

Sustainable and responsible investing report

2018



Table of contents

A message from our head of public markets	3
About Manulife Investment Management	4
2018 highlights and recognitions	5
Our beliefs	6
Our sustainability plan	7
Strong governance	8
ESG integration	10
Active and responsible stewardship	16
Dynamic approach	22
Transparency	24
We welcome your feedback	25
Appendix	26
Some of our investment offices	28
Important information	30

A message from our head of public markets

Welcome to the inaugural “Sustainable and responsible investing report” for Manulife Investment Management’s public markets business.

In the following pages, we seek to provide our clients and stakeholders with an overview of our approach to sustainable and responsible investing, including our guiding principles, organizational structure, and integration across our investment platform. As stewards of our clients’ capital, we believe the identification and analysis of sustainability considerations are critical components of evaluating risks and opportunities across the investment universe. As such, we’ve developed and are implementing a robust sustainability plan across our diverse and global business.

We strive to leverage our position as a leader within the asset management industry to help place the global economy on a sustainable trajectory. In doing so, we pursue attractive risk-adjusted returns for our clients that also support the creation of long-term value for our broader stakeholders. Sustainability in business will arguably be the most significant megatrend shaping the world’s economy over the coming decades. As sustainability themes increasingly come to the fore for companies in which we invest, the research-driven contextual insight of active investment managers will be critical for properly assessing and responding to the related risks and opportunities for the clients we serve.

I’m proud of what Manulife Investment Management has achieved to date in several signature areas of activity. We’re in the vanguard of global investor action on climate change, and we’re building more informed awareness in the corporate sector about the importance of relevant and material environmental, social, and governance (ESG) disclosures. We’ve advanced the practice of ESG integration in fixed-income investing in markets around the world, and we’ve applied the United Nations’ Sustainable Development Goals to a new proprietary framework for equities investing. We’ve also set even more ambitious goals for our sustainable and responsible investment program in the coming year.

I hope you enjoy reading this report, and I welcome your partnership in our continuing sustainable and responsible investment journey.



Christopher P. Conkey, CFA
Head of Public Markets
Global Wealth and Asset Management
Manulife Investment Management

About Manulife Investment Management

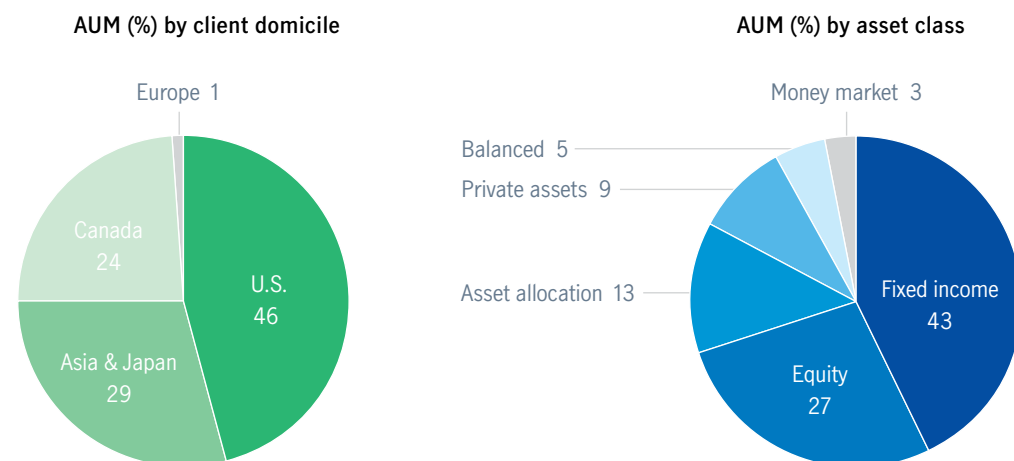
We're the global asset management arm of Manulife Financial Corporation

- US\$364 billion in assets under management for global investors (as of December 31, 2018)
- Deep, local market knowledge in the United States, Canada, Europe, and Asia

Headquartered in Toronto, Manulife Investment Management is the global wealth and asset management segment of Manulife Financial Corporation (Manulife). We draw on more than 150 years of financial stewardship to partner with clients across our institutional, retail, and retirement businesses globally.

We offer highly differentiated strategies across our areas of expertise—global fixed income, specialized equity, multi-asset solutions, and private markets—leveraging a heritage of risk management, fundamental research, and targeted investing. Within the private markets segment, specialized asset teams manage real estate, timberland, farmland, commercial mortgages, private equity and private credit, private placement debt, and infrastructure equity, as well as oil and gas.

Our business is built on a diverse asset base¹



As of December 31, 2018, Manulife Investment Management had operations in 17 countries and territories, including more than 475² investment professionals across Canada, Hong Kong, Indonesia, Japan, Malaysia, the Philippines, Singapore, Taiwan, Thailand, the United Kingdom, the United States, and Vietnam. In addition, we have a joint venture asset management business in China, Manulife TEDA, and operations in Australia, Brazil, and New Zealand.

2018 highlights and recognitions

Industry recognition

- **Equal 25th for asset manager contribution** in the “Independent Research in Responsible Investment Survey 2019” (IRRI), released on June 10, 2019, and which assessed managers’ contributions to sustainable investing and governance for 2018. The top 50 asset managers in this category are recognized by industry peers for contributions to sustainable investing.
- **Equal 21st for most positive contribution**, according to the IRRI, for Emily Chew, our global head of ESG research and integration. This recognition was based on responses from our clients, suppliers, and peers, globally, and reflects the perception of our contributions to the development of sustainable investment and corporate governance practice.

Above-median PRI assessment

For 2018, Manulife Investment Management received a score of **A+ from the Principles for Responsible Investment** (PRI) for our strategy to integrate ESG considerations into our business practices and an A in all other direct investment and active ownership PRI modules for which we were assessed. These strong results put us above the median among PRI signatories in every category of our assessment. We’ve been a PRI signatory since December 2015.

Commitment to improving sustainability-related disclosures

Manulife Investment Management joined the Investor Advisory Group of the Sustainable Accounting Standards Board (SASB), with our Head of Public Markets Christopher P. Conkey, CFA, as our primary representative, working with a select group of global leaders in sustainable investing.

Sustainable development goals (SDGs)

- We contributed a case study to the Global Compact Network Canada’s “SDGs Emerging Practice Guide,” and this effort was further recognized as a candidate for the SDG Leadership Awards 2019.³
- We partnered with John Hancock Digital Advice to launch Conscious Investing, or [COIN](#), a direct-to-consumer platform offering SDG-aligned personalized investment portfolios.

Active ownership

- **Directly engaged with 203 companies in 2018**, up from 60 companies in 2017.
- **Participated in two PRI-led collaborative engagements with peers:** the PRI-led Methane in the Natural Gas Supply Chain engagement and the PRI-led Cybersecurity engagement.
- We’re on the **Steering Committee of the Climate Action 100+**, an investor-led initiative supported by more than US\$33 trillion AUM,⁴ which aims to ensure the world’s largest corporate greenhouse gas emitters take necessary action on climate change.

Our beliefs

Manulife Investment Management's commitment to sustainable investing is driven by a number of core beliefs.

Sustainability isn't a given

To achieve the future we all want requires asset managers and investors to display leadership around and commitment to principles of sustainability.

Sustainability helps drive financial value

The ability to create financial value depends on the health of our natural environment and the strength of the social infrastructure in our communities. As such, we believe that ESG analysis is integral to understanding the true value of an investment.

The future of sustainability and active investment management is interlinked

As financial data and investment processes become increasingly automated, active investment management is necessary to deeply understand and harvest the value implicit in ESG factors.

Integrity is imperative

Responsible investing is integral to who we are and how we do business. Acting with integrity means holding our own directly managed assets and the companies in which we invest to a high standard of sustainability.

We share sustainability goals with our clients

We strive to provide transparency about our asset management process in order to support our clients in responding to their own stakeholders.

Our commitment to stakeholders goes beyond financial performance

While our commitment to our clients is paramount, as a leading global financial institution we have a responsibility to make a positive contribution to society that goes beyond our financial performance.

Our sustainability plan

1 Strong governance

Our sustainable and responsible investment work operates under the direction of our senior executives. Through robust governance and oversight, we strive to ensure that our activities are globally consistent.

2 ESG integration

We believe ESG factors influence the long-term risks and returns of companies. Evaluation of ESG factors is a natural extension of our fundamental research and investment processes and supports strong investment decision-making in a changing world. Our investment teams bear the primary responsibility for ESG integration and are supported by an expert team of ESG analysts to conduct ESG due diligence and company engagements.

3 Active and responsible stewardship

On behalf of our clients, we engage with the companies in which we invest and actively vote our proxies. We also participate in industry groups and policy dialogues around critical issues that advance the practice of sustainable investing, contributing to more resilient capital markets overall.

4 Dynamic approach

Sustainability is a never-ending journey. In a rapidly changing landscape, our planning must regularly account for the emergence of new sustainability initiatives and overarching systemic risks.

