

2022

Taskforce on Climate-related Financial Disclosures Report

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1.0

Introduction

In this chapter we provide an overview of Invesco and our organizational structure. We also provide the key takeaways from this report.



1.1 About 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 December 2022.

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 25 countries
- Solid financials, an investment-grade debt rating and a strong balance sheet

We are focused on executing our long-term strategy for the benefit of clients and our business. We continually invest in performance strength in high-demand capabilities that support improved flow strategy fundamentals, while driving greater scale and flexibility in our operating model to improve financial performance. We offer strategies across the full spectrum of asset classes tailored to the needs of institutional and retail investors. As well as equities, bonds and real assets, we have multi-asset strategies and liability-driven investments.

As a globally diversified asset manager, Invesco is well-positioned to support our clients' specific investment needs. Some of our clients want us to provide the means for them to explicitly express their own ESG values through investment vehicles. We are keen to bring our ESG expertise to support clients in developing ESG products, and we aim to be our clients' preferred ESG investment partner.

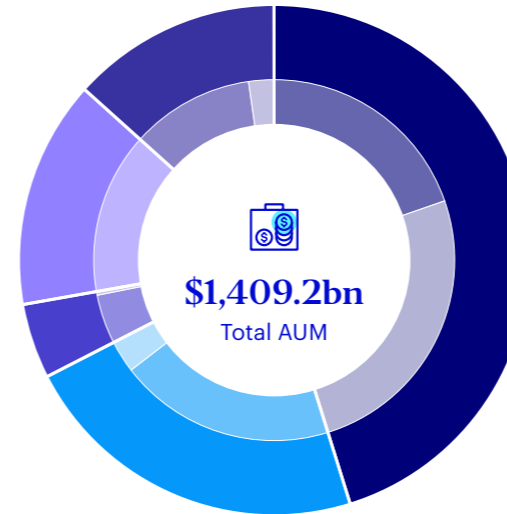
For more information on our commitment to adopting and implementing responsible investment principles in a manner that is consistent with our fiduciary responsibilities to clients, please visit [invesco.com/corporate/en/our-commitments/esg](https://www.invesco.com/corporate/en/our-commitments/esg).

We are diversified as a firm

Breakdown of AUM

(\$bn, as at 31 December 2022¹)

| | |
|---------------------|--------------|
| Equity | 637.0 |
| Active ² | 277.5 |
| Passive | 359.5 |
| Fixed Income | 313.7 |
| Active ² | 273.0 |
| Passive | 40.7 |
| Balanced | 67.1 |
| Active ² | 66.3 |
| Passive | 0.8 |
| Money Market | 203.5 |
| Active ² | 203.5 |
| Alternatives | 187.9 |
| Active ² | 155.9 |
| Passive | 32.0 |

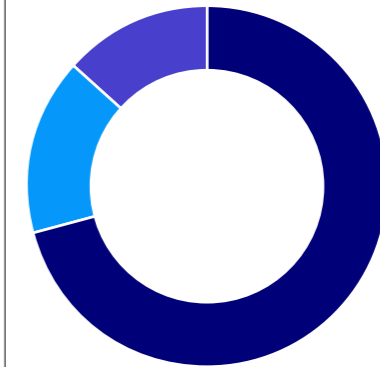


Geographic Breakdown of AUM

By Client Domicile Q4 2022

(\$bn, as at 31 December 2022¹)

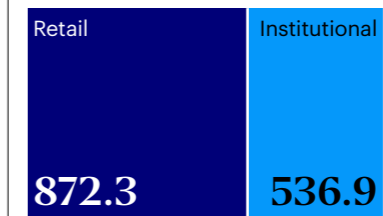
| | |
|-------------------|-------|
| Americas | 999.4 |
| Asia Pacific | 223.5 |
| EMEA ³ | 186.3 |



Channel Breakdown

Of our Client Base Q4 2022

(\$bn, as at 31 December 2022¹)



¹ Preliminary – subject to adjustment.

² Passive AUM includes index-based ETFs, UITs, non-fee earning leverage, foreign exchange overlays and other passive mandates. Active AUM are total AUM less passive AUM.

³ From the third quarter of 2022, UK is presented as part of EMEA. EMEA includes UK net long-term outflows of \$2.2 billion and \$12.9 billion for the three months and year ended 31 December 2022, respectively. Ending AUM of UK as of 31 December 2022 was \$44.4 billion.

1.2 About our 2022 TCFD Report

Invesco's fourth iteration of our TCFD Report seeks to build on our past experience and provide a comparable, investor-relevant disclosure on our activities and capabilities in climate-aware investing.



Key takeaways of this report include:

- Invesco has updated to the third vintage of climate scenarios developed by the Network for Greening the Financial System (NGFS) as the basis for our climate scenario analysis, which are comparable with the scenarios we used in our 2021 report but provide greater granularity.
- For the second year, we have conducted an additional analysis using the Inevitable Policy Response's (IPR) Forecast Policy Scenario. Commissioned by the UN Principles for Responsible Investment, this offers a high-confidence model of policy responses to delayed climate action for an alternative look at the possible impact this could have on the portfolios we manage on behalf of clients
- Within the 12% of our net zero-pledged AUM, we have engaged with 59% of issuers that comprise 70% of our financed emissions in material sectors for those strategies
- Our climate-aware investment capabilities continue to expand, with the launch of the following:
 - A new mixed-asset strategy aimed at supporting the transition to a low carbon economy over the medium to long term.
 - A passive strategy to capitalize on the hydrogen market by focusing on a broad exposure to innovative technologies seeking low-carbon hydrogen solutions.
 - Invesco Real Estate is targeting completion of its first carbon neutral re-development in its global portfolio.
 - Climate-aware Capital Market Assumptions intended to guide strategic asset while recognizing the impact physical and transition climate risks could have on assets during a 10-year period.



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 four interrelated dimensions.



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 where material to meet client investment objectives.

The Invesco Ltd. Board reviews its long-term strategic plan at least annually. Invesco's chief executive officer and the Invesco Ltd. Board of Directors have general supervisory oversight responsibility for the company's activities and policies. The Board is responsible for setting, maintaining and regularly reassessing policies and processes to manage the firm's overall exposure to risk.

Investment Centre coordination

Invesco operates 8 investment centres across the globe. In line with Invesco's investor-led approach, these investment centres operate in a decentralised manner, each with their own leadership reporting to various members of Invesco's Executive Leadership Team. This allows each investment centre the autonomy to develop, set and maintain an investment process and philosophy which helps them deliver the investment results our clients seek.

To coordinate our response to global movements, such as climate change, Invesco operates several working groups and councils with representatives from each investment centre. This allows us to share frameworks and standards across teams and asset classes whilst taking into account the diverse viewpoints and requirements of our investment professionals and their clients.

- **ESG Executive Steering Committee**
Where our leadership team provides broad coverage, guidance and discussion to investment teams, our ESG committee, with members from various investment and operational teams, targets ESG investment concerns. ESG factors are integrated by each investment team independently. This group, including the Global ESG team, fosters global collaboration on ESG issues among investment teams.
- **Climate Initiatives Working Group (CIWG)**
Our CIWG is an open forum led by our Global ESG Team that coordinates our response to and implementation of new climate initiatives, such as TCFD-informed disclosure obligations, SFDR and net zero. Common frameworks and tools can be agreed with input from our various affected stakeholders that can then be taken to our governing bodies for approval.
- **Regional ESG Working Groups**
We run regional ESG working groups in North America, EMEA and Asia Pacific to allow investment centres to respond appropriately to more localised issues and trends. Representatives from these groups will feed into to our global working groups and councils for knowledge-sharing and alignment.

2.2 The role of management

From a broader management perspective, Invesco has a governance structure across four dimensions which enables oversight and accountability for effective management of climate-related risks that are material to client objectives.

1. Invesco's **investment centre** leaders drive the strategy and governance of our internal programs. They provide oversight to our specialized investment teams and offer a balance of global expertise, support and connectivity. In this way, the investment centre leaders help provide better outcomes for clients, with greater consistency over the long term.
2. Our **Global ESG team** of 31 professionals acts as a centre of excellence, responsible for leveraging best practices in ESG capabilities across Invesco. These include ESG integration, voting and engagement, supporting the distribution teams with client engagement, and advising product teams on ESG innovation. Therefore, the team is organized across five pillars: Client, Research, Proxy, Analytics and Operations. Located across the three regions of North America, Asia Pacific and EMEA, the Global ESG team provides support and analysis, while investment teams maintain discretion on portfolio decisions.
3. Invesco's **ESG Executive Steering Committee (ESG Executive Steerco)**, composed of representatives from Investments, Distribution, and other functional areas, directs our ESG investment strategy and operational implementation. It sets the vision, allocates resources, and prioritizes initiatives, while fostering communication across the firm. The Committee aids in fostering global collaboration on ESG issues, enabling us to benefit from diverse perspectives and maintain consistent standards. The ESG Committee, alongside various cross-functional working groups, encapsulates our inclusive approach to ESG, ensuring a purposeful, holistic strategy that aligns with client objectives.
4. Several **working groups** have formed at various sectors of the organization to ensure our ESG integration approach is purposeful, holistic, and impactful in addressing factors that may impact client objectives. Some working groups are brought together to deliver a particular ESG related initiatives or to address new regulatory requirements. For example, in 2022, the Climate Initiatives Working Group (CIWG) focused on the implementation of the Net Zero Asset Manager's Initiative (NZAMI) for portfolios in scope. There is also a cross-organizational effort that brings in functional elements, such as products, marketing, regulatory affairs, technology, and distribution.

As a large, global asset management firm, Invesco believes our governance structure enables us to benefit from diversity of thought while maintaining globally consistent standards for stewardship. Our investment teams can leverage the resources of the Global ESG team and participate through the ESG subcommittee and working groups, with oversight and accountability provided. This structure enables our specialized investment teams to have the capability to implement ESG approaches relevant to their asset classes and investment styles, for the benefit of our clients

3.0

Strategy – part 1: Overview

In this chapter, the first of two addressing issues related to strategy, we outline our approach to mitigating risks and capitalizing on the opportunities presented by the low-carbon transition.



3.1 ESG at Invesco

Invesco's mission to be the most client-centric asset manager extends to our approach to ESG. We focus on sustainable value creation with a philosophy grounded in materiality, momentum, and engagement. Our proprietary research is based on an input, output model with sector specific indicators. We focus on incorporating qualitative and active engagement input to form an overall investment view.

This approach allows us to assess whether an issuer may be exposed to any potential physical or transition risks posed by the low-carbon transition. We also seek to understand whether they may be undercapitalizing or failing to position themselves for new opportunities this presents.

We can then use our active ownership model to help our clients achieve their objectives amidst a dynamic landscape that is now largely being driven by market and regulatory forces.

Asset managers have a fundamental role to play in providing products that enable clients to express their values through investing. We endeavour to act as responsible stewards for our clients, who are not only seeking sustainable, long-term value creation but may also be confronted with the uncertainties posed by the ongoing climate transition.

3.1.1 Time Horizons

Time horizons greatly differ depending on the product that is offered and the region it is offered in. Time horizons and investment objectives are calculated using multiple time periods and different market cycles dependent on the specific product offered.

The investment horizon for individual themes is dependent on several factors, including global credit and market cycles, fundamentals, technical and valuations. In general, macro themes are expected to play out over the medium-term time horizon.

Client driven. Focus on sustainable value creation. ESG as a journey.



ESG Integration

Focus on sustainable value creation and effective risk mitigation

We integrate financially material considerations in our investment capabilities, taking into account critical factors that help us deliver strong outcomes to clients.

As investors in global equities, corporate and sovereign fixed income instruments, as well as real estate and multi-asset strategies, we recognise the differences between asset classes and geographies. We may apply ESG principles in a variety of ways where our investment professionals deem them financially material, depending on the asset class and strategy.

Our Global ESG team provides support and analysis, while our investment managers maintain discretion on portfolio decisions.



Active Ownership

Exercising our rights and responsibilities as stewards of capital

We exercise our rights and responsibilities as stewards of capital. We engage with issuers in a constructive manner and use our expertise to cast voting decisions in our clients' best interests.



Innovation and Data

Growing together, supporting our capabilities

We believe having quality data on ESG factors is critical for effective investment analysis. We are enhancing our ESG data and analytics capabilities by building out and updating our proprietary tools, including ESGintel, PROXYintel and ESGCentral. These tools assist with research, portfolio reviews, portfolio optimisation, engagement and proxy voting.



Client Partnerships

Meeting our clients where they are

Invesco has a client-centric ESG approach focused on customising solutions to client needs and objectives. We provide a range of ESG-focused capabilities that enable clients to express their values through investing. Some of our clients ask us to impose ESG investment guidelines and restrictions on their portfolios. We therefore offer a suite of portfolio solutions to ESG-minded clients who wish to pursue ESG goals.



Industry Engagement

Enabling Better ESG Conversations

Invesco participates in relevant industry initiatives to promote the continued improvement of functioning financial markets. We are involved in many industry bodies, including Principles for Responsible Investment (PRI), the Net Zero Asset Managers initiative (NZAM), the Global Real Estate Sustainability Benchmark (GRESB), and the Task Force on Climate-related Financial Disclosures (TCFD). We engage policymakers on the latest ESG regulations and have academic partnerships with the University of Cambridge and Tsinghua University.

3.2 Active ownership

3.2.1 Engagement

As active owners and good stewards, Invesco considers engagement with issuers as a powerful and effective tool to promote long-term sustainable value creation, aligned with client objectives.

Supporting and guiding companies whose approaches to adaptation, transition, and the allocation of capital help secure their operating models in a changing physical and regulatory environment is of growing importance to many clients.

In line with Invesco's investment-led approach and ethos around diversity of thought, investment teams can leverage our ESG resources to implement approaches to climate change engagement relevant to their asset classes, investment styles, and client objectives. During our engagements, our investment teams work to be very transparent with companies about which portfolios they are representing.

Engagement stats in 2022



We engaged with more than
2,900
companies on ESG topics¹...



...including over
750
focused on the 'E' of ESG



We also vote around
13,000
company meetings



Our investment teams conducted
267
dedicated ESG engagements with our Global ESG team²



... **67%**
of which focused on climate transition



¹ This figure refers to engagements where ESG was one of the topics discussed by the investment team. The Global ESG team uses both their own and investment team documentation to calculate this figure on an annual basis.

² This figure is a subset of the overall engagements and represents meetings dedicated to an ESG topic/s, where the ESG team participated and documented the engagements.

3.2.2 Proxy voting

Exercising our client's shareholder rights through proxy voting is an integral part of Invesco's investment management responsibilities. This process allows investors the opportunity to communicate their views to companies, building on engagement and bolstering accountability with company management.

