Invesco

2020 Climate Change Report

In line with the Task Force on Climate-related Financial Disclosures (TCFD)

Contents

Cover image source: Shutterstock.

1.0

Introduction

In this chapter we explain Invesco's firm commitment to supporting efforts to reduce climate change's negative effects. We also offer brief overviews of our business, our membership of the Net Zero Asset Managers Initiative and the content and purpose of this report.

1.1 CEO's message

Image source: Invesco.

The implications of climate change are far-reaching. They will have a transformational impact on markets, the global economy, society, governments and many other aspects of our lives. As an issue that matters greatly to our clients, employees, shareholders and communities, this is a vital focus for Invesco.

Reflecting our ambition of being a leading global environmental, social and governance (ESG) investment manager, Invesco is a member of the Net Zero Asset Managers Initiative (NZAMI). As such, we are committed to supporting the worldwide goal of achieving net-zero greenhouse gas (GHG) emissions by 2050 or sooner. Our involvement with NZAMI further underlines our belief that the investment management industry has a crucial role to play in supporting efforts to reduce climate change's negative effects.

Invesco is also a key player in Climate Action 100+ and various other initiatives, working with firms around the globe to tackle climate change while providing appropriate disclosure about our progress. We invest in companies that allocate capital to the transition to more sustainable sources of energy, and we actively engage with these entities to develop solutions geared toward a low-carbon economy and net-zero targets.

Invesco believes in "greater possibilities together" – a notion that lies at the heart of ESG, responsible investing, sustainability and all efforts to safeguard our planet and its inhabitants. Covering the period from March 2020 to March 2021, our second Climate Change Report, in line with the recommendations of the Task Force on Climate-Related Financial Disclosures (TCFD), demonstrates our increasing efforts in aligning investments with a climate-resilient future.

Marty L. Flanagan
President and CEO, Invesco

Commitment to the planet

Net Zero Asset Managers Initiative[1]

Signatory and IIGCC Net Zero Framework working member; active engagement in Climate Action 100+ and other climate initiatives

Committed to the **TCFD**	Discloser and signatory to **CDP[2]**
First inaugural report published in July 2020	Score B in 2020

Offset business travel emissions

Through two ClimateCares projects

Leader in **Climate Action 100+**

[1] Invesco is committed to our present pathway of % of Asset Under Management to commit to Net Zero. Member of Institutional Investors Group on Climate Change in Europe and Asia. Participant in the Net Zero Investment Framework working groups. Member of the World Economic Forum initiatives: Coalition for Climate Resilient Investment (CCRI) and Transition to Net Zero.

[2] CDP is a not-for-profit charity that runs the global disclosure system for investors, companies, cities, states and regions to manage their environmental impacts.

1.2 About Invesco

> "As an issue that matters greatly to our clients, employees, shareholders and communities, climate change is a vital focus for Invesco."

Image source: Invesco.

Invesco is an independent investment management firm dedicated to delivering an investment experience that helps people get more out of life. We are privileged to manage US$1.4 trillion in assets on behalf of clients worldwide as of 31 March 2021.

Invesco has:

- Specialized investment teams managing investments across a comprehensive range of asset classes, investment styles and geographies
- More than 8,000 employees focused on client needs around the globe
- Proximity to our clients, with an on-the-ground presence in 28 countries
- Solid financials, an investment-grade debt rating and a strong balance sheet

We offer strategies across the full spectrum of asset classes, tailored to the needs of institutional and retail investors. In addition to our offerings in equities, bonds and real assets, we have multi-asset strategies and liability-driven investments. Most of our assets are in equities, followed by bonds and alternatives (mostly real estate).

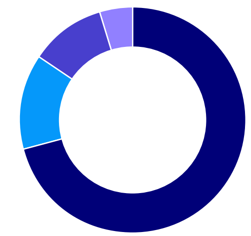
We are privileged to manage

US$1.4 trillion

in assets on behalf of clients worldwide as of 31 March 2021.

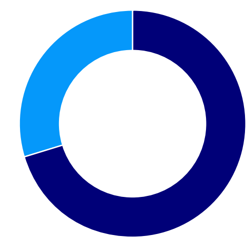
Breakdown of activities

By client domicile (US$bn)



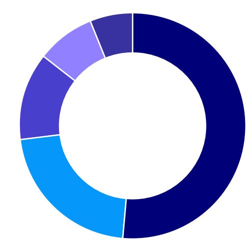
Americas	997.2
Asia Pacific	189.0
EMEA Ex UK	154.8
UK	63.1
Total	**1,404.1**

By channel (US$bn)



Retail	989.7
Institutional	414.4
Total	**1,404.1**

By asset class (US$bn)



Equity	725.0
Fixed Income	301.6
Alternatives	176.6
Money Market	115.7
Balanced	85.2
Total	**1,404.1**

Source: Invesco, as of 31 March 2021.
Numbers may not add up due to rounding.

Our organizational structure

President and CEO
Martin Flanagan

- **Investments** — Greg McGreevey
- **Americas** — Andrew Schlossberg
- **Europe, Middle East & Africa** — Doug Sharp
- **Asia Pacific** — Andrew Lo
- **Digital Ventures** — Colin Meadows
- **CAO** — Mark Giuliano
- **Finance** — Alison Dukes
- **Legal** — Kevin Carome

Investments reporting into:

- Grey McGreevey
- Andrew Schlossberg
- Doug Sharp
- Andrew Lo

- **Fixed Income** — Tony Wong
- **Equities** — Kevin Cronin
- **Solutions, Product & Performance** — Gary Wendler
- **Specialized Services** — Lance Dilorio
- **Investor Engagement** — Carolyn Gibbs
- **Business Development** — Greg Freer
- **Senior Loans** — Scott Baskind
- **Global Asset Allocation** — Scott Wolle
- **Private Markets** — Scott Dennis
- **Global Trading** — Will Geyer
- **ETFs** — Anna Paglia
- **Henley Investment Centre** — Steph Butcher
- **Asia Pacific** — Anna Tong

Source: Invesco.

Our corporate responsibility (CR) strategy focuses on three pillars:

- Fostering a culture where diverse people and ideas thrive
- Making responsible investments that align with our clients' long-term interests
- Ensuring sustainable operations and strong governance

During the past year we have prioritized taking care of our people and serving our clients while supporting the COVID-19 relief and recovery efforts in the communities where we live and work.

Invesco is committed to reducing its own impact on the environment, and we work hard to ensure our people, our buildings and our operations are aligned with our objectives. We also believe asset managers have a crucial role to play in assisting wider efforts to address climate change.

Looking ahead, we will continue to deliver an investment experience that enhances quality of life with both people and the planet in mind.

“

Invesco is committed to reducing its own impact on the environment, and we work hard to ensure our people, our buildings and our operations are aligned with our objectives.

1.3 Net Zero Asset Managers Initiative: Invesco's role and strategic ambitions

Invesco is proud to be an NZAMI signatory. Membership of NZAMI enables us to demonstrate continued leadership on climate issues, deepen engagement with portfolio companies and enhance consultative partnerships with clients.

Through this initiative, we commit to:

- Partner with asset-owner clients on their decarbonization goals, consistent with the objective of achieving net-zero emissions by 2050 or sooner
- Set an interim target for the proportion of assets to be managed in line with this objective
- Review this target at least every five years
- Aim to increase the proportion of assets covered until 100% are net zero

Through NZAMI, we embrace the opportunity to work with clients and other stakeholders to achieve net-zero emissions. Through active participation in the Institutional Investors Group on Climate Change (IIGCC), one of the organizations guiding the initiative, we also aim to define benchmarking criteria, develop methodologies and shape industry standards.

Image source: Stocksy.

1.4 About our 2020 Climate Change Report

Like its predecessor, our second Climate Change Report is aligned with TCFD recommendations. These give us the four key pillars of Governance, Strategy, Risk Management and Metrics & Targets. Each of the following sections explores what is currently being done, our next steps and our intentions for the future.

Our investment business is the main focus of this report, which also features a separate account of our corporate operations. All this material complements information contained in our latest Corporate Responsibility Report, which is available on our website.[3]

[3] Our 2020 Corporate Responsibility Report is available here.

Key takeaways of this Climate Change Report include:

- Invesco has made notable progress in enhancing processes for monitoring, evaluating and managing material climate-related risks and opportunities at the investment level.
- We are now able to provide more in-depth analysis of climate-related impacts on a wider variety of asset classes, extending from equities and corporate bonds to real estate investments and sovereign bonds.
- The processes, metrics and outputs around our climate disclosures will continue to evolve over time as more data becomes available and we extend our analysis to a growing range of investment solutions.
- Our approach to developing climate-aware solutions is guided by our Global ESG team and draws on both our extensive proprietary research and our extensive collaborative activities.
- Our ongoing collaboration with Vivid Economics/ Planetrics has helped define a customized approach that enables all our investment teams to better assess climate exposures and scenarios across asset classes and geographies. In particular, the PlanetView platform has improved our ability to anticipate physical and transition climate impacts and opportunities.
- We have evolved our climate scenario analysis by extending the calculation of temperature alignment to Scope 2 and Scope 3 emissions, and by adopting the more widely used Network of Central Banks and Supervisors for Greening the Financial System (NGFS) scenarios for the forward-looking assessment of physical and transition risks.
- We have developed how we share climate-related insights with our investment professionals to ensure investment decisions are better informed. As a result, engagement and proxy voting have become more targeted and effective.

2.0

Governance

In this chapter we first briefly describe our Board's oversight of climate-related risks and opportunities. We then explain the role of Invesco's management in assessing and managing these risks and opportunities, dividing our approach into three interrelated dimensions.

Image source: AdobeStock.

"Our Global ESG team acts as a center of excellence to guide and inform our investment teams on all work in this sphere."

2.1 Board-level oversight

Invesco's approach to climate change is integrated into our broader governance structure. This covers corporate responsibility (CR) considerations at operational level and environmental, social and governance (ESG) considerations at investment level.

The Board of Invesco Ltd reviews its long-term strategic plan at least annually. It is responsible for setting, maintaining and regularly reassessing policies and processes to manage our exposure to risk.

Our governance and coordination

Regional Working Groups
Define regional ESG requirements and implement activity accordingly

North America ESG Working Group

EMEA ESG Working Group

Asia-Pacific ESG Working Group

Corporate Responsibility Committee (CRC)
Define corporate strategic vision for ESG and CR
Our CRC is designed to support our investment and corporate stewardship leaders across the globe in aligning our advocacy, policy and community efforts.

CRC Working Group (WG)
Identify, track, assess and establish or decide policy matters pertaining to ESG or CSR
Our CRC Working Group identifies, tracks, assesses and measures our ESG and CSR activities. This information is periodically reported to the main CRC.

Global Investment Council (GIC)
Our GIC provides oversight to our specialized investment teams and offers a balance of global expertise, support and connectivity. In this way, it helps provide better outcomes for clients with greater consistency over the long term.

GIC ESG Sub-Committee
Where our GIC provides broad coverage, guidance and discussion to investment teams, our ESG Sub-Committee focuses on addressing ESG investment issues, including climate change and social equity.

Source: Invesco.

2.2 The role of management

From a broader management perspective, our governance in relation to climate change is organized in three dimensions:

1. We have executive oversight and sponsorship of all CR and ESG investment efforts, including those related to climate change. This is specifically supported by two committees that inform Invesco's approach to these issues: the Corporate Responsibility Committee (CRC) and the Global Investment Council (GIC).

   The CRC is co-chaired by the Senior Managing Directors of EMEA and Investments and includes our CEO, and representatives of key company functions. It drives our global CR strategy, oversees our investment stewardship programs and policies and provides direction on core CR topics, including progress on addressing climate change. Global and local management teams, including regional Managing Directors, report to the committee, which is itself supported by our CRC Working Group.

   The GIC comprises Chief Investment Officers and Managing Directors representing our global investment centers and all asset classes. It is co-chaired by our CEO and our Senior Managing Director of Investments. It provides oversight to our specialized investment teams and offers a balance of global expertise, support and connectivity.

   In coordination with global work streams, the GIC drives the strategy and governance of our internal programs. Its ESG Sub-Committee, chaired by our Global Head of ESG, specifically focuses on ESG investment issues, including climate change and social equity.

   Some of our investment teams are now integrating ESG and climate risks into their formalized CIO oversight processes. For example, climate-related performance objectives have been established for Fund Managers at our Henley Investment Centre in the UK. This is in addition to ongoing company engagement and monitoring of climate risk metrics as part of teams' investment strategies.

2. Our Global ESG team is responsible for leveraging best practices in ESG capabilities across Invesco. These include ESG integration, voting and engagement, supporting distribution teams with client engagement, and advising product teams on ESG innovation. With members located in three regions – North America, Asia Pacific and EMEA – the team acts as a center of excellence to guide and inform our investment teams on all work in this sphere.

   The Global ESG team also chairs regional working groups to coordinate functions such as policy, distribution and operations. We have ESG Working Groups in North America, Asia Pacific and EMEA, with our efforts further supported by our Proxy Administration team in Hyderabad, India.

3. The incorporation of ESG considerations is conducted by investment teams on a team-by-team basis. We have dedicated ESG specialists, as well as other employees who act as ESG Champions within individual investment centers globally. Our ESG Champions are closely connected with our Global ESG team and formally collaborate via the GIC ESG Sub-Committee.

   We have multiple ESG-focused groups that are broadly governed by the GIC ESG Sub-Committee to ensure a purposeful, holistic and impactful approach to responsible investing. These include the Real Estate Sustainability Focus Group, the Fixed Income ESG Focus Group, the Henley ESG Focus Group and the Factor Investing ESG Focus Group. They are responsible for monitoring and acting on climate-related issues and opportunities.

3.0

Strategy – part 1: Overview

In this chapter, the first of two addressing issues related to strategy, we outline our commitment to integrating climate change and other ESG considerations into our approach to long-term investing. We then explore this philosophy further through the prism of TCFD, NZAMI and other initiatives.

We discuss how we use the power of active ownership – in the form of engagement and proxy voting – to encourage investee entities to embrace positive, lasting change; and we show how innovative, climate-aware investment solutions are helping deliver this change.

"We have a deep understanding of the complex interactions between financial markets, business, society and the environment."

3.1 ESG as a strategic imperative

Image source: AdobeStock.

Invesco sees ESG investing as a strategic competitive differentiator. It enables us to deliver sustainable, long-term performance in ways that achieve our purpose of providing an investment experience that helps people get more out of life. We are working to embed the principles of ESG into our investment strategies and across our business.

As one of the largest asset managers globally, we have a deep understanding of the complex interactions between financial markets, business, society and the environment. Given our size and expertise, we know we are in a unique position to encourage change and drive positive impact through our investments, engagement and dialogue with companies. Our clients expect us to take the lead in determining how ESG will reshape the investment landscape and addressing climate change is perhaps the ultimate illustration of this.

Invesco's ESG philosophy is based on our belief that ESG factors have an impact on sustainable value creation as well as risk management. Our approach focuses on embedding ESG opportunity and risk factors into our investment decisions.

In 2020, we published our position on ESG in our Statement of ESG Investing Beliefs. Signed by our CEO and our Senior Managing Director of Investments, it reiterates our focus on integrating ESG into the heart of our investment process,[4] with climate change being a key focus area. In addition, each year our Global ESG team publishes an Annual ESG Investment Stewardship Report that outlines our commitment to responsible investing and our recent achievements in this respect.[5]

[4] Our full Statement of ESG Investing Beliefs is available here.
[5] Our 2020 ESG Investment Stewardship Report is available here.

The four pillars of our climate change program

Executing on NZAMI and TCFD

- Committed to the **Net Zero Asset Managers Initiative**
- Publication of annual **Climate Change Report** compliant with the TCFD guideline
- **Scenario Analysis** in collaboration with Vivid Economics climate change analysis data provider
- Selection of more data support providers

Industry commitment

- **CDP** investor member and discloser
- **IIGCC** – Investor member organization working with businesses, policy makers and investors to address climate change
- **IIGCC Net Zero** Framework – Phase 2 Supporter
- **CCRI** – Coalition for Climate Resilient Investment
- **PRI Taxonomy** Group Participant and Case study
- **TPI** Transition Pathway Initiative Supporter
- **One Planet** Asset Managers Initiative

Company Research & Engagement

- **Climate Action 100+** supported by over 450 investors worth $40 trillion
- Lead role with one company and participant in seven other collective engagements in 2020
- Individual engagement with companies focused on climate change

Investment Solutions and Thought Leadership

- Low Carbon and Paris aligned investment solutions in:
  - Self Indexing
  - IQS
  - Fixed Income
  - Upcoming in ETF
  - Upcoming in Active Equities
- Climate Risk White Paper Series: Transitioning from thinking into action

Source: Invesco Ltd.

How TCFD, NZAMI and other initiatives guide us

Image source: AdobeStock.

There is much work to do if the world is to achieve net-zero GHG emissions by 2050. We believe asset managers are uniquely positioned to support this goal, which is why we align our efforts with TCFD and initiatives such as NZAMI.

NZAMI's members are committed to supporting the global goal of reaching net-zero GHG emissions by setting interim targets with a view to ratcheting up the proportion of AUM covered until 100% of assets are included, in line with the Paris Agreement goal to limit global warming to 1.5°C above pre-industrial levels. Invesco is also a member of a working group that collaborates directly with the United Nations Principles for Responsible Investment (PRI), the IIGCC, CDP and other organizations to foster industry standards and develop net-zero methodologies for asset classes.

There is much work to do if the world is to achieve

Net-zero emissions by 2050

As well as being vital for the health and sustainability of our planet, initiatives such as these are crucial to avoiding the worst impacts of climate change on the investments we make on clients' behalf. We believe it is becoming increasingly clear that long-term valuations may be impacted if companies do not have credible low-carbon transition strategies. Using our research, analysis, climate data and tools, we partner with our asset-owner clients to help them design net-zero objectives for their portfolios and execute decarbonization strategies.

Invesco's real estate, fixed income and quantitative investing portfolio managers are developing Paris-aligned solutions to be ready to start managing identified client mandates in line with our commitment to NZAMI. To support this effort, in collaboration with Vivid Economics/Planetrics, our Global ESG team is developing a net-zero dashboard plan to provide and monitor progress toward our low-carbon and zero-carbon milestones.

For in-scope portfolios, we will use a combination of the following tools and strategies:

- Portfolio design incorporating carbon footprinting, decarbonization paths, scenario analysis and progress against a baseline
- Targeted engagement on the basis of specific climate issues/opportunities or disclosure, implementation and monitoring in keeping with the requirements of established initiatives (e.g. CDP, Climate Action 100+ Index, Science-Based Targets and Transition Pathway Initiative [TPI] identifiers)
- Divestment from exposure to the highest-carbon activities
- Solutions aligned with the EU's sustainable finance taxonomy
- Investments in climate-related opportunities

As more of our clients make similar net-zero commitments, we expect our committed assets under management to increase over time. We are at the beginning of this journey, developing resources to ensure we can support our clients in the greater adoption of net-zero portfolio goals.

Our next development focus is the quantitative application of IIGCC's Net Zero Investment Framework. We expect to disclose net-zero metrics for committed assets under management by March 2022.

> We believe it is becoming increasingly clear that long-term valuations may be impacted if companies do not have credible low-carbon transition strategies.

3.3 The power of active ownership

3.3.1 Engagement

As investors, we believe we have a duty to support and guide companies whose approaches to adaptation, transition and the allocation of capital help future-proof the planet. In 2020 alone we engaged with more than 2,000 companies on ESG topics, including over 870 focused on the 'E' of ESG, and we also vote on around 10,000 company proposals annually. During the same time period, our Global ESG team conducted 120 targeted ESG engagements, 44% of which focused on climate transition.

