7
Total off-balance sheet exposures, net of allowance	$ 7,343	$ 2,494	$ 2	$ 9,839	$ 5,382	$ 4,351	$ 2	$ 9,735

[1] For mortgages and loans, an internal risk rating is assigned ranging from “1 - low risk", " 2 – normal risk”, "3 - medium risk", “4 & higher – high risk” to "default". The internal risk ratings reflect the credit quality of the lending assets. All lending assets that MBC originates are assigned a risk rating.

[2] Other loans include credit card.

[3] In Q4 2018 a new category of default was added. Comparative figures have not been restated.

Mortgages and Other Loans by Risk Category [1]

	IFRS 9							
	Q2 2018				Q1 2018			
	Stage 1	Stage 2	Stage 3	Total	Stage 1	Stage 2	Stage 3	Total
Mortgage loans								
1	$ 4,522	$ 2,125	$ 2	$ 6,649	$ 4,533	$ 2,164	$ 2	$ 6,699
2	5,651	5,460	3	11,114	5,472	5,169	3	10,644
3	576	187	4	767	548	191	3	742
4 or higher	600	244	32	876	607	258	26	891
Total mortgage loans	$ 11,349	$ 8,016	$ 41	$ 19,406	$ 11,160	$ 7,782	$ 34	$ 18,976
Allowance for ECLs	$ 2	$ 10	$ 4	$ 16	$ 2	$ 11	$ 4	$ 17
Mortgages, net of allowance	$ 11,347	$ 8,006	$ 37	$ 19,390	$ 11,158	$ 7,771	$ 30	$ 18,959
Other loans [2]								
1	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2	151	-	-	151	144	-	-	144
3	924	445	1	1,370	1,227	151	1	1,379
4 or higher	257	27	2	286	245	5	2	252
Total other loans	$ 1,332	$ 472	$ 3	$ 1,807	$ 1,616	$ 156	$ 3	$ 1,775
Allowance for ECLs	$ 1	$ -	$ -	$ 1	$ -	$ -	$ -	$ -
Other loans, net of allowance	$ 1,331	$ 472	$ 3	$ 1,806	$ 1,616	$ 156	$ 3	$ 1,775
Total								
1	$ 4,522	$ 2,125	$ 2	$ 6,649	$ 4,533	$ 2,164	$ 2	$ 6,699
2	5,802	5,460	3	11,265	5,616	5,169	3	10,788
3	1,500	632	5	2,137	1,775	342	4	2,121
4 or higher	857	271	34	1,162	852	263	28	1,143
Total mortgage and other loans	$ 12,681	$ 8,488	$ 44	$ 21,213	$ 12,776	$ 7,938	$ 37	$ 20,751
Allowance for ECLs	$ 3	$ 10	$ 4	$ 17	$ 2	$ 11	$ 4	$ 17
Total mortgage and other loans, net of allowance	$ 12,678	$ 8,478	$ 40	$ 21,196	$ 12,774	$ 7,927	$ 33	$ 20,734
Undrawn credit facilities and other off-balance sheet exposures								
1	$ 1,492	$ 1,491	$ 1	$ 2,984	$ 1,419	$ 1,386	$ 1	$ 2,806
2	2,570	3,024	1	5,595	2,334	2,670	1	5,005
3	161	8	-	169	136	6	1	143
4 or higher	952	1	-	953	1,553	2	-	1,555
Total off-balance sheet exposures	$ 5,175	$ 4,524	$ 2	$ 9,701	$ 5,442	$ 4,064	$ 3	$ 9,509
Allowance for ECLs	$ 1	$ 5	$ 1	$ 7	$ 2	$ 5	$ 1	$ 8
Total off-balance sheet exposures, net of allowance	$ 5,174	$ 4,519	$ 1	$ 9,694	$ 5,440	$ 4,059	$ 2	$ 9,501

[1] For mortgages and loans, an internal risk rating is assigned ranging from "1 - low risk", " 2 – normal risk", "3 - medium risk", "4 & higher – high risk" to "default". The internal risk ratings reflect the credit quality of the lending assets. All lending assets that MBC originates are assigned a risk rating.

[2] Other loans include credit card.

Mortgages and Other Loans by Risk Category [1]

		IAS 39
		Q4 2017
Mortgage loans		
1 and 2 [2]	$	7,163
3		10,037
4 or higher		1,490
Total mortgage loans	$	18,690
Other loans [3]		
1 and 2 [2]	$	235
3		1,135
4 or higher		367
Total other loans	$	1,737
Total		
1 and 2 [2]	$	7,398
3		11,172
4 or higher		1,857
Total mortgage and other loans	$	20,427

(1) For loans, mortgages and credit card, an internal risk rating is assigned ranging from "1 and 2 – little or no risk" to "8 – doubtful." The internal risk ratings reflect the credit quality of the lending assets. All lending assets that MBC originates are assig a risk rating.

(2) The internal risk ratings reflect the credit quality of the lending assets. Insured loans and loans with strong collateral are primarily included in this riskcategory. Presently, rating 1 criterion is not applicable to the Bank, therefore, ratings 1 & 2 have been combin

(3) Other loans include credit card.

Gross Credit Exposure [9]

	Q4 2018					Q3 2018				
	Drawn [1]	Undrawn [2]	Other off-balance sheet [3]	Debt securities[4]	Total	Drawn [1]	Undrawn [2]	Other off-balance sheet [3]	Debt securities[4]	Total
By geographic location										
Country [5]										
Canada	$ -	$ -	$ -	$ 3	$ 3	$ -	$ -	$ -	$ 6	$ 6
United States	-	-	-	172	172	-	-	-	153	153
Other	-	-	-	36	36	-	-	-	26	26
Province [5]										
Canada										
Ontario	$ 8,446	$ 4,355	$ 6	$ 41	$ 12,848	$ 8,273	$ 4,310	$ 6	$ 41	$ 12,630
British Columbia	3,309	1,776	11	-	5,096	3,263	1,746	11	-	5,020
Alberta	2,752	1,114	1	-	3,867	2,738	1,120	1	-	3,859
Quebec	4,808	1,635	1	7	6,451	4,811	1,613	1	7	6,432
Saskatchewan	803	343	-	-	1,146	814	336	-	-	1,150
Manitoba	427	191	-	-	618	424	186	-	-	610
Atlantic provinces	1,094	413	-	7	1,514	1,099	412	-	7	1,518
Territories	1	-	-	-	1	1	-	-	-	1
Total exposure	$ 21,640	$ 9,827	$ 19	$ 266	$ 31,752	$ 21,423	$ 9,723	$ 19	$ 240	$ 31,405
By counterparty										
Manulife One	$ 16,558	$ 9,044	$ -	$ -	$ 25,602	$ 16,416	$ 9,001	$ -	$ -	$ 25,417
Residential mortgages	3,049	49	-	-	3,098	3,033	50	-	-	3,083
Financial institution [6]	-	-	-	60	60	-	-	-	57	57
Corporate	494	2	-	158	654	434	4	-	131	569
Personal loans	1,539	732	-	-	2,271	1,540	668	-	-	2,208
Sovereign [7]	-	-	-	48	48	-	-	-	48	48
Other [8]	-	-	19	-	19	-	-	19	4	23
Total exposure	$ 21,640	$ 9,827	$ 19	$ 266	$ 31,752	$ 21,423	$ 9,723	$ 19	$ 240	$ 31,405
By contractual maturity										
Within 1 year	$ 1,758	$ 355	$ -	$ 121	$ 2,234	$ 1,793	$ 480	$ -	$ 116	$ 2,389
1 to 5 years	5,870	-	-	145	6,015	5,567	-	-	124	5,691
Over 5 years	20	-	-	-	20	22	-	-	-	22
No specific maturity	13,992	9,472	19	-	23,483	14,041	9,243	19	-	23,303
Total exposure	$ 21,640	$ 9,827	$ 19	$ 266	$ 31,752	$ 21,423	$ 9,723	$ 19	$ 240	$ 31,405

[1] The amount of credit risk exposure resulting from loans advanced to a borrower. The exposure amounts presented in the above tables are gross of allowance for credit losses.
[2] The amount of credit risk exposure resulting from the unutilized portion of an authorized credit line or unfunded committed credit facility. These commitments have no fixed maturity dates.
[3] Other off-balance sheet items include letters of credit and indemnities.
[4] Includes short-term debt securities classified as cash equivalents.
[5] Geographic information is based upon address of property mortgaged for mortgage loans and based upon residence of borrower for other loans.
[6] Includes exposures to deposit taking institutions, contractual institutions and investment institutes.
[7] Includes exposures to governments, central banks and certain public sector entities.
[8] Other includes securitized investments in bonds and Residential Mortgage Backed Securities.
[9] Gross credit risk exposure is before credit risk mitigants. This table excludes equity exposures.