Invesco's Policy Statement on Global Corporate Governance and Proxy Voting (Global Proxy Voting Policy) describes policies and procedures to help our clients understand our commitment to responsible investing and duty of care with respect to proxy voting. Our principles of good governance inform our approach to engagement and voting at shareholder meetings. Our Global Proxy Voting Policy serves as the foundation of our well-informed proxy voting decisions focused on protecting clients' rights and promoting governance structures and practices that reinforce the accountability of corporate management and boards of directors to shareholders. Our good governance principles and voting guidelines promote corporate accountability, transparency, and strong oversight of material risks including risks associated with climate change.

Invesco's approach to proxy voting is investment-led; and as such, investment teams vote proxies in the manner they believe is in the best interests of clients. We regard our role as stewards of our client's investments, including the exercise of proxy voting rights, as an essential component of our fiduciary duty to maximize long-term shareholder value. Portfolio managers have the ultimate discretion to vote proxies how they see fit in line with the investment objective of the products they manage guided by our role as a fiduciary to act in our clients' best interests.

When analysing proxy issues including environmental proposals, Investment teams take into consideration the unique circumstances affecting the company, regional best practices and prior dialogue we have had with the company. To do this analysis, we utilize public company disclosures, comprehensive proprietary research and third-party research reports.

Our general approach to environmental issues under Invesco's Global Proxy Voting Policy is:

- We encourage companies to report on material climate-related risks and opportunities and how these are considered within the company's strategy, financial planning, governance structures and risk management frameworks in accordance with the recommendations of the Task Force on Climate-related Financial Disclosures ("TCFD"), or other relevant reporting frameworks.
- For companies in industries that materially contribute to climate change, we encourage comprehensive disclosure of greenhouse gas emissions and Paris-aligned emissions reduction targets, where appropriate.
- We encourage director accountability and board oversight of material environmental risks.

Invesco's evaluation of environmental proposals is not a 'one size fits all' exercise and our investment teams will consider many factors when casting votes that may include:

- a company's track record on the issue and responsiveness to the shareholder proposal;
- the company's existing level of disclosure;
- the efficacy of the proposal's request;
- whether the requested action is unduly burdensome or too prescriptive;
- whether we consider the adoption of such a proposal would promote long-term shareholder value;
- prior engagement with the company on the issue; and
- considerations of the regulatory environment.

Invesco may support shareholder resolutions requesting that specific actions be taken to address environmental issues or mitigate exposure to material environmental risks. Our voting decisions may lead to a vote against an environmental proposal where we find the company already provides adequate disclosure on the topic. To learn more about Invesco's proxy voting approach please visit [invesco.com/corporate/about-us/esg](https://www.invesco.com/corporate/about-us/esg)



3.2.3 Case studies



Company

UK Energy Issuer

ESG issues addressed

Governance/Energy transition

Method of engagement

Video call/Vote

Issue

The Henley UK Equities team's 2022 engagement builds on our previous multi-year dialogues around capital allocation, and is split between asset sales, organic cash flow, renewables, networks and the dividend. As part of this, we were satisfied to see that the company has stepped up their ambition to focus on energy transition and a pathway toward net zero.

Action

In 2022, we engaged with the issuer on at least five occasions. We engaged in direct one-on-one calls, site visits and group conference meetings, and regular post-earnings results updates.

The engagements included the participation of the Global ESG team and our UK equity investment teams.

To engage effectively, we regularly meet with C-suite and director-level representatives.

The main topics of discussion with the issuer over the past 12 months have centred around the energy transition and renewable power generation. The issuer is a leading investor in wind generation, coupled with hydroelectric and dispatchable power production in the UK and Ireland. The issuer raised its ambitious plans on Carbon Capture and Storage (CCS) and target dates, which we intend to monitor closely for material progress. We also covered the topics of windfall taxes and health and safety following the death of a contractor.

Escalation

During the 2022 AGM season, we additionally engaged with the company on governance issues to specifically discuss succession planning around the Board's discussion of senior management-level succession over time, the direction of change and the push for increased diversity. On succession planning they have initiated a developmental process for the assessment of the internal talent and have strong internal candidates and a focus on increasing diversity. On remuneration policy specifically, we discussed their proposal with the company ahead of the 2022 AGM.

Outcome and next steps

We believe that as a result of our engagement, the issuer incorporated suitable ESG metrics in remuneration, and we found that the performance measures were well aligned with their Net Zero Acceleration Programme. As a positive outcome, we voted to support it in 2022.

In 2023, we plan to continue our regular engagements with the issuer as part of our investment monitoring process and follow up on their ESG commitments around the energy transition.

3.2.3 Case studies



Company

A European automobiles manufacturer

ESG issues addressed

Electrification, decarbonization, human rights

Method of engagement

Video call

Issue

The Henley Fixed Interest (HFI) team met with the issuer's investor relations to discuss their corporate strategy, electric vehicle (EV) transition, supply chain risks and decarbonisation strategy.

Action

The issuer has a European strategy to only sell EVs post-2030 where market conditions allow. The team wanted to get a better understanding of what market conditions would be required for this goal to be met. The issuer highlighted that one of the biggest challenges facing the industry was the build-out of the charging infrastructure. To help facilitate this roll-out, they've partnered with two charge point partners to create a charging network to support their fleet.

Although the issuer's EV targets are ambitious, we were concerned they weren't taking appropriate steps to manage their supply-chain risk, particularly around the sourcing of cobalt, a key component in battery production. The issuer pointed to their goal of sourcing all their cobalt from mines certified by the Initiative for Responsible Mining Assurance' (IRMA), however, they stressed there is currently not enough supply from these mines to meet demand.

The team understands the difficulty in sourcing ethical cobalt given the surge in demand and lack of regulation in the regions where cobalt is mined. However, the team pointed to sector peers that have committed to only sourcing from regions where employees are afforded better rights. The issuer agreed to continue to make progress in this area and follow up with the team in early 2023.

The team also wanted to address the steps the issuer was taking to manage the increased emissions associated with EV production. The issuer reassured the team that they've set a 2030 target of a 50% reduction in their production and a 42% reduction in their use emissions, which have both been validated by the Science-Based Targets Initiative.

Outcome

The team had the opportunity to gain clarity on the market conditions necessary for the issuer to achieve their EV targets. This is important for tracking the issuer's progress and benchmarking them against peers.

Since engaging with the issuer, they have released a new supply chain report covering seven raw materials essential to the transition, including cobalt and lithium. For cobalt, the issuer has implemented a third-party auditing project that aims to increase human rights awareness and has also put in place contractual agreements with their battery cell suppliers, mandating that in the future they purchase cobalt exclusively from sources audited by the Initiative for Responsible Mining Assurance (IRMA). For lithium, the issuer has identified that environmental and human rights risks could exist within their supply chain.

To address these concerns, the issuer commissioned a study with other market participants to further understand the risks in Chile, a main supplier, and established the Responsible Lithium Partnership to develop an effective and targeted action plan.

Next steps

In 2023, the team plans to continue engaging with the issuer to track the implementation of their updated supply chain policies and the progress they are making towards their EV production goals.

3.3 Climate-aware investment solutions

3.3.1 Mixed Asset Portfolio

For clients committed to a low carbon economy, Invesco recognizes that it must provide offerings that focus on real world emissions reductions in absolute terms, not simply reducing portfolio emissions by way of exclusion. Strategies with a primary focus on sustainable investment or emission reduction objectives may include sectors with high carbon intensity within their portfolios, but only when these sectors demonstrate reliable plans for decarbonisation and/or when engagement can effectively encourage advancements in reducing emissions.

As such, Invesco has launched a new product which aims to support the transition to a low carbon economy over the medium to long term, investing in corporate bonds, government bonds and global equities. It also looks to provide income and capital growth. This launch reflects our commitment to delivering a sustainable strategy range – one that matches clients’ values and objectives. The strategy has exposure to issuers and governments with stronger climate characteristics than their peers, including:

- Issuers with a low carbon footprint
- Issuers reducing their carbon footprint
- Green, sustainability-linked and transition bonds
- Issuers linked to climate solutions (for example, renewable energy, electrification and low carbon transport)

The transition strategy’s asset allocation is flexible and can be adjusted to suit different market conditions. The idea is to achieve income and capital growth by taking advantage of both bonds and equities. In addition to delivering on our climate objective, we aim to provide income and growth by taking advantage of a diverse and flexible opportunity set. This transition strategy can allocate between 35% and 65% to debt securities from across the credit spectrum, with the rest of the portfolio in global equities. One of the benefits of including an equity component is that it has the potential to deliver shareholder value and can be adjusted depending on market conditions.

Safeguards have been set for activities considered controversial in sustainable strategies that could result in exclusions.

| Climate-based exclusions | Revenue threshold |
|---|--|
| Thermal coal extraction | 5% |
| Unconventional Oil & gas extraction (including tar/oil sands, shale oil, and Arctic drilling) | 5% |
| Oil & Gas exploration, production, refining, transportation and/or storage | 25% (except green bonds) |
| Unconventional Oil & Gas extraction | Revenues, production capacity or actual production from 1) Arctic oil & gas exploration extraction, 2) Oil sands extraction, 3) Shale energy extraction |
| Conventional Oil & Gas | Oil & gas exploration, production, refining, transportation and/or storage |

3.3.2 Passive strategies

For clients interested in clean energy investments, Invesco launched a passive strategy to capitalize on the hydrogen market by focusing on a broad exposure to innovative technologies seeking low-carbon hydrogen solutions. The strategy's equal weighted methodology ensures diversification and avoids concentration.

Low-carbon hydrogen is composed of mainly green and blue hydrogen. Opportunities across the hydrogen value chain for both forms include hydrogen production, conversion, transportation, storage as well as usage and application. Low-carbon hydrogen can be used in the transportation sector in fuel cell vehicle and aviation, it could be used as residential heating and power and utilized in the steel industry.

The strategy builds on a long running Clean Energy index that identifies issuers working towards furthering a hydrogen economy in six focused sectors. Issuers are identified based on meaningful exposure to the hydrogen economy with the primary part of its business activities in new energy innovation. Issuers selected to the clean energy index do not have exposure to fossil fuel outside of what is described in the sector definitions. Issuers are then assigned to one of the six "sectors", based on their primary business activity, and are weighted equally for diversification



This Clean Energy index offers a 59% reduction in CO₂ Intensity relative to MSCI World index.

| Hydrogen | Process | Source | Carbon Intensity |
|----------|--|-----------------------|------------------|
| Green | Water electrolysis through an electrolyzer | Renewable electricity | Zero-Carbon |
| Blue | Steam reforming and Carbon Capture & Storage (CSS) | Natural Gas | Low |

Fuel Cells

- Low and high temperature fuel cell manufacturers
- Improving fuel cell efficiency or energy generation
- Fuel cells using hydrogen, methanol, ethanol

Green Hydrogen

- Producers of green hydrogen from renewable sources
- Firms supporting the expansions of renewable clean energy
- Storage and transmission of green hydrogen

Hydrogen Generation

- Developing solutions to reduce the carbon content of non-green hydrogen generation

Hydrogen Storage

- Developing techniques and technologies to store hydrogen as an energy carrier
- Innovations in the design and construction of storing hydrogen

Hydrogen in Transportation

- Companies that use hydrogen & fuel cells in transportation
- Includes, but not limited to, hydrogen-fueled cars, trucks, buses, ships, trains, aircraft

Hydrogen Innovation

- Research and development of industrial scale green hydrogen production, low carbon & carbon free hydrogen generation

3.3.3 Private Markets

At Invesco, as we dive into the approach taken for private strategies, we take a tailored approach in identifying the materiality of environmental, social and governance themes within asset classes ranging from real estate to bank loans, while retaining firm-wide direction into key themes to address.

Private markets benefit from the opportunity for longer-term thinking. Subject to the level of influence or ownership, private markets present more direct influence in integrating E, S or G principles.

When considering the regulatory landscape, public market investments are faced with greater levels of regulatory and market requirements for disclosure and commitments. As an example, it is estimated that 37% of private companies have set emission reduction targets⁴ – with a high proportion of this figure solely comprised of large private companies. To tackle some of these expectations and regulatory requirements, Invesco participates in industry specific working groups to interpret and meet regulatory changes for privately held assets.

Taking into account the direct ownership nature of owning private assets or providing private credit, an opportunity arises for more direct and targeted ESG integration. Progress in public company investments will primarily be driven through active engagement, while the acceleration of ESG integration efforts in private investments can be directly managed, subject to each strategy and the objectives of the client.

ESG Opportunities in Private Markets

Examples of measurable outcomes



Real Estate

Direct management of buildings to have measurable & tangible reductions in energy and carbon, optimizing tenant wellbeing and comfort



Infrastructure

Supporting energy-producing companies transition to a low-carbon economy



Private Equity

Direct influence and engagement with company structures to drive change and incorporate ESG objectives



Private Cash

Direct relationship with borrowers lead to greater levels of transparency and lending opportunities

Opportunities continue to arise across sectors with direct engagement & management

3.3.3.1 Invesco Real Estate

Real estate investments provide a unique opportunity to implement ESG strategies that deliver tangible and measurable outcomes given the nature of the asset class and level of influence in directly managed and owned assets. At Invesco Real Estate (IRE), we believe that a deliberate and disciplined approach to ESG+R (environmental, social, governance and resilience) can successfully balance responsible investment objectives while meeting the needs of clients and fulfilling our fiduciary responsibilities, focused on driving good performance. This philosophy is based on the belief that ESG+R aims to deliver competitive financial returns and provides opportunities for business growth and innovation.

We work with our partners to promote best practices when it comes to ESG solutions in real estate. This enables us to respond to changing market dynamics for greater levels of engagement and transparency. To date, Invesco real estate has achieved the following carbon specific objectives:

- Achievement of net zero-certified buildings by maximising building energy efficiency with technology, producing on-site energy and promoting clean transportation; and
- Renovation of buildings, minimising our embodied carbon by sourcing materials locally and reusing existing building structures

Background

Invesco Real Estate (IRE) acquired the building in 2013

Location

London (Marylebone), UK

Sector

Office

Size

79,000 sq ft internal space
2,200 sq ft external space

Constructed

1990's

Certifications

Acquired building as part of flagship core programme, which is **5* GRESB-rated⁵**

The re-development is now targeting **BREEAM Excellent⁶** and **WiredScore Platinum⁷**

Overview

Targeting completion in 2024, IRE will be completing its first carbon neutral re-development in its global portfolio. The core office building is located in one of London's strongest sub-markets benefitting from excellent transport connections improved further by London's cross-rail (Elizabeth Line), the employee focused amenities of Marylebone and access to a private garden square. Full planning consent to create the best 10,000 to 15,000 sq ft floor plates in the West End and an additional floor with roof terraces, increasing the net internal area by 20%.