5 Transparency

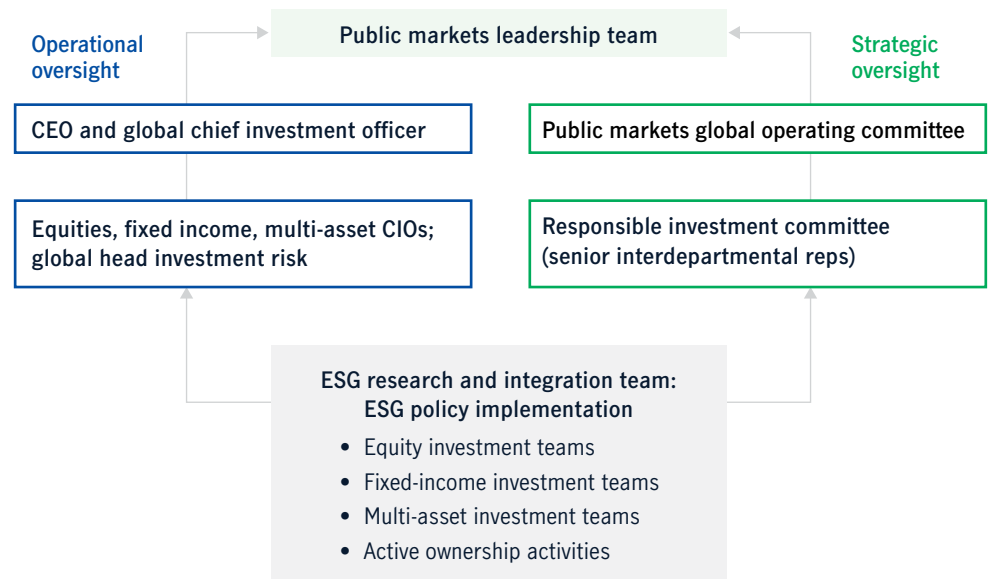
As we advocate for increased transparency among our investee companies, we also seek to improve our own transparency on sustainability.

Strong governance

The implementation of our sustainability plan occurs in the context of the corporate governance framework of our parent company, Manulife. Manulife Investment Management's CEO serves on the Manulife Executive Sustainability Council, which has been established under the auspices of the Manulife board's Corporate Governance and Nominating Committee. This ensures that there's a direct reporting line to the Manulife board about Manulife Investment Management's sustainability work.

Within Manulife Investment Management, the Responsible Investment Committee, which is composed of senior interdepartmental members and the CEO of our public markets business, has oversight of the strategic direction of the sustainability plan for public markets investing. Oversight responsibilities include authorizing and reviewing our ESG policy and our industrywide ESG collaborations, as well as spending on and public reporting of other ESG-related activities. The daily implementation of ESG integration in investment processes is primarily the responsibility of the firm's portfolio management teams, supported by the ESG team, with operational oversight by asset class chief investment officers, our global head of investment risk, and, ultimately, the CEO of our public markets business.

Our sustainable investment governance and oversight structure



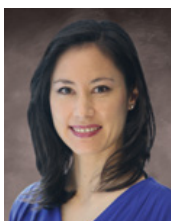
Our [ESG policy](#) outlines our belief that ESG factors contribute to the risk/return profile of an investment and that strong management of ESG risks and opportunities can support long-term sustainable returns. We're committed to integrating ESG analysis into our existing fundamental research processes for all of the major asset classes in our public markets business, and we see ESG as a natural complement to our strengths as an active investment manager.

Changes and additions to our ESG policy are overseen by the Responsible Investment Committee. The committee meets on at least a quarterly basis and reports to the firm's Operating Committee.

Our ESG research and integration team supports investment analysts and portfolio managers to better identify relevant ESG factors in making investment decisions and to identify investee companies suitable for ESG engagement.

During 2018, Manulife Investment Management hired two additional dedicated ESG personnel in order to support increasingly robust ESG portfolio reviews and investment team interactions, in particular for our Asian investment teams. We now have five full-time dedicated ESG analysts in our public markets ESG research and integration team.

Manulife Investment Management ESG research and integration team



Emily Chew

Global Head of ESG Research and Integration—Boston

Emily defines the firm's strategic direction and research agenda on sustainable investing, including ESG integration process and portfolio manager support, thought leadership priorities, collaborative engagement and industry involvement, and thematic investing methodologies.



Frederick Isleib, CFA

Director of ESG Research and Integration, USA Specialist—Boston

Fred supports the U.S.-based investment teams with ESG integration research and process, company engagement, and proxy voting. He leads the firm's Task Force on Climate-related Financial Disclosures (TCFD) implementation efforts and development of the sovereign bond ESG analytical framework.



Margaret Childe

Director of ESG Research and Integration, Canada Specialist—Toronto

Maggie supports the Canada-based investment teams with ESG integration research and process, company engagement, and proxy voting. She leads the development of our ESG credit assessment framework and co-leads the development of our United Nations' Sustainable Development Goals analytical methodology.



Hideki Suzuki

Director of ESG Research and Integration, ESG Data and Japan Specialist—Boston

Hideki supports the Japan-based investment teams with ESG integration research and process, company engagement, and proxy voting. He oversees the integration of ESG data into firmwide operations and co-leads the development of our United Nations' Sustainable Development Goals analytical methodology.



Tim Chan, CFA

Senior Analyst, ESG Research and Integration, Asia Specialist—Hong Kong

Tim supports the Asia (ex-Japan)-based investment teams with ESG integration research and process, company engagement, and proxy voting.



ESG integration

The role of ESG in active investment management

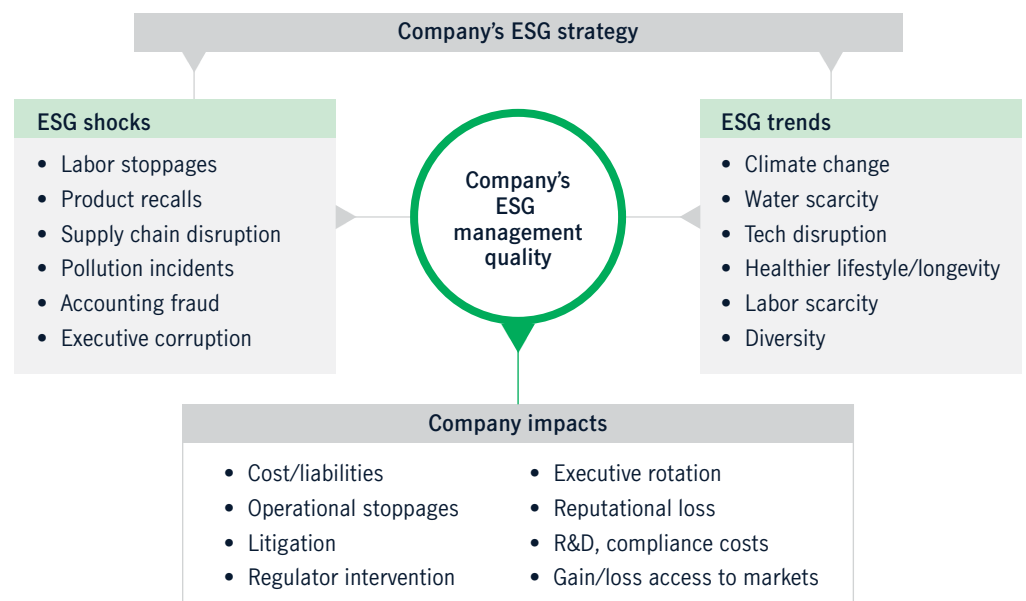
Despite ongoing and rapid improvements in volume and quality, ESG data remains noisy and requires contextualization to effectively harness the insight implicit in it. We supplement third-party ESG data and company-disclosed data with our own differentiated ESG data sets—as well as engagement—to inform a holistic view of risk and opportunity. In a world where financial data is increasingly commoditized into passive investment applications, high-quality ESG analysis gives us a critical value add as an active manager.

Evaluating company performance on material ESG issues

We recognize that ESG factors can be material to companies in both the short and long term. We focus on identifying companies with exposure to ESG-related shocks or business opportunities associated with a company's operations, reputation, market access, innovation, and regulatory compliance. Our aim is to protect and enhance our portfolio returns and to encourage the companies we invest in, or plan to invest in, to improve their environmental and social footprint and governance practices. We also prioritize consideration of systemic, long-term issues in our investment selection and asset allocation—such as climate change, sustainable development, and diversity and equality—as we recognize that making progress on these issues contributes to a more resilient capital market and economy.

Our evaluation of ESG factors assists our investment teams in their assessment of the quality of a company's management and the effectiveness of its governance structures.

Short-term and long-term materiality of ESG factors



In practice, the specific ESG factors that will be most material to an investment decision depend on a company's specific industry and geographic circumstances, the goals of the investment strategy, and the risk profile of the asset class. In general, however, company ESG performance hinges on strategy and disclosure around a collection of issues and principles.