In addition, recognizing our wider role in both the asset management community and the broader financial services industry, we participate in a number of investor-led initiatives that aim to bring about lasting, positive change. For example, our involvement in Climate Action 100+ has already helped encourage companies to embark on their own climate-related disclosure journeys. One major energy business in which we are co-lead investor has committed to achieving net-zero emissions by 2050 or sooner, to reducing carbon intensity by at least 30% by 2025 and to ensuring a majority of low-carbon/zero-carbon products by 2025. It has also enhanced the importance of emissions in executives' long-term incentive plans and is working with Invesco and other investors to develop climate-related targets, particularly with regard to third-party Scope 3 emissions.

We recognize climate change is a key topic for more and more investors – one where our long-term approach to active investing is increasingly delivering success. As a result, our clients also benefit from our approach to this issue.

Engagement stats in 2020

We engaged with more than **2,000** companies on ESG topics...

...including over **870** focused on the 'E' of ESG

We also vote on around **10,000** company meetings

Global ESG team conducted **120** targeted ESG engagements...

...44% of which focused on climate transition

Image source: AdobeStock.

> For investors to effectively assess a company's strategic planning and business practices related to environmental risks and opportunities, clear and consistent reporting on these topics is essential.

3.3.2 Proxy voting

Invesco's Policy Statement on Global Corporate Governance and Proxy Voting outlines our approach to proxy voting globally.[6] Our good governance principles and voting guidelines promote corporate accountability, transparency and strong oversight of material risks, including risks associated with climate change. Invesco leverages a range of tools to support vote decisions, including third party research and ratings. Our approach to proxy voting considers the unique circumstances affecting companies, regional best practices, insights from our proprietary research and any dialogue we have had with portfolio companies.

For investors to effectively assess a company's strategic planning and business practices related to environmental risks and opportunities, clear and consistent reporting on these topics is essential. Invesco supports robust disclosure and reporting on material environmental topics and generally supports shareholder proposals requesting disclosure regarding material environmental risks that are reasonable and not duplicative or excessively prescriptive. In addition, we may support shareholder proposals requesting that specific actions are taken to mitigate exposure to climate risk such as establishing GHG emissions reduction targets. In evaluating these proposals, we consider a company's track record managing climate related risks and the efficacy of the proposal request.

Where significant gaps in the management and disclosure of environmental and social issues are identified, Invesco may vote against the adoption of annual accounts and reports or similar resolutions. Where material risk oversight failures occur (including business ethics, environmental and social failures), we will consider voting against director nominees. This approach ensures that we consider climate-related topics even where there are no specific resolutions on climate change to be voted. The final voting decisions are made by our portfolio managers and analysts, with input and support from our Global ESG team and Proxy Operations functions. Invesco's proprietary proxy voting platform, PROXYintel, facilitates the implementation of voting decisions and rationales across our global investment teams. We believe our governance principles, structure and processes ensure proxy votes are cast in accordance with clients' best interests.

6 Our Policy Statement on Global Corporate Governance and Proxy Voting is available here.

Shaping a Japanese bank's commitment to net zero

Background
In this case we engaged with one of the world's largest commercial banks to address issues around its exposure to fossil fuel financing. We observed that it could enhance disclosure on its climate change policy; that it could also enhance disclosure in line with the TCFD framework; that it could set a clear target for emissions; and that it could demonstrate commitment at management and board levels. The bank's sustainability report showcased lots of CR activities but lacked quantitative risk analysis and detailed KPI targets. In addition, its environmental policy did not mention targets for emissions or carbon neutrality.

Summary
Following discussions between the bank and our local investment team, we requested appropriate steps be taken. The bank duly produced a Carbon Neutrality Declaration and revised its environmental policy, which are both determined by the board. It committed to achieving net-zero emissions across its financing portfolio by 2050 and disclosed its assumptions on potential financial impacts arising from the physical and transition risks around climate change. It appointed a Chief Sustainability Officer and became the first Japanese bank to participate in the Net-Zero Banking Alliance.

However, we felt more evidence of board-level commitment was required. We recommended shorter-term targets and a clear pathway to achieving them; we urged greater disclosure around corporate-level financing with regard to coal, oil and gas; and we asked for more specific details on how the bank would evaluate new energy technologies, especially with Paris Agreement alignment in mind.

Outcome
The bank has now accepted the importance of short-term targets in relation to carbon neutrality and climate-related disclosures. It has told us it would like to set short-term KPIs that can be shared with investors and integrated into a management plan. It has also revised its bonus compensation scheme for directors to reflect ESG achievements. We have recommended obtaining Science-Based Targets certification and we plan to continue discussions on these issues.

Image source: AdobeStock.

Preparing an Asian petrochemical company for a low-carbon future

Background
This business lags its foreign peers in terms of management quality on climate change – having declined from Level 2 (building capacity) in 2019 to Level 1 (awareness) in 2020, as measured by TPI – and also has weak ESG reporting and disclosure. As a member of Climate Action 100+, Invesco collaborated with a group of investors to engage with the company.

Summary
Management agreed carbon reduction could be achieved through renewable energy sources. However, because there are few such sources in the country, the company would need to build its own facilities. Although this remains a challenge and prevents the business from committing to net-zero emissions, management has now overseen the installation of solar panels and is exploring the use of wind power. Investors feel the company can learn from the carbon-reducing actions of its foreign peers.

Challenged on weak reporting and disclosure, management highlighted the business's use of CDP questionnaires. We pointed out that not all investors have access to this information and that continued insufficient disclosure could lead to a discounted valuation. The company has indicated its willingness to improve in this regard.

Outcome
Management has now set a short-term target to lower energy consumption for each business unit by 3%. The company has committed to augmenting its use of solar and wind power in the mid-to-long term and, if it can increase renewable energy use sufficiently, will aim to achieve net-zero emissions by 2050. To strengthen its ESG governance, it has also established ESG-related KPIs for senior management.

Re-energizing a global energy company

Background
This engagement came about after an activist investor tabled a proxy challenge as part of its campaign to "re-energize" a global energy company. The challenge proposed replacing incumbent board members with individuals with greater industry experience, particularly in relation to a transitioning strategy.

Summary
Company representatives were adamant that existing board members' expertise was suited to policies around carbon capture and storage. They dismissed the notion that the company could play a part in the transition to renewables in its own energy mix, but suggested it may have a role to play in offshore wind infrastructure. This led to a separate discussion with the activist investor and a call with the four proposed new board members to understand their experience and skillsets in more detail.

Outcome
Following talks with both the company and the activist investor, the Global ESG team recommended Invesco shareholders vote in favor of electing all four proposed new board members. We determined their expertise to be more aligned with important elements of the required transition, including knowledge of regulatory affairs, renewable technologies and previous experience of oil/gas company transformation leadership.

Most Invesco shareholders ultimately supported the election of three of the four nominees. We regard the addition of these board members as a positive outcome for the shareholders we represent through our funds.

3.4 Climate-aware investment solutions

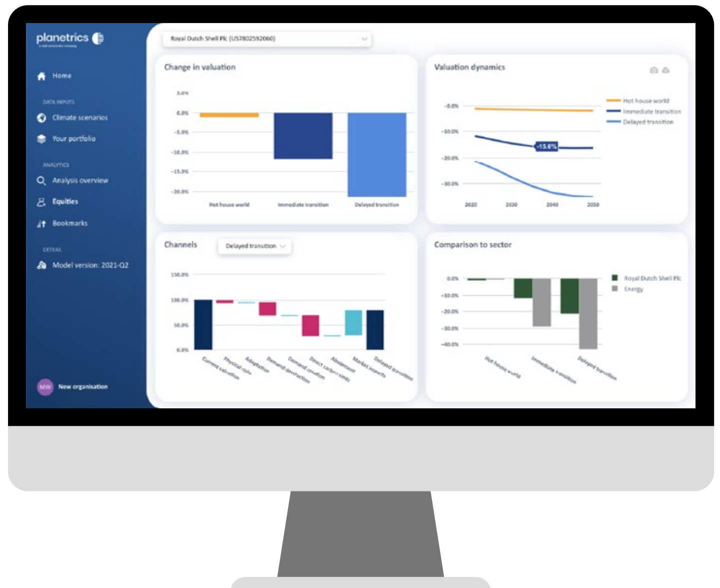
Invesco continues to expand its product suite and solutions to provide investors with more climate-sensitive investment opportunities. As we further enhance our analytical capabilities by adding new data sets, we improve our ability to assess and manage the overall carbon footprint and scenario analysis of all our funds.

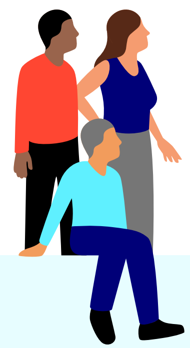
Climate-related metrics are a key component of our ESG integration process. Our proprietary ESGintel rating tool incorporates CDP, Science-Based Targets and TPI data into ESG insight signals, which are in turn used by investment teams across the business.

In addition to the climate-related metrics available in ESGintel, all investment centers have access to supplementary climate data – either directly or through our ESG Data team. We use a suite of providers for specific analytics and have partnered with Vivid Economics/Planetrics to enhance our analytics tools – such as PlanetView – to equip all our investment teams with the ability to not only use carbon-footprinting metrics, but to extend their analyses to scenarios, temperature alignment and cost impairment.

> “
>
> Climate-related metrics are a key component of our ESG integration process.

PlanetView – one of our key analytics tools





3.4.1 Case studies

Real estate: building a sustainable future

Research suggests the world’s buildings produce up to 40% of CO_2 emissions globally. This obviously represents a significant barrier to achieving the net-zero future envisaged under the Paris Agreement. It means buildings are central to creating some of the biggest problems facing our planet – and it also means they are central to addressing those problems.

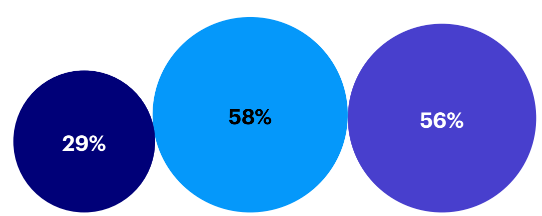
Invesco Real Estate (IRE) is committed to continuous improvement in the environmental management of its assets. It has developed an approach known as ESG+R – environmental, social, governance and resilience – in assessing risks and opportunities in this space. We apply our ESG+R philosophy at every stage of the real estate investment process – analysis, underwriting, due diligence and management.

Our ESG+R Acquisition Assessments review each potential new asset for risks and opportunities. These assessments are supplied to our various property teams, which are also given the resources needed to encourage energy conservation, efficient use of water, recycling, waste reduction, tenant and community engagement, and other sustainability initiatives. We regularly evaluate our properties with a view to implementing measures such as lighting upgrades, improved ventilation and up-to-date strategies for health and wellbeing.

Each year we identify candidates for green building certifications such as LEED, BREEAM, HQE, Green Star, ENERGY STAR, CASBEE and IREM. As of Q2 2020, as illustrated in the table opposite, our assets around the globe had achieved more than 250 certifications.

A mark of climate-related quality: our green building certifications

Invesco Real Estate places an increased focus on achieving third-party green building certifications. The percentages below represent the percentage of certifications by floor area across Asia, Europe and North America core programs.



Green building certifications

Type
Region

BREEAM	LEED	IREM
80	94	50
CASBEE	Other	U.S.
21	16	149
EU	Asia	**Total**
84	28	**261**

Source: Invesco.

In 2019 we engaged analytics specialist Four Twenty Seven to provide 1-to-100 physical risk scores for our assets. Using climate projections covering the next 20 years, scores are currently calculated for factors such as sea-level rise, flooding, hurricanes, typhoons, heat stress, water stress and wildfires. The process uses models that reference the Intergovernmental Panel on Climate Change's Representative Concentration Pathway 8.5, which is consistent with 4ºC of warming by 2100. Scores inform an initial review of potential risks that existing and potential assets alike may face.

The table below summarizes the physical risks we are currently reviewing, along with the potential mitigants applicable to our assets. We are also developing portfolio-level metrics to track, communicate and set targets to address overall climate change risk.

The two Craig Distribution Centers in Las Vegas, Nevada, highlight the effectiveness of our action on water conservation. They experienced reductions in water use of 17.6% and 20.6% between Q4 2019 and Q2 2020. This was achieved by using irrigation timers as part of a strict on-site watering program and through regular maintenance to reduce leaks, with the latter alone saving around 836,300 gallons since June 2020.

The Queensgate Shopping Centre, located in the UK town of Peterborough, contains more than a hundred stores and attracts almost 15 million visitors annually. Here we have focused on reducing waste and increasing diversion rates – the portion of waste not sent to landfill. Our robust recycling program and innovative use of technology saw approximately 99.6% of materials diverted from landfill between 2019 and 2020. The complex has won a prestigious international Green Apple Award for Environmental Best Practice and has been named the only Green Champion in its peer group.

Invesco Real Estate's sustainability credentials

IRE 2020 GRESB performance

GRESB

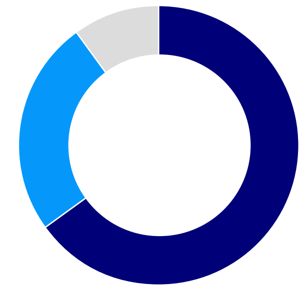
4
Portfolios rated 5 out of 5 Green Stars

6
Portfolios rated 4 out of 5 Green Stars

60%
of IRE Global AUM assessed by GRESB

Source: Invesco.

BREEAM-in-USE certification performance 2021 (%)



Investment certified	65
Target	25

Source: Invesco.

Physical risks and their potential mitigants

Physical risk	Sea-level rise	Heat stress	Water stress
Result	• Long-term loss of property value, building damage and water damage when tidal zones reach property • Paris Accord to limit warming by 2 degrees Celsius above pre-industrial levels	• Increased utility costs; damages due to blackouts/brownouts	• Increased utility costs; water use restrictions climate initiatives: The Climate Action 100+, The Institutional Investors Group on Climate Change, and The World Economic Forum's Climate Change Resilient Infrastructure initiative
Property mitigants	• Flood-proof basement and first level of building • Move any major mechanical equipment from first floor to higher elevation	• Install high-efficiency equipment; implement mechanical systems maintenance plan • Install backup generator or battery storage on-site	• Install low-flow plumbing fixtures • Implement leak-detection plan • Replace traditional landscaping with native plants or xeriscape
Regional mitigants	• Physical barriers such as levees and sea walls • Building code requiring minimum first floor elevation	• Utility demand response and management programs • Building code energy efficiency standards	• City and utility water use requirements • Building code water • Efficiency standards

Shock event	Hurricane	Flood	Wildfire
Result	• Building damage, water damage	• Water damage	• Building damage
Property mitigants	• Building facade and foundation updates to meet current storm codes • Emergency management plans	• Flood-proof basement and first level of building • Move any major mechanical equipment from first floor to higher elevation • Implement stormwater control program	• Implement landscape management plan to remove debris from site and remove low-hanging shrubs and branches • Implement emergency management program and communicate with regional authorities and tenants
Regional mitigants	• Regional emergency preparedness and communication plans • Building code updates	• Physical barriers such as floodways • Building code requiring minimum first floor elevation	• Controlled fires to reduce potential for large-scale wildfire • Building code updates

Source: Invesco.

Fixed income: decarbonizing pension funds

Defined Benefit pension schemes face both risks and opportunities on the journey to a low-carbon economy. The risks lie mainly in such a shift not being fully integrated into portfolios, which could impact asset values and regulatory compliance. The opportunities lie mainly in the chance to contribute to positive, far-reaching, lasting transformation – and to do so in a way that balances decarbonization and ESG considerations with financial performance.

In response to a UK institutional consultant's request for industry guidance, Invesco published a white paper exploring the interplay of the trade-offs pension funds could face in implementing their commitments on climate action. We wanted to examine how funds' efforts to reduce the carbon intensity of their investments might impact portfolio yield levels. Our research focused on buy-and-maintain global credit portfolios, which are a core allocation for pension funds moving toward maturity when payments exceed contributions.[7]

We used our in-house platform, Vision, for this analysis. Vision houses thousands of data sets covering traditional financial and investment metrics, as well as ESG and climate data, sourced from both the Global Credit Research team at Invesco Fixed Income (IFI) and from external providers. It enables complex portfolio optimizations to be carried out across a huge array of parameters, making it ideally suited to addressing the question of carbon intensity versus yield optimization.

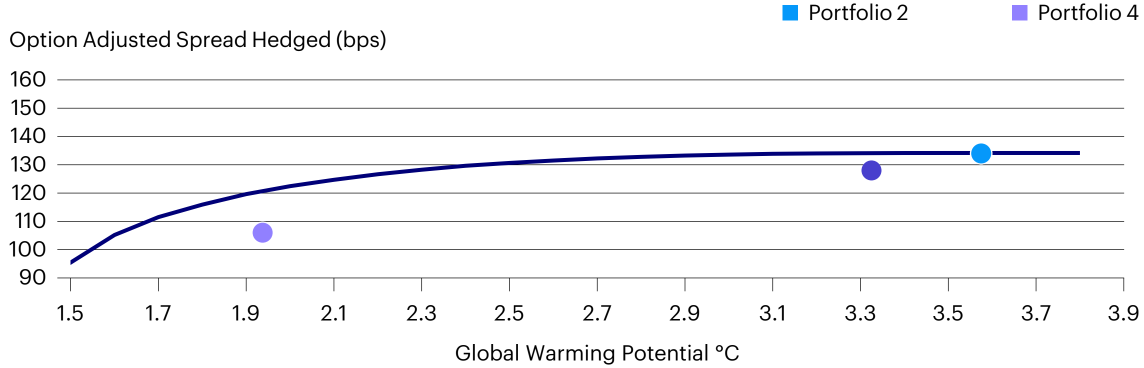
We chose not to implement sector exclusions, as we believe that engaging with companies taking steps on the low-carbon journey is critical and that divestment should be a last resort. However, again using a combination of ratings from IFI and external providers, we did optimize positively around companies assessed as being better prepared for transition.

Our work first revealed that cutting the carbon intensity of a buy-and-maintain global credit portfolio to less than 30% of that of the global credit index resulted in a 0.18% reduction in spread levels compared to a similar portfolio with no carbon optimization. Yet this gave only one side of the decarbonization story, which is forward-looking in nature.

Using temperature alignment data, the next stage of our analysis showed that much larger concessions on portfolio yield and, crucially, diversification are needed to build a present-day portfolio whose underlying holdings are aligned with a global temperature rise of 2°C. A buy-and-maintain portfolio aligned to 1.9°C would yield 1.74%, compared with 2.07% from a simple ESG-integrated portfolio. This is not necessarily surprising, as most of the companies in our global credit universe are still in the early stages of adjusting their business models.

This research provides information to clients about the expected impacts to returns arising from optimizing portfolios today to help protect the world of the future, and can help our clients make informed decisions about their portfolios.

An efficient frontier for temperature alignment versus yield



Source: Invesco; for illustrative purposes only. Portfolio 1: Traditional Global Buy and Maintain portfolio which aims to maximise yield and integrate ESG via fundamental credit research. Portfolio 2: Global Buy and Maintain portfolio which aims to maximise yield, integrate ESG via fundamental credit research and reduce carbon intensity of Portfolio 1 by 50%. Portfolio 3: Global Buy and Maintain portfolio where the overall ESG rating must be C-neutral or better, and at least 50% rated A or B, no ESG-unrated bonds. Excludes bonds where revenue is derived from thermal coal, harmful fossil fuel extraction (arctic, shale and sands) and where the company has violations of UN Global Company principles or is on the MSCI Global Compact Watch List. Portfolio 4: Based on Global Buy and Maintain portfolio 3, but using quantitative "climate alignment" scores directly. For illustrative purposes only.

[7] White paper: Global Buy and Maintain: Moving towards a lower-carbon future, 8 March 2021 by Luke Greenwood, Derek Steeden and Maria Lombardo, published on the Invesco UK website.