Sustainability Features

Sustainability features of the project encompass both the re-development phase and target sustainable and healthy use in operations. Invesco is retaining some 72% of the original building structure, including the concrete frame and external walls during the redevelopment phase. The plan creates over 2,200 sq ft of external green roof terrace, improves building services and management systems to enhance energy efficiency compared to previous energy performance levels, and incorporates substantial energy-submetering proposed for all major energy end uses and tenanted areas.

Goals

- Carbon Neutral redevelopment
- Carbon, energy and water management

Results

With sustainability at the heart of the project and central to building plans in operations, IRE pre-lease signed with a tenant for 15-years without break options at a headline rent above market averages.



Source: Invesco.

⁵ GRESB® is an international assessment used to measure the ESG+R performance of real estate portfolios across the globe. Invesco pays a fee to participate in GRESB rating. The information reported in the annual assessment is a disclosure of material ESG+R performance at the portfolio level, such as energy, emissions, water, and waste data; green building certifications ("GBCs") and energy ratings; and sustainability risk assessments, as well as indicators related to governance and stakeholder engagement. Invesco pays a fee to participate in GRESB rating

⁶ BREEAM (Building Research Establishment Environmental Assessment Method) is an internationally recognized method of assessing, rating, and certifying the sustainability of buildings.

⁷ WiredScore Platinum is the highest certification granted by WiredScore, a company that evaluates and certifies the quality of internet connectivity and digital infrastructure in commercial buildings.

3.3.4 Case Study – Strategic Asset Allocation

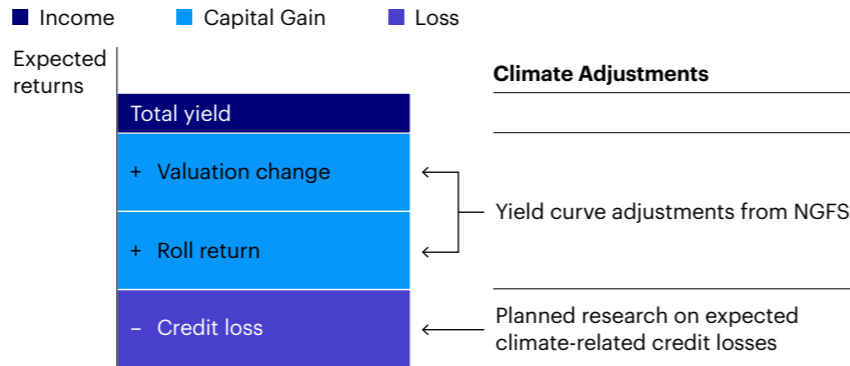
Capital Market Assumptions (CMAs) provide long-term estimates for the behaviour of major asset classes globally. The assumptions, which are used by Invesco’s Investment Solutions team in certain products, are based on a 10-year investment time horizon and are intended to guide strategic asset allocations. For each selected asset class, Invesco Investment Solutions develop assumptions for expected return, standard deviation of return (volatility) and correlation with other asset classes.

Recognizing the impact physical and transition risks could have on assets, the Investment Solutions team have incorporated climate scenario analysis into Invesco’s CMAs for use in certain ESG products. The transition to net-zero is around a 30-year time horizon that stretches to 2050, but we have designed our climate-aware CMAs to focus on the first part of that transition as that is what investors may experience over the next five to ten years. As we get closer to 2050, the CMAs will take on different stages of the climate risk scenarios.

Fixed Income

For fixed income CMAs, adjustments are made to yield, roll return, and valuation change.

Figure 1
Climate adjustments made to fixed income CMAs

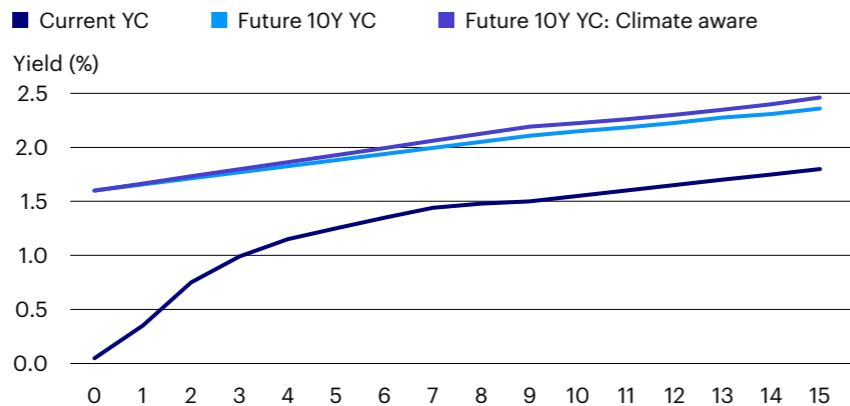


Source: Invesco Investment Solutions, Dec. 31, 2021. For illustrative purposes only.

We use Network for Greening the Financial System’s (NGFS) 10-year rate based on their net-zero 2050 scenario to re-estimate yield, roll yield and valuation change, which alters the shape and slope of the yield curve. For example, for the US, part of the expected curve is shifted upwards and will likely continue to see upward adjustments, reducing the valuation building block.

A future enhancement to our climate-aware building blocks will be to estimate the impact of credit losses which could potentially be large due to stranded assets or physical destruction of property.

Figure 2
How the US Yield Curve is transformed by the climate-aware fixed income CMA

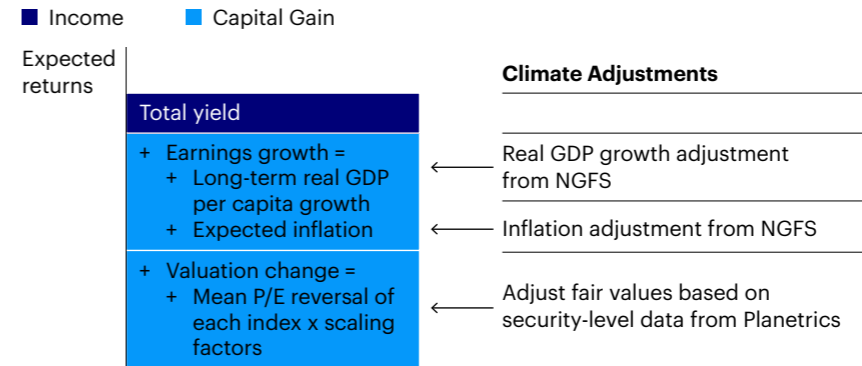


Source: Invesco Investment Solutions, Dec. 31, 2021. Forecasts are not reliable indicators of future performance.

Equities

Within the three building blocks of our equity CMAs, climate-related adjustments are made to earnings growth and valuation change.

Figure 3
Climate adjustments made to equity



Source: Invesco Investment Solutions, Dec. 31, 2021. For illustrative purposes only.

Earnings growth: As earnings growth is expected to converge with GDP growth over time, the NGFS data are ideal for understanding long-term projections for GDP under different climate scenarios, both by transition risk and physical risk. In our climate-aware CMAs we are modelling for a 1.5-degree scenario. How you make these adjustments to earnings growth is very simple. For instance, if real earnings growth in the US was 2.69%, you would add the combined estimates of physical and transition risks totalling -0.06% to arrive at a climate aware US real earnings growth rate of 2.63%: **Climate Aware US Real Earnings Growth = 2.69% - 0.06% = 2.63%**

Inflation risk: The type of expected inflation driven by climate change is derived from forecasts on energy prices and demand. The model maps the impact of inflation and energy costs, which it breaks down by energy type. This includes the consumption of coal, oil, gas and renewable energy. Once calculated, these figures are used to adjust each annual expected inflation rate for the next 10 years and the final average is the climate CMAs inflation adjustment.

Valuation change: The goal here is to adjust the fair values that we have derived for the stocks we cover. These adjustments are based on the analytics provided by Planetrics. The first step is to calculate the impact climate risk will have on earnings up until 2050. Planetrics constructs a discount cash flow model based on these projected and adjusted earnings, using the security specific discount rates that they have derived through their financial statement analysis. What is left is a new fair value for a stock, whose valuation is now climate aware. The next step is to aggregate sector-level adjustments from valuation changes to a regional or index level by re-weighting them to the sector weights of a given universe. The end result by combining the climate-aware adjustments for earnings growth, inflation risk and valuation change is the 10-year CMA return. The most significant building block to change is inflation, which is expected to affect the expected equity return on individual stocks by about 1%-2%. This makes sense because climate change is expected to have an inflationary effect through the cost of carbon.

3.4 Industry commitment

Invesco is involved with various industry organizations to better understand and support climate topics.

For example, in Europe Invesco is a member of the Institutional Investors Group on Climate Change (IIGCC), a body facilitating investor collaboration on climate change. IIGCC helps investors with tools and resources to better serve their clients seeking more climate-aware investment solutions. In 2022, we continued to participate in the Policy Steering Group (previously 'committee'). Through membership of this group, we contribute to regulatory and policy developments by discussing finance and climate policy at the global, EU and national levels across Europe. In APAC, we are also part of Asia Investor Group on Climate Change (AIGCC). The AIGCC provides capacity and a trusted forum for investors active in Asia to share best practice and to collaborate on investment activity, credit analysis, risk management, engagement and policy related to climate transition.

In recognition of Invesco's Global ESG team efforts to map the current net zero data landscape, in October 2022, the IIGCC invited Invesco's Global ESG team to provide guidance to the wider IIGCC member base on how best to navigate net zero data challenges. This participation in the IIGCC's Net Zero Working Group, a sub-group of IIGCC members, demonstrates our increasing effectiveness in contributing to industry dialogue on navigating net zero data challenges.

In the UK, Invesco participates in the Climate Financial Risk Forum (CFRF) and is a member of the Scenario Analysis Working Group. In 2022, we contributed to the scenario analysis guide for asset managers, published in March 2023. We also partner with Tsinghua University's Centre for Green Finance Research which focuses on carbon transition finance in China.

In addition to participating and supporting climate-focused industry and academic organizations, Invesco aims to remain closely involved in ongoing policy and regulatory developments in the UK, EU and APAC to understand how they may impact our business and our clients, whether via active engagement with policymakers, indirect dialogue via trade associations, formal comment letters, responses to consultations or other means.



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 regard to key issues such as emissions intensity, temperature alignment and now also financed emissions.



In this chapter we present the temperature alignment, weighted average carbon intensity and financed emissions of our Aggregate Portfolio: our universe of listed global equities, listed corporate bonds, and listed sovereign bonds. We also report the exposure of our Aggregate Portfolio to climate risk and opportunities under different climate scenarios.

This chapter continues the quantitative disclosures we made in the 2021 Invesco TCFD Report. We have updated the analysis to reflect the latest available data and modelling. We have also incorporated the third vintage scenario set produced by the Network of Central Banks and Supervisors for Greening the Financial System (NGFS) in our value impact analysis and sector-region carbon budgets for temperature alignment scores.

The results we present relate to our Aggregate Portfolio held as of 31 December 2022. Throughout, we use benchmarks to provide context for the results. Where we benchmark results for an individual asset class, we make use of publicly available indices:

- MSCI ACWI (Equities)
- BBG Global Agg Corp Total Return Index (Corporate Bonds)
- FTSE World Government Bond Index (Sovereign Bonds)

For the Aggregate Portfolio as a whole, the benchmark is a weighted combination of all indices based on the weighting of equities and bonds in the Invesco Aggregate Portfolio.



4.1 Portfolio overview for this report

4.1.1 Introduction

Before discussing the analysis, we will provide an overview of the portfolio composition and data coverage pertaining to this section and compare this to the portfolio in last year's report. Such changes influence the outcome of the analytics as well as emissions metrics that rely on portfolio weight, market value or dollars invested as a denominator. This is in addition to any changes that have occurred in the real-world economy, scenarios, and data models. Observed changes in the results will be due to a combination of all these factors.

It should also be noted that we have moved the reporting period for this report from a financial year to a calendar year to better align with regulatory reporting requirements. Therefore, the current portfolio used in this analysis will be referred to as '2022', the data cut of which was taken on 31 December 2022. The previous year's portfolio used in our 2021 report will be referred to here as '2021.' This has not resulted in any gap in our reporting timeline.

4.1.2 Data coverage

This section's analysis focuses solely on those asset classes — equities, corporate bonds, and sovereign bonds — for which our climate analytics tool, Planetrics, provides coverage and where comprehensive data for each security exists. Data coverage can only exist in the first instance for securities for which there is an available ISIN (International Securities Identification Numbering), which immediately reduces the potential universe for analysis to 85.63% of our total assets under management (AUM). Once these securities are loaded into our analytics tool, the subsequent data coverage equates to 63.80% of Invesco's overall AUM as of 31 December 2022. At asset class level, we have coverage for 83.41% of all Invesco's equities and 39.22% of all fixed income.

| Portfolio data coverage as % AUM | |
|----------------------------------|---------------|
| Overall | 63.80% |
| Equities | 83.41% |
| Fixed income | 39.22% |

As of 31 December 2022

For the remainder of this section, when referring to our aggregate portfolio, equities, corporate or sovereign bonds, it only pertains to the portion of our portfolio stated in the table above.

4.1.3 Portfolio composition

The sectoral composition of our portfolio has also experienced changes from 2021 that have a significant impact on the model outputs. For example, an increase in market value (MV) of more carbon-intensive sectors will cause the model to forecast more negative value impairments, higher emissions, and a higher temperature alignment. The changes are largely explained by market forces rather than physical changes in positions. There is only a weak to moderate correlation (coefficient of 0.44) between the relative changes from 2021-22 in market value by sector and the quantity of shares or bonds held. To illustrate, 2022 saw significant devaluations for tech companies (a low carbon-intensive sector) and increased valuations for energy companies (a high carbon-intensive sector). Valuation changes such as these will decrease or increase the weight of those sectors in the portfolio (relative to others) irrespective of any changes in position.

| Average sector emissions intensity* | | |
|-------------------------------------|---------------------|-------------------------|
| | Change in MV weight | Change in quantity held |
| High intensity sectors | 2.7% | -2.4% |
| Low intensity sectors | -3.1% | 3.0% |

* Relative change from 2021 in aggregate portfolio by average sector intensity.

4.1.4 Scenarios and models

Invesco uses scenarios developed by the Network for Greening the Financial System (NGFS). The NGFS is a group of central banks and supervisors from around the world that promotes best practices for sustainable finance. The NGFS creates climate scenarios to inform and guide the financial sector in assessing climate-related risks and opportunities. These scenarios help financial institutions to stress-test their portfolios and assess the resilience of their businesses under different climate-related scenarios, including the transition to a low-carbon economy and the physical impacts of climate change. The scenarios are developed using scientific data and analysis and are regularly updated to reflect the latest scientific findings and global climate goals.