Good governance is a necessary foundation for strong environmental and social risk and impact management, as well as to long-term financial performance. Good governance practices mean that the company:

- Has a strong and effective board
- Honors appropriate ownership and shareholder rights
- Implements effective remuneration structures in line with long-term performance
- Delivers high-quality and meaningful reporting to its shareholders and other stakeholders
- Manages the environmental and social aspects of its business

Strong management of environmental and social factors may include consideration of:

- Environmental pollution and natural resources use
- Climate change mitigation/adaptation
- Health and safety standards
- Employee and labor force management
- Supply chain management
- Data security and cybersecurity
- Product safety and quality
- Responses to technological disruption
- Stakeholder relations

We've developed a materiality matrix of key sustainability factors for each industry. This matrix is informed by our in-house knowledge of and expertise in ESG issues, sell-side research and third-party ESG ratings, and the standards-building work of the SASB.

Sustainability implementation

Each investment team is responsible for its own investment process and to make decisions in line with its investment philosophy and client objectives. In this context, ESG integration means incorporating ESG research in our decision-making across our portfolio teams to fully understand the true risk/return profile of companies in which we invest.

ESG analysis is integrated across our equity and fixed-income strategies in three broad stages of the investment process:

- **ESG due diligence**—Investment teams and credit analyst teams consider ESG factors that may be material to their investment view of a company during initial and ongoing due diligence, leveraging third-party ESG research data and the expertise of our ESG research and integration team.

We've developed ESG industry handbooks to help our investment teams assess ESG risks and opportunities at scale. Our handbooks identify the industry-specific ESG key performance indicators (KPIs), historical case studies in which ESG KPIs have been material to company performance, and a detailed list of due diligence questions focusing on a range of ESG issues.

In 2018, we adopted a global research platform through Bloomberg that allows for systematic sharing of research notes, including those pertaining to ESG analysis and ESG company engagements. To increase the integration of ESG factors in teams' investment analysis work, we developed an ESG data management process that allows all investment teams to access ESG data directly in their front-office investment tools.

- **ESG risk monitoring**—Investment teams have ongoing access to ESG data through front-office tools for ongoing monitoring of ESG changes at the portfolio level. A proprietary quarterly report identifies portfolio ESG risks and opportunities relative to the applicable benchmark. This is reinforced through periodic meetings between the investment teams and the ESG team to discuss the approach to specific names held in the portfolio.

Investment teams aren't precluded from investing in companies with ESG-related risk exposure in a rules-based manner; rather, our approach is to engage with such companies to understand their ESG risk profiles and, through constructive engagements, help improve their risk profiles over time.

- **Active ownership**—Through the due diligence and risk monitoring processes, we identify companies as targets for engagement. Either the investment or ESG teams may initiate engagement. Engagement yields greater insight into the quality of a company's ESG management and performance, and company responses to engagement are tracked over time. In the case of equities, engagement informs each investment team's approach to proxy voting.

A portfolio's overall ESG score is tracked over time and assessed in relation to the ESG profile of its investment performance benchmark. Although we don't set minimum portfolio ESG scores or thresholds as a goal for each investment strategy, all portfolios are monitored for changes in their ESG profile in order to assist managers in understanding the impact of their investment decisions, including specific investments that may pose high ESG risks relative to position size and specific opportunities for ESG engagement.

In order to monitor the strength and sophistication of ESG integration by each investment management team, Manulife Investment Management has developed an internal ESG integration assessment using a scale from 1 to 5. The assessment of each investment management team and strategy is presented to the CIO/CEO as part of periodic reviews and is also made available to each investment team.

Globally committed, locally defined

It's essential that our sustainability efforts with respect to ESG research, integration, and engagement be shaped by local market expertise. Our deep presence in these local markets informs our implementation of the above-listed global ESG factors in investment analysis.

For example, specific corporate governance challenges are regional in nature. In this regard, our Asia (ex-Japan) credit team focuses on the history and reputation of the founding family and shareholders and their past treatment of investors, leveraging local investment analyst resources across 10 Asian countries for background and third-party channel checks. The team also uses a corporate governance checklist to evaluate factors relevant to each issuer, such as the level of related party transactions, customer concentration, financial disclosures, and the stability of senior management.

Japanese corporate governance norms diverge from those of other westernized OECD economies. Such accepted practices as cross shareholdings with main lenders and appointment of directors who come from main lenders are generally assessed as negative factors in a company's corporate governance. In the context of these particular corporate relationships with lenders, our Japan fixed-income team has standardized an assessment of the likelihood of nonfinancial corporate names requiring extraordinary support from lenders.

Equity

**ESG issue:
executive
compensation**

An acquisitive technology holding experienced trading of its shares at material discount relative to its peers. Our team's formal ESG review determined that the underperformance was linked to a declining return on investment capital (ROIC) resulting from the relatively high price of recent acquisitions—a departure from the company's previously more disciplined approach. This led the investment team to identify that the company's management incentive compensation structures didn't sufficiently focus on the necessary discipline around valuation multiples paid for acquisitions. Given the material impact of acquisitions on company returns, the team determined that some portion of incentive compensation should be linked to ROIC to better align management compensation with shareholder value.

The investment team engaged with company management in 2018, proposing that linking executive compensation to ROIC would demonstrate that management had a long-term focus and was making capital allocation decisions in alignment with shareholder interests. The company was responsive to the concerns raised and noted that a review was under way to determine compensation items for fiscal year 2019. The company also indicated that it will publish an annual ROIC; however, the investment team continues to monitor this disclosure as it doesn't yet consider the amortization of intangibles.

**ESG issue:
packaging
material
and waste**

A multinational beverage company was assessed across key ESG factors. On the issue of packaging material and waste, our analyst noted that the company had not yet set groupwide and time-bound targets for reducing the weight of its packaging materials or for increasing the use of recycled content. Nor did the company report on year-over-year performance for reducing the weight of its packaging. Packaging costs had recently increased by over 2%. Given that packaging represented a substantial cost item for the company and there didn't appear to be a strong packaging management strategy in place, the analyst used industry-based key metrics to determine the relevant impact on company valuation.

The analyst looked at the representation of company operations in countries moving toward strengthened regulatory mandates on packaging management and end-of-life recycling or disposal, which would result in increased compliance costs or market access constraints. For the beverage company in question, the highest regulatory risk was in the European market, which at the time was facing a proposed directive on single-use plastic that was likely to be passed. The analyst adjusted the downside case with respect to European margins and assumed a 20% increase in packaging costs.

ESG integration case studies (continued)

Fixed income—corporate bonds

ESG issue: accounting practices

The global multi-sector fixed-income team maintained a position in a multinational conglomerate's perpetual preferred bond. During the ESG review for this company in January 2018, our credit analyst identified material ESG risks, primarily that (1) the company employed a different accounting methodology versus peers and (2) the SEC announced it was investigating one of the company's business lines for its accounting practice. The credit analyst was of the view that +15 basis points (bps) of incremental credit spread was required to compensate investors for the ESG risks relative to its peer group. The team decided to maintain its position as the credit spreads observed were already +15bps wider than the peer group.

In August 2018, our investment team updated its ESG review of the company, noting that a downgrade by an external ESG research provider was consistent with the team's thesis. The team maintained its concerns about the accounting methodology employed by the company versus peers; however, there were no developments on the SEC investigation. The team did note additional concerns around the company's increased turnover for senior management and board of directors. In view of this, the credit analyst widened the recommended required credit spread compensation due to ESG risk from +15bps to +30bps. Given that the market was still offering in excess of 30bps, the team decided to hold its position.

On October 30, 2018, the company noted in its operating results that the SEC and the U.S. Department of Justice were expanding the scope of their accounting investigation practices to a criminal investigation, and a US\$22 billion pretax goodwill impairment charge affected one of the company's business units. The team concluded that the company's credit spreads no longer offered adequate compensation for the deteriorating ESG risk profile of the issuer and exited the position.

ESG issue: sustainable agriculture (palm oil)

The Asian fixed-income team noted the negative publicity and allegations faced by a palm oil company in Indonesia and decided to use an ESG internal risk rating (IRR) framework to undertake a more comprehensive ESG analysis of the company. The framework categorizes the extent to which issuers are exposed to each of the E, S, and G factors into one of four risk-intensity rankings (very high, high, medium, and low). These rankings focus on the ESG risks that we consider to have a meaningful impact on the credit profile of a company, such as reduced cash flow, weakened protection of creditors' interests, or other credit considerations that may influence the risk of default. Each intensity ranking corresponds to an estimated impact (in notches) on the internal risk rating.

Our credit analyst reviewed the ESG performance of this Indonesia palm oil company in detail and discovered only 40% of the planted area was certified by international standards such as the Roundtable on Sustainable Palm Oil (RSPO). The analyst also noted that at least three major buyers had suspended purchase of palm oil products from this company, owing to complaints of noncompliance with RSPO sustainability practices. As such, the analyst determined that the company was exposed to very high risk in the E factor and concluded that it would receive a two-notch cut in our IRR. The analyst also noted governance problems within the company, such as weak disclosure in executive pay and its minority of independent directors, but believed the governance risk had already been factored into the current credit rating of this high-yield corporate bond.

On receiving the research report from the credit analyst, our portfolio managers were able to make a more informed judgment about the overall investability and relative merits of the issuer, based on both ESG risks and financial performance. Ultimately, the portfolio managers decided to exclude the company from the portfolio as the ESG risk was deemed to be too high.