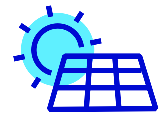
Quantitative strategies: the language of sustainability

Launched by Invesco Quantitative Strategies (IQS), one of Invesco's strategies offered in EMEA aims to provide investors with an innovative means of gaining exposure to companies committed to the transition to a low-carbon economy. At the core of its investment approach is a sophisticated natural language processing (NLP) technique.

Relevant keywords are first systematically "scraped" from text covering energy transition in academic research and publications. This process defines custom theme dictionaries. More than 2.5 million news articles from over 4,500 sources are then screened each month, using the dictionaries to identify companies exhibiting high exposure to the portfolio's themes. Focusing on environmental issues and the exclusion of controversial areas, an ESG overlay helps to serve as an additional safeguard.

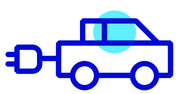
Drawing on decades of experience in portfolio construction, the IQS team ensures that eligible stocks are screened for financial criteria – such as quality, price momentum and minimum liquidity – and that diversification parameters are applied. The aim is to assemble a portfolio with focused exposures to the desired themes, with company-idiosyncratic components diversified away. Our "carbon control" approach, as used in a wide range of mandates and mutual funds, is also implemented.

Key components of the low-carbon energy transition



Alternative Energy

- Solar
- Wind
- Hydrogen
- Other renewables



Green Mobility

- Electric vehicles
- Charging infrastructure

Energy Utilization

- Management & storage
- Green building infrastructure
- Energy transition
- Energy efficiency

Source: Invesco.

3.5 Industry commitment

3.5.1 Advocacy

Invesco recognizes the power of collaborative investor engagement. Such efforts complement our one-to-one relationships with investee entities and provide valuable reference points for our assessments of the risks and opportunities around climate change.

Invesco is a member of IIGCC, a European body that effectively serves as a conduit for investors to advocate a low-carbon future. Part of a global network of organizations that serve as the secretariats for Climate Action 100+, IIGCC helps define public policies, investment practices and corporate behaviors. In 2020 our collaboration extended to IIGCC's Paris-Aligned Investment Initiative, including consultation on the Net Zero Investment Framework and participation in working groups tasked with developing indicators and defining asset classes.

Invesco recognizes the power of

Collaborative investor engagement

Invesco is also a founding member of the Coalition of Climate Resilient Investment (CCRI), a working group that aims to integrate climate risks into investment decisions and so drive a shift towards a more climate-resilient economy. As a leading real estate investor, we especially draw on this collaboration in assessing existing and future investments in infrastructure.

In 2020 we also participated in the Climate Financial Risk Forum (CFRF), chaired by the UK's Financial Conduct Authority (FCA) and Prudential Regulation Authority (PRA), which resulted in the publication of a Climate Risk Guide for financial practitioners. Our leadership role in the forum helped us stay ahead of regulation and play a part in shaping industry-wide solutions.

Climate and sustainable finance are topics of increasing relevance to the regulation of our industry. Needless to say, they are also of increasing relevance to our clients. Invesco therefore aims to remain closely involved in ongoing policy and regulatory developments, whether via active engagement with policymakers, indirect dialogue via trade associations, formal comment letters, responses to consultations or other means.

The EMEA region, particularly the EU, continues to witness the most rapid development of sustainable financial regulation. Here we continuously engage with a variety of policymakers, including the European Commission, Members of the European Parliament, national finance ministries and national regulators, either directly or through trade associations such as the European Fund and Asset Management Association (EFAMA), Irish Funds, the Investment Association and the UK Sustainable Investment and Financial Association (UKSIF). Priority focus areas in 2020 included climate reporting, sustainability reporting and the EU's sustainable finance taxonomy.

In the Asia Pacific region, we primarily seek to engage through collaborative groups. Invesco is a member of the Asia Investor Group on Climate Change (AIGCC) – part of the Climate Action 100+ initiative – and the recently established Japan TCFD Consortium. We have shared and discussed our thought leadership on broader ESG-related issues with the Asset Management Association of China (AMAC).

Similarly, Invesco is a member of various trade bodies in the US. These include the Investment Company Institute (ICI), through which we provide support and engage on ESG regulatory issues.

3.5.2 Thought leadership

Invesco aims to be a thought leader on investors' role in addressing climate change and other ESG issues. We produce white papers, educational blogs, thematic seminars and other dedicated outputs, often collaborating with external partners such as IIGCC, TPI and Farm Animal Investment Risk and Return (FAIRR).

The rapid evolution of regulatory frameworks provided a particular area of focus in 2020 and early 2021. We published a suite of material exploring the emergence of new standards, the increasing role of climate scenario analysis and the management of physical and transition risks in light of shifts in policy, technology and consumer attitudes.

Other climate-related topics covered in recent outputs include factory farming, food production, biodiversity loss, sustainable cities and the hyperconnectivity of the existential threats facing the planet and its inhabitants – environmental catastrophe foremost among them. We believe such themes are already crucial to investment decisions and will only gain in importance during the years ahead.

Image source: AdobeStock.

4.0

Strategy – part 2: Resilience

In this chapter, the second addressing issues related to strategy, we demonstrate the resilience of our approach to climate change, paying particular regard to key issues such as emissions intensity, temperature alignment and the analysis of different climate scenarios. We report results not only for our equity holdings but also, for the first time, our corporate and sovereign bond holdings.


Image source: AdobeStock.

"Our analysis of Invesco's exposure across the three scenarios for aggregate equity, corporate bond and sovereign bond holdings yields a number of significant insights."

!

The results relate to our Aggregate Portfolio – our universe of listed global equities, listed corporate bonds and listed sovereign bonds – as held on behalf of clients on 31 March 2021. As remarked in section 1.4, we now use the climate scenarios developed by NGFS. We use a benchmark throughout to provide context. When benchmarking results for an individual asset class we make use of the publicly available MSCI ACWI (equities), Bloomberg Global Aggregate Corporate Bond Index (corporate bonds) and FTSE World Government Bond Index (sovereign bonds) indices. The benchmark for the Aggregate Portfolio as a whole is a weighted combination of all indices.

4.1 Temperature alignment

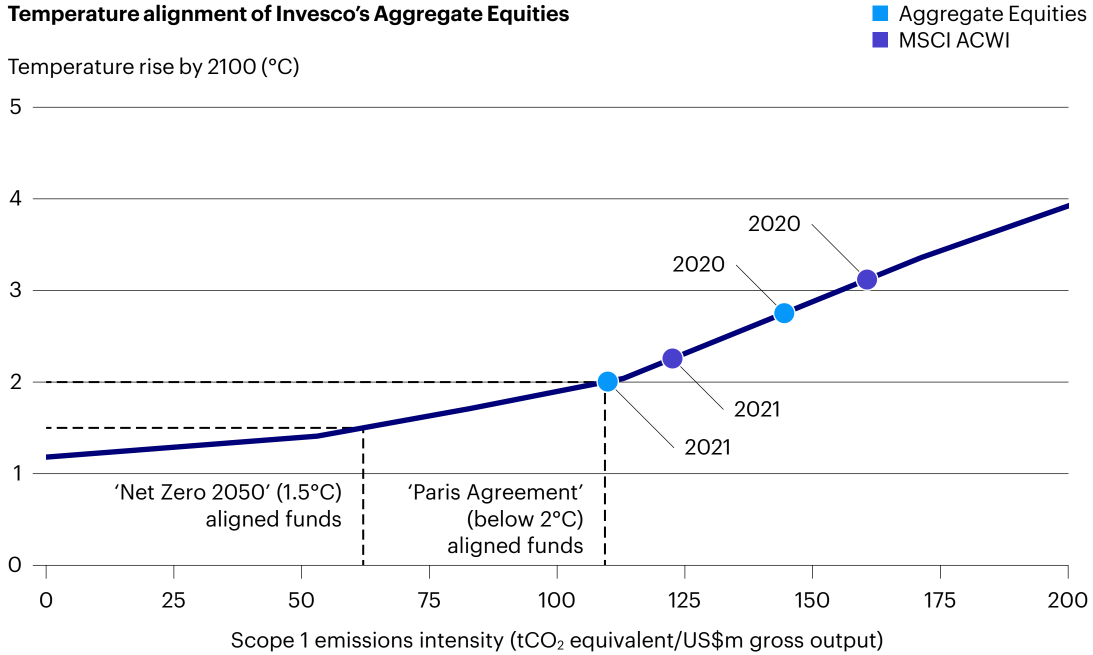
4.1.1 Basic approach

In our 2019 Climate Change Report we estimated our Aggregate Equities to be aligned with a temperature rise of 2.8°C relative to pre-industrial levels, against the benchmark MSCI ACWI at 3.2°C. This was based on mapping the intensity of our equity holdings' Scope 1 emissions (i.e. those produced directly by a company) to the temperature pathway with which they are most consistent, as determined by the relationship between global emissions intensity and average global temperature rise.

This year, using the same approach, we estimate our Aggregate Equities to be aligned with a temperature rise of 2.0°C. This is lower than the benchmark, which has a temperature alignment of 2.3°C. This improvement is due to reductions in our holdings of several emissions-intensive companies and decreases in those companies' Scope 1 emissions intensities.[8]

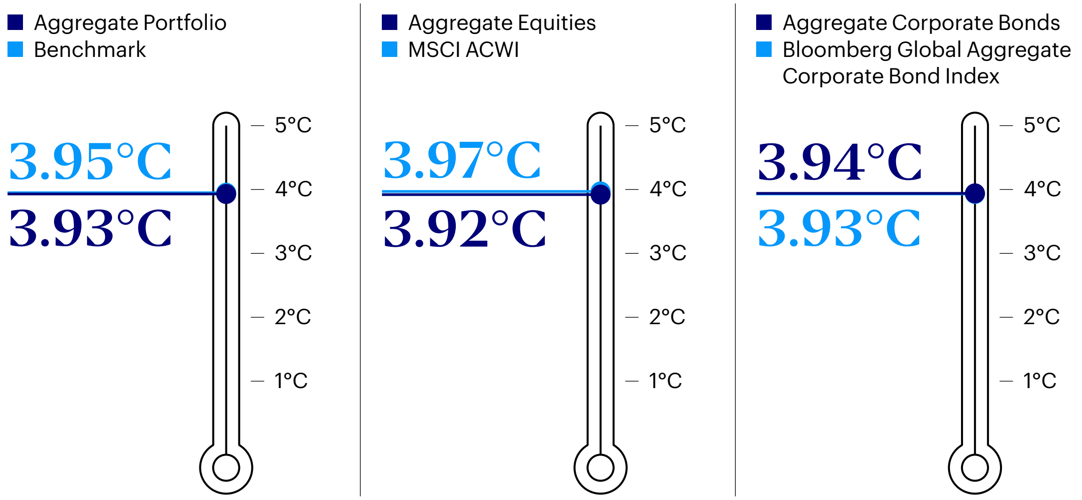
[8] Decreases in companies' emissions intensities during 2020 was partly driven by the economic impacts of COVID-19. This may be at least partly reversed in future years as the economy recovers.

Temperature alignment of Invesco's Aggregate Equities



Source: Vivid Economics, as of 31 March 2021.

Temperature alignment of Invesco's holdings – alternative methodology



Source: Vivid Economics, as of 31 March 2021.

4.1.2 Enhanced approach

Portfolio temperature alignment is a relatively new metric. There are multiple approaches to estimating it, each with different advantages. During the past year, in working to improve our understanding and reporting of our climate impact, we have used an alternative methodology for our calculations.

This takes into account a company's performance relative to sector and geography and considers not only Scope 1 emissions but Scope 2 and Scope 3 emissions (i.e. those generated by businesses that provide a company's energy and those generated by consumers using a company's products). We have also expanded our analysis to include corporate bonds. Using this approach, our Aggregate Portfolio is estimated to be aligned with warming of 3.9°C – a similar level to the benchmark portfolio and higher than the Paris Agreement's target of well below 2°C.

Although significantly in excess of the temperature alignment calculated using the previous methodology, this figure provides us with new insights. This is because it takes into account decarbonization pathways for companies in different sectors and geographies. Identifying companies that are outperforming and underperforming relative to their sectoral and geographical peers can inform our strategy for engaging on climate-related issues.

> Identifying companies that are outperforming and underperforming relative to their sectoral and geographical peers can inform our strategy for engaging on climate-related issues.

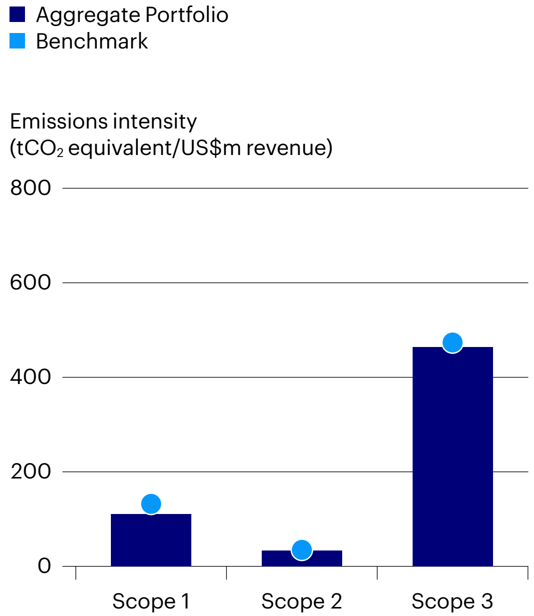
4.2 Emissions intensity

To quantify our contribution to global emissions, we have analyzed the emissions intensity (Scope 1, Scope 2 and Scope 3) and the temperature alignment of our Aggregate Portfolio of equities and corporate bonds.[9] This expands on our 2019 Climate Change Report, whose analysis was limited to our equity portfolio.[10]

The emissions intensity figures calculated here reflect the weighted average of emissions (measured in tons of CO_2) per unit of revenue generated (measured in US$ million) for all Aggregate Equities and Aggregate Corporate Bonds companies. As shown opposite, our Aggregate Portfolio exhibits emissions intensities similar to the benchmark for Scope 1, Scope 2 and Scope 3 emissions.[11]

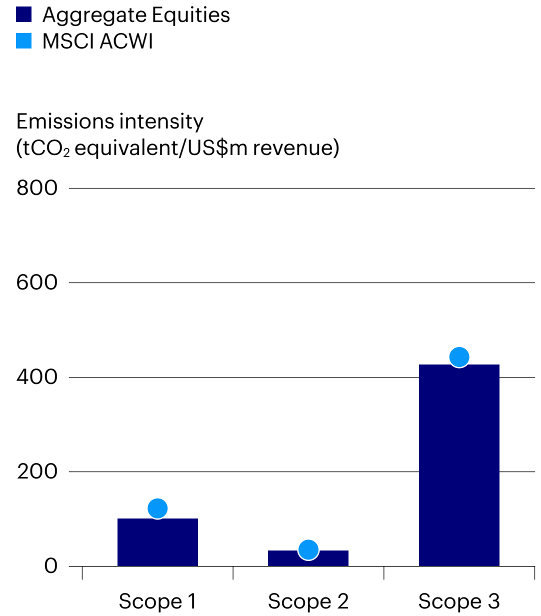
Emissions intensity of Invesco's Aggregate Portfolio, Aggregate Equities and Aggregate Corporate Bonds compared to benchmark

Aggregate Portfolio



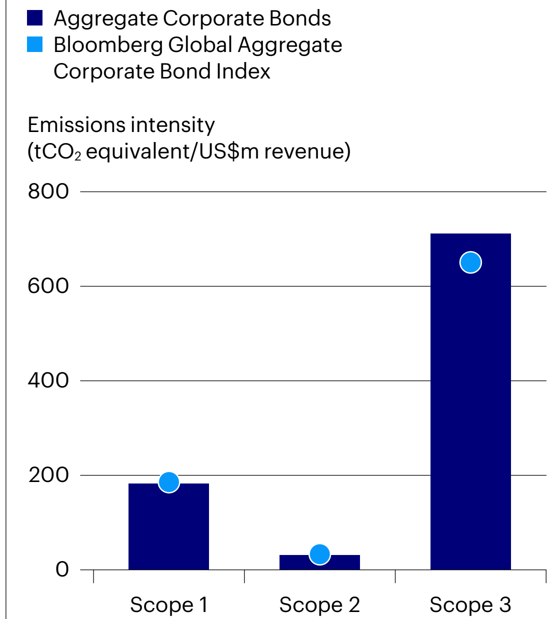
	Scope 1	Scope 2	Scope 3
Aggregate Portfolio	111.08	33.05	463.60
Benchmark	132.11	34.86	473.56

Aggregate Equities



	Scope 1	Scope 2	Scope 3
Aggregate Equities	100.56	33.26	427.21
MSCI ACWI	122.57	35.19	442.93

Aggregate Corporate Bonds



	Scope 1	Scope 2	Scope 3
Aggregate Corporate Bonds	182.75	31.63	711.53
Bloomberg Global Aggregate Corporate Bond Index	185.66	32.97	650.50

Source: Vivid Economics, as of 31 March 2021.

"

This analysis expands on our 2019 Climate Change Report to include not only our equity portfolio but also our corporate bonds.

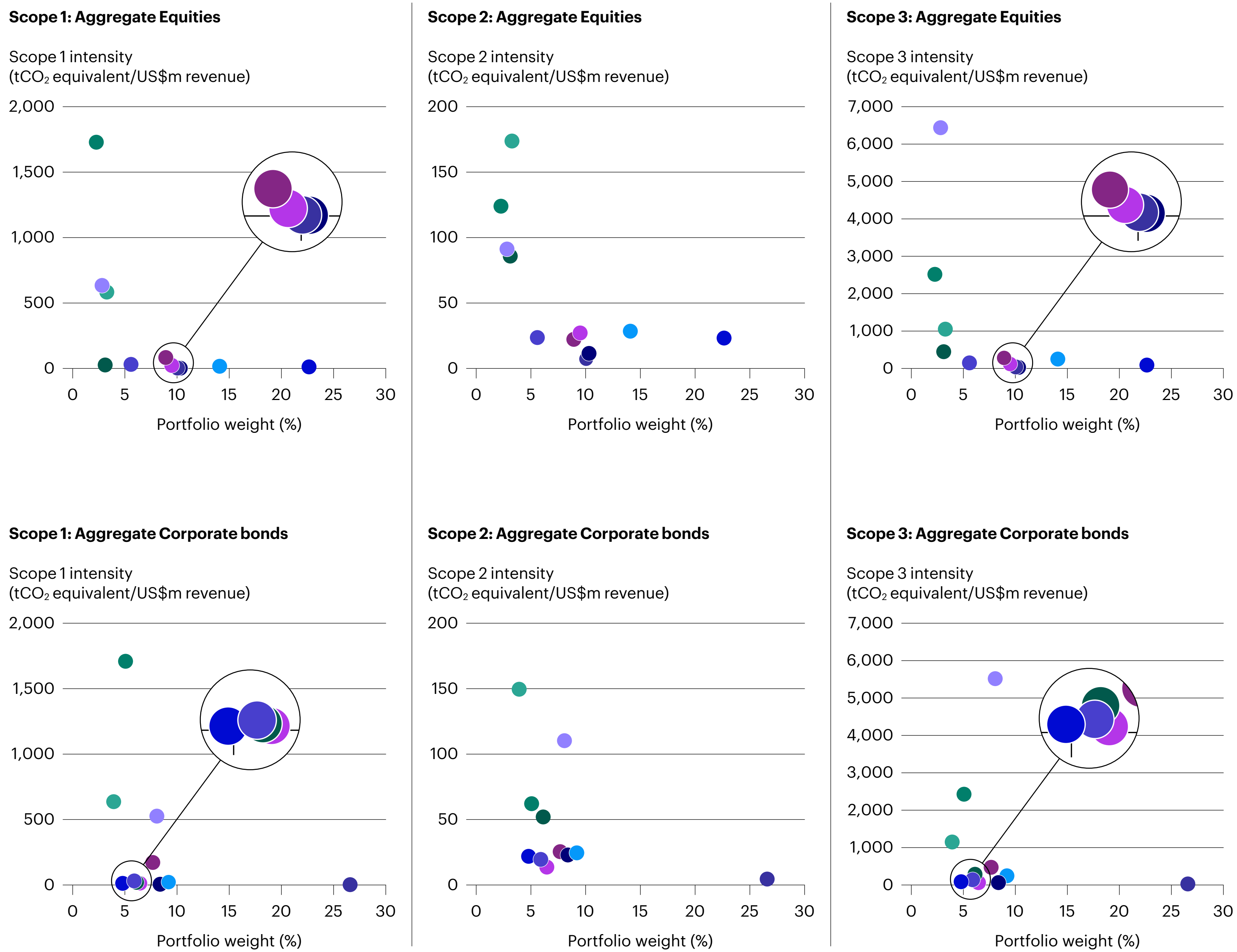
[9] Sovereign bonds are not included in our emissions intensity and temperature alignment analysis at this stage.