Since writing our last report, the NGFS have released an updated suite of scenarios, known as phase III. There are some important changes to note in the phase III scenarios from the phase II scenarios we used last year that affect the model outputs:

- Reflection of new country-level commitments made at COP26
- Updated data on renewable energy trends and key mitigation technologies
- Updated GDP and population data from IMF World Economic Outlook 2021
- Greater granularity has been added to transport and industrial sectors
- Improved modelling of physical risks
 - A damage function methodology modelling GDP losses as global mean temperature increases now shows a stronger impact and wider range of uncertainty
 - The 95th percentile of the impact distribution is now used instead of the median to reflect uncertainty in the modelling of the macroeconomic effects of chronic physical risk. This means greater tail risk is considered.
 - Stochastic shocks of acute physical risks based on historical data from the Emergency Events Database (EM-DATA) is multiplied using NGFS' Climate Impact Explorer indicators to derive future trends for acute risks in each scenario.

4.2 Temperature alignment, emissions metrics and scenario analysis

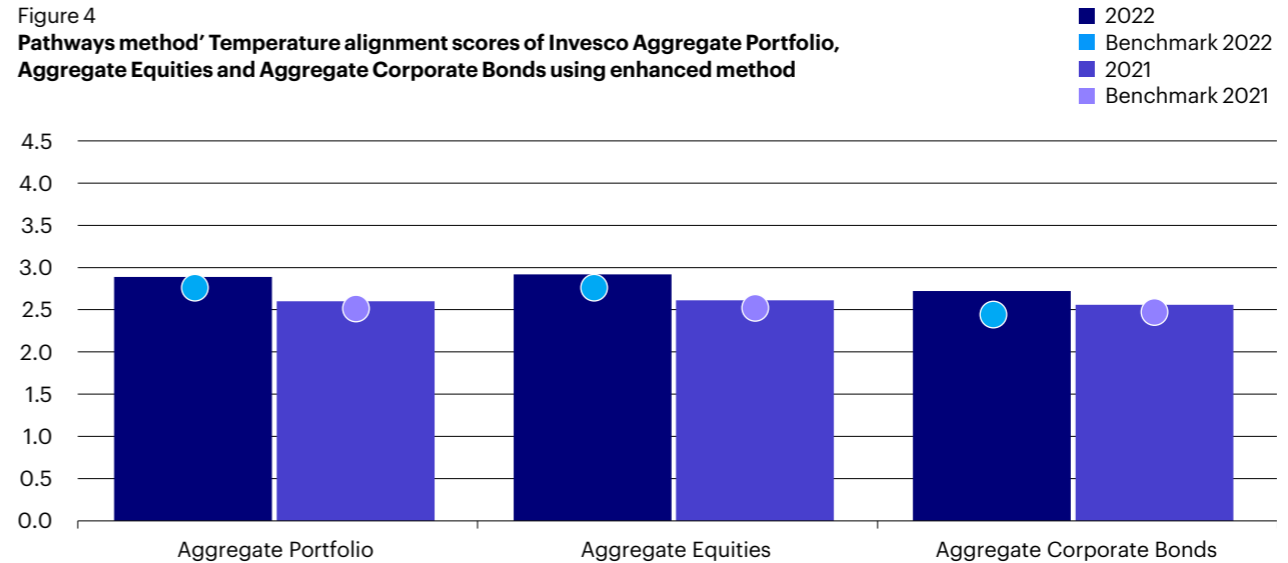
4.2.1 Temperature alignment

The 'Budget method' of calculating a portfolio's implied temperature rise is aligned with the latest Task Force for Climate-related Financial Disclosures (TCFD) recommendations. It calculates the implied temperature score by measuring the overshoot of the portfolio's cumulative emissions to 2050 against the carbon budget aligned with a 'Below 2°C' scenario. It is based on the direct relationship between cumulative emissions and global mean temperature rise by the end of the century.

The carbon budget is the total volume of cumulative emissions that corresponds to a specific temperature goal. The 'Budget method' allocates a portion of this global carbon budget to the portfolio and if the total projected future emissions for the portfolio exceed the carbon budget, the implied temperature score will be higher than 2°C. The 'Budget method' therefore measures the direct relationship between the portfolio's expected cumulative emissions and the level of warming they would create if applied to the whole economy.

The temperature alignment for our 2022 portfolio has increased by 0.3°C – an 11% relative increase from 2021 but still in line with the benchmarks, which saw similar increases. This indicates a general rise in real-world emissions, which as global investors we are not immune to. However, if we take our 2021 portfolio and re-measure it using the updated models, we see the same 11% relative increase (from 2.6 to 2.9°C). This suggests that regardless of any changes to portfolio composition discussed in section 4.2.2, the same increase would have occurred. This reinforces a general rise in real-world emissions but also suggests that some of the increase could be due to the updates to the model.

The 'Budget' method used in this analysis to calculate the implied temperature rise does not consider the transition strategies and targets that many companies have published to reduce their emissions or diversify their product mix, resulting in a conservative estimate that strongly reflects the emissions of portfolio companies as they are today. As data and methodologies for calculating temperature alignment continue to evolve, Invesco will stay attuned to these developments to enhance our understanding of how these metrics can be used to assess our portfolio.



Source: Planetrics, a McKinsey & Company solution, as of 31 December 2022.

4.1.3 Metrics: Emissions

In this chapter we report two carbon foot printing and exposure metrics as outlined by the TCFD for our Aggregate Portfolio: weighted average carbon intensity (WACI) and total carbon emissions (financed emissions). Table 1 provides the definition of both of these metrics, as well as the equivalent terminology used by the Partnership for Carbon Accounting Financials (PCAF) for these metrics.

Table 1
Definition of TCFD and PCAF metrics

| Definition | TCFD Metric ¹³ (Carbon footprinting and Exposure) | PCAF metric ¹² (Financed emissions) |
|--|---|---|
| Portfolio's exposure to carbon-intensive companies, expressed in tons CO ₂ e / \$M revenue | Weighted average carbon intensity (WACI) | Weighted average carbon intensity (WACI) |
| The absolute greenhouse gas emissions associated with a portfolio, expressed in tons CO ₂ e | Total carbon emissions | Absolute emissions |

Source: Planetrics, a McKinsey & Company solution, as of 31 March 2022.

Weighted average carbon intensity

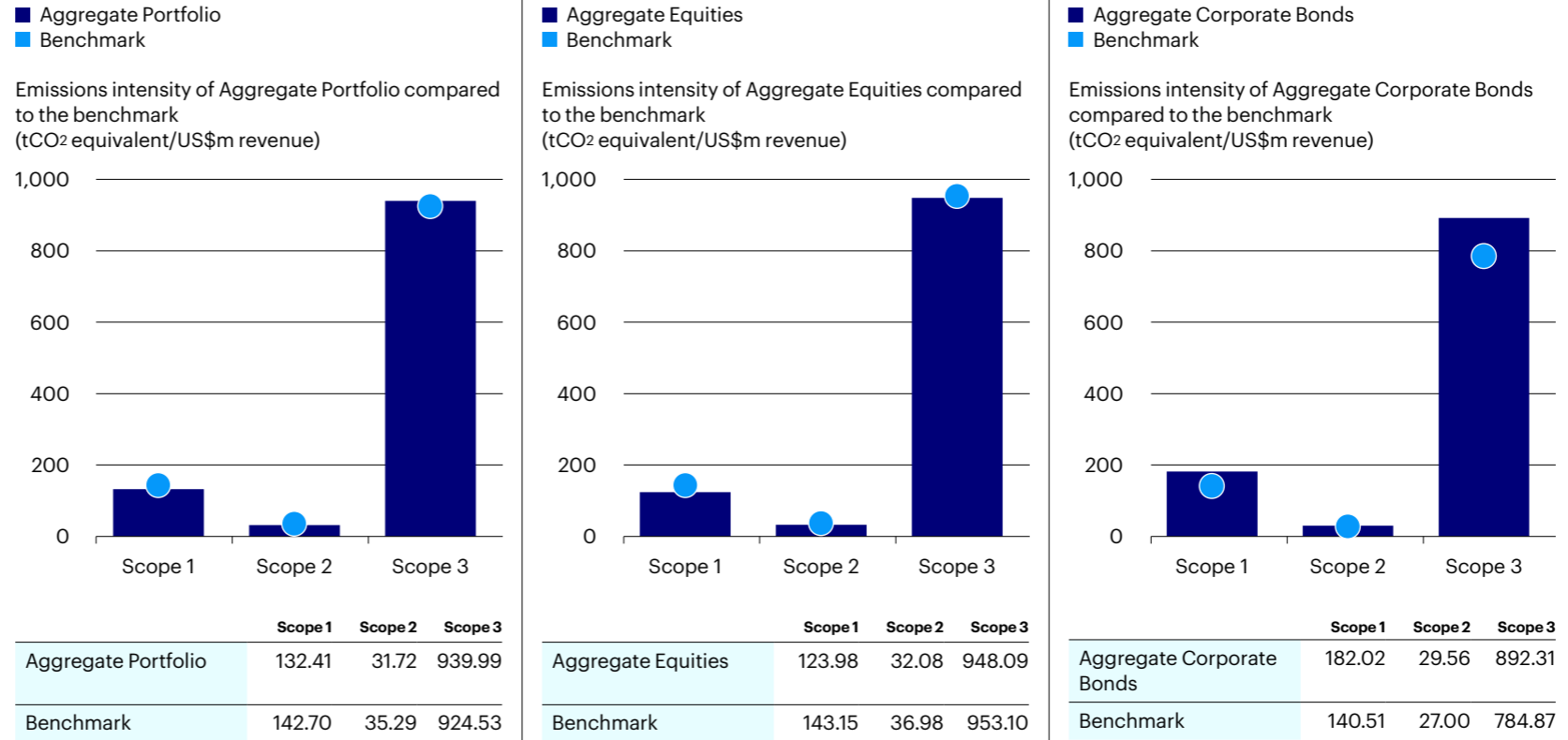
WACI reflects the exposure of the portfolio to companies with high emissions relative to their revenues. The WACI calculation computes each portfolio company's emissions (measured in tonnes of CO₂) per unit of revenue (measured in \$US million), and then calculates a weighted score for the full portfolio based on each individual company's proportion of the total portfolio value.

The WACI for our Aggregate Equities is lower than the benchmark for each scope of emissions. For our Aggregate Portfolio, WACI is lower than the benchmark for scopes 1 and 2 but slightly higher for scope 3. This is being driven by the fact that the WACI for Aggregate Corporate Bonds is higher than the benchmark for all three scopes, but particularly for scope 3. This is partially explained by a 1.5 and 3 percent relative increase from 2021 in the portfolio weight for bonds issued respectively by Consumer Discretionary and Financials companies, which each have relatively high scope 3 emissions.

Another contributing factor for the difference to the corporate bond's benchmark is that the benchmark's WACI decreased by an average of 15% across all three scopes, whilst they increased for the aggregate and equities benchmarks (by an average of 6 and 11 percent respectively across all three scopes). It is unusual for a broad global benchmark to see a WACI decrease when global emissions have risen.

It can be observed however, that while the sectoral composition of the benchmark remains broadly similar year to year, there are small differences. The four sectors with the highest average emissions intensity (Energy, Utilities, Materials, Industrials) saw a combined 1.8% decrease in the benchmark's weight as of 31 December 2022. Energy, the sector with the highest average emissions intensity, makes up 40% of this decrease alone. In contrast, the weight of these sectors in our Aggregate Corporate Bonds increased by 2%. For a weighted metric such as WACI this will increase divergence but can easily be affected by market value fluctuations (see 4.2.2)

Figure 5
Emissions intensity of Invesco's Aggregate Portfolio, Aggregate Equities and Aggregate Corporate Bonds compared to benchmark



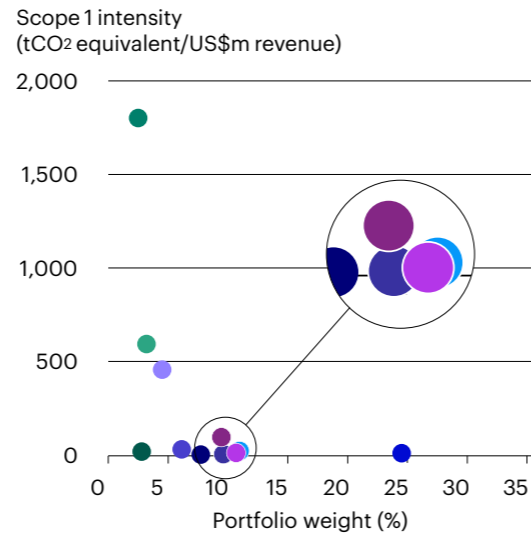
Source: Planetrics, a McKinsey & Company solution, as of 31 December 2022. Scope 1 emissions refer to direct emissions from a company's owned or controlled sources. Scope 2 emission refers to indirect emissions from purchased or acquired energy. Scope 3 emissions refer to all indirect emissions that occur in the value chain of a reporting company.

To gain more insight into any potential carbon-related risk, we also examine emissions intensities at a sector level separately for the Aggregate Equities and Aggregate Corporate Bonds for scope 1 (Figure 6), scope 2 (Figure 7) and scope 3 (Figure 8) emissions. Just three sectors – Utilities, Materials, and Energy - account for 84%, 42%, and 42% of Aggregate Equity scope 1, 2, and 3 emissions intensities respectively, yet they collectively represent only around 12% of the value of Aggregate Equity. Real Estate and Industrials are also significant contributors to our scope 3 emissions and comprise an additional 14% of AUM, but on the whole the majority of our AUM (~75%) has a reasonably low exposure to carbon-related risk. Similar results are observed for Aggregate Corporate Bonds.