Fixed income—corporate bonds

ESG issue: disclosure regulatory compliance⁵

A Canadian mortgage lender issued a senior unsecured coupon bond in May 2014, which would mature after three years. Near maturity, the Ontario Securities Commission (OSC) issued enforcement notices against the firm over allegations of misrepresenting public disclosures. The firm's investment-grade credit rating (BBB/BBB(H)) was put on negative watch on March 30, 2017, and the OSC escalated its investigation shortly after. Allegedly, the company had experienced broker-related fraud earlier due to lapses in risk management. The company conducted an internal investigation after becoming aware of discrepancies in income verification information submitted by its mortgage brokers; however, this information was allegedly not disclosed to the public in a timely manner. As the situation worsened, the company experienced a run on deposits and, by early May, its credit ratings declined.

In early May, our investment team examined the bond—now very close to maturity and pricing well below par—and believed that the market had overreacted to the corporate governance and regulatory concerns. The team proceeded to buy the bond, which did mature a few weeks later. Over time, the company navigated through the period of stress and remains a viable operation.

Fixed Income—sovereigns

ESG issue: political risk

In July 2018, Andrés Manuel López Obrador (AMLO) was elected president of Mexico. A key governance concern for investors was how the AMLO administration would handle an election promise to terminate a partially built airport project in Mexico City. The Canadian fixed-income team focused its attention on the project's associated bonds (MEXCAT bonds). In August, the president-elect called for a public referendum to be held in October; Mexicans would end up voting to reject the project. As a result, MEXCAT bonds were put on negative watch by the credit rating agencies and eventually downgraded by two of those agencies. One agency that placed MEXCAT bonds on negative watch highlighted two potential outcomes: (1) a concession cancellation, which could lead to an event of default, triggering acceleration if approved by 25% of bondholders; or (2) a concession amendment, which would require consent from the majority. The team considered these scenarios, wary of the potential for the bond to slip below an investment-grade rating if uncertainty persisted for even a few more months. The team also engaged with representatives of the Mexican government (both the Mexican ambassador and trade commissioner to Canada) to clarify the governance risks associated with the MEXCAT bonds and gain some assurances about the likely future treatment of bondholders.

Through the time period between AMLO's election victory and the referendum, spreads on MEXCAT bonds widened substantially. The Canadian fixed-income team conducted spread analyses in August (prior to the call for the referendum) and October (prior to the actual referendum), looking at the issuer's relative spreads to discern whether all risk factors were priced in. From the spread analysis, the team concluded that the ESG risks were adequately priced in; moreover, there was a level of assurance that the default risk wouldn't materialize, and the principal would be repaid given the bonds' strong covenant package.

Active and responsible stewardship

Responsible stewardship and sustainability are integral to our business and culture, both as an asset manager and as a steward of our clients' capital. In public markets investing, active ownership means we use our position as a large institutional shareholder or bondholder to engage constructively with companies on a variety of material ESG issues with the goal of enhancing long-term investment value.

Our responsible stewardship activities in public markets investing are carried out through company engagement, proxy voting, and active involvement in the industry/regulatory ecosystem.

Company engagement

We participate in one-on-one engagement, through which we seek to catalyze long-term sustainability business strategy and instill operational excellence in the companies that are represented in our client portfolios. Engagement records, including intentions and outcomes, are systematically tracked and maintained by our ESG team and/or investment analysts involved in each engagement meeting, and are made available to all investment teams globally. We also participate in collaborative engagement efforts, through which we amplify our impact by working with other investors to address ESG concerns among the companies, industries, and markets in our collective orbit of influence. We currently participate in four industrywide collaborative engagements: Climate Action 100+, PRI-led Methane in the Natural Gas Supply Chain engagement, PRI-led Cybersecurity engagement, and the Board Diversity Hong Kong Investor Initiative.

Both the one-on-one and collaborative forms of engagement enhance our investment decision-making and the business sustainability of the companies in which we invest, even as they help advance the resilience of capital markets to different forms of ESG risk. With our ESG team growing to five full-time analysts and the strong momentum in our ESG integration practice across all investment teams, we saw the number of ESG engagements increase substantially in 2018 over 2017.

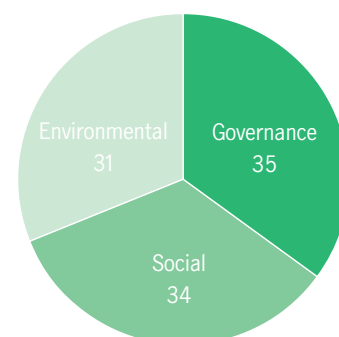
Overall engagement statistics

	FY2018	FY2017
Total companies engaged	203	60
Total engagement interactions	276	64
Interactions that were collaborative ⁶	10%	11%

Engagement by ESG factor focus

We often engage with a company on more than one ESG issue in a given engagement interaction. The accompanying chart illustrates the frequency with which our engagement interactions involved either environmental, social, or governance topics.

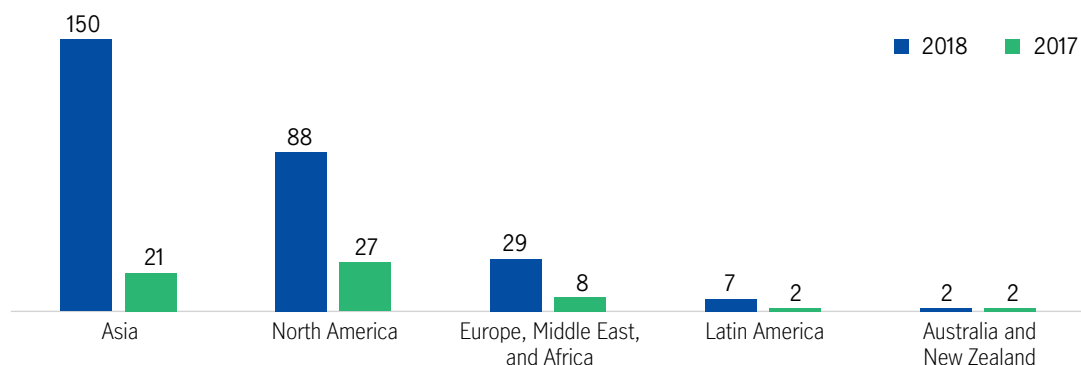
Engagement factor focus in 2018 (%)



Engagement by region⁷

Our engagements spanned the globe, with the majority (77%) of 2018 engagements occurring with companies domiciled in Asia and North America.

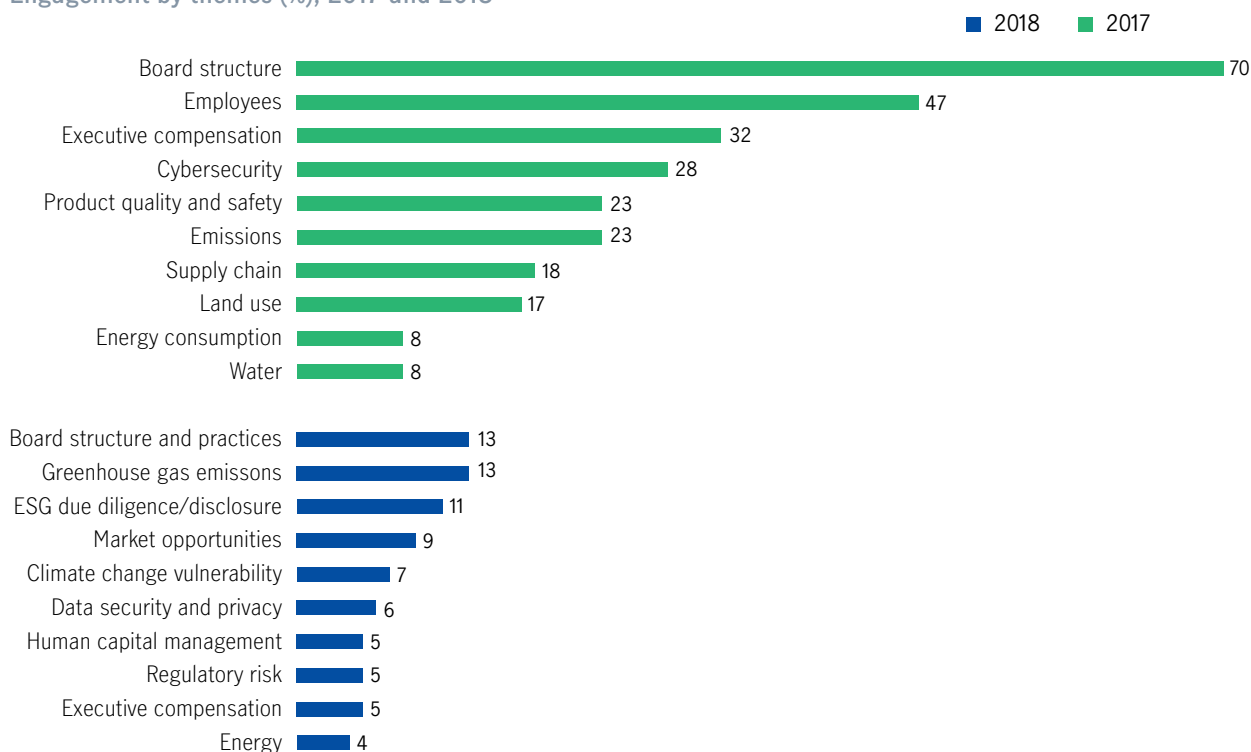
Engagement by region of company country domicile, 2017 and 2018



Engagement by thematic ESG issues

Our engagement activities covered twenty specific ESG issues. A given engagement typically covers more than one ESG issue and is driven by our assessment of the specific circumstances and material value drivers of each company, as well as by the specific focus of our collaborative engagement initiatives. The accompanying charts illustrate our top 10 engagement themes for 2018 and 2017.

