# Manulife Financial Corporation

# Management's Discussion & Analysis

For the year ended December 31, 2017

## Caution regarding forward-looking statements

From time to time, Manulife Financial Corporation ("MFC") makes written and/or oral forward-looking statements, including in this document. In addition, our representatives may make forward-looking statements orally to analysts, investors, the media and others. All such statements are made pursuant to the "safe harbour" provisions of Canadian provincial securities laws and the U.S. Private Securities Litigation Reform Act of 1995.

The forward-looking statements in this document include, but are not limited to, statements with respect to the expected impact of our decision to reduce the allocation to alternative long-duration assets ("ALDA") in our portfolio asset mix supporting our legacy business and of U.S. Tax Reform, and Manulife's expected capital position under the new LICAT guideline and also relate to, among other things, our objectives, goals, strategies, intentions, plans, beliefs, expectations and estimates, and can generally be identified by the use of words such as "may", "will", "could", "should", "would", "likely", "suspect", "outlook", "expect", "intend", "estimate", "anticipate", "believe", "plan", "forecast", "objective", "seek", "aim", "continue", "goal", "restore", "embark" and "endeavour" (or the negative thereof) and words and expressions of similar import, and include statements concerning possible or assumed future results. Although we believe that the expectations reflected in such forward-looking statements are reasonable, such statements involve risks and uncertainties, and undue reliance should not be placed on such statements and they should not be interpreted as confirming market or analysts' expectations in any way.

Certain material factors or assumptions are applied in making forward-looking statements and actual results may differ materially from those expressed or implied in such statements. Important factors that could cause actual results to differ materially from expectations include but are not limited to: the final interpretation of U.S. Tax Reform by tax authorities, the amount of time required to reduce the allocation to ALDA in our asset mix and redeploy capital towards higher-return businesses, the specific type of ALDA we dispose of and the value realized from such dispositions; general business and economic conditions (including but not limited to the performance, volatility and correlation of equity markets, interest rates, credit and swap spreads, currency rates, investment losses and defaults, market liquidity and creditworthiness of guarantors, reinsurers and counterparties); changes in laws and regulations; changes in accounting standards applicable in any of the territories in which we operate; changes in regulatory capital requirements; our ability to execute strategic plans and changes to strategic plans; downgrades in our financial strength or credit ratings; our ability to maintain our reputation; impairments of goodwill or intangible assets or the establishment of provisions against future tax assets; the accuracy of estimates relating to morbidity, mortality and policyholder behaviour; the accuracy of other estimates used in applying accounting policies, actuarial methods and embedded value methods; our ability to implement effective hedging strategies and unforeseen consequences arising from such strategies; our ability to source appropriate assets to back our long-dated liabilities; level of competition and consolidation; our ability to market and distribute products through current and future distribution channels; unforeseen liabilities or asset impairments arising from acquisitions and dispositions of businesses; the realization of losses arising from the sale of investments classified as available-for-sale; our liquidity, including the availability of financing to satisfy existing financial liabilities on expected maturity dates when required; obligations to pledge additional collateral; the availability of letters of credit to provide capital management flexibility; accuracy of information received from counterparties and the ability of counterparties to meet their obligations; the availability, affordability and adequacy of reinsurance; legal and regulatory proceedings, including tax audits, tax litigation or similar proceedings; our ability to adapt products and services to the changing market; our ability to attract and retain key executives, employees and agents; the appropriate use and interpretation of complex models or deficiencies in models used; political, legal, operational and other risks associated with our non-North American operations; acquisitions and our ability to complete acquisitions including the availability of equity and debt financing for this purpose;; the disruption of or changes to key elements of the Company's or public infrastructure systems; environmental concerns; our ability to protect our intellectual property and exposure to claims of infringement; and our inability to withdraw cash from subsidiaries.

Additional information about material risk factors that could cause actual results to differ materially from expectations and about material factors or assumptions applied in making forward-looking statements may be found in this document under "Risk Management", "Risk Factors" and "Critical Accounting and Actuarial Policies" and in the "Risk Management" note to the consolidated financial statements as well as elsewhere in our filings with Canadian and U.S. securities regulators. The forward-looking statements in this document are, unless otherwise indicated, stated as of the date hereof and are presented for the purpose of assisting investors and others in understanding our financial position and results of operations, our future operations, as well as our objectives and strategic priorities, and may not be appropriate for other purposes. We do not undertake to update any forward-looking statements, except as required by law.

## Table of Contents

# Management's Discussion and Analysis

This Management's Discussion and Analysis ("MD&A") is current as of February 7, 2018.

## Overview

**Manulife Financial Corporation is a leading international financial services group that helps people achieve their dreams and aspirations by putting customers' needs first and providing the right advice and solutions. We operate as John Hancock in the United States and Manulife elsewhere. We provide financial advice, insurance, as well as wealth and asset management solutions for individuals, groups and institutions. At the end of 2017, we had over 34,000 employees, 73,000 agents, and thousands of distribution partners, serving more than 26 million customers. At the end of 2017, we had $1.0 trillion in assets under management and administration, and during 2017, we made almost $27 billion in payments to our customers. Our principal operations are in Asia, Canada and the United States where we have served customers for more than 100 years. With our global headquarters in Toronto, Canada, we trade as 'MFC' on the Toronto, New York, and the Philippine stock exchanges and under '945' in Hong Kong.**

In this document, the terms "Company", "Manulife", "we" and "our" mean Manulife Financial Corporation ("MFC") and its subsidiaries. The term "MLI" means The Manufacturers Life Insurance Company and its subsidiaries.

**Manulife's net income attributed to shareholders was $2.1 billion in 2017 compared with $2.9 billion in 2016.** Net income attributed to shareholders is comprised of core earnings[1] (consisting of items we believe reflect the underlying earnings capacity of the business), which amounted to $4.6 billion in 2017 compared with $4.0 billion in 2016, and items excluded from core earnings of $2.5 billion of net charges in 2017 compared with $1.1 billion of charges in 2016.

Fully diluted earnings per common share was $0.98 in 2017, compared with $1.41 in 2016 and return on common shareholders' equity ("ROE") was 5.0% in 2017, compared with 7.3% for 2016. Fully diluted core earnings per common share[1] was $2.22 in 2017 compared with $1.96 in 2016 and core return on shareholders' equity ("core ROE")[1] was 11.3% in 2017 compared with 10.1% in 2016.

Net income attributed to shareholders in 2017 included a $2.8 billion post-tax charge related to the previously announced impact of the U.S. Tax Cuts and Jobs Act ("U.S. Tax Reform") and the decision to change the portfolio asset mix supporting our legacy businesses. Excluding these charges, net income attributed to shareholders increased $2.0 billion compared with 2016 primarily driven by growth in core earnings, the favourable direct impact of markets in 2017 compared with unfavourable impacts in 2016, and lower charges from changes in actuarial methods and assumptions.

The $544 million increase in core earnings was driven by higher core investment gains, strong new business and in-force growth in Asia, higher fee income in our wealth and asset management businesses and a reduction in expected cost of macro hedges, partially offset by a $240 million provision in our Property and Casualty Reinsurance business in the third quarter of 2017 related to hurricanes, and the impact of changes in foreign currency exchange rates. Both years also included gains related to the release of provisions for uncertain tax positions. Core earnings in 2017 included net insurance and annuity policyholder experience charges of $164 million post-tax ($223 million pre-tax) compared with $162 million post-tax ($276 million pre-tax) in 2016.

In the fourth quarter of 2017 ("4Q17"), U.S. Tax Reform was enacted, which among other things, lowered the U.S. federal corporate income tax rate from 35% to 21% and placed limits on the tax deductibility of reserves. The impact of these changes was a charge of approximately $1.8 billion, post-tax, with an expected ongoing benefit to net income attributed to shareholders and core earnings of approximately $240 million per year commencing in 2018.[2]

Also, in 4Q17, we recorded a $1 billion post-tax charge related to our decision to reduce the allocation to alternative long-duration assets ("ALDA") in our portfolio asset mix supporting our North American legacy businesses. This is expected to reduce risk and lower volatility in our legacy businesses, and free up approximately $2 billion in capital over the next 12-18 months as the ALDA is sold. The decision is expected to negatively impact net income attributed to shareholders and core earnings in the short-term by approximately $70 million per year post-tax, until such time as the net $1 billion capital benefit is redeployed towards higher return businesses.[2]

Core earnings excludes the direct impact of changes in equity markets and interest rates and changes in actuarial methods and assumptions as well as a number of other items that are considered material and that we do not believe reflect the underlying earnings capacity of the business. Items excluded from core earnings are:

| **For the years ended December 31,**<br>**($ millions)** | **2017** | 2016 | 2015 |
|---|---|---|---|
| Investment-related experience outside of core earnings(1) | **$ 167** | $ – | $ (530) |
| Direct impact of equity markets and interest rates and variable annuity guarantee liabilities(2) | **209** | (484) | (93) |
| Changes in actuarial methods and assumptions(3) | **(35)** | (453) | (451) |
| Charge related to U.S. Tax Reform(4) | **(1,777)** | – | – |
| Charge related to decision to change portfolio asset mix supporting our legacy businesses(5) | **(1,032)** | – | – |
| Integration and acquisition costs(6) | **(70)** | (81) | (149) |
| Other items(7) | **77** | (74) | (14) |
| **Total** | **$ (2,461)** | $ (1,092) | $ (1,237) |

1 This item is a non-GAAP measure. See "Performance and Non-GAAP Measures" below.

2 See "Caution regarding forward-looking statements" above.

(1) In accordance with our definition of core earnings, we include up to $400 million of net favourable investment-related experience reported in a single year, as core investment gains. (See "Performance and Non-GAAP Measures" below.) Items excluded from core earnings include net investment-related experience in excess of $400 million per annum or net unfavourable investment-related experience on a year-to-date basis. In 2017, we generated investment-related experience gains of $567 million, reflecting the favourable impact of fixed income reinvestment activities on the measurement of our policy liabilities and strong credit experience, partially offset by lower than expected returns (including changes in fair value) on ALDA. In 2016, we generated $197 million of core investment gains driven by the favourable impact of fixed income reinvestment activities on the measurement of our policy liabilities and credit experience partially offset by lower returns on our alternative long-duration portfolio. In 2015, we reported unfavourable experience of $530 million which included a charge of $876 million due to the sharp decline in oil and gas prices partially offset by a $346 million gain related to higher than expected returns on other asset classes as well as fixed income reinvestment activities.

(2) The direct impact of equity markets and interest rates is relative to our policy liability valuation assumptions and includes changes to interest rate assumptions, as well as experience gains and losses on derivatives associated with our macro equity hedges. We also include gains and losses on the sale of available-for-sale ("AFS") debt securities as management may have the ability to partially offset the direct impacts of changes in interest rates reported in the liability segments. Additional information related to the gain in 2017 and charges in 2016 and 2015 are included in the "Analysis of Net Income".

(3) As noted in the "Critical Accounting and Actuarial Policies" section below, a comprehensive review of actuarial methods and assumptions is performed annually. In the third quarter of 2017 we completed our annual review of actuarial methods and assumptions and increased policy liabilities as a result of reducing ALDA and equity return assumptions, and lapse and other policyholder experience assumptions. These charges were mostly offset by reserve releases for mortality and morbidity assumptions, model refinements and other items.

(4) The 2017 charge of $1.8 billion related to the impact of U.S. tax legislation that was passed into law ("U.S. Tax Reform"), which lowered the U.S. corporate tax rate from 35% to 21% and placed limits on the tax deductibility of reserves.

(5) The 2017 charge reflected a $1.0 billion post-tax charge related to our decision to reduce the allocation to ALDA in our portfolio asset mix supporting our North American legacy businesses.

(6) The 2017 charge of $70 million included costs related to the integration of businesses acquired from Standard Chartered and Standard Life plc. The 2016 charge of $81 million also included costs related to the integration of New York Life's ("NYL") Retirement Plan Services business. The 2015 charge of $149 million included acquisition costs related to the latter two acquisitions.

(7) The 2017 gain of $77 million included a gain resulting from an internal legal entity restructuring partially offset by a provision for a legal settlement, Thailand operations restructuring charges and early redemption costs on debt retirements. The 2016 charge of $74 million includes restructuring charges for our long-term care business in the U.S., our Indonesia operations and the closure of our technology shared service centre in Malaysia, partially offset by a gain with respect to one of the Company's pension plans. The 2015 charge of $14 million primarily relates to the settlement cost from the buy-out of the U.K. pension plan.

**Insurance sales**[1] were $4.7 billion in 2017, an increase of 23%[2] compared with 2016. In Asia, insurance sales increased 17% compared with 2016, driven by strong growth in Singapore, mainland China, Japan and Vietnam. In Canada, insurance sales increased 60% compared with 2016, as a more than doubling of group benefits sales (where large-case sales are inherently variable), was partially offset by lower retail sales from the impact of regulatory changes on prior year sales and pricing actions taken during the year. In the U.S., life insurance sales increased 11% from 2016 due to increased sales of term and universal life products.

**Wealth and Asset Management ("WAM") net flows**[1] were $17.6 billion in 2017, compared with $15.3 billion in 2016. In 2017, we generated positive net flows in our WAM businesses across all divisions and in each of our business lines: retirement, retail and institutional asset management. This marked our 8th year of positive consecutive quarterly net flows. The increase compared with 2016 was primarily due to lower redemptions and higher sales in our retail and institutional asset management businesses in the U.S. and, to a lesser extent, our Hong Kong retirement business, partially offset by higher redemptions in our North American retirement businesses.

**WAM gross flows**[1] were $124.3 billion in 2017, an increase of 5% compared with 2016. The increase was mainly driven by strong sales across multiple asset classes and strategies in our retail businesses, increased sales of equity and fixed income products in U.S. institutional asset management, and strong growth in Hong Kong retirement. This was partially offset by fewer large mandates in institutional asset management in Canada and Japan.

**Other Wealth sales**[1] were $8.1 billion in 2017, in line with 2016. In 2017, Other Wealth sales in Asia increased 10% from 2016 driven by Hong Kong, reflecting the success of recently-launched customer solutions, partially offset by lower single premium sales in Japan. In Canada, Other Wealth sales declined 10% from 2016 due to pricing actions to de-emphasize certain products.[3]

**Assets under management and administration**[1] ("AUMA") were $1,040 billion as at December 31, 2017, an increase of 11% on a constant currency basis, compared with December 31, 2016, driven by favourable investment returns and continued customer net inflows. The Wealth and Asset Management portion of AUMA as at December 31, 2017 was $599 billion, an increase of $54 billion, or 14% on a constant currency basis, compared with December 31, 2016, driven by the same reasons.

**The Minimum Continuing Capital and Surplus Requirements ("MCCSR") ratio** for MLI was 224% as at December 31, 2017, compared with 230% at the end of 2016. The 6 percentage point decrease from December 31, 2016 was mainly due to the charges related to U.S. Tax Reform and portfolio asset mix changes in 4Q17.

**MFC's financial leverage ratio** was 30.3% at December 31, 2017 compared with 29.5% at the end of 2016. Our financial leverage increased from the prior year primarily due to the charges related to U.S. Tax Reform and portfolio asset mix changes. Solid core earnings in 2017 more than offset the unfavourable impacts of the strengthening of the Canadian dollar and financing activities.

The operating divisions delivered $2.1 billion in **remittances**[4] in 2017, compared with $1.8 billion in 2016.

---

1 This item is a non-GAAP measure. See "Performance and Non-GAAP Measures" below.

2 Growth (declines) in sales, gross flows, premiums and deposits and assets under management and administration are stated on a constant currency basis. Constant currency basis is a non-GAAP measure. See "Performance and Non-GAAP Measures" below.

3 The U.S. Division does not have any products for sale in this category.

4 Remittances are defined as the cash remitted or payable to the Corporate and Other segment from operating subsidiaries and excess capital generated by stand-alone Canadian operations.

## Strategic Highlights

We are fully committed to the transformation of our business to position Manulife as a digital, customer-centric leader. We are confident that by delivering on our strategic priorities, we will succeed in delighting our customers, exciting and engaging our employees and creating substantial shareholder value. Our 5 strategic priorities are:

### Optimize our portfolio to ensure we are putting our capital to best use

Aligned with our goal to improve the risk-return and cash generation profile of our lower-return legacy businesses[1], which today consume a significant proportion of our capital, we have commenced and will continue to pursue a variety of organic options to optimize our portfolio, including more active management of claims and benefits, pricing actions, better expense management and investment strategy. We will also explore reinsurance and other actions, where it makes sense, and when in the best interest of shareholders. In September of 2017, we announced a new organizational structure, effective January 1, 2018, designed to bring stronger focus and enable us to more aggressively pursue these opportunities in our North American legacy businesses. On December 22, 2017, we announced a change in our portfolio asset mix for our legacy businesses that is expected to free up capital, reduce risk and lower volatility in our legacy businesses.[2]

### Aggressively manage our costs to be competitive and create value

For continued success in the quickly evolving market landscape, we need to be more efficient. We are setting ambitious efficiency targets for the years ahead, and are looking at a wide range of opportunities to simplify and digitize our processes and leverage scale to drive cost savings, positioning the Company for efficient growth.

### Accelerate growth in our highest-potential businesses

We continue to focus our capital allocations to drive growth through our higher-return businesses, notably Asia and Global Wealth and Asset Management ("WAM"). In 2017, new business value in Asia grew by 25%, driven by our professional agency force and multiple partnerships with financial institutions across the region. We expect the organizational changes to our WAM businesses that took effect January 1, 2018, to create greater alignment and enable us to better leverage our global scale. As a result of these changes, Global WAM will be a separate reporting segment in 2018.

### Focus on putting our customers first

Technology is transforming all our lives, changing customers' expectations of how they would like to engage with us. Meeting our customers' needs and their evolving preferences will require us to reimagine what we do and how we do it, so that we successfully invest in innovation and digitization to differentiate ourselves and provide excellent customer experiences. Highlights of digital and other initiatives to enhance customer experience in 2017 are outlined in the "Performance by Division – Strategic Highlights" sections below.

### Build a high-performing team and culture

We are aligning our teams with the five key areas of focus and fostering the right culture to drive execution. We continue to work to attract, develop and retain the best talent, wherever we do business, and to engage and excite our employees to rally around our customers. To help our colleagues work more efficiently, we are reducing complexity and placing greater emphasis on agility and appropriate risk-taking.

[1] Legacy business includes annuities, long-term care insurance and select long-duration, guaranteed insurance products.
[2] See "Caution regarding forward-looking statements" above.

## Financial Performance

| As at and for the years ended December 31, ($ millions, unless otherwise stated) | 2017 | 2016 | 2015 |
|---|---|---|---|
| **Net income attributed to shareholders** | **$ 2,104** | $ 2,929 | $ 2,191 |
| Preferred share dividends | **(159)** | (133) | (116) |
| **Common shareholders' net income** | **$ 1,945** | $ 2,796 | $ 2,075 |
| **Reconciliation of core earnings to net income attributed to shareholders:** | | | |
| **Core earnings**[1] | **$ 4,565** | $ 4,021 | $ 3,428 |
| Investment-related experience outside of core earnings | **167** | – | (530) |
| **Core earnings and investment-related experience outside of core earnings** | **$ 4,732** | $ 4,021 | $ 2,898 |
| Other items to reconcile core earnings to net income attributed to shareholders: | | | |
| Direct impact of equity markets and interest rates and variable annuity guarantee liabilities | **209** | (484) | (93) |
| Changes in actuarial methods and assumptions | **(35)** | (453) | (451) |
| Charge related to U.S. Tax Reform | **(1,777)** | – | – |
| Charge related to decision to change portfolio asset mix supporting our legacy businesses | **(1,032)** | – | – |
| Integration and acquisition costs | **(70)** | (81) | (149) |
| Other items | **77** | (74) | (14) |
| **Net income attributed to shareholders** | **$ 2,104** | $ 2,929 | $ 2,191 |
| Basic earnings per common share ($) | **$ 0.98** | $ 1.42 | $ 1.06 |
| Diluted earnings per common share ($) | **$ 0.98** | $ 1.41 | $ 1.05 |
| Diluted core earnings per common share ($)[1] | **$ 2.22** | $ 1.96 | $ 1.68 |
| Return on common shareholders' equity ("ROE") (%) | **5.0%** | 7.3% | 5.8% |
| Core ROE (%)[1] | **11.3%** | 10.1% | 9.2% |
| Sales[1] | | | |
| Insurance products | **$ 4,704** | $ 3,952 | $ 3,380 |
| Wealth and Asset Management gross flows[1] | **$ 124,306** | $ 120,450 | $ 114,686 |
| Wealth and Asset Management net flows[1] | **$ 17,605** | $ 15,265 | $ 34,387 |
| Other Wealth products | **$ 8,058** | $ 8,159 | $ 7,494 |
| Premiums and deposits[1] | | | |
| Insurance products | **$ 34,577** | $ 33,594 | $ 29,509 |
| Wealth and Asset Management products | **$ 124,306** | $ 120,450 | $ 114,686 |
| Other Wealth products | **$ 6,769** | $ 6,034 | $ 6,718 |
| Corporate and Other | **$ 110** | $ 87 | $ 90 |
| Assets under management and administration ($ billions)[1] | **$ 1,040** | $ 977 | $ 935 |
| Capital ($ billions)[1] | **$ 50.7** | $ 50.2 | $ 49.9 |
| MLI's MCCSR ratio | **224%** | 230% | 223% |

(1) This item is a non-GAAP measure. For a discussion of our use of non-GAAP measures, see "Performance and Non-GAAP Measures" below.

### Analysis of Net Income

**Manulife's full year 2017 net income attributed to shareholders was $2.1 billion compared with $2.9 billion for full year 2016.** Net income attributed to shareholders is comprised of core earnings (consisting of items we believe reflect the underlying earnings capacity of the business), which amounted to $4.6 billion in 2017 compared with $4.0 billion in 2016, and items excluded from core earnings, which amounted to a net charge of $2.5 billion in 2017 compared with a net charge of $1.1 billion in 2016. Net income attributed to shareholders in 2017 included a $2.8 billion post-tax charge related to the previously announced impact of U.S. Tax Reform and the decision to change the portfolio asset mix supporting our legacy businesses. Excluding these charges, net income attributed to shareholders increased $2.0 billion compared with 2016 primarily driven by growth in core earnings, the favourable direct impact of markets in 2017 compared with unfavourable impacts in 2016, and lower charges from changes in actuarial methods and assumptions.

The increase of $544 million in core earnings was driven by higher core investment gains, strong new business and in-force growth in Asia, higher fee income in our wealth and asset management businesses and a reduction in expected cost of macro hedges, partially offset by a $240 million provision in our P&C Reinsurance business in the third quarter of 2017 related to hurricanes, and the impact of changes in foreign currency exchange rates (on average, the Canadian dollar was stronger compared with the U.S. dollar during 2017). Both years also included gains related to the release of provisions of uncertain tax positions. Core earnings in 2017 included net insurance and annuity policyholder experience charges of $164 million post-tax ($223 million pre-tax) compared with $162 million post-tax ($276 million pre-tax) in 2016.

The table below reconciles 2017, 2016 and 2015 net income attributed to shareholders to core earnings.

| For the years ended December 31, ($ millions) | 2017 | 2016 | 2015 |
|---|---|---|---|
| **Core earnings**[1] | | | |
| Asia Division | **$ 1,663** | $ 1,495 | $ 1,234 |
| Canadian Division | **1,465** | 1,384 | 1,252 |
| U.S. Division | **1,962** | 1,615 | 1,466 |
| Corporate and Other (excluding expected cost of macro hedges and core investment gains) | **(868)** | (409) | (298) |
| Expected cost of macro hedges[2] | **(57)** | (261) | (226) |
| Investment-related experience in core earnings[3] | **400** | 197 | – |
| **Total core earnings** | **4,565** | 4,021 | 3,428 |
| Investment-related experience outside of core earnings[3] | **167** | – | (530) |
| **Core earnings and investment-related experience outside of core earnings** | **4,732** | 4,021 | 2,898 |
| Changes in actuarial methods and assumptions[3] | **(35)** | (453) | (451) |
| Direct impact of equity markets and interest rates and variable annuity guarantee liabilities[3] (see table below) | **209** | (484) | (93) |
| Charge related to U.S. Tax Reform[3] | **(1,777)** | – | – |
| Charge related to decision to change portfolio asset mix of our legacy businesses[3] | **(1,032)** | – | – |
| Integration and acquisition costs[3] | **(70)** | (81) | (149) |
| Other items[3] | **77** | (74) | (14) |
| **Net income attributed to shareholders** | **$ 2,104** | $ 2,929 | $ 2,191 |

(1) This item is a non-GAAP measure. See "Performance and Non-GAAP Measures" below.

(2) Actual market performance differed from our valuation assumptions in 2017, which resulted in a macro hedge experience loss of $177 million. This loss is included in the direct impact of equity markets and interest rates and variable annuity guarantee liabilities below.

(3) See "Overview – Items Excluded from Core earnings" above.

We evaluate our divisions operating performance based on core earnings.

- Asia core earnings were $1,663 million in 2017 compared with $1,495 million in 2016. Core earnings in 2017 increased $168 million or 16%, compared with 2016 after adjusting for the impact of changes in foreign currency exchange rates. The increase in core earnings was driven by double-digit growth in new business volumes and solid in-force business growth, partially offset by a charge related to policyholder experience in 2017 compared with a gain in 2016, and the non-recurrence of gains related to two separate reinsurance treaties in 2016.
- Canada core earnings were $1,465 million in 2017 compared with $1,384 million in 2016. Core earnings in 2017 increased $81 million or 6% compared with 2016, reflecting higher fee income in our wealth and asset management businesses from higher average asset levels and a tax benefit primarily related to the release of provisions for uncertain tax positions. These items were partially offset by unfavourable policyholder experience, primarily due to higher claims in our group benefits long-term disability business.
- U.S. core earnings were $1,962 million in 2017 compared with $1,615 million in 2016. Core earnings in 2017 increased $347 million or 21% compared with 2016 driven by improved policyholder experience in life and long-term care and policyholder experience gains in annuities. In addition, higher wealth and asset management earnings primarily from higher average assets, lower amortization of deferred acquisition costs on in-force variable annuity business and an improvement in policy-related items were partially offset by the non-recurrence of the release of provisions for uncertain tax positions in 2016. Improved policyholder experience losses in life and long-term care were due, in part to changes in actuarial methods and assumptions.
- Corporate and Other core loss excluding the expected cost of macro hedges and core investment gains was $868 million in 2017 compared with $409 million in 2016. The $459 million increase in core loss consisted of the P&C provision relating to hurricanes Harvey, Irma and Maria, the non-recurrence of a release of provisions and interest on uncertain tax positions in 2016, higher strategic initiative expenses and higher interest costs, partially offset by higher realized gains on AFS equities.
- The expected cost of macro hedges was $57 million in 2017 compared with $261 million in 2016, a decrease of $204 million due to the impact of favourable equity markets on variable annuity guarantee risks not covered by the dynamic hedging program and actions taken in late 2016 to reduce our equity risk.
- Investment-related experience in core earnings in 2017 of $400 million reflected the favourable impact of fixed income reinvestment activities on the measurement of our policy liabilities and strong credit experience, partially offset by lower than expected returns (including changes in fair value) on ALDA. (See description of investment-related experience in "Performance and Non-GAAP Measures" below).

Items excluded from core earnings amounted to net charges of $2.5 billion in 2017 and $1.1 billion in 2016. Additional information is included in the footnotes to the table in the "Overview" section above.

The net gain (loss) related to the direct impact of equity markets and interest rates and variable annuity guarantee liabilities in the table above is attributable to:

| For the years ended December 31, ($ millions) | 2017 | 2016 | 2015 |
|---|---|---|---|
| Direct impact of equity markets and variable annuity guarantee liabilities(1) | **$ 533** | $ (364) | $ (299) |
| Fixed income reinvestment rates assumed in the valuation of policy liabilities(2) | **(200)** | (335) | 201 |
| Sale of AFS bonds and derivative positions in the Corporate and Other segment | **(41)** | 370 | 5 |
| Risk reduction items(3) | **(83)** | (155) | – |
| **Direct impact of equity markets and interest rates and variable annuity guarantee liabilities** | **$ 209** | $ (484) | $ (93) |

(1) In 2017, the net gain of $533 million included a gain of $1,486 million from gross equity exposure, partially offset by charges of $892 million from dynamic hedging experience, and $61 million from macro hedge experience. In 2016, the net charge of $364 million included charges of $205 million from gross equity exposure, $120 million from macro hedge experience and $39 million from dynamic hedging experience. As at December 31, 2017, the net notional value of shorted equity futures contracts in our macro hedge program was $0.2 billion (2016 – $1.5 billion).

(2) The $200 million charge in 2017 for fixed income reinvestment assumptions was driven by decreases in corporate spreads which resulted in a decline in the reinvestment yields on future fixed income purchases assumed in the measurement of policy liabilities and increases in swap spreads that resulted in a decrease in the fair value of our swaps. The $335 million charge in 2016 was largely driven by decreases in corporate spreads, partially offset by falling swap spreads. The $201 million gain in 2015 was due to a decrease in swap spreads partially offset by a decrease in risk-free rates.

(3) In 2017, we expanded our dynamic hedging program in Japan. In 2016, the risk reduction actions included selling equity investments supporting our products with guarantee features and increasing the amount of interest rate hedges. The sale of equity investments resulted in a decrease in our underlying earnings sensitivity before hedging and also reduced the amount of hedging instruments used in the macro hedging program.

## Earnings per Common Share and Return on Common Shareholders' Equity

Fully diluted earnings per common share for 2017 was $0.98, compared with $1.41 in 2016. Return on common shareholders' equity for 2017 was 5.0%, compared with 7.3% for 2016.

## Revenue

Revenues includes (i) premiums received on life and health insurance policies and fixed annuity products, net of premiums ceded to reinsurers; (ii) investment income comprised of income earned on general fund assets, credit experience and realized gains and losses on assets held in the Corporate segment; (iii) fee and other income received for services provided; and (iv) realized and unrealized gains (losses) on assets supporting insurance and investment contract liabilities and on our macro hedging program. Premium equivalents from administrative services only ("ASO"), as well as deposits received by the Company on investment contracts such as segregated funds, mutual funds and managed funds are not included in revenue; however, the Company does receive fee income from these products, which is included in revenue. Fees generated from deposits and ASO premium and deposit equivalents are an important part of our business and as a result, revenue does not fully represent sales and other activity taking place during the respective periods. The premiums and deposits metric below includes these factors.

For 2017, revenue before realized and unrealized losses was $52.6 billion, slightly higher than $52.2 billion in 2016.

In 2017, the net realized and unrealized gains on assets supporting insurance and investment contract liabilities and on the macro hedging program were $5.7 billion, primarily driven by the decline in Canadian, U.S. and Hong Kong interest rates as well as higher equity markets. In 2016, the net realized and unrealized gains on assets supporting insurance and investment contract liabilities and on the macro hedging program were $1.1 billion, primarily driven by gains from the general decrease in U.S. interest rates and higher equity markets, partially offset by net losses on derivatives, including the macro equity hedging program, primarily related to the losses on interest rate swaps and treasury locks.

See "Impact of Fair Value Accounting" below.

## Revenue

| For the years ended December 31, ($ millions) | 2017 | 2016 | 2015 |
|---|---|---|---|
| Gross premiums | **$ 36,361** | $ 36,659 | $ 32,020 |
| Premiums ceded to reinsurers(1) | **(8,151)** | (9,027) | (16,091) |
| Net premiums | **28,210** | 27,632 | 15,929 |
| Investment income | **13,649** | 13,390 | 11,465 |
| Other revenue | **10,746** | 11,181 | 10,098 |
| Total revenue before items noted below | **52,605** | 52,203 | 37,492 |
| Realized and unrealized gains (losses) on assets supporting insurance and investment contract liabilities and on macro hedging program | **5,718** | 1,134 | (3,062) |
| **Total revenue** | **$ 58,323** | $ 53,337 | $ 34,430 |

(1) Premiums ceded to reinsurers in 2015 includes the $7,996 million impact of the assumption by NYL of our in-force participating life insurance closed block ("Closed Block") reinsurance transaction.

## Premiums and Deposits

Premiums and deposits[1] is an additional measure of our top line growth, as it includes all customer cash inflows. Premiums and deposits for insurance products were $34.6 billion in 2017, an increase of $1.0 billion, or 5% on a constant currency basis compared with 2016.

Premiums and deposits for Wealth and Asset Management products were $124.3 billion in 2017, an increase of $3.9 billion, or 5% on a constant currency basis over 2016. Premiums and deposits for Other Wealth products were $6.8 billion in 2017, an increase of $0.7 billion, or 14% on a constant currency basis, from 2016.

## Assets under Management and Administration ("AUMA")

AUMA[1] as at December 31, 2017 were $1,040 billion, an increase of $63 billion, or 11% on a constant currency basis, compared with December 31, 2016, driven by favourable investment returns and continued customer net inflows. The Wealth and Asset Management portion of AUMA as at December 31, 2017 was $599 billion, an increase of $54 billion, or 14% on a constant currency basis, compared with December 31, 2016, driven by the same reasons.

### Assets under Management and Administration

| As at December 31, ($ millions) | 2017 | 2016 | 2015 |
|---|---|---|---|
| General fund | **$ 334,222** | $ 321,869 | $ 307,506 |
| Segregated funds net assets(1) | **324,307** | 315,177 | 313,249 |
| Mutual funds, institutional asset management and other(1),(2) | **294,033** | 257,576 | 236,512 |
| **Total assets under management** | **952,562** | 894,622 | 857,267 |
| Other assets under administration | **87,929** | 82,433 | 77,909 |
| **Total assets under management and administration** | **$1,040,491** | $ 977,055 | $ 935,176 |

(1) Segregated fund assets, mutual fund assets and other funds are not available to satisfy the liabilities of the Company's general fund.

(2) Other funds represent pension funds, pooled funds, endowment funds and other institutional funds managed by the Company on behalf of others.

## Capital

Total capital[1] was $50.7 billion as at December 31, 2017 compared with $50.2 billion as at December 31, 2016, an increase of $0.5 billion. The increase from December 31, 2016 was primarily driven by net income attributed to shareholders net of dividends paid of $0.3 billion, net capital issuances of $1.3 billion (does not include the $0.6 billion of senior debt redeemed, as it is not in the definition of regulatory capital), and the favourable change in unrealized losses on AFS debt securities of $0.6 billion, partially offset by the unfavourable impact of foreign exchange rates of $2.0 billion.

## Impact of Fair Value Accounting

Fair value accounting policies affect the measurement of both our assets and our liabilities. The difference between the reported amounts of our assets and liabilities determined as of the balance sheet date and the immediately preceding balance sheet date in accordance with the applicable mark-to-market accounting principles is reported as investment-related experience and the direct impact of equity markets and interest rates and variable annuity guarantees, each of which impacts net income (see "Analysis of Net Income" above).

We reported $5.7 billion of net realized and unrealized gains in investment income in 2017 (2016 – gains of $1.1 billion).

As outlined under "Critical Accounting and Actuarial Policies" below, net insurance contract liabilities under IFRS are determined using Canadian Asset Liability Method ("CALM"), as required by the Canadian Institute of Actuaries ("CIA"). The measurement of policy liabilities includes the estimated value of future policyholder benefits and settlement obligations to be paid over the term remaining on in-force policies, including the costs of servicing the policies, reduced by the future expected policy revenues and future expected investment income on assets supporting the policies. Investment returns are projected using the current asset portfolios and projected reinvestment strategies. Experience gains and losses are reported when current period activity differs from what was assumed in the policy liabilities at the beginning of the period. We classify gains and losses by assumption type. For example, current period investing activities that increase (decrease) the future expected investment income on assets supporting the policies will result in an investment-related experience gain (loss). See description of investment-related experience in "Performance and Non-GAAP Measures" below.

## Public Equity Risk and Interest Rate Risk

At December 31, 2017, the impact of a 10% decline in equity markets was estimated to be a charge of $610 million and the impact of a 50 basis point decline in interest rates, across all durations and markets, on our earnings was estimated to be a charge of $200 million. See "Risk Management" and "Risk Factors" below.

## Impact of Foreign Exchange Rates

We have worldwide operations, including in Canada, the United States and various countries in Asia, and generate revenues and incur expenses in local currencies in these jurisdictions, all of which are translated into Canadian dollars. The bulk of our exposure to foreign exchange rates is to movements in the U.S. dollar.

1 This item is a non-GAAP measure. See "Performance and Non-GAAP Measures" below.

Items impacting our Consolidated Statements of Income are translated to Canadian dollars using average exchange rates for the respective period. For items impacting our Consolidated Statements of Financial Position, period end rates are used for currency translation purpose. The following table provides the most relevant foreign exchange rates for 2017 and 2016.

| | Quarterly | | | | | Full Year | |
|---|---|---|---|---|---|---|---|
| Exchange rate | **4Q17** | 3Q17 | 2Q17 | 1Q17 | 4Q16 | **2017** | 2016 |
| Average[1] | | | | | | | |
| U.S. dollar | **1.2712** | 1.2528 | 1.3450 | 1.3238 | 1.3343 | **1.2980** | 1.3252 |
| Japanese yen | **0.0113** | 0.0113 | 0.0121 | 0.0117 | 0.0122 | **0.0116** | 0.0122 |
| Hong Kong dollar | **0.1628** | 0.1603 | 0.1727 | 0.1706 | 0.1720 | **0.1666** | 0.1707 |
| Period end | | | | | | | |
| U.S. dollar | **1.2545** | 1.2480 | 1.2977 | 1.3323 | 1.3426 | **1.2545** | 1.3426 |
| Japanese yen | **0.0111** | 0.0111 | 0.0116 | 0.0120 | 0.0115 | **0.0111** | 0.0115 |
| Hong Kong dollar | **0.1605** | 0.1598 | 0.1662 | 0.1714 | 0.1732 | **0.1605** | 0.1732 |

(1) Average rates for the quarter are from Bank of Canada which are applied against Consolidated Statements of Income items for each period. Average rate for the full year is a 4-point average of the quarterly average rates.

In general, our net income attributed to shareholders and core earnings benefit from a weakening Canadian dollar and are adversely affected by a strengthening Canadian dollar. Net income attributed to shareholders and core earnings from the Company's foreign operations are translated to Canadian dollars. However, in a period of losses, the weakening of the Canadian dollar has the effect of increasing the losses. The relative impact of foreign exchange in any given period is driven by the movement of currency rates as well as the proportion of earnings generated in our foreign operations.

Changes in foreign exchange rates, primarily due to the strengthening of the U.S. dollar compared with the Canadian dollar, decreased core earnings by $103 million in 2017 compared with 2016. The impact of foreign currency on items excluded from core earnings does not provide relevant information given the nature of these items.

## Fourth Quarter Financial Highlights

| **For the quarters ended December 31, ($ millions, except per share amounts)** | **2017** | 2016 | 2015 |
|---|---|---|---|
| Net income (loss) attributed to shareholders | **$ (1,606)** | $ 63 | $ 246 |
| Core earnings[1],[2] (see next page for reconciliation) | **$ 1,205** | $ 1,287 | $ 859 |
| Diluted earnings (loss) per common share ($) | **$ (0.83)** | $ 0.01 | $ 0.11 |
| Diluted core earnings per common share ($)[2] | **$ 0.59** | $ 0.63 | $ 0.42 |
| Return on common shareholders' equity (annualized) | **(17.1)%** | 0.3% | 2.3% |
| Sales[2] | | | |
| Insurance products | **$ 1,003** | $ 1,074 | $ 1,027 |
| Wealth and Asset Management gross flows[2] | **$ 32,919** | $ 38,160 | $ 31,089 |
| Wealth and Asset Management net flows[2] | **$ 3,718** | $ 6,073 | $ 8,748 |
| Other Wealth products | **$ 2,082** | $ 1,737 | $ 2,109 |
| Premiums and deposits[2] | | | |
| Insurance products | **$ 8,619** | $ 8,639 | $ 7,759 |
| Wealth and Asset Management products | **$ 32,919** | $ 38,160 | $ 31,089 |
| Other Wealth products | **$ 1,749** | $ 1,405 | $ 1,963 |
| Corporate and Other | **$ 20** | $ 23 | $ 26 |

(1) Impact of currency movement on the fourth quarter of 2017 ("4Q17") core earnings compared with the fourth quarter of 2016 ("4Q16") was a $54 million unfavourable variance.
(2) This item is a non-GAAP measure. See "Performance and Non-GAAP Measures" below.

**Manulife's 4Q17 net income attributed to shareholders was a loss of $1,606 million compared with net income of $63 million in 4Q16.** Net income attributed to shareholders is comprised of core earnings (consisting of items we believe reflect the underlying earnings capacity of the business), which amounted to $1,205 million in 4Q17 compared with $1,287 million in 4Q16, and items excluded from core earnings, which netted to charges of $2,811 million in 4Q17 compared with charges of $1,224 million in 4Q16 for a period-over-period increase in charges of $1,587 million. Net income attributed to shareholders in 4Q17 included a $2.8 billion post-tax charge related to the previously announced impact of U.S. Tax Reform and the decision to change the portfolio asset mix supporting our legacy businesses. The 4Q16 net income attributed to shareholders included a $1.2 billion charge related to the direct impact of markets. Excluding these items, 4Q17 net income attributed to shareholders decreased by $62 million compared with 4Q16.

The $82 million decrease in core earnings was due to higher core investment gains reported in 4Q16 ($180 million in 4Q16 compared with $100 million in 4Q17) and a $142 million release of provisions related to uncertain tax positions reported in 4Q16. Partially offsetting these variances were strong growth in Asia and our wealth and asset management businesses, a reduction in equity hedging costs, and higher realized gains on AFS equity. Core earnings in 4Q17 included policyholder experience charges of $34 million post-tax ($42 million pre-tax) compared with $43 million post-tax ($65 million pre-tax) in 4Q16. See table below for details on items excluded from core earnings.

## Analysis of Net Income

The table below reconciles net income attributed to shareholders to core earnings for the periods presented.

| **For the quarters ended December 31,**<br>**($ millions)** | **4Q17** | 4Q16 |
|---|---|---|
| **Core earnings**[1] | | |
| Asia Division | **$ 422** | $ 388 |
| Canadian Division | **335** | 359 |
| U.S. Division | **550** | 471 |
| Corporate and Other (excluding expected cost of macro hedges and core investment gains) | **(192)** | (75) |
| Expected cost of macro hedges[2] | **(10)** | (36) |
| Investment-related experience in core earnings | **100** | 180 |
| **Core earnings** | **1,205** | 1,287 |
| Investment-related experience outside of core earnings | **18** | – |
| **Core earnings and investment-related experience outside of core earnings** | **1,223** | 1,287 |
| Other items to reconcile core earnings to net income attributed to shareholders: | | |
| Direct impact of equity markets and interest rates and variable annuity guarantee liabilities (see table below) | **(68)** | (1,202) |
| Changes in actuarial methods and assumptions | **(33)** | (10) |
| Charge related to U.S. Tax Reform | **(1,777)** | – |
| Charge related to decision to change portfolio asset mix supporting our legacy businesses | **(1,032)** | – |
| Integration and acquisition costs | **(18)** | (25) |
| Other items excluded from core earnings | **99** | 13 |
| **Net income (loss) attributed to shareholders** | **$ (1,606)** | $ 63 |

(1) This item is a non-GAAP measure. See "Performance and Non-GAAP Measures" below.

(2) Actual market performance differed from our valuation assumptions in 4Q17, which resulted in a macro hedge experience loss of $31 million. This loss is included in the direct impact of equity markets and interest rates and variable annuity guarantee liabilities below.

We evaluate our divisions operating performance based on core earnings.

- In Asia, core earnings were $422 in 4Q17 million compared with $388 million in 4Q16. Core earnings in 4Q17 increased 15%, compared with 4Q16, after adjusting for the impact of changes in foreign currency exchange rates. The increase in core earnings was driven by growth in new business volumes and solid in-force business growth, partially offset by unfavourable policyholder experience.
- In Canada, core earnings were $335 million in 4Q17 compared with $359 million in 4Q16. Core earnings in 4Q17 decreased 7%, compared with 4Q16. The decrease in core earnings reflected unfavourable policyholder experience in retail insurance, the non-recurrence of prior year's gains from a reinsurance recapture and a number of other smaller items, partially offset by higher fee income in our wealth and asset management businesses.
- In the U.S., core earnings were $550 million in 4Q17 compared with $471 million in 4Q16. Core earnings in 4Q17 increased 17%, compared with 4Q16, driven by higher wealth and asset management earnings primarily from higher average assets and an improvement in policyholder experience in Insurance. In addition, lower amortization of deferred acquisition costs on in-force variable annuity business and gains from policy-related items (compared to losses in 4Q16) were partially offset by the non-recurrence of the release of uncertain tax provisions in 4Q16. Insurance policyholder experience improved compared to 4Q16, reflecting an improvement in life policyholder experience partially offset by more unfavourable long-term care policyholder experience. The improvement in life policyholder experience was partially due to changes in mortality assumptions made as part of the 2017 annual review of actuarial methods and assumptions.
- Corporate and Other core loss excluding expected cost of macro hedges and core investment gains was $192 million in 4Q17 compared with $75 million in 4Q16. The $117 million unfavourable variance in core earnings reflected the non- recurrence of a release of provisions and interest on uncertain tax positions in 4Q16. The remaining net unfavourable variance included higher strategic initiative expenses partially offset by lower expected macro hedging costs and higher realized gains on AFS equities.
- The expected cost of macro hedges was $10 million in 4Q17 compared with $36 million in 4Q16, a decrease of $26 million. The charges were lower in 4Q17 due to the improvement in markets.
- Investment-related experience was $118 million in 4Q17 compared with $180 million in 4Q16. The gains in 4Q17 reflected the favourable impact of fixed income reinvestment activities on the measurement of our policy liabilities and strong credit experience. The gains in 4Q16 reflected the favourable impact of fixed income reinvestment activities on the measurement of our policy liabilities. In 4Q17, $100 million was included in core earnings as core investment gains compared with $180 million in 4Q16.

The gain (charge) related to the direct impact of equity markets and interest rates and variable annuity guarantee liabilities in the table above is attributable to:

| For the years ended December 31,<br>($ millions) | 4Q17 | 4Q16 |
|---|---|---|
| Direct impact of equity markets and variable annuity guarantee liabilities[1] | **$ 47** | $ (213) |
| Fixed income reinvestment rates assumed in the valuation of policy liabilities[2] | **(155)** | (847) |
| Sale of AFS bonds and derivative positions in the Corporate and Other segment | **40** | (142) |
| **Direct impact of equity markets and interest rates and variable annuity guarantee liabilities** | **$ (68)** | $ (1,202) |

[1] In 4Q17, gains of $370 million from gross equity exposure were partially offset by charges of $219 million from dynamic hedging experience, $83 million from the expansion of our dynamic hedging program in Japan as a risk reduction action, and $21 million from macro hedge experience, which resulted in a gain of $47 million.

[2] The charge in 4Q17 for fixed income reinvestment assumptions was driven by increases in swap spreads and decreases in corporate spreads.

## Sales

**Insurance sales** were $1.0 billion in 4Q17, a decrease of 3% compared with 4Q16. In Asia, insurance sales increased 7% from 4Q16, driven by strong growth in Singapore and Vietnam. In Canada, insurance sales declined 31% from 4Q16 as lower retail insurance sales reflected both 2017 pricing actions and higher prior year sales in advance of regulatory changes. In the U.S., life insurance sales increased by 8% from 4Q16 due to increased sales of term and universal life products, which were supported by the increasing popularity of our Vitality solution and several large-case variable universal life sales.

**Wealth and Asset Management net flows** were $3.7 billion in 4Q17, a decrease of $2.4 billion compared with 4Q16. Positive net flows were generated across all divisions. The decrease compared with 4Q16 was primarily driven by lower net flows in institutional asset management due to a strong 4Q16 which benefited from three large mandates in Canada and Japan totaling $7.9 billion, and to a lesser extent, lower sales in mainland China in 4Q17. This was partially offset by a significantly lower redemption rate in U.S. retail, as well as higher net flows in U.S. institutional asset management and Canada retail.