Gross Credit Exposure [9] (Continued)

	Q2 2018					Q1 2018				
	Drawn [1]	Undrawn [2]	Other off-balance sheet [3]	Debt securities[4]	Total	Drawn [1]	Undrawn [2]	Other off-balance sheet [3]	Debt securities[4]	Total
By geographic location										
Country [5]										
Canada	$ -	$ -	$ -	$ 26	$ 26	$ -	$ -	$ -	$ 39	$ 39
United States	-	-	-	148	148	-	-	-	140	140
Other	-	-	-	33	33	-	-	-	32	32
Province [5]										
Canada										
Ontario	$ 8,140	$ 4,264	$ 6	$ 36	$ 12,446	$ 7,885	$ 4,164	$ 5	$ 34	$ 12,088
British Columbia	3,190	1,736	11	-	4,937	3,070	1,663	25	-	4,758
Alberta	2,710	1,122	1	20	3,853	2,667	1,105	1	-	3,773
Quebec	4,835	1,621	1	7	6,464	4,810	1,619	1	16	6,446
Saskatchewan	813	337	-	-	1,150	812	341	-	-	1,153
Manitoba	418	188	-	-	606	410	179	-	-	589
Atlantic provinces	1,106	414	-	7	1,527	1,095	406	-	6	1,507
Territories	1	-	-	-	1	2	-	-	-	2
Total exposure	$ 21,213	$ 9,682	$ 19	$ 277	$ 31,191	$ 20,751	$ 9,477	$ 32	$ 267	$ 30,527
By counterparty										
Manulife One	$ 16,229	$ 8,980	$ -	$ -	$ 25,209	$ 15,924	$ 8,744	$ -	$ -	$ 24,668
Residential mortgages	3,015	54	-	-	3,069	2,929	76	-	-	3,005
Financial institution [6]	-	-	-	45	45	-	-	-	47	47
Corporate	407	11	-	145	563	366	23	-	134	523
Personal loans	1,562	637	-	-	2,199	1,532	634	-	-	2,166
Sovereign [7]	-	-	-	63	63	-	-	-	53	53
Other [8]	-	-	19	24	43	-	-	32	33	65
Total exposure	$ 21,213	$ 9,682	$ 19	$ 277	$ 31,191	$ 20,751	$ 9,477	$ 32	$ 267	$ 30,527
By contractual maturity										
Within 1 year	$ 1,891	$ 610	$ -	$ 128	$ 2,629	$ 2,088	$ 648	$ -	$ 118	$ 2,854
1 to 5 years	5,307	-	-	149	5,456	4,829	-	-	149	4,978
Over 5 years	28	-	-	-	28	22	-	-	-	22
No specific maturity	13,987	9,072	19	-	23,078	13,812	8,829	32	-	22,673
Total exposure	$ 21,213	$ 9,682	$ 19	$ 277	$ 31,191	$ 20,751	$ 9,477	$ 32	$ 267	$ 30,527

[1] The amount of credit risk exposure resulting from loans advanced to a borrower. The exposure amounts presented in the above tables are gross of allowance for credit losses.
[2] The amount of credit risk exposure resulting from the unutilized portion of an authorized credit line or unfunded committed credit facility. These commitments have no fixed maturity dates.
[3] Other off-balance sheet items include letters of credit and indemnities.
[4] Includes short-term debt securities classified as cash equivalents.
[5] Geographic information is based upon address of property mortgaged for mortgage loans and based upon residence of borrower for other loans.
[6] Includes exposures to deposit taking institutions, contractual institutions and investment institutes.
[7] Includes exposures to governments, central banks and certain public sector entities.
[8] Other includes securitized investments in bonds and Residential Mortgage Backed Securities.
[9] Gross credit risk exposure is before credit risk mitigants. This table excludes equity exposures.

Gross Credit Exposure [9] (Continued)

	Q4 2017				
	Drawn [1]	Undrawn [2]	Other off-balance sheet [3]	Debt securities[4]	Total
By geographic location					
Country [5]					
Canada	$ -	$ -	$ -	$ 42	$ 42
United States	-	-	-	137	137
Other	-	-	-	30	30
Province [5]					
Canada					
Ontario	$ 7,740	$ 4,017	$ 7	$ 24	$ 11,788
British Columbia	2,965	1,618	16	-	4,599
Alberta	2,645	1,160	1	-	3,806
Quebec	4,783	1,553	1	6	6,343
Saskatchewan	809	334	-	-	1,143
Manitoba	408	177	-	-	585
Atlantic provinces	1,090	394	-	6	1,490
Territories	2	-	-	-	2
Total exposure	$ 20,442	$ 9,253	$ 25	$ 245	$ 29,965
By counterparty					
Manulife One	$ 15,740	$ 8,810	$ -	$ -	$ 24,550
Residential mortgages	2,845	293	-	-	3,138
Financial institution [6]	-	-	-	43	43
Corporate	357	-	-	132	489
Personal loans	1,500	150	-	-	1,650
Sovereign [7]	-	-	-	33	33
Other [8]	-	-	25	37	62
Total exposure	$ 20,442	$ 9,253	$ 25	$ 245	$ 29,965
By contractual maturity					
Within 1 year	$ 2,111	$ 1,081	$ -	$ 86	$ 3,278
1 to 5 years	4,522	-	-	159	4,681
Over 5 years	23	-	-	-	23
No specific maturity	13,786	8,172	25	-	21,983
Total exposure	$ 20,442	$ 9,253	$ 25	$ 245	$ 29,965

[1] The amount of credit risk exposure resulting from loans advanced to a borrower. The exposure amounts presented in the above tables are gross of allowance for credit losses.
[2] The amount of credit risk exposure resulting from the unutilized portion of an authorized credit line or unfunded committed credit facility. These commitments have no fixed maturity dates.
[3] Other off-balance sheet items include letters of credit and indemnities.
[4] Includes short-term debt securities classified as cash equivalents.
[5] Geographic information is based upon address of property mortgaged for mortgage loans and based upon residence of borrower for other loans.
[6] Includes exposures to deposit taking institutions, contractual institutions and investment institutes.
[7] Includes exposures to governments, central banks and certain public sector entities.
[8] Other includes securitized investments in bonds and Residential Mortgage Backed Securities.
[9] Gross credit risk exposure is before credit risk mitigants. This table excludes equity exposures.

Loan Impairment by Counterparty and by Geographic Area

IFRS 9

	Q4 2018					Q3 2018					Q2 2018				
	Past-due but not impaired					Past-due but not impaired					Past-due but not impaired				
	31 days to 60 days	61 days to 90 days	Total past-due but not impaired	Gross impaired loans[1]	Total past due or impaired	31 days to 60 days	61 days to 90 days	Total past-due but not impaired	Gross impaired loans[1]	Total past due or impaired	Less than 90 days	90 days and greater	Total past-due but not impaired	Gross impaired loans[1]	Total past due or impaired
By geographic location															
Province [2]															
Canada															
Ontario	$ 11	$ 5	$ 16	$ 10	$ 26	$ 15	$ 3	$ 18	$ 8	$ 26	$ 10	$ 4	$ 14	$ 5	$ 19
British Columbia	7	2	9	4	13	2	2	4	3	7	6	2	8	4	12
Alberta	7	2	9	9	18	7	4	11	6	17	8	1	9	4	13
Quebec	17	7	24	28	52	21	6	27	25	52	20	6	26	22	48
Saskatchewan	2	1	3	5	8	2	1	3	5	8	3	-	3	3	6
Manitoba	1	1	2	2	4	2	-	2	1	3	1	1	2	1	3
Atlantic provinces	5	1	6	5	11	4	3	7	6	13	6	2	8	5	13
Total	$ 50	$ 19	$ 69	$ 63	$ 132	$ 53	$ 19	$ 72	$ 54	$ 126	$ 54	$ 16	$ 70	$ 44	$ 114
By counterparty															
Manulife One	$ 30	$ 12	$ 42	$ 47	$ 89	$ 29	$ 12	$ 41	$ 39	$ 80	$ 31	$ 9	$ 40	$ 31	$ 71
Residential mortgages	15	5	20	10	30	19	4	23	11	34	18	4	22	10	32
Personal loans	5	2	7	6	13	5	3	8	4	12	5	3	8	3	11
Total	$ 50	$ 19	$ 69	$ 63	$ 132	$ 53	$ 19	$ 72	$ 54	$ 126	$ 54	$ 16	$ 70	$ 44	$ 114

	IFRS 9					IAS 39				
	Q1 2018					Q4 2017				
	Past-due but not impaired					Past-due but not impaired				
	Less than 90 days	90 days and greater	Total past-due but not impaired	Gross impaired loans[1]	Total past due or impaired	Less than 90 days	90 days and greater	Total past-due but not impaired	Gross impaired loans	Total past due or impaired
By geographic location										
Province [2]										
Canada										
Ontario	$ 11	$ 3	$ 14	$ 5	$ 19	$ 20	$ 2	$ 22	$ 3	$ 25
British Columbia	8	1	9	4	13	6	3	9	1	10
Alberta	8	-	8	3	11	11	3	14	1	15
Quebec	24	5	29	17	46	22	4	26	11	37
Saskatchewan	4	-	4	3	7	4	1	5	2	7
Manitoba	1	-	1	-	1	2	-	2	-	2
Atlantic provinces	6	-	6	5	11	8	2	10	4	14
Total	$ 62	$ 9	$ 71	$ 37	$ 108	$ 73	$ 15	$ 88	$ 22	$ 110
By counterparty										
Manulife One	$ 35	$ 6	$ 41	$ 26	$ 67	$ 53	$ 10	$ 63	$ 15	$ 78
Residential mortgages	23	3	26	8	34	16	5	21	4	25
Personal loans	4	-	4	3	7	4	-	4	3	7
Total	$ 62	$ 9	$ 71	$ 37	$ 108	$ 73	$ 15	$ 88	$ 22	$ 110

[1] Effective January 1, 2018, all loans that are greater than 90 days in arrears are automatically classified as credit-impaired and classified as Stage 3 under IFRS 9. Prior period amounts have not been restated.