Engagement by themes (%), 2017 and 2018



Equity

**ESG issue:
vulnerability
to climate
change risk
and exposure
to fossil fuels**

Manulife Investment Management initially reached out to a global property and casualty insurance company in 2017 due to a lack of ESG disclosures. Our investment team, supported by one of our ESG analysts, developed a comprehensive list of questions for which the company was unable to provide satisfactory information. Later in 2017, the company released its first sustainability report addressing many ESG topics that were included in our list of questions.

One year later, in September 2018, the investment team and the ESG team continued engaging with the company, this time focusing on the company's underwriting exposure to fossil fuels and vulnerability of its commercial underwriting to entities with high exposure to physical hazard risk associated with climate change, such as coastal flooding and extreme precipitation. Following an inadequate response from company representatives, the request was escalated to company executives. The company then proceeded to demonstrate its use of climate science to assess the physical risks of climate change, but also acknowledged that the consideration of ESG issues was siloed within the company, and a more holistic approach needed to be adopted to ensure the appropriate pricing of premiums. The company also noted that it was assessing its exposure to different fossil fuels, but felt that diversification mitigated its risks. The company acknowledged the investment team's concern around business exposure to fossil fuels that may be confronted with a difficult future business climate.

Almost a full year after this second engagement, the company publicly announced it would reduce its exposure to coal-power generation facilities and wouldn't underwrite any entity that derived more than 30% of its revenue from coal. This case study highlights the positive impact a constructive engagement can have over time.

Fixed Income—sovereigns

**ESG issue:
building an
ESG culture in
Japan through
bilateral
engagements**

Our Japan fixed-income team implemented a three-phase ESG engagement strategy oriented toward building credibility with corporates to support effective impact on corporate ESG practices. During the first phase, the investment team systematically approached major electric power companies because they're carbon intensive and make up a significant portion of the bond universe in Japan. During the second phase, the team prioritized engagements with issuers who local Japanese investors regard as ESG advanced in order to learn more about their best practices, identify key success factors, and to provide international perspectives on best practice through close collaboration with the global ESG team. During the third phase, after accumulating knowledge on ESG issues in Japan and the specific challenges faced by domestic companies, the investment team expanded engagement activities to industry leaders who could have a strong ESG influence on corporate culture in Japan through their scale and market power. Simultaneously, the team conducted ESG engagements with issuers who sought support from Manulife Investment Management, including advice on expectations around integrated ESG reporting and how to improve ESG-related dialogue with stakeholders, especially foreign investors. In addition, the team discussed its ESG approach and observation with the relevant government entities.

By executing the engagement strategy, the investment team has supported enhanced ESG disclosures and more investor-relevant goal-setting across a diverse range of Japanese companies. The investment team observed four challenges that many Japanese issuers share: (1) The concept of ESG isn't well dispersed across organizations and ESG issues are often discussed in the context of medium-term management strategies, (2) the degree of senior-level commitment remains unclear, (3) disclosure in English and for nonfinancial data on a consolidated basis remains a challenge, and (4) appropriate contact with all stakeholders (e.g., several issuers don't consider bondholders as ESG stakeholders). The team believes that sharing such observations with other issuers will contribute to enhancing ESG awareness among Japanese corporates.

Proxy voting

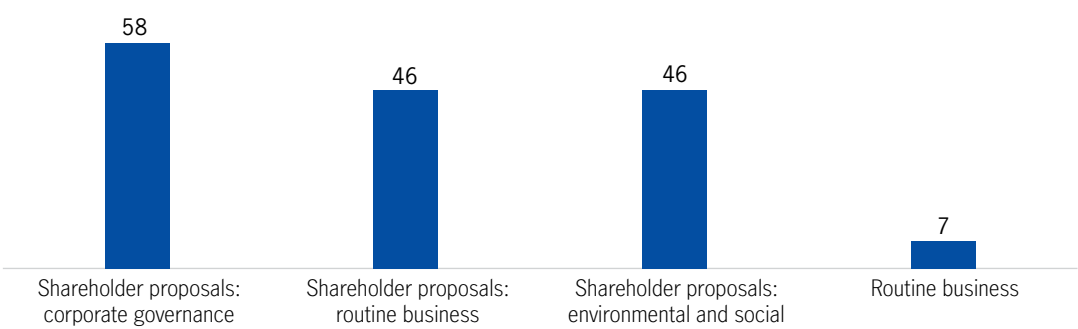
As active investors, we believe proxy voting is a potentially critical lever in encouraging ESG best practices. We’ve established a custom voting policy with Institutional Shareholder Services Inc. (ISS), an independent third-party service provider, to vote clients’ proxies. Investment teams holding the same stock aren’t required to vote in accordance with the proxy advisor recommendation or in line with each other on specific ballot items. For all companies in which the firm has a material holding (defined in our ESG policy as above 3% of issued share capital), investment teams that own the security in question are required to record their instruction to maintain with our proxy administration team or override the vote instruction received from ISS.

We directly vote all shares in Indonesia, Thailand, and Vietnam due to limitations of annual general meetings and voting regulations and infrastructure in those jurisdictions.

Breakdown of 2018 voting instructions

Voting instructions	Votes cast (%)
For (supporting) management recommendations	89
Against (opposing) management recommendations	8
Abstentions	3

2018 votes against management (%)



Active involvement in the industry/regulatory ecosystem

The third area of active involvement targets the broader ecosystem of actors in our industry, including key industry groups and initiatives, regulators, sell-side research and ESG research providers, credit rating agencies, and consultants.

The scale of our asset management business and the leadership role we embrace in responsible stewardship efforts position us as a key player in directing markets—and, by extension, the economy—to a more sustainable future. Manulife Investment Management’s ESG analysts participate in multiple sustainable investing-related investor associations. We select groups and initiatives to which we contribute based on the following general criteria:

- Region of significance to Manulife Investment Management’s/Manulife’s investments
- Group is focused on an overarching theme of significance to Manulife Investment Management’s/Manulife’s sustainability program (e.g., climate, gender, sustainable development)
- Meaningful opportunities to engage with peers for knowledge sharing about best practice

The following table summarizes the current sustainability/ESG-related industry groups and initiatives with which we're engaged

Association and initiatives	Regional scope	Investors involved ⁸	Focus
Asia Investor Group on Climate Change (AIGCC)	Asia	31 investors managing US\$3.5 trillion	Climate change
Asian Corporate Governance Association (ACGA)	Asia	Investors managing more than US\$30 trillion globally	Corporate governance
Canadian Coalition for Good Governance	Canada	Investors managing US\$4 trillion AUM	Corporate governance
Climate Action 100+	Global	Over 310 investors managing US\$33 trillion	Climate change
Emerging Market Investors Association (EMIA)	Global	About 20 institutional investors	Emerging-market corporate governance and sustainable development
Hong Kong Board Diversity Initiative	Asia	12 institutional investors	Board diversity
Hong Kong Financial Services Development Council ESG Working Group	Asia	Around 10 ESG professionals	ESG adoption through government policy
Hong Kong Green Finance Association	Hong Kong	90 members	Green finance and ESG adoption
Japan TCFD Consortium	Japan	180+ investors and corporates	Adoption of the TCFD
Principles for Responsible Investment (PRI)	Global	2,372 investors managing more than US\$86 trillion	ESG integration
Responsible Investment Association	Canada	100+ members	Adoption of sustainable and responsible investment
Toronto responsible investment working group	Canada	About 30 members	Adoption of sustainable and responsible investment
UNEP FI TCFD Reporting Pilot Program for Investors	Global	20 institutional investors	Adoption of the TCFD

For more detail on these and other associations and initiatives with which we're involved, please see the appendix to this report.