[10] We have also updated our methodology for calculating portfolio emissions intensity. Here we report on a portfolio-weighted basis, whereas previously we reported on an ownership-weighted basis. The new methodology means a company whose equities make up 1% of our portfolio is given a weighting of 1% in the portfolio's emissions intensity. The previous methodology meant that if Invesco owned 1% of a company's equity then 1% of the company's emissions and revenues would be included in the calculation of portfolio emissions intensity.

[11] Scope 3 emissions intensity has increased for all sectors compared with our 2019 report. This is primarily due to a change in data provider and a consequent improvement in data availability.

To better understand the drivers of our emissions intensity and to inform our climate-related decision-making and engagement, we have also examined intensities at a sector level separately for Aggregate Equities and Aggregate Corporate Bonds. The results are shown opposite. The energy, materials and utilities sectors are by far the most significant contributors, accounting for 82%, 69% and 36% of Aggregate Equities' Scope 1, Scope 2 and Scope 3 emissions intensities respectively – despite collectively representing less than 10% of the portfolio's value.

Emissions intensity by sector for Invesco's Aggregate Equities and Aggregate Corporate Bonds



Source: Vivid Economics, as of 31 March 2021. See next page for data table.

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Examining intensities at a sector level helps us better understand the drivers of our emissions.

Emissions intensity by sector for Invesco's Aggregate Equities and Aggregate Corporate Bonds

		Communication Services	Consumer Discretionary	Consumer Staples	Information Technology	Energy	Financials	Healthcare	Industrials	Materials	Real Estate	Utilities
Scope 1												
Aggregate Equities	Scope 1 intensity (tCO_2 equivalent/US$m revenue)	2.25	16.73	31.20	12.00	634.42	3.10	23.13	83.54	583.64	26.63	1,728.67
	Portfolio weight (%)	10.31	14.08	5.59	22.64	2.82	10.05	9.50	8.92	3.27	3.11	2.26
Aggregate Corporate bonds	Scope 1 intensity (tCO_2 equivalent/US$m revenue)	5.59	22.15	30.98	12.54	526.19	2.54	12.82	172.10	636.58	20.03	1,709.23
	Portfolio weight (%)	8.38	9.19	5.90	4.79	8.06	26.58	6.45	7.67	3.93	6.12	5.06
Scope 2												
Aggregate Equities	Scope 2 intensity (tCO_2 equivalent/US$m revenue)	11.51	28.48	23.62	23.23	91.25	6.89	27.13	22.24	173.76	85.85	123.98
	Portfolio weight (%)	10.31	14.08	5.59	22.64	2.82	10.05	9.50	8.92	3.27	3.11	2.26
Aggregate Corporate bonds	Scope 2 intensity (tCO_2 equivalent/US$m revenue)	22.93	24.56	19.53	21.90	110.25	4.53	13.66	25.47	149.56	51.98	62.11
	Portfolio weight (%)	8.38	9.19	5.90	4.79	8.06	26.58	6.45	7.67	3.93	6.12	5.06
Scope 3												
Aggregate Equities	Scope 3 intensity (tCO_2 equivalent/US$m revenue)	28.91	251.83	149.55	90.87	6,438.24	39.81	118.13	282.15	1,051.30	448.21	2,517.36
	Portfolio weight (%)	10.31	14.08	5.59	22.64	2.82	10.05	9.50	8.92	3.27	3.11	2.26
Aggregate Corporate bonds	Scope 3 intensity (tCO_2 equivalent/US$m revenue)	63.55	245.52	140.44	87.10	5,517.70	27.95	62.69	473.07	1,149.49	286.40	2,427.55
	Portfolio weight (%)	8.38	9.19	5.90	4.79	8.06	26.58	6.45	7.67	3.93	6.12	5.06

Source: Vivid Economics, as of 31 March 2021.

"

Despite collectively representing less than 10% of the portfolio's value, the energy, materials and utilities sectors are by far the most significant contributors to emissions intensity.

NGFS scenarios

Invesco has adopted the climate scenarios developed by the Network of Central Banks and Supervisors for Greening the Financial System. First published in June 2020, these aim to provide a common starting point for the financial sector to analyze climate risks.

NGFS scenarios are now widely used by investors, regulators and banks, including the Bank of England. They have been designed to offer a consistent set of physical and transition risks across a range of possible policy pathways, which is why we chose them.[12]

The NGFS 2020 scenario set[13] includes three 'reference' scenarios. The table below summarizes key variables for these, including global temperature and emissions trajectories, carbon prices and energy demand. NGFS recently published its updated scenarios for 2021, including a net-zero scenario, which will be incorporated into future analysis.

Hot House World
This scenario assumes emissions continue to intensify until 2080, leading to a temperature increase of above 3°C and severe physical risks such as rising sea levels. Physical risks are highest in this scenario. This has an especially strong effect on countries closer to the equator, as well as developing economies, with substantial impacts on sectors such as agriculture.

Orderly
This scenario assumes climate policies are introduced early and gradually become more stringent, leading to a temperature increase below 2°C. Physical risks are smaller than in the Hot House World scenario, but transition impacts are larger. Carbon-intensive sectors experience greater costs in the face of rising carbon prices and reduced revenue from falling demand. Low-carbon products and the commodities associated with them experience increasing demand. Sectors such as energy and transport are significantly impacted both in the near term and over the longer term.

Disorderly
This scenario assumes the same overall temperature increase as the Orderly scenario, but it also assumes climate policies are not introduced until 2030 – after which a sharp reduction in emissions is required to meet the temperature target of below 2°C. This leads to higher transition risk. Transition impacts occur later than in the Orderly scenario but are more severe, since carbon prices increase more quickly and reach higher levels in the decades after 2030.

Key NGFS scenario variables (used as inputs for modelling)

		Hot House World			Orderly			Disorderly		
	Unit	2030	2040	2050	2030	2040	2050	2030	2040	2050
Relative to preindustrial levels (1850-1900)										
Global temperature*	°C above preindustrial levels	+1.7	+2.2	+2.7	+1.5	+1.7	+1.8	+1.5	+1.8	+1.8
		Absolute values			**Relative to Hot House World**					
GHG emissions	$GtCO_2eq$/year	64	68	71	-21	-38	-53	-5	-39	-63
Carbon prices*	US$ 2020/tCO_2	3	3	4	+60	+120	+200	+10	+420	+830
Oil demand*	Mbbl/d	100	110	100	-10	-10	-20	0	-30	-40
Gas demand*	Bn m^3/year	5,300	6,400	6,600	-900	-2,300	-3,100	-200	-3,700	-5,300
Coal demand*	Mtce/year	5,700	6,600	8,400	-3,800	-6,200	-8,000	-800	-5,000	-8,400

Source: NGFS, Invesco analysis. * Figures have been rounded.

12 These scenarios had not been published in time for the analysis presented in our 2019 Invesco Climate Change Report.
13 The NGFS scenarios used in this analysis are those published in June 2020. Full details are available here.

All three scenarios imply different levels of physical risk and transition risk for our investments.

GHG emissions are the key driver of **physical risk** in each scenario. These ultimately determine global temperature changes relative to pre-industrial levels, which in turn affect the level of physical impacts from climate change.

Each scenario has a different emissions trajectory over time (see top left of illustration below). Physical impacts are greatest in the Hot House World scenario, where emissions continue to increase and the global mean temperature rises by 2.7°C by 2050 (see top right).

This leads to increased levels of natural hazards such as coastal and river flooding, tropical cyclones and other weather-related events. Since these are location-specific, some countries and companies are disproportionately affected. Businesses with a high proportion of coastal assets may experience especially notable increases in costs.

Carbon pricing and associated reductions in emissions are the main drivers of **transition risk**. Annual emissions fall significantly over the period to 2050 in the Orderly and Disorderly scenarios, as increasing carbon prices lead to structural changes in the economy. This creates positive and negative risks for investments.

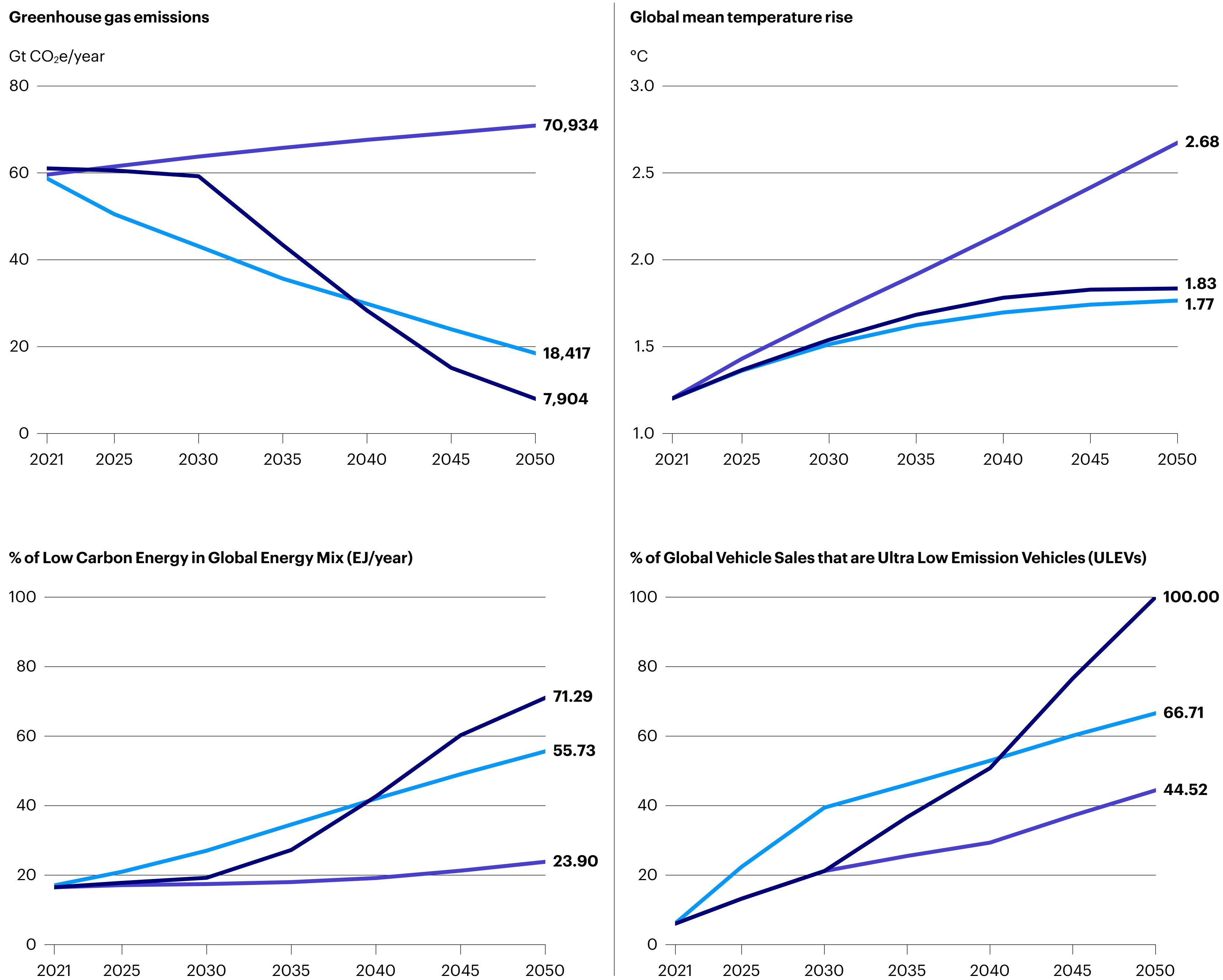
Revenues rise for companies exposed to low-carbon products (e.g. renewable energy generation and electric vehicles) and their supply chains and commodities as demand increases over time (see bottom left and bottom right). By contrast, companies exposed to more carbon-intensive products (e.g. fossil fuels) experience decreased revenues in light of lower demand.

Meanwhile, carbon-intensive companies also experience significant increases in costs as a result of carbon pricing. This reduces their profitability. Less carbon-intensive firms are able to benefit from this, gaining market share from more emissions-intensive rivals.

Here we present results from all three NGFS scenarios, since they span a range of plausible future pathways for climate action and therefore allow us to explore a broad spectrum of the drivers, magnitude and timing of risks relevant to our investments.

Selected NGFS scenario variables for Hot House World, Orderly and Disorderly scenarios

Disorderly transition
Orderly transition
Hot House World



Source: Vivid Economics, as of 31 March 2021.

4.3 Key insights from NGFS scenarios

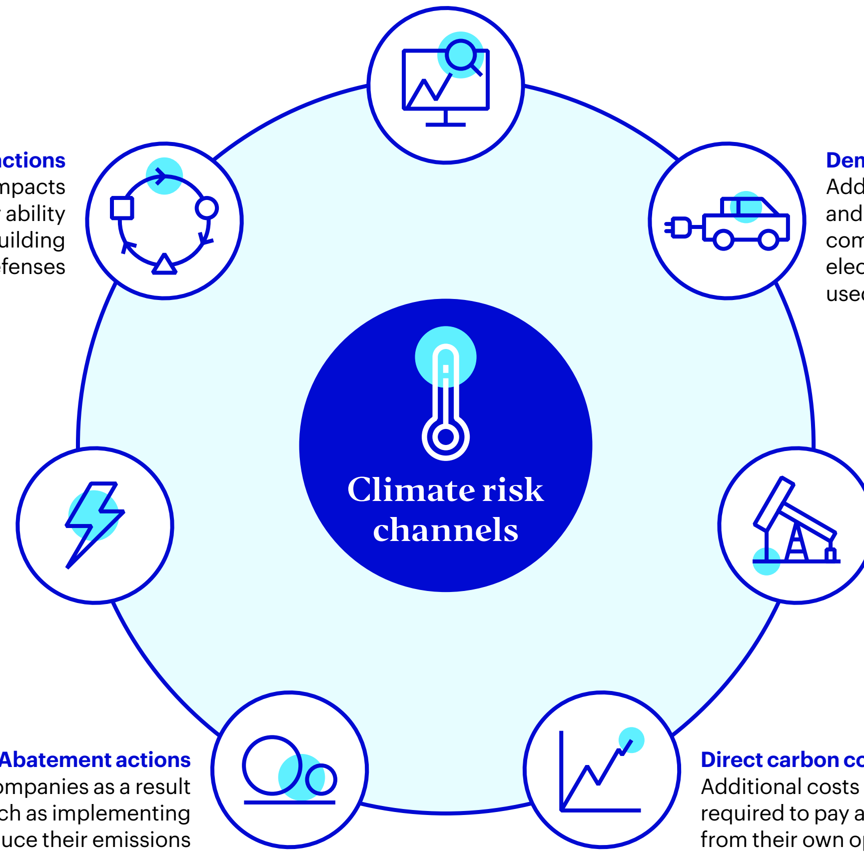
We have used a forward-looking, scenario-based model to simulate the impact of an array of physical and transition risks on Invesco's individual securities across equities, corporate bonds and sovereign bonds for each of the three NGFS scenarios. Our analysis of Invesco's exposure across the three scenarios for aggregate equity, corporate bond and sovereign bond holdings yields a number of significant insights:

- Valuation impacts are largest in the Disorderly scenario
- Equities are the most strongly affected asset class in all three scenarios
- For equities and corporate bonds there can be large differences in impacts for companies within highly exposed sectors
- Valuation impacts for corporate bonds are largest for longer maturities
- Sovereign bond valuations experience a mix of positive and negative impacts across scenarios and maturities

In this section we explore each of these insights in more detail.

A disorderly transition to a low-carbon economy will have the largest impact on valuations.

Our model considers the characteristics of companies, including their current emissions and their markets, and simulates the impacts of seven climate risk channels:



Market impacts
Changes in companies' profitability as a result of competition with peers and ability to pass higher costs on to consumers (e.g. less carbon-intensive companies gaining market share from more carbon-intensive companies)

Demand creation
Additional demand for low-carbon products and associated manufacturing activity and commodities (e.g. electric vehicle sales, electric vehicle manufacturing, minerals used in electric vehicle manufacturing)

Demand destruction
Reduced demand for carbon-intensive products and associated activities and commodities (e.g. oil production and refining)

Direct carbon costs
Additional costs for companies required to pay a price for emissions from their own operations

Abatement actions
Reduced carbon costs for companies as a result of their ability to take actions such as implementing energy-efficiency measures to reduce their emissions

Physical impacts
Greater costs for companies and changes in the economy as a result of climate-driven increases in natural hazards

Adaptation actions
Reduced costs from physical impacts for companies as a result of their ability to take actions such as building flood defenses

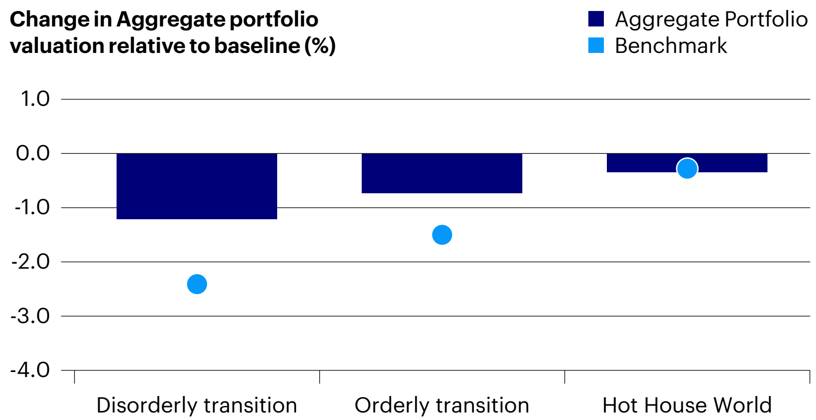
For this analysis we have not accounted for any strategic plans that companies have made to reduce emissions, such as net-zero targets. We have calculated all changes in valuation relative to a baseline where no additional physical impacts arise from climate change compared to today and no additional climate-related policies are introduced.