[2] Based upon address of property mortgaged for mortgage loans and residence of borrowers for other loans.

Allowances by Counterparty and by Geographic Area

IFRS 9 [(1)]

	Q4 2018 Allowance				Q3 2018 Allowance				Q2 2018 Allowance				Q1 2018 Allowance			
	Stage 1	Stage 2	Stage 3	Total	Stage 1	Stage 2	Stage 3	Total	Stage 1	Stage 2	Stage 3	Total	Stage 1	Stage 2	Stage 3	Total
By geographic location																
Province [(2)]																
Ontario	**$ 2**	**$ 6**	**$ 1**	**$ 9**	$ 2	$ 6	$ 1	$ 9	$ 1	$ 8	$ 1	$ 10	$ 1	$ 8	$ -	$ 9
British Columbia	**-**	**1**	**-**	**1**	-	2	-	2	-	2	-	2	-	2	-	2
Alberta	**-**	**1**	**-**	**1**	-	1	-	1	-	1	-	1	-	1	-	1
Quebec	**2**	**3**	**4**	**9**	2	3	3	8	2	3	3	8	2	4	4	10
Atlantic provinces	**1**	**1**	**-**	**2**	1	1	1	3	1	1	1	3	1	1	1	3
Total	**$ 5**	**$ 12**	**$ 5**	**$ 22**	$ 5	$ 13	$ 5	$ 23	$ 4	$ 15	$ 5	$ 24	$ 4	$ 16	$ 5	$ 25
By counterparty																
Manulife One																
Drawn	**$ 1**	**$ 7**	**$ 3**	**$ 11**	$ 1	$ 8	$ 3	$ 12	$ 1	$ 9	$ 2	$ 12	$ 1	$ 10	$ 3	$ 14
Undrawn [(3)]	**1**	**4**	**1**	**6**	1	4	1	6	-	5	1	6	1	5	1	7
Personal loans																
Drawn	**2**	**1**	**1**	**4**	2	1	1	4	2	1	2	5	1	1	1	3
Undrawn [(3)]	**1**	**-**	**-**	**1**	1	-	-	1	1	-	-	1	1	-	-	1
Total	**$ 5**	**$ 12**	**$ 5**	**$ 22**	$ 5	$ 13	$ 5	$ 23	$ 4	$ 15	$ 5	$ 24	$ 4	$ 16	$ 5	$ 25

IAS 39

	Q4 2017 Allowance		
	Individual	Collective [(4)]	Total
By geographic location			
Country [(2)]			
Canada	$ -	$ 11	$ 11
Province [(2)]			
Canada			
Quebec	3	-	3
Atlantic provinces	1	-	1
Total	$ 4	$ 11	$ 15
By counterparty			
Manulife One	$ 3	$ -	$ 3
Personal loans	1	-	1
Other	-	11	11
Total	$ 4	$ 11	$ 15

(1) Effective January 1, 2018, the Bank adopted the new impairment requirements of IFRS 9. Under IFRS 9 the allowance for credit losses is calculated on an expected loss basis as opposed to an incurred loss basis under IAS 39.
(2) Based upon address of property mortgaged for mortgage loans and residence of borrowers for other loans.
(3) Allowance for ECLs relating to off-balance sheet exposures are included as a provision in other liabilities.
(4) Allowance has been calculated based on the portfolio and is not split by province.

Allowances for Impairment on Mortgages and Loans

IFRS 9

	Q4 2018 Allowance Stage 1	Q4 2018 Stage 2	Q4 2018 Stage 3	Q4 2018 Total	Q3 2018 Allowance Stage 1	Q3 2018 Stage 2	Q3 2018 Stage 3	Q3 2018 Total	Q2 2018 Allowance Stage 1	Q2 2018 Stage 2	Q2 2018 Stage 3	Q2 2018 Total
Balance, beginning of period	**$ 5**	**$ 13**	**$ 5**	**$ 23**	$ 4	$ 15	$ 5	$ 24	$ 4	$ 16	$ 5	$ 25
Provision for credit losses:												
Transfers in (out) to Stage 2	**4**	**(4)**	**-**	**-**	2	(2)	-	-	2	(2)	-	-
Transfers in (out) to Stage 3	**-**	**1**	**(1)**	**-**	-	-	-	-	-	-	-	-
Remeasurement	**(4)**	**2**	**4**	**2**	(1)	1	1	1	(2)	1	2	1
Derecognitions and maturities	**-**	**-**	**-**	**-**	-	(1)	-	(1)	-	-	-	-
Write-offs net of recoveries	**-**	**-**	**(3)**	**(3)**	-	-	(1)	(1)	-	-	(2)	(2)
Balance, end of period	**$ 5**	**$ 12**	**$ 5**	**$ 22**	$ 5	$ 13	$ 5	$ 23	$ 4	$ 15	$ 5	$ 24
Includes:												
Amounts drawn[1]	**$ 3**	**$ 8**	**$ 4**	**$ 15**	$ 3	$ 9	$ 4	$ 16	$ 3	$ 10	$ 4	$ 17
Off-balance sheet exposures[2]	**2**	**4**	**1**	**7**	2	4	1	7	1	5	1	7
	$ 5	**$ 12**	**$ 5**	**$ 22**	$ 5	$ 13	$ 5	$ 23	$ 4	$ 15	$ 5	$ 24

IFRS 9

	Q1 2018 Allowance Stage 1	Q1 2018 Stage 2	Q1 2018 Stage 3	Q1 2018 Total	Fiscal 2018 Allowance Stage 1	Fiscal 2018 Stage 2	Fiscal 2018 Stage 3	Fiscal 2018 Total
Balance, beginning of period	$ 3	$ 15	$ 6	$ 24	$ 3	$ 15	$ 6	$ 24
Provision for credit losses:								
Transfers in (out) to Stage 2	1	(2)	-	(1)	9	(10)	-	(1)
Purchases and originations	1	-	-	1	1	-	-	1
Remeasurement	(1)	3	-	2	(8)	8	6	6
Derecognitions and maturities	-	-	-	-	-	(1)	-	(1)
Write-offs net of recoveries	-	-	(1)	(1)	-	-	(7)	(7)
Balance, end of period	$ 4	$ 16	$ 5	$ 25	$ 5	$ 12	$ 5	$ 22
Includes:								
Amounts drawn[1]	$ 2	$ 11	$ 4	$ 17	$ 3	$ 8	$ 4	$ 15
Off-balance sheet exposures[2]	2	5	1	8	2	4	1	7
	$ 4	$ 16	$ 5	$ 25	$ 5	$ 12	$ 5	$ 22

[1] Allowance for ECLs relating to amounts drawn is presented as a deduction to the gross carrying amount of the financial asset.
[2] Allowance for ECLs relating to off-balance sheet exposures are included as a provision in other liabilities.

Allowances for Impairment on Mortgages and Loans and Provision for Credit Losses[1]

	IAS 39					
	Q4 2017			Fiscal 2017		
	Allowance			Allowance		
	Individual	Collective	Total	Individual	Collective	Total
Balance, beginning of period	$ 5	$ 11	$ 16	$ 5	$ 12	$ 17
Impairment loss for the period:						
Write-offs	(2)	-	(2)	(6)	-	(6)
Provision for credit losses	1	-	1	5	(1)	4
Balance, end of period	$ 4	$ 11	$ 15	$ 4	$ 11	$ 15

[1] Provision represents charge to Consolidated Statements of Income for the period. It has been calculated based on the portfolio and is not split by counterparties.

Market Risk

Market risk is the risk of loss resulting from market price volatility, interest rate changes and adverse foreign currency rate movements. Market price volatility relates to changes in the prices of publicly traded equities and to impacts of interest rate movements on the lending portfolio.

Governance structure

The Board of Directors annually review and approve the capital, liquidity, interest rate risk, pledging and investment policies. The Board of Directors have ultimately delegated the responsibility for the strategic management of market, interest rate and liquidity risks to ALCO. The ALCO risk management strategy addresses the interest rate risk arising between asset returns and supporting liabilities and is designed to keep potential losses stemming from these risks within acceptable limits. Actual investment positions and risk exposures are monitored to ensure policy guidelines and limits are adhered to. Positions are reported to ALCO on a monthly basis and to MFC's Global ALCO on a quarterly basis. The Bank invests in common equities based on limits set within the Investment Policy.

Securities

Policy applicable after January 1, 2018 (IFRS 9)
On adoption of IFRS 9, MBC has classified and measured all debt securities as FVOCI and equity securities as fair value through profit and loss ("FVTPL"). The classification of financial instruments at initial recognition depends on their contractual terms and the business model for managing the instruments.

Debt securities are classified and measured as FVOCI as the contractual terms of the financial asset give rise, on specified dates, to cash flows that are solely payments of principal and interest ("SPPI") and the financial assets are held within a business model whose objective is achieved by both collecting contractual cash flows and selling financial assets. Debt securities are recognized initially at fair value plus directly attributable transaction costs and are subsequently presented in the Consolidated Statements of Financial Position at fair value. Unrealized gains and losses on FVOCI debt securities are recorded in other comprehensive income ("OCI") except for unrealized gains or losses attributable to foreign currency translation, which are included in income. When FVOCI debt securities are sold, the unrealized gains or losses are transferred from accumulated other comprehensive income ("AOCI") to the Consolidated Statements of Income. As at December 31, 2018, the total pre-tax unrealized gains recorded in AOCI related to FVOCI debt securities was nil. The cumulative realized losses arising from the sale of FVOCI debt securities for the three months ended December 31, 2018, were $1 million and for the year ended December 31, 2018, were $2 million.