Manulife Investment Management is supportive of regulators' efforts to better understand and formalize the responsible and sustainable investment industry. We've been invited to engage with regulators on the following occasions, either directly or through industry groups in which we participate:

- EU Commission Stakeholder Dialogue on progress and outcomes of the technical expert group's work on sustainable finance (2019)
- Hong Kong SFC in-person investor meeting on Strategic Framework for Green Finance (2019)
- Submission to and meeting with the Canadian Expert Panel on Sustainable Finance through Manulife (2018)
- Hong Kong FSDC's Working Group on ESG. As a member of the working group, we actively contributed to the 2018 final report on accelerating ESG investing in Hong Kong (2018)
- Meeting with Singaporean regulators to discuss green finance and ESG development in Singapore and Asia. Participated in public consultation process supported by Singaporean regulators on developing Singapore as a regional green finance hub (2017)
- Meeting with Malaysian exchange to discuss improvement of ESG corporate standards among Malaysian listed market (2017)
- Collaborative investor meeting with the head of the Fair Trade Commission in South Korea to discuss regulatory and enforcement initiatives to improve corporate governance standards among Korean chaebol (2017)
- Meeting with Asset Management Association of China to discuss a guide to integrating climate change into investment strategy and PRI member obligations in general (2017)



Dynamic approach

We regularly evaluate the shifting ESG landscape in order to identify areas of opportunity or urgency on which to direct focused initiatives. Some of these areas currently include:

Extending ESG integration to new asset classes

- **Proprietary sovereign ESG model**—Manulife Investment Management has developed a proprietary sovereign ESG model, which is used by the credit investment teams as an input into their credit assessment models. The sovereign ESG model uses statistical, reported, and demographic data to produce a baseline view on environmental, social, and political (governance) issues for countries, which are adjusted using a momentum factor that's based on our view on country reforms and long-term climate change risk exposures. The environmental, social, and political (governance) pillars in the model include inputs that capture key risk exposures at a country level and represent our real-time view on ESG performance influenced by our engagement efforts. The proprietary model outputs an assessment for each sovereign according to a five-tier category system, ranging from very strong to very weak. Last, the model output includes a near-term and a long-term assessment that accounts for the increasing relevance of environmental factors to sovereign debt with the passing of time.
- **ESG integration for securitized debt**—Our ESG integration approach for securitized debt is evolving to consider how to systematically integrate ESG factors into structured credit analysis, recognizing that ESG data is less readily available for this asset class. The securitized investment team considers ESG in security-specific analysis to varying degrees based on factors such as the nature of the underlying collateral assets and the investment capital stack position. The ESG team supports the securitized investment team to better understand some of the ESG profiles of counterparties, where data is available. Under the umbrella of environmental factors, the team evaluates environmental site assessment data relative to any coverages/enhancements for mitigating natural or unnatural disaster risk and will discuss any concerns with the bankers on the deal. The team also appreciates Leadership in Energy and Environmental Design certification and capital expenditure associated with improving energy efficiency and its value in preserving or improving asset value, cash flow, and creditworthiness.
- **ESG integration for LDI (liability-driven investing)**—The ESG team has worked with our LDI team to quantitatively test the use of ESG data for LDI client solutions. The approach to ESG integration has included the creation of a core working group, training on ESG, and analysis of select LDI portfolios. The LDI team is continuing its work on ESG integration in 2019.

Company ESG disclosure

The current lack of consistent and comparable ESG-related disclosure places a growing burden on corporations and presents challenges to investors in the evaluation and pricing of ESG-related risks and opportunities. Building off our extensive engagement work with companies to advocate for improved ESG disclosure and transparency, Manulife Investment Management joined the

SASB IAG in 2019. The IAG represents over US\$26 trillion in assets under management and comprises 42 global asset owners and asset managers. We share a common goal of seeking consistent, comparable, and reliable disclosure of material, decision-useful sustainability-related information from the companies in which we invest.

We've also contributed to several regulator consultations focused on how investors need and will use better-quality ESG company data.

Climate change

Climate change is a key issue for the stability of financial markets and the economy at large. Companies in all sectors face transition risk and physical hazard risk from climate change. Companies and investors that are proactive about mitigating these risks will be better positioned to be resilient.

Relatively minor differences in the assumptions regarding global warming can have a dramatic impact on company valuation. In our integration of ESG factors throughout our due diligence and investment decision-making processes, we've developed a particular focus on carbon emissions and climate change. We structure our engagement with companies to deepen our understanding of their climate mitigation strategies and to encourage greater climate risk resiliency. At the same time, we seek to identify opportunities for growth among companies that are positioning themselves to benefit as societies seek to effect a smooth transition to lower carbon emission business models.

Throughout 2018 and into early 2019, Manulife Investment Management participated in a pilot program organized by UNEP FI on implementing the TCFD recommendations for investors. The pilot developed scenarios, models, and metrics for climate scenario analysis. Carbon Delta was selected as the climate science and data analytic partner to support the pilot program's development of a portfolio reporting tool. We've run several investment portfolios through the climate risk tool developed by Carbon Delta, and we intend to complete this rollout for all investment teams throughout the course of 2019.

A focus on sustainable outcomes

Manulife Investment Management has developed a proprietary SDG assessment methodology that provides a transparent and scalable process for assessing companies' relative commitments to and contributions toward achieving the SDGs. The methodology is designed to enable investors to contribute to achievement of the SDGs through their company selection and portfolio construction.

In partnership with our group affiliate company, John Hancock Digital Advice, we've leveraged the SDG assessment methodology to define thematic equity investment portfolios that are aligned with SDG-related themes and made available to retail customers through the COIN platform. Launched in March 2019, COIN enables retail customers to customize portfolios that express their values and support the SDGs.



Transparency

We're committed to the same level of transparency on sustainability as we encourage among the companies in which we invest.

This commitment encompasses annual reporting to the UNPRI on our work in support of implementing the PRI's principles. Moving forward, we'll report to our clients on the progress made under our responsible investing plan in the form of this report on sustainable and responsible investing, including our active ownership efforts. We're also committed to annual disclosures that respond to the recommendations of the TCFD. Finally, 2019 will see the launch of ESG metrics that are incorporated into our client reporting.

As a member of SASB's Investor Advisory Group, we support companies' adoption of SASB's disclosure standards. In turn, we're conducting an internal review of the SASB framework as it applies to our business in order to enhance our own ESG disclosures.

1 AUM in USD, as of December 31, 2018, rounded to the nearest billion. Information shown represents advised and subadvised, public and private assets managed by Manulife Investment Management and certain of its affiliates on behalf of Manulife Investment Management, its clients, and the general accounts of the insurance company affiliates of Manulife Investment Management. Manulife Investment Management assets under management include assets of Manulife TEDA Fund Management Company Ltd.'s 49% joint venture ownership structure. The methodologies used to compile the total assets under management are subject to change. Information related to assets under management may not be the same as regulatory assets under management reported on Form ADV of applicable U.S. affiliates of Manulife Investment Management. **2** Includes public market investment professionals (IP) and private market IP from Hancock Natural Resource Group and Manulife Real Estate. Does not include IPs from renewable energy, oil and gas, private equity and private credit, commercial mortgage loans, and private placement debt. **3** Global Compact Network Canada, <https://www.globalcompact.ca/sdgs-emerging-practice-guide/>, 2019. **4** Climate Action 100+, as of May 30, 2019. **5** "Case study: a Canadian mortgage lender," <https://www.unpri.org/credit-ratings/credit-risk-case-study-a-canadian-mortgage-lender/3265>, article, June 12, 2018. **6** This figure only includes collaborative engagements in which we were directly involved in the engagement interaction; collaborative engagement initiatives in which we participated had a broader scope of companies targeted. **7** Based on companies' country of domicile. **8** Aggregate assets under management are indicated wherever they have been disclosed.

We welcome your feedback

Please feel free to reach out with comments or questions about this report or any aspect of our sustainable investing efforts. Please direct your communications to our institutional distribution leadership in:

Asia	James Chen, CFA Head of Institutional Business and Relationship Management, Asia james_cy_chen@manulifeam.com
Canada	Adam Neal Canadian Head of Sales and Relationship Management adam_neal@manulifeam.com
Europe	Marco Zanuso Head of Distribution EMEA Marco_zanuso@manulifeam.com
United States	Todd Cassler Head of Institutional Distribution, US, Europe and Latin America TCassler@jhancock.com

To learn more about sustainability at Manulife Financial Corporation, our parent company, please see the 2019 [public accountability statement](#).

Appendix

The below table lists Manulife Investment management Public Markets' involvement in sustainability and ESG-related industry associations and initiatives, as of July 2019.