Valuation impacts are largest in the Disorderly scenario

As shown in the illustration opposite, the impact on the valuations of our Aggregate Portfolio, Aggregate Equities and Aggregate Corporate Bonds are negative in all three scenarios – most strongly so in the Disorderly scenario. Impacts for Aggregate Sovereign Bonds are very small but positive in the Hot House World and Orderly scenarios, and negative in the Disorderly scenario.[14]

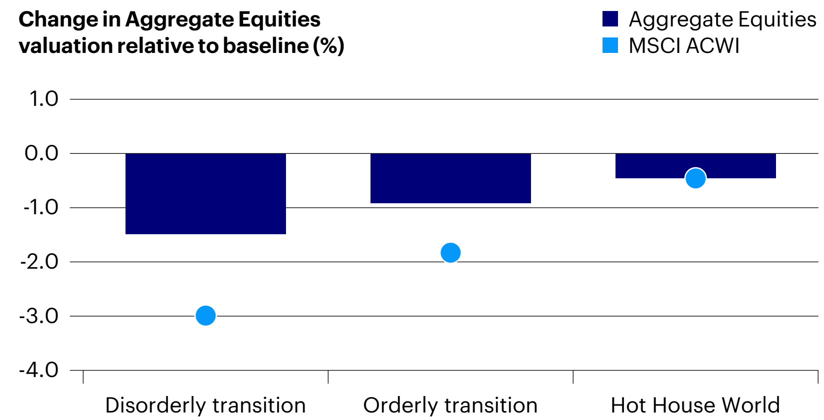
Change in valuation by scenario for Invesco's Aggregate Portfolio, Aggregate Equities, Aggregate Corporate Bonds and Aggregate Sovereign Bonds

Change in Aggregate portfolio valuation relative to baseline (%)



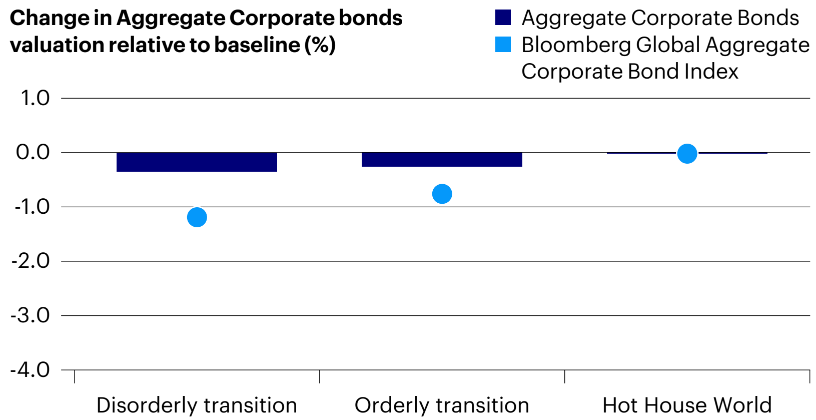
	Disorderly transition	Orderly transition	Hot House World
Aggregate Portfolio	-1.21	-0.73	-0.35
Benchmark	-2.41	-1.50	-0.28

Change in Aggregate Equities valuation relative to baseline (%)



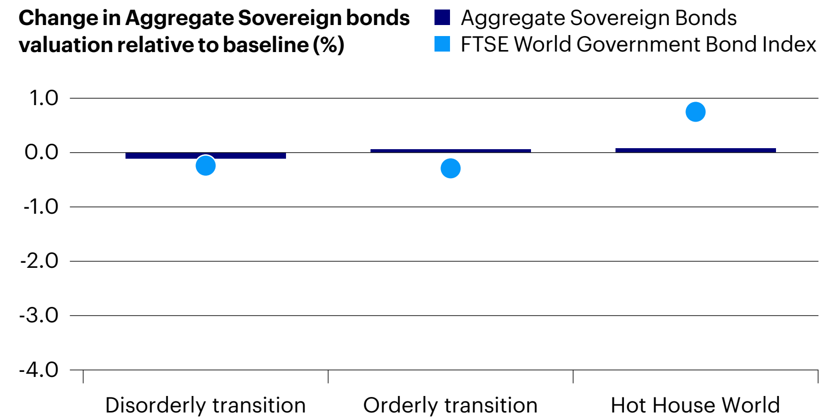
	Disorderly transition	Orderly transition	Hot House World
Aggregate Equities	-1.49	-0.92	-0.46
MSCI ACWI	-2.99	-1.83	-0.46

Change in Aggregate Corporate bonds valuation relative to baseline (%)



	Disorderly transition	Orderly transition	Hot House World
Aggregate Corporate Bonds	-0.35	-0.26	-0.02
Bloomberg Global Aggregate Corporate Bond Index	-1.19	-0.76	-0.02

Change in Aggregate Sovereign bonds valuation relative to baseline (%)



	Disorderly transition	Orderly transition	Hot House World
Aggregate Sovereign Bonds	-0.11	0.06	0.08
FTSE World Government Bond Index	-0.24	-0.29	0.75

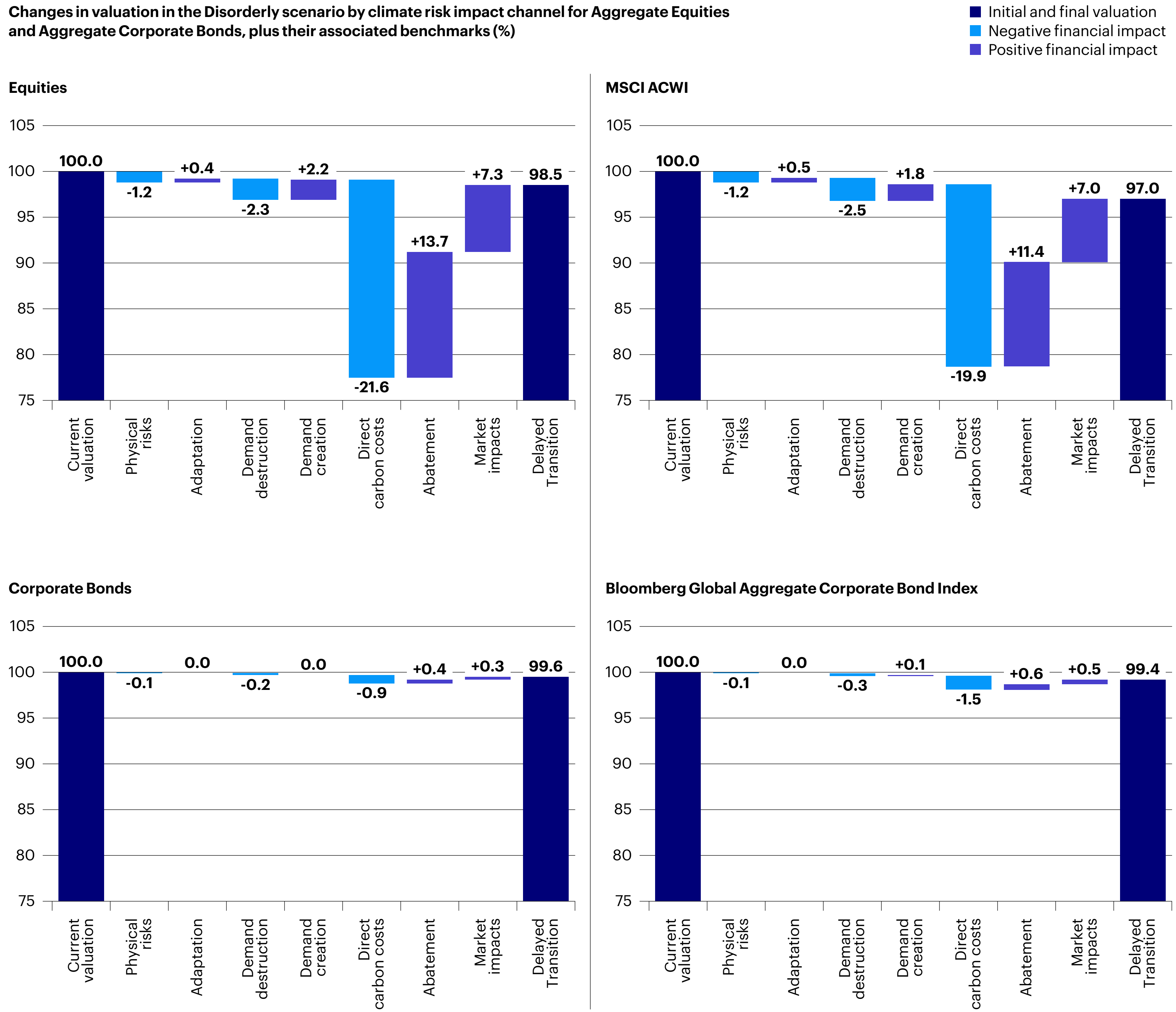
Source: Vivid Economics, as of 31 March 2021.

[14] Bond valuation changes reflect shifts in market value arising from changes in risks to bonds' issuers. If a company's profitability is lower in a climate scenario than in the baseline scenario then it is at a higher risk of defaulting, and this is reflected in a lower market value. Climate risks for sovereign bonds create changes in the ratio of debt to GDP for each country, which affects the risk premium associated with a government's bonds and in turn drives changes in market value.

In line with Invesco's earlier work in this field, our modelling indicates valuation impacts are largest in the Orderly and Disorderly scenarios – where transition risks are greatest. Impacts in the Hot House World scenario, which arise from physical risks, are smaller.

Direct carbon costs represent the most significant risk driver in the Disorderly scenario. Companies can offset this by taking abatement action to reduce their emissions and can pass some of the additional costs on to customers. Some businesses are also able to gain market share at the expense of more carbon-intensive competitors, reducing the overall impact of climate risks across the whole portfolio, as shown opposite.[15]

Changes in valuation in the Disorderly scenario by climate risk impact channel for Aggregate Equities and Aggregate Corporate Bonds, plus their associated benchmarks (%)

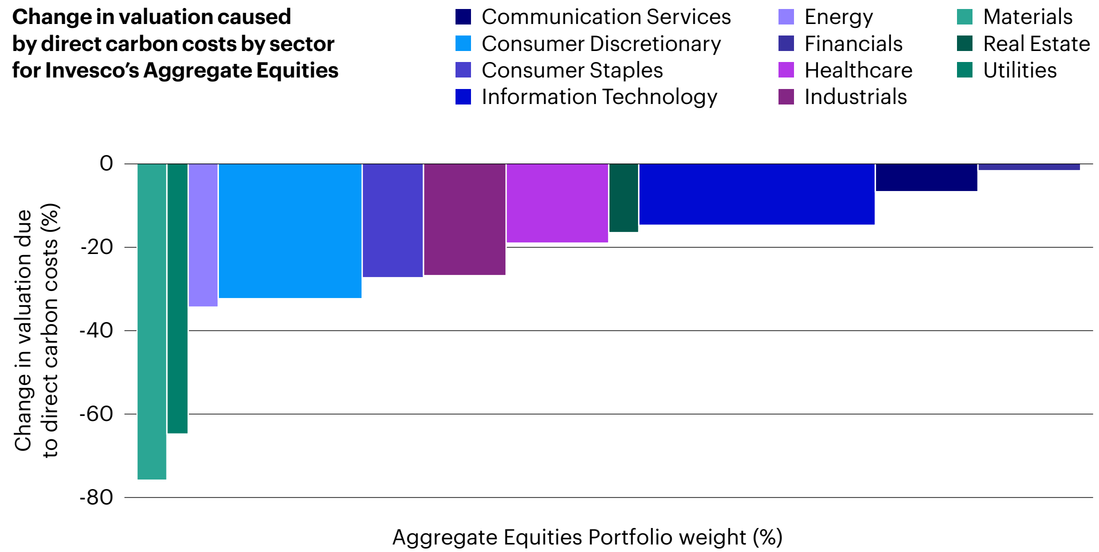


Source: Vivid Economics, as of 31 March 2021.

[15] As observed in section 4.2, carbon prices are applied globally and increase over time in NGFS's Orderly and Disorderly scenarios.

Although there are multiple drivers for climate risk, direct carbon costs are a strong contributor to overall exposures in the Orderly and Disorderly scenarios. The sectors with the highest emissions intensities – energy, materials and utilities – are most negatively impacted. Less emissions-intensive sectors have a larger weighting within Invesco's portfolio, as a result of which sectors such as information technology also contribute risks from direct carbon costs – as shown opposite.

Change in valuation caused by direct carbon costs by sector for Invesco's Aggregate Equities



Source: Vivid Economics, as of 31 March 2021.

Companies can offset direct carbon costs by taking abatement action to reduce their emissions.

Equities are the most strongly affected asset class in all three scenarios

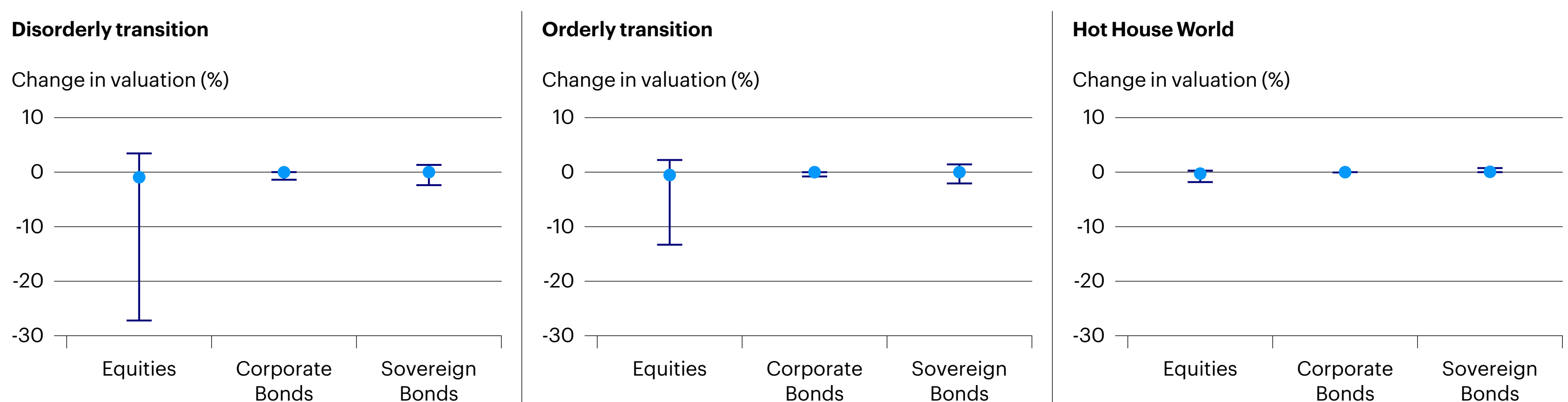
As illustrated opposite, impacts on Aggregate Equities valuations are larger than those on Aggregate Corporate Bonds and Aggregate Sovereign Bonds valuations in each scenario. However, equities also see the most potential upside.

Equities absorb much of the change in companies' profitability, with corporate bond valuations changing only when profitability impacts are relatively large. In addition, many of Invesco's corporate bond holdings have relatively short maturities, whereas the largest transition and physical risks materialize after 2030.

On aggregate, sovereign bonds experience a smaller impact on valuations than either equities or corporate bonds. They also gain value, on average, in the Hot House World and Orderly scenarios – unlike other asset classes. These differences arise because of central banks' responses to two countervailing drivers of sovereign bond values: increasing inflation and reduced growth.

Change in valuation (median, 10th percentile and 90th percentile) for Invesco's holdings within each asset class

90th percentile
Median
10th percentile



Disorderly transition

	Median	10th percentile	90th percentile
Equities	-0.93	-27.21	3.44
Corporate Bonds	-0.02	-1.39	0.01
Sovereign Bonds	0.01	-2.38	1.33

Orderly transition

	Median	10th percentile	90th percentile
Equities	-0.52	-13.31	2.23
Corporate Bonds	-0.01	-0.79	0.00
Sovereign Bonds	0.00	-2.07	1.43

Hot House World

	Median	10th percentile	90th percentile
Equities	-0.27	-1.82	0.28
Corporate Bonds	0.00	-0.06	0.00
Sovereign Bonds	0.06	0.00	0.75

Source: Vivid Economics, as of 31 March 2021.

For equities and corporate bonds there can be large differences in impacts for companies within highly exposed sectors

We have built on our sector-level analysis by using counterparty-specific information to explore differences in exposure *within* sectors as well as *between* sectors. This reveals differences in risk within sectors can be at least as significant as differences between sectors.

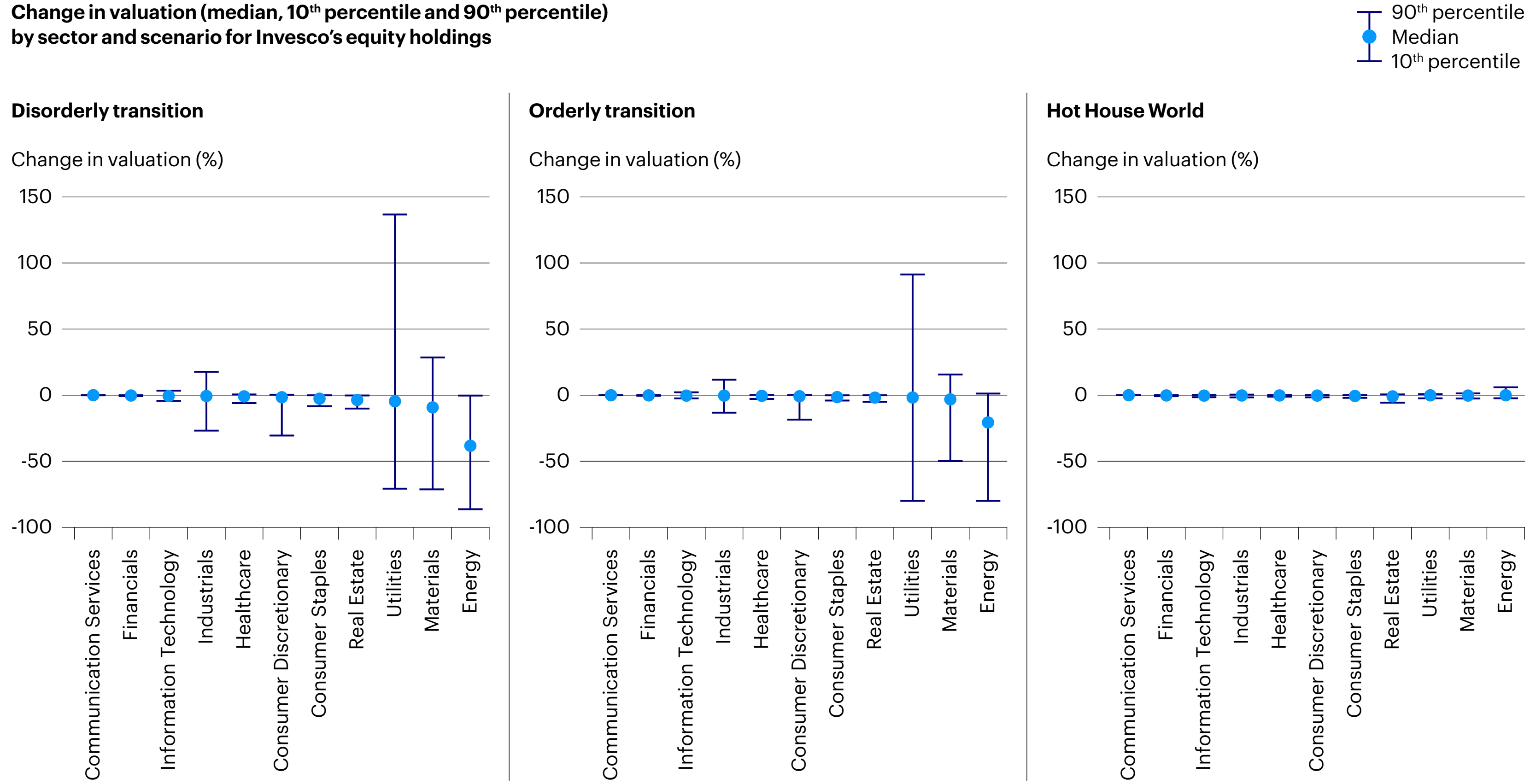
In the Disorderly scenario, for example, the median reduction in the valuation of Invesco's energy sector equity holdings is almost 40%. Yet the impact for energy companies is much larger, with some firms losing more than 80% of their valuation, others losing very little and a small minority of companies gaining.

The median impact across Invesco's equity holdings in the utilities sector is relatively small even in the Disorderly scenario (-5%), but the variance within the sector is very large. Some companies' valuations more than double, while others are more than halved.[16] These differences are driven by several factors, including companies' exposure to low-carbon energy, the carbon intensity of their operations and their exposure to physical risks.

In the **Hot House World** scenario there is almost no variation in the impact on valuations within a sector. Since transition risks are low and carbon pricing is minimal, the main driver of risk here is geography. Physical risks are concentrated in geographies most exposed to the impacts of climate change – predominantly developing countries, which make up a small proportion of Invesco's counterparty holdings and operations.