Debt securities measured as FVOCI are subject to the impairment requirements of IFRS 9. The ECL allowance is based on credit losses expected to arise over the life of the asset. The Bank recognizes a loss allowance at an amount equal to 12-month ECL for those financial instruments that have not yet seen a significant increase in credit risk since origination, and lifetime ECL once there has been a significant increase in credit risk. The Bank assesses, at each reporting date, whether credit risk has increased significantly by comparing the risk default as at the reporting date, with the risk of default as at the date of initial recognition. The ECLs for debt instruments measured at FVOCI do not reduce the carrying amount of these financial assets in the Consolidated Statements of Financial Position, which remains at fair value. Instead, an amount equal to the allowance is recognized in OCI as an accumulated impairment amount, with a corresponding charge to profit or loss. The accumulated loss recognized in OCI is recycled to the profit and loss upon derecognition of the assets. No ECL was recognized for the three months and year ended December 31, 2018.

MBC holds mortgage backed securities ("MBS") and asset backed securities ("ABS"), which are classified as FVOCI debt investments, and recorded at market values. MBC manages securitization exposures related to short-term and long-term investments to approved limits and rating requirements specified by investment policy guidelines. These securitization positions are managed using a combination of market standard systems and third-party data providers to monitor performance data and manage risks associated with the investments. All securitization exposures are included in the banking book. All of the Bank's investments in securitizations held as at December 31, 2018, are in National Housing Act Mortgage Backed Securities ("NHA MBS") rated AAA by an External Credit Assessment Institutions ("ECAI"). Refer to the liquidity risk section of this document for quantitative disclosures of the securitization exposures in the banking book.

For debt issues, the ECAI ratings are used for managing market risk and, if not available, MLI's internal risk ratings are used. When ratings from more than one approved agency are available for a single issue, the priority sequence of rating agencies is Standard & Poor's ("S&P"), Moody's Investor Service, DBRS, Fitch Rating Services, and the parent company's internal risk rating.

Equity securities are classified and measured at FVTPL as these instruments contain contractual cash flows that do not meet the SPPI test (dividend is discretionary and capital gain is not contractual). As at December 31, 2018, the Bank held $166 million of publicly traded FVTPL equity securities. Equity securities are measured initially at their fair value plus directly attributable transaction costs, and are subsequently presented in the Consolidated Statements of Financial Position at their fair values using published bid prices. Changes in fair value and realized gains and losses are recognized in non-interest income in the Consolidated Statement of Income under net gains (losses) on securities. Dividend income is recorded in interest income. The cumulative net realized gains arising from the sale of FVTPL equity securities for the three months ended December 31, 2018, were nil and for the year ended December 31, 2018, were $10 million. Net unrealized losses recognized in profit or loss for the three months ended December 31, 2018, were $21 million and net unrealized losses for the year ended December 31, 2018, were $36 million.

Policy applicable prior to January 1, 2018 and comparative figures (IAS 39)

MBC holds equity and debt instruments that have been classified as available-for-sale ("AFS") based on management's intentions. As at December 31, 2017, the Bank held $227 million of publicly traded AFS equity securities. The AFS equity securities are measured initially at their fair values plus directly attributable transaction costs, and are subsequently presented in the Consolidated Statements of Financial Position at their fair values using published bid prices.

Unrealized gains and losses on AFS securities are recorded, net of taxes, in accumulated other comprehensive income ("AOCI"). Unrealized foreign currency translation gains and losses on monetary AFS securities are recorded immediately in income. Premiums or discounts on purchases of AFS debt securities are amortized over the terms to maturity on an effective interest rate basis. When AFS securities are sold, the unrealized gains (net of unrealized losses) are transferred from AOCI to the Consolidated Statements of Income. As at December 31, 2017, the total pre-tax unrealized gains recorded in AOCI related to AFS securities was $7 million. The cumulative realized gains[8] arising from the sale of AFS securities for the three months ended December 31, 2017, was $14 million and for the year ended December 31, 2017, was $31 million.

[8] Under IAS 39, realized gains (losses) were recognized net of other than temporary impairment charges on AFS securities.

Interest rate risk

Interest rate risk is identified using a variety of techniques and measures that are primarily based on projecting asset and liability cash flows under a range of current and future interest rate and market return scenarios. MBC uses traditional asset-liability management techniques as well as quantitative methods to stress test the asset-liability portfolio.

MBC applies monthly sensitivity analysis to specifically assess interest rate risk. The results of the analyses are reviewed by ALCO to determine whether they are within prescribed limits for sensitivity of net interest income to changes in the yield curve. The following table shows the sensitivity of MBC's consolidated pre-tax net interest income to interest rate risk over the next 12 months.

Interest Rate Risk[9]

		Q4 2018 (1)		Q3 2018 (1)		Q2 2018 (1)		Q1 2018 (1)		Q4 2017 (1)
100 basis point rate increase	**$**	**13**	$	14	$	14	$	13	$	8
200 basis point rate increase		**25**		27		27		25		16
100 basis point rate decrease		**(12)**		(13)		(14)		(13)		(8)
200 basis point rate decrease (2)		**(22)**		(20)		(14)		(13)		(8)

(1) The interest sensitivity assumes that the Bank moves all bank administered rates for lending and deposits directly with market rates. The Bank has the ability to mitigate margin impact through its administered rates.
(2) The floor of zero on government rates and corporate spreads limits the impact of a 200 basis point decrease in rates.

Derivatives are used to manage interest rate risk. To mitigate the unique risks associated with the use of derivatives, the Bank has specific risk management policies and processes. The policies include limits on the maximum exposure on derivative transactions, authorized types of derivatives and derivative applications, delegated authorization limits for specific personnel and collateral management. The policies also require pre-approval of all derivative application strategies and regular monitoring of the effectiveness of the strategies employed.

[9] A parallel movement in interest rates includes a change in government, swap and corporate rates, with a floor of zero on government rates and corporate spreads.

Liquidity Risk

Liquidity risk is the risk of not having access to sufficient funds or liquid assets to meet both expected and unexpected cash and collateral demands.

At least annually, the Board of Directors review and approve the Liquidity Management Policy and review the Liquidity Contingency Plan, which ensures the Bank has the infrastructure and control functions in place to meet expected and unexpected liquidity obligations. Risk tolerances and limits are approved by the Board of Directors and define the maximum level of risk the Bank is willing to take regarding liquidity risks. The Liquidity Contingency Plan outlines various liquidity statuses and includes procedures, action plans, communication requirements and roles and responsibilities under each liquidity status.

Liquidity stress testing is completed monthly to monitor and identify sources of potential liquidity strain, and to ensure current exposures remain in accordance with the Bank's established liquidity risk tolerance and limits. In addition to the Bank's internal metrics, the Bank must also comply with OSFI's Liquidity Adequacy Requirements ("LAR") Guideline, which includes the Net Cumulative Cash Flow ("NCCF") and the BCBS prescribed Liquidity Coverage Ratio ("LCR"). All liquidity stress testing is performed by the Bank's Treasury department on a monthly basis and is reported to ALCO and OSFI as required. Key assumptions of the internal stress tests are reviewed and approved on an annual basis by ALCO to ensure that they remain reasonable and appropriate.

To meet anticipated liquidity needs in both stable and stressed conditions, the Bank's Treasury department actively manages liquidity risk. The liquidity risk management processes are designed to enable the payment of the Bank's obligations as they come due, under both normal and adverse circumstances. Liquid assets include unencumbered assets that are marketable, can be pledged as security for borrowings, and can be converted to cash in a timeframe that meets liquidity requirements. The Bank's liquid assets as at December 31, 2018 were $4.8 billion (19 per cent of total assets) compared to $4.2 billion as at December 31, 2017 (18 per cent of total assets).

Both the minimum NCCF and LCR[10] regulatory targets were met by the Bank during the three months ended December 31, 2018.

[10] In January 2013, the BCBS released its final rules for LCR, with phased in timelines for compliance, starting with a minimum of 60% coverage in 2015 and increasing by 10% annually to 100% in 2019. However, OSFI has required 100% coverage effective January 1, 2015, which has been classified within the new OSFI Liquidity Adequacy Requirements ("LAR") guideline finalized on May 31, 2014. On February 9, 2019, OSFI issued proposed revisions to the LAR guideline with a target implementation date of January 1, 2020. The proposed revisions are open to public consultation until March 15, 2019. The Bank is currently assessing the impact of the draft revisions.

Governance structure

The Board of Directors have the ultimate oversight responsibility for liquidity risk management of the Bank. The liquidity management responsibilities are delegated to the Chief Executive Officer ("CEO") by the Board of Directors, with the day to day liquidity management of the Bank being delegated to the Bank's Treasurer and oversight of the Bank's liquidity risk management framework delegated to the CRO. The Bank's Treasurer is responsible for providing comprehensive reporting to ALCO to assist the committee in fulfilling its liquidity risk oversight responsibilities.