**WAM gross flows** were $32.9 billion in 4Q17, a decrease of 11% compared with 4Q16. The decrease was mainly due to fewer large institutional asset management mandates as noted above, as well as lower gross flows in mainland China in 4Q17. This was partially offset by strong growth in Canada retail and higher gross flows across all our retirement businesses, particularly in the U.S., where we delivered solid sales in the mid-market segment.

**Other Wealth sales** were $2.1 billion in 4Q17, an increase of 25% compared with 4Q16. In 4Q17, Other Wealth sales in Asia increased 53% from 4Q16, driven by strong sales of recently-launched customer solutions in Hong Kong and strong growth in Japan. In Canada, Other Wealth sales declined 11% from 4Q16 due to pricing actions to de-emphasize certain product.

# Performance by Division

## Asia Division

**We are a leading provider of financial protection and wealth and asset management solutions in Asia, driven by a customer-centric strategy. Present in many of Asia's largest and fastest growing economies, we have operations in Japan, Hong Kong, Macau, Singapore, mainland China, Taiwan, Indonesia, Vietnam, the Philippines, Malaysia, Cambodia and Thailand. We are strongly positioned to capitalize on the attractive underlying demographics of the region, underpinned by a rigorous focus on creating value for our customers, employees and shareholders.**

**Our portfolio includes a broad array of financial protection products and services including life and health insurance and annuities. Our wealth and asset management offerings include mutual funds, retirement solutions and institutional asset management. We cater to the wealth and protection needs of individuals and corporate customers through a diversified multi-channel distribution network, including approximately 73,000 contracted agents, over 100 bancassurance partnerships and 1,000 independent agents, financial advisors and brokers. Our bank partnerships include a long-term, exclusive regional partnership with DBS in Singapore, Hong Kong, mainland China and Indonesia, which together with seven additional exclusive partnerships, gives us access to nearly 18 million active bank customers. Our activities in Asia are supported by a team of around 12,000 employees.**

In 2017, Asia Division contributed 28% of the Company's total premiums and deposits and, as at December 31, 2017, accounted for 16% of the Company's assets under management and administration.

### Financial Performance

Asia Division reported net income attributed to shareholders of $1,849 million in 2017 compared with $1,141 million in 2016. Net income attributed to shareholders is comprised of core earnings, which was $1,663 million in 2017 compared with $1,495 million in 2016, and items excluded from core earnings, which amounted to a net gain of $186 million for 2017 compared with a net charge of $354 million in 2016.

Expressed in U.S. dollars, the presentation currency of the division, net income attributed to shareholders was US$1,417 million in 2017 compared with US$863 million in 2016 and core earnings were US$1,283 million in 2017 compared with US$1,129 million in 2016. Items excluded from core earnings amounted to a net gain of US$134 million in 2017 compared with a net charge of US$266 million in 2016, primarily driven by the net change of US$328 million from the direct impact of equity markets and interest rates and variable annuity guarantee liabilities. (See details in the footnotes of the table below.)

Core earnings in 2017 increased 16% compared with 2016 after adjusting for the impact of changes in foreign currency exchange rates. The increase in core earnings was driven by double-digit growth in new business volumes and solid in-force business growth, partially offset by a charge related to policyholder experience in 2017 compared with a gain in 2016, and the non-recurrence of gains related to two separate reinsurance treaties in 2016.

The table below reconciles net income attributed to shareholders to core earnings for the Asia Division for 2017, 2016 and 2015.

| For the years ended December 31, ($ millions) | Canadian $ | | | US $ | | |
|---|---|---|---|---|---|---|
| | **2017** | 2016 | 2015 | **2017** | 2016 | 2015 |
| **Core earnings**[1] | **$ 1,663** | $ 1,495 | $ 1,234 | **$ 1,283** | $ 1,129 | $ 963 |
| Items to reconcile core earnings to net income attributed to shareholders: | | | | | | |
| Direct impact of equity markets and interest rates and variable annuity guarantee liabilities[2] | **14** | (433) | (174) | **2** | (326) | (134) |
| Investment-related experience related to fixed income trading, market value increases in excess of expected alternative assets investment returns, asset mix changes and credit experience | **241** | 91 | 25 | **186** | 69 | 20 |
| Other items excluded from core earnings[3] | **(69)** | (12) | 20 | **(54)** | (9) | 16 |
| **Net income attributed to shareholders**[1] | **$ 1,849** | $ 1,141 | $ 1,105 | **$ 1,417** | $ 863 | $ 865 |

(1) This item is a non-GAAP measure. See "Performance and Non-GAAP Measures" below.

(2) The direct impact of equity markets and interest rates is relative to our policy liability valuation assumptions and includes changes to interest rate assumptions. The net gain of $14 million in 2017 (2016 – net charge of $433 million) consisted of a $47 million gain (2016 – $24 million charge) related to variable annuities that are not dynamically hedged, a gain of $130 million (2016 – $80 million charge) on general fund equity investments supporting policy liabilities and on fee income, a $151 million charge (2016 – $259 million charge) related to fixed income reinvestment rates assumed in the valuation of policy liabilities and a $12 million charge (2016 – $70 million charge) related to variable annuity guarantee liabilities that are dynamically hedged. The amount of variable annuity guaranteed value that was dynamically hedged at the end of 2017 was 92% (2016 – 67%). Our variable annuity guarantee dynamic hedging strategy is not designed to completely offset the sensitivity of policy liabilities to all risks associated with the guarantees embedded in these products.

(3) Other in 2017 includes the integration costs in relation to the acquisition of Standard Chartered's MPF and Occupational and Retirement Schemes Ordinance businesses in Hong Kong in November 2016 and restructuring costs in Thailand. Other in 2016 includes the integration costs in relation to the acquisition of Standard Chartered's MPF and Occupational and Retirement Schemes Ordinance businesses in Hong Kong in November 2016 and restructuring costs in Indonesia, partly offset by the impact of tax rate change on the deferred tax liabilities in Japan.

## Sales *(all percentages quoted are on a constant currency basis)*

**Insurance sales** in 2017 were US$2.3 billion, an increase of 17% compared with 2016, driven by continued growth in most of the territories in which we operate. Sales in Japan of US$728 million were 19% higher than prior year driven by strong growth in our Corporate products and a new product launch. Hong Kong sales of US$466 million were at similar level of 2016 as higher sales from new product launches were offset by a reduction in sales to mainland Chinese visitors. Asia Other (excludes Japan and Hong Kong) sales of US$1,113 million increased 25% compared with 2016 reflecting strong double-digit growth in Singapore, mainland China, Vietnam and Cambodia, and continued growth in the Philippines, partially offset by lower sales in Indonesia and Thailand.

**Other Wealth sales** in 2017 were US$4.0 billion, an increase of 10% compared with 2016. Other Wealth sales growth was mainly driven by Hong Kong reflecting the success of the recently launched customer solutions, partially offset by lower single premium sales through bancassurance channels in Japan.

**Annualized premium equivalent ("APE")[1] sales** in 2017 were US$2,887 million, 18% higher than 2016 driven by double-digit growth in most territories. APE sales included insurance sales of US$2,307 million and other wealth APE sales of US$580 million, up 17% and 21%, respectively, from 2016. Japan APE sales in 2017 were US$1,102 million, an increase of 12% compared with 2016 as strong growth in our Corporate and foreign-currency denominated products was partially offset by lower single premium other wealth sales through bancassurance channels. Hong Kong APE sales in 2017 were US$584 million, an increase of 18% compared with 2016, benefiting from strong sales of our newly-launched customer solutions. Both our agency and bank channels experienced double-digit growth. Asia Other (excludes Japan and Hong Kong) APE sales in 2017 were US$1,201 million, an increase of 24% compared with 2016. We experienced double-digit growth in Singapore, mainland China, Vietnam and Cambodia, and continued growth in the Philippines, partially offset by lower sales in Indonesia and Thailand. Singapore and mainland China grew 29% and 48%, respectively, compared with 2016.

**Wealth and Asset Management ("WAM") gross flows** of US$21.5 billion in 2017 were US$1.9 billion or 11% higher than 2016, driven by strong retail flows from money market funds in mainland China, solid retail flows in Japan, Hong Kong, Singapore, Indonesia and Malaysia, and increased retirement flows in Hong Kong and Indonesia. These were partially offset by lower flows from institutional asset management. Japan WAM gross flows of US$526 million in 2017 doubled compared with 2016, driven by strong mutual fund sales, reflecting bank distribution channel expansion and continued success of existing fund solutions. Hong Kong WAM gross flows of US$3.9 billion in 2017 increased 48% compared with 2016, driven by growth in both retail and retirement distribution channels, including the successful Mandatory Provident Fund partnership with Standard Chartered Bank. Asia Other (excludes Japan and Hong Kong) WAM gross flows of US$12.5 billion in 2017 increased 23% compared with 2016, reflecting an increase in money market gross flows in mainland China, strong retail gross flows in Singapore, Indonesia and Malaysia, and strong retirement gross flows in Indonesia. Institutional asset management gross flows in 2017 of US$4.6 billion decreased 29% compared with 2016, due to the sale of a large mandate in Japan in 4Q16.

**Wealth and Asset Management net flows** were US$5.1 billion in 2017, compared with of US$6.4 billion in 2016. The decline was driven by higher redemptions of money market funds in mainland China and the non-recurrence of a large institutional mandate sold in 2016.

### Sales[(1)]

| For the years ended December 31, | Canadian $ | | | US $ | | |
|---|---|---|---|---|---|---|
| ($ millions) | **2017** | 2016 | 2015 | **2017** | 2016 | 2015 |
| Insurance sales | **$ 2,995** | $ 2,651 | $ 1,930 | **$ 2,307** | $ 2,002 | $ 1,507 |
| Other wealth sales | **5,150** | 4,940 | 3,885 | **3,975** | 3,726 | 3,022 |
| Annualized premium equivalent ("APE") sales | **3,747** | 3,305 | 2,354 | **2,887** | 2,498 | 1,836 |
| Wealth and asset management gross flows | **27,801** | 25,970 | 22,247 | **21,490** | 19,610 | 17,373 |
| Wealth and asset management net flows | **6,573** | 8,372 | 7,949 | **5,097** | 6,365 | 6,213 |

(1) Effective January 1, 2017, the operations of Investment Division's external asset management businesses (MAM) has been reported in the respective Divisional results. Previously, they were reported in the Corporate and Other segment. The 2016 and 2015 wealth and asset management gross flows and wealth and asset management net flows have been restated to reflect the inclusion of MAM in the Division's results.

1 Annualized premium equivalent ("APE") sales is a metric commonly used in Asia and is comprised of Insurance sales plus 100% of regular premiums/ deposits and 10% of single premiums/ deposits for other wealth products. APE is a non-GAAP measure. See "Performance and Non-GAAP Measures" below.

## Revenue

Total revenue in 2017 of US$16.6 billion increased US$2.0 billion compared with 2016, of which $1.4 billion related to a net increase in realized and unrealized investment gains, primarily due to the impact of the decline in interest rates. Revenue before net realized and unrealized investment gains increased US$0.7 billion compared with 2016, and included an increase in net premium income of US$0.4 billion, primarily driven by the strong growth of new business premiums that augmented the stable growth of in-force business, partly offset by a decline in single premium sales in Japan.

### Revenue

| For the years ended December 31, ($ millions) | Canadian $ | | | US $ | | |
|---|---|---|---|---|---|---|
| | **2017** | 2016 | 2015 | **2017** | 2016 | 2015 |
| Net premium income | **$ 15,713** | $ 15,585 | $ 11,495 | **$ 12,117** | $ 11,757 | $ 8,953 |
| Investment income | **2,029** | 1,853 | 1,519 | **1,564** | 1,400 | 1,188 |
| Other revenue | **1,739** | 1,566 | 1,434 | **1,339** | 1,185 | 1,121 |
| Revenue before net realized and unrealized investment gains and losses | **19,481** | 19,004 | 14,448 | **15,020** | 14,342 | 11,262 |
| Net realized and unrealized investment gains and losses | **2,051** | 290 | (446) | **1,569** | 204 | (365) |
| **Total revenue** | **$ 21,532** | $ 19,294 | $ 14,002 | **$ 16,589** | $ 14,546 | $ 10,897 |

## Premium and Deposits *(all percentages quoted are on a constant currency basis)*

Premium and deposits for 2017 were US$36.3 billion, an increase of 11% compared with 2016. Premiums and deposits for insurance products in 2017 were US$10.9 billion, an increase of 13% compared with 2016, driven by strong sales growth and recurring premium growth from in-force business. Wealth and Asset Management premiums and deposits in 2017 were US$21.5 billion, an increase of 11%, compared with 2016, driven by strong retail flows from money market funds in mainland China, solid retail flows in Japan, Hong Kong, Singapore, Indonesia and Malaysia, and increased retirement flows in Hong Kong and Indonesia. These were partially offset by lower flows from institutional asset management. Other Wealth premiums and deposits in 2017 were US$4.0 billion, 11% higher than 2016, driven by the success of new product launches partially offset by lower sales through bancassurance channels in Japan.

### Premiums and Deposits[1]

| For the years ended December 31, ($ millions) | Canadian $ | | | US $ | | |
|---|---|---|---|---|---|---|
| | **2017** | 2016 | 2015 | **2017** | 2016 | 2015 |
| Insurance products | **$ 14,097** | $ 12,947 | $ 9,431 | **$ 10,875** | $ 9,771 | $ 7,356 |
| Wealth and asset management products | **27,801** | 25,970 | 22,247 | **21,490** | 19,610 | 17,374 |
| Other wealth products | **5,141** | 4,883 | 3,875 | **3,968** | 3,683 | 3,015 |
| **Total premiums and deposits** | **$ 47,039** | $ 43,800 | $ 35,553 | **$ 36,333** | $ 33,064 | $ 27,745 |

[1] Effective January 1, 2017, the operations of Investment Division's external asset management businesses (MAM) are being reflected in the respective Divisional results. Previously, they were reported in the Corporate and Other segment. The 2016 and 2015 premiums and deposits have been restated to reflect the inclusion of MAM in the Division's results.

## Assets under Management

Asia Division assets under management were US$129.9 billion as at December 31, 2017, an increase of 20% compared with December 31, 2016, driven by net customer inflows of US$13.3 billion and by market growth during 2017.

### Assets under Management[1]

| As at December 31, ($ millions) | Canadian $ | | | US $ | | |
|---|---|---|---|---|---|---|
| | **2017** | 2016 | 2015 | **2017** | 2016 | 2015 |
| General fund | **$ 73,856** | $ 63,370 | $ 54,237 | **$ 58,869** | $ 47,188 | $ 39,184 |
| Segregated funds | **25,921** | 24,644 | 24,385 | **20,652** | 18,341 | 17,612 |
| Mutual and other funds | **36,063** | 29,593 | 26,482 | **28,743** | 22,042 | 19,133 |
| Institutional asset management | **27,096** | 23,600 | 17,772 | **21,597** | 17,577 | 12,840 |
| **Total assets under management** | **$ 162,936** | $ 141,207 | $ 122,876 | **$ 129,861** | $ 105,148 | $ 88,769 |

[1] Effective January 1, 2017, the operations of Investment Division's external asset management businesses (MAM) are being reflected in the respective Divisional results. Previously, they were reported in the Corporate and Other segment. The 2016 and 2015 assets under management have been restated to reflect the inclusion of MAM in the Division's results.

## Strategic Highlights

Asia continues to be a core driver of growth for Manulife, supported by a clear strategy, a focus on execution, a strong team and compelling economic backdrop. We aim to create extraordinary interactions with customers through our multi-channel platform and integrated life, health, wealth and retirement solutions. Customers engage with Manulife through our professional agency force, high-quality partnerships, multiple digital platforms and independent advisors.

In 2017, we made progress on expanding our distribution reach, accelerating our growth, driving scale and cost efficiencies and enhancing customer experience. We expanded our distribution reach by:

- building on our strengths in bancassurance, we entered into two new 15-year exclusive partnerships – with Techcombank in Vietnam and ABA Bank in Cambodia – that together provide access to over 1.5 million prospective customers and more than 300 branches;
- leveraging our existing partnerships and agency force to enhance distribution of mutual funds and investment-linked solutions to our customers; and
- adding a number of managing general agencies to our existing network and launching a digital platform to support retirement planning in Japan.

In 2017, we rolled out a number of key initiatives to accelerate our growth. These initiatives included:

- engaging with our customers through our award-winning ManulifeMOVE wellness program that rewards customers for living active lifestyles, which has been further enhanced through our strategic partnership with Apple;
- launching our partnership with NBA China as the Official Life Insurance Partner of NBA 5v5 to accelerate our health and wellness agenda;
- strengthening our market position as the largest Hong Kong Mandatory Provident Fund ("MPF") scheme sponsor[1], through the integration of our 15-year exclusive MPF distribution partnership with Standard Chartered Bank, combined with continued organic growth;
- obtaining the first Investment Company Wholly Foreign-Owned Enterprise licence in mainland China;
- becoming one of six domestic managers to obtain a Funds of Funds ("FOF") licence in mainland China, with the first FOF launched in the fourth quarter and distributed primarily through Bank of China;
- signing a memorandum of understanding with Agricultural Bank of China to explore business opportunities in furthering our objective of delivering retirement solutions in mainland China;
- completing two additional equity raises for our Singapore-listed U.S. real estate investment trust ("REIT"); and
- establishing a trust company in the Philippines, which extends our offerings to include wealth and asset management solutions.

In 2017, we also showed encouraging progress to enhance our customer experience and to drive cost efficiency by taking the following actions:

- enhancing digital financial planning and electronic point-of-sales tools to support our distribution channels and advisors to deliver holistic product offerings and help build long-lasting customer relationships;
- implementing process automation technology including auto-underwriting, straight-through processing and eClaims to improve customer experience and increase efficiency; and
- restructuring our Thailand operations to become the pilot location for digital sales and closing all its non-digital new business channels.

[1] Source: Mercer MPF Report as at September 29, 2017 [to be updated to end of December 2017 position once information is available].

## Canadian Division

**Serving one in three adult Canadians, we are a leading financial services organization in Canada. We offer a diverse range of financial protection, wealth and asset management and banking solutions through a diversified multi-channel distribution network, supported by a team of almost 9,500 employees. The comprehensive solutions we offer target a broad range of customer needs and foster holistic long-lasting relationships.**

**We offer financial protection solutions to middle- and upper-income individuals, families, and business owners through a combination of competitive products, professional advice and quality customer service. Products include universal life, term life, whole life, living benefits and fixed and variable annuities. We also provide group life, health and disability insurance solutions to Canadian employers; more than 21,000 Canadian businesses and organizations entrust their employee benefit programs to Manulife's Group Benefits. Life, health and specialty products, such as travel insurance, are also offered through partnerships, sponsor groups and associations, as well as direct-to-customer marketing.**

**Our wealth and asset management offerings include mutual funds, exchange traded funds, retirement solutions and institutional asset management. Our retail customer base spans the investor spectrum, from those just starting to build their financial portfolio to individuals and families with complex retirement and estate planning needs. We provide personalized investment management, private banking and estate solutions to affluent clients. We provide Group Retirement solutions to more than 10,000 Canadian employers, through defined contribution plans, deferred profit sharing plans, non-registered savings plans and employee share ownership plans. Through Manulife Asset Management, we also provide asset management solutions to institutional clients, covering a range of asset classes.**

**Manulife Bank offers flexible debt and cash flow management solutions as part of a customer's overall financial plan. Products include savings and chequing accounts, GICs, lines of credit, investment loans, mortgages and other specialized lending programs, offered through financial advisors supported by a broad distribution network.**

In 2017, Canadian Division contributed 22% of the Company's total premiums and deposits and, as at December 31, 2017, accounted for 26% of the Company's assets under management and administration.

### Financial Performance

Canadian Division's full year 2017 net income attributed to shareholders was $757 million compared with $1,486 million in 2016, core earnings were $1,465 million in 2017 compared with $1,384 million in 2016. Items excluded from core earnings amounted to a net charge of $708 million in 2017 and included a $343 million charge related to the decision to change the portfolio asset mix supporting our legacy businesses. Other items excluded from core earnings netted to a charge of $365 million compared with a net gain of $102 million in 2016, and are outlined in the table below.

Core earnings increased $81 million or 6% compared with 2016, reflecting higher fee income in our wealth and asset management businesses from higher average asset levels and a tax benefit primarily related to the release of provisions for uncertain tax positions. These items were partially offset by unfavourable policyholder experience, primarily due to higher claims in our group benefits long-term disability business.

The table below reconciles net income attributed to shareholders to core earnings for the Canadian Division for 2017, 2016 and 2015.

| **For the years ended December 31,**<br>**($ millions)** | **2017** | 2016 | 2015 |
|---|---|---|---|
| **Core earnings**(1) | **$ 1,465** | $ 1,384 | $ 1,252 |
| Items to reconcile core earnings to net income attributed to shareholders: | | | |
| Investment-related experience related to fixed income trading, market value increases in excess of expected alternative assets investment returns, asset mix changes and credit experience | **(98)** | (114) | (391) |
| Direct impact of equity markets and interest rates and variable annuity guarantee liabilities(2) | **(227)** | 270 | (283) |
| Net impact of acquisitions and divestitures | **(40)** | (54) | (59) |
| Charge related to decision to change portfolio asset mix supporting our legacy businesses | **(343)** | | |
| Other items excluded from core earnings | **–** | – | (39) |
| **Net income attributed to shareholders** | **$ 757** | $ 1,486 | $ 480 |

(1) This item is a non-GAAP measure. See "Performance and Non-GAAP Measures" below.

(2) The direct impact of equity markets and interest rates is relative to our policy liability valuation assumptions and includes changes to interest rate assumptions. The gain of $227 million in 2017 (2016 – $270 million charge) consisted of a $35 million gain (2016 – $97 million gain) on general fund equity investments supporting policy liabilities, a $210 million charge (2016 – $277 million gain) related to fixed income reinvestment rates assumed in the valuation of policy liabilities, a $1 million gain (2016 – $nil) related to unhedged variable annuities and a $53 million charge (2016 – $104 million charge) related to variable annuity guarantee liabilities that are dynamically hedged. The amount of variable annuity guaranteed value that was dynamically hedged at the end of 2017 was 81% (2016 – 85%). Our variable annuity guarantee dynamic hedging strategy is not designed to completely offset the sensitivity of policy liabilities to all risks associated with the guarantees embedded in these products.

### Sales

**Insurance sales** were $1,106 million in 2017, an increase of $413 million compared with 2016, driven by large-case sales in our group benefits business. This was partially offset by lower retail insurance sales due to pricing actions in 2017 and higher prior year sales in advance of regulatory changes. Retail insurance sales in 2017 of $168 million decreased 29% compared with 2016, reflecting pricing actions in 2017 and higher universal life sales in 2016 in anticipation of regulatory changes that took effect in the first quarter of 2017.

Institutional Markets sales in 2017 of $938 million increased $480 million compared with 2016, driven by strong sales across all segments in our group benefits business, especially in the large-case segment, where large-case sales are inherently variable.

**Wealth and Asset Management gross flows** in 2017 were $23.2 billion, a decrease of $1.5 billion or 6% compared with 2016, driven by lower gross flows in institutional asset management, partially offset by strong gross flows in retail. Retail gross flows of $11.3 billion in 2017 increased 15% compared with 2016, driven by strong sales across equity and balanced asset classes. Retirement gross flows of $7.1 billion in 2017 decreased 2% compared with 2016, mainly due to several large-case sales made in 2016 partially offset by growth in recurring contributions. Institutional asset management gross flows were $4.8 billion, a decrease of 37% compared with 2016 which benefited from the funding of two large mandates totaling $4.2 billion.

**Wealth and Asset Management net flows** in 2017 were $3.1 billion, down from $8.4 billion in 2016 driven by a few large redemptions in retirement and institutional asset management and lower gross flows as mentioned above.

**Other Wealth sales** declined due to actions to de-emphasize fixed and higher risk segregated fund product sales. Other wealth sales in 2017 were $2.9 billion, a decrease of 10% compared with 2016. Segregated fund product[1] sales in 2017 were $2.4 billion, a decrease of 4% compared with 2016 for the same reasons noted above. We are focused on growth in lower risk segregated fund products and delivered a 28% increase in sales for such products from $1,273 million in 2016 to $1,625 million or 28% in 2017. Fixed product sales in 2017 were $511 million, a decrease of 29% compared with 2016 for the same reasons noted above.

**Manulife Bank** net lending assets were $20.4 billion as at December 31, 2017, up $1.0 billion or 5% from December 31, 2016. Manulife Bank new lending volumes in 2017 were $4.4 billion, an increase of 35% compared with 2016, driven by actions to broaden our distribution channels.

## Sales(1)

| For the years ended December 31, ($ millions) | 2017 | 2016 | 2015 |
|---|---|---|---|
| Retail markets | **$ 168** | $ 235 | $ 181 |
| Institutional markets | **938** | 458 | 644 |
| **Insurance products** | **$ 1,106** | $ 693 | $ 825 |
| Wealth and asset management gross flows | **$ 23,168** | $ 24,657 | $ 27,793 |
| Wealth and asset management net flows | **3,095** | 8,358 | 13,271 |
| Other wealth products | **2,908** | 3,219 | 3,609 |

(1) Effective January 1, 2017, the operations of Investment Division's external asset management businesses (MAM) are being reflected in the respective Divisional results. Previously, they were reported in the Corporate and Other segment. The 2016 and 2015 wealth and asset management gross flows and wealth and asset management net flows have been restated to reflect the inclusion of MAM in the Division's results.

## Revenue

Revenue of $12.9 billion in 2017 increased $0.2 billion from $12.7 billion in 2016. Revenue before net realized and unrealized gains and losses of $12.3 billion in 2017 decreased $0.1 billion from $12.4 billion in 2016 due to lower premium income. Other income was $3.5 billion, in line with 2016.

### Revenue

| As at December 31, ($ millions) | 2017 | 2016 | 2015 |
|---|---|---|---|
| Net premium income | **$ 4,765** | $ 4,972 | $ 4,430 |
| Investment income | **3,968** | 3,938 | 3,247 |
| Other revenue | **3,517** | 3,480 | 3,124 |
| Revenue before net realized and unrealized gains (losses) | **12,250** | 12,390 | 10,801 |
| Net realized and unrealized gains (losses)(1) | **605** | 317 | (736) |
| Total revenue | **$ 12,855** | $ 12,707 | $ 10,065 |

(1) See "Financial Performance – Impact of Fair Value Accounting" above.

## Premiums and Deposits

Premiums and deposits of $35.6 billion in 2017 were 5% lower than the 2016 level of $37.6 billion, primarily due to the funding of two large institutional asset management mandates in 2016, partially offset by strong flows in retail wealth. Insurance products' premiums and deposits in 2017 were $12.1 billion, or 2%, below the prior year due to a large Group Benefits single premium deposit in 2016. Premiums and deposits for wealth and asset management businesses and other wealth products were $23.2 billion and $2.9 billion, respectively, compared with $24.7 billion and $3.2 billion, respectively, in 2016. The decrease is due to the institutional mandates noted above.

1 Segregated fund products include guarantees. These products are also referred to as variable annuities.

### Premiums and Deposits[1]

| For the years ended December 31, ($ millions) | **2017** | 2016 | 2015 |
|---|---|---|---|
| Insurance products | **$ 12,104** | $ 12,380 | $ 11,551 |
| Wealth and asset management products | **23,168** | 24,657 | 27,793 |
| Other wealth products | **2,908** | 3,219 | 3,609 |
| Less: mutual funds held by segregated funds | **(2,566)** | (2,626) | (2,290) |
| **Total premiums and deposits** | **$ 35,614** | $ 37,630 | $ 40,663 |

(1) Effective January 1, 2017, the operations of Investment Division's external asset management businesses (MAM) are being reflected in the respective Divisional results. Previously, they were reported in the Corporate and Other segment. The 2016 and 2015 premiums and deposits have been restated to reflect the inclusion of MAM in the Division's results.

## Assets under Management

Assets under management of $278 billion as at December 31, 2017 grew by $15.0 billion or 6% from $263.3 billion at December 31, 2016, driven by strong growth in our wealth and asset management businesses.

### Assets under Management[1]

| As at December 31, ($ millions) | **2017** | 2016 | 2015 |
|---|---|---|---|
| General fund | **$ 112,066** | $ 110,427 | $ 103,560 |
| Segregated funds | **102,727** | 97,220 | 92,447 |
| Mutual and other funds | **57,663** | 50,177 | 44,884 |
| Less: mutual funds held by segregated funds | **(25,127)** | (22,983) | (21,587) |
| Institutional asset management | **30,888** | 28,419 | 23,092 |
| **Total assets under management** | **$ 278,217** | $ 263,260 | $ 242,396 |

(1) Effective January 1, 2017, the operations of Investment Division's external asset management businesses (MAM) are being reflected in the respective Divisional results. Previously, they were reported in the Corporate and Other segment. The 2016 and 2015 assets under management have been restated to reflect the inclusion of MAM in the Division's results.

## Strategic Highlights

We believe that Canadians are seeking a simpler customer experience using digital solutions to fulfill their growing demand for health and wealth solutions. In 2017, we took steps towards fulfilling these needs and we continued to focus on identifying easier ways for customers to do business with us, as we modernize our product and service offerings. These steps included:

- being the first Canadian insurer to offer all group claims submissions online and through mobile in addition to traditional channels, allowing customers to transact with Manulife how they want to;
- introducing a combined group benefits and retirement mobile application, with ease of a single login and an enhanced customer experience for plan members;
- implementing Amazon Alexa technology in Group Benefits, allowing customers to inquire about benefit account balances without needing to call or login, which also incorporates "Manulife IQ" – a financial literacy tool;
- enabling fingerprint identification technology for Manulife Bank, Group Benefits and Retirement customers, allowing them easy and convenient access to account information via our mobile applications;
- launching a Manulife Bank mobile deposit capture, designed to make depositing more convenient for customers;
- launching an online tool for submitting life insurance applications, increasing efficiency and reducing application errors;
- enhancing the Vitality product feature, through the launch of Manulife Vitality Active Rewards with Apple Watch program – the Vitality program allows Canadians to save on premiums and earn valuable rewards by taking steps toward healthy living; and
- extending our partnership with Excellence Canada as their Champion of Excellence for Mental Health at Work, reinforcing our continued commitment to improving mental health across the country.

In 2017, we also continued to accelerate growth in our higher-return businesses and expand our solutions portfolio as we:

- increased sales in Group Benefits and improved new business margins on insurance products;
- launched 6 new exchange traded funds ("ETFs") focused on multi-factor investment strategies in Canadian, U.S. and international equities, which provide our investors access to the ETF market to complement our existing product offerings;
- introduced 4 new asset allocation portfolios, which streamline and simplify our existing mutual fund offering to help Canadians reach their investment goals;
- increased Manulife Bank's lending volumes and net lending assets; and
- completed the integration of Standard Life Canada.

Canadian Division remains focused on building and fostering holistic long-lasting relationships by expanding and integrating our wealth, insurance and banking solutions to meet customers' needs and by leveraging the strength of our group business franchise.

## U.S. Division

**Operating under the John Hancock brand in the U.S., our product suite includes wealth and asset management and financial protection products distributed primarily through affiliated and non-affiliated licenced financial advisors and is supported by a team of approximately 6,200 employees.**

**Our John Hancock wealth and asset management offerings include a broad range of products and services focused on individuals and business markets, as well as institutional oriented products. John Hancock Investments ("JH Investments") offers a variety of mutual funds, Undertakings for Collective Investment in Transferrable Securities ("UCITS"), exchange traded funds ("ETFs"), and 529 College Savings plans. John Hancock Retirement Plan Services ("JH RPS") provides employer sponsored retirement plans for companies ranging from start-ups to some of the largest corporations in America as well as servicing personal retirement accounts for former client employees. Through Manulife Asset Management, we provide asset management solutions to institutional clients, covering a range of asset classes.**

**John Hancock Insurance ("JH Insurance") offers a broad portfolio of insurance products, including universal, variable, whole, and term life insurance designed to provide estate, business, income protection and retirement solutions for high net worth and emerging affluent markets. We manage an in-force block of long-term care insurance which is designed to cover the cost of long-term services and support.**

**We also manage an in-force block of fixed deferred, variable deferred, and payout annuity products.**

In 2017, U.S. Division contributed 50% of the Company's total premiums and deposits and, as at December 31, 2017, accounted for 58% of the Company's assets under management and administration.

### Financial Performance

U.S. Division reported a net loss attributed to shareholders of $296 million in 2017 compared with net income attributed to shareholders of $1,134 million in 2016. Net income attributed to shareholders is comprised of core earnings, which was $1,962 million in 2017 compared with $1,615 million in 2016, and items excluded from core earnings, which amounted to a net charge of $2,258 million in 2017 compared with a net charge of $481 million in 2016. Net income attributed to shareholders included charges of $3,203 million related to the impact of U.S. Tax Reform and the decision to change the portfolio asset mix supporting our legacy businesses. In addition to the items described below, the change in core earnings reflected a net $46 million unfavourable currency impact from the weakening of the U.S. dollar compared with the Canadian dollar.

Expressed in U.S. dollars, the functional currency of the division, 2017 net loss attributed to shareholders was of US$283 million compared with net income attributed to shareholders of US$865 million in 2016 and core earnings were US$1,513 million in 2017 compared with US$1,218 million in 2016. Items excluded from core earnings netted to a charge of US$1,796 million in 2017 and included a US$1,977 million charge related to the impact of U.S. Tax Reform and a US$542 million charge related to the decision to change the portfolio asset mix supporting our legacy businesses. Other items excluded from core earnings netted to a gain of US$723 million compared with a net charge of US$353 million in 2016, and are outlined in the table below.

The US$295 million increase in core earnings was driven by improved policyholder experience in life and long-term care and policyholder experience gains in annuities. In addition, higher wealth and asset management earnings primarily from higher average assets, lower amortization of deferred acquisition costs on in-force variable annuity business and an improvement in policy-related items were partially offset by the non-recurrence of the release of provisions for uncertain tax positions in 2016. Improved policyholder experience losses in life and long-term care were due, in part, to changes in actuarial methods and assumptions.

The table below reconciles net income attributed to shareholders to core earnings for the U.S. Division for 2017, 2016 and 2015.

| For the years ended December 31, ($ millions) | Canadian $ | | | US $ | | |
|---|---|---|---|---|---|---|
| | **2017** | 2016 | 2015 | **2017** | 2016 | 2015 |
| **Core earnings**[1] | **$ 1,962** | $ 1,615 | $ 1,466 | **$ 1,513** | $ 1,218 | $ 1,149 |
| Items to reconcile core earnings to net income attributed to shareholders: | | | | | | |
| Investment-related experience related to fixed income trading, market value increases in excess of expected alternative assets investment returns, asset mix changes and credit experience | **343** | 149 | (125) | **263** | 122 | (91) |
| Direct impact of equity markets and interest rates and variable annuity guarantee liabilities[2] | **505** | (516) | 164 | **385** | (388) | 117 |
| Charge related to U.S. Tax Reform | **(2,514)** | – | – | **(1,977)** | – | – |
| Charge related to decision to change portfolio asset mix supporting our legacy businesses | **(689)** | – | – | **(542)** | – | – |
| Other items excluded from core earnings[3] | **97** | (114) | (45) | **75** | (87) | (37) |
| **Net income (loss) attributed to shareholders** | **$ (296)** | $ 1,134 | $ 1,460 | **$ (283)** | $ 865 | $ 1,138 |

[1] This item is a non-GAAP measure. See "Performance and Non-GAAP Measures" below.

[2] The direct impact of equity markets and interest rates is relative to our policy liability valuation assumptions and includes changes to interest rate assumptions. Our variable annuity guarantee dynamic hedging strategy is not designed to completely offset the sensitivity of policy liabilities to all risks associated with the guarantees embedded in these products. The US$385 million gain in 2017 (2016 – US$388 million charge) consisted of a US$1,114 million gain (2016 – US$86 million charge) related to variable annuities that are dynamically hedged, a US$46 million gain (2016 – US$5 million gain) on general fund equity investments supporting policy liabilities,

a US$123 million gain (2016 – US$16 million charge) related to variable annuities that are not dynamically hedged, and a US$102million gain (2016 – US$291 million charge) related to fixed income reinvestment rates assumed in the valuation of policy liabilities. The amount of variable annuity guaranteed value that was dynamically hedged or reinsured at the end of 2017 was 94% (2016 – 94%).

(3) The 2017 gain of US$75 million included a gain resulting from an internal legal entity restructuring partially offset by a provision for a legal settlement. The 2016 charge of US$87 million relates primarily to the intangible asset distribution network write-off in the JH Long Term Care business. The 2015 charge of US$37 million related to one-time integration costs associated with the acquisition of New York Life's pension business.

## Sales and Gross Flows

**U.S. Life Insurance sales** in 2017 of US$464 million represented an increase of 11% compared with 2016, reflecting robust term sales driven by competitive pricing, expanded distribution reach and the growing popularity of the Vitality feature, as well as more modest increases in sales of both international and universal life ("UL") products. The International sales growth was driven by success in the high net worth market and sales in advance of a price increase, while the UL increase was driven by success of our flagship Protection UL, aided by the popularity of Vitality. Variable UL full year sales were consistent with the prior year despite competitive pressures.

**Wealth and Asset Management gross flows** in 2017 were US$56.4 billion, an increase of US$3.8 billion or 7% compared with 2016, with year-over-year growth delivered across all business units. Retail 2017 gross flows of US$27.7 billion increased 6% compared with 2016, driven by higher gross flows from fixed income international equity products, increased institutional platform allocations across multiple strategies, and strong fund performance. Retirement 2017 gross flows of US$24.0 billion increased 3% compared with 2016, due to higher sales in mid-market and consistent ongoing contributions from both the small- and mid-case retirement markets. Institutional asset management 2017 gross flows of US$4.8 billion increased 46% compared with 2016, primarily driven by increased sales of equity and fixed income products.

**Wealth and Asset Management net flows** in 2017 were US$6.0 billion, compared with negative net flows of US$1.1 billion in 2016, driven by higher gross flows as mentioned above and a significant improvement in retail redemptions.

### Sales(1)

| For the years ended December 31, ($ millions) | Canadian $ | | | US $ | | |
|---|---|---|---|---|---|---|
| | **2017** | 2016 | 2015 | **2017** | 2016 | 2015 |
| JH Life Insurance sales (2) | **$ 603** | $ 552 | $ 573 | **$ 464** | $ 417 | $ 447 |
| Wealth and asset management gross flows | **73,337** | 69,823 | $ 64,649 | **56,408** | 52,651 | 50,424 |
| Wealth and asset management net flows | **7,937** | (1,465) | 13,167 | **6,034** | (1,094) | 10,254 |

(1) Effective January 1, 2017, the operations of Investment Division's external asset management businesses ("MAM") are being reflected in the respective Divisional results. Previously, they were reported in the Corporate and Other segment. The 2016 and 2015 Wealth and Asset Management sales and net flows have been restated to reflect the inclusion of MAM in the Division's results.

(2) Does not include sales of long-term care products of US$42 million in 2016 and US$41 million in 2015.

## Revenue

Total revenue in 2017 of US$18.8 billion increased US$3.3 billion compared with 2016. Revenue before net realized and unrealized gains on assets supporting insurance and investment contract liabilities was US$16.3 billion, an increase of US$1.6 billion compared with 2016 driven by higher insurance premiums, wealth and asset management fee income and investment income.

### Revenue

| For the years ended December 31, ($ millions) | Canadian $ | | | US $ | | |
|---|---|---|---|---|---|---|
| | **2017** | 2016 | 2015 | **2017** | 2016 | 2015 |
| Net premium income excluding the Closed Block reinsurance transaction(1) | **$ 7,622** | $ 6,987 | $ 7,910 | **$ 5,881** | $ 5,287 | $ 6,183 |
| Investment income | **7,367** | 6,946 | 6,569 | **5,679** | 5,246 | 5,145 |
| Other revenue | **6,166** | 5,591 | 5,350 | **4,750** | 4,223 | 4,182 |
| Revenue before items noted below | **21,155** | 19,524 | 19,829 | **16,310** | 14,756 | 15,510 |
| Net realized and unrealized gains (losses)(2) | **3,282** | 1,034 | (1,884) | **2,498** | 790 | (1,621) |
| Premium ceded, net of ceded commissions and additional consideration relating to Closed Block reinsurance transaction(1) | | – | (7,996) | **–** | – | (6,109) |
| **Total revenue** | **$ 24,437** | $ 20,558 | $ 9,949 | **$ 18,808** | $ 15,546 | $ 7,780 |

(1) For the purpose of comparable period-over-period reporting, we exclude the $8 billion (US$6.1 billion) impact of the Closed Block reinsurance transaction, which is shown separately, for full year 2015. For other periods as applicable, amounts in this line equal the "net premium income" in note 19 of the Consolidated Financial Statements.

(2) See "Financial Performance – Impact of Fair Value Accounting" above.

## Premiums and Deposits

U.S. Division total premiums and deposits for 2017 were US$63.9 billion, an increase of 8% compared with 2016. Premiums and deposits for insurance products of US$6.5 billion increased 4% compared with 2016 driven by higher excess premiums on international universal life products and increased long-term care premiums reflecting premium rate increases. Premiums and deposits for wealth and asset management products were US$56.4 billion, an increase of 7% compared with 2016, reflecting strong deposits in all businesses as noted above in WAM gross flows.

**Premiums and Deposits**[1]

| For the years ended December 31, ($ millions) | Canadian $ 2017 | 2016 | 2015 | US $ 2017 | 2016 | 2015 |
|---|---|---|---|---|---|---|
| Insurance products[2] | **$ 8,375** | $ 8,267 | $ 8,528 | **$ 6,460** | $ 6,239 | $ 6,667 |
| Wealth and asset management products | **73,337** | 69,823 | 64,649 | **56,408** | 52,651 | 50,424 |
| Other wealth products (Annuities) | **1,287** | 557 | 1,523 | **996** | 435 | 1,191 |
| **Total premiums and deposits** | **$ 82,999** | $ 78,647 | $ 74,700 | **$ 63,864** | $ 59,325 | $ 58,282 |

(1) Effective January 1, 2017, the operations of Investment Division's external asset management businesses ("MAM") are being reflected in the respective Divisional results. Previously, they were reported in the Corporate and Other segment. The 2016 and 2015 premiums and deposits have been restated to reflect the inclusion of MAM in the Division's results.

(2) For the purpose of comparable period-over-period reporting, the impact of the 3Q15 Closed Block reinsurance transaction is excluded from insurance products premiums in this table. This transaction resulted in a net ceded premium (negative premium) of approximately $8.0 billion (US$6.1 billion) for the full year 2015.

## Assets under Management and Administration

U.S. Division assets under management and administration as at December 31, 2017 were US$480.1 billion, up 12% from December 31, 2016. Increases were driven by investment income and the impact of favourable equity markets, as well as positive net flows in our WAM business, partially offset by the continued runoff of our Annuities business.

**Assets under Management and Administration**[1]

| As at December 31, ($ millions) | Canadian $ 2017 | 2016 | 2015 | US $ 2017 | 2016 | 2015 |
|---|---|---|---|---|---|---|
| General fund | **$ 151,111** | $ 152,305 | $ 149,611 | **$ 120,455** | $ 113,437 | $ 108,094 |
| Segregated funds | **193,795** | 191,391 | 194,291 | **154,481** | 142,548 | 140,377 |
| Institutional Asset Management | **35,104** | 31,383 | 31,743 | **27,983** | 23,375 | 22,934 |
| Mutual funds and other | **134,321** | 119,486 | 116,425 | **107,071** | 88,993 | 84,117 |
| **Total assets under management** | **514,331** | 494,565 | 492,070 | **409,990** | 368,353 | 355,522 |
| Other assets under administration | **87,929** | 82,433 | 77,910 | **70,091** | 61,396 | 56,290 |
| **Total assets under management and administration** | **$ 602,260** | $ 576,998 | $ 569,980 | **$ 480,081** | $ 429,749 | $ 411,812 |

(1) Effective January 1, 2017, the operations of Investment Division's external asset management businesses (MAM) are being reflected in the respective Divisional results. Previously, they were reported in the Corporate and Other segment. The 2016 and 2015 assets under management have been restated to reflect the inclusion of MAM in the Division's results.

## Strategic Highlights

At John Hancock, we are focused on building more holistic and long-lasting customer relationships by offering innovative products and solutions and making it easier for customers to do business with us. In addition, we continue to actively manage our legacy businesses and maintain sharp focus on reducing expenses across all businesses. In 2017, significant work was undertaken with respect to these strategic goals.

In our insurance business, this work included:

- actively managing our legacy businesses in life, long term care ("LTC") and annuities to lower our risk profile and free up capital;
- implementing initiatives designed to actively reduce our expense base, and operate more efficiently with a focus on profitability across our entire business with extra rigor in our legacy businesses;
- optimizing distribution channels for our insurance products, modernizing our insurance product shelf and simplifying the insurance purchase and ownership process;
- taking early steps towards building a customer-facing digital advice platform that supports lifelong relationships through financial education, investing and advice;
- developing a new partnership with the American Diabetes Association to raise awareness about our Vitality program and the affordability of life insurance for the more than 29 million Americans living with diabetes; and
- launching a new streamlined underwriting process, ExpressTrack, designed to offer clients faster underwriting results without traditional lab requirements.

In 2017, we made tangible progress on the following priorities to accelerate growth in our Wealth and Asset Management businesses, as we:

- modernized our RPS platform and create a scalable, cloud-based recordkeeping system to support growth across all plans;
- provided an advice product to RPS rollover participants and expand the offering to in-plan participants in 2018;
- grew assets under management in our mutual funds, ETFs, UCITs and environmental, social and governance funds;
- increased direct-to-investor access to our actively-managed mutual funds; and
- leveraged scale benefits of Investments' assets under management to drive profitability and keep costs low for customers.

We also made progress towards the development of a digital goals-based advice product shelf. In addition to building our advice offerings within JH RPS, our Advice team began piloting MyPortfolio, an advisor-assisted advice program that offers the simplicity of an easy-to-navigate online experience with the sophistication of a diversified portfolio. JH Advice also launched Twine, a new app designed to help couples, who are not currently working with an advisor, to save and invest together.

# Corporate and Other

**Corporate and Other is comprised of investment performance on assets backing capital, net of amounts allocated to the operating segments; costs incurred by the Corporate Division related to shareholder activities (not allocated to the operating segments); financing costs; our Property and Casualty ("P&C") Reinsurance business; and run-off reinsurance business lines including variable annuities and accident and health.**

**For segment reporting purposes the impact of updates to actuarial assumptions, settlement costs for macro equity hedges and other non-operating items are included in this segment's earnings. This segment is also where we reclassify favourable investment-related experience to core earnings from items excluded from core earnings, subject to certain limits (see "Performance and Non-GAAP Measures" below). In each of the other segments, we report all investment-related experience in items excluded from core earnings.**

## Financial Performance

Corporate and Other reported a net loss attributed to shareholders of $206 million in 2017 compared with a net loss attributed to shareholders of $832 million in 2016. The net loss attributed to shareholders was comprised of core loss and items excluded from core loss. The core loss was $525 million in 2017 compared with a core loss of $473 million in 2016. Items excluded from core loss amounted to a net gain of $319 million in 2017 compared with a net charge of $359 million in 2016.

The $52 million increase in core loss consisted of the provision in our P&C business relating to hurricanes Harvey, Irma and Maria, the non-recurrence of a release of provisions and interest on uncertain tax positions in 2016, higher strategic initiative expenses and higher interest costs, partially offset by higher core investment gains, lower expected macro hedging costs and higher realized gains on AFS equities.

The net gain of $319 million for items excluded from core loss in 2017 primarily consisted of a $737 million gain as a result of the reduction in the deferred tax liability related to the expected impact of U.S. Tax Reform, partially offset by the $400 million reclassification of core investment gains noted above. The net charge of $359 million for items excluded from core loss in 2016 primarily consisted of charges related to changes in actuarial methods and assumptions. The reclassification of core investment gains in 2016 was partially offset by gains related to the direct impact of markets.