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

Figure 6
Scope 1: Aggregate Equities



Scope 1: Aggregate Corporate Bonds

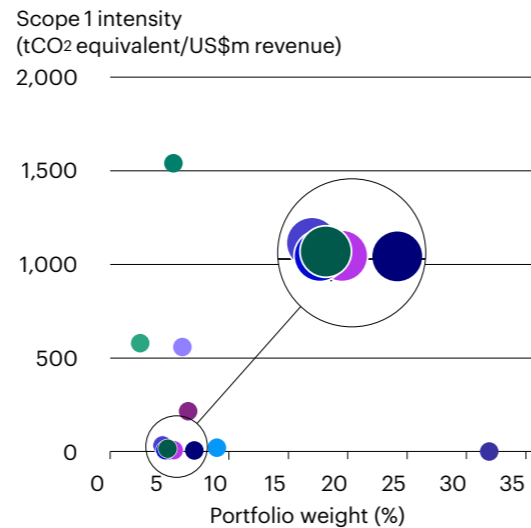
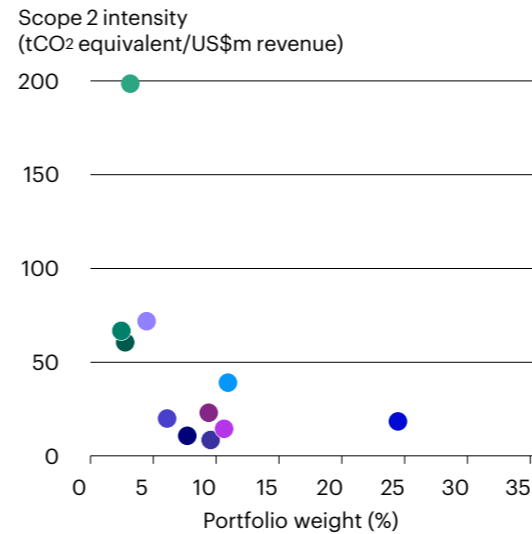


Figure 7
Scope 2: Aggregate Equities



Scope 2: Aggregate Corporate Bonds

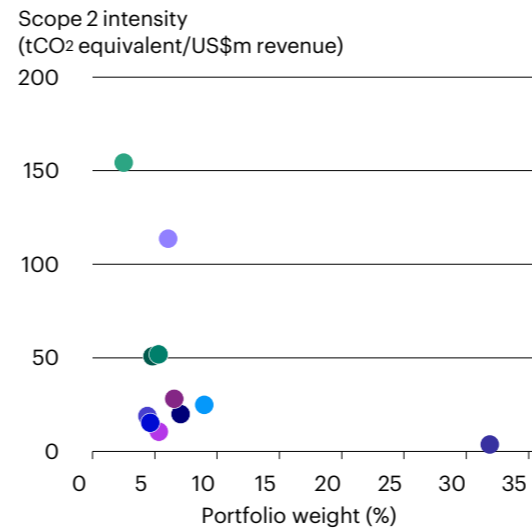
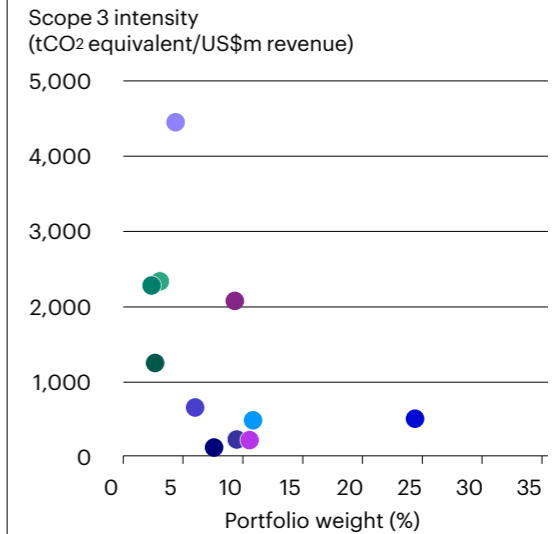
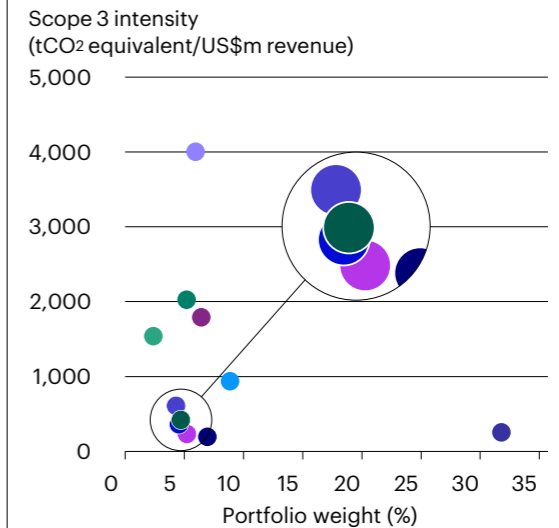


Figure 8
Scope 3: Aggregate Equities



Scope 3: Aggregate Corporate Bonds



Source: Planetrics, a McKinsey & Company solution, as of 31 December 2022. See next page for data table

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

| | | Communication Services | Consumer Discretionary | Consumer Staples | Energy | Financials | Health Care | Industrials | Information Technology | Materials | Real Estate | Utilities |
|----------------------------------|---|------------------------|------------------------|------------------|----------|------------|-------------|-------------|------------------------|-----------|-------------|-----------|
| Scope 1 | | | | | | | | | | | | |
| Aggregate Equities | Scope 1 intensity (tCO ₂ equivalent/US\$m revenue) | 1.83 | 22.33 | 30.16 | 456.92 | 4.83 | 11.46 | 94.75 | 10.47 | 593.45 | 18.30 | 1801.54 |
| | Portfolio weight | 8% | 12% | 7% | 5% | 10% | 11% | 10% | 25% | 4% | 3% | 3% |
| | Portfolio WACI contribution | 0.1% | 2% | 2% | 19% | 0.4% | 1% | 8% | 2% | 19% | 1% | 46% |
| Aggregate Corporate Bonds | Scope 1 intensity (tCO ₂ equivalent/US\$m revenue) | 7.78 | 23.94 | 34.61 | 560.00 | 2.71 | 10.35 | 217.22 | 10.52 | 580.31 | 18.89 | 1540.86 |
| | Portfolio weight | 8% | 10% | 5% | 7% | 33% | 6% | 7% | 6% | 3% | 6% | 6% |
| | Portfolio WACI contribution | 0.3% | 1% | 1% | 21% | 0.5% | 0.4% | 9% | 0.3% | 11% | 1% | 53% |
| Scope 2 | | | | | | | | | | | | |
| Aggregate Equities | Scope 2 intensity (tCO ₂ equivalent/US\$m revenue) | 10.76 | 39.07 | 19.90 | 71.78 | 8.52 | 14.44 | 23.01 | 18.46 | 198.43 | 60.50 | 66.70 |
| | Portfolio | 8% | 12% | 7% | 5% | 10% | 11% | 10% | 25% | 4% | 3% | 3% |
| | Portfolio WACI contribution | 3% | 14% | 4% | 12% | 3% | 5% | 7% | 15% | 24% | 7% | 7% |
| Aggregate Corporate Bonds | Scope 2 intensity (tCO ₂ equivalent/US\$m revenue) | 19.84 | 24.89 | 18.94 | 113.66 | 3.54 | 10.56 | 28.19 | 15.34 | 154.31 | 50.76 | 51.84 |
| | Portfolio | 8% | 10% | 5% | 7% | 33% | 6% | 7% | 6% | 3% | 6% | 6% |
| | Portfolio WACI contribution | 5% | 8% | 3% | 27% | 4% | 2% | 7% | 3% | 18% | 10% | 11% |
| Scope 3 | | | | | | | | | | | | |
| Aggregate Equities | Scope 3 intensity (tCO ₂ equivalent/US\$m revenue) | 131.34 | 495.75 | 663.15 | 4,451.19 | 237.79 | 232.49 | 2,079.58 | 515.87 | 2,339.48 | 1,256.39 | 2,282.82 |
| | Portfolio | 8% | 12% | 7% | 5% | 10% | 11% | 10% | 25% | 4% | 3% | 3% |
| | Portfolio WACI contribution | 1% | 6% | 5% | 24% | 3% | 3% | 22% | 14% | 10% | 5% | 8% |
| Aggregate Corporate Bonds | Scope 3 intensity (tCO ₂ equivalent/US\$m revenue) | 195.52 | 940.37 | 611.38 | 4,004.92 | 257.18 | 234.34 | 1,794.54 | 361.79 | 1,542.67 | 423.46 | 2,025.81 |
| | Portfolio | 8% | 10% | 5% | 7% | 33% | 6% | 7% | 6% | 3% | 6% | 6% |
| | Portfolio WACI contribution | 2% | 10% | 4% | 31% | 9% | 2% | 15% | 2% | 6% | 3% | 14% |

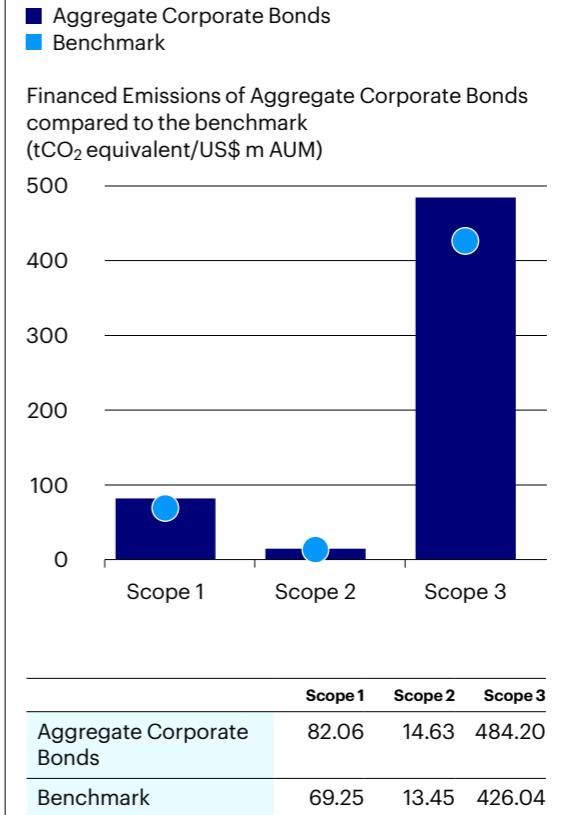
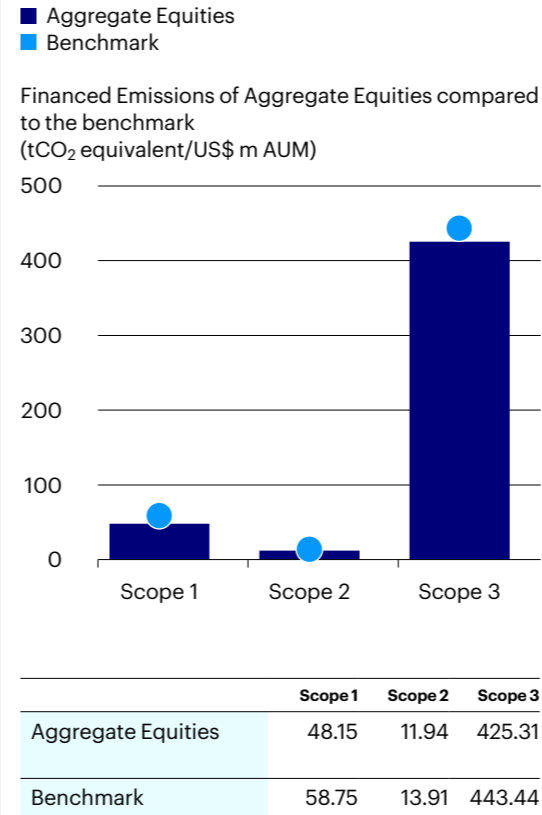
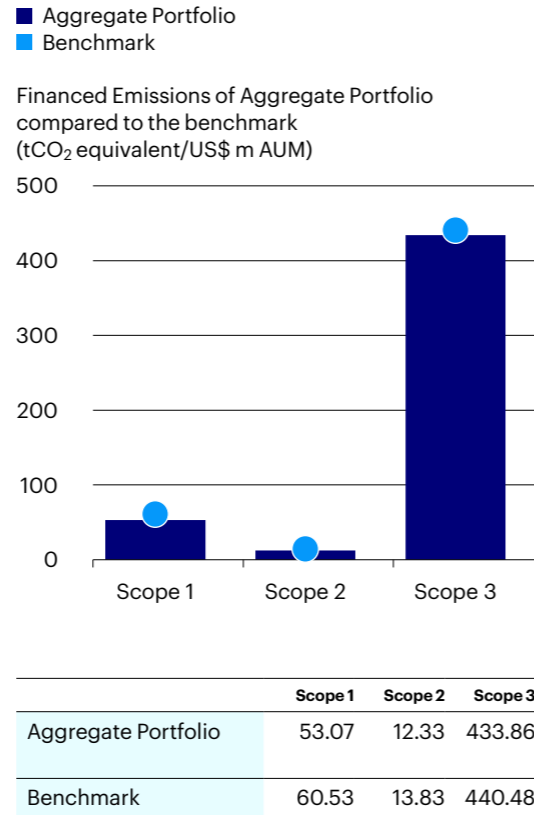
Source: Planetrics, a McKinsey & Company solution, as of 31 December 2022.

Total carbon emissions

We also calculate the portfolio's total carbon emissions⁸ across scopes 1, 2 and 3 in line with PCAF⁹ methodology. We have calculated this by multiplying each portfolio company's reported annual emissions by the proportion of the company's total enterprise value (including cash) that is owned by Invesco, before summing across all companies in the portfolio. For example, if Invesco owns corporate bonds valued at 1% of the total enterprise value of Company X, then the financed emissions associated with Company X would be 1% of Company X's reported annual emissions. This helps us measure the real-world impact of our investment portfolio and therefore what the exposure may be if more regulations are introduced to reduce absolute emissions, for example.

As total emissions are calculated using an issuer's absolute emissions and dollars invested, they lack comparative use between different portfolios or investment firms as larger companies and/or portfolios will naturally have a larger footprint. To allow for greater comparison, we have normalised total emissions here by million dollars invested and distributed the same amount of AUM as our portfolio into the respective benchmarks according to their weight. We can now see that our Aggregate Portfolio and Aggregate Equities perform better than their benchmarks, with Aggregate Corporate Bonds performing slightly worse. The absolute figures for our financed emissions are reported in section

Figure 9
Financed emissions of Invesco's Aggregate Portfolio, Aggregate Equities and Aggregate Corporate Bonds compared to benchmark



Source: Planetrics, a McKinsey & Company solution, as of 31 December 2022.

⁸ This metric is also known as the portfolio's financed or absolute emissions.

⁹ Partnership for Carbon Accounting Financials

4.1.4 Scenario Analysis

Scenarios

Climate scenarios are plausible descriptions of alternative future physical and economic pathways, based on assumptions about the evolution of climate policies, technologies, and the economy over time. Invesco has modelled the impact of a range of climate scenarios on our Aggregate Portfolio, equities and bonds to better understand how these could impact our investments.

Invesco has used the most recent set¹⁰ of climate scenarios developed by NGFS as the basis for our climate scenario analysis¹¹. The 2022 NGFS Phase III scenarios draw on the same Integrated Assessment Models (IAMs) used for the IPCC AR6 report and are widely used by central banks and the financial sector to analyze climate risks and opportunities.

The NGFS 2022 scenario set includes six scenarios that explore varying levels of transition and physical risks through different emissions and temperature pathways. Table 2 summarizes key variables for the three scenarios selected for this year's analysis, including global temperature and emissions trajectories, carbon prices, and energy demand. These scenarios were selected as they reflect a wide range of physical and transition risks.