[16] The 10th percentile experiences a 71% loss, whereas the 90th percentile sees a 137% gain.

Change in valuation (median, 10th percentile and 90th percentile) by sector and scenario for Invesco's equity holdings



	Communication Services	Financials	Information Technology	Industrials	Healthcare	Consumer Discretionary	Consumer Staples	Real Estate	Utilities	Materials	Energy
Disorderly transition											
Median	-0.10	-0.26	-0.62	-0.65	-0.94	-1.59	-2.67	-3.64	-4.64	-9.25	-38.30
10th percentile	-0.10	-0.72	-4.39	-26.80	-5.98	-30.54	-8.42	-10.15	-70.74	-71.27	-86.29
90th percentile	-0.07	-0.06	3.41	17.67	0.53	0.33	-0.10	-0.23	136.72	28.50	-0.30
Orderly transition											
Median	-0.06	-0.16	-0.35	-0.33	-0.53	-0.82	-1.46	-1.85	-1.79	-3.18	-20.66
10th percentile	-0.07	-0.48	-2.46	-13.24	-2.83	-18.49	-4.06	-5.08	-79.93	-49.88	-79.95
90th percentile	-0.04	-0.04	2.16	11.68	0.21	0.12	-0.11	-0.08	91.32	15.61	1.22
Hot House World											
Median	-0.03	-0.20	-0.33	-0.23	-0.22	-0.32	-0.62	-0.93	-0.12	-0.29	-0.06
10th percentile	-0.04	-0.77	-1.52	-1.67	-1.15	-1.63	-2.03	-5.72	-2.41	-2.53	-2.37
90th percentile	-0.02	-0.04	0.11	0.41	0.12	0.08	-0.04	0.56	0.77	1.33	5.93

Source: Vivid Economics, as of 31 March 2021.

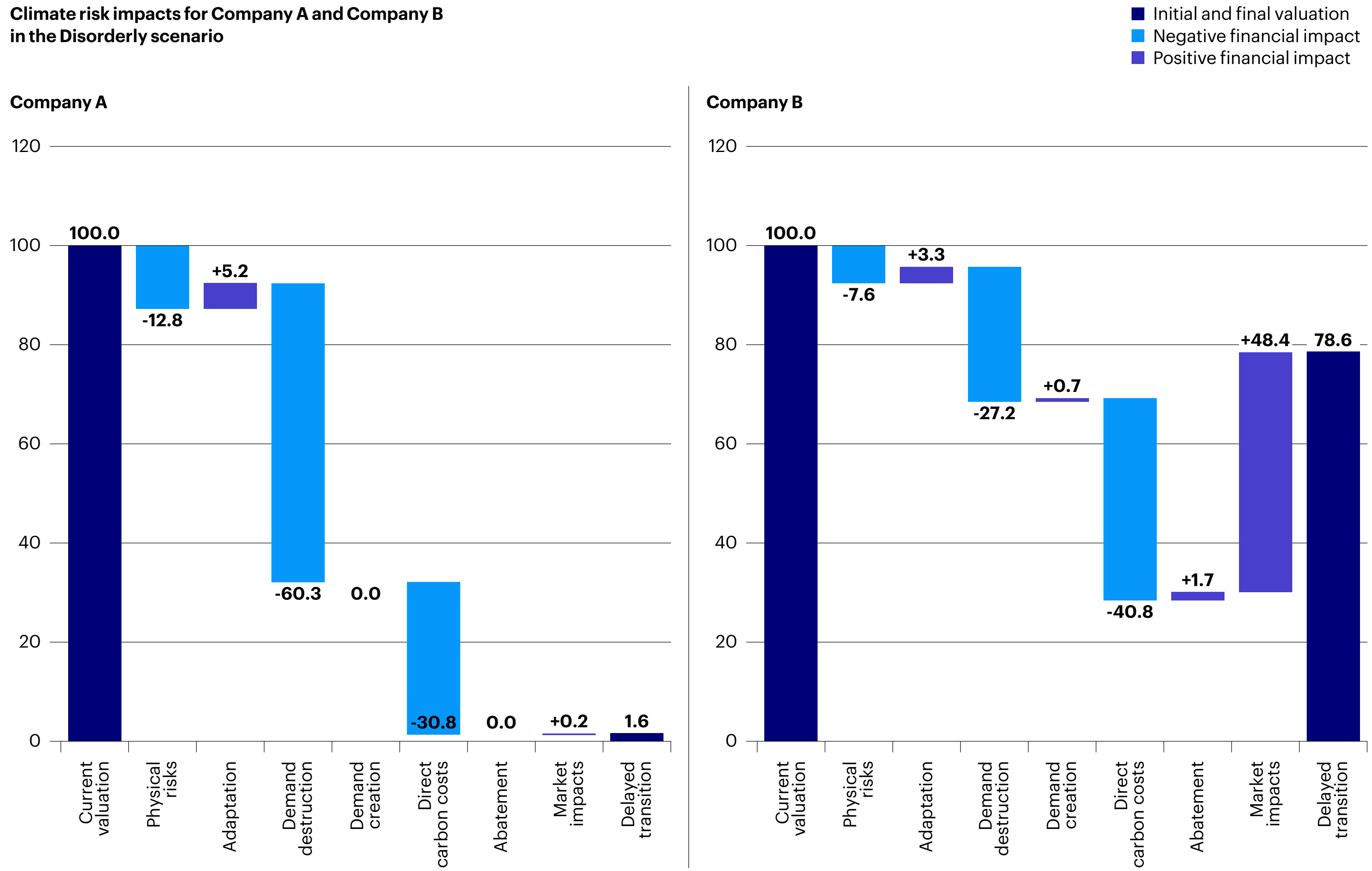
The differences in performance in the same sector are driven by differences between companies and the risks they face. Consider the illustration opposite, which shows the climate risks faced by two companies in the oil and gas sector.

Both companies experience a similar level of physical risk impacts and take adaptation measures to mitigate them. Both also experience a similar level of direct carbon costs as a result of the carbon intensity of their operations.

However, Company A experiences a far greater impact from demand destruction, as it is highly exposed to upstream oil/gas exploration and production, while Company B is active in a more diverse range of activities in the energy sector, including refining and renewable energy. Company B also benefits from market impacts: it is able to gain market share from rivals and pass more of its costs on to consumers as a result of its lower-carbon product mix.

> The importance of company-level differences is shaping Invesco's investment decision-making and our engagement with businesses in highly exposed sectors.

Climate risk impacts for Company A and Company B in the Disorderly scenario



Source: Vivid Economics, as of 31 March 2021.

Valuation impacts for corporate bonds are largest for longer maturities

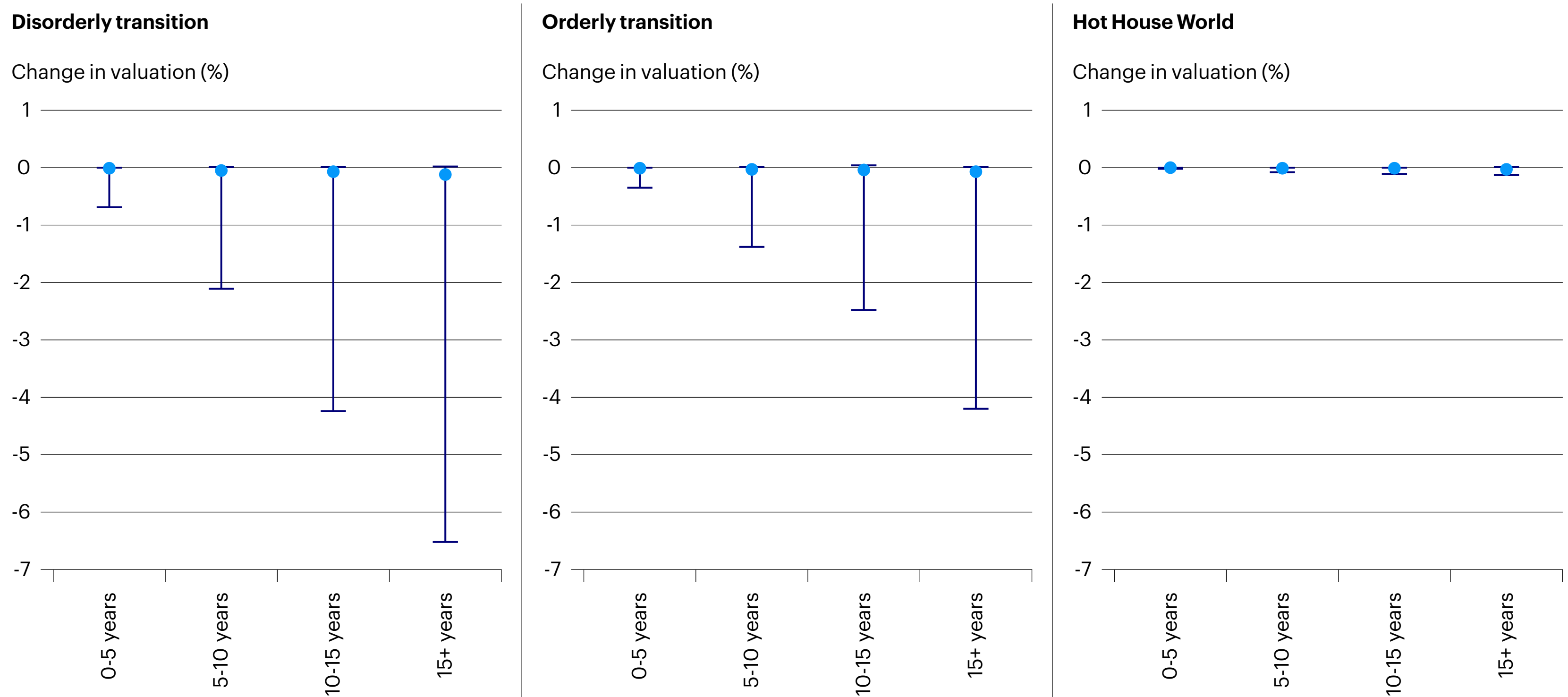
Valuation impacts for Invesco's corporate bond holdings are driven by companies' individual exposures and bonds' duration in all three scenarios. Median impacts are small (<1%) in all scenarios and for all durations, but for a relatively small number of companies the impacts are significantly larger.

As shown below, impacts are greatest in the Disorderly scenario, where companies in highly exposed sectors experience the deepest reductions in profitability. Impacts for long-dated bonds with maturities of more than 15 years in the future exceed -5% for the most affected companies.

Impacts are smallest for short-duration bonds and largest for long-duration bonds in all scenarios. This is a result of increased physical and transition risks over time.

Change in valuation (median, 10th percentile and 90th percentile) for corporate bonds by scenario and by duration to maturity

90th percentile
Median
10th percentile



Disorderly transition

	Median	10th percentile	90th percentile
0-5 years	-0.01	-0.69	0.00
5-10 years	-0.05	-2.11	0.01
10-15 years	-0.07	-4.24	0.01
15+ years	-0.12	-6.52	0.02

Orderly transition

	Median	10th percentile	90th percentile
0-5 years	-0.01	-0.35	0.00
5-10 years	-0.03	-1.38	0.01
10-15 years	-0.04	-2.48	0.04
15+ years	-0.07	-4.20	0.01

Hot House World

	Median	10th percentile	90th percentile
0-5 years	0.00	-0.02	0.00
5-10 years	-0.01	-0.08	0.00
10-15 years	-0.01	-0.11	0.00
15+ years	-0.03	-0.13	0.01

Source: Vivid Economics, as of 31 March 2021.

"

Short-duration bonds held by Invesco today present a low level of climate risk, but they could present risks in the future as we continue to roll over short-term exposures to any highly exposed counterparties. We will therefore need to proactively manage exposure over time.

Sovereign bond values experience a mix of positive and negative impacts across scenarios and maturities

Climate risks impact sovereign bond valuations through two channels. Physical and transition risks reduce economic output, and central banks tend to respond to these negative shocks by reducing interest rates to stimulate the economy.

Rises in carbon prices also drive inflation. Increased inflation tends to lead central banks to lower interest rates. Our sovereign bond modelling captures the dynamics of base interest rate changes driven by central banks optimizing policy between rising inflation and contracting GDP.

The impact of these opposing trends depends on individual countries' macroeconomic fundamentals. For countries whose economies are highly exposed to transition risks, such as some oil-producing nations, the impact on GDP will dominate. For economies heavily dependent on the consumption of fossil fuels – particularly in the later years of the Orderly and Disorderly scenarios where carbon prices are highest – the inflation effect will dominate.

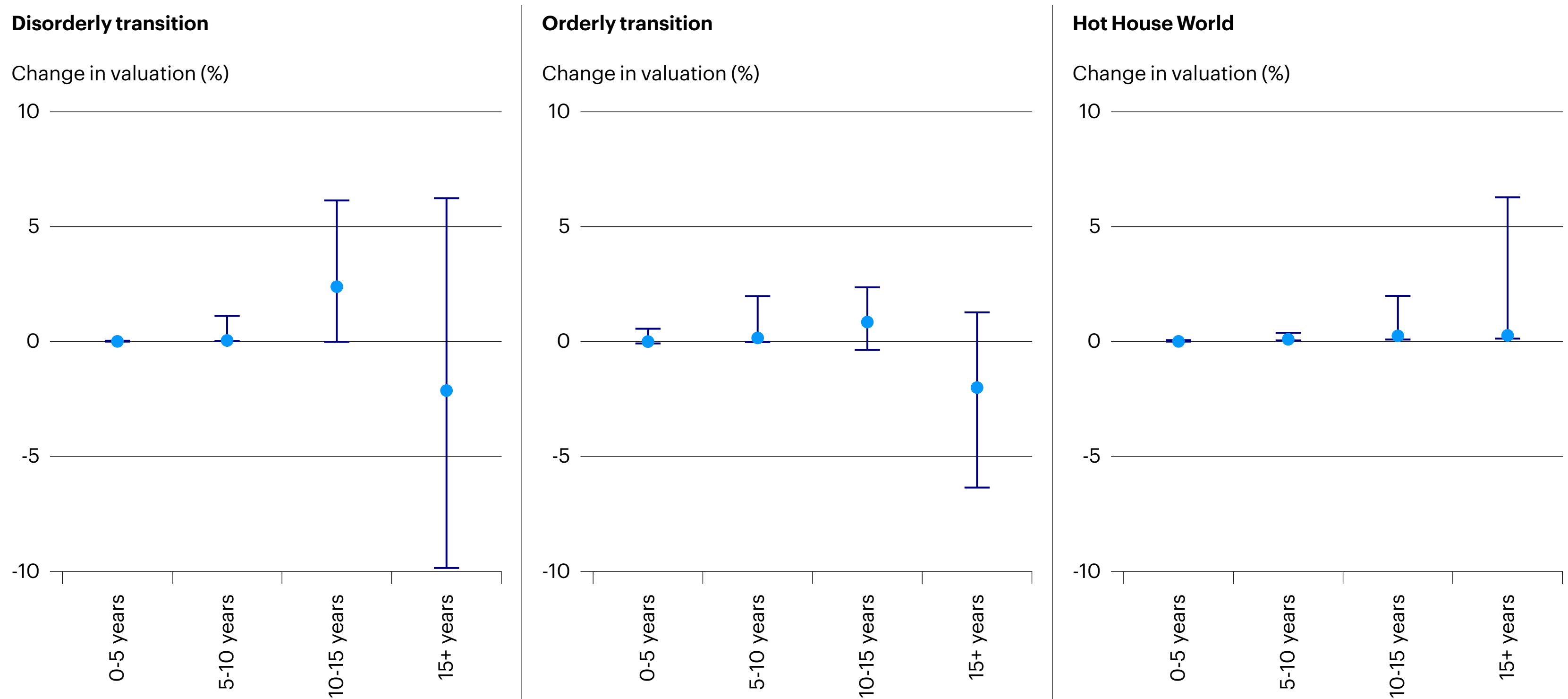
As with corporate bonds, impacts for sovereign bonds are largest in the later years of the scenarios. This is when physical and transition risks are greater.

“

Sovereign bond valuations are sensitive to climate risks. They can increase or decrease, depending on countries' exposure to these risks and the approach to their management.

Change in valuation (median, 10th percentile and 90th percentile) for sovereign bonds by scenario and by duration to maturity

90th percentile
Median
10th percentile



Disorderly transition

	Median	10th percentile	90th percentile
0-5 years	0.01	0.00	0.04
5-10 years	0.05	0.02	1.12
10-15 years	2.39	-0.01	6.14
15+ years	-2.13	-9.85	6.24

Orderly transition

	Median	10th percentile	90th percentile
0-5 years	0.00	-0.08	0.56
5-10 years	0.16	-0.02	1.98
10-15 years	0.85	-0.36	2.36
15+ years	-2.00	-6.35	1.27

Hot House World

	Median	10th percentile	90th percentile
0-5 years	0.01	0.00	0.06
5-10 years	0.10	0.05	0.38
10-15 years	0.25	0.09	1.99
15+ years	0.27	0.13	6.28

Source: Vivid Economics, as of 31 March 2021.

5.0

Risk management

In this chapter we describe our processes for identifying, assessing and managing climate-related risks. We also explain how these processes are integrated into Invesco's overall risk management.


Image source: AdobeStock.

"Our risk management framework ensures we maintain the integrity of our company, our financial statements, our compliance with law and ethics, and our relationships with stakeholders."

5.1 Enterprise risk

Image source: Invesco.

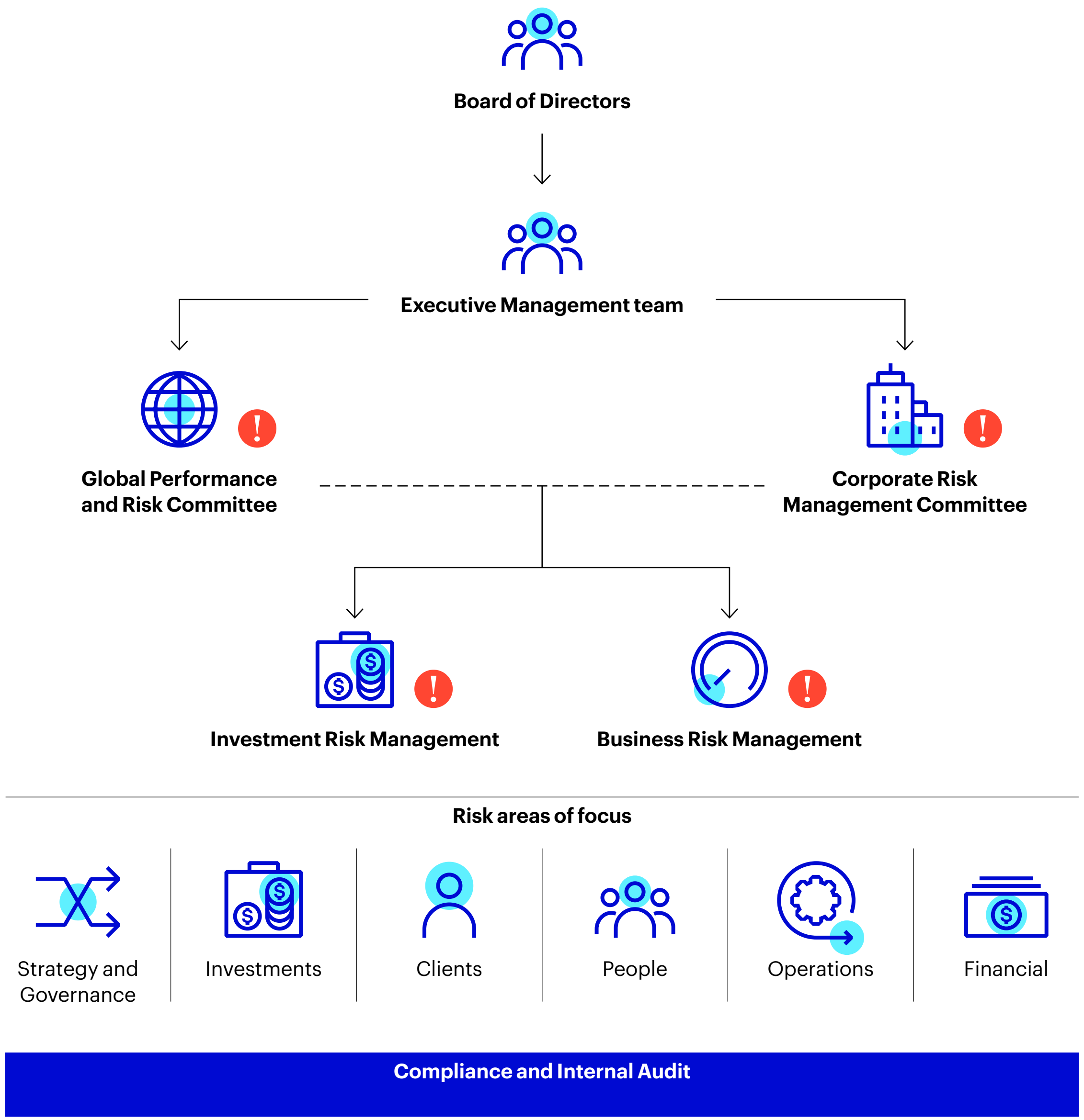
As noted in the preceding chapters on strategy, the primary vectors through which climate risks are likely to impact our business are existing risk factors. In particular, these include investment risk and changing client preferences, as well as operational risk, regulatory risk and reputational risk.