The table below reconciles the net loss attributed to shareholders to the core loss for Corporate and Other for 2017, 2016 and 2015.

| For the years ended December 31, ($ millions) | 2017 | 2016 | 2015 |
|---|---|---|---|
| Core loss excluding expected cost of macro hedges and core investment gains | **$ (868)** | $ (409) | $ (298) |
| Expected cost of macro hedges | **(57)** | (261) | (226) |
| Investment-related experience included in core earnings | **400** | 197 | – |
| **Total core loss**[1] | **(525)** | (473) | (524) |
| Items to reconcile core loss to net loss attributed to shareholders: | | | |
| Direct impact of equity markets and interest rates[2] | **(83)** | 195 | 200 |
| Changes in actuarial methods and assumptions | **(35)** | (453) | (451) |
| Investment-related experience related to mark-to-market items[3] | **81** | 71 | (39) |
| Reclassification to core investment-related experience above | **(400)** | (197) | – |
| Impact of U.S. Tax Reform | **737** | – | – |
| Integration and acquisition costs | **–** | (8) | (44) |
| Other | **19** | 33 | 4 |
| **Net loss attributed to shareholders** | **$ (206)** | $ (832) | $ (854) |

[1] This item is a non-GAAP measure. See "Performance and Non-GAAP Measures" below.

[2] The direct impact of equity markets and interest rates included a loss of $61 million (2016 – loss of $120 million) on derivatives associated with our macro equity hedges and a loss of $41 million (2016 – gain of $370 million) on the sale of AFS bonds. Other items in this category netted to a gain of $19 million (2015 – charge of $55 million).

[3] Investment-related experience includes mark-to-market gains or losses on assets held in the Corporate and Other segment other than gains on AFS equities and seed money investments in new segregated or mutual funds.

## Revenue

Revenue in 2017 was a loss of $501 million and includes a consolidation adjustment of $730 million relating to asset management fees earned by MAM from affiliated businesses (the offset to this consolidation adjustment is in investment expenses). Total revenue in 2017 decreased by $1,279 million compared with 2016. The decrease was a result of MAM revenue of $816 million reported in Corporate and Other segment in 2016 (MAM revenue is reported in the divisional results effective January 1, 2017), non-recurrence of release of interest provisions related to the resolution of tax related positions, an increase in the above consolidation adjustment and net realized losses on the sale of AFS bonds in 2017 compared with net realized gains in 2016. These decreases were partially offset by lower losses from the macro hedge program.

### Revenue

| For the years ended December 31, ($ millions) | 2017 | 2016 | 2015 |
|---|---|---|---|
| Net premium income | $ 110 | $ 87 | $ 90 |
| Investment income (loss)[1] | 285 | 653 | 130 |
| Other revenue | (676) | 545 | 190 |
| Revenue before net realized and unrealized investment gains (losses) and on the macro hedge program | (281) | 1,285 | 410 |
| Net realized and unrealized gains (losses)[2] and on the macro hedge program | (220) | (507) | 4 |
| **Total revenue** | **$ (501)** | $ 778 | $ 414 |

[1] Includes losses of $54 million (2016 – gains of $512 million) on the sale of AFS bonds.
[2] See "Financial Performance – Impact of Fair Value Accounting" above.

## Premiums and Deposits

P&C Premiums and deposits were $110 million for 2017 compared with $87 million reported in 2016. The favourable variance was primarily due to reinstatement premiums related to the hurricane provisions.

Note that effective January 1, 2017, the operations of Investment Division's external asset management businesses ("MAM") were reflected in the respective divisional results. Previously, they were reported in the Corporate and Other segment. The 2016 and 2015 premiums and deposits have been restated to reflect the inclusion of MAM in the divisional results.

## Strategic Highlights

Our P&C Reinsurance business provides substantial retrocessional capacity for a very select clientele in the property and casualty reinsurance market. The business is largely non-correlated to Manulife's other businesses and helps diversify Manulife overall business mix. We manage the risk exposures of this business in relation to the total Company balance sheet risk and volatility as well as the prevailing market pricing conditions. The business is renewable annually, and we currently estimate our exposure limit in 2018 for a single event to be approximately US$250 million (net of reinstatement premiums) and for multiple events to be approximately US$425 million (net of all premiums).

# Investment Division

**Manulife's Investment Division manages the Company's general fund assets and, through Manulife Asset Management ("MAM"), provides comprehensive asset management and asset allocation solutions to institutional clients and investment funds, and investment management services to retail clients through Manulife and John Hancock product offerings.**

**We have expertise managing a broad range of investments including public and private bonds, public and private equities, commercial mortgages, real estate, power and infrastructure, timberland, farmland, and oil and gas. With a team of more than 3,500 employees, Investment Division has a physical presence in key markets, including the United States, Canada, Europe, Hong Kong, Japan, and Singapore. In addition, MAM has a joint venture asset management business in mainland China, Manulife TEDA Fund Management Company Ltd and launched a wholly-owned investment business, Manulife Investment (Shanghai) in 2017.**

**The operations of Investment Division's external asset management businesses are reported in the respective segment results.**

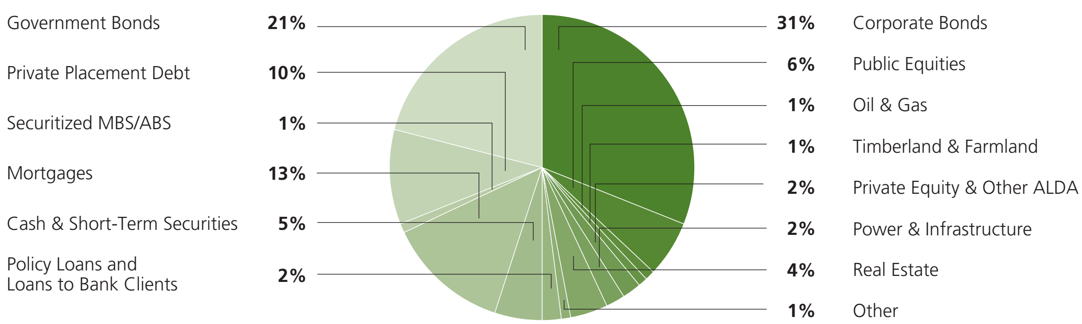
## General Fund

Our investment philosophy for the General Fund is to invest in an asset mix that optimizes our risk adjusted returns and matches the characteristics of our underlying liabilities. We follow a bottom-up approach which combines our strong asset management skills with an in-depth understanding of the characteristics of each investment. We invest in a diversified mix of assets, including a variety of alternative long-duration asset classes. Our diversification strategy has historically produced superior risk adjusted returns while reducing overall risk. We use a disciplined approach across all asset classes and we do not chase yield in the riskier end of the fixed income market. This strategy has resulted in a well-diversified, high quality investment portfolio, which has historically delivered strong investment-related experience through-the-cycle. Our risk management strategy is outlined in the "Risk Management" section below.

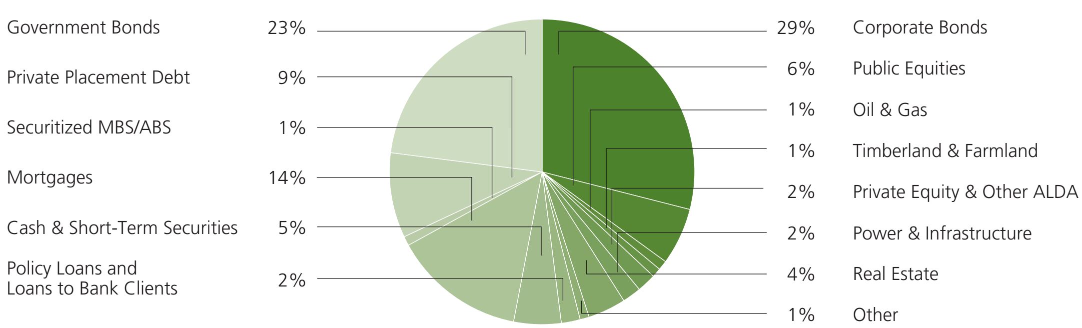
## General Fund Assets

As at December 31, 2017, our General Fund invested assets totaled $334.2 billion compared with $321.9 billion at the end of 2016. The following charts show the asset class composition as at December 31, 2017 and December 31, 2016.

**2017**




2016



### Investment Income

| For the years ended December 31, ($ millions, unless otherwise stated) | 2017 Income | 2017 Yield[1] | 2016 Income | 2016 Yield[1] |
|---|---|---|---|---|
| Interest income | **$ 10,577** | **3.30%** | $ 10,533 | 3.40% |
| Dividend, rental and other income | **2,810** | **0.90%** | 2,277 | 0.70% |
| Impairments | **(70)** | **–** | (206) | (0.10%) |
| Other, including gains (losses) on sale of AFS debt securities | **332** | **0.10%** | 786 | 0.20% |
| Investment income before realized and unrealized gains on assets supporting insurance and investment contract liabilities and on macro equity hedges | **$ 13,649** | | $ 13,390 | |
| Realized and unrealized gains (losses) on assets supporting insurance and investment contract liabilities and on macro equity hedges | | | | |
| Debt securities | **$ 3,686** | **1.10%** | $ 1,662 | 0.50% |
| Public equities | **2,235** | **0.70%** | 985 | 0.30% |
| Mortgages and private placements | **109** | **–** | 92 | – |
| Alternative long-duration assets and other investments | **791** | **0.20%** | 976 | 0.30% |
| Derivatives, including macro equity hedging program | **(1,103)** | **(0.30%)** | (2,581) | (0.80%) |
| | **$ 5,718** | | $ 1,134 | |
| **Total investment income** | **$ 19,367** | **6.00%** | $ 14,524 | 4.70% |

(1) Yields are based on IFRS income and are calculated using the geometric average of assets held at IFRS carrying value during the reporting period.

In 2017, the $19.4 billion of investment income (2016 – $14.5 billion) consisted of:

- $13.7 billion of investment income before net realized and unrealized gains (losses) on assets supporting insurance and investment contract liabilities and on macro equity hedges (2016 – $13.4 billion), and;
- $5.7 billion of net realized and unrealized gains on assets supporting insurance and investment contract liabilities and on macro equity hedges (2016 – gains of $1.1 billion).

The $0.3 billion increase in net investment income before unrealized and realized gains was due to higher income of $0.6 billion primarily from higher dividend, rental and other income, $0.1 billion from lower impairments on oil & gas properties and private placements, partially offset by $0.4 billion lower gains on surplus assets mainly from realized losses on the sale of AFS bonds.

The change in net unrealized and realized gains supporting the insurance and investment contract liabilities primarily related to changes in interest rates and equity markets. In 2017, the general decrease in the long-term U.S. interest rates resulted in unrealized gains of $2.1 billion on debt securities (2016 – gains of $0.2 billion) and the sale of debt securities resulted in realized gains of $1.6 billion (2016 – gains of $1.5 billion). The rise in equity markets in 2017 resulted in unrealized gains of $1.5 billion on public equities (2016 – gains of $0.8 billion) and the sale of public equities resulted in realized gains of $0.7 billion (2016 – gains or $0.2 billion). In 2017, gains of $0.8 billion on alternative long-duration assets were from mark-to-market gains on real estate properties and private equity investments in infrastructure assets (2016 – gains of $1.0 billion). Net losses of $1.1 billion on derivatives including the dynamic and macro equity hedging program in 2017 primarily related to the losses on interest rate swaps driven by higher swap rates, losses on short equity contracts as a result of increases in major stock indices during the year, partially offset by gains on treasury locks resulting from a decrease in long-term treasury rates (2016 – losses of $2.6 billion).

As the measurement of insurance and investment contract liabilities includes estimates regarding future expected investment income on assets supporting the insurance and investment contract liabilities, only the difference between the mark-to-market accounting on the measurement of both assets and liabilities impacts net income. Refer to “Financial Performance” above.

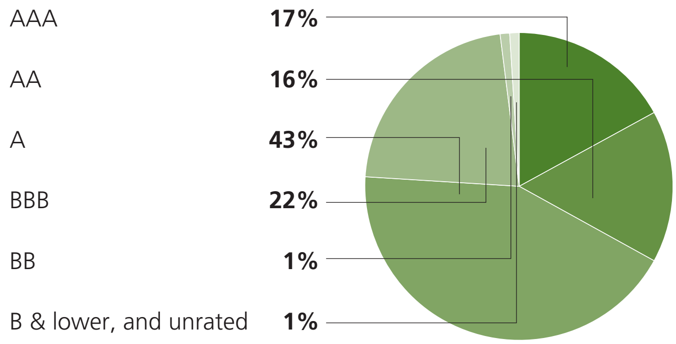
## Debt Securities and Private Placement Debt

We manage our high quality fixed income portfolio to optimize yield and quality while ensuring that asset portfolios remain diversified by sector, industry, duration, issuer, and geography. As at December 31, 2017, our fixed income portfolio of $206.1 billion (2016 – $198.4 billion) was 98% investment grade and 76% was rated A or higher (2016 – 97% and 76%, respectively). Our private placement debt holdings provide diversification benefits (issuer, industry, and geography) and, because they often have stronger protective covenants and collateral than debt securities, they typically provide better credit protection and potentially higher recoveries in the event of default. Geographically, 28% is invested in Canada (2016 – 29%), 47% is invested in the U.S. (2016 – 47%), 3% is invested in Europe (2016 – 3%) and the remaining 22% is invested in Asia and other geographic areas (2016 – 21%).

## Debt Securities and Private Placement Debt – by Credit Quality[1]

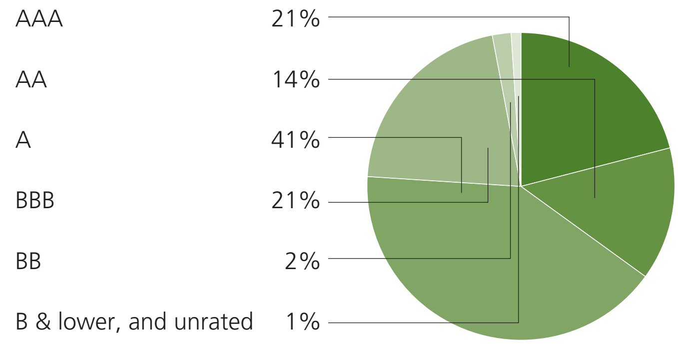
**2017**

**$206.1B**




2016

$198.4B




(1) Reflects credit quality ratings as assigned by Nationally Recognized Statistical Rating Organizations ("NRSRO") using the following priority sequence order: Standard & Poor's, Moody's, Dominion Bond Rating Service, Fitch, Rating and Investment Information, and Japan Credit Rating. For those assets where ratings by NRSRO are not available, disclosures are based upon internal ratings as described in the "Risk Management" and "Risk Factors" sections below.

| | **2017** | | | 2016 | | |
|---|---|---|---|---|---|---|
| **As at December 31,**<br>**Per cent of carrying value** | Debt securities | Private placement debt | Total | Debt securities | Private placement debt | Total |
| Government and agency | **39** | **10** | **35** | 43 | 10 | 38 |
| Utilities | **15** | **47** | **20** | 14 | 49 | 19 |
| Financial | **15** | **5** | **13** | 14 | 5 | 13 |
| Industrial | **7** | **9** | **7** | 6 | 9 | 7 |
| Consumer (non-cyclical) | **6** | **13** | **7** | 5 | 12 | 6 |
| Energy – Oil & Gas | **5** | **4** | **5** | 5 | 5 | 5 |
| Energy – Other | **3** | **1** | **3** | 3 | 1 | 3 |
| Consumer (cyclical) | **2** | **7** | **3** | 2 | 5 | 2 |
| Securitized (MBS/ABS) | **2** | **1** | **2** | 2 | 1 | 2 |
| Telecommunications | **2** | **–** | **2** | 2 | – | 1 |
| Basic materials | **2** | **3** | **1** | 2 | 3 | 2 |
| Technology | **1** | **–** | **1** | 1 | – | 1 |
| Media and internet and other | **1** | **–** | **1** | 1 | – | 1 |
| **Total per cent** | **100** | **100** | **100** | 100 | 100 | 100 |
| **Total carrying value ($ billions)** | **$ 174.0** | **$ 32.1** | **$ 206.1** | $ 168.6 | $ 29.8 | $ 198.4 |

As at December 31, 2017, gross unrealized losses on our fixed income holdings were $1.7 billion or 1% of the amortized cost of these holdings (2016 – $3.5 billion or 2%). Of this amount, $37 million (2016 – $35 million) related to debt securities trading below 80% of amortized cost for more than 6 months. Securitized assets represented $24 million of the gross unrealized losses and none of the amounts trading below 80% of amortized cost for more than 6 months (2016 – $23 million and $2 million, respectively). After adjusting for debt securities held in participating policyholder and pass-through segments and the provisions for credit included in the insurance and investment contract liabilities, the potential impact to shareholders' pre-tax earnings for debt securities trading at less than 80% of amortized cost for greater than 6 months was approximately $30 million as at December 31, 2017 (2016 – $34 million).

## Mortgages

As at December 31, 2017, our mortgage portfolio of $44.7 billion represented 13% of invested assets (2016 – $44.2 billion and 14%, respectively). Geographically, 63% of the portfolio is invested in Canada (2016 – 61%) and 37% is invested in the U.S. (2016 – 39%). As shown below, the overall portfolio is also diversified by geographic region, property type, and borrower. Of the total mortgage portfolio, 18% is insured (2016 – 19%), primarily by the Canada Mortgage and Housing Corporation ("CMHC") – Canada's AAA rated government-backed national housing agency, with 39% of residential mortgages insured (2016 – 43%) and 2% of commercial mortgages insured (2016 – 3%).

| **As at December 31, ($ billions)** | **2017** Carrying value | **2017** % of total | 2016 Carrying value | 2016 % of total |
|---|---|---|---|---|
| Commercial | | | | |
| Retail | **$ 8.1** | **18** | $ 8.2 | 18 |
| Office | **7.7** | **17** | 7.3 | 17 |
| Multi-family residential | **4.4** | **10** | 4.8 | 11 |
| Industrial | **2.6** | **6** | 2.8 | 6 |
| Other commercial | **2.7** | **6** | 2.6 | 6 |
| | **25.5** | **57** | 25.7 | 58 |
| Other mortgages | | | | |
| Manulife Bank single-family residential | **18.6** | **42** | 17.7 | 40 |
| Agricultural | **0.6** | **1** | 0.8 | 2 |
| **Total mortgages** | **$ 44.7** | **100** | $ 44.2 | 100 |

Our commercial mortgage loans are originated with a hold-for-investment philosophy. They have low loan-to-value ratios, high debt-service coverage ratios, and as at December 31, 2017 there were no loans in arrears. Geographically, of the total commercial mortgage loans, 38% are in Canada and 62% are in the U.S. (2016 – 37% and 63%, respectively). We are diversified by property type and largely avoid risky market segments such as hotels, construction loans and second liens.

### Non-CMHC Insured Commercial Mortgages(1)

| **As at December 31,** | **2017** Canada | **2017** U.S. | 2016 Canada | 2016 U.S. |
|---|---|---|---|---|
| Loan-to-Value ratio(2) | **63%** | **56%** | 64% | 56% |
| Debt-Service Coverage ratio(2) | **1.46x** | **1.84x** | 1.47x | 1.90x |
| Average duration (years) | **4.7** | **6.3** | 4.2 | 6.4 |
| Average loan size ($ millions) | **$14.1** | **$16.1** | $11.4 | $17.1 |
| Loans in arrears(3) | **0.00%** | **0.00%** | 0.00% | 0.00% |

(1) Excludes Manulife Bank commercial mortgage loans of $109 million (2016 – $67 million).
(2) Loan-to-Value and Debt-Service Coverage are based on re-underwritten cash flows.
(3) Arrears defined as over 90 days past due in Canada and over 60 days past due in the U.S.

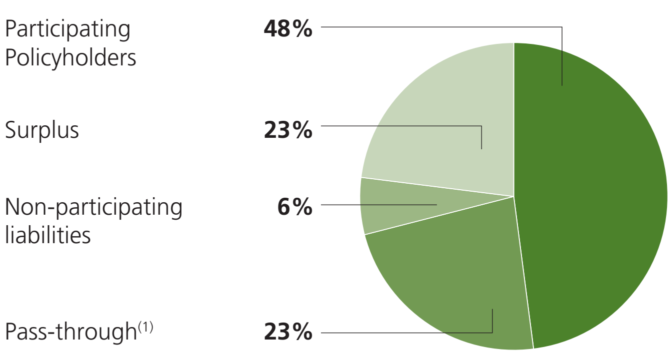
## Public Equities

As at December 31, 2017, public equity holdings of $21.5 billion represented 6% (2016 – $19.5 billion and 6%) of invested assets and, when excluding participating policyholder and pass-through segments, represented 2% (2016 – 2%) of invested assets. The portfolio is diversified by industry sector and issuer. Geographically, 31% (2016 – 33%) is held in Canada; 36% (2016 – 37%) is held in the U.S.; and the remaining 33% (2016 – 30%) is held in Asia, Europe and other geographic areas.

### Public Equities – by Segment

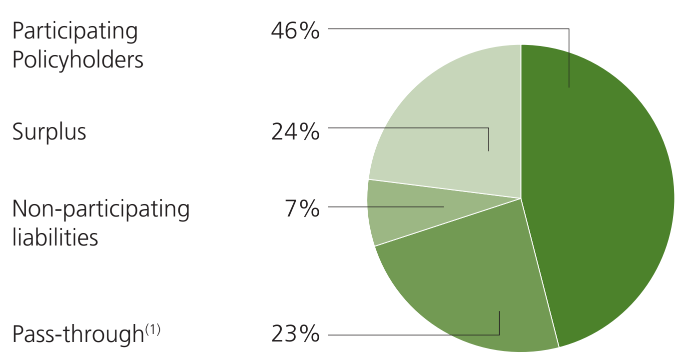
**2017**

**$21.5B**




2016

$19.5B




(1) Public equities denoted as pass-through are held by the Company to support the yield credited on equity-linked investment funds for Canadian life insurance products.

## Alternative Long-Duration Assets ("ALDA")

Our alternative long-duration asset portfolio is comprised of a diverse range of asset classes with varying degrees of correlations. The portfolio typically consists of private assets representing investments in varied sectors of the economy which act as a natural hedge against future inflation and serve as an alternative source of asset supply to long-term corporate bonds. In addition to being a suitable match for our long-duration liabilities, these assets provide enhanced long-term yields and diversification relative to traditional fixed income markets. The vast majority of our alternative long-duration assets are managed in-house.

As at December 31, 2017, alternative long-duration assets of $34.5 billion represented 10% (2016 – $33.0 billion and 10%) of invested assets. The fair value of total ALDA was $36.0 billion at December 31, 2017 (2016 – $34.5 billion). The carrying value and corresponding fair value by sector and/or asset type as follows:

| As at December 31, ($ billions) | 2017 | | 2016 | |
|---|---|---|---|---|
| | Carrying value | Fair value | Carrying value | Fair value |
| Real estate | **$ 13.8** | **$ 15.0** | $ 14.1 | $ 15.3 |
| Power and infrastructure | **7.3** | **7.4** | 6.7 | 6.7 |
| Private equity | **4.9** | **5.0** | 4.6 | 4.6 |
| Timberland | **3.7** | **3.6** | 3.7 | 3.7 |
| Oil & gas | **2.8** | **2.8** | 2.1 | 2.1 |
| Farmland | **1.4** | **1.6** | 1.3 | 1.6 |
| Other | **0.6** | **0.6** | 0.5 | 0.5 |
| **Total ALDA** | **$ 34.5** | **$ 36.0** | $ 33.0 | $ 34.5 |

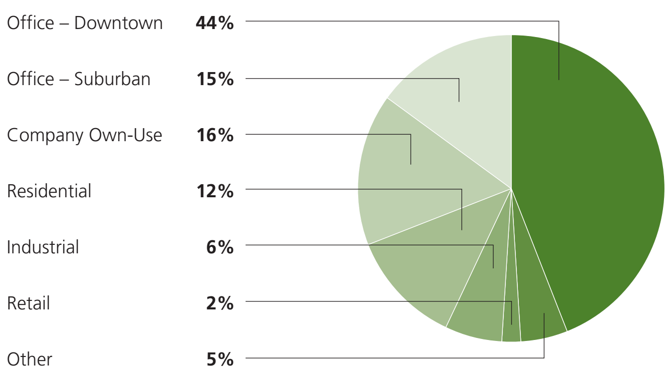
## Real Estate

Our real estate portfolio is diversified by geographic region; of the total fair value of this portfolio, 51% is located in the U.S., 38% in Canada, and 11% in Asia as at December 31, 2017 (2016 – 59%, 35%, and 6%, respectively). This high-quality portfolio has virtually no leverage and is primarily invested in premium urban office towers, concentrated in cities with stable growth, and highly diverse economies, in North America and Asia. The portfolio is well positioned with an average occupancy rate of 94% (2016 – 94%) and an average lease term of 5.9 years (2016 – 6.1 years). During 2017, we executed 3 acquisitions, representing $[0.9] billion market value of commercial real estate assets (2016 – 5 acquisitions and $0.4 billion).

The segment composition of our real estate portfolio based on fair value is as follows:

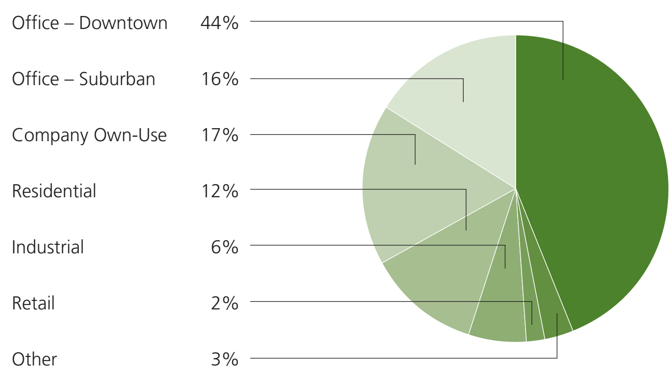
**2017**

$15.0B[(1)]




2016

$15.3B[(1)]



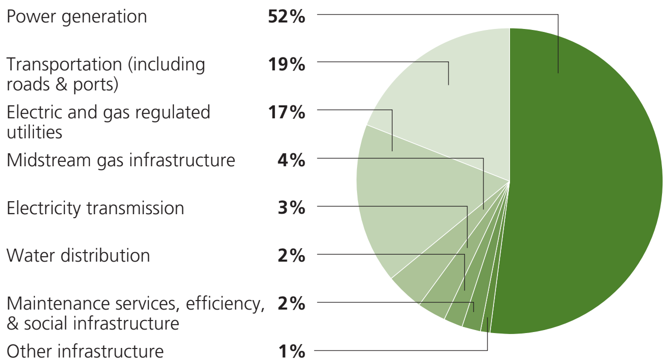

[(1)] These figures represent the fair value of the real estate portfolio. The carrying value of the portfolio was $13.8 billion and $14.1 billion at December 31, 2017 and December 31, 2016, respectively.

## Power & Infrastructure

We invest both directly and through funds in a variety of industry specific asset classes, listed below. The portfolio is well diversified with over 300 portfolio companies. The portfolio is predominately invested in the U.S. and Canada, but also in the United Kingdom, Europe and Australia. Our power and infrastructure holdings are as follows:

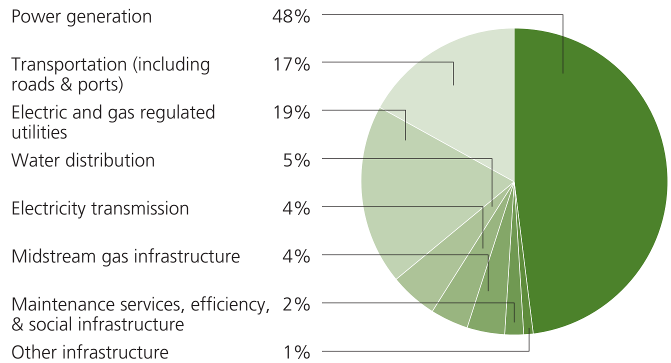
**2017**

**$7.4B**




2016

$6.7B




## Timberland & Farmland

Our timberland and farmland assets are managed by a proprietary entity, Hancock Natural Resources Group ("HNRG"). In addition to being the world's largest timberland investment manager for institutional investors[1], with timberland properties in the U.S., New Zealand, Australia, Chile, Canada and Brazil, HNRG also manages farmland properties in the U.S., Australia and Canada. In 2011, HNRG established a renewable energy business unit focused on investments in the bio-energy sector. The General Fund's timberland portfolio comprised 23% of HNRG's total timberland assets under management ("AUM") (2016 – 23%). The farmland portfolio includes annual (row) crops, fruit crops, wine grapes, and nut crops. The General Fund's holdings comprised 43% of HNRG's total farmland AUM (2016 – 40%).

## Private Equities

Our private equity portfolio of $4.9 billion (2016 – $4.6 billion) includes both directly held private equity and private equity funds. Both are diversified across vintage years and industry sectors.

## Oil & Gas

This category is comprised of $1.2 billion (2016 – $0.9 billion) in our conventional Canadian oil and gas properties managed by our subsidiary, NAL Resources, and various other oil and gas private equity interests of $1.6 billion (2016 – $1.2 billion). Production mix for conventional oil and gas assets in 2017 was approximately 35% crude oil, 47% natural gas, and 18% natural gas liquids (2016 – 40%, 45%, and 15%, respectively). Private equity interests are a combination of both producing and mid-streaming assets.

In 2017, the carrying value of our oil and gas holdings increased $0.7 billion and the fair value increased by $0.7 billion, primarily driven by acquisitions.

## Manulife Asset Management

Manulife Asset Management ("MAM") provides comprehensive asset management solutions to institutional clients (such as pension plans, foundations, endowments and financial institutions) and investment funds, and investment management services to retail clients through Manulife and John Hancock product offerings.

As at December 31, 2017, MAM had $491.5 billion of AUM compared with $460.7 billion at the end of 2016. This includes $89.4 billion (2016 – $80.4 billion) of comprehensive asset management and asset allocation solutions to institutional clients and $319.6 billion (2016 – $302.9 billion) of investment funds and investment management services to retail clients through Manulife and John Hancock product offerings, as well as $82.5 billion (2016 – $77.4 billion) related to our general fund assets.

In 2017, MAM AUM increased $30.8 billion from 2016 driven mainly by positive market performance, and to a lesser extent, institutional mandate wins and growth in general fund AUM, partially offset by currency translation losses on external clients AUM.

[1] Based on the global timber investment management organization ranking in the *RISI International Timberland Ownership and Investment Database.*

The following charts show the movement in AUM over the year as well as by asset class.

### AUM Movement

| ($ billions) | 2017 | 2016 |
|---|---|---|
| MAM External AUM, Beginning | **$ 383.3** | $ 361.6 |
| Standard Chartered Bank's MPF business acquisition | **–** | 1.9 |
| Gross Institutional flows[1] | **14.8** | 18.6 |
| Institutional redemptions | **(9.0)** | (9.8) |
| Net Institutional flows[1] | **5.8** | 8.8 |
| Net Affiliate flows[1],[2] | **(3.1)** | 0.2 |
| Asset transfers | **3.8** | 2.7 |
| Market impact | **38.5** | 15.4 |
| Currency impact | **(19.3)** | (7.3) |
| MAM External AUM, Ending | **409.0** | 383.3 |
| General Fund AUM (managed by MAM), Beginning | **77.4** | 72.3 |
| Net flows, market and currency impacts | **5.1** | 5.1 |
| General Fund AUM (managed by MAM), Ending | **82.5** | 77.4 |
| **Total MAM AUM** | **$ 491.5** | $ 460.7 |

[1] 2016 included $0.3 billion Net Affiliate flows reclassified to Institutional flows driven by Singapore REIT.
[2] Affiliate flows and redemptions related to activities of the three operating divisions (U.S., Canada, and Asia).

## Net Institutional and Affiliate Flows

2017 Institutional net flows of $5.8 billion were primarily driven by strong flows from the U.S. and Asia, led by U.S. Core Fixed Income and U.S. Core Value Equity, as well as strong sales of our Taiwan Fixed Income, Strategic Income, Global Equity and liability-driven investment ("LDI") strategies. Negative Affiliate net flows of ($3.1 billion) were primarily driven by negative net flows from U.S. Retirement and variable annuity products, partially offset by strong flows from Retail funds in all regions and Manulife TEDA institutional mandates.

### AUM Composition

**As at December 31,**

| ($ billions) | 2017 | 2016 |
|---|---|---|
| Affiliate / Retail[1]: | | |
| Fixed income | **$ 116.5** | $ 104.1 |
| Balanced | **23.6** | 22.0 |
| Equity | **107.6** | 103.4 |
| Asset allocation[2] | **69.7** | 71.2 |
| Alternatives[3] | **2.2** | 2.2 |
| | **319.6** | 302.9 |
| Institutional: | | |
| Fixed income | **53.7** | 48.3 |
| Balanced | **1.7** | 1.9 |
| Equity | **18.4** | 14.9 |
| Asset allocation[2] | **0.0** | 0.1 |
| Alternatives[3] | **15.6** | 15.2 |
| | **89.4** | 80.4 |
| **MAM External AUM** | **409.0** | 383.3 |
| General Fund | | |
| Fixed income | **44.4** | 42.0 |
| Equity | **17.1** | 14.9 |
| Alternative long-duration assets[3] | **21.0** | 20.5 |
| **General Fund AUM (managed by MAM)** | **82.5** | 77.4 |
| **Total MAM AUM** | **$ 491.5** | $ 460.7 |

[1] Includes 49% of assets managed by Manulife TEDA Fund Management Company Ltd.
[2] Internally-managed asset-allocation assets included in other asset categories to eliminate double counting: $77.0 billion and $74.8 billion in 2017 and 2016, respectively, in Affiliate/Retail, and $0.01 billion and $0.04 billion in 2017 and 2016, respectively, in Institutional Advisory.
[3] Included $0.3 billion Affiliate AUM reclassified to Institutional AUM driven by Singapore REIT.

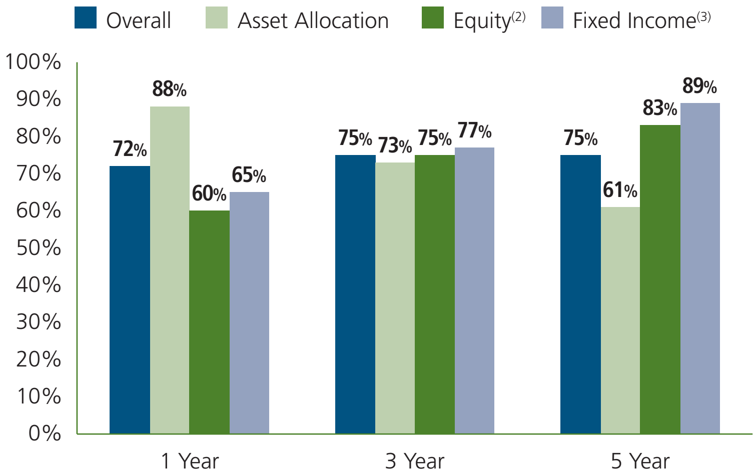
## Total MAM External AUM by Client Geography

MAM operates from offices in 16 countries and territories, managing local and international investment products for its global client base.

| As at December 31, ($ billions) | 2017 | % | 2016 | % |
|---|---|---|---|---|
| U.S. | **$ 222.1** | **54** | $ 217.4 | 57 |
| Canada | **109.0** | **27** | 100.4 | 26 |
| Asia region | **71.9** | **18** | 60.6 | 16 |
| Europe and other region | **6.0** | **1** | 4.9 | 1 |
| **Total MAM External AUM** | **$ 409.0** | **100** | $ 383.3 | 100 |

### Investment Performance

## % of AUM Outperforming Benchmarks[1]




As at December 31, 2017, overall investment performance has consistently exceeded our benchmarks on a 1-, 3- and 5-year basis.

(1) Investment performance is based on actively managed MAM Public Markets account-based, asset-weighted performance versus their primary internal targets, which includes accounts managed by portfolio managers of MAM. Some retail accounts are evaluated net of fees versus their respective Morningstar peer group. All institutional accounts and all other retail accounts are evaluated gross of fees versus their respective index.
(2) Includes balanced funds.
(3) Includes money market funds.

Long-term investment performance continued to be a differentiator for MAM, with the majority of public asset classes outperforming their benchmarks on a 1-, 3- and 5-year basis.

## Strategic Direction

The demand for multi-asset class solutions, liability-driven investing (“LDI”), real estate assets, global and emerging market equities, and public and private fixed income persists as institutional and retail investors continue to seek higher risk-adjusted returns. MAM will continue to capitalize on this demand by closely aligning our global wealth and asset management business and leveraging our skills and expertise across our international operations to build long-lasting customer relationships.

We offer private and public multi-assets to holistically address client needs, providing alpha-focused active management in a boutique environment, and leveraging best-in-class global capabilities and expertise. This strategy is integral to Manulife’s overall strategy of continuing to build and integrate our global wealth and asset management businesses, as well as expand our investment and/or sales offices into key markets, not restricting ourselves to geographies where we currently have, or expect to have, insurance operations. Wealth and Asset Management is a truly global business – both in demand and supply. Customers in any given location have the desire for globally-sourced product, and customers with our global product will benefit from on-the-ground perspectives generated by our investment professionals situated in diverse parts of the world, but globally networked and supervised for quality control.

See “Performance by Business Line” below for additional information with respect to our globally diversified wealth and asset management franchise.

# Performance by Business Line

## Additional information for Wealth and Asset Management

Manulife has a globally diversified wealth and asset management ("WAM") franchise spanning mutual funds, group retirement and savings products, and institutional asset management capabilities across all major asset classes. As noted above, we expect the organizational changes to our WAM businesses, effective January 1, 2018, to create greater alignment and enable us to better leverage our global scale. As a result of these changes, Global WAM will be a separate reporting segment in 2018.

We have achieved strong growth through our broad-based extensive distribution platforms in the U.S., Canada, Asia and Europe, and our global asset management expertise. With investment professionals on the ground in 16 countries, our deep local knowledge, and expertise in sought-after asset classes such as alternative long-duration assets, positions us well for continued success. In addition to mutual fund businesses in 11 markets, we have leading retirement platforms in Canada, the U.S. and Hong Kong, and a presence in the Indonesian and Malaysian retirement markets.

In 2017, we provide additional financial information by line of business, to supplement our existing primary disclosure based on geographic segmentation. This information is intended to facilitate assessment of the financial performance of our WAM businesses and allows for relevant comparisons to be made with global asset management peers. The supplemental information for WAM businesses includes an income statement, core earnings, core earnings before interest, taxes, depreciation and amortization ("core EBITDA"), net flows, gross flows and assets under management and administration ("AUMA")[1]. Core EBITDA was selected as a key performance indicator for WAM businesses, as EBITDA is widely used among asset management peers, and core earnings is a primary profitability metric for the Company overall.

### Wealth and Asset Management highlights

| For the years ended December 31, ($ millions, unless otherwise stated) | 2017 | 2016 | 2015 |
|---|---|---|---|
| Core earnings[(1)] | **$ 788** | $ 629 | $ 630 |
| Core EBITDA[(2)] | **1,396** | 1,167 | 1,224 |
| Net flows | **17,605** | 15,265 | 34,387 |
| Gross flows | **124,306** | 120,450 | 114,686 |
| Assets under management and administration ("AUMA")[(3)] ($ billions) | **599** | 544 | 510 |

(1) WAM core earnings by division are outlined in the section "Core earnings by line of business by division" below.
(2) Table below provides a reconciliation of core EBITDA to core earnings.
(3) Table below provides a continuity of AUMA.

## Financial performance

In 2017, our global WAM businesses reported $788 million in core earnings, an increase of 25% compared with 2016. The increase reflects higher fee income on higher asset levels as we have continued to see strong investment returns and continued positive net flows in 2017 across all three operating divisions and in each of our business lines: retirement, retail and institutional asset management. The increase is also a reflection of our prudent expense management, with our total expenses in line with prior year despite our continued strategic investments to optimize our operational infrastructure and to expand our distribution reach in Europe and Asia.

In 2017, core EBITDA for our global WAM businesses was $1,396 million, higher than core earnings by $608 million. In 2016, core EBITDA was $1,167 million, higher than core earnings by $538 million. The increase of $229 million in core EBITDA primarily reflects higher fee income on higher asset levels, as mentioned above.

### Core EBITDA

| For the years ended December 31, ($ millions) | 2017 | 2016 | 2015 |
|---|---|---|---|
| **Core earnings** | **$ 788** | $ 629 | $ 630 |
| Amortization of deferred acquisition costs and other depreciation | **344** | 336 | 327 |
| Amortization of deferred sales commissions | **99** | 103 | 106 |
| Core income tax (expense) recovery | **165** | 99 | 161 |
| **Core EBITDA** | **$ 1,396** | $ 1,167 | $ 1,224 |

1 Core EBITDA is a non-GAAP financial measure. See "Performance and Non-GAAP Measures" below.

## AUMA

In 2017, AUMA for our wealth and asset management businesses increased from $544 billion to $599 billion. Net flows accounted for $18 billion of the increase and the remaining $37 billion was related to positive investment returns. 2017 marked the 8th year of consecutive positive quarterly net flows in our WAM businesses. Positive net flows in 2017 were $2.3 billion higher than in 2016, driven by lower redemptions and higher sales in our U.S. retail and institutional asset management businesses and, to a lesser extent, Hong Kong retirement, partially offset by higher redemptions in our North American retirement businesses.

**AUMA**

| For the years ended December 31, ($ billions) | 2017 | 2016 | 2015 |
|---|---|---|---|
| Balance January 1, | **$ 544** | $ 510 | $ 315 |
| Acquisitions | **–** | 2 | 109 |
| Net flows | **18** | 15 | 34 |
| Impact of markets and other | **37** | 17 | 52 |
| **Balance December 31,** | **$ 599** | $ 544 | $ 510 |

## Additional information by business line

The following tables provide additional information on our core earnings by WAM, Insurance and Other Wealth for each of the divisions. Other Wealth consists of variable and fixed annuities, single premium products sold in Asia, and Manulife Bank in Canada[1] and Insurance includes all individual and group insurance businesses.

## Financial Performance

As noted above, in core earnings in our global WAM businesses was $788 million, an increase of 25% compared with 2016. The increase primarily reflects higher fee income on higher asset levels as we have continued to see strong investment returns and continued positive net flows in 2017.

Core earnings in our global insurance businesses in 2017 was $2,887 million, an increase of 16% compared with 2016. The increase was primarily due to improved in-force earnings and policyholder experience in U.S. Insurance (in part due to changes in actuarial methods and assumptions) and the strong new business and in-force growth in Asia.

Core earnings in our global other wealth businesses in 2017 was $1,415 million, an increase of 3% compared with 2016. The increase was driven by growth in Asia and Canada, and policyholder experience gains in the U.S., partially offset by the non-recurrence of the 2016 release of provisions for uncertain tax positions in the U.S.

### Core earnings by line of business

| For the years ended December 31, ($ millions) | 2017 | 2016 | 2015 |
|---|---|---|---|
| Wealth and Asset Management | **$ 788** | $ 629 | $ 630 |
| Insurance | **2,887** | 2,492 | 2,097 |
| Other Wealth | **1,415** | 1,368 | 1,245 |
| Corporate and Other(1) | **(525)** | (468) | (544) |
| **Total core earnings** | **$ 4,565** | $ 4,021 | $ 3,428 |

(1) Excludes Manulife Asset Management results that are included in WAM.

1 Manulife Bank new loan volumes are no longer being reported as sales.

## Core earnings by line of business by division

| For the years ended December 31, ($ millions) | 2017 | 2016 | 2015 |
|---|---|---|---|
| **Wealth and Asset Management**[1] | | | |
| Asia | **$ 211** | $ 175 | $ 159 |
| Canada | **224** | 161 | 141 |
| U.S. | **353** | 298 | 310 |
| Corporate and Other[2] | **–** | (5) | 20 |
| **Total Wealth and Asset Management** | **788** | 629 | 630 |
| **Insurance** | | | |
| Asia | **1,097** | 994 | 811 |
| Canada | **707** | 763 | 621 |
| U.S. | **1,083** | 735 | 665 |
| **Total Insurance** | **2,887** | 2,492 | 2,097 |
| **Other Wealth**[3] | | | |
| Asia | **355** | 327 | 264 |
| Canada | | | |
| Manulife Bank | **140** | 114 | 123 |
| Canada excluding Manulife Bank | **394** | 345 | 367 |
| Total Canada | **534** | 459 | 490 |
| U.S. | **526** | 582 | 491 |
| **Total Other Wealth** | **1,415** | 1,368 | 1,245 |
| Corporate and Other[4] | **(525)** | (468) | (544) |
| **Total core earnings** | **$ 4,565** | $ 4,021 | $ 3,428 |

[1] Wealth and Asset Management is comprised of our fee-based global WAM businesses that do not contain material insurance risk including: mutual funds, group retirement and institutional asset management.
[2] Corporate and Other results are net of internal allocations to other divisions.
[3] Other Wealth includes variable and fixed annuities, single premium products sold in Asia and Manulife Bank.
[4] A portion of core earnings from Investment Division has been included in Wealth and Asset Management.

## AUMA by line of business

AUMA as at December 31, 2017 was a record for Manulife of $1,040 billion, an increase of $63 billion, or 6% on a constant currency basis, compared with December 31, 2016. The WAM portion of AUMA was $599 billion and increased $54 billion compared with December 31, 2016. The increase was driven by investment returns and continued positive net flows.

| As at December 31, ($ billions) | 2017 | 2016 | 2015 |
|---|---|---|---|
| Wealth and Asset Management | **$ 598.6** | $ 544.3 | $ 510.8 |
| Insurance | **276.4** | 262.8 | 246.1 |
| Other Wealth | **168.4** | 174.4 | 178.3 |
| Corporate and Other | **(2.9)** | (4.4) | – |
| **Total assets under management and administration** | **$ 1,040.5** | $ 977.1 | $ 935.2 |

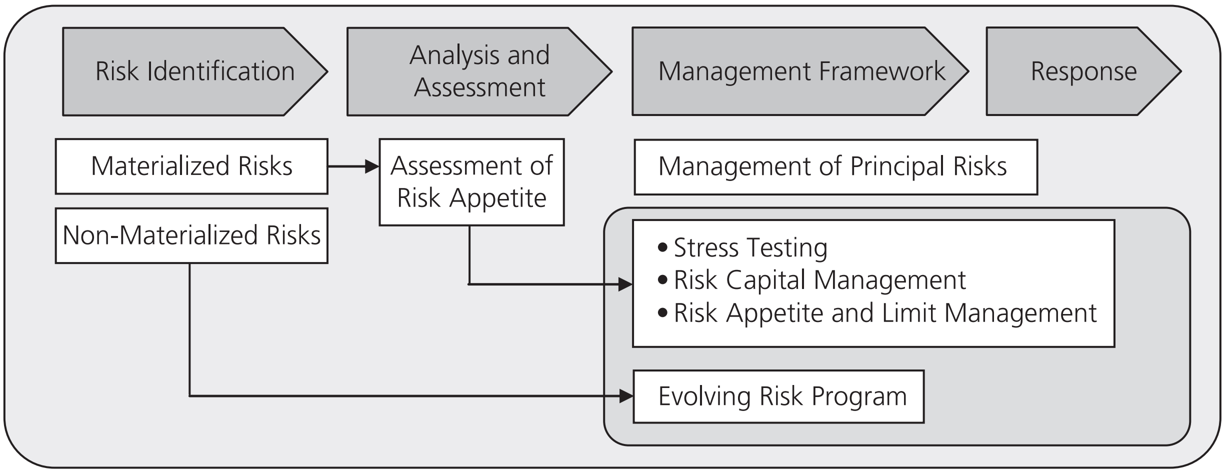
# Risk Management

This section provides an overview of the Company's overall risk management approach and more specific strategies for our principal risks. A more detailed description of specific risks which may affect our results of operations or financial condition may be found in the "Risk Factors" section below.

## Overview

All of the Company's activities involve elements of risk taking. Our approach to managing risk seeks to balance delivering exceptional experiences for our customers, meeting our policyholder and creditor obligations, providing sustainable, long-term growth for our shareholders and safeguarding our commitments to employees. Our approach is governed by our Enterprise Risk Management ("ERM") Framework.