Funding

The Bank has developed and continues to develop strategies to diversify funding sources in terms of funding channels and products, taking into consideration the level of reliance on individual funding sources. Diversification of funding is continually monitored and reported to ALCO and the Board of Directors. The Bank's ability to securitize high quality residential mortgage loans has provided a key source of diversified funding and contingent liquidity. Securitization funding provides the Bank with long-term funding at very attractive interest rates. Refer to the Securitization section below for details on the securitization programs.

In 2010, the Bank created a wholly owned subsidiary, MTC, which has been a strong source of deposit funding totalling $1.6 billion as at December 31, 2018 (December 31, 2017 - $1.5 billion).

Securitization

The Bank acts in the capacity of sponsor, originator, servicer and the provider of credit enhancements for its securitization programs. Mortgage loans purchased by the Bank from a third party and securitized in the NHA MBS program continue to be serviced by a third party mortgage servicer. In addition, the Bank also invests in short and long-term investment grade asset-backed securities. The sections below provide an overview of the Bank's securitization programs.

Manulife One securitization programs

MBC has created two programs to securitize Manulife One accounts; PCMT and PCMT II ("the programs"). Manulife One accounts insured by CMHC are securitized under the PCMT program and uninsured Manulife One accounts are securitized under the PCMT II program.

The PCMT and PCMT II securitization programs diversify MBC's funding capabilities by providing an additional source of funding. The availability of multiple funding channels enhances MBC's ability to obtain low cost funds and provides increased liquidity. Eligibility criteria are defined in the program documentation. These accounts are pooled by MBC and undivided co-ownership interests in the receivables of the pool are then sold to the programs in exchange for cash. The programs fund the purchase of the co-ownership interests by issuing term notes. The pool of Manulife One accounts supporting the notes is legally isolated from MBC's assets and the cash flows generated from the pool are used to provide interest and principal payments on the term notes. MBC's continuing involvement includes servicing the pool of Manulife One accounts and performing an administrative role for the programs. MBC also provides loans to the programs to pay for upfront transaction costs. These loans are subordinate to all notes issued by PCMT and PCMT II.

PCMT

MBC provides credit enhancements to PCMT in the form of cash reserve accounts in the amount of $8 million (December 31, 2017 – $8 million), maintaining an asset pool balance in excess of notes issued, and excess spread consisting of excess cash receipts that are only attributable to MBC after the periodic obligations of PCMT have been met. The restricted cash will be drawn upon only in the event of insufficient cash flows from the underlying pool to satisfy the obligations of PCMT.

During the three month period and year ended December 31, 2018, no secured term notes have been issued under PCMT. During the year ended December 31, 2017, no secured term notes were issued. As at December 31, 2018, term notes worth $1.5 billion (December 31, 2017 - $1.5 billion) are outstanding.

PCMT II

MBC provides credit enhancements to PCMT II in the form of an asset pool balance in excess of notes issued, credit enhancement of the ownership interest, and excess spread consisting of excess cash receipts that are only attributable to MBC after the periodic obligations of PCMT II have been met. As at December 31, 2018, cash reserve accounts have been funded for PCMT II in the amount of $0.3 million (December 31, 2017 – nil). The cash reserve account for PCMT II is funded according to criteria defined in the series agreements.

During the three month period and year ended December 31, 2018, a $250 million secured term note was issued under PCMT II. During the year ended December 31, 2017, a $250 million secured term note was issued. As at December 31, 2018, term notes worth $750 million (December 31, 2017 – $500 million) are outstanding.

NHA MBS securitization program

MBC securitizes insured amortizing Canadian residential mortgage loans through the creation of MBS pools under the NHA MBS program and either holds them on the Consolidated Statements of Financial Position or sells them to third party investors. MBC expects to continue to issue NHA MBS in volumes consistent with the growth of insurable mortgage assets, subject to CMHC allocations of guarantees for new market NHA MBS.

CMB securitization program

The CMB program represents the lowest cost funding alternative for the Bank's insured amortizing mortgage products. CMB issuances are backed by NHA MBS pools and the payment structure consists of semi-annual coupon payments and a bullet payment at maturity. At issuance of CMB, a secured borrowing liability is recorded and the related residential mortgages backing the CMB remain on the Bank's Consolidated Statements of Financial Position.

Securitization accounting

MBC's internal securitization programs do not meet derecognition requirements. Manulife One accounts securitized through PCMT or PCMT II remain on MBC's Consolidated Statements of Financial Position as the Bank retains the pre-payment and interest rate risk associated with these accounts, which represents substantially all of the risks and rewards associated with the transferred assets. These transactions are accounted for as secured financing transactions and MBC continues to recognize the accounts as assets and records a secured borrowing liability (i.e. notes payable, which is accounted for at amortized cost). Interest income on the assets and interest expense on the notes payable are recorded using the effective interest rate method. Transactions under the PCMT and PCMT II programs are consolidated with MBC.

Residential mortgage loans securitized through the NHA MBS program also remain on MBC's Consolidated Statements of Financial Position as the Bank retains the pre-payment, interest rate and other price risks. MBC also retains the interest spread between the securities and the underlying mortgage assets. If MBC creates an NHA MBS security without selling it, a liability is not recognized. All securitization exposures are included in the banking book.

The Bank also purchases CMHC insured multi-unit residential mortgages from third party originators with negligible pre-payment and credit risk. These mortgages are pooled within the NHA MBS program and subsequently sold into the CMB program. The transaction structure meets specific criteria and qualifies for balance sheet derecognition with an upfront gain recorded on the sale of mortgages. The Bank retains a residual interest, which is recorded as securitization retained interest on the Bank's Consolidated Statements of Financial Position.

Capital treatment for securitization exposures

As discussed within the Capital Management section of this document, MBC utilizes the Standardized Approach to assign risk weightings to assets, including mortgages in the NHA MBS and PCMT programs that do not qualify for derecognition as detailed above, as well as securitization exposures resulting from short-term and long-term investments. The Bank assigns credit assessments from OSFI authorized ECAI.

Summary of Securitized Assets [1]

Securitization program		Q4 2018		Q3 2018		Q2 2018		Q1 2018		Q4 2017
Manulife One securitization										
Securitized mortgages - PCMT[2]	$	**1,500**	$	1,500	$	1,500	$	1,500	$	1,500
Securitized mortgages - PCMT II[3]		**750**		500		500		500		500
Restricted cash[4]		**8**		8		8		8		8
Total Manulife One securitization	$	**2,258**	$	2,008	$	2,008	$	2,008	$	2,008
NHA MBS securitization										
NHA MBS unsold [5]	$	**1,375**	$	1,358	$	1,334	$	1,379	$	1,404
Restricted cash[6]		**28**		28		28		28		26
Total NHA MBS securitization	$	**1,403**	$	1,386	$	1,362	$	1,407	$	1,430
Sold to CMB		**1,525**		1,535		1,519		1,536		1,480
Total	$	**5,186**	$	4,929	$	4,889	$	4,951	$	4,918

Investment in securitized assets		Q4 2018		Q3 2018		Q2 2018		Q1 2018		Q4 2017
NHA MBS	$	**-**	$	4	$	23	$	33	$	37

[1] These are securitized mortgages.

[2] Remaining balance comprises the $1.5 billion Series 2011-1 term note which is supported by a pool of insured Manulife One accounts. The note is set to mature in the fourth quarter of 2021.

[3] Remaining balance comprises a $500 million Series 2016-1 term note and a $250 million Series 2018-1 term note which are supported by a pool of uninsured Manulife One accounts. The Series 2016-1 note is set to mature in the second quarter of 2022 and the Series 2018-1 note is expected to mature in the fourth quarter of 2022. Under the terms of the Series 2016-1 and Series 2018-1 notes, additional collateral must also be provided to the noteholder as added credit protection.

[4] Series 2011-1 maintains a cash reserve to provide the noteholder added credit protection. Commencing Q2, 2018 $0.3 million was included for Series 2016-1.

[5] When a security is created but remains unsold, no liability is recognized.

[6] The NHA MBS program requires issuers to maintain additional cash reserves within the NHA MBS principal and interest custodial account to cover deposits of unscheduled principal payments.

During the three months ended December 31, 2018, nil of insured multi-unit residential mortgages were derecognized from the Consolidated Financial Statements (three months ended December 31, 2017 – $36 million), and nil gains on sale were recognized (three months ended December 31, 2017 – $0.5 million). As at December 31, 2018, $227 million (December 31, 2017 – $232 million) of insured multi-unit residential mortgages were derecognized from the Consolidated Financial Statements, and securitization retained interests totaling $7 million (December 31, 2017 - $9 million) were recorded as Other Assets.

Operational Risk

Operational risk is the risk of loss resulting from inadequate or failed internal processes, systems failures, human performance failures or from external events.

Key risk factors

Operational risk is inherent in all of MBC's business activities and encompasses a broad range of risks including regulatory compliance failures, legal disputes, technology failures, business interruption, information security and privacy failures, ineffective human resource management, processing errors, modeling errors, ineffective business integration, theft and fraud and damage to physical assets. Exposures can take the form of financial losses, regulatory sanctions, loss of competitive positioning and damage to reputation. Operational risk is embedded in all of the practices used to manage other risks such as credit risk, market risk and liquidity risk. If not managed effectively, operational risk can impact the ability to manage these key risks.