Our enterprise risk management framework structures our investment and business risk management, with particular focus on areas such as strategy, governance, investments, clients, people and operations. Our Executive Management team, with oversight from the Board, has principal responsibility for our risk management processes and for understanding the company's overall risk profile.

Ultimately, our enterprise risk management framework helps ensure we maintain the integrity of our company, our financial statements, our compliance with law and ethics, and our relationships with stakeholders – including clients and other business partners.

> Our enterprise risk management framework ensures we maintain the integrity of our company, our financial statements and our relationship with stakeholders.

Our enterprise risk management framework



Source: Invesco.

5.2 Investment risk

5.2.1 Our three lines of defense

Access to climate-related and carbon-related data is essential to our investment risk process. All investment centers have access to such data, either directly or through our ESG Data team.

Our Global ESG team also screens the full range of Invesco holdings to identify companies that are high-risk from the perspective of decarbonization. We use Sustainalytics, a carbon analysis screening tool, to ensure we focus our climate-related engagement efforts, which continued to be scaled up during the period covered in this report.

Our approach to climate-related investment risk can be thought of in terms of three separate lines of defense:

1. Our first line of defense comprises our Portfolio Managers and Analysts, who assess climate-related issues for their respective asset classes. They draw on available data as an input to their proprietary ESG rating methodologies to augment other ESG metrics already used by investors.

   Sourced from various data providers, external scores may also be used by investment teams that analyze climate change risk. The main providers are Sustainalytics, Customer Data Platform, Institutional Shareholder Services (ISS), MSCI and the Climate Bond Initiative. Customer Data Platform also offers research to complement that available from sell-side brokers.

   An assessment may lead to dedicated engagement with a company or issuer. As mentioned in section 2.2, some investment teams are also integrating ESG and climate risks into their formalized CIO oversight processes.

2. Our second line of defense includes our functions and teams dedicated to investment compliance. These provide monitoring and oversight of all ESG risk, including climate change risk.

3. Our third line of defense takes the form of periodic independent reviews of our ESG practices conducted by the Internal Audit department.

   Internal Audit provides the entire organization with independent, objective assurance and advisory services that are designed to add value and improve the Company's operations by bringing a systematic and disciplined approach to evaluate and improve the effectiveness of risk management, control, and governance processes. It enhances the integrity, consistency, and quality of our ESG practices and provides risk advice to the Global ESG team.

5.2.2 Case study

Henley ESG oversight process

The ESG oversight process used at our Henley Investment Centre features two key stages:

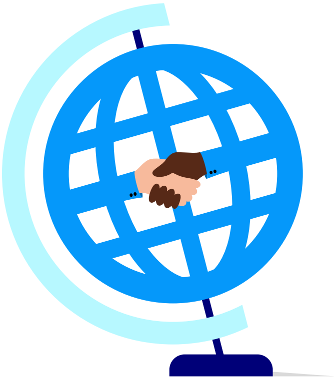
1. The **ESG Review** is a semi-annual process that is built around a meeting of Portfolio Managers and Analysts. It examines the ESG aspects of portfolios and includes discussions on carbon emissions and intensity at the portfolio level, as well as assessments of high-emitting issuers.

2. The **CIO Challenge** is a formal review meeting that is held at least once a year between the CIO and each Portfolio Manager. Our Investment Oversight team prepares a detailed review of a Portfolio Manager's portfolio prior to the meeting. The review includes a full breakdown of ESG performance, including in relation to carbon intensity, and analyzes a portfolio manager's overall level of ESG integration.

Image sources: Invesco.

"Our disciplined approach aims to evaluate and improve the effectiveness of risk management processes and enhances the integrity, consistency and quality of our practice.

5.3 Regulatory risk



5.3.1 Key areas of emerging regulation

Regulation around climate change and sustainable finance continues to grow at pace. EMEA has traditionally been a leader in this space, although developments in many jurisdictions in the Asia Pacific region are also evolving notably rapidly.

Importantly, moves toward greater international convergence are now taking shape. While the specificities of each regime reflect local requirements, there are three broad areas of emerging regulation that are evolving around the globe:

Climate and sustainability reporting
Regulatory efforts are increasingly aimed at improving corporate disclosures of climate and sustainability issues. These efforts include proposals to agree global standards under the auspices of the International Financial Reporting Standards Foundation (IFRS) and building on TCFD recommendations. As a listed issuer and as an investor, and therefore a preparer and user of such information, Invesco has a keen interest in these developments.

ESG disclosures
Regulation is increasingly focusing on ensuring ESG product disclosures to clients are fair and clear. Moves in this regard include the EU's Sustainable Finance Disclosure Regulation and the US Securities and Exchange Commission's work on the Fund Names Rule and Climate Change Disclosures.

Taxonomies
There is growing interest in taxonomies as a means to define and channel environmentally sustainable investments. The EU's sustainable finance taxonomy and China's green finance catalogue are currently the most developed, but there is increasing interest from other jurisdictions – including the UK, Singapore and Hong Kong – and discussions to bring about convergence under the auspices of the International Platform on Sustainable Finance are under way. We are monitoring developments in this field and seeking to engage with regulators and policymakers where appropriate.

5.3.2 Case study

SFDR implementation and climate indicators

Invesco has successfully implemented the Level 1 requirements of the EU's Sustainable Finance Disclosure Regulation. These came into effect on 10 March 2021. We are also working to address the Level 2 requirements set out in the European Supervisory Authority's Regulatory Technical Standards (RTS), released in February 2021, as well as related changes to UCITS, AIFMD and MiFID.

We have a multi-function project group governing and executing the implementation of SFDR at product and firm levels, with a Principal Adverse Impact (PAI) workstream tasked to deliver on PAI requirements. Invesco is subject to the mandatory application of PAI (for entities with more than 500 employees) and will therefore be required to report on PAI from 30 June 2021 at an entity level and from 31 December 2022 at a product level.

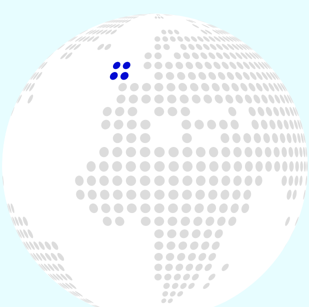
Image source: AdobeStock.

ESG around the world

While the EU is currently a leader when it comes to developing its sustainability regulatory framework, other jurisdictions are not far behind. However, a lack of consistency between different jurisdictions is likely to make the sustainable finance landscape increasingly complex. To address this issue, we are now seeing a number of international initiatives underway to foster convergence and global consistency.

United Kingdom
Post-Brexit, the UK will not apply the EU's Sustainable Finance Disclosures Regulation, but it has onshored the Taxonomy and Climate Benchmarks Regulations. The UK has announced that it aims to match the ambition of the EU when it comes to Sustainable Finance, starting with a core focus on climate issues in the run up to the COP26 Climate Change Conference. This will include:

- Mandating TCFD disclosures across the economy by 2025
- Implementing a UK Taxonomy, based on the science-based metric set out in the EU regulation
- Issuance of Green Gilts

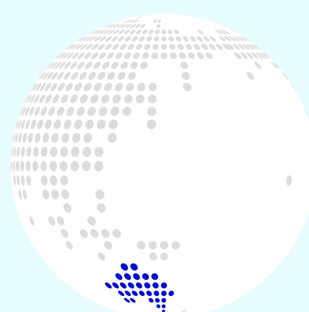


United States
With the election of President Biden, there are high hopes that the new administration will reverse many of the Trump-era rules aimed at curtailing ESG investing. It is expected that the new administration will focus on introducing new disclosures, including:

- Corporate disclosure mandates for public company issuers on material ESG issues
- Asset manager disclosures mandates and enhanced due diligence for funds
- Disclosure mandates for other market participants, including credit ratings agencies, proxy advisory firms, index providers and exchanges
- Standards and Taxonomy to enhance comparability of disclosures

Australia
Australia's Sustainable Finance Roadmap was published in November 2020 and includes 37 recommendations around four themes:

- Embedding sustainability in leadership
- Embedding sustainability in practice
- Building sustainable financial markets
- Enabling resilience for all Australians



Canada
The Final Report by the Expert Panel on Sustainable Finance published in 2019 included 15 recommendations falling under three pillars:

- Defining the Opportunity
- Foundations for Market Scale
- Financial Products and Markets for Sustainable Growth

The aim of the actions is to mainstream sustainable finance in Canada and develop and scale market structures and financial products that could offer transformative economic benefit in building a low-emissions, climate-smart future.

Hong Kong
Hong Kong has established a Cross-Agency Steering Group on Green and Sustainable Finance, and in December 2020 set out its six strategic focus areas:

- Strengthening climate-related financial risk management
- Promoting the flow of climate-related information at all levels to facilitate risk management, capital allocation and investor protection
- Enhancing capacity building for the financial services industry and raising public awareness
- Encouraging innovation and exploring initiatives to facilitate capital flows towards green and sustainable causes
- Capitalising on Mainland opportunities to develop Hong Kong into a green finance centre in the Guangdong-Hong Kong-Macao Greater Bay Area
- Strengthening regional and international collaboration

Mandatory principal adverse impact indicators

Corporate issuers

- Total GHG emissions, plus GHG emissions split by Scope 1, Scope 2 and Scope 3
- Carbon footprint
- GHG intensity of investee companies
- Share of investments in companies active in the fossil fuel sector
- Share of non-renewable energy consumption and non-renewable energy production of investee companies from non-renewable energy sources compared to renewable energy sources, expressed as a percentage
- Energy consumption in GWh per million EUR of revenue of investee companies, per high impact climate sector
- Share of investments in investee companies with sites/operations located in or near to biodiversity-sensitive areas where activities of those investee companies negatively affect those areas
- Tonnes of emissions to water generated by investee companies per million EUR invested, expressed as a weighted average
- Tonnes of hazardous waste generated by investee companies per million EUR invested, expressed as a weighted average
- Share of investments in investee companies that have been involved in violations of the UNGC principles or OECD Guidelines for Multinational Enterprises
- Share of investments in investee companies without policies to monitor compliance with the UNGC principles or OECD Guidelines for Multinational Enterprises or grievance/complaints handling mechanisms to address violations of the UNGC principles or OECD Guidelines for Multinational Enterprises
- Average unadjusted gender pay gap of investee companies
- Average ratio of female to male board members in investee companies
- Share of investments in investee companies involved in the manufacture or selling of controversial weapons

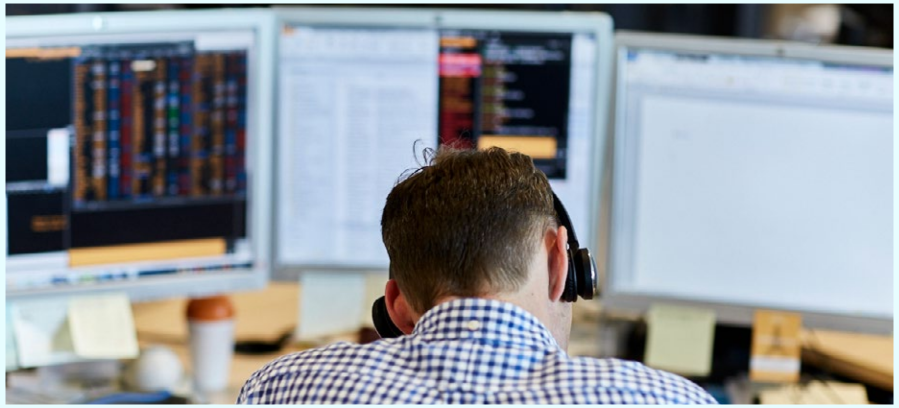


Image source: Invesco.

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We recognize principal adverse impacts relating to environmental, social and employee matters, respect for human rights, anti-corruption and anti-bribery matters can impact long-term value creation.

Sovereign issuers

- GHG intensity of investee countries
- Number of investee countries subject to social violations (absolute number and relative number divided by all investee countries), as referred to in international treaties and conventions, United Nations principles and, where applicable, national law

Real estate

- Share of investments in real estate assets involved in the extraction, storage, transport or manufacture of fossil fuels
- Share of investments in energy-inefficient real estate assets

Level 1 requirements
The European Commission has expressed the view that firms may rely on existing non-financial disclosures under the Non-Financial Reporting Directive or other international standards for Level 1 reporting on PAIs at an entity level. We therefore plan to leverage our existing disclosures – including our CR, ESG Investment Stewardship and Climate Change Reports – as a basis for disclosures under Article 4.[17]

Level 2 requirements
To enable us to meet the regulations' objectives and our clients' needs, Invesco's PAI workstream is considering and implementing against the Level 2 PAI requirements. This project is engaged in data analysis and liaison with data vendors to review the PAI indicators outlined in the RTS; defining the products in scope to consider PAIs; reviewing our policies to incorporate requirements; ensuring we have robust processes in place to deliver against policy; updating our prospectuses with pre-contractual disclosures; and refining our processes to meet periodic reporting requirements.

[17] We published a PAI statement by the regulatory deadline of 30 June 2021.

Looking ahead
While Invesco has adopted high-level regulatory compliance as suggested by the European Commission in relation to ESG products under Article 8 and PAIs, we are already working to meet the needs of clients and to satisfy requirements stipulated in the RTS. Our main tasks are:

- Address entity-level disclosures under SFDR Article 4 and product-level disclosures under SFDR Article 7, taking into account the detailed requirements specified in Chapter II of the RTS
- Address the pre-contractual and website disclosure requirements for Article 6, 8 and 9 products under Chapters III and IV, as well as product disclosures in periodic reporting for Article 8 and 9 products under Chapter V
- Conduct impact analysis of the requirements on existing processes and subsequently consider data requirements and mapping; update pre-contractual, website and periodic reporting templates; and ensure robust processes are in place to execute on requirements ahead of regulatory timelines
- Assess, review and update product governance processes and procedures, including target market analysis, to take account of sustainability risks and issues of sustainability preferences to ensure we continue to provide products that meet clients' needs
- Address the requirements under UCITS, AIFMD and MiFID to ensure that risk management oversight policies are updated to take account of sustainability risks and that robust processes are in place to implement policy
- Address Conflict of Interest and organizational requirements under UCITS, AIFMD and MiFID and further support other workstreams to achieve necessary governance approvals for their activities and deliverables

6.0

Metrics & targets

In this chapter we outline the metrics we use to assess climate-related risks and opportunities in line with our strategy and our processes for risk management. We also provide details of our emissions and the related risks. Finally, we describe the targets Invesco uses to manage climate-related risks and our performance against these.

"Our aim is to increasingly align these environmental metrics with the journey towards net zero."

6.1 Metrics

6.1.1 ESGintel focus metrics

As noted in section 3.4, climate-related metrics constitute an essential element of our ESG integration process. They are central to our proprietary rating tool, ESGintel, which is used by investment teams across Invesco.

The illustration opposite shows how topics relevant to climate change in particular and the environment more broadly fit into ESGintel's suite of focus metrics. As mentioned previously, our aim is to increasingly align these environmental metrics with the journey towards net zero.

ESGintel key performance indicators

Environmental
Social
Governance

Toxic Emissions
Annual nitrogen oxide, sulfur dioxide, and particulate matter emissions intensity

Circular Business Model
Input recycled materials, waste recycling rate and waste generated intensity

Energy Management
Clean energy usage and energy use intensity

Water Management
Water recycling rate, water consumption intensity and operations in water scarce areas

Low Carbon Transition
Science-based target reduction data set, transition pathway initiative assessment

Climate Change
Carbon Disclosure Project (CDP) grade, carbon scope 1, 2, 3 emissions intensity

Environmental Management System
Percentage of sites ISO 14001 certified and cost of environmental fines per sales

Supply Chain Management
Social controversies in supply chain

Diversity
Gender pay gap amongst senior management, equal opportunity policy, women in management compared to workforce

Employee/ Management Relations
Employees unionized or collective bargaining, labor relations controversies

Health and Safety
Lost time injury frequency rate, employee and contractor fatalities, health and safety controversies

Workforce Retention
Total hours of employee training, employee turnover rate

Product Quality and Safety
Product safety and quality controversies, quality management system, customer complaints

Data Privacy and Security
Data privacy policy, data privacy and security controversies

Compensation and Alignment
Average vesting period for equity awards, egregious pay practices, relative pay quantum concern, and E&S metrics linked to incentive plans

Audit and Shareholder Rights
Audit committee independence, material weakness in internal controls, unequal voting or board appointment rights

Board Composition
Board independence, gender diversity at board level, chair independence status

Business Ethics
Anti-bribery and corruption policy, percent of revenues in high level corruption countries, lobbying and bribery controversies, anti-competitive controversies, tax and accounting controversies

Capital Allocation
5-year cash ROIC

Source: Invesco.

"

Climate-related metrics constitute an essential element of our ESG integration process.

6.1.2 Emissions metrics

We use carbon emission indicators both as part of the climate toolkit incorporated into our overall ESG analysis and as part of our investment solutions focused on decarbonization strategies. We also engage with investee companies to gain enhanced disclosure of emissions data, to investigate their activities and plans in relation to energy transition and to monitor their progress.

Our approach in many strategies seeks to encourage investee companies to follow a path of decarbonization. We are currently augmenting our climate change engagement with clients and investee companies and designing solutions that can potentially reduce carbon emissions while enhancing investment performance.

The following metrics form part of our client reporting at present:

- Weighted average carbon emissions (Scope 1, Scope 2 and Scope 3) at portfolio level versus benchmark
- Weighted average carbon intensity (Scope 1 and Scope 2) at portfolio level versus benchmark

In IFI reports we disclose all Scope 1, Scope 2 and Scope 3 carbon intensities separately.

In addition to the above, we have the following analytical capabilities built into FactSet:

- Weighted average carbon emissions (Scope 1, Scope 2 and Scope 3) at sector level versus benchmark
- Weighted average carbon intensity (Scope 1, Scope 2 and Scope 3) at sector level versus benchmark
- Identification of top issuers with highest carbon intensity
- Time series for weighted average carbon emissions (Scope 1, Scope 2 and Scope 3) and weighted average carbon intensity (Scope 1 and Scope 2) at portfolio level versus benchmark
- Statistics on issuers in portfolio and benchmark based on climate emissions, Science-Based Targets commitments and physical/transition risk

6.1.3 Principal Adverse Impact metrics

As discussed in section 5.3.2, Invesco is already considering and implementing against the Principal Adverse Impacts outlined in the European Supervisory Authority's Regulatory Technical Standards. The table below details the relevant metrics.