### Enterprise Risk Management Framework




Our ERM Framework provides a structured approach to implementing risk taking and risk management activities across the enterprise, supporting our long-term revenue, earnings and capital growth strategy. It is communicated through risk policies and standards which are intended to enable consistent design and execution of strategies across the organization. We have a common approach to managing all risks to which the Company is exposed, and to evaluating potential directly comparable risk-adjusted returns on contemplated business activities. Our risk policies and standards cover:

- Assignment of accountability and delegation of authority for risk oversight and risk management;
- The types and levels of risk the Company seeks given its strategic plan and risk appetite;
- Risk identification, measurement, assessment and mitigation which enable effective management and monitoring of risk; and
- Validation, back testing and independent oversight to confirm that the Company generated the risk profile it intended and the root cause analysis of any notable variation.

Our risk management practices are influenced and impacted by internal and external factors (such as economic conditions, political environments, technology and risk culture) which can significantly impact the levels and types of risks the Company might face in its pursuit to strategically optimize risk taking and risk management. Our ERM Framework incorporates relevant impacts and mitigating actions as appropriate.

### Three Lines of Defence Model

A strong risk culture and a common approach to risk management are integral to Manulife's risk management practices. Management is responsible for managing risk within risk appetite and has established risk management strategies and monitoring practices. Our approach to risk management includes a "three lines of defence" governance model that segregates duties between risk taking activities, risk monitoring and risk oversight, and establishes appropriate accountability for those who assume risk versus those who oversee risk.

The Company's first line of defence includes the Chief Executive Officer ("CEO"), Divisional General Managers and Global Function Heads. In our matrix reporting model, the Divisional General Managers are accountable for their business results, the risks they assume to achieve those results, and for the day-to-day management of the risks and related controls, and the Global Function Heads are accountable for the management of the risks and related controls for their function.

The second line of defence is comprised of the Company's Chief Risk Officer ("CRO"), the Global Risk Management ("GRM") function and other global oversight functions. Collectively, this group provides independent oversight of risk taking and risk management activities across the enterprise.

The third line of defence is Internal Audit, which provides independent assurance that controls are effective and appropriate relative to the risk inherent in the business and that risk mitigation programs and risk oversight functions are effective in managing risks.

## Risk Culture

Manulife strives for a risk aware culture, where individuals and groups are encouraged, feel comfortable and are proactive in making transparent, balanced risk-return decisions that are in the long-term interests of the Company. Key areas of focus pertaining to risk culture include: aligning individual and Company objectives; identifying and escalating risks before they become significant issues; promoting a cooperative approach that enables appropriate risk taking; ensuring transparency in identifying, communicating and tracking risks; and systematically acknowledging and surfacing material risks.

## Risk Governance

The Board of Directors oversees the Company's culture of integrity and ethics, strategic planning, risk management, and corporate governance, among other things. The Board carries out its responsibilities directly and through its four standing committees. The Board Risk Committee oversees the management of our principal risks, and our programs, policies and procedures to manage those risks. The Board Audit Committee oversees internal control over financial reporting and our finance, actuarial, internal audit and global compliance functions, serves as the conduct review committee, reviews our compliance with legal and regulatory requirements and oversees the performance, qualifications and independence of our external auditors. The Management Resources and Compensation Committee oversees our global human resources strategy, policies, programs, management succession, executive compensation, and pension plan governance. The Corporate Governance and Nominating Committee develops our governance policies, practices and procedures, among other things.

The CEO is directly accountable to the Board of Directors for the results and operations of the Company and all risk taking activities and risk management practices required to achieve those results. The CEO is supported by the CRO as well as by the Executive Risk Committee ("ERC"). Together, they shape and promote our risk culture, guide risk taking throughout our global operations and strategically manage our overall risk profile. The ERC, along with other executive-level risk oversight committees, establishes risk policies, guides risk taking activity, monitors significant risk exposures and sponsors strategic risk management priorities throughout the organization.

GRM, under the direction of the CRO, establishes and maintains our ERM Framework and oversees the execution of individual risk management programs across the enterprise. GRM seeks to ensure a consistent enterprise-wide assessment of risk, risk-based capital and risk-adjusted returns across all operations.

The ERC approves and oversees the execution of the Company's enterprise risk management program. It establishes and presents for approval to the Board the Company's risk appetite and enterprise-wide risk limits and monitors our overall risk profile, including key and emerging risks and risk management activities. As part of these activities, the ERC monitors material risk exposures, endorses and reviews strategic risk management priorities, and reviews and assesses the impact of business strategies, opportunities and initiatives on our overall risk position. The ERC is supported by a number of oversight sub-committees including: Credit Committee, Product Oversight Committee, Global Asset Liability Committee, and the Operational Risk Committee. We also have divisional risk committees as well as a Global Wealth and Asset Management Risk Committee, each with mandates similar to the ERC, except with a focus at the divisional and global WAM business line levels, as applicable.

## Risk Appetite

Risk taking activities are managed within the Company's overall risk appetite, which defines the amount and types of risks the Company is willing to assume in pursuit of its objectives. It is comprised of three components: risk philosophy, risk appetite statements, and risk limits and tolerances.

When making decisions about risk taking and risk management, Manulife places the highest priority on the following risk management objectives:

- Safeguarding the commitments and expectations established with our customers, creditors, shareholders and employees;
- Supporting the successful design and delivery of customer solutions;
- Prudently and effectively deploying the capital invested in the Company by shareholders with appropriate risk/return profiles; and
- Protecting and/or enhancing the Company's reputation and brand.

At least annually, we establish and/or reaffirm our risk appetite to ensure that our risk appetite and the Company's strategy are aligned. The risk appetite statements provide 'guideposts' on our appetite for identified risks, any conditions placed on associated risk taking and direction for where quantitative risk limits should be established. The Company's risk appetite statements are as follows:

- Manulife accepts a total level of risk that provides a very high level of confidence to meeting customer obligations while targeting an appropriate overall return to shareholders over time;
- The Company targets a credit rating amongst the strongest of its global peers;
- Manulife values innovation and encourages initiatives intended to strengthen the customers' experience and enhance competitive advantage;
- Capital market risks are acceptable when they are managed within specific risk limits and tolerances;
- The Company believes a diversified investment portfolio reduces overall risk and enhances returns; therefore, it accepts credit and ALDA-related risks;
- The Company pursues product risks that add customer and shareholder value where there is competence to assess and monitor them, and for which appropriate compensation is received;

- Manulife accepts that operational risks are an inherent part of the business but will protect its business and customers' assets through cost-effective operational risk mitigation; and
- Manulife expects its officers and employees to act in accordance with the Company's values, ethics and standards and to enhance its brand and reputation.

Risk limits and tolerances are established for risks within our risk classification framework that are inherent in our strategies in order to define the types and amount of risk the Company will assume. Risk tolerance levels are set for risks deemed to be most significant to the Company and are established in relation to economic capital, earnings-at-risk and regulatory capital required. The purpose of risk limits is to cascade the total Company risk appetite to a level that can be effectively managed. Manulife establishes stand-alone risk limits for risk categories to avoid excessive concentration in any individual risk category and to manage the overall risk profile of the organization.

## Risk Identification, Measurement and Assessment

We have a common approach and process to identify, measure, and assess the risks we assume. We evaluate all potential new business initiatives, acquisitions, product offerings, reinsurance arrangements, and investment and financing transactions on a comparable risk-adjusted basis. Divisions and functional groups are responsible for identifying and assessing key and emerging risks on an ongoing basis. A standard inventory of risks is used in all aspects of risk identification, measurement and assessment, and monitoring and reporting.

Risk exposures are evaluated using a variety of risk measures focused on both short-term net income attributed to shareholders and long-term economic value, with certain measures used across all risk categories, while others apply only to some risks or a single risk type. Measures include stress tests such as sensitivity tests, scenario impact analyses and stochastic scenario modeling. In addition, qualitative risk assessments are performed, including for those risk types that cannot be reliably quantified.

We perform a variety of stress tests on earnings, regulatory capital ratios, economic capital, earnings-at-risk and liquidity that consider significant, but plausible events. We also perform other integrated, complex scenario tests to assess key risks and the interaction of these risks.

Economic capital and earnings-at-risk provide measures of enterprise-wide risk that can be aggregated and compared across business activities and risk types. Economic capital measures the amount of capital required to meet obligations with a high and pre-defined confidence level. Our earnings-at-risk metric measures the potential variance from quarterly expected earnings at a particular confidence level. Economic capital and earnings-at-risk are both determined using internal models.

## Risk Monitoring and Reporting

Under the direction of the CRO, GRM oversees a formal process for monitoring and reporting on all significant risks at the Company-wide level. Risk exposures are also discussed at various risk oversight committees, along with any exceptions or proposed remedial actions, as required.

On at least a quarterly basis, the ERC and the Board Risk Committee review risk reports that present an overview of our overall risk profile and exposures across our principal risks. The reports incorporate both quantitative risk exposure measures and sensitivities, and qualitative risk assessments. The reports also highlight key risk management activities and facilitate monitoring compliance with key risk policy limits.

Our Chief Actuary presents the results of the Dynamic Capital Adequacy Test to the Board of Directors annually. Our Chief Auditor reports the results of internal audits of risk controls and risk management programs to the Audit Committee semi-annually. Management reviews the implementation of key risk management strategies, and their effectiveness, with the Board Risk Committee annually.

## Risk Control and Mitigation

Risk control activities are in place throughout the Company to seek to mitigate risks within established risk limits. We believe our controls, which include policies, procedures, systems and processes, are appropriate and commensurate with the key risks faced at all levels across the Company. Such controls are an integral part of day-to-day activity, business management and decision making.

GRM establishes and oversees formal review and approval processes for product offerings, insurance underwriting, reinsurance, investment activities and other material business activities, based on the nature, size and complexity of the risk taking activity involved. Authorities for assuming risk at the transaction level are delegated to specific individuals based on their skill, knowledge and experience.

## Emerging Risk

The identification and assessment of our external environment for emerging risks is an important aspect of our enterprise risk management framework, as these risks, although yet to materialize, could have the potential to have a material impact on our operations.

Our Emerging Risk Framework facilitates the ongoing identification, assessment and monitoring of emerging risks, and includes: maintaining a process that facilitates the ongoing discussion and evaluation of potential emerging risks with senior business and functional management; reviewing and validating emerging risks with the ERC; creating and executing on responses to each emerging risk based on prioritization; and monitoring and reporting on emerging risks on a regular basis.

## Regulatory Updates

### U.S. Tax Reform

As noted in the "Overview" section above, U.S. Tax Reform is expected to benefit our net income attributed to shareholders and core earnings by approximately $240 million per year commencing in 2018.[1] Due to the 14-point decrease in the effective U.S. corporate tax rate effective January 1, 2018, our after-tax risk sensitivities are more favourable for favourable scenarios and are more unfavourable for unfavourable scenarios.

### Life Insurance Capital Adequacy Test ("LICAT")

The Office of the Superintendent of Financial Institutions ("OSFI") issued the final guideline for the new LICAT regulatory capital framework, which came into effect in Canada on January 1, 2018. LICAT replaced the Minimum Continuing Capital and Surplus Requirement ("MCCSR") framework.

With respect to the impact of LICAT, OSFI has noted that the:[2]

- Overall level of excess capital in the industry under LICAT versus MCCSR is not expected to change significantly;
- LICAT ratios and MCCSR ratios are not directly comparable; and
- Impact on individual life insurers will depend on the businesses they are engaged in, risks that they choose to take and how these risks are managed.

While the impact of U.S. Tax Reform has reduced our capital position in the short and medium term, we expect to be in a healthy capital position under the new framework[1] and will report our LICAT ratios as of March 31, 2018 when we report our first quarter 2018 results in May 2018. We will also convert the risk sensitivities currently measured with respect to their impact on MLI's MCCSR ratio to a LICAT basis at that time.

### IFRS 17 "Insurance Contracts" ("IFRS 17")

IFRS 17 was issued by the International Accounting Standards Board ("IASB") in May 2017 and is effective for years beginning on January 1, 2021, and to be applied retrospectively. If full retrospective application to a group of contracts is impractical, the modified retrospective or fair value methods may be used. The standard will replace IFRS 4 "Insurance Contracts" and will materially change the recognition and measurement of insurance contracts and the corresponding presentation and disclosures of the Company's Financial Statements and MD&A. We are assessing the implications of this standard and expect that it will have a significant impact on the Company's Consolidated Financial Statements. In addition, in certain jurisdictions, including Canada, it could have a material effect on tax and regulatory capital positions that are dependent upon IFRS accounting values.

For life insurance companies, such as Manulife, that have complex long-duration products and/or regulatory and tax regimes dependent upon IFRS accounting values, we believe that an effective date of January 1, 2021 is aggressive. Therefore, while our implementation project is well underway, we and others in the life insurance industry are encouraging the IASB to defer the effective date.

## General Macro-Economic Risk Factors

The global macro-economic environment has a significant impact on our financial plans and ability to implement our business strategy. The macro-economic environment can be significantly impacted by the actions of both the government sector (including central banks) and the private sector. The macro-economic environment may also be affected by natural and man-made catastrophes.

Our business strategy and associated financial plans are developed by considering forecasts of economic growth, both globally and in the specific countries we operate. Actual economic growth can be significantly impacted by the macro-economic environment and can deviate significantly from forecast, thus impacting our financial results and the ability to implement our business strategy.

Changes in the macro-economic environment can also have a significant impact on financial markets, including movements in interest rates, spreads on fixed income assets and returns on public equity and ALDA assets. Our financial plan, including income projections, capital projections, and valuation of liabilities are based on certain assumptions with respect to future movements in interest rates and spreads on fixed income assets, and expected future returns from our public equity and ALDA investments. Actual experience is highly variable and can deviate significantly from our assumptions, thus impacting our financial results. In addition, actual experience that is significantly different from our assumptions and/or changes in the macro-economic environment may result in changes to the assumptions themselves which would also impact our financial results.

---

[1] See "Caution regarding forward-looking statements" above.

[2] Slides 21 and 22, OSFI LICAT Webcast Information Session held on September 15, 2016.

Specific changes in the macro-economic environment can have very different impacts across different parts of the business. For example, a rise in interest rates is generally beneficial to us in the long term but can adversely affect valuations of some ALDA assets, especially those that have returns dependent on contractual cash flows, such as real estate.

The spending and savings patterns of our customers could be significantly influenced by the macro-economic environment and could have an impact on the products and services we offer to our customers.

Customer behaviour and emergence of claims on our liabilities can be significantly impacted by the macro-economic environment. For example, a prolonged period of economic weakness could impact the health and well-being of our customers and that could result in increased claims for certain insurance risks.

The following sections describe the risk management strategies for each of our six principal risk categories: strategic risk, market risk, liquidity risk, credit risk, insurance risk and operational risk.

## Strategic Risk

**Strategic risk is the risk of loss resulting from the inability to adequately plan or implement an appropriate business strategy, or to adapt to change in the external business, political or regulatory environment.**

### Risk Management Strategy

The CEO and Executive Leadership Team establish and oversee execution of business strategies and have accountability to identify and manage the risks embedded in these strategies. They are supported by a number of processes:

- Strategic business, risk and capital planning that is reviewed with the Board of Directors, Executive Leadership Team, and the ERC;
- Performance and risk reviews of all key businesses with the CEO and annual reviews with the Board of Directors;
- Risk-based capital attribution and allocation designed to encourage a consistent decision-making framework across the organization; and
- Review and approval of acquisitions and divestitures by the CEO and, where appropriate, the Board of Directors.

The CEO and Executive Leadership Team are ultimately responsible for our reputation; however, our employees and representatives are responsible for conducting their business activities in a manner that upholds our reputation. This responsibility is executed through an enterprise-wide reputation risk policy that specifies the oversight responsibilities of the Board of Directors and the responsibilities of executive management, communication to and education of all directors, officers, employees and representatives, including our Code of Business Conduct and Ethics, and application of guiding principles in conducting all our business activities.

### IFRS 7 Disclosures

The shaded text and tables in the following sections of this MD&A represent our disclosure on market and liquidity risk in accordance with IFRS 7, "Financial Instruments – Disclosures," and include a discussion on how we measure risk and our objectives, policies and methodologies for managing these risks. Therefore, the following shaded text and tables represent an integral part of our audited annual Consolidated Financial Statements for the years ended December 31, 2017 and December 31, 2016. The fact that certain text and tables are considered an integral part of the Consolidated Financial Statements does not imply that the disclosures are of any greater importance than the sections not part of the disclosure. Accordingly, the "Risk Management" disclosure should be read in its entirety.

## Market Risk

**Market risk is the risk of loss resulting from market price volatility, interest rate change, credit and swap spread changes, and from adverse foreign currency rate movements. Market price volatility primarily relates to changes in prices of publicly traded equities and alternative long-duration assets.**

### Market Risk Management Strategy

Market risk is governed by the Global Asset Liability Committee which oversees the overall market and liquidity risk program. Our overall strategy to manage our market risks incorporates several component strategies, each targeted to manage one or more of the market risks arising from our businesses. At an enterprise level, these strategies are designed to manage our aggregate exposures to market risks against economic capital, regulatory required capital and earnings-at-risk limits.

The following table outlines our key market risks and identifies the risk management strategies which contribute to managing these risks.

| Risk Management Strategy | Key Market Risk | | | |
|---|---|---|---|---|
| | Publicly Traded Equity Performance Risk | Interest Rate and Spread Risk | Alternative Long-Duration Asset Performance Risk | Foreign Exchange Risk |
| Product design and pricing | X | X | X | X |
| Variable annuity guarantee dynamic hedging | X | X | | X |
| Macro equity risk hedging | X | | | X |
| Asset liability management | X | X | X | X |
| Foreign exchange management | | | | X |

To reduce publicly traded equity performance risk, we primarily use a variable annuity guarantee dynamic hedging strategy which is complemented by a general macro equity risk hedging strategy. Our strategies employed for variable annuity guarantee dynamic hedging and macro equity risk hedging expose the Company to additional risks. See "Risk Factors" below.

In general, to seek to reduce interest rate risk, we lengthen the duration of our fixed income investments in our liability and surplus segments by executing interest rate hedges.

We seek to limit concentration risk associated with ALDA performance by investing in a diversified basket of assets including public and private equities, commercial real estate, infrastructure, timber, farmland real estate, and oil and gas assets. We further diversify risk by managing investments against established limits, including for industry type and corporate connection, commercial real estate type and geography, and timber and farmland property geography and crop type.

Our foreign exchange risk management strategy is designed to hedge the sensitivity of our regulatory capital ratios to movements in foreign exchange rates. Our policy is to generally match the currency of our assets with the currency of the liabilities they support, and similarly, to generally match the currency of the assets in our shareholders' equity account to the currency of our required capital. Where assets and liabilities are not currency matched, we seek to stabilize our capital ratios through the use of financial instruments such as derivatives.

### Product Design and Pricing Strategy

Our policies, standards, and standards of practice with respect to product design and pricing are designed with the objective of aligning our product offerings with our risk taking philosophy and risk appetite, and in particular, that incremental risk generated from new sales aligns with our strategic risk objectives and risk limits. The specific design features of our product offerings, including level of benefit guarantees, policyholder options, fund offerings and availability restrictions as well as our associated investment strategies, help to mitigate the level of underlying risk. We regularly review and modify key features within our product offerings, including premiums and fee charges with a goal of meeting profit targets and staying within risk limits. Certain of our general fund adjustable benefit products have minimum rate guarantees. The rate guarantees for any particular policy are set at the time the policy is issued and governed by insurance regulation in each jurisdiction where the products are sold. The contractual provisions allow crediting rates to be re-set at pre-established intervals subject to the established minimum crediting rate guarantees. The Company may partially mitigate the interest rate exposure by setting new rates on new business and by adjusting rates on in-force business where permitted. In addition, the Company partially mitigates this interest rate risk through its asset liability management process, product design elements, and crediting rate strategies. New product initiatives, new reinsurance arrangements and material insurance underwriting initiatives must be reviewed and approved by the CRO or key individuals within risk management functions.

### Hedging Strategies for Variable Annuity and Other Equity Risks

The Company's exposure to movement in public equity market values primarily arises from variable annuity guarantees and to a smaller extent from asset-based fees and general fund public equity holdings.

Dynamic hedging is the primary hedging strategy for variable annuity market risks. Dynamic hedging is employed for new variable annuity guarantees business when written or as soon as practical thereafter.

We seek to manage public equity risk arising from other sources (not dynamically hedged) through our macro equity risk hedging strategy. We seek to manage interest rate risk arising from variable annuity business not dynamically hedged within our asset liability management strategy.

### Variable Annuity Dynamic Hedging Strategy

The variable annuity dynamic hedging strategy is designed to hedge the sensitivity of variable annuity guarantee policy liabilities and available capital to fund performance (both public equity and bond funds) and interest rate movements. The objective of the variable annuity dynamic hedging strategy is to offset, as closely as possible, the change in the economic value of guarantees with the profit and loss from our hedge asset portfolio. The economic value of guarantees moves in close tandem, but not exactly, with our variable annuity guarantee policy liabilities, as it reflects best estimate liabilities and does not include any liability provisions for adverse deviations.

Our current variable annuity guarantee dynamic hedging approach is to short exchange-traded equity index and government bond futures and execute currency futures and lengthening interest rate swaps to hedge sensitivity of policy liabilities to fund performance and interest rate movements arising from variable annuity guarantees. We dynamically rebalance these hedge instruments as market conditions change, in order to maintain the hedged position within established limits. Other derivative instruments (such as equity and interest rate options) are also utilized and we may consider the use of additional hedge instruments opportunistically in the future.

Our variable annuity guarantee dynamic hedging strategy is not designed to completely offset the sensitivity of policy liabilities to all risks associated with the guarantees embedded in these products. The profit (loss) on the hedge instruments will not completely offset the underlying losses (gains) related to the guarantee liabilities hedged because:

- Policyholder behaviour and mortality experience are not hedged;
- Provisions for adverse deviation in the policy liabilities are not hedged;
- A portion of interest rate risk is not hedged;
- Credit spreads widen and actions are not taken to adjust accordingly;

- Fund performance on a small portion of the underlying funds is not hedged due to lack of availability of effective exchange-traded hedge instruments;
- Performance of the underlying funds hedged may differ from the performance of the corresponding hedge instruments;
- Correlations between interest rates and equity markets could lead to unfavourable material impacts;
- Unfavourable hedge rebalancing costs can be incurred during periods of high volatility from equity markets, bond markets and/or interest rates. The impact is magnified when these impacts occur concurrently; and
- Not all other risks are hedged.

### Macro Equity Risk Hedging Strategy

The objective of the macro equity risk hedging program is to maintain our overall earnings sensitivity to public equity market movements within our Board approved risk appetite limits. The macro equity risk hedging program is designed to hedge earnings sensitivity due to movements in public equity markets arising from all sources (outside of dynamically hedged exposures). Sources of equity market sensitivity addressed by the macro equity risk hedging program include:

- Residual equity and currency exposure from variable annuity guarantees not dynamically hedged;
- General fund equity holdings backing non-participating liabilities;
- Variable life insurance;
- Unhedged provisions for adverse deviation related to variable annuity guarantees dynamically hedged; and
- Variable annuity fees not associated with guarantees and fees on segregated funds without guarantees, mutual funds and institutional assets managed.

### Asset Liability Management Strategy

Our asset liability management strategy is designed to help ensure that the market risks embedded in our assets and liabilities held in the Company's general fund are effectively managed and that risk exposures arising from these assets and liabilities are maintained below targeted levels. The embedded market risks include risks related to the level and movement of interest rates and credit spreads, public equity market performance, ALDA performance and foreign exchange rate movements.

General fund product liabilities are segmented into groups with similar characteristics that are supported by specific asset segments. We seek to manage each segment to a target investment strategy appropriate for the premium and benefit pattern, policyholder options and guarantees, and crediting rate strategies of the products they support. Similar strategies are established for assets in the Company's surplus account. The strategies are set using portfolio analysis techniques intended to optimize returns, subject to considerations related to regulatory and economic capital requirements, and risk tolerances. They are designed to achieve broad diversification across asset classes and individual investment risks while being suitably aligned with the liabilities they support. The strategies encompass asset mix, quality rating, term profile, liquidity, currency and industry concentration targets.

Products which feature guaranteed liability cash flows (i.e. where the projected net flows are not materially dependent upon economic scenarios) are managed to a target return investment strategy. The products backed by this asset segment include:

- Accumulation annuities (other than annuities with pass-through features), which are primarily short-to-medium-term obligations and offer interest rate guarantees for specified terms on single premiums. Withdrawals may or may not have market value adjustments;
- Payout annuities, which have no surrender options and include predictable and very long-dated obligations; and
- Insurance products, with recurring premiums extending many years in the future, and which also include a significant component of very long-dated obligations.

We seek to manage the assets backing these long-dated benefits to achieve a target return sufficient to support the obligations over their lifetime, subject to established risk tolerances, by investing in a basket of diversified ALDA with the balance invested in fixed income securities. Utilizing ALDA to partially support these products is intended to enhance long-term investment returns and reduce aggregate risk through diversification. The size of the target ALDA portfolio is dependent upon the size and term of each segment's liability obligations, subject to risk tolerance levels. We seek to manage fixed income assets to a benchmark developed to minimize interest rate risk against the residual liabilities and to achieve target returns/spreads required to preserve long-term interest rate investment assumptions used in liability pricing.

For insurance and annuity products where significant pass-through features exist, a total return strategy approach is used, generally combining fixed income and ALDA. ALDA may be included to enhance long-term investment returns and reduce aggregate risk through diversification. Target investment strategies are established using portfolio analysis techniques that seek to optimize long-term investment returns while considering the risks related to embedded product guarantees and policyholder withdrawal options, the impact of regulatory and economic capital requirements and management tolerances with respect to short-term income volatility and long-term tail risk exposure. Shorter-duration liabilities such as fixed deferred annuities generally do not incorporate ALDA in their target asset mixes.

In our general fund, we seek to limit concentration risk associated with ALDA performance by investing in a diversified basket of assets including public and private equities, commercial real estate, infrastructure, timber, farmland real estate, and oil and gas assets. We further diversify risk by managing investments against established limits, including for industry type and corporate connection, commercial real estate type and geography, and timber and farmland property geography and crop type.

Authority to manage our investment portfolios is delegated to investment professionals who manage to benchmarks derived from the target investment strategies established for each segment, including interest rate risk tolerances. Interest rate risk exposure measures are monitored and communicated to portfolio managers with frequencies ranging from daily to annually, depending on the type of liability. Asset portfolio rebalancing, accomplished using cash investments or derivatives, may occur at frequencies ranging from daily to monthly, depending on our established risk tolerances and the potential for changes in the profile of the assets and liabilities.

Our asset liability management strategy incorporates a wide variety of risk measurement, risk mitigation and risk management, and hedging processes. The liabilities and risks to which the Company is exposed, however, cannot be completely matched or hedged due to both limitations on instruments available in investment markets and uncertainty of impact on liability cash flows from policyholder experience/behaviour.

As noted above, on December 22, 2017 we announced our decision to reduce the allocation to ALDA in the portfolio asset mix supporting our North American legacy businesses over the next 12-18 months. This decision will reduce our exposure to ALDA returns, excluding the impact of U.S. Tax Reform, and excluding the impact of additional interest rate hedging, generally increases our exposure to changes in interest rates.

### Foreign Exchange Risk Management Strategy

Our foreign exchange risk management strategy is designed to hedge the sensitivity of our regulatory capital ratios to movements in foreign exchange rates. In particular, the objective of the strategy is to offset within acceptable tolerance levels, changes in required capital with changes in available capital that result from currency movements. These changes occur when assets and liabilities related to business conducted in currencies other than Canadian dollars are translated to Canadian dollars at period ending exchange rates.

Our policy is to generally match the currency of our assets with the currency of the liabilities they support, and similarly, to generally match the currency of the assets in our shareholders' equity account to the currency of our required capital. Where assets and liabilities are not currency matched, we would seek to stabilize our capital ratios through the use of forward contracts and currency swaps.

Risk exposure limits are measured in terms of potential changes in capital ratios due to foreign exchange rate movements, determined to represent a specified likelihood of occurrence based on internal models.

## Market Risk Sensitivities and Market Risk Exposure Measures

### Variable Annuity and Segregated Fund Guarantees Sensitivities and Risk Exposure Measures

Guarantees on variable annuity products and segregated funds may include one or more of death, maturity, income and withdrawal guarantees. Variable annuity and segregated fund guarantees are contingent and only payable upon the occurrence of the relevant event, if fund values at that time are below guaranteed values. Depending on future equity market levels, liabilities on current in-force business would be due primarily in the period from 2018 to 2038.

We seek to mitigate a portion of the risks embedded in our retained (i.e. net of reinsurance) variable annuity and segregated fund guarantee business through the combination of our dynamic and macro hedging strategies (see "Publicly Traded Equity Performance Risk" below).

The table below shows selected information regarding the Company's variable annuity and segregated fund investment-related guarantees gross and net of reinsurance.

#### Variable annuity and segregated fund guarantees, net of reinsurance

| As at December 31, ($ millions) | 2017 Guarantee value | 2017 Fund value | 2017 Amount at risk[4],[5] | 2016 Guarantee value | 2016 Fund value | 2016 Amount at risk[4],[5] |
|---|---|---|---|---|---|---|
| Guaranteed minimum income benefit[1] | **$ 5,201** | **$ 4,195** | **$ 1,074** | $ 5,987 | $ 4,432 | $ 1,570 |
| Guaranteed minimum withdrawal benefit | **61,767** | **56,512** | **5,943** | 68,594 | 59,593 | 9,135 |
| Guaranteed minimum accumulation benefit | **18,162** | **18,705** | **11** | 19,482 | 19,989 | 27 |
| Gross living benefits[2] | **85,130** | **79,412** | **7,028** | 94,063 | 84,014 | 10,732 |
| Gross death benefits[3] | **10,743** | **16,973** | **1,001** | 12,200 | 16,614 | 1,350 |
| Total gross of reinsurance | **95,873** | **96,385** | **8,029** | 106,263 | 100,628 | 12,082 |
| Living benefits reinsured | **4,522** | **3,667** | **911** | 5,241 | 3,903 | 1,349 |
| Death benefits reinsured | **3,014** | **3,040** | **435** | 3,429 | 3,202 | 564 |
| Total reinsured | **7,536** | **6,707** | **1,346** | 8,670 | 7,105 | 1,913 |
| **Total, net of reinsurance** | **$ 88,337** | **$ 89,678** | **$ 6,683** | $ 97,593 | $93,523 | $10,169 |

[1] Contracts with guaranteed long-term care benefits are included in this category.
[2] Where a policy includes both living and death benefits, the guarantee in excess of the living benefit is included in the death benefit category as outlined in footnote 3.
[3] Death benefits include stand-alone guarantees and guarantees in excess of living benefit guarantees where both death and living benefits are provided on a policy.

(4) Amount at risk (in-the-money amount) is the excess of guarantee values over fund values on all policies where the guarantee value exceeds the fund value. This amount is not currently payable. For guaranteed minimum death benefit, the amount at risk is defined as the current guaranteed minimum death benefit in excess of the current account balance. For guaranteed minimum income benefit, the amount at risk is defined as the excess of the current annuitization income base over the current account value. For all guarantees, the amount at risk is floored at zero at the single contract level.

(5) The amount at risk net of reinsurance at December 31, 2017 was $6,683 million (2016 – $10,169 million) of which: US$3,982 million (2016 – US$6,008 million) was on our U.S. business, $1,342 million (2016 – $1,499 million) was on our Canadian business, US$95 million (2016 – US$206 million) was on our Japan business and US$181 million (2016 – US$244 million) was related to Asia (other than Japan) and our run-off reinsurance business.

### Investment categories for variable contracts with guarantees

Variable contracts with guarantees, including variable annuities and variable life, are invested, at the policyholder's discretion subject to contract limitations, in various fund types within the segregated fund accounts and other investments. The account balances by investment category are set out below.

| As at December 31, ($ millions) Investment category | 2017 | 2016 |
|---|---|---|
| Equity funds | **$ 47,508** | $ 41,805 |
| Balanced funds | **47,369** | 57,571 |
| Bond funds | **13,095** | 11,588 |
| Money market funds | **1,905** | 2,127 |
| Other fixed interest rate investments | **1,777** | 1,807 |
| **Total** | **$ 111,654** | $ 114,898 |

### Caution Related to Sensitivities

In the sections that follow, we provide sensitivities and risk exposure measures for certain risks. These include sensitivities due to specific changes in market prices and interest rate levels projected using internal models as at a specific date, and are measured relative to a starting level reflecting the Company's assets and liabilities at that date and the actuarial factors, investment activity and investment returns assumed in the determination of policy liabilities. The risk exposures measure the impact of changing one factor at a time and assume that all other factors remain unchanged. Actual results can differ significantly from these estimates for a variety of reasons including the interaction among these factors when more than one changes; changes in actuarial and investment return and future investment activity assumptions; actual experience differing from the assumptions, changes in business mix, effective tax rates and other market factors; and the general limitations of our internal models. For these reasons, the sensitivities should only be viewed as directional estimates of the underlying sensitivities for the respective factors based on the assumptions outlined below. Given the nature of these calculations, we cannot provide assurance that the actual impact on net income attributed to shareholders will be as indicated or on MLI's MCCSR ratio will be as indicated. As noted above, LICAT replaced the MCCSR regulatory capital framework on January 1, 2018 and we will update the sensitivity measures for the change in capital framework in May 2018.

### Publicly Traded Equity Performance Risk Sensitivities and Exposure Measures

As outlined above, the macro hedging strategy is designed to mitigate public equity risk arising from variable annuity guarantees not dynamically hedged and from other products and fees. In addition, our variable annuity guarantee dynamic hedging strategy is not designed to completely offset the sensitivity of policy liabilities to all risks associated with the guarantees embedded in these products.

The table below shows the potential impact on net income attributed to shareholders resulting from an immediate 10%, 20% and 30% change in market values of publicly traded equities followed by a return to the expected level of growth assumed in the valuation of policy liabilities. If market values were to remain flat for an entire year, the potential impact would be roughly equivalent to an immediate decline in market values equal to the expected level of annual growth assumed in the valuation of policy liabilities. Further, if after market values dropped 10%, 20% or 30% they continued to decline, remained flat, or grew more slowly than assumed in the valuation the potential impact on net income attributed to shareholders could be considerably more than shown. Refer to "Sensitivity of Earnings to Changes in Assumptions" for more information on the level of growth assumed and on the net income sensitivity to changes in these long-term assumptions. The potential impact is shown after taking into account the impact of the change in markets on the hedge assets. While we cannot reliably estimate the amount of the change in dynamically hedged variable annuity guarantee liabilities that will not be offset by the profit or loss on the dynamic hedge assets, we make certain assumptions for the purposes of estimating the impact on net income attributed to shareholders.

This estimate assumes that the performance of the dynamic hedging program would not completely offset the gain/loss from the dynamically hedged variable annuity guarantee liabilities. It assumes that the hedge assets are based on the actual position at the period end, and that equity hedges in the dynamic program are rebalanced at 5% intervals. In addition, we assume that the macro hedge assets are rebalanced in line with market changes.

It is also important to note that these estimates are illustrative, and that the hedging program may underperform these estimates, particularly during periods of high realized volatility and/or periods where both interest rates and equity market movements are unfavourable.

The Standards of Practice for the valuation of insurance contract liabilities and guidance published by the CIA constrain the investment return assumptions for public equities and certain ALDA assets based on historical return benchmarks for public equities. The potential impact on net income attributed to shareholders does not take into account possible changes to investment return assumptions resulting from the impact of declines in public equity market values on these historical return benchmarks.

### Potential immediate impact on net income attributed to shareholders arising from changes to public equity returns(1),(2),(3),(4)

| As at December 31, 2017 ($ millions) | -30% | -20% | -10% | 10% | 20% | 30% |
|---|---|---|---|---|---|---|
| **Underlying sensitivity to net income attributed to shareholders**(5) | | | | | | |
| Variable annuity guarantees | **$ (3,940)** | **$ (2,260)** | **$ (960)** | **$ 670** | **$1,110** | **$1,410** |
| Asset based fees | **(510)** | **(340)** | **(170)** | **170** | **340** | **510** |
| General fund equity investments(6) | **(930)** | **(590)** | **(270)** | **270** | **540** | **810** |
| Total underlying sensitivity before hedging | **(5,380)** | **(3,190)** | **(1,400)** | **1,110** | **1,990** | **2,730** |
| Impact of macro and dynamic hedge assets(7) | **3,220** | **1,850** | **790** | **(640)** | **(1,100)** | **(1,410)** |
| **Net potential impact on net income after impact of hedging** | **$ (2,160)** | **$ (1,340)** | **$ (610)** | **$ 470** | **$ 890** | **$1,320** |

| As at December 31, 2016 ($ millions) | -30% | -20% | -10% | 10% | 20% | 30% |
|---|---|---|---|---|---|---|
| **Underlying sensitivity to net income attributed to shareholders**(5) | | | | | | |
| Variable annuity guarantees | $ (4,830) | $ (2,920) | $(1,290) | $1,000 | $1,690 | $2,170 |
| Asset based fees | (410) | (280) | (140) | 140 | 280 | 410 |
| General fund equity investments(6) | (910) | (590) | (270) | 240 | 490 | 750 |
| Total underlying sensitivity before hedging | (6,150) | (3,790) | (1,700) | 1,380 | 2,460 | 3,330 |
| Impact of macro and dynamic hedge assets(7) | 4,050 | 2,440 | 1,060 | (910) | (1,610) | (2,160) |
| **Net potential impact on net income attributed to shareholders after impact of hedging** | $ (2,100) | $ (1,350) | $ (640) | $ 470 | $ 850 | $1,170 |

(1) See "Caution Related to Sensitivities" above.

(2) The sensitivities as at December 31, 2017 include the impact of lower U.S. corporate tax rates effective January 1, 2018. Due to the lower effective tax rate, the after-tax impact of changes to public equity returns increases.

(3) The tables above show the potential impact on net income attributed to shareholders resulting from an immediate 10%, 20% and 30% change in market values of publicly traded equities followed by a return to the expected level of growth assumed in the valuation of policy liabilities.

(4) Please refer to "Sensitivity of Earnings to Changes in Assumptions" for more information on the level of growth assumed and on the net income sensitivity to changes in these long-term assumptions.

(5) Defined as earnings sensitivity to a change in public equity markets including settlements on reinsurance contracts, but before the offset of hedge assets or other risk mitigants.

(6) This impact for general fund equities is calculated as at a point-in-time and does not include: (i) any potential impact on public equity weightings; (ii) any gains or losses on AFS public equities held in the Corporate and Other segment; or (iii) any gains or losses on public equity investments held in Manulife Bank. The participating policy funds are largely self-supporting and generate no material impact on net income attributed to shareholders as a result of changes in equity markets.

(7) Includes the impact of rebalancing equity hedges in the macro and dynamic hedging program. The impact of dynamic hedge rebalancing represents the impact of rebalancing equity hedges for dynamically hedged variable annuity guarantee best estimate liabilities at 5% intervals, but does not include any impact in respect of other sources of hedge ineffectiveness (e.g. fund tracking, realized volatility and equity, interest rate correlations different from expected among other factors).

Changes in equity markets impact our available and required components of the MCCSR ratio. The following table shows the potential impact to MLI's MCCSR ratio resulting from changes in public equity market values, assuming that the change in the value of the hedge assets does not completely offset the change of the related variable annuity guarantee liabilities.

### Potential immediate impact on MLI's MCCSR ratio arising from public equity returns different than the expected return for policy liability valuation(1),(2),(3),(4)

| | Impact on MLI's MCCSR ratio | | | | | |
|---|---|---|---|---|---|---|
| Percentage points | -30% | -20% | -10% | 10% | 20% | 30% |
| **December 31, 2017** | **(14)** | **(8)** | **(4)** | **3** | **11** | **14** |
| December 31, 2016 | (12) | (8) | (4) | 3 | 14 | 18 |

(1) See "Caution Related to Sensitivities" above. In addition, estimates exclude changes to the net actuarial gains/losses with respect to the Company's pension obligations as a result of changes in equity markets, as the impact on the quoted sensitivities is not considered to be material.

(2) The sensitivities as at December 31, 2017 include the impact of lower U.S. corporate tax rates effective January 1, 2018. Due to the lower effective tax rate, the after-tax impact of changes to public equity returns increases.

(3) The potential impact is shown assuming that the change in value of the hedge assets does not completely offset the change in the dynamically hedged variable annuity guarantee liabilities. The estimated amount that would not be completely offset relates to our practices of not hedging the provisions for adverse deviation and of rebalancing equity hedges for dynamically hedged variable annuity liabilities at 5% intervals.

(4) OSFI rules for segregated fund guarantees reflect full capital impacts of shocks over 20 quarters within a prescribed range. As such, the deterioration in equity markets could lead to further increases in capital requirements after the initial shock.

### Interest Rate and Spread Risk Sensitivities and Exposure Measures

At December 31, 2017, we estimated the sensitivity of our net income attributed to shareholders to a 50 basis point parallel decline in interest rates to be a charge of $200 million, and to a 50 basis point increase in interest rates to be a benefit of $100 million.

The table below shows the potential impact on net income attributed to shareholders from a 50 basis point parallel move in interest rates. This includes a change of 50 basis points in current government, swap and corporate rates for all maturities across all markets with no change in credit spreads between government, swap and corporate rates, and with a floor of zero on government rates where government rates are not currently negative, relative to the rates assumed in the valuation of policy liabilities, including embedded derivatives. For variable annuity guarantee liabilities that are dynamically hedged, it is assumed that interest rate hedges are rebalanced at 20 basis point intervals.

As the sensitivity to a 50 basis point change in interest rates includes any associated change in the applicable reinvestment scenarios, the impact of changes to interest rates for less than, or more than 50 basis points is unlikely to be linear. Furthermore, our sensitivities are not consistent across all regions in which we operate, and the impact of yield curve changes will vary depending upon the geography where the change occurs. Reinvestment assumptions used in the valuation of policy liabilities tend to amplify the negative effects of a decrease in interest rates, and dampen the positive effects of interest rate increases. This is because the reinvestment assumptions used in the valuation of our insurance liabilities are based on interest rate scenarios and calibration criteria set by the Actuarial Standards Board, while our interest rate hedges are valued using current market interest rates. Therefore, in any particular quarter, changes to the reinvestment assumptions are not fully aligned to changes in current market interest rates especially when there is a significant change in the shape of the interest rate curve. As a result, the impact from non-parallel movements may be materially different from the estimated impact of parallel movements. For example, if long-term interest rates increase more than short-term interest rates (sometimes referred to as a steepening of the yield curve) in North America, the decrease in the value of our swaps may be greater than the decrease in the value of our insurance liabilities. This could result in a charge to net income attributed to shareholders in the short-term even though the rising and steepening, if sustained, may have a positive long-term economic impact.

The potential impact on net income attributed to shareholders does not take into account any future potential changes to our URR assumptions or calibration criteria for stochastic risk-free rates or other potential impacts of lower interest rate levels, for example, increased strain on the sale of new business or lower interest earned on our surplus assets. The impact also does not reflect any unrealized gains or losses on AFS fixed income assets held in our surplus segment. Changes in the market value of these assets may provide a natural economic offset to the interest rate risk arising from our product liabilities. In order for there to also be an accounting offset, the Company would need to realize a portion of the AFS fixed income asset unrealized gains or losses. It is not certain we would crystallize any of the unrealized gains or losses available. As at December 31, 2017, the AFS fixed income assets held in the surplus segment were in a net after-tax unrealized loss position of $223 million.

The impact does not reflect any potential effect of changing interest rates to the value of our ALDA assets. Rising interest rates could negatively impact the value of our ALDA assets (see "Critical Accounting and Actuarial Policies – Fair Value of Invested Assets", below). More information on ALDA can be found under the section "Alternative Long-Duration Asset Performance Risk Sensitivities and Exposure Measures", below.

The following table shows the potential impact on net income attributed to shareholders including the change in the market value of AFS fixed income assets held in our surplus segment, which could be realized through the sale of these assets.

#### Potential impact on net income attributed to shareholders and MLI's MCCSR ratio of an immediate parallel change in interest rates relative to rates assumed in the valuation of policy liabilities[(1),(2),(3),(4),(5)]

| | **2017** | | 2016 | |
|---|---|---|---|---|
| **As at December 31,** | -50bp | +50bp | -50bp | +50bp |
| **Net income attributed to shareholders ($ millions)** | | | | |
| Excluding change in market value of AFS fixed income assets held in the surplus segment | **$ (200)** | **$ 100** | $ – | $ – |
| From fair value changes in AFS fixed income assets held in surplus, if realized | **1,100** | **(1,000)** | 1,000 | (900) |
| **MLI's MCCSR ratio (Percentage points)** | | | | |
| Before impact of change in market value of AFS fixed income assets held in the surplus segment[(6)] | **(7)** | **5** | (6) | 5 |
| From fair value changes in AFS fixed income assets held in surplus, if realized | **4** | **(5)** | 1 | (4) |

(1) See "Caution Related to Sensitivities" above. In addition, estimates exclude changes to the net actuarial gains/losses with respect to the Company's pension obligations as a result of changes in interest rates, as the impact on the quoted sensitivities is not considered to be material.

(2) The sensitivities as at December 31, 2017 include the impact of lower U.S. corporate tax rates effective January 1, 2018 and the decision to change the portfolio asset mix supporting our legacy businesses over the next 12-18 months.

(3) Includes guaranteed insurance and annuity products, including variable annuity contracts as well as adjustable benefit products where benefits are generally adjusted as interest rates and investment returns change, a portion of which have minimum credited rate guarantees. For adjustable benefit products subject to minimum rate guarantees, the sensitivities are based on the assumption that credited rates will be floored at the minimum.

(4) The amount of gain or loss that can be realized on AFS fixed income assets held in the surplus segment will depend on the aggregate amount of unrealized gain or loss.

(5) Sensitivities are based on projected asset and liability cash flows and the impact of realizing fair value changes in AFS fixed income is based on the holdings at the end of the period.

(6) The impact on MLI's MCCSR ratio includes both the impact of lower earnings on available capital as well as the increase in required capital that results from a decline in interest rates.

The $200 million increase in sensitivity to a 50 basis point decline in interest rates from December 31, 2016 was primarily due to normal rebalancing as part of our interest risk hedging program and our decision to reduce the allocation to ALDA in the portfolio asset mix supporting our North American legacy businesses over the next 12-18 months. Since the decision to change the portfolio asset mix supporting our legacy businesses requires us to complete multiple asset dispositions over the next 12-18 months, we are exposed to the rates at which the proceeds from these dispositions can be reinvested.

The following tables show the potential impact on net income attributed to shareholders resulting from a change in corporate spreads and swap spreads over government bond rates for all maturities across all markets with a floor of zero on the total interest rate, relative to the spreads assumed in the valuation of policy liabilities.

### Potential impact on net income attributed to shareholders arising from changes to corporate spreads and swap spreads[(1),(2),(3),(4)]

| As at December 31, ($ millions) | 2017 | 2016 |
|---|---|---|
| **Corporate spreads**[(5),(6)] | | |
| Increase 50 basis points | **$ 1,000** | $ 700 |
| Decrease 50 basis points | **(1,000)** | (800) |
| **Swap spreads** | | |
| Increase 20 basis points | **$ (400)** | $(500) |
| Decrease 20 basis points | **400** | 500 |

(1) See "Caution Related to Sensitivities" above.

(2) The sensitivities as at December 31, 2017 include the impact of lower U.S. corporate tax rates effective January 1, 2018 and the decision to change the portfolio asset mix of our North American legacy businesses over the next 12-18 months.

(3) The impact on net income attributed to shareholders assumes no gains or losses are realized on our AFS fixed income assets held in the surplus segment and excludes the impact of changes in segregated fund bond values due to changes in credit spreads. The participating policy funds are largely self-supporting and generate no material impact on net income attributed to shareholders as a result of changes in corporate and swap spreads.

(4) Sensitivities are based on projected asset and liability cash flows.

(5) Corporate spreads are assumed to grade to the long-term average over five years.

(6) As the sensitivity to a 50 basis point decline in corporate spreads includes the impact of a change in deterministic reinvestment scenarios where applicable, the impact of changes to corporate spreads for less than, or more than, the amounts indicated are unlikely to be linear.