Risk management strategy

MBC's Operational Risk Management Policy and Framework outline the governance structure, risk appetite, the level of risk tolerance, and set the foundation for mitigating operational risks. This base is strengthened by the establishment of appropriate internal controls and systems and by seeking to retain trained and competent people throughout the organization. Risk management programs have been established across functional business areas for specific operational risks that could materially impact the ability to do business or negatively impact the reputations of MBC, MTC, PCMT and PCMT II.

Business area managers are accountable for the day-to-day management of the operational risks inherent in their operations. Business and functional areas perform risk control self-assessments to identify, document and assess inherent operational risks and the effectiveness of internal controls. The Bank's CRO and the Bank's Operational Risk Management team provide independent oversight of risk taking and risk mitigation activities across the enterprise. Key risk indicators are monitored and provide early warnings of emerging control issues. Business area managers proactively modify procedures where emerging control issues are identified.

Capital Management

The Bank's Capital Management Framework provides the policies and processes for defining, measuring and strategically managing capital in a co-ordinated consistent manner. Within this framework, the Bank utilizes an internal capital adequacy assessment process, which forms strategies for achieving capital targets in a manner consistent with the Bank's risk assessments and business plans. The capital management framework together with related policies, enables the Bank to review its risk profile from a regulatory capital viewpoint with the intent of ensuring that capital levels:

- Remain sufficient to support the Bank's risk profile and outstanding commitments;
- Exceed minimum regulatory capital requirements by an acceptable margin;
- Are capable of withstanding a severe but plausible economic downturn stress scenario; and
- Remain consistent with strategic and operational goals, shareholder and rating agency expectations.

In the assessment of capital adequacy, the Bank adopts regulatory capital definitions and measures. To maintain or adjust the capital structure, the Bank may issue new shares or subordinated debt, adjust the dividend payment to its shareholders, or return capital to shareholders.

The Board of Directors approve the capital plan annually. The Capital Management Committee, which is comprised of executive members of the management team, meets on a regular basis in order to provide oversight of operational capital management. This includes reviews and recommendations of capital management policies for approval by the Board of Directors.

The adequacy of capital is assessed by considering capital requirements necessary to offset unexpected losses arising from credit risk, market risk and operational risk. The minimum regulatory capital that the Bank is required to hold is determined by OSFI. MBC's approach to capital management is aligned to support its business model and strategic direction.

Regulatory capital

Capital levels for banks are regulated pursuant to guidelines issued by OSFI, which are based on standards issued by the Bank for International Settlements. In December 2010, the BCBS issued "Basel III: A global regulatory framework for more resilient banks and banking systems" ("Basel III"), which focuses on improving the banking industry's ability to absorb shocks from financial and economic stress through increased quality and quantity of capital requirements, measures to reduce build-up of excessive leverage and pro-cyclicality in the banking sector, and new liquidity standards. Capital instruments issued by the Bank are required to meet qualifying criteria before inclusion in the relevant capital category.

Effective January 1, 2013, the Bank implemented OSFI's CAR guideline, which reflect the Basel III capital requirements.

Basel III Regulatory Capital (Transitional & All-in Basis)

	IFRS 9[1]				IAS 39	
	Q4 2018	Q3 2018	Q2 2018	Q1 2018	Q4 2017	
	All-in Basis[2]	**All-in Basis[2]**	**All-in Basis[2]**	**All-in Basis[2]**	**Transitional Basis[3]**	**All-in Basis[2]**
Common Equity Tier 1 capital: instruments, reserves and regulatory adjustments						
1 Directly issued qualifying common share capital plus related stock surplus[4]	**$ 443**	$ 382	$ 382	$ 382	$ 382	$ 382
2 Retained earnings[5]	**657**	654	634	611	603	603
3 Accumulated other comprehensive income (and other reserves)	**-**	-	1	-	5	5
28 Total regulatory adjustments to Common Equity Tier 1	**(47)**	(13)	(12)	(12)	(10)	(12)
29 Common Equity Tier 1 capital (CET1)	**$ 1,053**	$ 1,023	$ 1,005	$ 981	$ 980	$ 978
Additional Tier 1 capital: instruments and regulatory adjustments						
33 Directly issued capital instruments subject to phase out from Additional Tier 1[6]	**$ 229**	$ 229	$ 229	$ 229	$ 229	$ 229
44 Additional Tier 1 capital (AT1)	**$ 229**	$ 229	$ 229	$ 229	$ 229	$ 229
45 Tier 1 capital (T1 = CET1 + AT1)	**$ 1,282**	$ 1,252	$ 1,234	$ 1,210	$ 1,209	$ 1,207
Tier 2 capital: instruments, provisions and regulatory adjustments						
50 Eligible allowances	**$ 11**	$ 12	$ 13	$ 14	$ 11	$ 11
58 Tier 2 capital (T2)	**$ 11**	$ 12	$ 13	$ 14	$ 11	$ 11
59 Total Capital (TC = T1 +T2)	**$ 1,293**	$ 1,264	$ 1,247	$ 1,224	$ 1,220	$ 1,218
60 Total risk weighted assets	**$ 7,801**	$ 7,497	$ 7,384	$ 7,184	$ 7,163	$ 7,161
Capital ratios (%)						
61 Common Equity Tier 1	**13.5%**	13.6%	13.6%	13.7%	13.7%	13.7%
62 Tier 1	**16.4%**	16.7%	16.7%	16.8%	16.9%	16.9%
63 Total Capital	**16.6%**	16.9%	16.9%	17.0%	17.0%	17.0%
National Target						
69 National Common Equity Tier 1 minimum ratio (if different from Basel III minimum)	**7%**	7%	7%	7%	7%	
70 Tier 1 capital all-in target ratio	**8.5%**	8.5%	8.5%	8.5%	8.5%	
71 Total capital all-in target ratio	**10.5%**	10.5%	10.5%	10.5%	10.5%	

(1) Effective January 1, 2018, the Bank adopted IFRS 9. The full transitional impact on regulatory capital from IFRS 9 was recognized on adoption. Prior period results and ratios are based on IAS 39.

(2) 'All-in' approach is defined as capital calculated to include all of the regulatory adjustments required by January 1, 2018, but retaining the phase-out rules of non-qualifying capital. The Transitional Approach is no longer applicable effective Q1, 2018.

(3) Effective January 1, 2018, the transitional basis is no longer applicable. The transitional basis allowed for certain adjustments to CET1 to be phased in over a period of five years (2013-2017), while retaining the phase out rules for non-regulatory capital instruments.

(4) MBC is authorized to issue an unlimited number of voting, non-redeemable common shares without nominal or par value. The Bank had 1,733,572 common shares outstanding as at December 31, 2018 (December 31, 2017 - 1,733,568) issued to MLI.

(5) As part of a dividend repatriation strategy implemented during the third quarter of 2015, a recurring quarterly common equity dividend is paid based on a targeted dividend payout ratio of 35%, subject to review and approval of the Board prior to payment.

(6) MBC is authorized to issue an unlimited number of non-voting, redeemable preferred shares (subject to regulatory approval) entitled to non-cumulative dividends at a predetermined dividend rate, issuable in series, without nominal or par value. As at December 31, 2018, the Bank has issued outstanding series of 229,000 preferred shares to related entities within MFC (December 31, 2017 – 229,000), which in Fiscal 2017 were qualifying capital and excluded from the transitional phase-out. The dividend rates on these preferred shares range from 5% to 6.25% per annum.

Risk-weighted Assets (All-in Basis)

	IFRS 9 [1]								IAS 39	
	Q4 2018		Q3 2018		Q2 2018		Q1 2018		Q4 2017	
	Exposure amount [2]	Risk-weighted assets [3]	Exposure amount [2]	Risk-weighted assets [3]	Exposure amount [2]	Risk-weighted assets [3]	Exposure amount [2]	Risk-weighted assets [3]	Exposure amount [2]	Risk-weighted assets [3]
Residential mortgages [4]	**$ 19,674**	**$ 4,445**	$ 19,538	$ 4,346	$ 19,357	$ 4,216	$ 18,959	$ 4,024	$ 18,786	$ 3,993
Bank	**3,035**	**609**	2,415	485	2,603	523	2,900	582	2,303	463
Other loans	**1,924**	**1,548**	1,913	1,531	1,931	1,546	1,912	1,527	2,045	1,623
Sovereign	**45**	**-**	45	-	60	-	50	-	35	-
Equity	**166**	**166**	183	183	183	183	169	169	227	227
Corporate	**305**	**203**	235	146	245	131	219	101	210	91
Other	**144**	**72**	108	63	101	57	107	66	107	62
Total credit risk	**$ 25,293**	**$ 7,043**	$ 24,437	$ 6,754	$ 24,480	$ 6,656	$ 24,316	$ 6,469	$ 23,713	$ 6,459
Operational and market risk	**n.a.**	**758**	n.a.	743	n.a.	728	n.a.	715	n.a.	702
Total risk-weighted assets	**$ 25,293**	**$ 7,801**	$ 24,437	$ 7,497	$ 24,480	$ 7,384	$ 24,316	$ 7,184	$ 23,713	$ 7,161

[1] Effective January 1, 2018, the Bank adopted IFRS 9. The full transitional impact on the exposure amount from IFRS 9 was recognized on adoption. Prior period results are based on IAS 39.

[2] Total exposure represents exposure at default which is the expected gross exposure upon the default of an obligor. This amount is before any specific allowances or partial write-offs and does not reflect the impact of credit risk mitigation and collateral held.