As discussed in the introduction to this section, there are several developments between Phase II and Phase III that alter the model variables. For example, the Below 2C (Orderly) scenario in Phase II forecast a 2050 carbon price of US\$225/tCO₂. In Phase III this is now \$153/tCO₂ – a decrease of US\$72.5 (-32%). In this case, it is because the rate of uptake of transition technologies, such as EVs, has increased faster than predicted which, if continued, may negate the need for steeper carbon price policy interventions. A reference table has been included here to show these differences for each Phase III variable relative to Phase II (in absolute terms and percentages).

Table 2
Key NGFS scenario variables (used as inputs for modelling)

| Unit | Hot House World | | | Orderly | | | Disorderly | | | |
|---|-------------------------------|-----------------|-----------|----------|-----------------------------|----------|------------|---------|----------|----------|
| | 2030 | 2040 | 2050 | 2030 | 2040 | 2050 | 2030 | 2040 | 2050 | |
| NGFS Phase III model (relative to preindustrial levels (1850-1900)) | | | | | | | | | | |
| Global temperature | °C above preindustrial levels | +1.5 | +1.9 | +2.3 | +1.4 | +1.6 | +1.6 | +1.4 | +1.7 | +1.7 |
| | | Absolute values | | | Relative to Hot House World | | | | | |
| GHG emissions | GtCO ₂ eq/year | 58 | 59 | 62 | -15 | -31 | -43 | 0 | -32 | -47 |
| Carbon prices* | US\$ 2020/tCO ₂ | 7 | 7 | 7 | +49 | +88 | +153 | 0 | +234 | +451 |
| Oil demand* | Mbbl/d | 100 | 90 | 70 | -10 | -10 | -10 | 0 | -10 | -20 |
| Gas demand* | Bn m ³ /year | 3,300 | 3,900 | 4,900 | -400 | -1,600 | -2,800 | 0 | -1,900 | -3,300 |
| Coal demand* | Mtce/year | 5,600 | 5,800 | 6,900 | -2,500 | -5,100 | -6,700 | 0 | -5,200 | -6,700 |
| Comparison to NGFS Phase II model (relative to previous NGFS phase II model)** | | | | | | | | | | |
| Global temperature | °C above preindustrial levels | -0.1 | -0.1 | -0.2 | -0.03 | -0.1 | -0.1 | -0.03 | -0.1 | -0.1 |
| | | (-6.3%) | (-6.7%) | (-7.7%) | (-2.2%) | (-3.8%) | (-5.2%) | (-2.1%) | (-4.7%) | (-6%) |
| | | Absolute values | | | Relative to Hot House World | | | | | |
| GHG emissions | GtCO ₂ eq/year | -1 | -1 | +2 | +5 | +2 | -2 | 0 | +4 | +1 |
| | | (-1.7%) | (-1.7%) | (+3.3%) | (+25%) | (+6.1%) | (-4.9%) | (0%) | (+11.1%) | (+2.1%) |
| Carbon prices* | US\$ 2020/tCO ₂ | +4.2 | +3.5 | +3 | -16.5 | -34.2 | -72.5 | 0 | -156.8 | -283 |
| | | (+141.7%) | (+103.1%) | (+71.3%) | (-25.1%) | (-27.9%) | (-32.2%) | (0%) | (-40.1%) | (-38.6%) |
| Oil demand* | Mbbl/d | +10 | -10 | -20 | -10 | 0 | +10 | 0 | +10 | +30 |
| | | (+11.1%) | (-10%) | (-22.2%) | (-10%) | (0%) | (+50%) | (0%) | (+50%) | (+60%) |
| Gas demand* | Bn m ³ /year | -500 | -100 | +900 | 0 | -100 | -400 | 0 | +300 | -100 |
| | | (-13.2%) | (-2.5%) | (+22.5%) | (0%) | (-6.7%) | (-16.7%) | (0%) | (+13.6%) | (-3.1%) |
| Coal demand* | Mtce/year | 0 | +300 | +900 | +500 | 0 | -800 | 0 | +100 | -800 |
| | | (0%) | (+5.5%) | (+15%) | (+16.7%) | (0%) | (-13.6%) | (0%) | (+1.9%) | (-13.6%) |

Source: PlanetView Scenario Explorer 2022Q2. ** Change in absolute values; in brackets: % change in values.

Hot House World (current policies): Existing climate policies remain in place, but there is no strengthening of ambition level. Thus, there is no transition risk. Heightened physical risks are assumed through high climate sensitivity, specifically 90th percentile temperature increase (4.2°C by 2100), high levels of ice sheet melt, and higher responsiveness of tropical and European windstorm frequency and intensity to changing temperatures.

Below 2C (Orderly): Gradual increase in the stringency of climate policies, giving a 67% chance of limiting global warming to below 2°C throughout the 21st century. As a result, physical risks are smaller in this scenario than in Hot House World. Transition impacts by contrast are larger: carbon-intensive sectors experience increasing costs due to rising carbon prices and reduced revenue from falling demand; low-carbon products and commodities associated with them experience increasing demand over time. This has significant impacts on sectors like energy and transport in the near term and the longer term.

Delayed transition (Disorderly): Imposes the 2°C target in 2100 and allows for temporary overshoot. Annual emissions do not decrease until 2030. Strong policies are then needed to limit warming to below 2°C. This scenario includes regional carbon price variation. Regional net-zero targets for countries with clear commitments (China, EU, Japan, and USA) are applied from 2030 onwards, but for other countries ambition equivalent to the overall temperature target of below 2°C in 2100 is assumed leading to strong regional differentiation.

¹⁰ NGFS published its initial set of climate scenarios in 2020. In September 2022 NGFS released an updated scenario set. These updated scenarios are used as a basis for the analysis in this chapter.

¹¹ NGFS Climate scenarios (2022), https://www.ngfs.net/sites/default/files/medias/documents/ngfs_climate_scenarios_for_central_banks_and_supervisors_.pdf

Greenhouse gas emissions are the key driver of physical risk in the scenarios, since these determine global temperature changes over the coming decades, which in turn determines the level of physical climate change impacts. Each scenario has a different emissions trajectory over time (Figure 10, top left). Physical impacts are greatest in the Hot House World scenario, where emissions continue to increase and global mean temperature rises by 2.5°C by 2050 (Figure 10, top right). This increases the risk of natural hazards such as coastal flooding and other weather-related disasters. Hazards disproportionately affect some countries and companies because they are location-specific. For example, companies with a high proportion of coastal assets may experience high increases in costs resulting from climate damage.

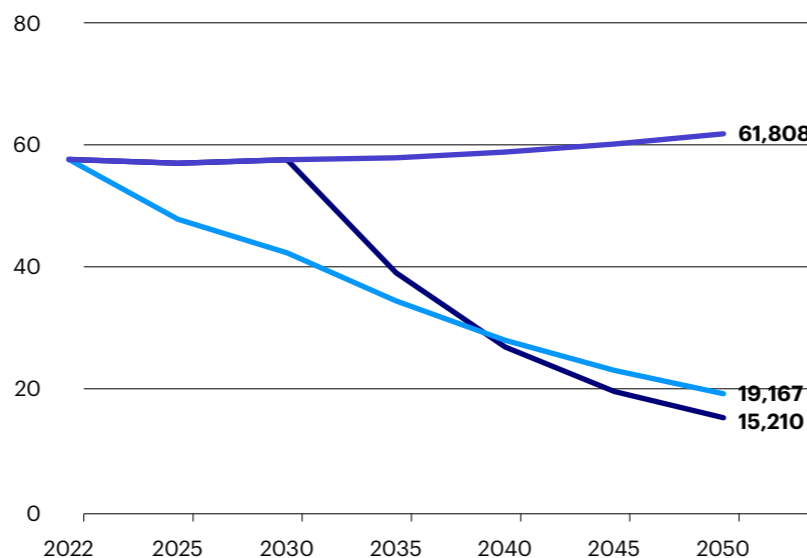
Carbon pricing is the largest direct driver of transition risk. In the Below 2C and Delayed transition scenarios, emissions fall year on year until 2050 due to increased carbon prices. These structural changes create risks for Invesco:

- Revenues increase for companies exposed to low-carbon products anywhere in the value chain, such as renewable energy and electric vehicles
- Revenues decrease for companies exposed to carbon-intensive products from demand destruction
- Carbon-intensive companies face increases in costs of production as carbon prices rise, losing market share to less emission-intensive rivals

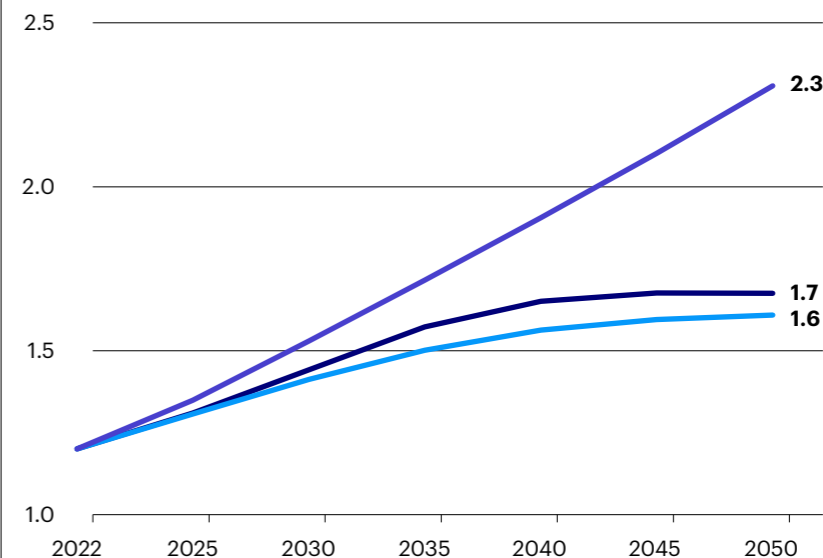
Figure 10
Selected NGFS scenario variables for the Hot House World, Orderly, and Disorderly scenarios²⁰

■ Delayed transition
■ Below 2C
■ Hot House World

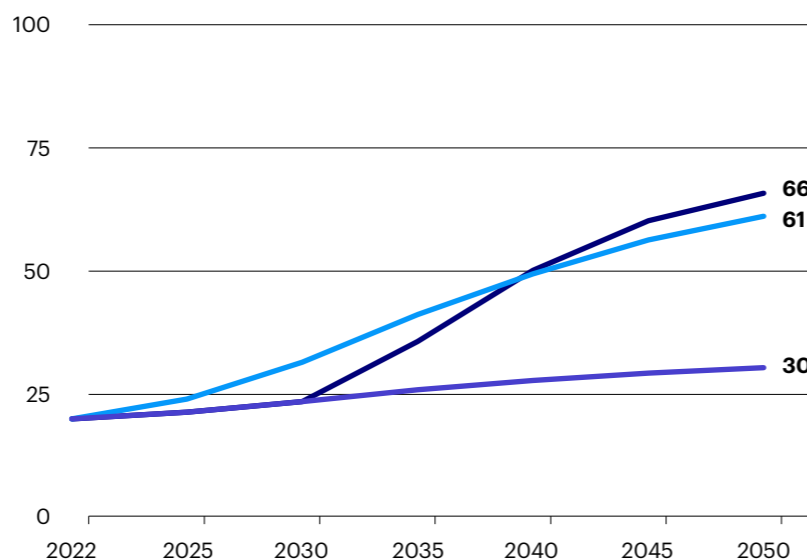
Greenhouse gas emissions (Gt CO₂e/year)



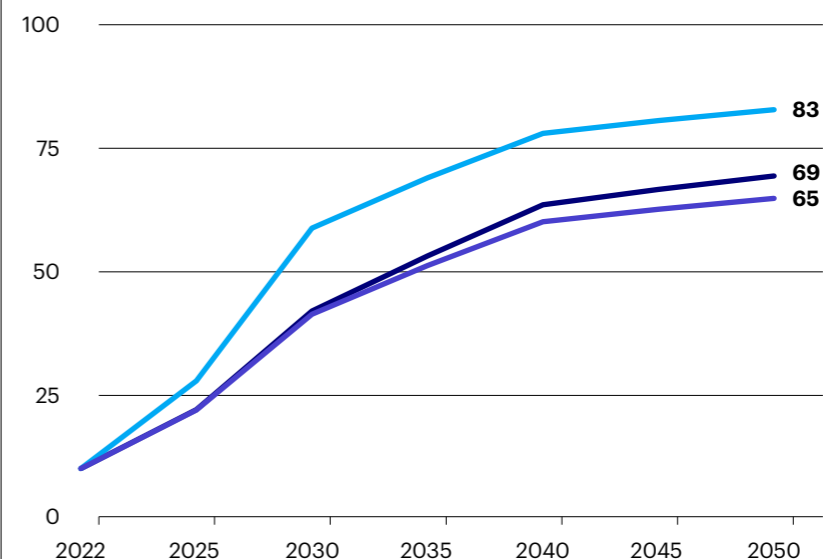
Global mean temperature rise (°C)



% of Low Carbon Energy in Global Energy Mix (EJ/year)



% of Global Vehicle Sales that are Ultra Low Emission Vehicles (ULEVs)



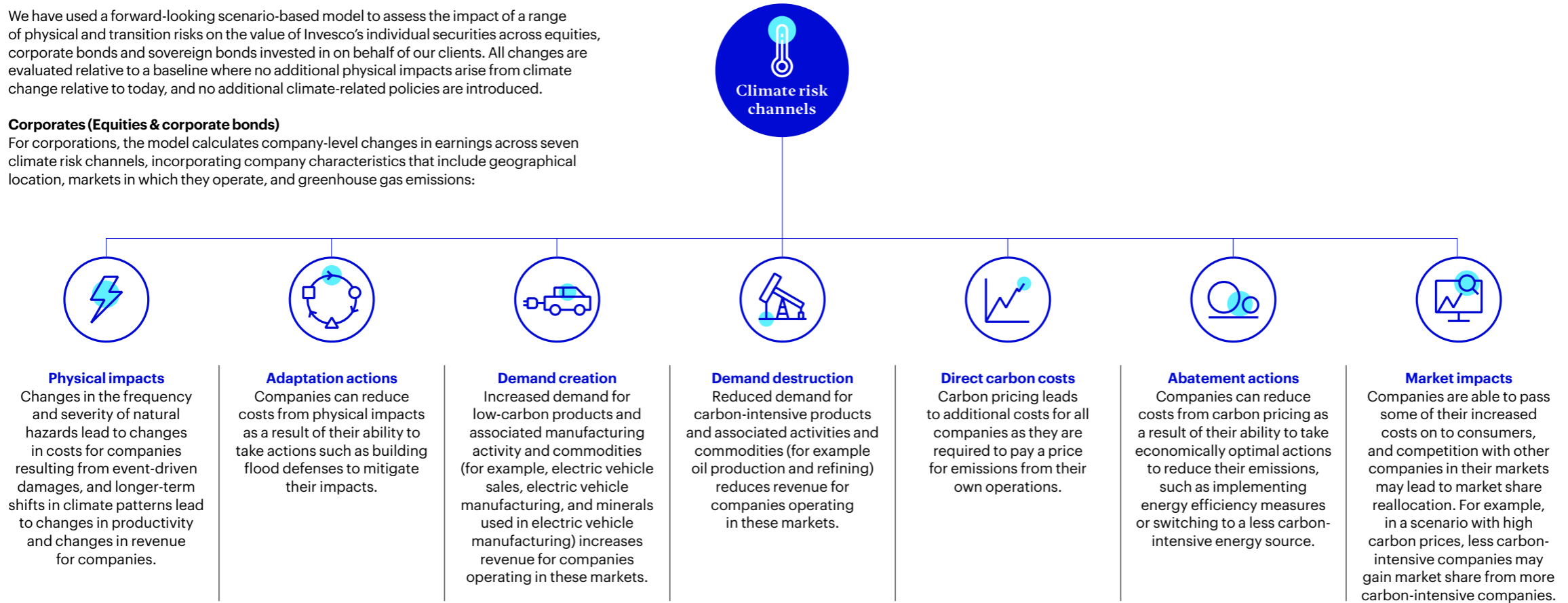
Source: Planetrics, a McKinsey & Company solution, as of 31 December 2022

Model

We have used a forward-looking scenario-based model to assess the impact of a range of physical and transition risks on the value of Invesco's individual securities across equities, corporate bonds and sovereign bonds invested in on behalf of our clients. All changes are evaluated relative to a baseline where no additional physical impacts arise from climate change relative to today, and no additional climate-related policies are introduced.