The $200 million increase in sensitivity to a 50 basis point decline in corporate spreads from December 31, 2016 was primarily due to our decision to reduce the allocation to ALDA in the portfolio asset mix supporting our North American legacy businesses over the next 12-18 months and the lower U.S. corporate tax rates effective January 1, 2018. Since the decision to change the portfolio asset mix supporting our legacy businesses requires us to complete multiple asset dispositions over the next 12-18 months, we are exposed to the rates at which the proceeds from these dispositions can be reinvested.

Swap spreads remain at low levels, and if they were to rise, this could generate material charges to net income attributed to shareholders.

### Alternative Long-Duration Asset Performance Risk Sensitivities and Exposure Measures

The following table shows the potential impact on net income attributed to shareholders resulting from an immediate 10% change in market values of ALDA followed by a return to the expected level of growth assumed in the valuation of policy liabilities. If market values were to remain flat for an entire year, the potential impact would be roughly equivalent to an immediate decline in market values equal to the expected level of annual growth assumed in the valuation of policy liabilities. Further, if after market values dropped 10% they continued to decline, remained flat, or grew more slowly than assumed in the valuation of policy liabilities, the potential impact on net income attributed to shareholders could be considerably more than shown. Refer to "Sensitivity of Earnings to Changes in Assumptions" below, for more information on the level of growth assumed and on the net income sensitivity to changes in these long-term assumptions.

ALDA includes commercial real estate, timber and farmland real estate, oil and gas direct holdings, and private equities, some of which relate to oil and gas.

### Potential impact on net income attributed to shareholders arising from changes in ALDA returns[(1),(2),(3),(4),(5),(6),(7)]

| As at December 31, ($ millions) | 2017 -10% | 2017 10% | 2016 -10% | 2016 10% |
|---|---|---|---|---|
| Real estate, agriculture and timber assets | **$ (1,300)** | **$ 1,300** | $ (1,300) | $ 1,200 |
| Private equities and other ALDA | **(1,500)** | **1,400** | (1,200) | 1,200 |
| **Alternative long-duration assets** | **$ (2,800)** | **$ 2,700** | $ (2,500) | $ 2,400 |

(1) See "Caution Related to Sensitivities" above.
(2) The sensitivities as at December 31, 2017 include the impact of lower U.S. corporate tax rates effective January 1, 2018.
(3) This impact is calculated as at a point-in-time impact and does not include: (i) any potential impact on ALDA weightings or (ii) any gains or losses on ALDA held in the Corporate and Other segment.
(4) The participating policy funds are largely self-supporting and generate no material impact on net income attributed to shareholders as a result of changes in ALDA returns. For some classes of ALDA, where there is not an appropriate long-term benchmark available, the return assumptions used in valuation are not permitted by the Standards of Practice and CIA guidance to result in a lower reserve than an assumption based on a historical return benchmark for public equities in the same jurisdiction.
(5) Net income impact does not consider any impact of the market correction on assumed future return assumptions.
(6) Please refer to "Sensitivity of Earnings to Changes in Assumptions" below, for more information on the level of growth assumed and on the net income sensitivity to changes in these long-term assumptions.
(7) The sensitivities as at December 31, 2017 do not include the impact of the decision to change the portfolio asset mix supporting our North American legacy business as no changes to the portfolio had been made as of that date. The reduction in the allocation to ALDA in the portfolio asset mix will be reflected in the sensitivity as it occurs over the next 12-18 months.

The $300 million increase in sensitivity to a 10% decline in alternative long-duration assets from December 31, 2016 was primarily due to the lower U.S. corporate income tax rates effective January 1, 2018.

### Foreign Exchange Risk Sensitivities and Exposure Measures

The Company generally matches the currency of its assets with the currency of the insurance and investment contract liabilities they support, with the objective of mitigating risk of loss arising from currency exchange rate changes. As at December 31, 2017, the Company did not have a material unmatched currency exposure.

The following table shows the potential impact on core earnings of a 10% change in the Canadian dollar relative to our key operating currencies.

### Potential impact on core earnings[(1),(2),(3)]

| As at December 31, ($ millions) | 2017 +10% strengthening | 2017 -10% weakening | 2016 +10% strengthening | 2016 -10% weakening |
|---|---|---|---|---|
| 10% change in the Canadian dollar relative to the U.S. dollar and the Hong Kong dollar | **$ (280)** | **$ 280** | $ (230) | $ 230 |
| 10% change in the Canadian dollar relative to the Japanese yen | **(60)** | **60** | (50) | 50 |

(1) This item is a non-GAAP measure. See "Performance and Non-GAAP Measures" below.
(2) See "Caution Related to Sensitivities" above.
(3) The sensitivities as at December 31, 2017 include the impact of lower U.S. corporate tax rates effective January 1, 2018.

## 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.**

### Liquidity Risk Management Strategy

Global liquidity management policies and procedures are designed to provide adequate liquidity to cover cash and collateral obligations as they come due, and to sustain and grow operations in both normal and stressed conditions. They reflect legal, regulatory, tax, operational or economic impediments to inter-entity funding. The asset mix of our balance sheet takes into account the need to hold adequate unencumbered and appropriate liquid assets to satisfy the requirements arising under stressed scenarios and to allow our liquidity ratios to remain strong. We manage liquidity centrally and closely monitor the liquidity positions of our principal subsidiaries.

We seek to mitigate liquidity risk by diversifying our business across different products, markets, geographical regions and policyholders. We design insurance products to encourage policyholders to maintain their policies in-force, to help generate a diversified and stable flow of recurring premium income. We design the policyholder termination features of our wealth management products and related investment strategies with the goal of mitigating the financial exposure and liquidity risk related to unexpected policyholder terminations. We establish and implement investment strategies intended to match the term profile of the assets to the liabilities they support, taking into account the potential for unexpected policyholder terminations and resulting liquidity needs. Liquid assets represent a large portion of our total assets. We aim to reduce liquidity risk in our deposit funded businesses by diversifying our funding sources and appropriately managing the term structure of our funding. We forecast and monitor daily operating liquidity and cash movements in various individual entities and operations as well as centrally, aiming to ensure liquidity is available and cash is employed optimally.

We also maintain centralized cash pools and access to other sources of liquidity and contingent liquidity such as repurchase funding agreements. Our centralized cash pool consists of cash or near-cash, high quality short-term investments that are continually monitored for their credit quality and market liquidity.

We have established a variety of contingent funding sources. We maintain a $500 million committed unsecured revolving credit facility with certain Canadian chartered banks available for MFC, and a US$500 million committed unsecured revolving credit facility with certain U.S. banks available for MFC and certain of its subsidiaries. There were no outstanding borrowings under these credit facilities as of December 31, 2017. In addition, JHUSA is a member of the Federal Home Loan Bank of Indianapolis ("FHLBI"), which enables the Company to obtain loans from FHLBI as an alternative source of liquidity that is collateralized by qualifying mortgage loans, mortgage-backed securities and U.S. Treasury and Agency securities. Based on regulatory limitations, as of December 31, 2017, JHUSA had an estimated maximum borrowing capacity of US$4.3 billion under the FHLBI facility, with no amounts outstanding.

The following table outlines the maturity of the Company's significant financial liabilities.

**Maturity of financial liabilities[1]**

| As at December 31, 2017 ($ millions) | Less than 1 year | 1 to 3 years | 3 to 5 years | Over 5 years | Total |
|---|---|---|---|---|---|
| Long-term debt | $ 401 | $ 626 | $ – | $ 3,758 | $ 4,785 |
| Capital instruments | – | – | – | 8,387 | 8,387 |
| Derivatives | 224 | 149 | 168 | 7,281 | 7,822 |
| Deposits from Bank clients[2] | 15,322 | 1,373 | 1,436 | – | 18,131 |
| Lease obligations | 126 | 172 | 89 | 451 | 838 |

[1] The amounts shown above are net of the related unamortized deferred issue costs.

[2] Carrying value and fair value of deposits from Bank clients as at December 31, 2017 was $18,131 million and $18,149 million, respectively (2016 – $17,919 million and $17,978 million, respectively). Fair value is determined by discounting contractual cash flows, using market interest rates currently offered for deposits with similar terms and conditions. All deposits from Bank clients were categorized in Level 2 of the fair value hierarchy (2016 – Level 2).

Through the normal course of business, pledging of assets is required to comply with jurisdictional regulatory and other requirements including collateral pledged to partially mitigate derivative counterparty credit risk, assets pledged to exchanges as initial margin and assets held as collateral for repurchase funding agreements. Total unencumbered assets were $396.8 billion as at December 31, 2017 (2016 – $396.3 billion).

### Liquidity Risk Exposure Measures

We manage liquidity levels of the consolidated group and key subsidiaries against established thresholds. We measure liquidity under both immediate (within one month) and ongoing (within one year) stress scenarios. Our policy is to maintain the ratio of assets to liabilities, both adjusted for their liquidity values, above the pre-established limit.

Increased use of derivatives for hedging purposes has necessitated greater emphasis on measurement and management of contingent liquidity risk related to these instruments. The market value of our derivative portfolio is therefore regularly stress tested to assess the potential collateral and cash settlement requirements under various market conditions.

Manulife Bank (the "Bank") has a stand-alone liquidity risk management policy framework. The framework includes stress testing, cash flow modeling, a funding plan and a contingency plan. The Bank has an established securitization infrastructure which enables the Bank to access a range of funding and liquidity sources. The Bank models extreme but plausible stress scenarios that demonstrate that the Bank has a sufficient pool of highly liquid money market securities and holdings of sovereign bonds, near-sovereign bonds and other liquid marketable securities, which when combined with the Bank's capacity to securitize residential mortgage assets provides sufficient liquidity to meet potential requirements under these stress scenarios.

## Credit Risk

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

### Credit Risk Management Strategy

Credit risk is governed by the Credit Committee which oversees the overall credit risk management program. The Company has established objectives for overall quality and diversification of our general fund investment portfolio and criteria for the selection of counterparties, including derivative counterparties, reinsurers and insurance providers. Our policies establish exposure limits by borrower, corporate connection, quality rating, industry, and geographic region, and govern the usage of credit derivatives. Corporate connection limits vary according to risk rating. Our general fund fixed income investments are primarily public and private investment grade bonds and commercial mortgages. We have a program for selling Credit Default Swaps ("CDS") that employs a highly selective, diversified and conservative approach. CDS decisions follow the same underwriting standards as our cash bond portfolio and the addition of this asset class allows us to better diversify our overall credit portfolio.

Our credit granting units follow a defined evaluation process that provides an objective assessment of credit proposals. We assign a risk rating, based on a standardized 22-point scale consistent with those of external rating agencies, following a detailed examination of the borrower that includes a review of business strategy, market competitiveness, industry trends, financial strength, access to funds, and other risks facing the counterparty. We assess and update risk ratings regularly. For additional input to the process, we also assess credit risks using a variety of industry standard market-based tools and metrics. We map our risk ratings to pre-established probabilities of default and loss given defaults, based on historical industry and Company experience, and to resulting default costs.

We establish delegated credit approval authorities and make credit decisions on a case-by-case basis at a management level appropriate to the size and risk level of the transaction, based on the delegated authorities that vary according to risk rating. Major credit decisions are approved by the Credit Committee and the largest decisions are approved by the CEO and, in certain cases, by the Board of Directors.

We limit the types of authorized derivatives and applications and require pre-approval of all derivative application strategies and regular monitoring of the effectiveness of derivative strategies. Derivative counterparty exposure limits are established based on a minimum acceptable counterparty credit rating (generally A- from internationally recognized rating agencies). We measure derivative counterparty exposure as net potential credit exposure, which takes into consideration mark-to-market values of all transactions with each counterparty, net of any collateral held, and an allowance to reflect future potential exposure. Reinsurance counterparty exposure is measured reflecting the level of ceded liabilities net of collateral held. The creditworthiness of all reinsurance counterparties is reviewed internally on a regular basis.

Regular reviews of the credits within the various portfolios are undertaken with the goal of identifying changes to credit quality and, where appropriate, taking corrective action. Prompt identification of problem credits is a key objective.

We establish an allowance for losses on a loan when it becomes impaired as a result of deterioration in credit quality, to the extent there is no longer assurance of timely realization of the carrying value of the loan and related investment income. We reduce the carrying value of an impaired loan to its estimated net realizable value when we establish the allowance. We establish an allowance for losses on reinsurance contracts when a reinsurance counterparty becomes unable or unwilling to fulfill its contractual obligations. We base the allowance for loss on current recoverables and ceded policy liabilities. There is no assurance that the allowance for losses will be adequate to cover future potential losses or that additional allowances or asset write-downs will not be required.

Policy liabilities include general provisions for credit losses from future asset impairments.

Our credit policies, procedures and investment strategies are established under a strong governance framework and are designed to ensure that risks are identified, measured and monitored consistent with our risk appetite. We seek to actively manage credit exposure in our investment portfolio to reduce risk and minimize losses, and derivative counterparty exposure is managed proactively. However, we could experience volatility on a quarterly basis and losses could potentially rise above long-term expected and historical levels.

### Credit Risk Exposure Measures

As at December 31, 2017 and December 31, 2016, for every 50% that credit defaults over the next year exceed the rates provided for in policy liabilities, net income attributed to shareholders would be reduced by $63 million and $54 million in each year, respectively. The exposure measure as at December 31, 2017 includes the impact of lower U.S. corporate tax rates in 2018. In addition, credit downgrades would adversely impact our regulatory capital, as required capital levels for fixed income investments are based on the credit quality of each instrument. In addition, credit downgrades could also be higher than assumed in policy liabilities, resulting in policy liability increases and a reduction in net income attributed to shareholders.

The table below shows net impaired assets and allowances for loan losses.

### Net Impaired Assets and Loan Losses

**As at December 31,**
**($ millions, unless otherwise stated)**

| | **2017** | 2016 |
|---|---|---|
| Net impaired fixed income assets | **$ 173** | $ 224 |
| Net impaired fixed income assets as a % of total invested assets | **0.052%** | 0.070% |
| Allowance for loan losses | **$ 85** | $ 118 |

## Insurance Risk

**Insurance risk is the risk of loss due to actual experience for mortality and morbidity claims, policyholder behaviour and expenses emerging differently than assumed when a product was designed and priced with respect to.**

### Insurance Risk Management Strategy

Insurance risk is governed by the Product Oversight Committee which oversees the overall insurance risk management program. The Committee has established a broad framework for managing insurance risk under a set of policies, standards and guidelines, to ensure that our product offerings align with our risk taking philosophy and risk limits, and achieve acceptable profit margins. These cover:

- product design features
- use of reinsurance
- pricing models and software
- internal risk-based capital allocations
- target profit objectives
- pricing methods and assumption setting
- stochastic and stress scenario testing
- required documentation
- review and approval processes
- experience monitoring programs

In each business unit that sells products with insurance risks, we designate individual pricing officers who are accountable for pricing activities, chief underwriters who are accountable for underwriting activities and chief claims risk managers who are accountable for claims activities. Both the pricing officer and the general manager of each business unit approve the design and pricing of each product, including key claims, policyholder behaviour, investment return and expense assumptions, in accordance with global policies and standards. Risk management functions provide additional oversight, review and approval of all product and pricing initiatives, as well as material underwriting initiatives. Actuarial functions provide oversight review and approval of policy liability valuation methods and assumptions. In addition, both risk and actuarial functions review and approve new reinsurance arrangements. We perform annual risk and compliance self-assessments of the product development, pricing, underwriting and claims activities of all businesses. To leverage best practices, we facilitate knowledge transfer between staff working with similar businesses in different geographies.

We utilize a global underwriting manual intended to ensure insurance underwriting practices for direct written life business are consistent across the organization while reflecting local conditions. Each business unit establishes underwriting policies and procedures, including criteria for approval of risks and claims adjudication policies and procedures.

We apply retention limits per insured life that are intended to reduce our exposure to individual large claims which are monitored in each business unit. These retention limits vary by market and jurisdiction. We reinsure exposure in excess of these limits with other companies. Our current global life retention limit is US$30 million for individual policies (US$35 million for survivorship life policies) and is shared across businesses. We apply lower limits in some markets and jurisdictions. We aim to further reduce exposure to claims concentrations by applying geographical aggregate retention limits for certain covers. Enterprise-wide, we aim to reduce the likelihood of high aggregate claims by operating globally, insuring a wide range of unrelated risk events, and reinsuring some risks.

We seek to actively manage the Company's aggregate exposure to each of policyholder behaviour risk and claims risk against enterprise-wide economic capital limits. Policyholder behaviour risk limits cover the combined risk arising from policy lapses and surrenders, withdrawals and other policyholder driven activity. The claims risk limits cover the combined risk arising from mortality, longevity and morbidity.

Internal experience studies, as well as trends in our experience and that of the industry, are monitored to update current and projected claims and policyholder behaviour assumptions, resulting in updates to policy liabilities as appropriate.

## 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.**

### Operational Risk Management Strategy

Our corporate governance practices, corporate values, and integrated enterprise-wide approach to managing risk set the foundation for mitigating operational risks. This base is further strengthened by internal controls and systems, compensation programs, and seeking to hire and retain trained and competent people throughout the organization. We align compensation programs with business strategy, long-term shareholder value and good governance practices, and we benchmark these compensation practices against peer companies.

We have an enterprise operational risk management framework that sets out the processes we use to identify, assess, manage, mitigate and report on significant operational risk exposures. Execution of our operational risk management strategy supports the drive towards a focus on the effective management of our key global operational risks. We have an Operational Risk Committee, which is the main decision-making committee for all operational risk matters and which has oversight responsibility for operational risk strategy, management and governance. We have enterprise-wide risk management programs for specific operational risks that could materially impact our ability to do business or impact our reputation.

### Legal and Regulatory Risk Management Strategy

Global Compliance oversees our regulatory compliance program and function, supported by designated Chief Compliance Officers in every Division. The program is designed to promote compliance with regulatory obligations worldwide and to assist in making the

Company's employees aware of the laws and regulations that affect it, and the risks associated with failing to comply. Divisional compliance groups monitor emerging legal and regulatory issues and changes, and prepare us to address new requirements. Global Compliance also independently assesses and monitors the effectiveness of a broad range of regulatory compliance processes and business practices against potential legal, regulatory, fraud and reputation risks, and allows significant issues to be escalated and proactively mitigated. Among these processes and business practices are: privacy (i.e. handling of personal and other confidential information), sales and marketing practices, sales compensation practices, asset management practices, fiduciary responsibilities, employment practices, underwriting and claims processing, product design, and regulatory filings. In addition, we have policies, processes and controls in place to help protect the Company, our customers and other related third parties from acts of fraud and from risks associated with money laundering and terrorist financing. Audit Services, Global Compliance and divisional compliance personnel periodically assess the effectiveness of the control environment. For further discussion of government regulation and legal proceedings, refer to "Government Regulation" in MFC's Annual Information Form dated February 7, 2018 and "Legal and Regulatory Proceedings" below.

### Business Continuity Risk Management Strategy

We have an enterprise-wide business continuity and disaster recovery program. This includes policies, plans and procedures that seek to minimize the impact of natural or man-made disasters, and is designed to ensure that key business functions can continue normal operations in the event of a major disruption. Each business unit is accountable for preparing and maintaining detailed business continuity plans and processes. The global program incorporates periodic scenario analysis designed to validate the assessment of both critical and non-critical units, as well as the establishment and testing of appropriate business continuity plans for all critical functions. The business continuity team establishes and regularly tests crisis management plans and global crisis communications protocols. We maintain off-site backup facilities and failover capability designed to minimize downtime and accelerate system recovery.

### Technology & Information Security Risk Management Strategy

Our Technology Risk Management Function provides strategy, direction, and oversight and facilitates governance for all technology risk domain activities across Manulife. The scope of this function includes: reducing information risk exposures by introducing a robust enterprise information risk management framework and supporting infrastructure for proactively identifying, managing, monitoring and reporting on critical information risk exposures; promoting transparency and informed decision-making by building and maintaining information risk profiles and risk dashboards for Global Infrastructure Services and Divisions aligned with enterprise and operational risk reporting; providing advisory services to Global Technology and the Divisions around current and emerging technology risks and their impact to the Company's information risk profile; and reducing vendor information risk exposures by incorporating sound information risk management practices into sourcing, outsourcing and offshoring initiatives and programs.

The enterprise-wide information security program, which is overseen by the Chief Information Risk Officer, seeks to mitigate information security risks. This program establishes the information and cyber security framework for the Company, including governance, policies and standards, and appropriate controls to protect information and computer systems. We also have annual security awareness training sessions for all employees.

Many jurisdictions in which we operate are implementing more stringent privacy legislation. Our global privacy program, overseen by our Chief Privacy Officer, seeks to manage the risk of privacy breaches. It includes policies and standards, ongoing monitoring of emerging privacy legislation, and a network of privacy officers. Processes have been established to provide guidance on handling personal information and for reporting privacy incidents and issues to appropriate management for response and resolution.

In addition, the Chief Information Risk Officer, the Chief Privacy Officer, and their teams work closely on information security and privacy matters.

### Human Resource Risk Management Strategy

We have a number of human resource policies, practices and programs in place that seek to manage the risks associated with attracting and retaining top talent, including recruiting programs at every level of the organization, training and development programs for our individual contributor and leadership segments globally, employee engagement surveys, and competitive compensation programs that are designed to attract, motivate and retain high-performing and high-potential employees.

### Model Risk Management Strategy

We have designated model risk management teams working closely with model owners and users that seek to manage model risk. Our model risk oversight program includes processes intended to ensure that our critical business models are conceptually sound and used as intended, and to assess the appropriateness of the calculations and outputs.

### Third-Party Risk Management Strategy

Our governance framework to address third-party risk includes appropriate policies (such as our Global Outsourcing Policy and Global Procurement Policy), standards and procedures, and monitoring of ongoing results and contractual compliance of third-party arrangements.

### Project Risk Management Strategy

To seek to ensure that key projects are successfully implemented and monitored by management, we have a Global Project Management Centre of Expertise, which is responsible for establishing policies and standards for project management. Our policies, standards and practices are benchmarked against leading practices.

### Environmental Risk Management Strategy

Our Environmental Risk Policy reflects the Company's commitment to conducting all business activities in a manner that recognizes the need to preserve the quality of the natural environment. Our Environmental Risk Policy has been designed to monitor and manage environmental risk and to seek to achieve compliance with all applicable environmental laws and regulations for business units, affiliates and subsidiaries. Business unit environmental procedures, protocols and due diligence standards are in place to help identify, monitor and manage environmental issues in advance of acquisition of property, to help to mitigate environmental risks. Historical and background investigation and subsequent soil and ground water subsurface testing may be conducted as required to assess manageable environmental risk. Regular property inspections and limitations on permitted activities further help to manage environmental liability or financial risk. Other potentially significant financial risks for individual assets, such as fire and earthquake, have generally been insured where practicable.

# Capital Management Framework

Manulife seeks to manage its capital with the objectives of:

- Operating with sufficient capital to be able to honour all commitments to its policyholders and creditors with a high degree of confidence;
- Retaining the ongoing confidence of regulators, policyholders, rating agencies, investors and other creditors in order to ensure access to capital markets; and
- Optimizing return on capital to meet shareholders' expectations subject to constraints and considerations of adequate levels of capital established to meet the first two objectives.

Capital is managed and monitored in accordance with the Capital Management Policy. The Policy is reviewed and approved by the Board of Directors annually and is integrated with the Company's risk and financial management frameworks. It establishes guidelines regarding the quantity and quality of capital, internal capital mobility, and proactive management of ongoing and future capital requirements.

Our capital management framework takes into account the requirements of the Company as a whole as well as the needs of each of our subsidiaries. Internal capital targets are set above regulatory requirements, and consider a number of factors, including expectations of regulators and rating agencies, results of sensitivity and stress testing and our own risk assessments. We monitor against these internal targets and initiate actions appropriate to achieving our business objectives.

We periodically assess the strength of our capital position under various stress scenarios. The annual Dynamic Capital Adequacy Testing ("DCAT") typically quantifies the financial impact of economic events arising from shocks in public equity and other markets, interest rates and credit, amongst others. Our 2017 DCAT results demonstrate that we would have sufficient assets, under the various adverse scenarios tested, to discharge our policy liabilities. This conclusion was also supported by a variety of other stress tests conducted by the Company.

We use an Economic Capital ("EC") framework to inform our internal view of the level of required capital and available capital. The EC framework is a key component of the Own Risk and Solvency Assessment ("ORSA") process, which ties together our risk management, strategic planning and capital management practices to confirm that our capital levels continue to be adequate from an economic perspective.

Capital management is also integrated into our product planning and performance management practices.

The composition of capital between equity and other capital instruments impacts the financial leverage ratio which is an important consideration in determining the Company's financial strength and credit ratings. The Company monitors and rebalances its capital mix through capital issuances and redemptions.

## Capital and Funding Activities

In 2017, Manulife continued its global funding strategy and maintained diversified funding sources and a broad investor base. We raised a total of $2.2 billion of funding in Canada, the U.S., and Singapore. During the year ended December 31, 2017, $1.5 billion of securities were redeemed.

The following table provides our funding activity for the year ended December 31, 2017.

| ($ millions)[1] | Issued | Redeemed |
|---|---|---|
| Subordinated debentures[2],[3] | **$ 2,160** | **$ 900** |
| Senior debt[4] | **–** | **600** |
| Total | **$ 2,160** | **$ 1,500** |

[1] Amounts have been translated to Canadian dollar equivalents using the December 31, 2017 exchange rate.
[2] A total of $2.2 billion of MFC subordinated debentures were issued during the year: US$750 million (4.061%) on February 24, 2017, $750 million (3.049%) on August 18, 2017, and SG$500 million (3.00%) on November 21, 2017.
[3] A total of $900 million of MLI subordinated debentures were redeemed at par during the year: $500 million (4.165%) on June 1, 2017 and $400 million (3.938%) on September 21, 2017.
[4] A series of MFC senior notes was redeemed during the year: $600 million (7.768%) on October 6, 2017 with a redemption premium of $44 million before-tax.

The following measure of capital reflects our capital management activities at the MFC level.

| **As at December 31,** ($ millions) | **2017** | 2016 | 2015 |
|---|---|---|---|
| Non-controlling interests | **$ 929** | $ 743 | $ 592 |
| Participating policyholders' equity | **221** | 248 | 187 |
| Preferred shares | **3,577** | 3,577 | 2,693 |
| Common shareholders' equity | **37,436** | 38,255 | 38,466 |
| Total equity[(1)] | **42,163** | 42,823 | 41,938 |
| Adjusted for accumulated other comprehensive loss on cash flow hedges | **(109)** | (232) | (264) |
| Total equity excluding accumulated other comprehensive loss on cash flow hedges | **42,272** | 43,055 | 42,202 |
| Qualifying capital instruments | **8,387** | 7,180 | 7,695 |
| **Total capital** | **$ 50,659** | $ 50,235 | $ 49,897 |

(1) Total equity includes unrealized gains and losses on AFS debt securities and AFS equities, net of taxes. The unrealized gain or loss on AFS debt securities are excluded from the OSFI definition of regulatory capital. As at December 31, 2017, the unrealized loss on AFS debt securities, net of taxes, was $163 million (2016 – $634 million).

The "Total capital" referred to in the table above does not include $4.8 billion (2016 – $5.7 billion, 2015 – $1.9 billion) of senior indebtedness issued by MFC because this form of financing does not meet OSFI's definition of regulatory capital at the MFC level. The Company has down-streamed the proceeds from this financing into operating entities in a form that qualifies as regulatory capital at the subsidiary level. For regulatory purposes, capital is further adjusted for various additions or deductions, as mandated by the guidelines issued by OSFI.

Total capital was $50.7 billion as at December 31, 2017 compared with $50.2 billion as at December 31, 2016, an increase of $0.5 billion. The increase from December 31, 2016 was primarily driven by net income attributed to shareholders net of dividends paid of $0.3 billion, net capital issuances of $1.3 billion (does not include the $0.6 billion of senior debt redeemed, as it is not in the definition of regulatory capital), and the favourable change in unrealized losses on AFS debt securities of $0.6 billion, partially offset by the unfavourable impact of foreign exchange rates of $2.0 billion.

## Financial Leverage Ratio

MFC's financial leverage ratio increased to 30.3% at year-end 2017 from 29.5% a year ago, primarily related to the charges for U.S. Tax Reform and portfolio asset mix changes. Solid core earnings in 2017 more than offset the unfavourable impacts of the strengthening of the Canadian dollar and financing activities.

## Common Shareholder Dividends

The declaration and payment of shareholder dividends and the amount thereof are at the discretion of the Board of Directors and depend upon various factors, including the results of operations, financial condition and future prospects of the Company and taking into account regulatory restrictions on the payment of shareholder dividends, as well as any other factors deemed relevant by the Board of Directors.

## Common Shareholder Dividends Paid

| **For the years ended December 31,** $ per share | **2017** | 2016 | 2015 |
|---|---|---|---|
| Dividends paid | **$ 0.820** | $ 0.740 | $ 0.665 |

The Company offers a Dividend Reinvestment Program ("DRIP") whereby shareholders may elect to automatically reinvest dividends in the form of MFC common shares instead of receiving cash. The offering of the program and its terms of execution are subject to the Board of Directors' discretion. In 2017, common shares in connection with DRIP were purchased on the open market with no applicable discount.

## Regulatory Capital Position[1]

Manulife monitors and manages its consolidated capital in compliance with the applicable OSFI guideline. Under this regime our consolidated available capital is measured against a required amount of risk capital determined in accordance with the guideline.

Manulife's operating activities are mostly conducted within MLI or its subsidiaries. MLI and MFC are regulated by OSFI and are subject to consolidated risk-based capital requirements. As noted above ("Risk Management – Regulatory Updates"), LICAT replaced the MCCSR framework on January 1, 2018 and we will disclose our March 31, 2018 ratios under this framework in May 2018. Our MCCSR ratio for MLI was 224% as at December 31, 2017, compared with 230% at the end of 2016, and is well in excess of OSFI's Supervisory Target ratio of 150% and Regulatory Minimum ratio of 120%. The 6 percentage point decrease from December 31, 2016 was mainly driven by impacts from funding of MFC dividends and funding costs, and modest required capital growth, partially offset by a net capital issuance and the contribution of net income (inclusive of U.S. Tax Reform and portfolio asset mix change charges in 4Q17). MFC's MCCSR ratio was 200% as at December 31, 2017. The difference between the MLI and MFC ratios was largely due to the $4.8 billion of MFC senior debt outstanding that, under OSFI rules, does not qualify as available capital at the MFC level.

1 The "Risk Factors" section of the MD&A outlines a number of regulatory capital risks.

As at December 31, 2017, MLI's non-consolidated operations and subsidiaries all maintained capital levels in excess of local requirements.

## Remittability of Capital

As part of its capital management, Manulife promotes internal capital mobility so that Manulife's parent company has access to funds to meet its obligations and to optimize the use of excess capital. Cash remittance is defined as the cash remitted or payable to the Group from operating subsidiaries and excess capital generated by stand-alone Canadian operations.[1] It is one of the key metrics used by management to evaluate our financial flexibility.

In 2017, MFC subsidiaries delivered $2.1 billion in remittances.

## Credit Ratings

Manulife's operating companies have strong financial strength ratings from credit rating agencies. Maintaining strong ratings on debt and capital instruments issued by MFC and its subsidiaries allows us to access capital markets at competitive pricing levels. Ratings are important factors in establishing the competitive position of insurance companies and maintaining public confidence in products being offered. Should these credit ratings decrease materially, our cost of financing may increase and our access to funding and capital through capital markets could be reduced.

During 2017, S&P, Moody's, DBRS, Fitch and A.M. Best maintained their assigned ratings of MFC and its primary insurance operating companies.

The following table summarizes the financial strength and claims paying ability ratings of MLI and certain of its subsidiaries as at February 2, 2018.

### Financial Strength Ratings

| | S&P | Moody's | DBRS | Fitch | A.M. Best |
|---|---|---|---|---|---|
| The Manufacturers Life Insurance Company | **AA-** | **A1** | **AA(Low)** | **AA-** | **A+ (Superior)** |
| John Hancock Life Insurance Company (U.S.A.) | **AA-** | **A1** | **Not Rated** | **AA-** | **A+ (Superior)** |
| Manulife (International) Limited | **AA-** | **Not Rated** | **Not Rated** | **Not Rated** | **Not Rated** |
| Manulife Life Insurance Company | **A+** | **Not Rated** | **Not Rated** | **Not Rated** | **Not Rated** |

As at February 2, 2018, S&P, Moody's, DBRS, Fitch, and A.M. Best had a stable outlook on these ratings.

[1] Remittability from stand-alone Canadian operations is higher by $100 million in 2017 due to methodology changes.

## Critical Accounting and Actuarial Policies

The preparation of financial statements in accordance with IFRS requires management to make estimates and assumptions that affect the reported amounts and disclosures made in the Consolidated Financial Statements and accompanying notes. These estimates and assumptions are based on historical experience, management's assessment of current events and conditions and activities that the Company may undertake in the future as well as possible future economic events. Actual results could differ from these estimates. The estimates and assumptions described in this section depend upon subjective or complex judgments about matters that may be uncertain and changes in these estimates and assumptions could materially impact the Consolidated Financial Statements.

Our significant accounting policies are described in note 1 to the Consolidated Financial Statements. Significant estimation processes relate to the determination of insurance and investment contract liabilities, assessment of relationships with other entities for consolidation, fair value of certain financial instruments, derivatives and hedge accounting, provisioning for asset impairment, determination of pension and other post-employment benefit obligations and expenses, income taxes and uncertain tax positions, valuation and impairment of goodwill and intangible assets and the measurement and disclosure of contingent liabilities as described below. In addition, in the determination of the fair values of invested assets, where observable market data is not available, management applies judgment in the selection of valuation models.

### Policy Liabilities (Insurance and Investment Contract Liabilities)

Policy liabilities for IFRS are valued in Canada under standards established by the Actuarial Standards Board. These standards are designed to ensure we establish an appropriate liability on the Consolidated Statements of Financial Position to cover future obligations to all our policyholders. The assumptions underlying the valuation of policy liabilities are required to be reviewed and updated on an ongoing basis to reflect recent and emerging trends in experience and changes in risk profile of the business. In conjunction with prudent business practices to manage both product and asset related risks, the selection and monitoring of appropriate valuation assumptions is designed to minimize our exposure to measurement uncertainty related to policy liabilities.

### Determination of Policy Liabilities

Policy liabilities have two major components: a best estimate amount and a provision for adverse deviation. The best estimate amount represents the estimated value of future policyholder benefits and settlement obligations to be paid over the term remaining on in-force policies, including the costs of servicing the policies. The best estimate amount is reduced by the future expected policy revenues and future expected investment income on assets supporting the policies, before any consideration for reinsurance ceded. To determine the best estimate amount, assumptions must be made for a number of key factors, including future mortality and morbidity rates, investment returns, rates of policy termination, and premium persistency, operating expenses, certain taxes (other than income taxes and includes temporary tax timing and permanent tax rate differences on the cash flows available to satisfy policy obligations) and foreign currency. Reinsurance is used to transfer part or all of a policy liability to another insurance company at terms negotiated with that insurance company. A separate asset for reinsurance ceded is calculated based on the terms of the reinsurance treaties that are in-force, with deductions taken for the credit standing of the reinsurance counterparties where appropriate.

To recognize the uncertainty involved in determining the best estimate actuarial liability assumptions, a provision for adverse deviation ("PfAD") is established. The PfAD is determined by including a margin of conservatism for each assumption to allow for possible mis-estimation of, or deterioration in, future experience in order to provide greater comfort that the policy liabilities will be sufficient to pay future benefits. The CIA establishes suggested ranges for the level of margins for adverse deviation based on the risk profile of the business. Our margins are set taking into account the risk profile of our business. The effect of these margins is to increase policy liabilities over the best estimate assumptions. The margins for adverse deviation decrease the income that is recognized at the time a new policy is sold and increase the income recognized in later periods as the margins release as the remaining policy risks reduce.

### Best Estimate Assumptions

We follow established processes to determine the assumptions used in the valuation of our policy liabilities. The nature of each risk factor and the process for setting the assumptions used in the valuation are discussed below.

### Mortality

Mortality relates to the occurrence of death. Mortality assumptions are based on our internal as well as industry past and emerging experience and are differentiated by sex, underwriting class, policy type and geographic market. We make assumptions about future mortality improvements using historical experience derived from population data. Reinsurance is used to offset some of our direct mortality exposure on in-force life insurance policies with the impact of the reinsurance directly reflected in our policy valuation for the determination of policy liabilities net of reinsurance. Actual mortality experience is monitored against these assumptions separately for each business. The results are favourable where mortality rates are lower than assumed for life insurance and where mortality rates are higher than assumed for payout annuities. Overall 2017 experience was unfavourable (2016 – unfavourable) when compared with our assumptions.

### Morbidity

Morbidity relates to the occurrence of accidents and sickness for the insured risks. Morbidity assumptions are based on our internal as well as industry past and emerging experience and are established for each type of morbidity risk and geographic market. For our JH

Long Term Care business we make assumptions about future morbidity changes. Actual morbidity experience is monitored against these assumptions separately for each business. Our morbidity risk exposure relates to future expected claims costs for long-term care insurance, as well as for group benefits and certain individual health insurance products we offer. Overall 2017 experience was unfavourable (2016 – unfavourable) when compared with our assumptions.

### Property and Casualty

Our P&C Reinsurance business insures against catastrophic losses from natural and human disasters. Policy liabilities are held for incurred claims including provision for anticipated development and for premiums received and not yet earned. Overall 2017 claims loss experience was unfavourable (2016 – in line with expectations) with respect to the provisions that were established.

### Policy Termination and Premium Persistency

Policy termination includes lapses and surrenders, where lapses represent the termination of policies due to non-payment of premiums and surrenders represent the voluntary termination of policies by policyholders. Premium persistency represents the level of ongoing deposits on contracts where there is policyholder discretion as to the amount and timing of deposits. Policy termination and premium persistency assumptions are primarily based on our recent experience adjusted for expected future conditions. Assumptions reflect differences by type of contract within each geographic market and actual experience is monitored against these assumptions separately for each business. Overall 2017 experience was unfavourable (2016 – unfavourable) when compared with our assumptions.

### Expenses and Taxes

Operating expense assumptions reflect the projected costs of maintaining and servicing in-force policies, including associated overhead expenses. The expenses are derived from internal cost studies and are projected into the future with an allowance for inflation. For some developing businesses, there is an expectation that unit costs will decline as these businesses mature. Actual expenses are monitored against assumptions separately for each business. Overall maintenance expenses for 2017 were unfavourable (2016 – unfavourable) when compared with our assumptions. Taxes reflect assumptions for future premium taxes and other non-income related taxes. For income taxes, policy liabilities are adjusted only for temporary tax timing and permanent tax rate differences on the cash flows available to satisfy policy obligations.

### Investment Returns

We segment assets to support liabilities by business segment and geographic market and establish investment strategies for each liability segment. The projected cash flows from these assets are combined with projected cash flows from future asset purchases/sales to determine expected rates of return for future years. The investment strategies for future asset purchases and sales are based on our target investment policies for each segment and the reinvestment returns are derived from current and projected market rates for fixed interest investments and our projected outlook for non-fixed interest assets. Credit losses are projected based on our own and industry experience, as well as specific reviews of the current investment portfolio. Investment return assumptions for each asset class also incorporate expected investment management expenses that are derived from internal cost studies. In 2017, actual investment returns were favourable (2016 – unfavourable) when compared with our assumptions. Investment-related experience and the direct impact of interest rates and equity markets are discussed in the "Financial Performance" section above.

### Segregated Funds

We offer segregated funds to policyholders that offer certain guarantees, including guaranteed returns of principal on maturity or death, as well as guarantees of minimum withdrawal amounts or income benefits. The on-balance sheet liability for these benefits is the expected cost of these guarantees including appropriate valuation margins for the various contingencies including mortality and lapse. The dominant driver of the cost of guarantees is the return on the underlying funds in which the policyholders invest. See "Risk Management – Market Risk – Hedging Strategies for Variable Annuity and Other Equity Risks" and the "Financial Performance – Analysis of Net Income" sections above.

### Foreign Currency

Foreign currency risk results from a mismatch of the currency of the policy liabilities and the currency of the assets designated to support these obligations. We generally match the currency of our assets with the currency of the liabilities they support, with the objective of mitigating the risk of economic loss arising from movements in currency exchange rates. Where a currency mismatch exists, the assumed rate of return on the assets supporting the liabilities is reduced to reflect the potential for adverse movements in exchange rates.

Foreign currency also impacts our MFC and MLI regulatory capital ratios. We manage the impact of this risk to ensure that the resulting change in our consolidated capital ratios stays within our risk appetite.

### Experience Adjusted Products

Where policies have features that allow the impact of changes in experience to be passed on to policyholders through policy dividends, experience rating refunds, credited rates or other adjustable features, the projected policyholder benefits are adjusted to reflect the projected experience. Minimum contractual guarantees and other market considerations are taken into account in determining the policy adjustments.

### Provision for Adverse Deviation

The total provision for adverse deviation is the sum of the provisions for adverse deviation for each risk factor. Margins for adverse deviation are established by product type and geographic market for each assumption or factor used in the determination of the best estimate actuarial liability. The margins are established based on the risk characteristics of the business being valued.

Margins for interest rate risk are included by testing a number of scenarios of future interest rates. The margin can be established by testing a limited number of scenarios, some of which are prescribed by Canadian Actuarial Standards of Practice, and determining the liability based on the worst outcome. Alternatively, the margin can be set by testing many scenarios, which are developed according to actuarial guidance. Under this approach the liability would be the average of the outcomes above a percentile in the range prescribed by the Canadian Actuarial Standards of Practice.

In addition to the explicit margin for adverse deviation, the valuation basis for segregated fund liabilities explicitly limits the future revenue recognition in the valuation basis to the amount necessary to offset acquisition expenses, after allowing for the cost of any guarantee features. The fees that are in excess of this limitation are reported as an additional margin and are shown in segregated fund non-capitalized margins.

The provision for adverse deviation and the future revenue deferred in the valuation due to the limitations on recognition of future revenue in the valuation of segregated fund liabilities are shown in the table below.

| As at December 31, ($ millions) | 2017 | 2016 |
|---|---|---|
| **Best estimate actuarial liability** | **$ 219,347** | $ 207,573 |
| **Provision for adverse deviation ("PfAD")** | | |
| Insurance risks (mortality/morbidity) | **19,258** | 16,553 |
| Policyholder behaviour (lapse/surrender/premium persistency) | **5,332** | 4,416 |
| Expenses | **1,519** | 2,200 |
| Investment risks (non-credit) | **22,979** | 26,202 |
| Investment risks (credit) | **1,024** | 1,862 |
| Segregated funds guarantees | **2,282** | 2,462 |
| **Total PfAD**(1) | **52,394** | 53,695 |
| Segregated funds – additional margins | **14,464** | 10,167 |
| **Total of PfAD and additional segregated fund margins** | **$ 66,858** | $ 63,862 |

(1) Reported net actuarial liabilities (excluding the $5,300 million (2016 – $5,918 million) reinsurance asset related to the Company's in-force participating life insurance closed block that is retained on a funds withheld basis as part of the NYL transaction) as at December 31, 2017 of $271,741 million (2016 – $261,268 million) are comprised of $219,347 million (2016 – $207,573 million) of best estimate actuarial liabilities and $52,394 million (2016 – $53,695 million) of PfAD.

The change in the PfAD from period to period is impacted by changes in liability and asset composition, by currency and interest rate movements and by material changes in valuation assumptions. The overall increase in PfAD for insurance risks and policyholder behaviour was primarily due to expected PfAD growth in all divisions, the annual review of actuarial valuation methods and assumptions, and new business in Asia, partially offset by the appreciation of the Canadian dollar relative to the U.S. dollar, Hong Kong dollar and Japanese yen. The overall decrease in PfAD for non-credit investment risks was primarily due to the annual review of actuarial valuation methods and assumptions, the appreciation of the Canadian dollar relative to the U.S. dollar, Hong Kong dollar and Japanese yen, normal rebalancing as part of our interest rate risk hedging program and our decision to reduce the allocation to ALDA in the portfolio asset mix supporting our North American legacy businesses over the next 12-18 months. The increase in the additional segregated fund margins was primarily due to increases in equity markets and refinements to our models for projecting future revenue for certain products.

## Sensitivity of Earnings to Changes in Assumptions

When the assumptions underlying our determination of policy liabilities are updated to reflect recent and emerging experience or change in outlook, the result is a change in the value of policy liabilities which in turn affects net income attributed to shareholders. The sensitivity of net income attributed to shareholders to changes in non-economic and certain asset related assumptions underlying policy liabilities is shown below, and assumes that there is a simultaneous change in the assumptions across all business units.

For changes in asset related assumptions, the sensitivity is shown net of the corresponding impact on income of the change in the value of the assets supporting liabilities. In practice, experience for each assumption will frequently vary by geographic market and business, and assumption updates are made on a business/geographic specific basis. Actual results can differ materially from these estimates for a variety of reasons including the interaction among these factors when more than one changes, changes in actuarial and investment return and future investment activity assumptions, actual experience differing from the assumptions, changes in business mix, effective tax rates and other market factors, and the general limitations of our internal models.

### Potential impact on net income attributed to shareholders arising from changes to non-economic assumptions(1),(2)

| As at December 31, ($ millions) | Decrease in net income attributed to shareholders | |
|---|---|---|
| | 2017 | 2016 |
| **Policy related assumptions** | | |
| 2% adverse change in future mortality rates(3),(5) | | |
| Products where an increase in rates increases insurance contract liabilities | **$ (400)** | $ (400) |
| Products where a decrease in rates increases insurance contract liabilities | **(400)** | (500) |
| 5% adverse change in future morbidity rates(4),(5) | **(3,900)** | (3,700) |
| 10% adverse change in future termination rates(5) | **(2,000)** | (1,900) |
| 5% increase in future expense levels | **(500)** | (500) |

(1) The sensitivities as at December 31, 2017 include the impact of lower U.S. corporate tax rates effective January 1, 2018 and the decision to change the portfolio asset mix supporting our North American legacy businesses over the next 12-18 months.
(2) The participating policy funds are largely self-supporting and generate no material impact on net income attributed to shareholders as a result of changes in non-economic assumptions. Experience gains or losses would generally result in changes to future dividends, with no direct impact to shareholders.
(3) An increase in mortality rates will generally increase policy liabilities for life insurance contracts whereas a decrease in mortality rates will generally increase policy liabilities for policies with longevity risk such as payout annuities.
(4) No amounts related to morbidity risk are included for policies where the policy liability provides only for claims costs expected over a short period, generally less than one year, such as Group Life and Health.
(5) The impacts of the sensitivities on LTC for morbidity, mortality and lapse are assumed to be moderated by partial offsets from the Company's ability to contractually raise premium rates in such events, subject to state regulatory approval.

The lower U.S. corporate tax rates effective January 1, 2018 resulted in an increase in the sensitivities from December 31, 2016. This was partially offset by a decrease in the sensitivities due to the appreciation of the Canadian dollar relative to the U.S. dollar, Hong Kong dollar and Japanese yen.