Association and initiatives	Regional scope	Year	Investors involved ⁸	Focus
30% Club Canadian Investor Group	Canada	2019	16 institutional investors across Canada (asset managers and pension plans)	Through engagement, the objective is to achieve a minimum of 30% women on the boards and at the executive management level of S&P/TSX composite index companies by 2022
Asian Corporate Governance Association (ACGA)	Asia	2016	Investor members—pension and asset managers—manage more than US\$30 trillion globally	Promotes implementation of effective governance practices in Asian companies on behalf of institutional investors and regulators
Asia Investor Group on Climate Change (AIGCC)	Asia	2016	31 members managing US\$3.5 trillion; includes investors, service providers, consultants, and others	Works with Asian asset owners and financial institutions to create awareness about the risks and opportunities associated with climate change and low carbon investing. We served as the member working group chair from 2016 to 2018
Canadian Coalition for Good Governance	Canada	2012	Institutional investors managing US\$4 trillion	Promotes good governance practices in Canadian public companies on behalf of institutional investors
Carbon Disclosure Project	Global	2018	Over 500 institutional investors are signatories	Advocates for disclosure of company data to measure and manage the environmental impact (carbon, water, forestry). One of the first ESG disclosure initiatives in the financial industry
Ceres Investor Network on Climate Risk (INCR)	North America	2016	Network of 130 institutional investors representing more than US\$17 trillion in assets	Promotes discussion and collaboration on how to address climate risk and other sustainability challenges among institutional investors
Climate Action 100+	Global	2018	Over 310 investors managing more than US\$33 trillion have signed on to the initiative	Collaborative investor initiative to engage with the 100+ largest systemic emitters, encouraging them to improve their performance from a climate perspective, reduce emissions over time, and abide by TCFD disclosures. We're part of the steering committee
Emerging Markets Investor Alliance (EMIA)	Global	2015	About 20 institutional investors	Promotes effective standards of corporate governance and sustainable development in emerging markets. Includes investors, international financial institutions, rating agencies, and large nongovernmental organizations (NGOs). We joined the extractive industries working group of the EMIA. In 2018, Manulife Investment Management hosted an EMIA roundtable discussion on the topic of measuring budget transparency
Hong Kong Board Diversity Investor Initiative	Asia	2018	12 institutional investors	We're a founding signatory to the Hong Kong Board Diversity Investor Initiative, along with BlackRock and Oasis. Managers commit to ongoing engagement with investee companies in Hong Kong on matters of diversity affecting the companies and their shareholders
Hong Kong Financial Services Development Council (FSDC) ESG Working Group	Asia	2018	Around 10 ESG professionals involved, including investors, consultants, corporates, rating agencies, and community organizations	FSDC fosters engagement between the Hong Kong government and financial services industry. FSDC commissioned a one-year ESG working group to identify recommendations for the Hong Kong government to accelerate ESG adoption

Association and initiatives	Regional scope	Year	Investors involved ^a	Focus
Hong Kong Green Finance Association	Hong Kong	2018	90 members drawn from financial institutions, environmental organizations, service providers, and other entities	Promotes adoption of green finance and responsible investment principles by institutional investors and the Hong Kong government. We participate in the HKGFA's ESG investor sub-committee
International Corporate Governance Network	Global	2019	Investor members across 45 countries managing over US\$34 trillion	Promoting effective standards of corporate governance and investor stewardship to advance efficient markets and sustainable economies world-wide, through influencing policy, fostering investor-company dialogue and advancing investor education
Japan TCFD Consortium	Japan	2019	180+ investors and corporates joined	Financial Services Agency-convened group to make recommendations to the Japanese government on the implementation of TCFD climate change recommendations in Japan. We were invited based on Manulife's official support for TCFD
Principles for Responsible Investment (PRI)	Global	2015	2,372 investors managing more than US\$86 trillion	Encourages investors to incorporate ESG issues into the investment process. Signatory and active member of working groups, including the fixed-income advisory group, sovereign bond working group, and the listed equity integration subcommittee. We also participate in collaborative engagements, such as the PRI-led Methane in the Natural Gas Supply Chain engagement and the PRI-led Cybersecurity engagement
Responsible Investment Association	Canada	2019	100+ members, including asset managers, asset owners, and service providers. Also includes 250+ individuals, mainly advisors	Promotes responsible investing and ESG integration into the investment process in Canada
Sustainable Accounting Standards Board Investor Advisory Group (SASB IAG)	Global	2019	US\$33 trillion in AUM from investor support	The SASB IAG represents over US\$26 trillion in AUM and comprises 42 global asset owners and asset managers. The IAG engages with leading companies to encourage a market standard for ESG disclosure and to foster adoption of SASB disclosure metrics
Toronto Responsible Investment (RI) Working Group	Canada	2014	About 30 members, including investors, consultants, and service providers	Toronto RI Working Group comprises Toronto-based investors, consultants, and NGOs who meet at least quarterly to discuss the advancement of sustainable investing
United Nations Environment Programme—Finance Initiative (UNEP FI)	Global	2018	20 institutional investors, including pension funds, insurers, and asset management firms	We're part of the TCFD reporting pilot program for investors. The UNEP FI advances industry adoption of the TCFD, which focuses on governance, strategy, risk management, and metrics in climate disclosures. Manulife Investment Management joined and completed the UNEP FI pilot study on climate risk and scenario analysis
World Benchmarking Alliance (focused on SDGs)	Global	2018	Members from civil society and business networks, 10 financial institutions, and multilateral organizations. PRI and Ceres are members	Seeks to increase the private sector's impact in helping to secure a sustainable future, creating benchmarks to incentivize and accelerate companies' efforts toward achieving the UN's Sustainable Development Goals. Work is organized into thematic subworking groups to define appropriate metrics for SDG-aligned impact disclosure. Manulife Investment Management has joined the climate and gender working groups

Some of our investment offices

Bangkok

Manulife Asset Management (Thailand) Company Ltd.
18/F Singha Complex
1788 New Petchaburi Road
Bang Kapi Huai Khwang
Bangkok 10310 Thailand
Phone: +66 0-2844-0123

Beijing⁹

Manulife-Teda Fund Management Co., Ltd.
3/F, South Block,
Winland International Financial Center
No. 7 Financial Street
Xicheng District Beijing 100033 P.R. China
Phone: +86 10 6657-7777

Boston

Manulife Investment Management (US) LLC
197 Clarendon Street
Boston, MA 02116-5010
USA
Phone: +1 617-375-1500

Hancock Natural Resource Group, Inc.
197 Clarendon Street
Boston, MA 02116-5010
USA
Phone: +1 617-747-1600

Hancock Capital Investment Management, LLC
197 Clarendon Street
Boston, MA 02116-5010
USA
Phone: +1 617-572-0693

Chicago

Hancock Capital Management
200 South Wacker Drive, Suite 820
Chicago, IL 60606
USA
Phone: +1 617-572-0212

Curitiba¹⁰

Hancock Asset Management Brasil Ltda.
Alameda Dr. Carlos de Carvalho, 555—sala 61
Curitiba, Paraná, 80430-180
Brasil
Phone: +55 (41) 3156-9000

Ho Chi Minh City

Manulife Investment Fund Management (Vietnam)
Company Ltd.
4/F, Manulife Plaza
75 Hoang Van Thai Street
Tan Phu Ward, District 7
Ho Chi Minh City
Vietnam
Phone: +84 8 5416-6777

Hong Kong

Manulife Asset Management (Hong Kong) Ltd.
16/F Lee Garden One
33 Hysan Avenue
Causeway Bay
Hong Kong
Phone: +852 2910-2600

Jakarta

PT Manulife Aset Manajemen Indonesia
Sampoerna Strategic Square
Jl. Jend. Sudirman Kav. 45-46
31/F, South Tower
Jakarta 12930 Indonesia
Phone: +6221 2555-7788

Kuala Lumpur

Manulife Asset Management Services Berhad
16th Floor, Menara Manulife
No. 6 Jalan Gelenggang
Damansara Heights
50490 Kuala Lumpur, Malaysia
Phone: +60 3 2719-9228

London

Manulife Investment Management (Europe) Ltd.
One London Wall
London EC2Y 5EA
United Kingdom
Phone: +44 20 7256 3500

Manila

Manulife Asset Management and
Trust Corporation
10th Floor NEX Tower
6786 Ayala Avenue
Makati City, 1229
Philippines
Phone +632-884-7000

Melbourne

Hancock Natural Resource Group Australasia Pty. Limited
Level 12, Tower 4
World Trade Center
18-38 Siddeley Street
Melbourne, VIC 3005
Australia
Phone: +61 3 9207 7500

Montreal

Manulife Investment Management Limited
900 de Maisonneuve Ouest
Montréal, QC
H3A 0A8
Canada
Phone: +1 514-499-7999

New York

Hancock Real Estate Group
100 William Street
New York, NY 10038
USA
Phone: +1 617-572-0212

Hancock Capital Management
1251 Avenue of the Americas
Suite 2300
NY, New York 10020
USA
Phone: +1 617-572-0212

Shanghai¹¹

Manulife-Sinochem Life Insurance Co., Ltd.
6/F, Jin Moa Tower
88 Century Boulevard
Pudong New Area
Shanghai 200121 P.R. China
Phone: +86 21 2069-8888

Singapore

Manulife Asset Management (Singapore) Pte. Ltd.
8 Cross Street
#15-01 Manulife Tower
Singapore 048424
Phone: +65 6501-5411

Taipei

Manulife Investment Management (Taiwan) Co., Ltd.
6/F No. 89, Sungren Road
Taipei 11073
Taiwan
Phone: +886 2 2757-5969

Tokyo

Manulife Asset Management (Japan) Limited
Marunouchi Trust Tower
North Building 15F
1-8-1, Marunouchi, Chiyoda-ku
Tokyo 100-0005
Japan
Phone: +81 3-6267-1940

Toronto

Manulife Investment Management Limited
200 Bloor Street East
North Tower, 5th Floor
Toronto, ON
M4W 1E5
Canada
Phone: +416-926 6262

As of June 2019.

⁹ The location of Manulife's joint venture asset management business, Manulife TEDA Fund Management Company Limited. ¹⁰ Represents the Hancock Natural Resource Group's regional asset management office locations. ¹¹ Operated as an investment department of Manulife-Sinochem Life Insurance Co. Ltd.