Corporates (Equities & corporate bonds)

For corporations, the model calculates company-level changes in earnings across seven climate risk channels, incorporating company characteristics that include geographical location, markets in which they operate, and greenhouse gas emissions:



Changes in overall company earnings are calculated for each year of the scenario horizon to 2050, and then translated into impacts on equity value and corporate bond value for each climate scenario.

Sovereign bonds

The model calculates the impacts of each climate scenario on the value of sovereign bonds based on macroeconomic changes that could arise under that scenario. Climate scenarios can create a range of macroeconomic impacts, including changes in inflation (for example, because carbon prices raise energy costs), GDP (for example, because natural perils damage infrastructure and reduce the productive capacity of the economy), and trade patterns (for example, as fossil fuel exporters see the volume and value of their exports decline). Central bank policymakers adjust interest rates in response to these changes in inflation and GDP, and the level of outstanding government debt relative to GDP affects governments' perceived probability of default.

Both of these factors impact sovereign bond values. For example, if a climate scenario leads to a significantly lower GDP in a particular country, the interest rates may increase, leading to higher prices for sovereign bonds. All macroeconomic variables used in the modelling of sovereign bond prices are provided by the NGFS Phase III¹², based on the National Institute Global Econometric Model (NiGEM) run by the National Institute of Economic and Social Research

¹² NGFS Climate scenarios (2022), https://www.ngfs.net/sites/default/files/medias/documents/ngfs_climate_scenarios_for_central_banks_and_supervisors_.pdf

Insight from scenario analysis

Our scenario analysis has several key findings observed during our analysis of our holdings.

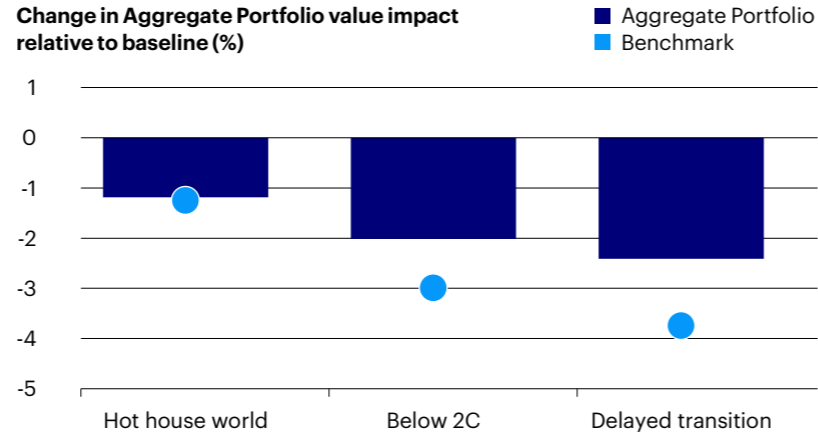
Comparing the results from last year's analysis using phase II scenarios to this year's updated phase III models, we observe several noteworthy differences.

1. The magnitude of value impairment has increased for all portfolios in all scenarios, except corporate bonds which saw a very slight improvement in the Below 2C and Delayed Transition scenarios.
2. The corporate bonds benchmark experienced a big improvement compared to last year, leading to the Aggregate Corporate Bonds portfolio looking relatively worse.
3. In 2021, Aggregate Sovereign Bonds had seen a small increase in value under the Hot House World scenario. This is now zero and a larger decrease in a Below 2C scenario has also occurred.
4. The portfolios still perform about the same or better than their benchmarks in all scenarios, except for Aggregate Corporate Bonds.

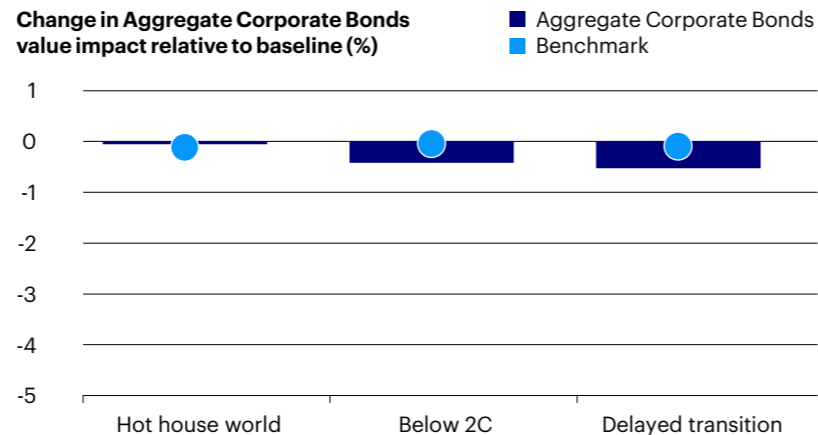
In terms of asset classes, equities continue to be the most strongly impacted, with significant differences between and within industry sectors. However, with the updated models the impact on equities is now more negative than last year's analysis and the difference to the benchmark has narrowed, although it still performs better. Corporate bonds still experience the smallest impacts, and sovereign bonds the greatest variation.

Overall, this year's updated TCFD report highlights the importance of considering the latest climate scenario data and incorporating updates to better understand and manage climate-related financial risks. The differences in value impacts across asset classes and scenarios emphasize the need for asset managers to continue to monitor and adjust their portfolios to navigate the evolving landscape of climate risks and opportunities.

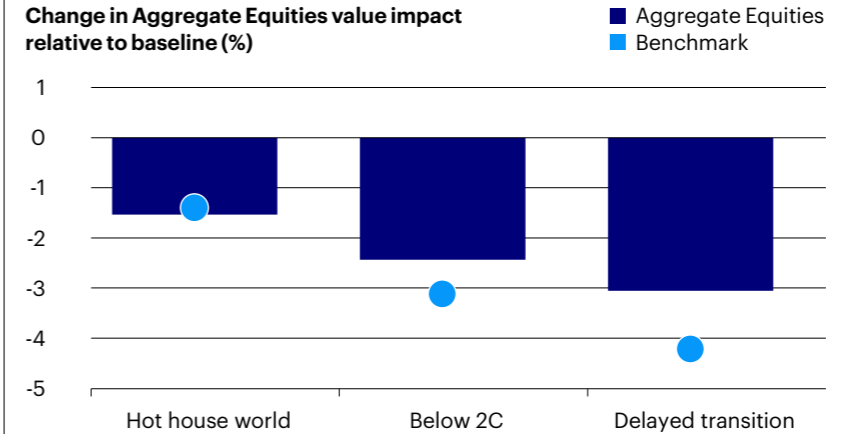
Figure 11
Change in value impacts by scenario for Invesco's Aggregate Portfolio, Aggregate Equities, Aggregate Corporate Bonds and Aggregate Sovereign Bonds



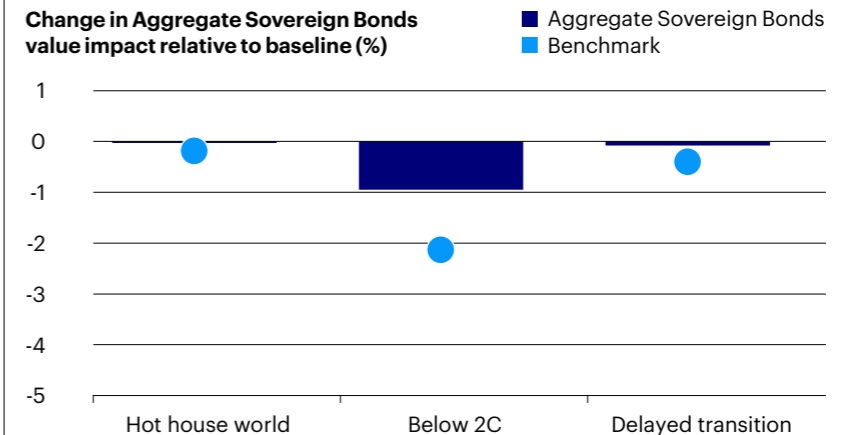
| | Hot House World | Below 2C | Delayed transition |
|---------------------|-----------------|----------|--------------------|
| Aggregate Portfolio | -1.2% | -2.0% | -2.4% |
| Benchmark | -1.2% | -3.0% | -3.7% |



| | Hot House World | Below 2C | Delayed transition |
|---------------------------|-----------------|----------|--------------------|
| Aggregate Corporate Bonds | -0.1% | -0.4% | -0.5% |
| Benchmark | -0.1% | 0.0% | -0.1% |



| | Hot House World | Below 2C | Delayed transition |
|--------------------|-----------------|----------|--------------------|
| Aggregate Equities | -1.5% | -2.4% | -3.1% |
| Benchmark | -1.4% | -3.1% | -4.2% |



| | Hot House World | Below 2C | Delayed transition |
|---------------------------|-----------------|----------|--------------------|
| Aggregate Sovereign Bonds | 0.0% | -1.0% | -0.1% |
| Benchmark | -0.2% | -2.1% | -0.4% |

Source: Planetrics, a McKinsey & Company solution, as of 31 December 2022.

Physical risk

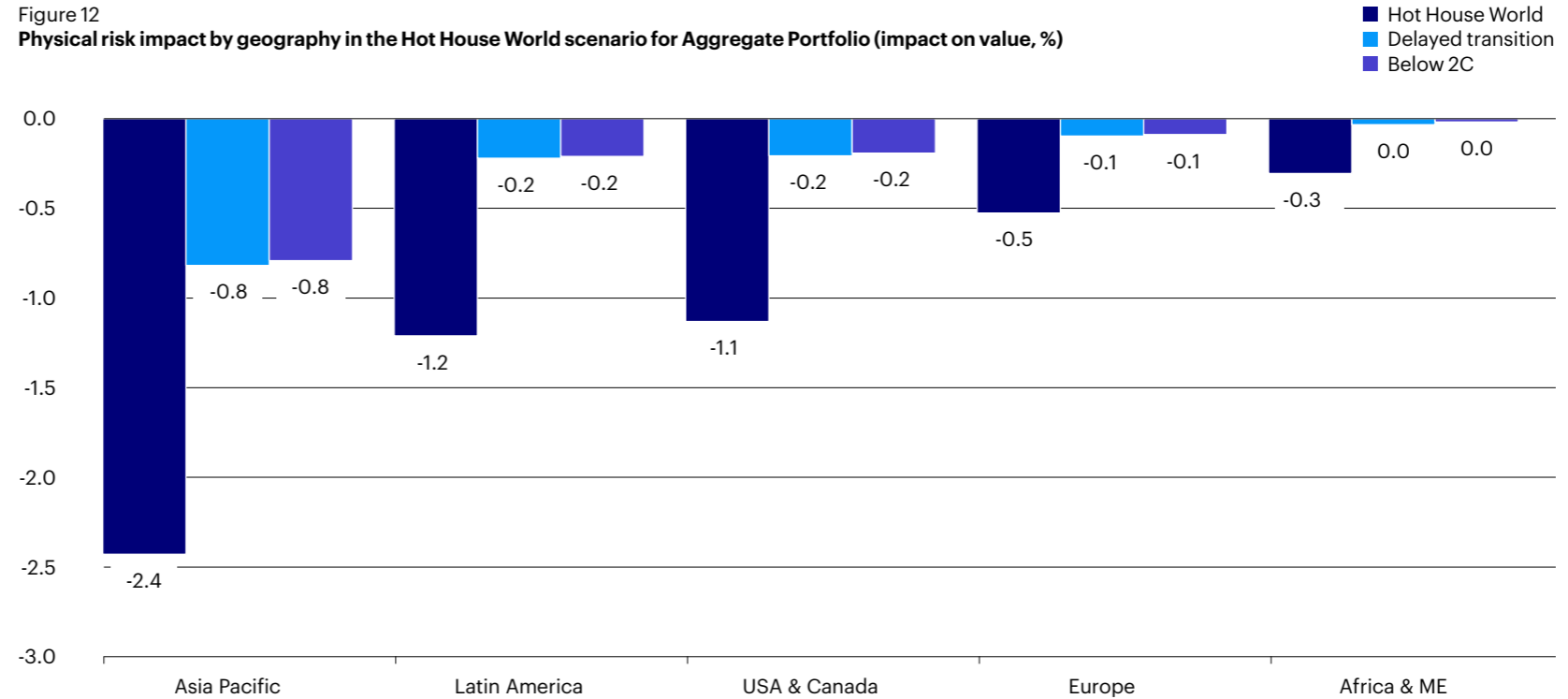
Except for sovereign bonds, impacts in the Hot House World scenario are still smallest among the three scenarios we have tested. This suggests our portfolio is more exposed to transition risks than physical risks. However, there are significant variations between regions, with assets in the Asia Pacific region particularly impacted (Figure 12). This has relatively less impact on Invesco's overall portfolio since the region represents 12% of the portfolio value. Impacts also vary considerably between industry sectors, with companies in the Energy and Consumer Services sectors more impacted. These industries represent 14% of the aggregate portfolio.¹²

The smaller portfolio value impacts in the Hot House World scenario also reflect the approach we have taken to modelling physical climate risks. We have modelled impacts in the period to 2050, while many of the more severe climate-related physical stresses will materialize in the second half of the century in the Hot House World scenario. We have also not modelled supply chain risks and other secondary impacts that could also impact companies in future.

We now have the ability to analyse specific types of physical risk, such as coastal and river floods, tropical cyclones and wildfires, at the individual security level for equities and corporate bonds. However, we are not yet able to perform this analysis in the aggregate. We will continue to develop our modelling of these risks over time.