[3] Numbers are calculated using the standardized approach per the guidelines issued by OSFI under the Basel III "All-in" framework methodology, with the exception of operational risk which is based on the basic indicator approach.

[4] Residential mortgages include Manulife One.

Leverage Ratio Common Disclosure on an "All-in" Basis[1]

	IFRS 9 [(2)]				IAS 39
	Q4 2018	Q3 2018	Q2 2018	Q1 2018	Q4 2017
On-balance sheet exposures					
1 On-balance sheet items excluding derivatives and SFTs	**$ 25,186**	$ 24,303	$ 24,319	$ 24,132	$ 23,268
2 Asset amounts deducted in determining Basel III "all-in" Tier 1 capital	**(47)**	(13)	(12)	(12)	(12)
3 **Total on-balance sheet exposures (excluding derivatives and SFTs) (sum of lines 1 and 2)**	**$ 25,139**	$ 24,290	$ 24,307	$ 24,120	$ 23,256
Derivative exposures					
5 Add-on amounts for PFE associated with all derivative transactions	**$ 2**	$ 3	$ 3	$ 4	$ 2
11 **Total derivative exposures (sum of lines 4 to 10)**	**$ 2**	$ 3	$ 3	$ 4	$ 2
Other off-balance sheet exposures					
17 Off-balance sheet exposure at gross notional amount	**$ 9,846**	$ 9,741	$ 9,702	$ 9,510	$ 9,643
18 (Adjustments for conversion to credit equivalent amounts)	**(8,809)**	(8,702)	(8,653)	(8,465)	(8,399)
19 **Off-balance sheet items (sum of lines 17 and 18)**	**$ 1,037**	$ 1,039	$ 1,049	$ 1,045	$ 1,244
Capital and Total Exposures					
20 Tier 1 capital	**$ 1,282**	$ 1,252	$ 1,234	$ 1,210	$ 1,207
21 Total Exposures (sum of lines 3, 11 and 19)	**$ 26,178**	$ 25,332	$ 25,359	$ 25,169	$ 24,502
Leverage Ratios					
22 Basel III leverage ratio	**4.9%**	4.9%	4.9%	4.8%	4.9%

(1) Effective January 1, 2018, the transitional basis is no longer applicable. Under the public disclosure requirements related to the Basel III Leverage Ratio, MBC as a non Domestic Systemically Important Bank (D-SIB) was only required to provide a breakdown of the leverage ratio regulatory elements on an "all-in" basis in 2017. As such no disclosure was required on a transitional basis in 2017 and any difference was immaterial.

(2) Effective January 1, 2018, the Bank adopted IFRS 9. The full transitional impact on the leverage ratio from IFRS 9 was recognized on adoption. Prior period results and ratios are based on IAS 39.

B20 Disclosures

Residential mortgage loans and Manulife One

MBC has a conservative and high quality mortgage loans portfolio. As at December 31, 2018 MBC had $3.0 billion residential mortgage loans, of which $2.5 billion (83%) were insured[11] and $0.5 billion (17%) were uninsured. In addition, the Bank had $16.6 billion of Manulife One loans of which $4.4 billion (27%) were insured and $12.2 billion (73%) were uninsured. Overall as at December 31, 2018, MBC had $19.6 billion in residential mortgage and Manulife One mortgage loans of which $6.9 billion (35%) were insured. All residential mortgage loans and Manulife One mortgage loans were originated in Canada.

The table outlining the residential mortgage loans and Manulife One portfolios by geographic region[12] and type is included in the quantitative disclosures below.

Residential mortgage loans and Manulife One (fixed[13]) portfolios by amortization period

A summary of MBC's residential mortgage loans and Manulife One (fixed) by remaining amortization[14] period based on the contractual terms of the mortgage agreement is presented in the quantitative section below.

Average loan-to-value (LTV) ratio

The LTV ratio factors in the amount of collateral value that supports the loan in comparison to the loan value. The LTV ratio on MBC's total residential mortgage portfolio, including HELOCs was 42% as at December 31, 2018 (December 31, 2017 – 43%). This calculation is weighted by mortgage balances and adjusted for property values based on the Teranet – National Bank National Composite House Price Index.

The Bank regularly monitors the credit quality of its portfolio and has implemented a program (PAM), where the Bank proactively takes corrective actions prior to loans going into arrears. The Bank also performs stress tests in order to assess the expected losses on the portfolio in a scenario of a severe shock to the real estate market. The tests indicate that MBC is well positioned to absorb credit losses resulting from conditions assumed in the stress tests.

The following provides a summary of the weighted average LTV ratio by geographic region[15] and type for newly originated and acquired uninsured mortgage loans and HELOCs (including refinances with increase in funds or limits) during the current period.

[11] Insured mortgage loans and Manulife One accounts refer to mortgage loans and accounts whereby the exposure to default is mitigated by insurance through the CMHC or other private mortgage default insurers.
[12] Region is based upon address of property mortgaged.
[13] Fixed represents the amortizing portion of the Manulife One account.
[14] Remaining amortization is the difference between the contractual amortization and the time elapsed since origination.
[15] Region is based upon address of property mortgaged.

B20 - Mortgages by Province

	Q4 2018				Q3 2018				Q2 2018			
	Insured [2]	Uninsured [2]	Total	Total %	Insured [2]	Uninsured [2]	Total	Total %	Insured [2]	Uninsured [2]	Total	Total %
Residential mortgages [1]												
Alberta	$ 418	$ 32	$ 450	15%	$ 410	$ 32	$ 442	15%	$ 389	$ 33	$ 422	14%
Atlantic provinces	125	31	156	5%	126	32	158	5%	126	29	155	5%
British Columbia	165	40	205	7%	162	41	203	7%	163	40	203	7%
Manitoba	41	5	46	1%	36	6	42	1%	33	4	37	1%
Ontario	465	140	605	20%	467	140	607	20%	486	137	623	21%
Québec	1,208	272	1,480	49%	1,192	278	1,470	48%	1,179	286	1,465	48%
Saskatchewan	93	14	107	3%	96	14	110	4%	96	13	109	4%
Territories	-	-	-	0%	1	-	1	0%	1	-	1	0%
Total	$ 2,515	$ 534	$ 3,049	100%	$ 2,490	$ 543	$ 3,033	100%	$ 2,473	$ 542	$ 3,015	100%
Manulife One												
Alberta	$ 861	$ 1,325	$ 2,186	13%	$ 879	$ 1,301	$ 2,180	13%	$ 900	$ 1,271	$ 2,171	13%
Atlantic provinces	305	547	852	5%	314	544	858	5%	322	539	861	5%
British Columbia	768	1,912	2,680	16%	792	1,845	2,637	16%	829	1,741	2,570	16%
Manitoba	111	238	349	2%	115	234	349	2%	118	229	347	2%
Ontario	1,345	5,447	6,792	42%	1,397	5,278	6,675	41%	1,457	5,079	6,536	41%
Québec	727	2,336	3,063	18%	749	2,327	3,076	19%	775	2,328	3,103	19%
Saskatchewan	244	392	636	4%	248	393	641	4%	252	389	641	4%
Total	$ 4,361	$ 12,197	$ 16,558	100%	$ 4,494	$ 11,922	$ 16,416	100%	$ 4,653	$ 11,576	$ 16,229	100%

	Q1 2018				Q4 2017			
	Insured [2]	Uninsured [2]	Total	Total %	Insured [2]	Uninsured [2]	Total	Total %
Residential mortgages [1]								
Alberta	$ 377	$ 33	$ 410	14%	$ 348	$ 32	$ 380	13%
Atlantic provinces	121	26	147	5%	120	25	145	5%
British Columbia	160	36	196	7%	150	34	184	7%
Manitoba	28	4	32	1%	24	4	28	1%
Ontario	485	135	620	21%	486	130	616	22%
Québec	1,123	294	1,417	48%	1,097	295	1,392	49%
Saskatchewan	92	14	106	4%	84	15	99	3%
Territories	1	-	1	0%	1	-	1	0%
Total	$ 2,387	$ 542	$ 2,929	100%	$ 2,310	$ 535	$ 2,845	100%
Manulife One								
Alberta	$ 922	$ 1,220	$ 2,142	13%	$ 945	$ 1,201	$ 2,146	14%
Atlantic provinces	331	534	865	5%	340	525	865	5%
British Columbia	866	1,594	2,460	16%	894	1,485	2,379	15%
Manitoba	121	223	344	2%	124	222	346	2%
Ontario	1,517	4,826	6,343	40%	1,562	4,661	6,223	40%
Québec	804	2,323	3,127	20%	823	2,313	3,136	20%
Saskatchewan	256	387	643	4%	262	383	645	4%
Total	$ 4,817	$ 11,107	$ 15,924	100%	$ 4,950	$ 10,790	$ 15,740	100%

[1] Residential mortgages exclude Manulife One accounts.

[2] The amounts presented for residential mortgages and Manulife One are gross of allowance for expected credit losses.