### Potential impact on net income attributed to shareholders arising from changes to asset related assumptions supporting actuarial liabilities[1]

| As at December 31, ($ millions) | Increase (decrease) in after-tax income | | | |
|---|---|---|---|---|
| | 2017 | | 2016 | |
| | Increase | Decrease | Increase | Decrease |
| **Asset related assumptions updated periodically in valuation basis changes** | | | | |
| 100 basis point change in future annual returns for public equities[2] | **$ 400** | **$ (400)** | $ 500 | $ (500) |
| 100 basis point change in future annual returns for ALDA[3] | **3,600** | **(4,100)** | 2,900 | (3,500) |
| 100 basis point change in equity volatility assumption for stochastic segregated fund modelling[4] | **(200)** | **200** | (200) | 200 |

(1) The sensitivities as at December 31, 2017 include the impact of lower U.S. corporate tax rates effective January 1, 2018 and the decision to change the portfolio asset mix supporting our North American legacy businesses over the next 12-18 months.
(2) The sensitivity to public equity returns above includes the impact on both segregated fund guarantee reserves and on other policy liabilities. For a 100 basis point increase in expected growth rates, the impact from segregated fund guarantee reserves is a $200 million increase (2016 – $200 million increase). For a 100 basis point decrease in expected growth rates, the impact from segregated fund guarantee reserves is a $200 million decrease (2016 – $200 million decrease). Expected long-term annual market growth assumptions for public equities are based on long-term historical observed experience and compliance with actuarial standards. The calibration of the economic scenario generators that are used to value segregated fund guarantee business complies with current CIA Standards of Practice for the valuation of these products. As at December 31, 2017, the growth rates inclusive of dividends in the major markets used in the stochastic valuation models for valuing segregated fund guarantees are 9.3% (9.5% – December 31, 2016) per annum in Canada, 9.6% (9.6% – December 31, 2016) per annum in the U.S. and 6.2% (6.2% – December 31, 2016) per annum in Japan. Growth assumptions for European equity funds are market-specific and vary between 8.1% and 9.9%.
(3) ALDA include commercial real estate, timber and farmland real estate, direct oil and gas properties, and private equities, some of which relate to oil and gas. Expected long-term return assumptions for ALDA and public equity are set in accordance with the Standards of Practice for the valuation of insurance contract liabilities and guidance published by the CIA. The guidance requires that the investment return assumption for these assets should not be higher than the historical long-term average returns of an appropriate broad-based index. Where such experience is not available, investment return assumptions should not result in a lower reserve than an assumption based on a historical return benchmark for public equities in the same jurisdiction. Annual best estimate return assumptions for ALDA and public equity include market growth rates and annual income, such as rent, production proceeds and dividends, and will vary based on our holding period. Over a 20-year horizon, our best estimate return assumptions range between 5.25% and 12%, with an average of 9.5% based on the current asset mix backing our guaranteed insurance and annuity business as of December 31, 2017, adjusted to reflect our decision to reduce the allocation to ALDA in the portfolio asset mix supporting our North American legacy businesses over the next 12-18 months (9.7% as of December 31, 2016 – see "2017 Review of Actuarial Methods and Assumptions" below). Our return assumptions including the margins for adverse deviations in our valuation, which take into account the uncertainty of achieving the returns, range between 2.5% and 7.5%, with an average of 6.3% based on the asset mix backing our guaranteed insurance and annuity business as of December 31, 2017, adjusted to reflect our decision to reduce the allocation to ALDA in the portfolio asset mix supporting our North American legacy businesses over the next 12-18 months (6.5% as of December 31, 2016).
(4) Volatility assumptions for public equities are based on long-term historical observed experience and compliance with actuarial standards. The resulting volatility assumptions are 16.95% per annum in Canada and 17.15% per annum in the U.S. for large cap public equities, and 19.25% per annum in Japan. For European equity funds, the volatility varies between 16.5% and 18.4%.

The $600 million increase in sensitivity to a 100 basis point decrease in future annual returns for ALDA from December 31, 2016 was primarily due to the lower U.S. federal corporate income tax rates effective January 1, 2018 and updates to our valuation assumptions, as a result of our annual review of actuarial methods and assumptions. This was partially offset by a decrease in sensitivity due to our decision to reduce the allocation to ALDA in the portfolio asset mix supporting our North American legacy businesses over the next 12-18 months.

## Review of Actuarial Methods and Assumptions

A comprehensive review of actuarial methods and assumptions is performed annually. The review is designed to reduce the Company's exposure to uncertainty by ensuring assumptions for both asset related and liability related risks remain appropriate. This is accomplished by monitoring experience and selecting assumptions which represent a current best estimate view of expected future experience, and margins that are appropriate for the risks assumed. While the assumptions selected represent the Company's current best estimates and assessment of risk, the ongoing monitoring of experience and changes in the economic environment are likely to result in future changes to the actuarial assumptions, which could be material.

## 2017 Review of Actuarial Methods and Assumptions

The 2017 full year review of actuarial methods and assumptions resulted in an increase in insurance and investment contract liabilities of $277 million, net of reinsurance, and a decrease in net income attributed to shareholders of $35 million. These charges exclude the impacts of U.S. Tax Reform and the decision to reduce the allocation to ALDA in the portfolio asset mix supporting our North American legacy businesses. These two items resulted in an after-tax increase in policy liabilities and total charge to net income attributed to shareholders in 4Q17 of $2.8 billion.

| **For the year ended December 31, 2017** ($ millions) | Change in gross insurance and investment contract liabilities | Change in net insurance and investment contract liabilities[1] | Change in net income attributed to shareholders |
|---|---|---|---|
| Mortality and morbidity updates | **$ (219)** | **$ (254)** | **$ 299** |
| Lapses and policyholder behavior | **1,057** | **1,019** | **(783)** |
| Other updates | | | |
| ALDA and public equity investment return assumptions | **1,403** | **1,296** | **(892)** |
| Corporate spread assumptions | **(554)** | **(515)** | **344** |
| Refinements to liability and tax cash flows | **(1,273)** | **(1,049)** | **696** |
| Other | **(90)** | **(220)** | **301** |
| **Net impact** | **$ 324** | **$ 277** | **$ (35)** |

[1] The $277 million increase in insurance and investment contract liabilities net of reinsurance, included an increase in net liabilities associated with participating insurance business resulting in a charge to net income attributed to participating policyholders of $88 million.

### Mortality and morbidity updates

Mortality and morbidity updates resulted in a $299 million benefit to net income attributed to shareholders.

We completed a detailed review of the mortality assumptions for our U.S. life insurance business which resulted in a $384 million charge to net income attributed to shareholders. We increased assumptions particularly at older ages, reflecting both industry and our own experience.

Updates to actuarial standards related to future mortality improvement, and the review of mortality improvement assumptions globally, resulted in a $264 million benefit to net income attributed to shareholders primarily in Canada and Asia. The updated actuarial standards include a diversification benefit for the determination of margins for adverse deviation which recognizes the offsetting impact of longevity and mortality risk.

We completed a detailed review of the mortality assumptions for our Canadian retail insurance business which resulted in a $222 million benefit to net income attributed to shareholders.

Other updates to mortality and morbidity assumptions led to a $197 million benefit to net income attributed to shareholders. These updates included a reduction in the margins for adverse deviation applied to our morbidity assumptions for certain medical insurance products in Japan.

### Updates to lapses and policyholder behaviour

Updates to lapses and policyholder behaviour assumptions resulted in a $783 million charge to net income attributed to shareholders.

In Canadian retail insurance, lapse assumptions were reduced for certain universal life products to reflect recent experience leading to a $315 million charge to net income attributed to shareholders.

For Canadian segregated fund guaranteed minimum withdrawal benefit lapses, incidence and utilization assumptions were updated to reflect recent experience which led to a $242 million charge to net income attributed to shareholders.

Other updates to lapse and policyholder behaviour assumptions were made across several product lines including reduction in lapse assumptions for our whole life insurance products in Japan, leading to a $226 million charge to net income attributed to shareholders.

### Other updates

Other updates resulted in a $449 million benefit to net income attributed to shareholders.

We reviewed our investment return assumptions for ALDA and public equities, which in aggregate led to a reduction in return assumptions and a $892 million charge to net income attributed to shareholders. We also reviewed future corporate spread assumptions, which led to a $344 million benefit to net income attributed to shareholders.

Refinements to the projection of our liability and tax cash flows in the U.S. resulted in a $696 million benefit to net income attributed to shareholders. These changes included refinements to the projection of policyholder crediting rates for certain universal life insurance products.

Other refinements resulted in a $301 million benefit to net income attributed to shareholders. These changes included a review of provisions for reinsurance counterparty credit risk and several other refinements to the projection of both our asset and liability cash flows.

## 2016 Review of Actuarial Methods and Assumptions

The 2016 full year review of actuarial methods and assumptions resulted in an increase in insurance and investment contract liabilities of $655 million, net of reinsurance, and a decrease in net income attributed to shareholders of $453 million.

| **For the year ended December 31, 2016** ($ millions) | Change in gross insurance and investment contract liabilities | Change in net insurance and investment contract liabilities | Change in net income attributed to shareholders |
|---|---|---|---|
| JH Long Term Care triennial review | $ 696 | $ 696 | $ (452) |
| Mortality and morbidity updates | (12) | (53) | 76 |
| Lapse and policyholder behavior | | | |
| U.S. Variable Annuities guaranteed minimum withdrawal benefit incidence and utilization | (1,024) | (1,024) | 665 |
| Other lapses and policyholder behaviour | 516 | 431 | (356) |
| Economic reinvestment assumptions | 459 | 443 | (313) |
| Other updates | 719 | 162 | (73) |
| **Net impact** | $ 1,354 | $ 655 | $ (453) |

## JH Long Term Care triennial review

U.S. Insurance completed a comprehensive long-term care experience study. This included a review of mortality, morbidity and lapse experience, as well as the reserve for in-force rate increases filed as a result of the 2013 review. In addition, the Company implemented refinements to the modelling of future tax cash flows for long-term care. The net impact of the review was a $452 million charge to net income attributed to shareholders for the year ended December 31, 2016.

Expected future claims costs increased primarily due to claims periods being longer than expected in policy liabilities, and a reduction in lapse and mortality rates. This increase in expected future claims costs was partially offset by a number of items, including expected future premium increases resulting from this year's review and a decrease in the margin for adverse deviations related to the rate of inflation embedded in our benefit utilization assumptions.

The review of premium increases assumed in the policy liabilities resulted in a benefit to earnings of $1.0 billion for the year ended December 31, 2016; this includes future premium increases that are due to our 2016 review of morbidity, mortality and lapse assumptions, and outstanding amounts from our 2013 state filings. Premium increases averaging approximately 20% will be sought on the vast majority of the in-force business, excluding the carryover of 2013 amounts requested. Our assumptions reflect the estimated timing and amount of state approved premium increases. Our actual experience obtaining price increases could be materially different than we have assumed, resulting in further increases or decreases in policy liabilities, which could be material.

## Mortality and morbidity updates

Mortality and morbidity assumptions were updated across several business units to reflect recent experience, including updates to morbidity assumptions for certain medical insurance products in Japan, leading to a $76 million benefit to net income attributed to shareholders for the year ended December 31, 2016.

## Updates to lapses and policyholder behaviour

U.S. Variable Annuities guaranteed minimum withdrawal benefit incidence and utilization assumptions were updated to reflect recent experience which led to a $665 million benefit to net income attributed to shareholders for the year ended December 31, 2016. We updated our incidence assumptions to reflect the favourable impact of policyholders taking withdrawals later than expected. This was partially offset by an increase in our utilization assumptions.

In Japan, lapse rates for term life insurance products were increased at certain durations which led to a $228 million charge to net income attributed to shareholders for the year ended December 31, 2016. Other updates to lapse and policyholder behavior assumptions were made across several product lines, including term products in Canada, which led to a $128 million charge to net income attributed to shareholders for the year ended December 31, 2016.

## Updates to economic reinvestment assumptions

The Company updated economic reinvestment assumptions for risk-free rates used in the valuation of policy liabilities which resulted in a $313 million charge to net income attributed to shareholders for the year ended December 31, 2016. These updates included a proactive 10 basis point reduction to our URR assumptions and a commensurate change in our calibration criteria for stochastic risk-free rates. These updates reflect the fact that interest rates are lower than they were when the current prescribed URR and calibration criteria for stochastic risk-free rates were promulgated by the Actuarial Standards Board ("ASB") in 2014. The ASB has indicated that it will update the promulgation periodically, when necessary. We expect the promulgation to be updated in 2017 and, if required, we will make further updates to our economic reinvestment assumptions at that time.

## Other updates

Other model refinements related to the projection of both asset and liability cash flows across several business units led to a $73 million charge to net income attributed to shareholders for the year ended December 31, 2016. This included a charge due to refinements to our CALM models and assumptions offset by a benefit due to refinements to the modelling of future tax cash flows for certain assets in the U.S.

## Change in net insurance contract liabilities

The change in net insurance contract liabilities can be attributed to several sources: new business, acquisitions, in-force movement and currency impact. Changes in net insurance contract liabilities are substantially offset in the financial statements by premiums, investment income, policy benefits and other policy related cash flows. The changes in net insurance contract liabilities by business segment are shown below:

### 2017 Net Insurance Contract Liability Movement Analysis

| **For the year ended December 31, 2017** ($ millions) | Asia Division | Canadian Division | U.S. Division | Corporate and Other | Total |
|---|---|---|---|---|---|
| Balance, January 1 | **$ 54,567** | **$ 73,384** | **$ 135,192** | **$ (590)** | **$ 262,553** |
| New business[1],[2] | **2,130** | **139** | **1,276** | **–** | **3,545** |
| In-force movement[1],[3] | **8,255** | **2,304** | **5,329** | **234** | **16,122** |
| Changes in methods and assumptions[1] | **(21)** | **(91)** | **119** | **270** | **277** |
| Impact of U.S. Tax Reform[4] | **–** | **–** | **2,246** | **–** | **2,246** |
| Increase due to decision to change portfolio asset mix supporting our legacy businesses[5] | **–** | **468** | **872** | **–** | **1,340** |
| Currency impact[6] | **(2,688)** | **(6)** | **(9,183)** | **40** | **(11,837)** |
| **Balance, December 31** | **$ 62,243** | **$ 76,198** | **$ 135,851** | **$ (46)** | **$ 274,246** |

(1) The $22,292 million increase reported as the change in insurance contract liabilities and change in reinsurance assets on the 2017 Consolidated Statements of Income primarily consists of changes due to normal in-force movement, new policies, changes in methods and assumptions, the impact of U.S. Tax Reform and the increase due to the decision to change portfolio asset mix supporting our North American legacy businesses. These 5 items net to an increase of $23,530 million, of which $22,628 million is included in the income statement increase in insurance contract liabilities and change in reinsurance assets, and $902 million is included in net claims and benefits. The Consolidated Statements of Income change in insurance contract liabilities also includes the change in embedded derivatives associated with insurance contracts. Of the $19,667 million net increase in insurance contract liabilities related to new business and in-force movement, $18,737 million was an increase in actuarial liabilities. The remaining amount was an increase of $930 million in other insurance contract liabilities.

(2) New business policy liability impact is positive/(negative) when estimated future premiums, together with future investment income, are expected to be more/(less) than sufficient to pay estimated future benefits, policyholder dividends and refunds, taxes (excluding income taxes) and expenses on new policies issued.

(3) The net in-force movement over the year was an increase of $16,122 million, reflecting expected growth in insurance contract liabilities in all three divisions.

(4) U.S. Tax Reform, which includes the lowering of the U.S. corporate tax rate from 35% to 21% and limits on the tax deductibility of reserves, resulted in a $2,246 million pre-tax ($1,774 million post-tax) increase in policy liabilities due to the impact of temporary tax timing and permanent tax rate differences on the cash flows available to satisfy policyholder obligations.

(5) The decision to reduce the allocation to ALDA in the portfolio asset mix supporting our North American legacy businesses resulted in an increase in policy liabilities due to the impact on future expected investment income on assets supporting the policies.

(6) The decrease in policy liabilities from currency impact reflects the appreciation of the Canadian dollar relative to the U.S. dollar, Hong Kong dollar and Japanese yen. To the extent assets are currency matched to liabilities, the increase in insurance contract liabilities due to currency impact is offset by a corresponding increase from currency impact in the value of assets supporting those liabilities.

### 2016 Net Insurance Contract Liability Movement Analysis

| **For the year ended December 31, 2016** ($ millions) | Asia Division | Canadian Division | U.S. Division | Corporate and Other | Total |
|---|---|---|---|---|---|
| Balance, January 1 | $ 45,986 | $ 71,473 | $ 132,906 | $ (503) | $ 249,862 |
| New business[1],[2] | 3,857 | 253 | (493) | – | 3,617 |
| In-force movement[1],[3] | 6,051 | 1,636 | 6,061 | (75) | 13,673 |
| Changes in methods and assumptions[1] | 108 | 22 | 549 | (24) | 655 |
| Currency impact[4] | (1,435) | – | (3,831) | 12 | (5,254) |
| **Balance, December 31** | $ 54,567 | $ 73,384 | $ 135,192 | $ (590) | $ 262,553 |

(1) The $17,172 million increase reported as the change in insurance contract liabilities and change in reinsurance assets on the 2016 Consolidated Statements of Income primarily consists of changes due to normal in-force movement, new policies and changes in methods and assumptions. These three items net to an increase of $17,945 million, of which $16,906 million is included in the income statement increase in insurance contract liabilities and change in reinsurance assets, and $1,039 million is included in net claims and benefits. The Consolidated Statements of Income change in insurance contract liabilities also includes the change in embedded derivatives associated with insurance contracts. Of the $17,290 million net increase in insurance contract liabilities related to new business and in-force movement, $16,196 million was an increase in actuarial liabilities. The remaining amount was an increase of $1,094 million in other insurance contract liabilities.

(2) New business policy liability impact is positive/(negative) when estimated future premiums, together with future investment income, are expected to be more/(less) than sufficient to pay estimated future benefits, policyholder dividends and refunds, taxes (excluding income taxes) and expenses on new policies issued.

(3) The net in-force movement over the year was an increase of $13,673 million, reflecting expected growth in insurance contract liabilities in all three divisions.

(4) The decrease in policy liabilities from currency impact reflects the appreciation of the Canadian dollar relative to the U.S. dollar, Hong Kong dollar and Japanese yen. To the extent assets are currency matched to liabilities, the increase in insurance contract liabilities due to currency impact is offset by a corresponding increase from currency impact in the value of assets supporting those liabilities.

## Consolidation

The Company is required to consolidate the financial position and results of entities it controls. Control exists when the Company:

- has the power to govern the financial and operating policies of the entity;
- is exposed to a significant portion of the entity's variable returns; and
- is able to use its power to influence variable returns from the entity.

The Company uses the same principles to assess control over any entity it is involved with. In evaluating control, potential factors assessed include the effects of:

- substantive potential voting rights that are currently exercisable or convertible;
- contractual management relationships with the entity;
- rights and obligations resulting from policyholders to manage investments on their behalf; and
- the effect of any legal or contractual restraints on the Company from using its power to affect its variable returns from the entity.

An assessment of control is based on arrangements in place and the assessed risk exposures at inception. Initial evaluations are reconsidered at a later date if:

- the Company acquires additional interests in the entity or its interests in an entity are diluted;
- the contractual arrangements of the entity are amended such that the Company's involvement with the entity changes; or
- the Company's ability to use its power to affect its variable returns from the entity changes.

Subsidiaries are consolidated from the date on which control is obtained by the Company and cease to be consolidated from the date that control ceases.

## Fair Value of Invested Assets

A large portion of the Company's invested assets are recorded at fair value. Refer to note 1 to the 2017 Consolidated Financial Statements for a description of the methods used in determining fair values. When quoted prices in active markets are not available for a particular investment, significant judgment is required to determine an estimated fair value based on market standard valuation methodologies including discounted cash flow methodologies, matrix pricing, consensus pricing services, or other similar techniques. The inputs to these market standard valuation methodologies include: current interest rates or yields for similar instruments, credit rating of the issuer or counterparty, industry sector of the issuer, coupon rate, call provisions, sinking fund requirements, tenor (or expected tenor) of the instrument, management's assumptions regarding liquidity, volatilities and estimated future cash flows. Accordingly, the estimated fair values are based on available market information and management's judgments about the key market factors impacting these financial instruments. Financial markets are susceptible to severe events evidenced by rapid depreciation in asset values accompanied by a reduction in asset liquidity. The Company's ability to sell assets, or the price ultimately realized for these assets, depends upon the demand and liquidity in the market and increases the use of judgment in determining the estimated fair value of certain assets.

## Evaluation of Invested Asset Impairment

AFS fixed income and equity securities are carried at fair market value, with changes in fair value recorded in other comprehensive income ("OCI") with the exception of unrealized gains and losses on foreign currency translation of AFS fixed income securities which are included in net income attributed to shareholders. Securities are reviewed on a regular basis and any fair value decrement is transferred out of accumulated other comprehensive income ("AOCI") and recorded in net income attributed to shareholders when it is deemed probable that the Company will not be able to collect all amounts due according to the contractual terms of a fixed income security or when fair value of an equity security has declined significantly below cost or for a prolonged period of time.

Provisions for impairments of mortgage loans and private placement loans are recorded with losses reported in earnings when there is no longer reasonable assurance as to the timely collection of the full amount of the principal and interest.

Significant judgment is required in assessing whether an impairment has occurred and in assessing fair values and recoverable values. Key matters considered include economic factors, Company and industry specific developments, and specific issues with respect to single issuers and borrowers.

Changes in circumstances may cause future assessments of asset impairment to be materially different from current assessments, which could require additional provisions for impairment. Additional information on the process and methodology for determining the allowance for credit losses is included in the discussion of credit risk in note 10 to the 2017 Consolidated Financial Statements.

## Derivative Financial Instruments

The Company uses derivative financial instruments ("derivatives") including swaps, forwards and futures agreements, and options to help manage current and anticipated exposures to changes in interest rates, foreign exchange rates, commodity prices and equity market prices, and to replicate permissible investments. Refer to note 5 to the 2017 Consolidated Financial Statements for a description of the methods used to determine the fair value of derivatives.

The accounting for derivatives is complex and interpretations of the primary accounting guidance continue to evolve in practice. Judgment is applied in determining the availability and application of hedge accounting designations and the appropriate accounting treatment under such accounting guidance. Differences in judgment as to the availability and application of hedge accounting designations and the appropriate accounting treatment may result in a differing impact on the Consolidated Financial Statements of the Company from that previously reported. Assessments of hedge effectiveness and measurements of ineffectiveness of hedging relationships are also subject to interpretations and estimations. If it was determined that hedge accounting designations were not appropriately applied, reported net income attributed to shareholders could be materially affected.

## Employee Future Benefits

The Company maintains defined contribution and defined benefit pension plans and other post-employment plans for employees and agents, including registered (tax qualified) pension plans that are typically funded, as well as supplemental non-registered (non-qualified) pension plans for executives, retiree welfare plans and disability welfare plans that are typically not funded. The largest defined benefit pension and retiree welfare plans in the U.S. and Canada are the material plans that are discussed herein and in note 16 to the 2017 Consolidated Financial Statements.

Due to the long-term nature of defined benefit pension and retiree welfare plans, the calculation of the defined benefit obligation and net benefit cost depends on various assumptions such as discount rates, salary increase rates, cash balance interest crediting rates, health care cost trend rates and rates of mortality. These assumptions are determined by management and are reviewed annually. The key assumptions, as well as the sensitivity of the defined benefit obligation to changes in these assumptions, are presented in note 16 to the 2017 Consolidated Financial Statements.

Changes in assumptions and differences between actual and expected experience give rise to actuarial gains and losses that affect the amount of the defined benefit obligation and other comprehensive income ("OCI"). During 2017, the actual experience resulted in a gain of $83 million (2016 – gain of $136 million) for the defined benefit pension plans and a loss of $2 million (2016 – gain of $6 million) for the retiree welfare plans.

Contributions to the registered (tax qualified) defined benefit pension plans are made in accordance with the applicable U.S. and Canadian regulations. During 2017, the Company contributed $26 million (2016 – $42 million) to these plans. As at December 31, 2017, the difference between the fair value of assets and the defined benefit obligation for these plans was a surplus of $383 million (2016 – surplus of $292 million). For 2018, the contributions to the plans are expected to be approximately $31 million.

The Company's supplemental pension plans for executives are not funded; benefits under these plans are paid as they become due. During 2017, the Company paid benefits of $59 million (2016 – $65 million) under these plans. As at December 31, 2017, the defined benefit obligation for these plans amounted to $761 million (2016 – $782 million).

The Company's retiree welfare plans are partially funded, although there are no regulations or laws governing or requiring the funding of these plans. As at December 31, 2017, the difference between the fair value of plan assets and the defined benefit obligation for these plans was a deficit of $78 million (2016 – deficit of $79 million).

## Income Taxes

The Company is subject to income tax laws in various jurisdictions. Tax laws are complex and potentially subject to different interpretations by the taxpayer and the relevant tax authority. The provision for income taxes represents management's interpretation of the relevant tax laws and its estimate of current and future income tax implications of the transactions and events during the period. A deferred tax asset or liability results from temporary differences between carrying values of the assets and liabilities and their respective tax basis. Deferred tax assets and liabilities are recorded based on expected future tax rates and management's assumptions regarding the expected timing of the reversal of such temporary differences. The realization of deferred tax assets depends upon the existence of sufficient taxable income within the carryback or carry forward periods under the tax law in the applicable tax jurisdiction. A deferred tax asset is recognized to the extent that future realization of the tax benefit is probable. Deferred tax assets are reviewed at each reporting date and are reduced to the extent that it is no longer probable that the tax benefit will be realized. Factors in management's determination include, among other things, the following:

- future taxable income exclusive of reversing temporary differences and carry forwards;
- future reversals of existing taxable temporary differences;
- taxable income in prior carryback years; and
- tax planning strategies.

The Company may be required to change its provision for income taxes if the ultimate deductibility of certain items is successfully challenged by taxing authorities or if estimates used in determining the amount of deferred tax assets to recognize change significantly, or when receipt of new information indicates the need for adjustment in the recognition of deferred tax assets. Additionally, future events, such as changes in tax laws, tax regulations, or interpretations of such laws or regulations, could have an impact on the provision for income tax, deferred tax balances, actuarial liabilities (see Critical Accounting and Actuarial Policies – Expenses and Taxes above) and the effective tax rate. Any such changes could significantly affect the amounts reported in the Consolidated Financial Statements in the year these changes occur.

In 2017, we reported a charge of $1.8 billion related to U.S. Tax Reform. Of this amount, $2.2 billion related to the pre-tax impact on insurance contract liabilities, offset by a $472 million reduction in the net deferred tax asset.

## Goodwill and Intangible Assets

Under IFRS, goodwill is tested at the cash generating unit level ("CGU") or group of CGUs level. A CGU comprises the smallest group of assets that are capable of generating largely independent cash flows and is either a business segment or a level below. The tests performed in 2017 demonstrated that there was no impairment of goodwill or intangible assets with indefinite lives. Changes in discount rates and cash flow projections used in the determination of embedded values or reductions in market-based earnings multiples may result in impairment charges in the future, which could be material.

Impairment charges could occur in the future as a result of changes in economic conditions. The goodwill testing for 2018 will be updated based on the conditions that exist in 2018 and may result in impairment charges, which could be material.

## Future Accounting and Reporting Changes

There are a number of new accounting and reporting changes issued under IFRS including those still under development by the International Accounting Standards Board ("IASB") that will impact the Company beginning in 2018. Summaries of each of the most recently issued key accounting standards are presented below.

### (a) Changes effective in 2017

#### (I) Annual Improvements 2014 – 2016 Cycle

Effective January 1, 2017, the Company adopted certain amendments issued within the Annual Improvements to IFRS Standards 2014 – 2016 Cycle, as issued by the IASB in December 2016. There are various minor amendments which are effective in 2017, with other amendments being effective January 1, 2018. The currently effective amendments were applied retrospectively. Adoption of these amendments did not have a significant impact on the Company's Consolidated Financial Statements.

#### (II) Amendments to IAS 12 "Income Taxes"

Effective January 1, 2017, the Company adopted the amendments issued in January 2016 to IAS 12 "Income Taxes". These amendments were applied retrospectively. The amendments clarify recognition of deferred tax assets relating to unrealized losses on debt instruments measured at fair value. A deductible temporary difference arises when the carrying amount of the debt instrument measured at fair value is less than the cost for tax purposes, irrespective of whether the debt instrument is held for sale or held to maturity. The recognition of the deferred tax asset that arises from this deductible temporary difference is considered in combination with other deferred taxes applying local tax law restrictions where applicable. In addition, when estimating future taxable profits, consideration can be given to recovering more than the asset's carrying amount where probable. Adoption of these amendments did not have a significant impact on the Company's Consolidated Financial Statements.

#### (III) Amendments to IAS 7 "Statement of Cash Flows"

Effective January 1, 2017, the Company adopted the amendments issued in January 2016 to IAS 7 "Statement of Cash Flows". These amendments were applied prospectively. These amendments require companies to provide information about changes in their financing liabilities. Adoption of these amendments did not have a significant impact on the Company's Consolidated Financial Statements.

### (b) Accounting and reporting changes issued with an effective date later than 2017

#### (I) Amendments to IFRS 15 "Revenue from Contracts with Customers"

IFRS 15 "Revenue from Contracts with Customers" was issued in May 2014, and replaces IAS 11 "Construction Contracts", IAS 18 "Revenue" and several interpretations. Amendments to IFRS 15 were issued in April 2016. IFRS 15 as amended is effective for annual periods beginning on or after January 1, 2018. The Company will adopt IFRS 15 effective January 1, 2018, using the modified retrospective method with no restatement of comparative information.

IFRS 15 clarifies revenue recognition principles, provides a robust framework for recognizing revenue and cash flows arising from contracts with customers and enhances qualitative and quantitative disclosure requirements. IFRS 15 does not apply to insurance contracts, financial instruments and lease contracts.

The Company's service arrangements are generally satisfied over time, with revenue measured and collected from customers within a short term, as services are rendered.

Adoption of IFRS 15 is not expected to have a significant impact on the Company's Consolidated Financial Statements.

#### (II) IFRS Interpretation Committee ("IFRIC") Interpretation 22 "Foreign Currency Transactions and Advance Consideration"

IFRIC 22 "Foreign Currency Transactions and Advance Consideration" was issued in December 2016, is effective for annual periods beginning on or after January 1, 2018, and may be applied retrospectively or prospectively. IFRIC 22 addresses which foreign exchange rate to use to measure a foreign currency transaction when advance payments are made or received and non-monetary assets or liabilities are recognized prior to recognition of the underlying transaction. IFRIC 22 does not relate to goods or services accounted for at fair value or at the fair value of consideration paid or received at a date other than the date of initial recognition of the non-monetary asset or liability, or to income taxes, insurance contracts or reinsurance contracts. The foreign exchange rate on the day of the advance payment is used to measure the foreign currency transaction. If multiple advance payments are made or received, each payment is measured separately. The Company is assessing the impact of this standard. Adoption of IFRIC 22 is not expected to have a significant impact on the Company's Consolidated Financial Statements.

#### (III) Amendments to IFRS 2 "Share-Based Payment"

Amendments to IFRS 2 "Share-Based Payment" were issued in June 2016, and are effective for annual periods beginning on or after January 1, 2018, to be applied prospectively. The amendments clarify the effects of vesting and non-vesting conditions on the measurement of cash-settled share-based payments; provide guidance on the classification of share-based payment transactions with net settlement features for withholding tax obligations; and clarify accounting for modification to the terms and conditions of a share-based payment that changes the classification of the transaction from cash-settled to equity-settled. Adoption of these amendments is not expected to have a significant impact on the Company's Consolidated Financial Statements.

### (IV) IFRS 9 "Financial Instruments"

IFRS 9 "Financial Instruments" was issued in November 2009 and amended in October 2010, November 2013 and July 2014 and is effective for years beginning on or after January 1, 2018, to be applied retrospectively, or on a modified retrospective basis. It is intended to replace IAS 39 "Financial Instruments: Recognition and Measurement".

The project has been divided into three phases: classification and measurement, impairment of financial assets, and hedge accounting. IFRS 9's current classification and measurement methodology provides that financial assets are measured at either amortized cost or fair value on the basis of the entity's business model for managing the financial assets and the contractual cash flow characteristics of the financial assets. The classification and measurement for financial liabilities remains generally unchanged; however, for a financial liability designated as at fair value through profit or loss, revisions have been made in the accounting for changes in fair value attributable to changes in the credit risk of that liability. Gains or losses caused by changes in an entity's own credit risk on such liabilities are no longer recognized in profit or loss but instead are reflected in OCI.

Revisions to hedge accounting were issued in November 2013 as part of the overall IFRS 9 project. The amendment introduces a new hedge accounting model, together with corresponding disclosures about risk management activity for those applying hedge accounting. The new model represents a substantial overhaul of hedge accounting that will enable entities to better reflect their risk management activities in their financial statements.

Revisions issued in July 2014 replace the existing incurred loss model used for measuring the allowance for credit losses with an expected loss model. Changes were also made to the existing classification and measurement model designed primarily to address specific application issues raised by early adopters of the standard. The revision also addresses the income statement accounting mismatches and short-term volatility issues which have been identified as a result of the insurance contracts project.

Revisions issued in October 2017 are effective for annual periods beginning on or after January 1, 2019, to be applied retrospectively. The amendments allow financial assets to be measured at amortized cost or fair value through OCI even if the lender is required to pay a reasonable compensation in the event of an early termination of the contract by the borrower (also referred to as prepayment features with negative compensation).

The Company expects to defer IFRS 9 until January 1, 2021 as allowed under the amendments to IFRS 4 "Insurance Contracts" outlined below. The Company is assessing the impact of this standard.

### (V) Amendments to IFRS 4 "Insurance Contracts"

Amendments to IFRS 4 "Insurance Contracts" were issued in September 2016, which are effective for annual periods beginning on or after January 1, 2018. The amendments introduce two approaches to address the concerns about the differing effective dates of IFRS 9 "Financial Instruments" and IFRS 17 "Insurance Contracts": the overlay approach and the deferral approach. The overlay approach provides an option for all issuers of insurance contracts to adjust profit or loss for eligible financial assets by removing any additional accounting volatility that may arise from applying IFRS 9 before IFRS 17 is implemented. The deferral approach provides companies whose activities are predominantly related to insurance an optional temporary exemption from applying IFRS 9 until January 1, 2021. The Company expects to defer IFRS 9 until January 1, 2021.

### (VI) IFRS 17 "Insurance Contracts"

IFRS 17 was issued in May 2017 and is effective for years beginning on January 1, 2021, and to be applied retrospectively. If full retrospective application to a group of contracts is impractical, the modified retrospective or fair value methods may be used. The standard will replace IFRS 4 "Insurance Contracts" and will materially change the recognition and measurement of insurance contracts and the corresponding presentation and disclosures of the Company's Financial Statements and MD&A. We are assessing the implications of this standard and expect that it will have a significant impact on the Company's Consolidated Financial Statements. In addition, in certain jurisdictions, including Canada, it could have a material effect on tax and regulatory capital positions that are dependent upon IFRS accounting values.

For life insurance companies, such as Manulife, that have complex long-duration products and/or regulatory and tax regimes dependent upon IFRS accounting values, we believe that an effective date of January 1, 2021 is aggressive. Therefore, while our implementation project is well underway, we and others in the life insurance industry are encouraging the IASB to defer the effective date.

### (VII) IFRS 16 "Leases"

IFRS 16 "Leases" was issued in January 2016 and is effective for years beginning on or after January 1, 2019, to be applied retrospectively or on a modified retrospective basis. It will replace IAS 17 "Leases" and IFRIC 4 "Determining whether an arrangement contains a lease". IFRS 16 sets out the principles for the recognition, measurement, presentation and disclosure of leases for both parties to a contract, the customer ("lessee") and the supplier ("lessor"). The standard brings most leases on-balance sheet for lessees under a single model, eliminating the previous classifications of operating and finance leases. Exemptions to this treatment are for lease contracts with low value assets or leases with duration less than one year. The on-balance sheet treatment will result in the grossing up of the balance sheet due to right-of-use assets being recognized with offsetting liabilities. Lessor accounting will remain largely unchanged with previous classifications of operating and finance leases being maintained. The Company is assessing the impact of this standard.

### (VIII) IFRIC 23 "Uncertainty over Income Tax Treatments"

IFRIC 23 "Uncertainty over Income Tax Treatments" was issued in June 2017 and is effective for years beginning on or after January 1, 2019, to be applied retrospectively. IFRIC 23 provides guidance on applying the recognition and measurement requirements in IAS 12 when there is uncertainty over income tax treatments including whether uncertain tax treatments should be considered together or separately based on which approach better predicts resolution of the uncertainty. Adoption of IFRIC 23 is not expected to have a significant impact on the Company's Consolidated Financial Statements.

### (IX) Amendments to IAS 28 "Investments in Associates and Joint Ventures"

Amendments to IAS 28 "Investments in Associates and Joint Ventures" were issued in October 2017 and are effective for annual periods beginning on or after January 1, 2019, to be applied retrospectively. The amendments clarify that an entity applies IFRS 9 "Financial Instruments" to financial interests in an associate or joint venture to which the equity method is not applied. IAS 39 will be applied to these interests until IFRS 9 is adopted in 2021. Adoption of these amendments is not expected to have a significant impact on the Company's Consolidated Financial Statements.

### (X) Annual Improvements 2015 – 2017 Cycle

Annual Improvements 2015 – 2017 Cycle was issued in December 2017 and is effective for years beginning on or after January 1, 2019. The IASB issued three minor amendments to different standards as part of the Annual Improvements process, with the amendments to be applied prospectively. Adoption of these amendments is not expected to have significant impact on the Company's Consolidated Financial Statements.

## Differences between IFRS and Hong Kong Financial Reporting Standards

Manulife's Consolidated Financial Statements are presented in accordance with IFRS. IFRS differs in certain respects from Hong Kong Financial Reporting Standards ("HKFRS"). Until IFRS 17 "Insurance Contracts" is issued and becomes effective, IFRS 4 "Insurance Contracts" permits the use of the insurance standard in effect at the time an issuer adopts IFRS. IFRS insurance contract liabilities are valued in Canada under standards established by the Canadian Actuarial Standards Board. In certain interest rate environments, insurance contract liabilities determined in accordance with HKFRS may be higher than those computed in accordance with current IFRS.

## IFRS and Hong Kong Regulatory Requirements

Insurers in Hong Kong are required by the Office of the Commissioner of Insurance to meet minimum solvency requirements. As at December 31, 2017, the Company's business that falls within the scope of these requirements has sufficient assets to meet the minimum solvency requirements under both Hong Kong regulatory requirements and IFRS.

# Risk Factors

Our insurance, wealth and asset management and other financial services businesses subject Manulife to a broad range of risks. Management has identified the following risks and uncertainties to which our businesses, operations and financial condition are subject. The risks and uncertainties described below are not the only ones facing us. Additional risks not presently known to us or that we currently deem immaterial could also impair our businesses, operations and financial condition. If any of such risks should occur, the trading price of our securities, including common shares, preferred shares and debt securities, could decline, and you may lose all or part of your investment.

## Strategic Risk Factors

We operate in highly competitive markets and compete for customers with both insurance and non-insurance financial services companies. Customer loyalty and retention, and access to distributors, are important to the Company's success and are influenced by many factors, including our distribution practices and regulations, product features, service levels, prices, and our financial strength ratings and reputation.

**We may not be successful in executing our business strategies or these strategies may not achieve our objectives.**

- Refer to "Risk Management – Strategic Risk" above.
- The economic environment could be volatile and our regulatory environment will continue to evolve, potentially with higher capital requirements which could materially impact our competitiveness. Further, the attractiveness of our product offerings relative to our competitors will be influenced by competitor actions as well as our own, and the requirements of the applicable regulatory regimes. For these and other reasons, there is no certainty that we will be successful in implementing our business strategies or that these strategies will achieve the objectives we target.
- Macro-economic factors may result in our inability to achieve business strategies and plans. Of note, economic factors such as flat or declining equity markets, equity market volatility, or a period of prolonged low interest rates could impact our ability to achieve business objectives. Other factors, such as management actions taken to bolster capital and manage the Company's risk profile, including new or amended reinsurance agreements, and additional actions that the Company may take to help manage near-term regulatory capital ratios or help mitigate equity market and interest rate exposures, could adversely impact our longer-term earnings potential.
- We may not be able to fully realize the anticipated long-term benefits we expect to result from our decision to reduce the allocation to ALDA in our portfolio asset mix over the next 12-18 months. This initiative will require us to complete multiple asset dispositions, the success of which will depend on a number of factors, some of which are beyond our control, including macro-economic conditions and regulatory changes. If we are unable to complete these dispositions, or we complete them at prices or on a timeline which is not consistent with our current expectations, additional charges may be incurred in the future. In addition, the impact of our decision to reduce the allocation to ALDA in our portfolio asset mix relies, in part, on our ability to effectively redeploy the capital released by this decision into other investments. There can be no certainty that the performance of these other investments will meet our current expectations.

**Our insurance businesses are heavily regulated, and changes in regulation may reduce our profitability and limit our growth.**

- Our insurance operations are subject to a wide variety of insurance and other laws and regulations. Insurance and securities regulators in Canada, the United States, Asia and other jurisdictions regularly re-examine existing laws and regulations applicable to insurance companies, investment advisors, brokers-dealers and their products. Compliance with applicable laws and regulations is time consuming and personnel-intensive, and changes in these laws and regulations or in the interpretation or enforcement thereof, may materially increase our direct and indirect compliance costs and other expenses of doing business, thus having a material adverse effect on our results of operations and financial condition.
- In addition, international regulators as well as domestic financial authorities and regulators in many countries have been reviewing their capital requirements and are implementing, or are considering implementing, changes aimed at strengthening risk management and capitalization of financial institutions. Future regulatory capital, actuarial and accounting changes, including changes with a retroactive impact, could have a material adverse effect on the Company's consolidated financial condition, results of operations and regulatory capital both on transition and going forward. In addition, such changes could have a material adverse effect on the Company's position relative to that of other Canadian and international financial institutions with which Manulife competes for business and capital. See "Risk Management – Regulatory Updates" section above for changes related to the revised regulatory capital framework in Canada that became effective January 1, 2018.
- In Canada, MFC and its principal operating subsidiary, MLI, are governed by the Insurance Companies Act (Canada) ("ICA"). The ICA is administered, and the activities of the Company are supervised, by the Office of the Superintendent of Financial Institutions ("OSFI"). MLI is also subject to regulation and supervision under the insurance laws of each of the provinces and territories of Canada. Regulatory oversight is vested in various governmental agencies having broad administrative power with respect to, among other things, dividend payments, capital adequacy and risk-based capital requirements, asset and reserve valuation requirements, permitted investments and the sale and marketing of insurance contracts. These regulations are intended to protect policyholders and beneficiaries rather than investors and may adversely impact shareholder value.

- Some recent examples of regulatory and professional standard developments, in addition to the developments outlined in the "Risk Management – Regulatory Updates" section above, which could impact our net income attributed to shareholders and/or capital position are provided below.
  - In 2013, the International Association of Insurance Supervisors ("IAIS") committed to the completion of several capital initiatives that would apply to select global insurance groups to reflect their systemic importance to the international financial system, including Basic Capital Requirements introduced in 2015, and the Higher Loss Absorbency requirements to be implemented in 2019. The most relevant for us is the IAIS plan to adopt a global Insurance Capital Standard in 2019 that will apply to all large internationally active insurance groups. It is not yet known how the proposals will affect capital requirements and Manulife's competitive position; however, in November 2017, the IAIS announced a plan to introduce the Insurance Capital Standard in two phases – a 5-year monitoring phase followed by an implementation phase. The 5-year monitoring phase will consist of mandatory confidential reporting. In addition, IAIS designates annually a group of Global Systemically Important Insurers ("GSII") that are subject to incremental capital and oversight requirements. While Manulife was not named a GSII in the past, there remains a risk of such a designation. The list of companies designated as GSIIs was not updated in 2017 to allow the IAIS time to complete its work developing an Activities-Based Approach to the designation of GSIIs which could be used for future designations.
  - The National Association of Insurance Commissioners ("NAIC") has been reviewing reserving and capital methodologies as well as the overall risk management framework. These reviews will affect U.S. life insurers, including John Hancock, and could lead to increased reserving and/or capital requirements for our business in the U.S. In addition, the NAIC is continuing to explore the development of a group capital calculation tool; however, the scope of any such tool has not yet been determined.
- The Actuarial Standards Board ("ASB") promulgates certain assumptions referenced in the CIA Standards of Practice for the valuation of insurance contract liabilities. These promulgations are updated periodically and in the event that new promulgations are published, they will apply to the determination of actuarial liabilities and may lead to an increase in actuarial liabilities and a reduction in net income attributed to shareholders. In 2017, the ASB updated the Ultimate Reinvestment Rate ("URR") assumption with a 10 basis point reduction. Long-term risk-free rates continue to be below the updated URR and further reductions to the URR by the ASB would result in an increase in actuarial liabilities and a reduction in net income attributed to shareholders.
- In the United States, state insurance laws regulate most aspects of our business, and our U.S. insurance subsidiaries are regulated by the insurance departments of the states in which they are domiciled and the states in which they are licensed. State laws grant insurance regulatory authorities broad administrative powers with respect to, among other things: licensing companies and agents to transact business; calculating the value of assets to determine compliance with statutory requirements; mandating certain insurance benefits; regulating certain premium rates; reviewing and approving policy forms; regulating unfair trade and claims practices, including through the imposition of restrictions on marketing and sales practices, distribution arrangements and payment of inducements; regulating advertising; protecting privacy; establishing statutory capital and reserve requirements and solvency standards; fixing maximum interest rates on insurance policy loans and minimum rates for guaranteed crediting rates on life insurance policies and annuity contracts; approving changes in control of insurance companies; restricting the payment of dividends and other transactions between affiliates; and regulating the types, amounts and valuation of investments. Changes in any such laws and regulations, or in the interpretation or enforcement thereof by regulators, could significantly affect our business, results of operations and financial condition.
- Currently, the U.S. federal government does not directly regulate the business of insurance. However, federal legislation and administrative policies in several areas can significantly and adversely affect state regulated insurance companies. These areas include financial services regulation, securities regulation, pension regulation, privacy, tort reform legislation and taxation. In addition, under the Dodd-Frank Wall Street Reform and Consumer Protection Act ("Dodd-Frank"), the U.S. Board of Governors of the Federal Reserve has supervisory powers over non-bank financial companies that are determined to be systemically important, including certain insurance companies. For further discussion on Dodd-Frank, refer to the risk factor entitled "Dodd-Frank could adversely impact our results of operations and our liquidity".
- Insurance guaranty associations in Canada and the United States have the right to assess insurance companies doing business in their jurisdiction for funds to help pay the obligations of insolvent insurance companies to policyholders and claimants. Because the amount and timing of an assessment is beyond our control, the liabilities that we have currently established for these potential liabilities may not be adequate.
- While many of the laws and regulations to which we are subject are intended to protect policyholders, beneficiaries, depositors and investors in our products and services, others also set standards and requirements for the governance of our operations. Failure to comply with applicable laws or regulations could result in financial penalties or sanctions, and damage our reputation.
- From time to time, regulators raise issues during examinations or audits of Manulife that could have a material adverse impact on us. We cannot predict whether or when regulatory actions may be taken that could adversely affect our operations. For further discussion of government regulation and legal proceedings refer to "Government Regulation" in MFC's Annual Information Form dated February 7, 2018 and "Legal and Regulatory Proceedings" below. Refer to the risk factor "Our non-North American operations face political, legal, operational and other risks that could negatively affect those operations or our results of operations and financial condition" for further discussion on the impact to our operations.

**Dodd-Frank could adversely impact our results of operations and our liquidity.**

- Dodd-Frank establishes a framework for regulation of over-the-counter ("OTC") derivatives which affects activities of the Company that use derivatives for various purposes, including hedging equity market, interest rate and foreign currency exposures. Regulations promulgated by the U.S. Commodity Futures Trading Commission ("CFTC") and proposed by the U.S. Securities and Exchange Commission ("SEC") under Dodd-Frank require certain types of OTC derivative transactions to be cleared through a regulated clearinghouse, and a subset of such transactions to be executed through a centralized exchange or regulated facility. These CFTC rules impose, and the SEC rules may impose, additional costs on the Company.