Overview of core PAI metrics

Applicability	Category	Adverse Sustainability Indicator	#	Sub-Adverse Sustainability Indicator	Metric
Indicators applicable to investments in investee companies	Climate and other environment-related indicators	Greenhouse gas emissions	1	GHG Emissions	Scope 1 GHG emissions
					Scope 2 GHG emissions
					From January 2023, Scope 3 GHG emissions
					Total GHG Emissions
			2	Carbon footprint	Carbon footprint
			3	GHG intensity of investee companies	GHG intensity of investee companies
			4	Exposure to companies active in the fossil fuel sector	Share of investments in companies active in the fossil fuel sector
			5	Share of non-renewable energy consumption and production	Share of non-renewable energy consumption and non-renewable energy production of investee companies from non-renewable energy sources compared to renewable energy sources, expressed as a percentage
			6	Energy consumption intensity per high impact climate sector	Energy consumption in GWh per million EUR of revenue of investee companies, per high impact climate sector
		Biodiversity	7	Activities negatively affecting biodiversity-sensitive areas	Share of investments in investee companies with sites/operations located in or near to biodiversity-sensitive areas where activities of those investee companies negatively affect those areas
		Water	8	Emissions to water	Tonnes of emissions to water generated by investee companies per million EUR invested, expressed as a weighted average
		Waste	9	Hazardous waste ratio	Tonnes of hazardous waste generated by investee companies per million EUR investee, expressed as weighted average
	Social and employee respect for human rights, anti-corruption and bribery matters	Social and employee matters	10	Violations of UN Global Compact principles and Organisation for Economic Cooperation and Development (OECD) Guidelines for Multinational Enterprises	Share of investments in investee companies that have been involved in violations of the UNGC principles or OECD Guidelines for Multinational Enterprises
			11	Lack of process and compliance mechanisms to monitor compliance with UN Global Compact principles and OECD Guidelines for Multinational Enterprises	Share of investments in investee companies without policies to monitor compliance with the UNGC principles or OECD Guidelines for Multinational Enterprises or grievance/complaints handling mechanisms to address violations of the UNGC principles or OECD Guidelines for Multinational Enterprises
			12	Unadjusted gender pay gap	Average unadjusted gender pay gap of investee companies
			13	Board gender diversity	Average ratio of female to male board members in investee companies
			14	Exposure to controversial weapons (anti-personnel mines, cluster munitions, chemical weapons and biological weapons)	Share of investments in investee companies involved in the manufacturing or selling of controversial weapons
Indicators applicable to investments in sovereigns and supranationals	–	Environmental	15	GHG intensity of investee companies	GHG intensity of investee countries
	–	Social	16	Investee countries subject to social violations	Number of investee countries subject to social violations (absolute number and relative number divided by all investee countries), as referred to international treaties and conventions, United Nations principles and, where applicable, national law
Indicators applicable to investments in real estate assets	–	Fossil fuels	17	Exposure to fossil fuels through real estate assets	Share of investments in real estate assets involved in the extraction, storage, transport or manufacture of fossil fuels
	–	Energy efficiency	18	Exposure to energy-inefficient real estate assets	Share of investments in energy-inefficient real estate assets

Source: Invesco.

6.2 Targets

6.2.1 Investment level

Invesco has set the following investment-level targets in relation to its efforts to address climate change:

- By March 2022 at the latest, in line with our NZAMI commitment, we will present our plans for achieving net zero for the proportion of assets under management identified as aligned with this target. We are currently working with our investment teams and clients to define the proportion of assets under management to be managed toward the global goal of attaining net zero by 2050.
- We continue to aim to have 100% of investments fully ESG integrated by 2023. In 2020, we reached the milestone of 75% of investments being ESG integrated.[18]
- We are defining our targeted climate-related engagement activities through focus lists and the Climate Action 100+ program, and we are continuing to increase the number of investee entities with which we engage along these lines.
- We are fully equipped to carry out climate scenario analysis with regard to equities, corporate and sovereign bonds and real estate investments. In 2019, we aimed to define criteria for the selection of relevant portfolios covered by scenario analysis by 2023. As a result, all our investment solutions can use scenario analysis for assessment and management purposes.
- In 2019, we aimed to include climate-related metrics in client reporting by 2023. The majority of client reporting now already includes carbon metrics and can also include scenario analysis.

The table opposite shows progress against the targets we set in 2019.

[18] Invesco uses an internal framework to measure the level of ESG considerations as an influence in investment decision-making. Currently approximately 75% of Invesco's investment teams have attained the ESG integration level defined as minimal but systematic integration.

Progress on 2019 investment-level targets

	ESG integration and engagement	Scenario analysis	Client reporting
Target for 2023	ESG integration in 100% of our AUM in the next three years; targeted Climate Engagement through focus list and 'CA100+' program	Define criteria for selection of relevant portfolios covered by scenario analysis by 2023	Inclusion of climate-related metrics into client reporting by 2023
Target	Majority of our current AUM integrates ESG at some level; CA100+ targeted Climate Engagement with 7 companies	Global Equities and Global Corporate Bond Scenario Analysis and selected funds pilot scenario analysis	Majority of client reporting has carbon metrics

Source: Invesco.

We continue to aim to have

100%

of investments fully ESG integrated by 2023

Image source: Invesco.

6.2.2 Real estate specific

Invesco Real Estate has fully embraced the goal of achieving net-zero emissions by 2050. This commitment is outlined in full in our Global Real Estate ESG+R Report 2020.[19]

Our ongoing efforts include measuring and regularly reporting buildings' energy, emissions, water and waste levels. A key aim of these and other processes is to continuously improve performance across our managed portfolios.

We have established a number of targets at property level, and these are reviewed at least annually.

They include the following:

- We intend to reduce energy use and emissions by 3% per year over 10 years. This target is aligned with the Paris Agreement's overarching objective of limiting global warming to well below 2ºC above pre-industrial levels
- We intend to reduce water consumption by 1% a year
- We intend to increase the rate of waste diversion by 1% a year

[19] Our Global Real Estate ESG+R Report 2020 is available on Invesco's regional websites.

6.2.3 Invesco corporate

As part of its wide-ranging efforts to address climate change, Invesco continues to set, review and work towards a variety of targets at corporate level. These encompass considerations such as green building certifications, emissions, energy use and numerous other environmental indicators. The table opposite shows a number of our metrics for 2020 that form part of a new 2019 baseline to better align our reduction targets with science-based methodologies.

During the process of setting a new 2019 baseline, a review of the Invesco corporate properties portfolio confirmed that all leases fall under the 'operating lease' category. This means emissions associated with the fuel consumed and electricity purchased at these sites fall into scope 1 and 2 boundaries respectively. This has resulted in the number of sites reporting in the scope 1 and 2 boundary increasing from Invesco's 15 largest sites to all 120 sites, an increase to 2,670,241 sqft from 1,616,495 sqft (a 65% increase). Additionally, this baseline now includes an increased set of scope 3 reporting categories. The scope 3 categories now reported are: Purchased goods and services, Capital goods, Waste generated in operations, Business travel, and Employee commuting (including working from home).

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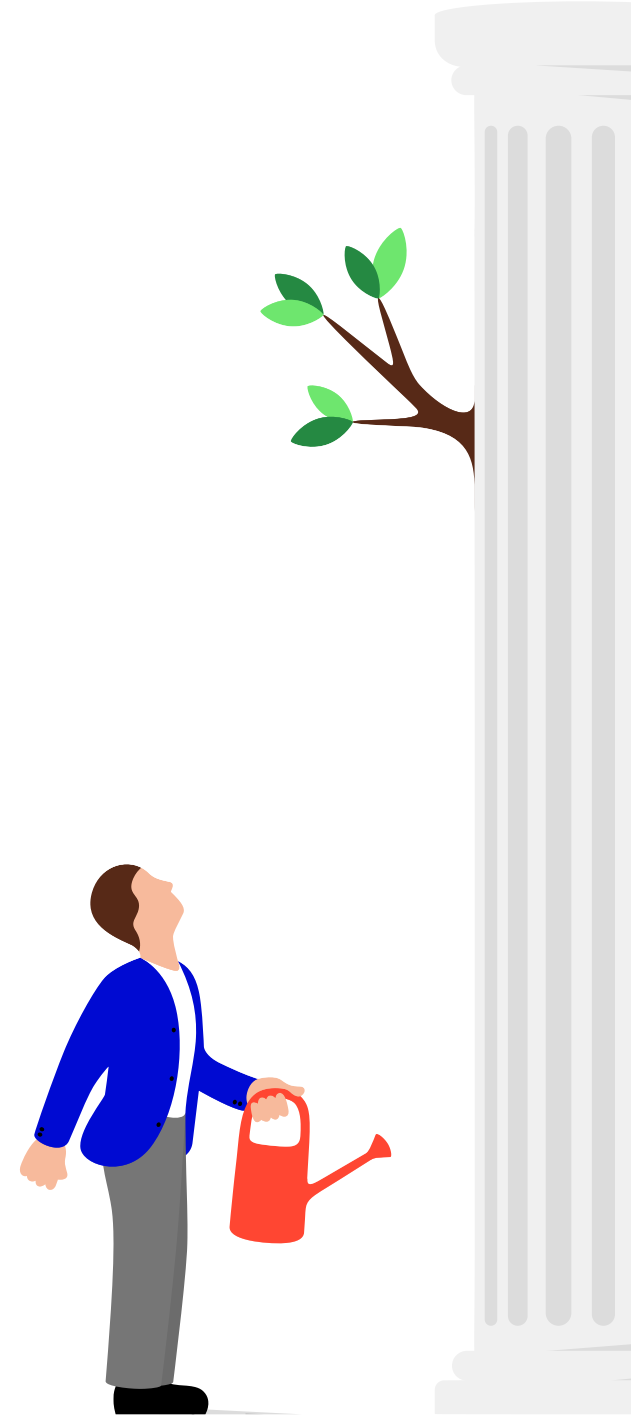
At Invesco, we're committed to reducing our impact on the environment, and we work hard to ensure our people, our buildings and our operations are aligned to our goals.

Our corporate metrics on climate change, 2019-2020[20]

		2020
Environmental Indicators[21, 22, 23, 25]		
Organization	Number of LEED certifications	5
	Employees working from ISO 14001 registered locations	72%
Greenhouse gas emissions and energy	Total energy consumed (MWh)[24]	69,742
	Scope 1 (tCO_2e)	2,166
	Scope 2 (Location based) (tCO_2e)	31,064
	Scope 2 (Market based) (tCO_2e)	31,455
	Scope 3 (Exc. Investments) (tCO_2e)	293,602
Waste	Waste to landfill (tonnes)	92
	Waste to combustion (tonnes)	189
	Waste to unknown disposal (tonnes)	3
	Composted (tonnes)	20
	Closed-loop recycling (tonnes)	68
	Open-loop recycling (tonnes)	38
Water	Water withdrawn (m^3)	74,673
	Water recycled (m^3)	2.4
	Water discharged (m^3)	13,076

20 This was a result of ongoing energy efficiency initiatives at our offices, as well as significantly less corporate energy usage and travel, due to COVID-19.
21 GHG emissions and other environmental information reported in this table represents data for entities under operational control of Invesco. The definition of operational control is consistent with that used by the GHG Protocol; a company has operational control over an operation if the former or one of its subsidiaries has the full authority to introduce and implement its operating polices at the operation.
22 Energy metrics do not include OppenheimerFunds offices. These are not ISO 14001 certified facilities, and they did not have the resources in place at the time of reporting to provide the necessary data for the calculations.
23 2017 and 2018 quantitative environmental information was updated to incorporate the same facilities as 2019 and therefore are not the same amounts disclosed in our 2018 CSR report.
24 MWh=megawatt hour.
25 Invesco will report environmental data from a 2019 baseline, moving forward, so that we can align with SBTi at our corporate properties.



7.0

Addressing climate change at operational level

In this chapter we offer a concise overview of the operational-level steps Invesco takes to address issues related to climate change. Full details can be found in our 2020 Corporate Responsibility Report, as originally referenced in section 1.4.

"We prioritize operating methods that not only make Invesco a great place to work but also minimize our impact on the environment."

7.1 Our Environmental Management System

By continually reducing its environmental footprint and operating responsibly, Invesco makes its operations more sustainable both today and for the future. We carefully manage our activities with a focus on using natural resources wisely, increasing efficiencies wherever possible and providing a safe and healthy workplace for our employees and visitors.

We have a relatively small environmental footprint in comparison to businesses in many industries. As discussed in detail earlier in this report, our greatest opportunity for impact is through the management of our investments and engagement with portfolio companies – efforts that are in the best interests of not only our business and employees but our clients, shareholders and the communities in which we operate.

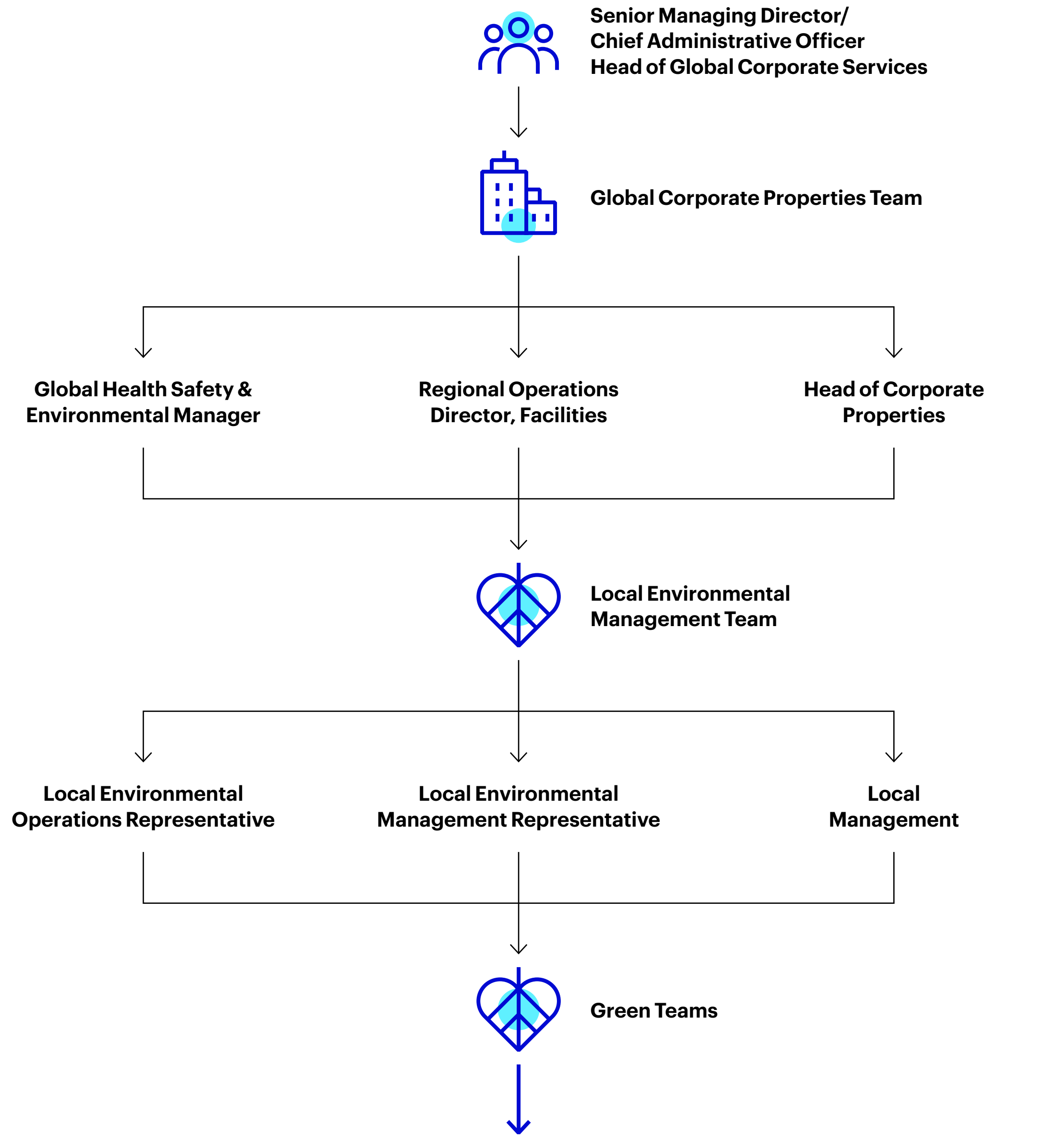
Image source: AdobeStock.

We have an Environmental Management System (EMS) that serves as a framework for how we manage our environmental impact at our office locations, as well as globally. Our EMS meets ISO 14001 requirements and other relevant compliance obligations and is subject to annual internal review. Its governance structure is shown in the illustration opposite.

Invesco also uses an independent consultant, S2 Partnership Ltd, and its IT operating platform, RiskWise, to perform audits on all its facilities around the world. These audits assess safety risk and ensure our operations are in line with local regulations and international best practice. In 2020 99.5% of risks were deemed controlled.

> By continually reducing its environmental footprint and operating responsibly, Invesco makes its operations more sustainable both today and for the future.

Our EMS governance structure



Source: Invesco.

7.2 Our environmental priorities

We prioritize operating methods that not only make Invesco a great place to work but also minimize our impact on the environment. We have a policy outlining global environmental commitments and targets – including goals for reducing energy use and carbon emissions – and actively measure our progress to ensure we meet them.

The table opposite summarizes our commitments and our progress from 2019 to 2020.

Meeting our environmental commitments

Commitments	2020 Status
Retain Global ISO 14001: 2015 Certification.	Global ISO 14001: 2015 Certification retained. As of 2020, 70% of our offices across the globe are ISO 14001.
Reduce Our energy use and emissions output in line with Science Based Targets by 4.2% year on year, by 46% by 2030, to mitigate the effects of climate change.	As a result of the global pandemic, most of our offices across the globe were closed, resulting in a decrease in scope 1, 2 & 3 emissions, pertaining to our corporate properties. **2019 – 2020:** 15% reduction The absolute emissions reduction in 2020 is 15% compared to the previous year and 9% or 10% when normalised by staff numbers or asset space respectively.
Continue To offset Scope 3 corporate air and rail travel emissions.	To offset the Scope 3 emissions we create due to our corporate travel, Invesco partners with ClimateCare, an environmental and social impact company known for providing carbon offset services with a focus on using results-based finance to support its projects. Invesco currently supports two ClimateCares projects that offset 5,426 tCO_2e (tons of carbon dioxide equivalent) in 2020. **Rimba Raya Biodiversity Reserve in Indonesia** VCS (Verified Carbon Standard) The Reserve had been slated by the regional government for conversion to four palm oil estates. By obtaining tenure rights to the area for the 30-year lifetime of the project, the Reserve is working to protect around 160,000 hectares of tropical rainforest and peat swamp. This project is expected to reduce more than 130 million tonnes of CO_2 over its 30-year span. **Cookstove access with the Bangladesh Bondhu Foundation** Gold Standard Fewer than 20% of Bangladeshi households have access to clean cooking, instead using open fires that release pollutants into the environment and cause respiratory and other diseases. This project, which works with microentrepreneurs who receive training to help sell the stoves, is helping to build a market for clean, sustainable cookstoves in Bangladesh.
Engage In and support a minimum of two environmental and community events and initiatives per year.	Due to the COVID-19 pandemic, we engaged in fewer events than in previous years. However, some offices donated dry, tinned and perishable food to local foodbanks where their local restaurant/pantries were closed.

Source: Invesco.

Investment risks

The value of investments and any income will fluctuate (this may partly be the result of exchange rate fluctuations) and investors may not get back the full amount invested. Property and land can be difficult to sell, so investors may not be able to sell such investments when they want to. The value of property is generally a matter of an independent valuer's opinion and may not be realized.

The use of ESG criteria may affect the product's investment performance and therefore may perform differently compared to similar products that do not screen investment opportunities against ESG criteria.

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