Important information

© 2019 Manulife Investment Management. All rights reserved. Manulife Investment Management, the Stylized M Design, and Manulife Investment Management & Stylized M Design are trademarks of The Manufacturers Life Insurance Company and are used by it, and by its affiliates under license.

This confidential document is for the exclusive use of the intended institutional investor or their agents and may not be transmitted, reproduced or used in whole or in part for any other purpose, nor may it be disclosed or made available, directly or indirectly, in whole or in part, to any other person without our prior written consent.

Manulife Investment Management

Manulife Investment Management is the global wealth and asset management segment of Manulife Financial Corporation. We draw on more than 150 years of financial stewardship to partner with clients across our institutional, retail, and retirement businesses globally. Our specialist approach to money management includes the highly differentiated strategies of our fixed-income, specialized equity, multi-asset solutions, and private markets teams—along with access to specialized, unaffiliated asset managers from around the world through our multimanager model.

These materials have not been reviewed by, are not registered with any securities or other regulatory authority, and may, where appropriate, be distributed by the following Manulife entities in their respective jurisdictions. Additional information about Manulife Investment Management may be found at www.manulifeam.com.

Australia: Hancock Natural Resource Group Australasia Pty Limited., Manulife Asset Management (Hong Kong) Limited. **Brazil:** Hancock Asset Management Brasil Ltda. **Canada:** Manulife Investment Management Limited, Manulife Investment Management Distributors Inc., Manulife Investment Management (North America) Limited, Manulife Investment Management Private Markets (Canada) Corp. **China:** Manulife Overseas Investment Fund Management (Shanghai) Limited Company. **European Economic Area and United Kingdom:** Manulife Investment Management (Europe) Ltd. which is authorized and regulated by the Financial Conduct Authority, Manulife Investment Management (Ireland) Ltd. which is authorized and regulated by the Central Bank of Ireland **Hong Kong:** Manulife Investment Management (Hong Kong) Limited. **Indonesia:** PT Manulife Aset Manajmen Indonesia. **Japan:** Manulife Asset Management (Japan) Limited. **Malaysia:** Manulife Asset Management Services Berhad. **Philippines:** Manulife Asset Management and Trust Company. **Singapore:** Manulife Asset Management (Singapore) Pte. Ltd. (Company Registration No. 200709952G) **Switzerland:** Manulife IM (Switzerland) LLC. **Taiwan:** Manulife Investment Management (Taiwan) Co. Ltd. **Thailand:** Manulife Asset Management (Thailand) Company Limited. **United States:** John Hancock Investment Management LLC, Manulife Investment Management (US) LLC, Hancock Capital Investment Management, LLC and Hancock Natural Resource Group, Inc. **Vietnam:** Manulife Investment Fund Management (Vietnam) Company Limited.

No Manulife entity makes any representation that the contents of this presentation are appropriate for use in all locations, or that the transactions, securities, products, instruments or services discussed in this presentation are available or appropriate for sale or use in all jurisdictions or countries, or by all investors or counterparties. All recipients of this presentation are responsible for compliance with applicable laws and regulations.

Any general discussions or opinions contained within this document regarding securities or market conditions represent the view of either the source cited or Manulife Investment Management as of the day of writing and are subject to change. There can be no assurance that actual outcomes will match the assumptions or that actual returns will match any expected returns. The information and/or analysis contained in this material have been compiled or arrived at from sources believed to be reliable, but Manulife Investment Management does not make any representation as to their accuracy, correctness, usefulness or completeness and does not accept liability for any loss arising from the use hereof or the information and/or analysis contained herein. Information about the portfolio's holdings, asset allocation, or country diversification is historical and will be subject to future change. Neither Manulife Investment Management or its affiliates, nor any of their directors, officers or employees shall assume any liability or responsibility for any direct or indirect loss or damage or any other consequence of any person acting or not acting in reliance on the information contained herein.

The information in this material may contain projections or other forward-looking statements regarding future events, targets, management discipline or other expectations, and is only as current as of the date indicated. The information in this material including statements concerning financial market trends, are based on current market conditions, which will fluctuate and may be superseded by subsequent market events or for other reasons. This material was prepared solely for informational purposes and does not constitute, and is not intended to constitute, a recommendation, professional advice, an offer, solicitation or an invitation by or on behalf of Manulife Investment Management or its affiliates to any person to buy or sell any security or to adopt any investment strategy, and shall not form the basis of, nor may it accompany nor form part of, any right or contract to buy or sell any security or to adopt any investment strategy. Nothing in this material constitutes investment, legal, accounting, tax or other advice, or a representation that any investment or strategy is suitable or appropriate to your individual circumstances, or otherwise constitutes a personal recommendation to you. Manulife Investment Management or its affiliates does not provide legal or tax advice, and you are encouraged to consult your own lawyer, accountant, or other advisor before making any financial decision. Prospective investors should take appropriate professional advice before making any investment decision. In all cases where historical performance is presented, note that past performance is not indicative of future results and you should not rely upon it as the basis for making an investment decision.

The distribution of the information contained in this presentation may be restricted by law and persons who access it are required to comply with any such restrictions. The contents of this presentation are not intended for distribution to, or use by, any person or entity in any jurisdiction or country where such distribution or use would be contrary to any applicable laws or regulations. By accepting this material you confirm that you are aware of the laws in your own jurisdiction relating to the provision and sale of the funds, portfolios or other investments discussed in this presentation and you warrant and represent that you will not pass on or utilize the information contained in the presentation in a manner that could constitute a breach of such laws by any Manulife entity or any other person.

Australia: Manulife Asset Management (Hong Kong) Limited (“Manulife AM (HK)”) is exempt from the requirement to hold an Australian financial services license under the Corporations Act in respect of the financial services being offered in this material. Manulife AM (HK) is regulated by the Securities and Futures Commission of Hong Kong (“SFC”) under Hong Kong laws, which differ from Australian laws. This presentation is directed at wholesale investors only.

China: No invitation to offer, or offer for, or sale of any security will be made to the public in China (which, for the purposes of this paragraph, does not include the Hong Kong or Macau Special Administrative Regions or Taiwan) or by any means that would be deemed public under the laws of China. The offering document of the subject fund(s) has not been submitted to or approved by the China Securities Regulatory Commission or other relevant governmental authorities in China. Securities may only be offered or sold to Chinese investors that are authorized to buy and sell securities denominated in foreign exchange. Prospective investors resident in China are responsible for obtaining all relevant approvals from the Chinese government authorities, including but not limited to the State Administration of Foreign Exchange, before investing.

Hong Kong: This material is provided to Professional Investors [as defined in the Hong Kong Securities and Futures Ordinance and the Securities and Futures (Professional Investor) Rules] in Hong Kong only. It is not intended for and should not be distributed to, or relied upon, by members of the public or retail investors. This material has not been reviewed by the Securities and Futures Commission (SFC).

Malaysia: This material was prepared solely for information purposes and is not an offer or solicitation by anyone in any jurisdictions or to any person to whom it is unlawful to make such an offer or solicitation.

Singapore: This material is intended for Accredited Investors and Institutional Investors as defined in the Securities and Futures Act.

South Korea: This material is intended for Qualified Professional Investors under the Financial Investment Services and Capital Market Act (“FSCMA”). Manulife Investment Management does not make any representation with respect to the eligibility of any recipient of these materials to acquire any interest in any security under the laws of Korea, including, without limitation, the Foreign Exchange Transaction Act and Regulations thereunder. An interest may not be offered, sold or delivered directly or indirectly, or offered, sold or delivered to any person for re-offering or resale, directly or indirectly, in Korea or to any resident of Korea, except in compliance with the FSCMA and any other applicable laws and regulations. The term “resident of Korea” means any natural person having his place of domicile or residence in Korea, or any corporation or other entity organized under the laws of Korea or having its main office in Korea.

Switzerland: This presentation may be made available only to Qualified Investors as defined in the Swiss Collective Investment Schemes Act of 23 June 2006 (as amended).

European Economic Area and United Kingdom: The data and information presented is directed solely at persons who are Professional Investors in accordance with the Markets in Financial Instruments Directive (2004/39/EC) as transposed into the relevant jurisdiction. Further, the information and data presented does not constitute, and is not intended to constitute, “marketing” as defined in the Alternative Investment Fund Managers Directive.

United States: Manulife Investment Management (US) LLC (“Manulife IM US”) and Manulife Investment Management (North America) Limited (“Manulife IM NA”) are indirect wholly owned subsidiaries of Manulife. Manulife IM (US) and certain of our affiliated registered investment adviser firms may market and provide investment management or advisory services, under the brand name “John Hancock Investment Management”. This is a brand name only, not an entity separate from Manulife IM (US). This material is not intended to be, nor shall it be interpreted or construed as, a recommendation or providing advice, impartial or otherwise. Manulife IM US, Manulife IM NA, Hancock Capital Investment Management, LLC, and Hancock Natural Resource Group, Inc. and their representatives and/or affiliates may receive compensation derived from the sale of and/or from any investment made in its products and services.