- Both cleared and non-cleared derivative transactions are now subject to margin requirements under Dodd-Frank. Cleared derivatives transactions are subject to daily initial margin, and variation margin requirements imposed by the clearinghouse, while our non-cleared derivatives are subject to daily variation margin requirements. These margin requirements impose costs and increase liquidity risk for the Company. These margin requirements combined with the more restricted list of securities that qualify as eligible collateral for both cleared and non-cleared derivatives requires us to hold larger positions in cash and treasuries, which could reduce net income attributed to shareholders.
- In-force OTC derivative transactions are grandfathered and will migrate to being cleared through exchanges over time, or the Company may elect to accelerate the migration. As such, this may not become a significant risk for Manulife until a large portion of our derivatives have transitioned to clearinghouses (expected in the 2021 to 2023 timeframe) and market conditions adverse to liquidity (material increases in interest rates and/or equity markets) have been experienced. However, in certain situations such as ratings downgrade, our counterparties may be able to accelerate the transition by exercising any potential rights to terminate the contract. Some OTC derivative contracts also give Manulife and its counterparties the right to cancel the contract after specific dates. Any such cancellation by our counterparties could accelerate the transition to clearing.
- The full impact of these regulations on our operations, hedging costs, hedging strategy and its implementation, is still evolving, and it remains unclear whether Dodd-Frank and similar regulations in other jurisdictions will lead to an increase or decrease in or change in composition of the risks we seek to hedge.
- Manulife has been closely monitoring the evolving regulations and industry trends pertaining to these requirements.

**International Financial Reporting Standards will have a material impact on our financial results.**

- The IASB has issued a new accounting standard for insurance contracts in 2017, with an effective date of 2021. Until this standard is effective, IFRS does not currently prescribe an insurance contract measurement model and therefore, as permitted by IFRS 4 "Insurance Contracts", insurance contract liabilities continue to be measured using CALM. Under CALM, the measurement of actuarial liabilities is based on projected liability cash flows, together with estimated future premiums and net investment income generated from assets held to support those liabilities.
- The standard could create material volatility in our financial results and capital position; and could result in a lower discount rate used for the determination of actuarial liabilities, thereby increasing our actuarial liabilities and reducing our equity. The Company's capital position (see note below) and income for accounting purposes could be significantly influenced by prevailing market conditions, resulting in volatility of reported results, that may necessitate changes to business strategies. The standard requires that margins created from the sale of new business are deferred in full, eliminating accounting gains at the time of sale. Note: The regulatory capital framework in Canada is currently aligned with IFRS. In Canada, OSFI will decide on the appropriate recognition of the accounting outcomes within the regulatory capital framework.
- Additionally, other jurisdictions may not adopt the standard as issued or on the same timeline as published by the IASB, and there is a possibility that Canada will be the first to adopt the standard. Adopting the standard in Canada before it is adopted elsewhere could increase our cost of capital compared with global competitors and the banking sector in Canada.
- Any mismatch between the underlying economics of our business and the new accounting standard could have significant unintended negative consequences on our business model; and potentially affect our customers, shareholders and the capital markets.

**Changes in tax laws, tax regulations, or interpretations of such laws or regulations could make some of our products less attractive to consumers, could increase our corporate taxes or cause us to change the value of our deferred tax assets and liabilities as well as our tax assumptions included in the valuation of our policy liabilities. This could have a material adverse effect on our business, results of operations and financial condition.**

- Many of the products that the Company sells benefit from one or more forms of preferred tax treatment under current income tax regimes. For example, the Company sells life insurance policies that benefit from the deferral or elimination of taxation on earnings accrued under the policy, as well as permanent exclusion of certain death benefits that may be paid to policyholders' beneficiaries. We also sell annuity contracts that allow the policyholders to defer the recognition of taxable income earned within the contract. Other products that the Company sells, such as certain employer-paid health and dental plans, also enjoy similar, as well as other, types of tax advantages. The Company also benefits from certain tax benefits, including tax-exempt interest, dividends-received deductions, tax credits (such as foreign tax credits), and favourable tax rates and/or income measurement rules for tax purposes.
- There is risk that tax legislation could be enacted that would lessen or eliminate some or all of the tax advantages currently benefiting the Company or its policyholders or its other clients. This could occur in the context of deficit reduction or other tax reforms. The effects of any such changes could result in materially lower product sales, lapses of policies currently held, and/or our incurrence of materially higher corporate taxes, any of which could have a material adverse effect on our business, results of operations and financial condition.
- Additionally, the Company may be required to change its provision for income taxes or carrying amount of deferred tax assets or liabilities if the characterization of certain items is successfully challenged by taxing authorities or if future transactions or events, which could include changes in tax laws, tax regulations or interpretations of such laws or regulations, occur. Any such changes could significantly affect the amounts reported in the Consolidated Financial Statements in the year these changes occur.

- On December 22, 2017, the U.S. government enacted new tax legislation effective January 1, 2018 ("U.S. Tax Reform"). The legislation makes broad and complex changes to the U.S. tax code and accordingly it will take time to assess and interpret the changes. Based on a preliminary understanding of the new legislation, we have recorded a provisional charge of $1.8 billion, post-tax, for the estimated impact of U.S. Tax Reform on policyholder liabilities and deferred tax assets, including the reduction in the U.S. federal corporate income tax rate and the impact of specific life insurance regulations which limits the deductibility of reserves for U.S. federal income tax purposes. This provisional charge may change materially in the future following a more comprehensive review of the legislation, including changes in interpretations and tax assumptions made in the valuation of policy liabilities as well as implementation of and guidance from the Internal Revenue Service and other bodies, and as a result of any future changes or amendments to that legislation.
- As corporations adapt to U.S. Tax Reform, their actions could lead to a reduction in the amount of corporate borrowings. Lower borrowings may mean less corporate issuance which may lead to tighter spreads.

**Access to capital may be negatively impacted by market conditions.**

- Disruptions, uncertainty or volatility in the financial markets may limit our access to capital required to operate our business. Such market conditions may limit our ability to satisfy regulatory capital requirements, to access the capital necessary to grow our business and meet our refinancing requirements. Under extreme conditions, we may be forced, among other things, to delay raising capital, issue different types of capital than we would otherwise, less effectively deploy such capital, issue shorter term securities than we prefer, or issue securities that bear an unattractive cost of capital which could decrease our profitability, dilute our existing shareholders, and significantly reduce our financial flexibility.

**We may experience future downgrades in our financial strength or credit ratings, which may materially adversely impact our financial condition and results of operations.**

- Credit rating agencies publish financial strength ratings on life insurance companies that are indicators of an insurance company's ability to meet contract holder and policyholder obligations. Credit rating agencies also assign credit ratings, which are indicators of an issuer's ability to meet the terms of its obligations in a timely manner, and are important factors in a company's overall funding profile and ability to access external capital.
- Ratings are important factors in establishing the competitive position of insurance companies, maintaining public confidence in products being offered, and determining the cost of capital. A ratings downgrade, or the potential for such a downgrade could, among other things: increase our cost of capital and limit our access to the capital markets; cause some of our existing liabilities to be subject to acceleration, additional collateral support, changes in terms, or additional financial obligations; result in the termination of our relationships with broker-dealers, banks, agents, wholesalers and other distributors of our products and services; unfavourably impact our ability to execute on our hedging strategies; materially increase the number of surrenders, for all or a portion of the net cash values, by the owners of policies and contracts we have issued, and materially increase the number of withdrawals by policyholders of cash values from their policies; and reduce new sales. Any of these consequences could adversely affect our results of operations and financial condition.
- Credit rating agencies remain concerned with: our capital and net earnings volatility associated with fair-value accounting; net residual exposures to equity markets and lower interest rates; challenges associated with managing in-force long-term care, universal life with secondary guarantees and variable annuity products in the U.S. Some credit rating agencies also view our financial leverage and earnings coverage metrics as not meeting expectations. There can be no guarantee that downgrades will not occur.
- It is possible that there will be changes in the benchmarks for capital, liquidity, earnings and other factors used by these credit rating agencies that are important to a ratings assignment at a particular rating level. Any such changes could have a negative impact on our ratings, which could adversely impact our results of operations, financial condition and access to capital markets.

**Competitive factors may adversely affect our market share and profitability.**

- The insurance, wealth and asset management industries are highly competitive. Our competitors include other insurers, securities firms, investment advisors, mutual funds, banks and other financial institutions. Financial service firms which rely heavily on technology-driven business models (e.g. fintech and insurtech firms) are also increasingly becoming potential competitors. Our competitors compete with us for customers, access to distribution channels such as brokers and independent agents, and for employees. In some cases, competitors may be subject to less onerous regulatory requirements, have lower operating costs or have the ability to absorb greater risk while maintaining their financial strength ratings, thereby allowing them to price their products more competitively or offer features that make their products more attractive. These competitive pressures could result in lower new business volumes and increased pricing pressures on a number of our products and services that may harm our ability to maintain or increase our profitability. Because of the highly competitive nature of the financial services industry, there can be no assurance that we will continue to effectively compete with our industry rivals and competitive pressure may have a material adverse effect on our business, results of operations and financial condition.

**We may experience difficulty in marketing and distributing products through our current and future distribution channels.**

- We distribute our insurance and wealth management products through a variety of distribution channels, including brokers, independent agents, broker-dealers, banks, wholesalers, affinity partners, other third-party organizations and our own sales force in Asia. We generate a significant portion of our business through individual third-party arrangements. We periodically negotiate provisions and renewals of these relationships, and there can be no assurance that such terms will remain acceptable to us or relevant third parties. An interruption in our continuing relationship with certain of these third parties could significantly affect our ability to market our products and could have a material adverse effect on our business, results of operations and financial condition.

**Industry trends could adversely affect the profitability of our businesses.**

- Our business segments continue to be influenced by a variety of trends that affect our business and the financial services industry in general. The impact of the volatility and instability of the financial markets on our business is difficult to predict. The Company's business plans, financial condition and results of operations have been in the recent past and may in the future be negatively impacted or affected.

**We may face unforeseen liabilities or asset impairments arising from possible acquisitions and dispositions of businesses or difficulties integrating acquired businesses.**

- We have engaged in acquisitions and dispositions of businesses in the past, and expect to continue to do so in the future as we may deem appropriate. There could be unforeseen liabilities or asset impairments, including goodwill impairments that arise in connection with the businesses that we may sell, have acquired, or may acquire in the future. In addition, there may be liabilities or asset impairments that we fail, or are unable, to discover in the course of performing due diligence investigations on acquisition targets. Furthermore, the use of our own funds as consideration in any acquisition would consume capital resources that would no longer be available for other corporate purposes.
- Our ability to achieve some or all of the benefits we anticipate from any acquisitions of businesses will depend in large part upon our ability to successfully integrate the businesses in an efficient and effective manner. We may not be able to integrate the businesses smoothly or successfully, and the process may take longer than expected. The integration of operations may require the dedication of significant management resources, which may distract management's attention from our day-to-day business. Acquisitions of operations outside of North America, especially any acquisition in a jurisdiction in which we do not currently operate, may be particularly challenging or costly to integrate. If we are unable to successfully integrate the operations of any acquired businesses, we may be unable to realize the benefits we expect to achieve as a result of the acquisitions and the results of operations may be less than expected.

**If our businesses do not perform well, or if the outlook for our businesses is significantly lower than historical trends, we may be required to recognize an impairment of goodwill or intangible assets or to establish a valuation allowance against our deferred tax assets, which could have a material adverse effect on our results of operations and financial condition.**

- Goodwill represents the excess of the amounts we paid to acquire subsidiaries and other businesses over the fair value of their net identifiable assets at the date of acquisition. Intangible assets represent assets that are separately identifiable at the time of an acquisition and provide future benefits such as the John Hancock brand.
- Goodwill and intangible assets with indefinite lives are tested at least annually for impairment. Goodwill is tested at the cash generating unit ("CGU") or group of CGUs level, representing the smallest group of assets that is capable of generating largely independent cash flows. The Company completed its 2017 goodwill and intangible asset tests in the fourth quarter of 2017, and as a result, management concluded that there was no impairment of goodwill or intangible assets with indefinite lives. Going forward, as a result of the impact of economic conditions and changes in product mix and the granular level of goodwill testing under IFRS, additional impairment charges could occur in the future.
- At December 31, 2017, under IFRS we had $5,713 million of goodwill and $4,127 million of intangible assets.
- If market conditions deteriorate in the future and, in particular, if MFC's common share price is low relative to book value per share, if the Company's actions to limit risk associated with its products or investments cause a significant change in any one CGU's recoverable amount, or if the outlook for a CGU's results deteriorate, the Company may need to reassess the value of goodwill and/or intangible assets which could result in impairments during 2018 or subsequent periods. Such impairments could have a material adverse effect on our results of operations and financial condition.
- Deferred income tax balances represent the expected future tax effects of the differences between the book and tax basis of assets and liabilities, loss carry forwards and tax credits. Deferred tax assets are recorded when the Company expects to claim deductions on tax returns in the future for expenses that have already been recorded in the financial statements.
- The availability of those deductions is dependent on future taxable income against which the deductions can be made. Deferred tax assets are assessed periodically by management to determine if they are realizable. Factors in management's determination include the performance of the business including the ability to generate gains from a variety of sources and tax planning strategies. If based on information available at the time of the assessment, it is determined that the deferred tax asset will not be realized, then the deferred tax asset is reduced to the extent that it is no longer probable that the tax benefit will be realized. At December 31, 2017, following U.S. Tax Reform, we had $4,569 million of deferred tax assets.

**We may not be able to protect our intellectual property and may be subject to infringement claims.**

- We rely on a combination of contractual rights and copyright, trademark, patent and trade secret laws to establish and protect our intellectual property. In particular we have invested considerable resources in promoting the brand names "Manulife" and "John Hancock" and expect to continue to do so. Although we use a broad range of measures to protect our intellectual property rights, third parties may infringe or misappropriate our intellectual property. We may have to litigate to enforce and protect our copyrights, trademarks, patents, trade secrets and know-how or to determine their scope, validity or enforceability, which represents a diversion of resources that may be significant in amount and may not prove successful. The loss of intellectual property protection or the inability to secure or enforce the protection of our intellectual property assets could have a material adverse effect on our business and our ability to compete.

- We also may be subject to costly litigation in the event that another party alleges our operations or activities infringe upon its intellectual property rights. Third parties may have, or may eventually be issued, patents that could be infringed by our products, methods, processes or services. Any party that holds such a patent could make a claim of infringement against us. We may also be subject to claims by third parties for breach of copyright, trademark, trade secret or license usage rights. Any such claims and any resulting litigation could result in significant liability for damages. If we were found to have infringed a third-party patent or other intellectual property rights, we could incur substantial liability, and in some circumstances could be enjoined from providing certain products or services to our customers or utilizing and benefiting from certain methods, processes, copyrights, trademarks, trade secrets or licenses, or alternatively could be required to enter into costly licensing arrangements with third parties, all of which could have a material adverse effect on our business, results of operations and financial condition.

**Applicable laws may discourage takeovers and business combinations that common shareholders of MFC might consider in their best interests.**

- The ICA contains restrictions on the purchase or other acquisition, issue, transfer and voting of the shares of an insurance company. In addition, under applicable U.S. insurance laws and regulations in states where certain of our insurance company subsidiaries are domiciled, no person may acquire control of MFC without obtaining prior approval of those states' insurance regulatory authorities. These restrictions may delay, defer, prevent, or render more difficult a takeover attempt that common shareholders of MFC might consider in their best interests. For instance, they may prevent shareholders of MFC from receiving the benefit from any premium to the market price of MFC's common shares offered by a bidder in a takeover context. Even in the absence of a takeover attempt, the existence of these provisions may adversely affect the prevailing market price of MFC's common shares if they are viewed as discouraging takeover attempts in the future.

**Entities within the MFC Group are interconnected which may make separation difficult.**

- MFC operates in local markets through subsidiaries and branches of subsidiaries. These local operations are financially and operationally interconnected to lessen expenses, share and reduce risk, and efficiently utilize financial resources. In general, external capital required for companies in the Manulife group has been raised at the MFC or MLI level and then transferred to other entities as equity or debt capital as appropriate. Other linkages include policyholder and other creditor guarantees, loans, capital maintenance agreements, derivatives, shared services and affiliate reinsurance treaties. Accordingly, the risks undertaken by a subsidiary may be transferred to or shared by affiliates through financial and operational linkages. Some of the consequences of this are:
  - Financial difficulties at a subsidiary may not be isolated and could cause material adverse effects on affiliates and the group as a whole.
  - Linkages may make it difficult to dispose of or separate a subsidiary or business within the group by way of a spin-off or similar transaction and the disposition or separation of a subsidiary or business may not fully eliminate the liability of the Company and its remaining subsidiaries for shared risks. Issues raised by such a transaction could include: (i) the Company cannot terminate, without policyholder consent and in certain jurisdictions regulator consent, parental guarantees on in-force policies and therefore would continue to have residual risk under any such non-terminated guarantees; (ii) internal capital mobility and efficiency could be limited; (iii) significant potential tax consequences; (iv) uncertainty about the accounting and regulatory outcomes of such a transaction; (v) obtaining any other required approvals; (vi) there may be a requirement for significant capital injections; and (vii) the transaction may result in increased sensitivity of net income attributed to shareholders and capital of MFC and its remaining subsidiaries to market declines.

## Market Risk Factors

**Our most significant source of publicly traded equity risk arises from variable annuity and segregated funds with guarantees, where the guarantees are linked to the performance of the underlying funds.**

- Publicly traded equity performance risk arises from a variety of sources, including guarantees associated with variable annuity and segregated fund products, asset based fees, and investments in publicly traded equities supporting both our general fund products and our surplus segment.
- Guaranteed benefits are contingent and payable upon death, maturity, permitted withdrawal or annuitization. If equity markets decline or even if they increase by an amount lower than that assumed in our actuarial valuation, additional liabilities may need to be established to cover the contingent liabilities, resulting in a reduction in net income attributed to shareholders and regulatory capital ratios. Further, if equity markets do not recover to the amount of the guarantees, by the dates the liabilities are due, the accrued liabilities will need to be paid out in cash. In addition, sustained flat or declining public equity markets would likely reduce asset based fee revenues related to variable annuities and segregated funds with guarantees and related to other wealth and insurance products.
- Where publicly traded equity investments are used to support policy liabilities, the policy valuation incorporates projected investment returns on these assets. If actual returns are lower than the expected returns, the investment losses will reduce net income attributed to shareholders.
- For products where the investment strategy applied to future cash flows in the policy valuation includes investing a specified portion of future cash flows in publicly traded equities, a decline in the value of publicly traded equities relative to other assets could require us to change the investment mix assumed for future cash flows, which may increase policy liabilities and reduce net income

attributed to shareholders. A reduction in the outlook for expected future returns for publicly traded equities, which could result from a fundamental change in future expected economic growth, would increase policy liabilities and reduce net income attributed to shareholders. Furthermore, to the extent publicly traded equities are held as AFS, other than temporary impairments that arise will reduce income.

- Expected long-term annual market growth assumptions for public equities for key markets are based on long-term historical observed experience. See Critical Accounting and Actuarial Policies for the rates used in the stochastic valuation of our segregated fund guarantee business. The calibration of the economic scenario generators that are used to value segregated fund guarantee business complies with current CIA Standards of Practice for the valuation of these products. Implicit margins, determined through stochastic valuation processes, lower net yields used to establish policy liabilities. Assumptions used for public equities backing liabilities are also developed based on historical experience but are constrained by different CIA Standards of Practice and differ slightly from those used in stochastic valuation. Alternative asset return assumptions vary based on asset class but are largely consistent, after application of valuation margins and differences in taxation, with returns assumed for public equities.

**We experience interest rate and spread risk within the general fund primarily due to the uncertainty of future returns on investments.**

- Interest rate and spread risk arises from general fund guaranteed benefit products, general fund adjustable benefit products with minimum rate guarantees, general fund products with guaranteed surrender values, segregated fund products with minimum benefit guarantees and from surplus fixed income investments. The risk arises within the general fund primarily due to the uncertainty of future returns on investments to be made as assets mature and as recurring premiums are received and invested or reinvested to support longer dated liabilities. Interest rate risk also arises due to minimum rate guarantees and guaranteed surrender values on products where investment returns are generally passed through to policyholders. A rapid rise in interest rates may also result in losses attributable to early liquidation of fixed income instruments supporting contractual surrender benefits, if customers surrender to take advantage of higher interest rates on offer elsewhere. In order to reduce interest rate risk, the duration of fixed income investments in liability and surplus segments is lengthened by entering into interest rate hedges.
- The valuation of policy liabilities reflects assumptions for the yield on future investments and the projected cash flows associated with interest rate hedges. A general decline in interest rates, without a change in corporate bond spreads and swap spreads, will reduce the assumed yield on future investments but favourably impact the value of lengthening interest rate hedges. Conversely, a general increase in interest rates, without a change in corporate bond spreads and swap spreads, will increase the assumed yield on future investments, but unfavourably impact the value of lengthening interest rate hedges. The Company's disclosed estimated impact from interest rate movements reflects a parallel increase and decrease in interest rates of specific amounts. The reinvestment assumptions used in the valuation of our insurance liabilities are based on interest rate scenarios and calibration criteria set by the Actuarial Standards Board, while our interest rate hedges are valued using current market interest rates. Therefore, in any particular quarter, changes to the reinvestment assumptions are not fully aligned to changes in current market interest rates especially when there is a significant change in the shape of the interest rate curve. As a result, the impact from non-parallel movements may be materially different from the estimated impact of parallel movements. Furthermore, changes in interest rates could change the reinvestment scenarios used in the calculation of our actuarial liabilities. The reinvestment scenario changes tend to amplify the negative effects of a decrease in interest rates, and dampen the positive effects of interest rate increases. In addition, decreases in corporate bond spreads or increases in swap spreads should generally result in an increase in policy liabilities and a reduction in net income attributed to shareholders, while an increase in corporate bond spreads or a decrease in swap spreads should generally have the opposite impact. The impact of changes in interest rates and in spreads may be partially offset by changes to credited rates on adjustable products that pass through investment returns to policyholders.
- The Company uses London Interbank Offered Rate ("LIBOR") based derivatives for the management of our interest rate risk and is reliant on the continued use of LIBOR as a reference rate in the marketplace. The Chief Executive of the U.K. Financial Conduct Authority ("FCA") has announced that, after 2021, the FCA would no longer use its power to persuade or compel panel banks to submit rate information used to determine LIBOR. If LIBOR ceases to be published as a reference rate, market participants would need to transition to an alternative reference rate. Any transition of LIBOR to an alternative reference rate may adversely affect the valuation of our existing debt securities and derivatives and the effectiveness of those derivatives in mitigating our risks. Furthermore, depending on the nature of the alternative reference rate, we may become exposed to additional risks from new debt or derivative transactions. The nature of these additional risks cannot be estimated at this time as discussions regarding the replacement of LIBOR are ongoing.
- For segregated fund and variable annuity products, a sustained increase in interest rate volatility or a decline in interest rates would also likely increase the costs of hedging the benefit guarantees provided.

**We experience ALDA performance risk when actual returns are lower than expected returns.**

- ALDA performance risk arises from general fund investments in commercial real estate, timber properties, farmland properties, infrastructure, oil and gas properties, and private equities.
- Where these assets are used to support policy liabilities, the policy valuation incorporates projected investment returns on these assets. ALDA assumptions vary by asset class and generally have a similar impact on policy liabilities as public equities would. If actual returns are lower than the expected returns, there will be a negative impact to the net income attributed to shareholders. A reduction in the outlook for expected future returns for ALDA, which could result from a variety of factors such as a fundamental change in future expected economic growth or declining risk premiums due to increased competition for such assets, would increase policy liabilities and reduce net income attributed to shareholders. Further, if returns on certain external asset benchmarks

used to determine permissible assumed returns under the CIA Standards of Practice are lower than expected, the Company's policy liabilities will increase, reducing net income attributed to shareholders.

- In recent periods, the value of oil and gas assets has been negatively impacted by the decline in energy prices and could be further negatively affected by additional declines in energy prices as well as by a number of other factors including production declines, adverse operating results, the impact of weather conditions on seasonal demand, our ability to execute on capital programs, incorrect assessments of the value of acquisitions, uncertainties associated with estimating oil and natural gas reserves, difficult economic conditions and geopolitical events. Changes in government regulation of the oil and gas industry, including environmental regulation, carbon taxes and changes in the royalty rates resulting from provincial royalty reviews, could also adversely affect the value of our oil and gas investments. The negative impact of changes in these factors can take time to be fully reflected in the valuations of these investments, especially if the change is large and rapid. It can take time for market participants to adjust their forecasts and better understand the potential medium to long-term impact of the changes. As a result, valuation changes in any given period may reflect the delayed impact of events that occurred in prior periods.
- Difficult economic conditions could result in higher vacancy, lower rental rates and lower demand for real estate investments, all of which would negatively impact the value of our real estate investments. Difficult economic conditions could also prevent companies in which we have made private equity investments from achieving their business plans and could cause the value of these investments to fall, or even cause the companies to fail entirely. Declining valuation multiples in the public equity market would also likely cause values to decline in our private equity portfolio. The timing and amount of investment income from private equity investments is difficult to predict, and investment income from these investments can vary from quarter to quarter.
- In addition, a rising interest rate environment could result in the value of some of our ALDA investments declining, particularly those with fixed contractual cash flows such as real estate.
- We rely on a diversified portfolio of ALDA assets to generate returns. Diversification benefits may go down over time, especially during a period of economic stress, which would adversely affect portfolio returns.
- The Company determines investment return assumptions for ALDA in accordance with the Standards of Practice for the valuation of insurance contract liabilities and guidance published by the CIA. The guidance requires that the investment return assumption for these assets should not be higher than the historical long-term average returns of an appropriate broad-based index. Where such experience is not available, the investment return assumption for these assets should not result in a lower reserve than an assumption based on a historical-return benchmark for public equities in the same jurisdiction. As a result, the impact of changes in the historical returns for public equity benchmarks may result in an update to our investment return assumptions for ALDA.

**Our liabilities are valued based on an assumed asset investment strategy over the long term.**

- We develop an investment strategy for the assets that back our liabilities. The strategy involves making assumptions on the kind of assets in which we will invest and the returns such assets will generate.
- We may not be able to implement our investment strategy as intended due to a lack of assets available at the returns we assume. This may result in a change in investment strategy and/or assumed future returns, thus adversely impacting our financial results.
- From time to time we may decide to adjust our portfolio asset mix which may result in adverse impacts to our financial results for one or more periods. On December 22, 2017, we announced our decision to reduce the allocation to ALDA in our portfolio asset mix resulting in charge to net income attributed to shareholders in 4Q17 of approximately $1 billion post-tax.

**We experience foreign exchange risk as a substantial portion of our business is transacted in currencies other than Canadian dollars.**

- Our financial results are reported in Canadian dollars. A substantial portion of our business is transacted in currencies other than Canadian dollars, mainly U.S. dollars, Hong Kong dollars and Japanese yen. If the Canadian dollar strengthens relative to these currencies, net income attributed to shareholders would decline and our reported shareholders' equity would decline. A weakening of the Canadian dollar against the foreign currencies in which we do business would have the opposite effect, and would increase net income attributed to shareholders and shareholders' equity. The ultimate impact to the regulatory capital ratios depends on the relative change between available capital and required capital. See "Impact of Foreign Exchange Rates" above.

**The Company's hedging strategies will not fully reduce the market risks related to the product guarantees and fees being hedged, hedging costs may increase and the hedging strategies expose the Company to additional risks.**

- The Company's market risk hedging strategies include a variable annuity guarantee dynamic hedging strategy and a macro equity risk hedging strategy. The variable annuity dynamic hedging strategy is designed to hedge the sensitivity of variable annuity guarantee policy liabilities to fund performance (both public equity and bond funds) and interest rate movements. The macro equity risk hedging strategy is designed to hedge a portion of our earnings sensitivity to public equity market movements arising from variable annuity guarantees not dynamically hedged, directly held exposures, and from other products and fees. Some of the limitations and risks associated with each strategy are described below.
- Our hedging strategies rely on the execution of derivative transactions in a timely manner. Therefore, hedging costs and the effectiveness of the strategy may be negatively impacted if markets for these instruments become illiquid. The Company is subject to the risk of increased funding and collateral demands which may become significant as equity markets increase.
- The Company is also subject to counterparty risks arising from the derivative instruments and to the risk of increased funding and collateral demands which may become significant as equity markets and interest rates increase. The strategies are highly dependent on complex systems and mathematical models that are subject to error and rely on forward-looking long-term assumptions that may prove inaccurate, and which rely on sophisticated infrastructure and personnel which may fail or be unavailable at critical times. Due to the complexity of the strategies there may be additional, unidentified risks that may negatively impact our business

and future financial results. In addition, rising equity markets and interest rates that would otherwise result in profits on variable annuities will be offset by losses from our hedging positions. For further information pertaining to counterparty risks, refer to the risk factor "If a counterparty fails to fulfill its obligations we may be exposed to risks we had sought to mitigate".

- Under certain market conditions, which include a sustained increase in realized equity and interest rate volatilities, a decline in interest rates, or an increase in the correlation between equity returns and interest rate declines, the costs of hedging the benefit guarantees provided in variable annuities may increase or become uneconomic. In addition, there can be no assurance that our dynamic hedging strategy will fully offset the risks arising from the variable annuities being hedged.
- Policy liabilities and regulatory required capital for variable annuity guarantees are determined using long-term forward-looking estimates of volatilities. These long-term forward-looking volatilities assumed for policy liabilities and required capital meet the CIA and OSFI calibration standards. To the extent that realized equity or interest rate volatilities in any quarter exceed the assumed long-term volatilities, or correlations between interest rate changes and equity returns are higher, there is a risk that rebalancing will be greater and more frequent, resulting in higher hedging costs.
- The level of guarantee claims returns or other benefits ultimately paid will be impacted by policyholder longevity and policyholder activity including the timing and amount of withdrawals, lapses, fund transfers and contributions. The sensitivity of liability values to equity market and interest rate movements that we hedge are based on long-term expectations for longevity and policyholder activity, since the impact of actual longevity and policyholder experience variances cannot be hedged using capital markets instruments. There is a risk that we may be unable to effectively or economically hedge products which provide for guarantee claims, returns or other benefits.

**Changes in market interest rates may impact our net income attributed to shareholders and capital ratios.**

- A prolonged low interest rate environment may result in charges related to lower fixed income reinvestment assumptions and an increase in new business strain until products are repositioned for the lower rate environment. Other potential consequences of low interest rates include:
  - Low interest rates could negatively impact sales;
  - Lower risk-free rates tend to increase the cost of hedging, and as a result the offering of guarantees could become uneconomic;
  - The reinvestment of cash flows into low yielding bonds could result in lower future earnings on surplus;
  - A lower interest rate environment could be correlated with other macro-economic factors including unfavourable economic growth and lower returns on other asset classes;
  - Lower interest rates could contribute to potential impairments of goodwill;
  - Lower interest rates could lead to lower mean bond parameters used for the stochastic valuation of segregated fund guarantees, resulting in higher policy liabilities;
  - Lower interest rates would also reduce expected earnings on in-force policies, which would reduce core earnings, lower net income attributed to shareholders and may increase new business strain until products are repositioned for the lower rate environment;
  - A prolonged low interest environment may also result in the Actuarial Standard Board lowering the promulgated Ultimate Reinvestment Rate ("URR") and require us to increase our provisions;
  - The difference between the current investable returns and the returns used in pricing new business are generally capitalized when new business is written. Lower interest rates result in higher new business strain until products are re-priced or interest rates increase; and
  - Fixed income reinvestment rates other than the URR are based on current market rates. The net income sensitivity to changes in current rates is outlined in the section "Interest Rate and Spread Risk Sensitivities and Exposure Measures" above.
- A rapid rise in interest rates may also result in losses attributable to early liquidation of fixed income instruments supporting contractual surrender benefits if customers surrender to take advantage of higher interest rates on offer elsewhere.

**AFS investments are recorded at fair value, but losses arising on those investments may not have been recorded in income.**

- Some of our investments are classified as AFS. AFS debt securities are recorded at fair value, but unrealized gains and losses are recorded in a separate component of equity and are not charged to net income attributed to shareholders. Unrealized gains are recorded in net income attributed to shareholders when the related asset is sold. Unrealized losses are recorded in net income attributed to shareholders either when the related asset is sold or when the related asset is considered impaired and the impairment is not considered to be temporary. Should market levels decline, impairments may be judged to be other than temporary and part or all of any unrealized losses may be charged against future income as a result.
- Our valuation of certain financial instruments may include methodologies, estimations and assumptions which are subjective in nature. Changes to investment valuations may arise in the future which materially adversely affect our results of operations and financial condition.
- The fair value for certain of our investments that are not actively traded is determined using models and other valuation techniques. These values therefore incorporate considerable judgment and involve making estimates including those related to the timing and amounts of expected future cash flows and the credit standing of the issuer or counterparty. The use of different methodologies and assumptions may have a material effect on the estimated fair value amounts.
- Significant market disruption could result in rapidly widening credit spreads and illiquidity, volatile markets and for some instruments significantly reduced trading activity. It has been, and may continue to be difficult to value certain of our securities if

trading is less active and/or market data is harder to observe. Consequently, valuations may include inputs and assumptions that are less observable or require greater estimation thereby resulting in values which may differ materially from the value at which the investments may be ultimately sold. Further, rapidly changing credit and equity market conditions could materially impact the valuation of securities as reported within our Consolidated Financial Statements and the period-to-period changes in value could vary significantly. Decreases in value that become recognizable in future periods could have a material adverse effect on our results of operations and financial condition.

## Liquidity Risk Factors

Manulife is exposed to liquidity risk in each of our operating companies and in our holding company. In the operating companies, expected cash and collateral demands arise day-to-day to fund anticipated policyholder benefits, withdrawals of customer deposit balances, reinsurance settlements, derivative instrument settlements/collateral pledging, expenses, investment and hedging activities. Under stressed conditions, unexpected cash and collateral demands could arise primarily from a change in the level of policyholders either terminating policies with large cash surrender values or not renewing them when they mature, withdrawals of customer deposit balances, borrowers renewing or extending their loans when they mature, derivative settlements or collateral demands, and reinsurance settlements or collateral demands.

**Adverse capital and credit market conditions may significantly affect our liquidity risk.**

- Reduced asset liquidity may restrict our ability to sell certain types of assets for cash without taking significant losses. If providers of credit preserve their capital, our access to borrowing from banks and others or access to other types of credit such as letters of credit, may be reduced. If investors have a negative perception of our creditworthiness, this may reduce access to wholesale borrowing in the debt capital markets, or increase borrowing costs. Should large and unexpected cash outflows occur, exceeding our worst-case stress testing, we may be forced to sell assets at a loss or raise additional funds at significant cost in order to meet our liquidity needs.
- We are dependent on cash flow from operations, a pool of highly liquid money market securities and holdings of sovereign bonds, near-sovereign bonds and other liquid marketable securities to provide liquidity. We need liquidity to meet our payment obligations including those related to insurance and annuity benefits, cashable liabilities, our operating expenses, interest on our debt, dividends on our equity capital, and to replace maturing and certain callable liabilities.
- Liquid assets are also required to pledge as collateral to support activities such as the use of derivatives for hedging purposes and to cover cash settlement associated with such derivatives. Dodd-Frank has increased the number of derivatives transactions that must be cleared through regulated clearinghouses, and has therefore increased our liquidity risk (as such cleared derivatives are subject to both initial margin and variation margin requirements, and a more restrictive set of eligible collateral than non-cleared derivatives). In addition, new variation margin rules for non-cleared derivatives (including eligible collateral restrictions) have further increased our liquidity risk. The principal sources of our liquidity are cash and our assets that are readily convertible into cash, including insurance and annuity premiums, fee income earned on AUM, money market securities, and cash flow from our investment portfolio. The issuance of long-term debt, common and preferred shares and other capital securities may also increase our available liquid assets or be required to replace certain maturing or callable liabilities.
- In the event we seek additional financing, the availability and terms of such financing will depend on a variety of factors including market conditions, the availability of credit to the financial services industry, our credit ratings and credit capacity, as well as the possibility that customers, lenders or investors could develop a negative perception of our long-term or short-term financial prospects if we incur large financial losses or if the level of our business activity decreases further due to a significant market downturn.

**We are exposed to re-pricing risk on letters of credit.**

- In the normal course of business, third-party banks issue letters of credit on our behalf. In lieu of posting collateral, our businesses utilize letters of credit for which third parties are the beneficiaries, as well as for affiliate reinsurance transactions between subsidiaries of MFC. Letters of credit and letters of credit facilities must be renewed periodically. At time of renewal, the Company is exposed to re-pricing risk and under adverse conditions increases in costs may be realized. In the most extreme scenarios, letters of credit capacity could become constrained due to non-renewals which would restrict our flexibility to manage capital. This could negatively impact our ability to meet local capital requirements or our sales of products in jurisdictions in which our operating companies have been affected. As at December 31, 2017, letters of credit for which third parties are beneficiary, in the amount of $77 million, were outstanding. There were no assets pledged against these outstanding letters of credit as at December 31, 2017.

**Our obligations to pledge collateral or make payments related to declines in value of specified assets may adversely affect our liquidity.**

- In the normal course of business, we are obligated to pledge assets to comply with jurisdictional regulatory and other requirements including collateral pledged in relation to derivative contracts and assets held as collateral for repurchase funding agreements. The amount of collateral we may be required to post under these agreements, and the amount of payments we are required to make to our counterparties, may increase under certain circumstances, including a sustained or continued decline in the value of our derivative contracts. Such additional collateral requirements and payments could have an adverse effect on our liquidity. As at December 31, 2017, total pledged assets were $4,633 million, compared with $6,182 million in 2016.

**Our banking subsidiary relies on confidence sensitive deposits and this increases our liquidity risk.**

- Manulife Bank is a wholly-owned subsidiary of our Canadian life insurance operating company, MLI. The Bank is principally funded by retail deposits. A real or perceived problem with the Bank or its parent companies could result in a loss of confidence in the Bank's ability to meet its obligations, which in turn may trigger a significant withdrawal of deposit funds. A substantial portion of the Bank's deposits are demand deposits that can be withdrawn at any time, while the majority of the Bank's assets are first residential mortgages in the form of home equity lines of credit, which represent long-term funding obligations. If deposit withdrawal speeds exceed our extreme stress test assumptions the Bank may be forced to sell assets at a loss to third parties, call the home equity lines of credit or the Bank may request support from MLI.

**As a holding company, MFC depends on the ability of its subsidiaries to transfer funds to it to meet MFC's obligations and pay dividends.**

- MFC is a holding company and relies on dividends and interest payments from our insurance and other subsidiaries as the principal source of cash flow to meet MFC's obligations and pay dividends. As a result, MFC's cash flows and ability to service its obligations are dependent upon the earnings of its subsidiaries and the distribution of those earnings and other funds by its subsidiaries to MFC. Substantially all of MFC's business is currently conducted through its subsidiaries. In addition, OSFI is considering capital requirements for MLI on a stand-alone basis that could further restrict dividends and other distributions to MFC.
- The ability of our holding company to fund its cash requirements depends upon it receiving dividends, distributions and other payments from our operating subsidiaries. The ability of MFC's insurance subsidiaries to pay dividends to MFC in the future will depend on their earnings and regulatory restrictions. These subsidiaries are subject to a variety of insurance and other laws and regulations that vary by jurisdiction and are intended to protect policyholders and beneficiaries in that jurisdiction first and foremost, rather than investors. These subsidiaries are generally required to maintain solvency and capital standards as set by their local regulators and may also be subject to other regulatory restrictions, all of which may limit the ability of subsidiary companies to pay dividends or make distributions to MFC. Such limits could have a material adverse effect on MFC's liquidity, including its ability to pay dividends to shareholders and service its debt.
- The potential changes to regulatory capital and actuarial and accounting standards could also limit the ability of the insurance subsidiaries to pay dividends or make distributions and could have a material adverse effect on MFC's liquidity and on internal capital mobility, including on MFC's ability to pay dividends to shareholders and service its debt. We may be required to raise additional capital, which could be dilutive to existing shareholders, or to limit the new business we write, or to pursue actions that would support capital needs but adversely impact our subsequent earnings potential. In addition, the timing and outcome of these initiatives could have a significantly adverse impact on our competitive position relative to that of other Canadian and international financial institutions with which we compete for business and capital.
- The payment of dividends to MFC by MLI is subject to restrictions set out in the ICA. The ICA prohibits the declaration or payment of any dividend on shares of an insurance company if there are reasonable grounds for believing: (i) the company does not have adequate capital and adequate and appropriate forms of liquidity; or (ii) the declaration or the payment of the dividend would cause the company to be in contravention of any regulation made under the ICA respecting the maintenance of adequate capital and adequate and appropriate forms of liquidity, or of any direction made to the company by the Superintendent. All of our U.S. and Asian operating life insurance companies are subsidiaries of MLI. Accordingly, a restriction on dividends from MLI would restrict MFC's ability to obtain dividends from its U.S. and Asian businesses.
- Certain of MFC's U.S. insurance subsidiaries also are subject to insurance laws in Michigan, New York and Massachusetts, the jurisdictions in which these subsidiaries are domiciled, which impose general limitations on the payment of dividends and other upstream distributions by these subsidiaries to MLI.
- Our Asian insurance subsidiaries are also subject to restrictions in the jurisdictions in which these subsidiaries are domiciled which could affect their ability to pay dividends to MLI in certain circumstances.
- The Company seeks to maintain capital in its insurance subsidiaries in excess of the minimum required in all jurisdictions in which the Company does business. The minimum requirements in each jurisdiction may increase due to regulatory changes and we may decide to maintain additional capital in our operating subsidiaries to fund expected growth of the business or to deal with changes in the risk profile of such subsidiaries. Any such increases in the level of capital may reduce the ability of the operating companies to pay dividends and have a material adverse effect on MFC's liquidity.

**The declaration and payment of dividends and the amount thereof is subject to change.**

- The holders of common shares are entitled to receive dividends as and when declared by the Board of Directors of MFC, subject to the preference of the holders of Class A Shares, Class 1 Shares, Class B Shares (collectively, the "Preferred Shares") and any other shares ranking senior to the common shares with respect to priority in payment of dividends. The declaration and payment of dividends and the amount thereof is subject to the discretion of the Board of Directors of MFC and is dependent upon the results of operations, financial condition, cash requirements and future prospects of, and regulatory and contractual restrictions on the payment of dividends by MFC and other factors deemed relevant by the Board of Directors of MFC. Although MFC has historically declared quarterly cash dividends on the common shares, MFC is not required to do so and the Board of Directors of MFC may reduce, defer or eliminate MFC's common share dividend in the future.
- The foregoing risk disclosure in respect of the declaration and payment of dividends on the common shares applies equally in respect of the declaration and payment of dividends on the Preferred Shares, notwithstanding that the Preferred Shares have a fixed rate of dividend.
- See "Government Regulation" and "Dividends" in MFC's Annual Information Form dated February 7, 2018 for a summary of additional statutory and contractual restrictions concerning the declaration of dividends by MFC.

## Credit Risk Factors

Worsening regional and global economic conditions or the rise in interest rates could result in borrower or counterparty defaults or downgrades, and could lead to increased provisions or impairments related to our general fund invested assets and off-balance sheet derivative financial instruments, and an increase in provisions for future credit impairments to be included in our policy liabilities. Any of our reinsurance providers being unable or unwilling to fulfill their contractual obligations related to the liabilities we cede to them could lead to an increase in policy liabilities.

Our invested assets primarily include investment grade bonds, private placements, commercial mortgages, asset-backed securities, and consumer loans. These assets are generally carried at fair value, but changes in value that arise from a credit-related impairment are recorded as a charge against income. The return assumptions incorporated in actuarial liabilities include an expected level of future asset impairments. There is a risk that actual impairments will exceed the assumed level of impairments in the future and earnings could be adversely impacted.

Defaults and downgrade charges on our invested assets were generally in line with our historical average in 2017; however, we still expect volatility on a quarterly basis and losses could potentially rise above long-term expected levels. Net impaired fixed income assets were $173 million, representing 0.05% of total general fund invested assets as at December 31, 2017, compared with $224 million, representing 0.07% of total general fund invested assets as at December 31, 2016.

**If a counterparty fails to fulfill its obligations we may be exposed to risks we had sought to mitigate.**

- The Company uses derivative financial instruments to mitigate exposures to public equity, foreign currency, interest rate and other market risks arising from on-balance sheet financial instruments, guarantees related to variable annuity products, selected anticipated transactions and certain other guarantees. The Company may be exposed to counterparty risk if a counterparty fails to pay amounts owed to us or otherwise perform its obligations to us. Counterparty risk increases during economic downturns because the probability of default increases for most counterparties. If any of these counterparties default, we may not be able to recover the amounts due from that counterparty. As at December 31, 2017, the largest single counterparty exposure without taking into account the impact of master netting agreements or the benefit of collateral held, was $2,629 million (2016 – $3,891 million). The net exposure to this counterparty, after taking into account master netting agreements and the fair value of collateral held, was $nil (2016 – $nil). As at December 31, 2017, the total maximum credit exposure related to derivatives across all counterparties, without taking into account the impact of master netting agreements and the benefit of collateral held, was $16,204 million (2016 – $24,603 million) compared with $95 million after taking into account master netting agreements and the benefit of fair value of collateral held (2016 – $190 million). The exposure to any counterparty would grow if, upon the counterparty's default, markets moved such that our derivatives with that counterparty gain in value. Until we are able to replace that derivative with another counterparty, the gain on the derivatives subsequent to the counterparty's default would not be backed by collateral. The Company reinsures a portion of the business we enter into; however, we remain legally liable for contracts that we had reinsured. In the event that any of our reinsurance providers were unable or unwilling to fulfill their contractual obligations related to the liabilities we cede to them, we would need to increase actuarial reserves, adversely impacting our net income attributed to shareholders and capital position. In addition, the Company has over time sold certain blocks of business to third-party purchasers using reinsurance. To the extent that the reinsured contracts are not subsequently novated to the purchasers, we remain legally liable to the insureds. Should the purchasers be unable or unwilling to fulfill their contractual obligations under the reinsurance agreement, we would need to increase policy liabilities resulting in a charge to net income attributed to shareholders. To reduce credit risk, the Company may require purchasers to provide collateral for their reinsurance liabilities.
- We participate in a securities lending program whereby blocks of securities are loaned to third parties, primarily major brokerage firms and commercial banks. Collateral, which exceeds the market value of the loaned securities, is retained by the Company until the underlying security has been returned. If any of our securities lending counterparties default and the value of the collateral is insufficient, we would incur losses. As at December 31, 2017, the Company had loaned securities (which are included in invested assets) valued at approximately $1,563 million, compared with $1,956 million at December 31, 2016.

**The determination of allowances and impairments on our investments is subjective and changes could materially impact our results of operations or financial position.**

- The determination of allowances and impairments is based upon a periodic evaluation of known and inherent risks associated with the respective security. Management considers a wide range of factors about the security and uses its best judgment in evaluating the cause of the decline, in estimating the appropriate value for the security and in assessing the prospects for near-term recovery. Inherent in management's evaluation of the security are assumptions and estimates about the operations of the issuer and its future earnings potential. Considerations in the impairment evaluation process include: (i) the severity of the impairment; (ii) the length of time and the extent to which the market value of a security has been below its carrying value; (iii) the financial condition of the issuer; (iv) the potential for impairments in an entire industry sector or sub-sector; (v) the potential for impairments in certain economically depressed geographic locations; (vi) the potential for impairments of securities where the issuer, series of issuers or industry has suffered a catastrophic type of loss or has exhausted natural resources; (vii) our ability and intent to hold the security for a period of time sufficient to allow for the recovery of its value to an amount equal to or greater than cost or amortized cost; (viii) unfavourable changes in forecasted cash flows on mortgage-backed and asset-backed securities; and (ix) other subjective factors, including concentrations and information obtained from regulators and rating agencies.
- Such evaluations and assessments are revised as conditions change and new information becomes available. We update our evaluations regularly and reflect changes in allowances and impairments as such evaluations warrant. The evaluations are inherently subjective, and incorporate only those risk factors known to us at the time the evaluation is made. There can be no assurance that

management has accurately assessed the level of impairments that have occurred. Additional impairments will likely need to be taken or allowances provided for in the future as conditions evolve. Historical trends may not be indicative of future impairments or allowances.

## Insurance Risk Factors

We make a variety of assumptions related to the future level of claims, policyholder behaviour, expenses, reinsurance costs and sales levels when we design and price products, and when we establish policy liabilities. Assumptions for future claims are generally based on both Company and industry experience, and assumptions for future policyholder behaviour and expenses are generally based on Company experience. Assumptions for future policyholder behaviour include assumptions related to the retention rates for insurance and wealth products. Assumptions for expenses include assumptions related to future maintenance expense levels and volume of the business.