B20 - Average LTV Ratios

Average LTV ratio %	**Q4 2018**				Q3 2018				Q2 2018			
	Residential	Manulife One [1]			Residential	Manulife One [1]			Residential	Manulife One [1]		
	mortgages [2]	Revolving [3]	Fixed [3]	Total	mortgages [2]	Revolving [3]	Fixed [3]	Total	mortgages [2]	Revolving [3]	Fixed [3]	Total
Alberta	**75%**	**54%**	**17%**	**71%**	78%	54%	15%	69%	73%	50%	19%	69%
Atlantic provinces	**73%**	**53%**	**19%**	**72%**	74%	49%	22%	71%	76%	50%	20%	70%
British Columbia	**67%**	**48%**	**11%**	**59%**	58%	47%	10%	57%	57%	47%	12%	59%
Manitoba	**80%**	**56%**	**13%**	**69%**	77%	54%	17%	71%	80%	54%	18%	72%
Ontario	**65%**	**51%**	**14%**	**65%**	67%	51%	13%	64%	63%	49%	14%	63%
Quebec	**66%**	**55%**	**16%**	**71%**	66%	56%	14%	70%	67%	57%	13%	70%
Saskatchewan	**64%**	**56%**	**14%**	**70%**	78%	54%	18%	72%	44%	54%	17%	71%
Average	**67%**	**51%**	**14%**	**65%**	67%	51%	13%	64%	65%	50%	14%	64%

Average LTV ratio %	Q1 2018				Q4 2017			
	Residential	Manulife One [1]			Residential	Manulife One [1]		
	mortgages [2]	Revolving [3]	Fixed [3]	Total	mortgages [2]	Revolving [3]	Fixed [3]	Total
Alberta	68%	45%	23%	68%	74%	50%	21%	71%
Atlantic provinces	73%	47%	25%	72%	72%	50%	23%	73%
British Columbia	56%	44%	14%	58%	59%	45%	15%	60%
Manitoba	61%	53%	21%	74%	69%	55%	18%	73%
Ontario	61%	46%	18%	64%	68%	47%	18%	65%
Quebec	71%	54%	15%	69%	67%	54%	15%	69%
Saskatchewan	80%	55%	16%	71%	75%	46%	24%	70%
Average	65%	47%	17%	64%	67%	48%	18%	66%

[1] Manulife One comprising of both revolving and fixed components is secured by the same collateral (residential property).

[2] LTV is calculated using the outstanding amount and weighted by the outstanding amount of each loan.

[3] LTV is calculated based on the authorized limit for revolving component and outstanding amount for the fixed component of Manulife One accounts and weighted by the total borrowing limit for each account. For the revolving component of Manulife One accounts, the average LTV ratio based on the outstanding amount and weighted by total outstanding amount for Manulife One accounts is 41% compared to 51% based on the authorized limits for the three month period ended December 31, 2018, and 35% compared to 48% based on the authorized limits for the three month period ended December 31, 2017.

B20 - Mortgages by Amortization Period

	Residential mortgages					Manulife One (fixed)				
	Q4 2018	Q3 2018	Q2 2018	Q1 2018	Q4 2017	**Q4 2018**	Q3 2018	Q2 2018	Q1 2018	Q4 2017
Less than 20 years	**20%**	21%	21%	21%	24%	**27%**	26%	26%	26%	27%
20-25 years	**70%**	67%	65%	65%	61%	**45%**	45%	44%	42%	43%
25-30 years	**10%**	12%	14%	14%	15%	**27%**	28%	29%	30%	29%
30 years and greater	**0%**	0%	0%	0%	0%	**1%**	1%	1%	2%	1%
Total	**100%**	100%	100%	100%	100%	**100%**	100%	100%	100%	100%

Remuneration[16]

Overview

Executive compensation at MBC is designed to attract and retain executives and to focus them on objectives that deliver superior business results. Compensation is based on a "pay for performance" compensation philosophy and is aligned with the achievement of MBC's short-term, medium-term and long-term strategic goals. MBC follows the compensation policies and programs of MFC, its ultimate parent company.

MFC's compensation program, governance and other pertinent information are described in MFC's Proxy Circular (http://manulife.force.com/servlet/servlet.FileDownload?file=00Pf2000017QJNgEAO&_sm_au_=iVV0B7IZFJrsRMWs). In addition, MFC's Proxy Circular contains disclosures relating to the most important design characteristics of its compensation programs including the ways in which current and future risks are considered and reflected in remuneration of employees. MFC's executive compensation program contains a number of features and practices that are generally considered to decrease the risk associated with compensation including but not limited to:

- A compensation horizon that is appropriately balanced between short-term, medium-term and long-term;
- The use of multiple performance metrics in incentive plan design;
- Compulsory share ownership requirements; and
- Stress testing of the current compensation designs to ensure potential payouts continue to be aligned with business performance.

The tables below provide aggregate information on compensation in respect of full year 2018 and 2017, for employees whose actions have a material impact on MBC's risk exposure ("Material Employees"). Material Employees include members of the executive leadership team of MBC, which is comprised of personnel at the Assistant Vice President level or higher. To protect against conflict of interest, the variable and deferred compensation for the CRO of MBC is based on the overall financial results of MFC's Canada segment[17] as opposed to the financial results of MBC.

[16] Disclosures on remuneration are required on an annual basis. These are included in the Q4 Financial Performance and Regulatory Disclosures document each year.

[17] MFC's Canada segment is a leading financial services organization offering a diverse range of protection, estate planning, investment and banking solutions through a diversified multi-channel distribution network. MBC is part of the Canada segment.

Compensation awarded

For the years ended December 31, (Canadian $ thousands except where indicated)		2018		2017
Number of material employees		**11**		11
Total compensation	**$**	**5,267**	$	5,011
Fixed compensation	**$**	**2,296**	$	2,243
Variable compensation [1]				
AIP		**1,499**		1,196
Share-linked		**1,459**		1,277
Special awards		**13**		295
Total variable compensation	**$**	**2,971**	$	2,768
Non-deferred compensation	**$**	**3,808**	$	3,734
Deferred variable compensation		**1,459**		**1,277**

[1] Represents the total of Annual Incentive Plan ("AIP") payments and grant values of Restricted Share Units ("RSUs"), Performance Share Units ("PSUs") and stock options. Ten Material Employees received AIP and eleven Material Employees received share-linked variable compensation in 2018 (2017 - nine Material Employees received AIP and nine Material Employees received share-linked variable compensation).

Deferred Compensation Outstanding

For the years ended December 31, (Canadian $ thousands except where indicated)		2018		2017
Number of material employees		**11**		11
Share-linked instruments [1],[2]				
Outstanding vested	**$**	**89**	$	374
Outstanding unvested		**1,924**		3,316
Total value of deferred compensation outstanding	**$**	**2,013**	$	3,690
Deferred compensation paid out [3]	**$**	**1,144**	$	1,594
Value of deferred compensation granted		**1,384**		1,210
Implicit change in deferred compensation value [4]		**(1,569)**		594

[1] The values for RSUs and PSUs are based on the closing price of common shares of MFC on the TSX on December 31, 2018, which was $19.37 per common share (2017 - $26.22 per common share).

[2] The value for vested and unvested unexercised in-the-money stock options is equal to the difference between the exercise price of the stock options and the closing price of common shares on the TSX on December 31, 2018, which was $19.37 per common share (2017 - $26.22 per common share).

[3] Represents the total value of RSUs and PSUs vested and paid out and any gains from stock options exercised in 2018 and 2017.

[4] The Implicit Change in Deferred Compensation Value represents the increase in value of the Deferred Compensation which is attributable to the change in the share price and performance vesting conditions, as applicable. In 2018, the implicit and explicit change in deferred compensation value, which includes the impact of changes in the Material Employee group, was ($1,569) (2017 – $594).

Glossary

Basel III framework

- Pillar 1 – CAR: Outlines methodologies to calculate capital and set minimum capital requirements;
- Pillar 2 – Supervisory Review: Requires banks to maintain a formal internal capital adequacy assessment process, subject to supervisory review; and
- Pillar 3 – Market Discipline: Complements other pillars by providing enhanced public disclosures to enable market participants to understand the risk profile of the bank and assess the application of Basel III capital requirements.

Risk weighted assets (“RWA”)

Under Basel III, OSFI requires banks to meet minimum risk-based capital requirements for exposures to credit risk, operational risk and market risk, where there are significant trading activities. Risk-weighted assets are calculated for each of these types of risks and added together to determine total risk weighted assets.

Common Equity Tier 1 (“CET1”) capital

Comprised mainly of common shares, retained earnings and AOCI, net of applicable regulatory adjustments.

Additional Tier 1 capital

Consists of Tier 1 instruments issued that do not meet the criteria of CET1, contributed surplus from the issuance of instruments not included in CET1, instruments issued by consolidated subsidiaries not included in CET1, net of applicable regulatory adjustments.

Tier 2 capital

Consists of eligible general allowances and subordinated debt, net of applicable regulatory adjustments.

Capital ratios

Regulatory capital ratios are calculated by dividing CET1, Tier 1 and Total Capital by risk-weighted assets. In addition to the CET1, Tier 1 and Total Capital Ratios, Canadian Deposit-taking Institutions are required to ensure that a Leverage Ratio meets a minimum level prescribed by OSFI. All items that are deducted from capital are excluded from total assets.

Leverage ratio

The Leverage Ratio is calculated by dividing the Bank’s Tier 1 Capital by the Bank’s Total Exposure. The Bank’s Total Exposure is the sum of the following:
(a) on-balance sheet exposures; (b) derivative exposures; (c) securities financing transaction exposures; and (d) off-balance sheet exposures.

Efficiency ratio

The ratio represents total money expensed to earn a dollar of revenue i.e. a ratio of expense to revenue. A low ratio indicates that the Bank has been efficiently utilizing its resources.