**Losses may result should actual experience be materially different than that assumed in the valuation of policy liabilities.**

- Such losses could have a significant adverse effect on our results of operations and financial condition. In addition, we periodically review the assumptions we make in determining our policy liabilities and the review may result in an increase in policy liabilities and a decrease in net income attributed to shareholders. Such assumptions require significant professional judgment, and actual experience may be materially different than the assumptions we make. (See "Critical Accounting and Actuarial Policies" above.)

**We may be unable to implement necessary price increases on our in-force businesses, or may face delays in implementation.**

- We continue to seek state regulatory approvals for price increases on existing long-term care business in the United States. We cannot be certain whether or when each approval will be granted. For some in-force business regulatory approval for price increases may not be required. However, regulators or policyholders may nonetheless seek to challenge our authority to implement such increases. Our policy liabilities reflect our estimates of the impact of these price increases, but should we be less successful than anticipated in obtaining them, then policy liabilities could increase accordingly and reduce net income attributed to shareholders.

**Evolving legislation related to genetic testing could adversely impact our underwriting abilities.**

- Current or future legislation in jurisdictions where Manulife operates may restrict its right to underwrite based on access to genetic test results. Without the obligation of disclosure, the asymmetry of information shared between applicant and insurer could increase anti-selection in both new business and in-force policyholder behaviour. The impact of restricting insurers' access to this information and the associated problems of anti-selection becomes more acute where genetic technology leads to advancements in diagnosis of life threatening conditions that are not matched by improvements in treatment. We cannot predict the potential financial impact that this would have on the Company or the industry as a whole. In addition, there may be further unforeseen implications as genetic testing continues to evolve and becomes more established in mainstream medical practice.

**Life and health insurance claims may be impacted unexpectedly by changes in the prevalence of diseases or illnesses, medical and technology advances, widespread lifestyle changes, natural disasters, large-scale man-made disasters and acts of terrorism.**

- The cost of health insurance benefits may be impacted by unforeseen trends in the incidence, termination and severity rates of claims. The ultimate level of lifetime benefits paid to policyholders may be increased by an unexpected increase in life expectancy. For example, advances in technology could lead to longer lives through better medical treatment or better disease prevention. Policyholder behaviour including premium payment patterns, policy renewals, lapse rates and withdrawal and surrender activity are influenced by many factors including market and general economic conditions, and the availability and relative attractiveness of other products in the marketplace. For example, a weak or declining economic environment could increase the value of guarantees associated with variable annuities or other embedded guarantees and contribute to adverse policyholder behaviour experience, or a rapid rise in interest rates could increase the attractiveness of alternatives for customers holding products that offer contractual surrender benefits that are not market value adjusted, which could also contribute to adverse policyholder behaviour experience. As well, adverse claims experience could result from systematic anti-selection, which could arise from the development of investor owned and secondary markets for life insurance policies, anti-selective lapse behaviour, underwriting process failures, anti-selective policyholder behaviour due to greater consumer accessibility to home-based medical screening, or other factors.

**External market conditions determine the availability, terms and cost of reinsurance protection.**

- We purchase reinsurance protection on certain risks underwritten by our various business segments. Typically, reinsurance agreements are intended to bind the reinsurer for the term of the business reinsured at a fixed price but circumstances may call for increases to be agreed upon. Accordingly, we may incur additional costs for reinsurance or may not be able to obtain sufficient reinsurance on acceptable terms. This could result in accounting charges and the assumption of more risk on business already reinsured and could adversely affect our ability to write future business or result in the assumption of more risk with respect to those policies we issue.

## Operational Risk Factors

Operational risk is naturally present in all of our business activities and encompasses a broad range of risks, including regulatory compliance failures, legal disputes, technology failures, business interruption, information security and privacy breaches, human resource management failures, processing errors, modelling errors, business integration, theft and fraud, and damage to physical assets. Exposures can take the form of financial losses, regulatory sanctions, loss of competitive positioning, or damage to our reputation. Operational risk is also embedded in all the practices we use to manage other risks; therefore, if not managed effectively, operational risk can impact our ability to manage other key risks such as credit risk, market risk, liquidity risk and insurance risk.

**Adverse publicity, litigation or regulatory action resulting from our business practices or actions by our employees, representatives and/or business partners, could erode our corporate image and damage our franchise value and/or create losses.**

- Manulife's reputation is one of its most valuable assets. Harm to a company's reputation is often a consequence of risk control failure, whether associated with complex financial transactions or relatively routine operational activities. Manulife's reputation could also be harmed by the actions of third parties with whom we do business. Our representatives include affiliated broker-dealers, agents, wholesalers and independent distributors, such as broker-dealers and banks, whose services and representations our customers rely on. Business partners include, among others, third parties to whom we outsource certain functions and that we rely on to fulfill various obligations.
- If any of these representatives or business partners fail to adequately perform their responsibilities, or monitor its own risk, these failures could affect our business reputation and operations. While we seek to maintain adequate internal risk management policies and procedures and protect against performance failures, events may occur that could cause us to lose customers or suffer legal or regulatory sanctions, which could have a material adverse effect on our reputation, our business, and our results of operations. For further discussion of government regulation and legal proceedings refer to "Government Regulation" in MFC's Annual Information Form dated February 7, 2018 and "Legal and Regulatory Proceedings" below.

**If we are not able to attract, motivate and retain agency leaders and individual agents, our competitive position, growth and profitability will suffer.**

- We must attract and retain sales representatives to sell our products. Strong competition exists among financial services companies for efficient and effective sales representatives. We compete with other financial services companies for sales representatives primarily on the basis of our financial position, brand, support services and compensation and product features. Any of these factors could change either because we change the Company or our products, or because our competitors change theirs and we are unable or unwilling to adapt. If we are unable to attract and retain sufficient sales representatives to sell our products, our ability to compete and revenues from new sales would suffer, which could have a material adverse effect on our business, results of operations and financial condition.

**If we are unable to complete key projects on time, on budget, and capture planned benefits, our business strategies and plans, and operations may be impaired.**

- We must successfully deliver a number of key projects in order to implement our business strategies and plans. If we are unable to complete these projects in accordance with planned schedules, and to capture projected benefits, there could be a material adverse effect on our business and financial condition.

**The interconnectedness of our operations and risk management strategies could expose us to risk if all factors are not appropriately considered and communicated.**

- Our business operations, including strategies and operations related to risk management, asset liability management and liquidity management, are interconnected and increasingly complex. Changes in one area may have a secondary impact in another area of our operations. For example, risk management actions, such as the increased use of interest rate swaps, could have implications for the Company's Investment Division or its Treasury function, as this strategy could result in the need to post additional amounts of collateral. Failure to appropriately consider these inter-relationships, or effectively communicate changes in strategies or activities across our operations, could have a negative impact on the strategic objectives or operations of another group. Further, failure to consider these inter-relationships in our modeling and financial and strategic decision-making processes could have a negative impact on our operations.

**Our risk management policies, procedures and strategies may leave us exposed to unidentified or unanticipated risks, which could negatively affect our business, results of operations and financial condition.**

- We have devoted significant resources to develop our risk management policies, procedures and strategies and expect to continue to do so in the future. Nonetheless, our policies, procedures and strategies may not be comprehensive. Many of our methods for measuring and managing risk and exposures are based upon the use of observed historical market behaviour or statistics based on historical models. Future behavior may be very different from past behavior, especially if there are some fundamental changes that affect future behavior. As an example, the increased occurrence of negative interest rates can make it difficult to model future interest rates as interest rate models have been generally developed for an environment of positive interest rates. As a result, these methods may not fully predict future exposures, which can be significantly greater than our historical measures indicate. Other risk management methods depend upon the evaluation and/or reporting of information regarding markets, clients, client transactions, catastrophe occurrence or other matters publicly available or otherwise accessible to us. This information may not always be accurate, complete, up-to-date or properly evaluated or reported.

**We are subject to tax audits, tax litigation or similar proceedings, and as a result we may owe additional taxes, interest and penalties in amounts that may be material.**

- We are subject to income and other taxes in the jurisdictions in which we do business. In determining our provisions for income taxes and our accounting for tax-related matters in general, we are required to exercise judgment. We regularly make estimates where the ultimate tax determination is uncertain. There can be no assurance that the final determination of any tax audit, appeal of the decision of a taxing authority, tax litigation or similar proceedings will not be materially different from that reflected in our historical financial statements. The assessment of additional taxes, interest and penalties could be materially adverse to our current and future results of operations and financial condition.

**Our non-North American operations face political, legal, operational and other risks that could negatively affect those operations or our results of operations and financial condition.**

- A substantial portion of our revenue and net income attributed to shareholders is derived from our operations outside of North America, primarily in key Asian markets. Some of these key geographical markets are developing and are rapidly growing countries and markets that present unique risks that we do not face, or are negligible, in our operations in Canada or the U.S. Our operations outside of North America face the risk of discriminatory regulation, political and economic instability, market volatility and significant inflation, limited protection for, or increased costs to protect intellectual property rights, inability to protect and/or enforce contractual or legal rights, nationalization or expropriation of assets, price controls and exchange controls or other restrictions that prevent us from transferring funds from these operations out of the countries in which they operate or converting local currencies we hold into Canadian or U.S. dollars. Failure to manage these risks could have a significant negative impact on our operations and profitability.
- We are currently planning to expand our global operations in markets where we operate and potentially in new markets. This may require considerable management time, as well as start-up expenses for market development before any significant revenues and earnings are generated. Operations in new foreign markets may achieve low margins or may be unprofitable, and expansion in existing markets may be affected by local economic and market conditions.

**We are regularly involved in litigation.**

- We are regularly involved in litigation, both as a plaintiff or defendant. These cases could result in an unfavourable resolution, and could have a material adverse effect on our results of operations and financial condition.

**System failures or events that impact our facilities may disrupt business operations.**

- Technology is used in virtually all aspects of our business and operations; in addition, part of our strategy involves the expansion of technology to directly serve our customers. An interruption in the service of our technology resulting from system failure, cyber-attack, human error, natural disaster, man-made disaster, pandemic, or other unpredictable event beyond reasonable control could prevent us from effectively operating our business.
- While our facilities and operations are distributed across the globe, we can experience extreme weather, natural disasters, civil unrest, man-made disasters, power outages, pandemic, and other events which can prevent access to, and operations within, the facilities for our employees, partners, and other parties that support our business operations.
- We take measures to plan, structure and protect against routine events that may impact our operations, and maintain plans to recover from unpredictable events. An interruption to our operations may subject us to regulatory sanctions and legal claims, lead to a loss of customers, assets and revenues, result in unauthorized disclosures of personal or confidential information, or otherwise adversely affect us from a financial, operational and reputational perspective.

**An information security or privacy breach of our operations or of a related third party could adversely impact our business, results of operations, financial condition, and reputation.**

- It is possible that the Company may not be able to anticipate or to implement effective preventive measures against all disruptions or privacy and security breaches, especially because the techniques used change frequently, generally increase in sophistication, often are not recognized until launched, and because cyber-attacks can originate from a wide variety of sources, including organized crime, hackers, terrorists, activists, and other external parties, including parties sponsored by hostile foreign governments. Those parties may also attempt to fraudulently induce employees, customers, and other users of the Company's systems or third-party service providers to disclose sensitive information in order to gain access to the Company's data or that of its customers or clients. We, our customers, regulators and other third parties have been subject to, and are likely to continue to be the target of, cyber-attacks, including computer viruses, malicious or destructive code, phishing attacks, denial of service and other security incidents, that could result in the unauthorized release, gathering, monitoring, misuse, loss or destruction of personal, confidential, proprietary and other information of the Company, our employees, our customers or of third parties, or otherwise materially disrupt our or our customers' or other third parties' network access or business operations. These attacks could adversely impact us from a financial, operational and reputational perspective.
- The Company has an Information Risk Management Program, which includes information and cyber security defenses, to protect our networks and systems from attacks; however, there can be no assurance that these counter measures will be successful in every instance in protecting our networks against advanced attacks. In addition to protection, detection and response mechanisms, the Company maintains cyber risk insurance, but this insurance may not cover all costs associated with the financial, operational and reputational consequences of personal, confidential or proprietary information being compromised.

**Competition for the best people is intense and an inability to recruit qualified individuals may negatively impact our ability to execute on business strategies or to conduct our operations.**

- We compete with other insurance companies and financial institutions for qualified executives, employees and agents. We must attract and retain top talent to maintain our competitive advantage. Failure to attract and retain the best people could adversely impact our business.

**Model risk may arise from the inappropriate use or interpretation of models or their output, or the use of deficient models, data or assumptions.**

- We are relying on some highly complex models for pricing, valuation and risk measurement, and for input to decision making. Consequently, the risk of inappropriate use or interpretation of our models or their output, or the use of deficient models, could have a material adverse effect on our business.
- We are continuing to enhance our valuation models and processes across the organization. We do not expect this initiative to result in significant reserve adjustments. However, as we systematically review our models, there could be updates to our assumptions and methodologies that result in reserve changes.

**Fraud risks may arise from incidents related to identity theft and account takeovers.**

- Policies and procedures are in place to prevent and detect fraud incidents; however, our existing control environment may not be able to mitigate all possible incidents, which could adversely impact our business, results of operations, financial condition, and reputation. Policies and procedures are being reviewed to enhance our capabilities to better protect against more sophisticated fraud threats but we may nevertheless not be able to mitigate all possible incidents.

**Environmental risk may arise related to our commercial mortgage loan portfolio and owned property or from our business operations.**

- Environmental risk may originate from investment properties that are subject to natural or man-made environmental risk. Real estate assets may be owned, leased and/or managed, as well as mortgaged by Manulife and we might enter into the chain of liability due to foreclosure ownership when in default.
- Liability under environmental protection laws resulting from our commercial mortgage loan portfolio and owned property (including commercial real estate, oil and gas, timberland and farmland properties) may adversely impact our reputation, results of operations and financial condition. Under applicable laws, contamination of a property with hazardous materials or substances may give rise to a lien on the property to secure recovery of the costs of cleanup. In some instances, this lien has priority over the lien of an existing mortgage encumbering the property. The environmental risk may result from on-site or off-site (adjacent) due to migration of regulated pollutants or contaminates with financial or reputational environmental risk and liability consequences by virtue of strict liability. Environmental risk could also arise from natural disasters (e.g., weather, fire, earthquake, floods, pests) or human activities (use of chemicals, pesticides) conducted within the site or when impacted from adjacent sites.
- Additionally, as lender, we may incur environmental liability (including without limitation liability for clean-up, remediation and damages incurred by third parties) similar to that of an owner or operator of the property, if we or our agents exercise sufficient control over the operations at the property. We may also have liability as the owner and/or operator of real estate for environmental conditions or contamination that exist or occur on the property, or affecting other property.
- In addition, failure to adequately prepare for the potential impacts of climate change may have a negative impact on our financial position or our ability to operate. Potential impacts may be direct or indirect and may include business losses or disruption resulting from extreme weather conditions; the impact of changes in legal or regulatory framework made to address climate change; or increased mortality or morbidity resulting from environmental damage or climate change.

## Additional Risk Factors That May Affect Future Results

- Other factors that may affect future results include changes in government trade policy, monetary policy or fiscal policy; political conditions and developments in or affecting the countries in which we operate; technological changes; public infrastructure disruptions; changes in consumer spending and saving habits; the possible impact on local, national or global economies from public health emergencies, such as an influenza pandemic, and international conflicts and other developments including those relating to terrorist activities. Although we take steps to anticipate and minimize risks in general, unforeseen future events may have a negative impact on our business, financial condition and results of operations.

We caution that the preceding discussion of risks that may affect future results is not exhaustive. When relying on our forward-looking statements to make decisions with respect to our Company, investors and others should carefully consider the foregoing risks, as well as other uncertainties and potential events, and other external and Company specific risks that may adversely affect the future business, financial condition or results of operations of our Company.

# Controls and Procedures

## Disclosure Controls and Procedures

Our disclosure controls and procedures are designed to provide reasonable assurance that information required to be disclosed by us is recorded, processed, summarized, and reported accurately and completely and within the time periods specified under Canadian and U.S. securities laws. Our process includes controls and procedures that are designed to ensure that information is accumulated and communicated to management, including the CEO and CFO, to allow timely decisions regarding required disclosure.

As of December 31, 2017, management evaluated the effectiveness of its disclosure controls and procedures as defined under the rules adopted by the U.S. Securities and Exchange Commission and the Canadian securities regulatory authorities. This evaluation was performed under the supervision of the Audit Committee, the CEO and CFO. Based on that evaluation, the CEO and CFO concluded that our disclosure controls and procedures were effective as at December 31, 2017.

MFC's Audit Committee has reviewed this MD&A and the 2017 Consolidated Financial Statements and MFC's Board of Directors approved these reports prior to their release.

## Management's Report on Internal Control over Financial Reporting

Management is responsible for establishing and maintaining adequate internal control over financial reporting. The Company's internal control system was designed to provide reasonable assurance to management and the Board of Directors regarding the preparation and fair presentation of published financial statements in accordance with generally accepted accounting principles. All internal control systems, no matter how well designed, have inherent limitations due to manual controls. Therefore, even those systems determined to be effective can provide only reasonable assurance with respect to financial statement preparation and presentation.

Management maintains a comprehensive system of controls intended to ensure that transactions are executed in accordance with management's authorization, assets are safeguarded, and financial records are reliable. Management also takes steps to ensure that information and communication flows are effective and to monitor performance, including performance of internal control procedures.

Management assessed the effectiveness of the Company's internal control over financial reporting as of December 31, 2017 based on the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO") 2013 framework in Internal Control – Integrated Framework. Based on this assessment, management believes that, as of December 31, 2017, the Company's internal control over financial reporting is effective.

The effectiveness of the Company's internal control over financial reporting as of December 31, 2017 has been audited by Ernst & Young LLP, the Company's independent registered public accounting firm that also audited the Consolidated Financial Statements of the Company for the year ended December 31, 2017. Their report expressed an unqualified opinion on the effectiveness of the Company's internal control over financial reporting as of December 31, 2017.

## Changes in Internal Control over Financial Reporting

No changes were made in our internal control over financial reporting during the year ended December 31, 2017 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

# Performance and Non-GAAP Measures

We use a number of non-GAAP financial measures to measure overall performance and to assess each of our businesses. A financial measure is considered a non-GAAP measure for Canadian securities law purposes if it is presented other than in accordance with generally accepted accounting principles used for the Company's audited financial statements. Non-GAAP measures include: core earnings (loss); core ROE; diluted core earnings per common share; core earnings before income taxes, depreciation and amortization ("core EBITDA"); core EBITDA margin; core investment gains, constant currency basis (measures that are reported on a constant currency basis include percentage growth in core earnings in Asia Division, sales, APE sales, gross flows, premiums and deposits, core EBITDA, core earnings in Wealth and Asset Management, new business value, and assets under management and administration); assets under administration; premiums and deposits; assets under management and administration; assets under management; capital; embedded value; new business value; sales; APE sales; gross flows and net flows. Non-GAAP financial measures are not defined terms under GAAP and, therefore, are unlikely to be comparable to similar terms used by other issuers. Therefore, they should not be considered in isolation or as a substitute for any other financial information prepared in accordance with GAAP.

**Core earnings (loss)** is a non-GAAP measure which we believe aids investors in better understanding the long-term earnings capacity and valuation of the business. Core earnings allows investors to focus on the Company's operating performance by excluding the direct impact of changes in equity markets and interest rates, changes in actuarial methods and assumptions as well as a number of other items, outlined below, that we believe are material, but do not reflect the underlying earnings capacity of the business. For example, due to the long-term nature of our business, the mark-to-market movements of equity markets, interest rates, foreign currency exchange rates and commodity prices from period-to-period can, and frequently do, have a substantial impact on the reported amounts of our assets, liabilities and net income attributed to shareholders. These reported amounts are not actually realized at the time and may never be realized if the markets move in the opposite direction in a subsequent period. This makes it very difficult for investors to evaluate how our businesses are performing from period-to-period and to compare our performance with other issuers.

We believe that core earnings better reflects the underlying earnings capacity and valuation of our business. We use core earnings as the basis for management planning and reporting and, along with net income attributed to shareholders, as a key metric used in our short and mid-term incentive plans at the total Company and operating segment level.

While core earnings is relevant to how we manage our business and offers a consistent methodology, it is not insulated from macro-economic factors which can have a significant impact. See "Quarterly Financial Information" below for reconciliation of core earnings to net income attributed to shareholders.

Any future changes to the core earnings definition referred to below, will be disclosed.

**Items included in core earnings:**

1. Expected earnings on in-force policies, including expected release of provisions for adverse deviation, fee income, margins on group business and spread business such as Manulife Bank and asset fund management.
2. Macro hedging costs based on expected market returns.
3. New business strain and gains.
4. Policyholder experience gains or losses.
5. Acquisition and operating expenses compared with expense assumptions used in the measurement of policy liabilities.
6. Up to $400 million of net favourable investment-related experience reported in a single year, which are referred to as "core investment gains". This means up to $100 million in the first quarter, up to $200 million on a year-to-date basis in the second quarter, up to $300 million on a year-to-date basis in the third quarter and up to $400 million on a full year basis in the fourth quarter. Any investment-related experience losses reported in a quarter will be offset against the net year-to-date investment-related experience gains with the difference being included in core earnings subject to a maximum of the year-to-date core investment gains and a minimum of zero, which reflects our expectation that investment-related experience will be positive through-the-business cycle. To the extent any investment-related experience losses cannot be fully offset in a quarter they will be carried forward to be offset against investment-related experience gains in subsequent quarters in the same year, for purposes of determining core investment gains. Investment-related experience relates to fixed income investing, ALDA returns, credit experience and asset mix changes other than those related to a strategic change. An example of a strategic asset mix change is outlined below.

   - This favourable and unfavourable investment-related experience is a combination of reported investment experience as well as the impact of investing activities on the measurement of our policy liabilities. We do not attribute specific components of investment-related experience to amounts included or excluded from core earnings.
   - The $400 million threshold represents the estimated average annualized amount of net favourable investment-related experience that the Company reasonably expects to achieve through-the-business cycle based on historical experience. It is not a forecast of expected net favourable investment-related experience for any given fiscal year.
   - Our average net annualized investment-related experience calculated from the introduction of core earnings in 2012 to the end of 2017 was $475 million (2012 to the end of 2016 was $456 million).
   - The decision announced on December 22, 2017 to reduce the allocation to ALDA in the portfolio asset mix supporting our legacy businesses was the first strategic asset mix change since we introduced the core earnings metric in 2012. We have refined our description of investment-related experience to note that asset mix changes other than those related to a strategic change are taken into consideration in the investment-related experience component of core investment gains.

- While historical investment return time horizons may vary in length based on underlying asset classes generally exceeding 20 years, for purposes of establishing the threshold, we look at a business cycle that is five or more years and includes a recession. We monitor the appropriateness of the threshold as part of our annual five-year planning process and would adjust it, either to a higher or lower amount, in the future if we believed that our threshold was no longer appropriate.
- Specific criteria used for evaluating a potential adjustment to the threshold may include, but are not limited to, the extent to which actual investment-related experience differs materially from actuarial assumptions used in measuring insurance contract liabilities, material market events, material dispositions or acquisitions of assets, and regulatory or accounting changes.

7. Earnings on surplus other than mark-to-market items. Gains on available-for-sale ("AFS") equities and seed money investments are included in core earnings.
8. Routine or non-material legal settlements.
9. All other items not specifically excluded.
10. Tax on the above items.
11. All tax related items except the impact of enacted or substantively enacted income tax rate changes.

**Items excluded from core earnings:**

1. The direct impact of equity markets and interest rates and variable annuity guarantee liabilities includes the items listed below.
   - The earnings impact of the difference between the net increase (decrease) in variable annuity liabilities that are dynamically hedged and the performance of the related hedge assets. Our variable annuity dynamic hedging strategy is not designed to completely offset the sensitivity of insurance and investment contract liabilities to all risks or measurements associated with the guarantees embedded in these products for a number of reasons, including; provisions for adverse deviation, fund performance, the portion of the interest rate risk that is not dynamically hedged, realized equity and interest rate volatilities and changes to policyholder behaviour.
   - Gains (charges) on variable annuity guarantee liabilities not dynamically hedged.
   - Gains (charges) on general fund equity investments supporting policy liabilities and on fee income.
   - Gains (charges) on macro equity hedges relative to expected costs. The expected cost of macro hedges is calculated using the equity assumptions used in the valuation of insurance and investment contract liabilities.
   - Gains (charges) on higher (lower) fixed income reinvestment rates assumed in the valuation of insurance and investment contract liabilities.
   - Gains (charges) on sale of AFS bonds and open derivatives not in hedging relationships in the Corporate and Other segment.
2. Net favourable investment-related experience in excess of $400 million per annum or net unfavourable investment-related experience on a year-to-date basis.
3. Mark-to-market gains or losses on assets held in the Corporate and Other segment other than gains on AFS equities and seed money investments in new segregated or mutual funds.
4. Changes in actuarial methods and assumptions. As noted in the "Critical Accounting and Actuarial Policies" section above, policy liabilities for IFRS are valued in Canada under standards established by the Actuarial Standards Board. The standards require a comprehensive review of actuarial methods and assumptions to be performed annually. The review is designed to reduce the Company's exposure to uncertainty by ensuring assumptions for both asset related and liability related risks remain appropriate and is accomplished by monitoring experience and selecting assumptions which represent a current best estimate view of expected future experience, and margins that are appropriate for the risks assumed. By excluding the results of the annual reviews, core earnings assists investors in evaluating our operational performance and comparing our operational performance from period to period with other global insurance companies because the associated gain or loss is not reflective of current year performance and not reported in net income in most actuarial standards outside of Canada.
5. The impact on the measurement of policy liabilities of changes in product features or new reinsurance transactions, if material.
6. Goodwill impairment charges.
7. Gains or losses on disposition of a business.
8. Material one-time only adjustments, including highly unusual/extraordinary and material legal settlements or other items that are material and exceptional in nature.
9. Tax on the above items.
10. Impact of enacted or substantially enacted income tax rate changes.

**Core return on common shareholders' equity ("core ROE")** is a non-GAAP profitability measure that presents core earnings available to common shareholders as a percentage of the capital deployed to earn the core earnings. The Company calculates core ROE using average common shareholders' equity.

**Diluted core earnings per common share** is core earnings available to common shareholders expressed per diluted weighted average common share outstanding.

The Company also uses financial performance measures that are prepared on a **constant currency basis**, which are non-GAAP measures that exclude the impact of currency fluctuations (from local currency to Canadian dollars at a total company level and from local currency to U.S. dollars in Asia). Amounts stated on a constant currency basis in this report are calculated, as appropriate, using the income statement and balance sheet exchange rates effective for the fourth quarter of 2017. Measures that are reported on a constant currency basis include growth in core earnings in Asia Division, sales, APE sales, gross flows, premiums and deposits, core EBITDA, new business value and assets under management and administration.

**Premiums and deposits** is a non-GAAP measure of top line growth. The Company calculates premiums and deposits as the aggregate of (i) general fund premiums, net of reinsurance, reported as premiums on the Consolidated Statements of Income and investment contract deposits, (ii) segregated fund deposits, excluding seed money, ("deposits from policyholders"), (iii) mutual fund deposits, (iv) deposits into institutional advisory accounts, (v) premium equivalents for "administration services only" group benefit contracts ("ASO premium equivalents"), (vi) premiums in the Canadian Group Benefits reinsurance ceded agreement, and (vii) other deposits in other managed funds.

### Premiums and deposits

| | Quarterly Results | | Full Year Results | |
|---|---|---|---|---|
| ($ millions) | **4Q17** | 4Q16 | **2017** | 2016 |
| Net premium income and investment contract deposits | **$ 6,966** | $ 7,019 | **$ 28,328** | $ 27,795 |
| Deposits from policyholders | **7,717** | 7,620 | **32,205** | 30,504 |
| Mutual fund deposits | **20,938** | 20,349 | **79,972** | 72,587 |
| Institutional advisory account deposits | **5,564** | 11,168 | **16,980** | 20,733 |
| ASO premium equivalents | **892** | 833 | **3,496** | 3,318 |
| Group Benefits ceded premiums | **1,095** | 1,095 | **4,283** | 4,693 |
| Other fund deposits | **135** | 143 | **498** | 536 |
| **Total premiums and deposits** | **43,307** | 48,227 | **165,762** | 160,166 |
| Currency impact | **–** | (1,649) | **(2,379)** | (5,279) |
| **Constant currency premiums and deposits** | **$ 43,307** | $ 46,578 | **$ 163,383** | $ 154,887 |

**Assets under management and administration ("AUMA")** is a non-GAAP measure of the size of the Company. It is comprised of the non-GAAP measures assets under management ("AUM"), which includes both assets of general account and external client assets for which we provide investment management services, and assets under administration ("AUA"), which includes assets for which we provide administrative services only. Assets under management and administration is a common industry metric for WAM businesses.

### Assets under management and administration

| As at December 31,<br>($ millions) | **2017** | 2016 |
|---|---|---|
| Total invested assets | **$ 334,222** | $ 321,869 |
| Segregated funds net assets | **324,307** | 315,177 |
| **Assets under management per financial statements** | **658,529** | 637,046 |
| Mutual funds | **195,472** | 169,919 |
| Institutional advisory accounts (excluding segregated funds) | **91,149** | 81,304 |
| Other funds | **7,412** | 6,353 |
| **Total assets under management** | **952,562** | 894,622 |
| Other assets under administration | **87,929** | 82,433 |
| Currency impact | **–** | (39,106) |
| **Constant currency assets under management and administration** | **$ 1,040,491** | $ 937,949 |

**Capital** The definition we use for capital, a non-GAAP measure, serves as a foundation of our capital management activities at the MFC level. For regulatory reporting purposes, the numbers are further adjusted for various additions or deductions to capital as mandated by the guidelines used by OSFI. Capital is calculated as the sum of: (i) total equity excluding accumulated other comprehensive income ("AOCI") on cash flow hedges; and (ii) liabilities for preferred shares and capital instruments.

### Capital

| As at December 31,<br>($ millions) | **2017** | 2016 |
|---|---|---|
| **Total equity** | **$ 42,163** | $ 42,823 |
| Adjusted for AOCI loss on cash flow hedges | **(109)** | (232) |
| Total equity excluding AOCI on cash flow hedges | **42,272** | 43,055 |
| Add liabilities for capital instruments | **8,387** | 7,180 |
| **Total capital** | **$ 50,659** | $ 50,235 |

**Core EBITDA** is a non-GAAP measure which Manulife uses to better understand the long-term earnings capacity and valuation of the business on a basis more comparable to how the profitability of global asset managers is generally measured. Core EBITDA presents core earnings before the impact of interest, taxes, depreciation, and amortization. Core EBITDA excludes certain acquisition expenses related to insurance contracts in our retirement businesses which are deferred and amortized over the expected life time of the customer relationship under the CALM. Core EBITDA was selected as a key performance indicator for WAM businesses, as EBITDA is widely used among asset management peers, and core earnings is a primary profitability metric for the Company overall.

**Core EBITDA margin** is a non-GAAP measure which Manulife uses to better understand the long-term profitability of our global wealth and asset management business on a more comparable basis to how profitability of global asset managers are measured. Core EBITDA margin presents core earnings before the impact of interest, taxes, depreciation, and amortization divided by total revenue from these businesses. Core EBITDA margin was selected as a key performance indicator for our WAM businesses, as EBITDA margin is widely used among asset management peers, and core earnings is a primary profitability metric for the Company overall.

### Wealth and Asset Management

| **For the years ended December 31,**<br>($ millions) | **2017** | 2016 |
|---|---|---|
| **Core EBITDA** | **$ 1,396** | $ 1,167 |
| Amortization of deferred acquisition costs and other depreciation | **(344)** | (336) |
| Amortization of deferred sales commissions | **(99)** | (103) |
| Core earnings before income taxes | **953** | 728 |
| Core income tax (expense) recovery | **(165)** | (99) |
| **Core earnings** | **$ 788** | $ 629 |

**Embedded value ("EV")** is a measure of the present value of shareholders' interests in the expected future distributable earnings on in-force business reflected in the Consolidated Statement of Financial Position of Manulife, excluding any value associated with future new business. EV is calculated as the sum of the adjusted net worth and the value of in-force business. The adjusted net worth is the IFRS shareholders' equity adjusted for goodwill and intangibles, fair value of surplus assets, the carrying value of debt and preferred shares, and local statutory balance sheet, regulatory reserve, and capital for Manulife's Asian business. The value of in-force business in Canada and the U.S. is the present value of expected future IFRS earnings on in-force business less the present value of the cost of holding capital to support the in-force business under the MCCSR framework. The value of in-force business in Asia reflects local statutory earnings and capital requirements. The value of in-force excludes Manulife's WAM, Bank and P&C Reinsurance businesses.

**New business value ("NBV")** is the change in embedded value as a result of sales in the reporting period. NBV is calculated as the present value of shareholders' interests in expected future distributable earnings, after the cost of capital, on actual new business sold in the period using assumptions that are consistent with the assumptions used in the calculation of embedded value. NBV excludes businesses with immaterial insurance risks, such as Manulife's WAM businesses and Manulife Bank and the short-term P&C Reinsurance business. NBV is a useful metric to evaluate the value created by the Company's new business franchise.

**New business value margin** is calculated as NBV divided by annualized premium equivalents ("APE") excluding non-controlling interests. APE is calculated as 100% of annualized first year premiums for recurring premium products, and as 10% of single premiums for single premium products. Both NBV and APE used in the NBV margin calculation are after non-controlling interests and exclude wealth and asset management, Bank and P&C Reinsurance businesses. The NBV margin is a useful metric to help understand the profitability of our new business.

**Sales are measured according to product type:**
For individual insurance, sales include 100% of new annualized premiums and 10% of both excess and single premiums. For individual insurance, new annualized premiums reflect the annualized premium expected in the first year of a policy that requires premium payments for more than one year. Single premium is the lump sum premium from the sale of a single premium product, e.g. travel insurance. Sales are reported gross before the impact of reinsurance.

For group insurance, sales include new annualized premiums and administrative services only premium equivalents on new cases, as well as the addition of new coverages and amendments to contracts, excluding rate increases.

For Asia, annualized premium equivalent ("APE") sales is comprised of 100% of regular premiums/deposits and 10% of single premiums/deposits for both insurance and other wealth products. APE sales are presented for our Asia division as this metric is widely used by insurance companies in Asia.

Other Wealth sales include all new deposits into variable and fixed annuity contracts. As we discontinued sales of new Variable Annuity contracts in the U.S. in 1Q13, subsequent deposits into existing U.S. Variable Annuity contracts are not reported as sales. Asia variable annuity deposits are included in APE sales.

Bank new lending volumes include bank loans and mortgages authorized in the period.

**Gross flows** is a new business measure presented for WAM businesses and includes all deposits into the Company's mutual funds, college savings 529 plans, group pension/retirement savings products, private wealth and institutional asset management products. Gross flows is a common industry metric for WAM businesses as it provides a measure of how successful the businesses are at attracting assets.

**Net flows** is presented for our WAM businesses and includes gross flows less redemptions for our mutual funds, college savings 529 plans, group pension/retirement savings products, private wealth and institutional asset management products. Net flows is a common industry metric for WAM businesses as it provides a measure of how successful the businesses are at attracting and retaining assets.

# Additional Disclosures

## Contractual Obligations

In the normal course of business, the Company enters into contracts that give rise to obligations fixed by agreement as to the timing and dollar amount of payment.

As at December 31, 2017, the Company's contractual obligations and commitments are as follows:

| **Payments due by period** ($ millions) | Total | Less than 1 year | 1 to 3 years | 3 to 5 years | After 5 years |
|---|---|---|---|---|---|
| Long-term debt[1] | **$ 8,592** | **$ 616** | **$ 1,036** | **$ 347** | **$ 6,593** |
| Liabilities for capital instruments[1] | **17,245** | **322** | **635** | **624** | **15,664** |
| Investment commitments | **8,235** | **2,859** | **2,927** | **1,582** | **867** |
| Operating leases | **838** | **126** | **172** | **89** | **451** |
| Insurance contract liabilities[2] | **742,054** | **9,788** | **11,236** | **17,153** | **703,877** |
| Investment contract liabilities[1] | **5,244** | **283** | **536** | **481** | **3,944** |
| Deposits from Bank clients | **18,130** | **15,322** | **1,373** | **1,435** | **–** |
| Other | **4,337** | **451** | **1,537** | **2,263** | **86** |
| **Total contractual obligations** | **$ 804,675** | **$ 29,767** | **$ 19,452** | **$ 23,974** | **$ 731,482** |

(1) The contractual payments include principal, interest and distributions. The contractual payments reflect the amounts payable from January 1, 2018 up to and including the final contractual maturity date. In the case of floating rate obligations, the floating rate index is based on the interest rates as at December 31, 2017 and is assumed to remain constant to the final contractual maturity date. The Company may have the contractual right to redeem or repay obligations prior to maturity and if such right is exercised, total contractual obligations paid and the timing of payment could vary significantly from the amounts and timing included in the table.

(2) Insurance contract liabilities cash flows include estimates related to the timing and payment of death and disability claims, policy surrenders, policy maturities, annuity payments, minimum guarantees on segregated fund products, policyholder dividends, commissions and premium taxes offset by contractual future premiums on in-force contracts. These estimated cash flows are based on the best estimate assumptions used in the determination of insurance contract liabilities. These amounts are undiscounted and reflect recoveries from reinsurance agreements. Due to the use of assumptions, actual cash flows may differ from these estimates (see "Policy Liabilities"). Cash flows include embedded derivatives measured separately at fair value.

## Legal and Regulatory Proceedings

The Company is regularly involved in legal actions, both as a defendant and as a plaintiff. The legal actions where the Company is a party ordinarily involve its activities as a provider of insurance protection and wealth management products, relating to reinsurance, or in its capacity as an investment adviser, employer and taxpayer. Other life insurers and asset managers, operating in the jurisdictions in which the Company does business, have been subject to a wide variety of other types of actions, some of which resulted in substantial judgments or settlements against the defendants; it is possible that the Company may become involved in similar actions in the future. In addition, government and regulatory bodies in Canada, the United States, Asia and other jurisdictions where the Company conducts business regularly make inquiries and, from time to time, require the production of information or conduct examinations concerning the Company's compliance with, among other things, insurance laws, securities laws, and laws governing the activities of broker-dealers.

A class action against John Hancock Life Insurance Company (U.S.A.) ("JHUSA") is pending in the U.S. District Court for the Southern District of New York in which claims are made that JHUSA breached, and continues to breach, the contractual terms of certain universal life policies issued between approximately 1990 and 2006 by including impermissible charges in its cost of insurance ("COI") calculations. The Company believes that its COI calculations have been, and continue to be, in accordance with the terms of the policies and intends to vigorously defend this action. Briefing on class certification is scheduled to be completed in late April. It is premature to attempt to predict any outcome or range of outcomes for this matter. A similar class action based on the same policy language in dispute in the case pending in New York had been pending in California. The parties have agreed on the financial terms of a settlement that will settle all claims alleged in the action and are preparing final settlement documents for presentation to the supervising court for its approval.

## Quarterly Financial Information

The following table provides summary information related to our eight most recently completed quarters:

| **As at and for the three months ended** ($ millions, except per share amounts or otherwise stated) | **Dec 31, 2017** | Sept 30, 2017 | Jun 30, 2017 | Mar 31, 2017 | Dec 31, 2016 | Sept 30, 2016 | Jun 30, 2016 | Mar 31, 2016 |
|---|---|---|---|---|---|---|---|---|
| **Revenue** | | | | | | | | |
| Premium income | | | | | | | | |
| Life and health insurance | **$ 6,000** | $ 6,321 | $ 6,040 | $ 5,994 | $ 6,093 | $ 5,950 | $ 5,497 | $ 5,728 |
| Annuities and pensions | **943** | 922 | 934 | 1,056 | 908 | 1,247 | 1,209 | 1,000 |
| Net premium income | **6,943** | 7,243 | 6,974 | 7,050 | 7,001 | 7,197 | 6,706 | 6,728 |
| Investment income | **3,579** | 3,309 | 3,444 | 3,317 | 3,309 | 3,568 | 3,213 | 3,300 |
| Realized and unrealized gains (losses) on assets supporting insurance and investment contract liabilities[1] | **2,988** | (1,163) | 3,303 | 590 | (16,421) | 771 | 7,922 | 8,862 |
| Other revenue | **2,737** | 2,544 | 2,872 | 2,593 | 2,637 | 2,921 | 2,794 | 2,829 |
| **Total revenue** | **$ 16,247** | $ 11,933 | $ 16,593 | $ 13,550 | $ (3,474) | $ 14,457 | $ 20,635 | $ 21,719 |
| Income (loss) before income taxes | **$ (2,123)** | $ 1,269 | $ 1,618 | $ 1,737 | $ (285) | $ 1,314 | $ 947 | $ 1,353 |
| Income tax (expense) recovery | **424** | (13) | (304) | (346) | 450 | (117) | (231) | (298) |
| **Net income (loss)** | **$ (1,699)** | $ 1,256 | $ 1,314 | $ 1,391 | $ 165 | $ 1,197 | $ 716 | $ 1,055 |
| **Net income (loss) attributed to shareholders** | **$ (1,606)** | $ 1,105 | $ 1,255 | $ 1,350 | $ 63 | $ 1,117 | $ 704 | $ 1,045 |
| **Reconciliation of core earnings to net income attributed to shareholders** | | | | | | | | |
| Total core earnings[2] | **$ 1,205** | $ 1,085 | $ 1,174 | $ 1,101 | $ 1,287 | $ 996 | $ 833 | $ 905 |
| Other items to reconcile net income attributed to shareholders to core earnings | | | | | | | | |
| Investment-related experience in excess of amounts included in core earnings | **18** | 11 | 138 | – | – | 280 | 60 | (340) |
| Direct impact of equity markets, interest rates and variable annuity guarantee liabilities | **(68)** | 47 | (37) | 267 | (1,202) | 414 | (170) | 474 |
| Change in actuarial methods and assumptions | **(33)** | (2) | – | – | (10) | (455) | – | 12 |
| Charge related to U.S. Tax Reform | **(1,777)** | | | | | | | |
| Charge related to decision to change portfolio asset mix of our legacy businesses | **(1,032)** | | | | | | | |
| Net impact of acquisitions and divestitures | **(18)** | (14) | (20) | (18) | (25) | (23) | (19) | (14) |
| Other items | **99** | (22) | – | – | 13 | (95) | – | 8 |
| **Net income (loss) attributed to shareholders** | **$ (1,606)** | $ 1,105 | $ 1,255 | $ 1,350 | $ 63 | $ 1,117 | $ 704 | $ 1,045 |
| **Basic earnings (loss) per common share** | **$ (0.83)** | $ 0.54 | $ 0.62 | $ 0.66 | $ 0.01 | $ 0.55 | $ 0.34 | $ 0.51 |
| **Diluted earnings (loss) per common share** | **$ (0.83)** | $ 0.54 | $ 0.61 | $ 0.66 | $ 0.01 | $ 0.55 | $ 0.34 | $ 0.51 |
| **Segregated funds deposits** | **$ 8,421** | $ 8,179 | $ 8,544 | $ 9,632 | $ 8,247 | $ 8,291 | $ 7,899 | $ 8,693 |
| **Total assets (in billions)** | **$ 730** | $ 713 | $ 726 | $ 728 | $ 721 | $ 742 | $ 725 | $ 696 |
| **Weighted average common shares (in millions)** | **1,980** | 1,978 | 1,977 | 1,976 | 1,974 | 1,973 | 1,972 | 1,972 |
| **Diluted weighted average common shares (in millions)** | **1,988** | 1,986 | 1,984 | 1,984 | 1,980 | 1,976 | 1,976 | 1,976 |
| **Dividends per common share** | **$ 0.205** | $ 0.205 | $ 0.205 | $ 0.205 | $ 0.185 | $ 0.185 | $ 0.185 | $ 0.185 |
| **CDN$ to US$1 – Statement of Financial Position** | **1.2545** | 1.2480 | 1.2977 | 1.3323 | 1.3426 | 1.3116 | 1.3009 | 1.2970 |
| **CDN$ to US$1 – Statement of Income** | **1.2712** | 1.2528 | 1.3450 | 1.3238 | 1.3343 | 1.3050 | 1.2889 | 1.3724 |

[1] For fixed income assets supporting insurance and investment contract liabilities and for equities supporting pass-through products and derivatives related to variable hedging programs, the impact of realized and unrealized gains (losses) on the assets is largely offset in the change in insurance and investment contract liabilities.
[2] Core earnings is a non-GAAP measure. See "Performance and Non-GAAP Measures" above.

## Selected Annual Financial Information

| **As at and for the years ended December 31,**<br>($ millions, except per share amounts) | **2017** | 2016 | 2015 |
|---|---|---|---|
| **Revenue** | | | |
| Asia Division | **$ 21,532** | $ 19,294 | $ 14,002 |
| Canadian Division | **12,855** | 12,707 | 10,065 |
| U.S. Division | **24,437** | 20,558 | 9,949 |
| Corporate and Other | **(501)** | 778 | 414 |
| **Total revenue** | **$ 58,323** | $ 53,337 | $ 34,430 |
| **Total assets** | **$ 729,533** | $ 720,681 | $ 702,871 |
| **Long-term financial liabilities** | | | |
| Long-term debt | **$ 4,785** | $ 5,696 | $ 1,853 |
| Liabilities for preferred shares and capital instruments | **8,387** | 7,180 | 7,695 |
| **Total financial liabilities** | **$ 13,172** | $ 12,876 | $ 9,548 |
| Dividend per common share | **$ 0.820** | $ 0.740 | $ 0.665 |
| Cash dividend per Class A Share, Series 1(1) | **–** | – | 0.5125 |
| Cash dividend per Class A Share, Series 2 | **1.1625** | 1.1625 | 1.1625 |
| Cash dividend per Class A Share, Series 3 | **1.125** | 1.125 | 1.125 |
| Cash dividend per Class 1 Share, Series 3(2) | **0.5445** | 0.7973 | 1.05 |
| Cash dividend per Class 1 Share, Series 4(2) | **0.4918** | 0.2431 | – |
| Cash dividend per Class 1 Share, Series 5 | **0.9728** | 1.10 | 1.10 |
| Cash dividend per Class 1 Share, Series 7 | **1.096** | 1.15 | 1.15 |
| Cash dividend per Class 1 Share, Series 9 | **1.0969** | 1.10 | 1.10 |
| Cash dividend per Class 1 Share, Series 11 | **1.00** | 1.00 | 1.00 |
| Cash dividend per Class 1 Share, Series 13 | **0.95** | 0.95 | 0.95 |
| Cash dividend per Class 1 Share, Series 15 | **0.975** | 0.975 | 0.975 |
| Cash dividend per Class 1 Share, Series 17 | **0.975** | 0.975 | 0.975 |
| Cash dividend per Class 1 Share, Series 19 | **0.95** | 0.95 | 0.9884 |
| Cash dividend per Class 1 Share, Series 21(3) | **1.40** | 1.1411 | – |
| Cash dividend per Class 1 Share, Series 23(4) | **1.298** | – | – |

(1) On June 19, 2015, MFC redeemed all of its 14 million outstanding Class A Shares Series 1.
(2) 1,664,169 of 8,000,000 Series 3 Shares were converted, on a one-for-one basis, into Series 4 Shares on June 20, 2016. 6,335,831 Series 3 Shares remain outstanding.
(3) On February 25, 2016, MFC issued 16 million of Series 21 Shares and on March 3, 2016, MFC issued an additional 1 million Series 21 Shares pursuant to the exercise in full by the underwriters of their option to purchase additional Series 21 Shares.
(4) On November 22, 2016, MFC issued 19 million of Non-cumulative Rate Reset Class 1 Shares Series 23. No dividends were paid in 2016.

## Additional Information Available

Additional information relating to Manulife, including MFC's Annual Information Form, is available on the Company's website at www.manulife.com and on SEDAR at www.sedar.com.

## Outstanding Shares – Selected Information

### Common Shares

As at February 2, 2018, MFC had 1,982,433,826 common shares outstanding.