Figure 12

Physical risk impact by geography in the Hot House World scenario for Aggregate Portfolio (impact on value, %)



Source: Planetrics, a McKinsey & Company solution, as of 31 December 2022.

²⁵ Region and sector exposure in this context is calculated for equities and corporate debt only and does not include real estate or sovereign debt assets. The Aggregate Equities and Aggregate Corporate Bond portfolios represent 86% of the Aggregate Portfolio.

Equities are the most strongly impacted asset class, with significant differences between and within industry sectors

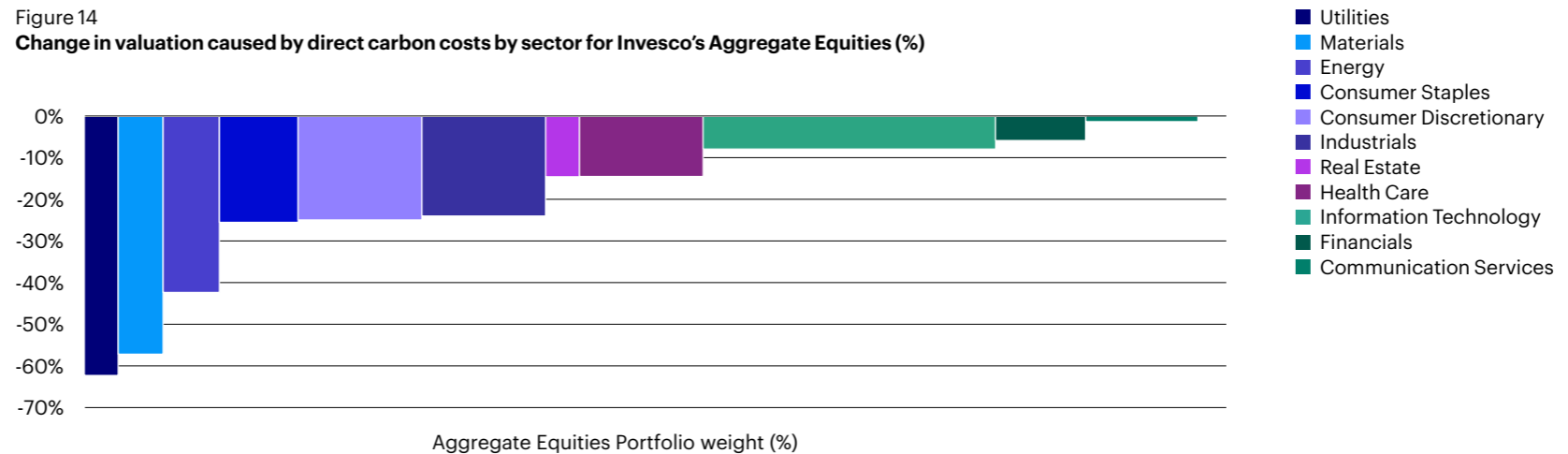
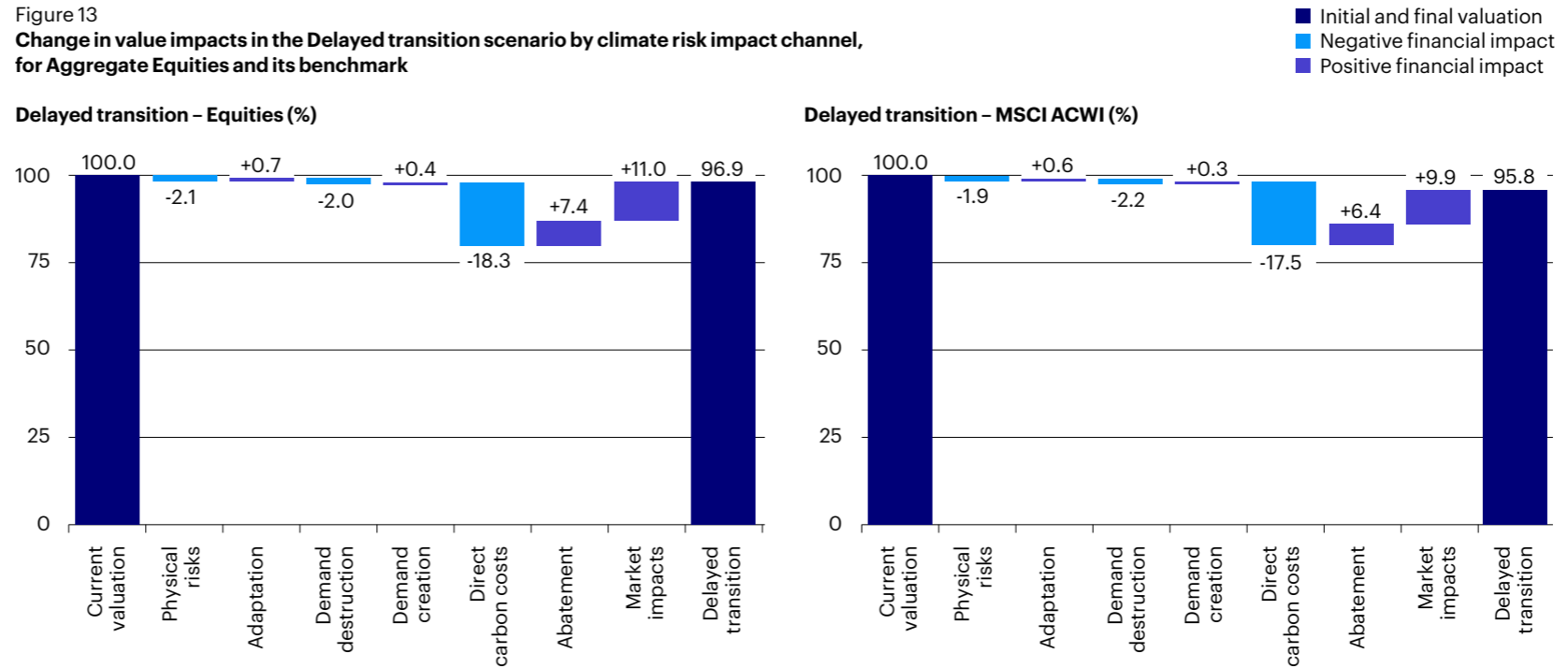
The largest value impacts are seen in the Aggregate Equities portfolio (Figure 11). Among the multiple climate risk drivers modelled for corporates, direct carbon costs result in the largest negative value impacts and contribute most to overall portfolio value impact in the Delayed transition scenario (Figure 13).

Within the Aggregate Equities portfolio, different sectors have different exposure to direct carbon costs. The sectors with the highest scope 1 and 2 emissions intensities (Materials and Utilities) (Figures 6 & 7) experience the most negative impacts from direct carbon costs in the Delayed transition scenario (Figure 14).

Although the Information Technology sector has a low emissions intensity and a relatively small value impact from direct carbon costs, it has a larger weighting within Invesco's portfolio and contributes similarly to overall portfolio value impact from direct carbon costs (Figure 14).

The impact of direct carbon costs can be mitigated through taking abatement actions that reduce emissions (Figure 13). The model assumes that companies take economically optimal abatement action, such as employing technology or improving operations, when the cost of abating one ton of emissions is less than the carbon price of emitting one ton of emissions. This results in net savings for companies, however the potential savings from abatement varies significantly by sector, driven by differences in the availability and price of existing mitigation technologies.

Companies are also able to pass on a share of remaining cost increases to consumers, resulting in a positive value impact from the 'Market impacts' channel (Figure 13). The 'Market impacts' channel also captures market share reallocation, with some companies able to gain market share at the expense of more carbon intensive competitors. These effects reduce the overall impact of climate risks across the whole portfolio, though there are significant variations in individual companies' abilities to pass through costs and gain market share.



Source: Planetrics, a McKinsey & Company solution, as of 31 December 2022.

Our sector-level analysis has been enhanced with the updated NGFS scenarios and climate models, and here we include counterparty information to highlight significant risk variations within sectors that can be comparable to those between sectors.

In the Delayed Transition scenario, for instance, the median decrease in the value of our Energy sector equity holdings has adjusted to approximately 30%, an improvement in outlook from the 55% median decrease reported last year. However, the impact dispersion among individual firms in this sector is still considerable, with some firms experiencing a value decline of up to 82% (though this is still an improvement from last year's maximum of 90%). A few firms show minimal value losses, and some now have the potential to increase in value by up to 7% – a contrast to last year when all were projected to decrease in value. The key determinants of value impact for the Energy sector remain the firms' exposure to stranded assets and fossil fuel prices, along with the emissions intensity of their operations.

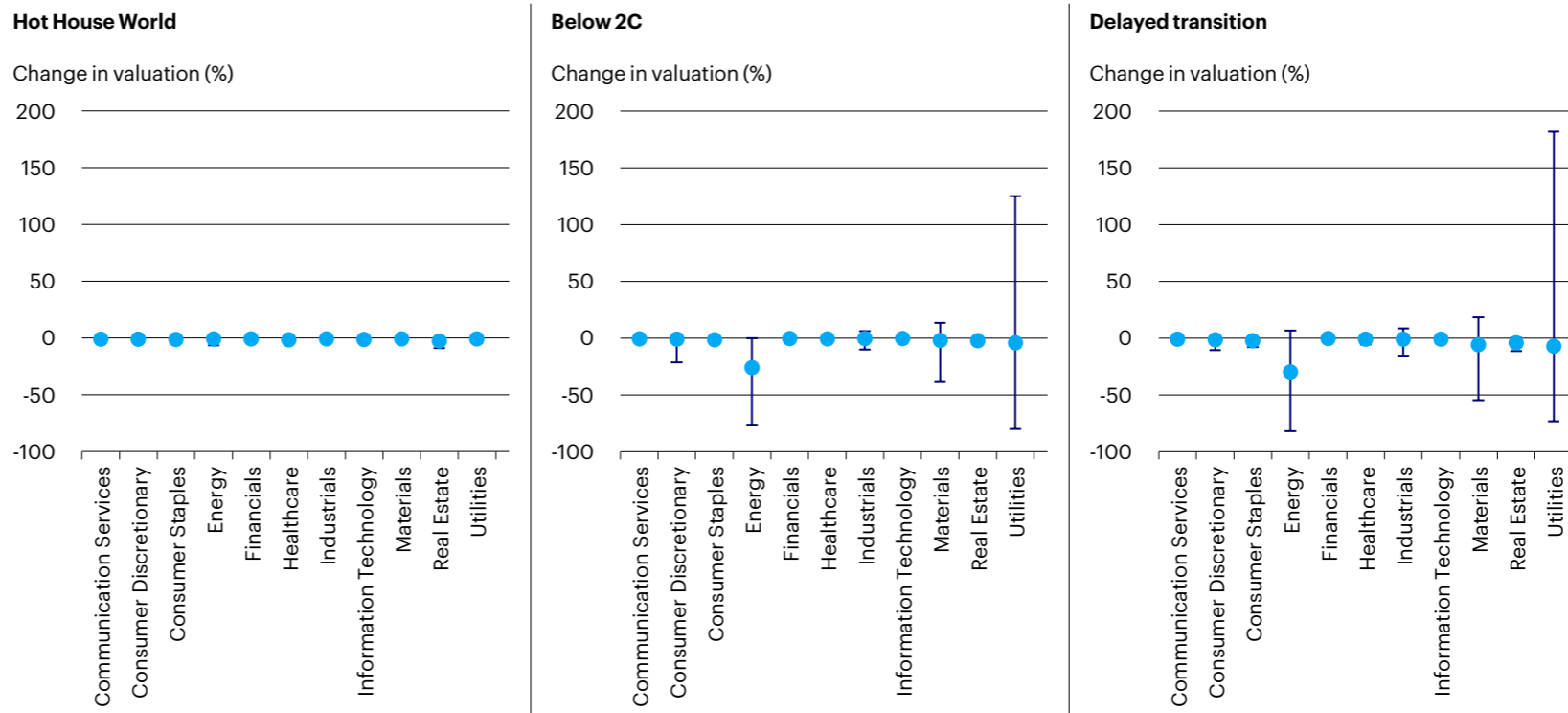
For the Utilities sector, the median impact on our equity holdings has changed to -7% in the Disorderly scenario, an improvement from last year's -11%. However, the range of outcomes within this sector is broad. In a significant shift from last year's projections where some companies were predicted to more than double in value, the maximum is now 182%. Meanwhile, others could face considerable value reductions of up to 73%. The primary driver of value impact continues to be the carbon intensity of electricity generation. Low-carbon utilities may experience minor cost increases due to direct carbon costs but could gain from market share reallocation from high-carbon competitors. On the other hand, high-carbon utilities could face substantial cost increases leading to eventual market exit, which would result in significant negative value impacts.

These intra-sector variations are significant considerations in our investment decisions and our interactions with firms in high-exposure sectors.

Under the Hot House World scenario, both median impact and variance are small due to the relatively low transition risks. The main risk driver in this scenario is exposure to physical risks, which differs based on sector and geography.

Figure 15
Change in value impacts (Median, 10th percentile and 90th percentile) by sector and scenario for Invesco's equity holdings)

90th percentile
Median
10th percentile



| | Communication Services | Consumer Discretionary | Consumer Staples | Energy | Financials | Healthcare | Industrials | Information Technology | Materials | Real Estate | Utilities |
|-----------------------------|------------------------|------------------------|------------------|--------|------------|------------|-------------|------------------------|-----------|-------------|-----------|
| Hot House World | | | | | | | | | | | |
| Median | -1% | -1% | -1% | -1% | -1% | -2% | -1% | -1% | -1% | -3% | -1% |
| 10 th percentile | -3% | -4% | -4% | -7% | -2% | -3% | -3% | -3% | -3% | -9% | -5% |
| 90 th percentile | 0% | 0% | 0% | 2% | 0% | 0% | 0% | 0% | 1% | 0% | 1% |
| Below 2C | | | | | | | | | | | |
| Median | -1% | -1% | -1% | -26% | 0% | -1% | 0% | 0% | -2% | -2% | -4% |
| 10 th percentile | -2% | -21% | -4% | -76% | -1% | -3% | -10% | -3% | -39% | -6% | -80% |
| 90 th percentile | 0% | 0% | 0% | 0% | 0% | 0% | 6% | 1% | 13% | 0% | 125% |
| Delayed transition | | | | | | | | | | | |
| Median | -1% | -1% | -2% | -30% | 0% | -1% | -1% | -1% | -6% | -4% | -7% |
| 10 th percentile | -3% | -11% | -8% | -82% | -1% | -6% | -15% | -5% | -55% | -11% | -73% |
| 90 th percentile | 0% | 1% | 0% | 7% | 0% | 0% | 8% | 2% | 18% | 0% | 182% |

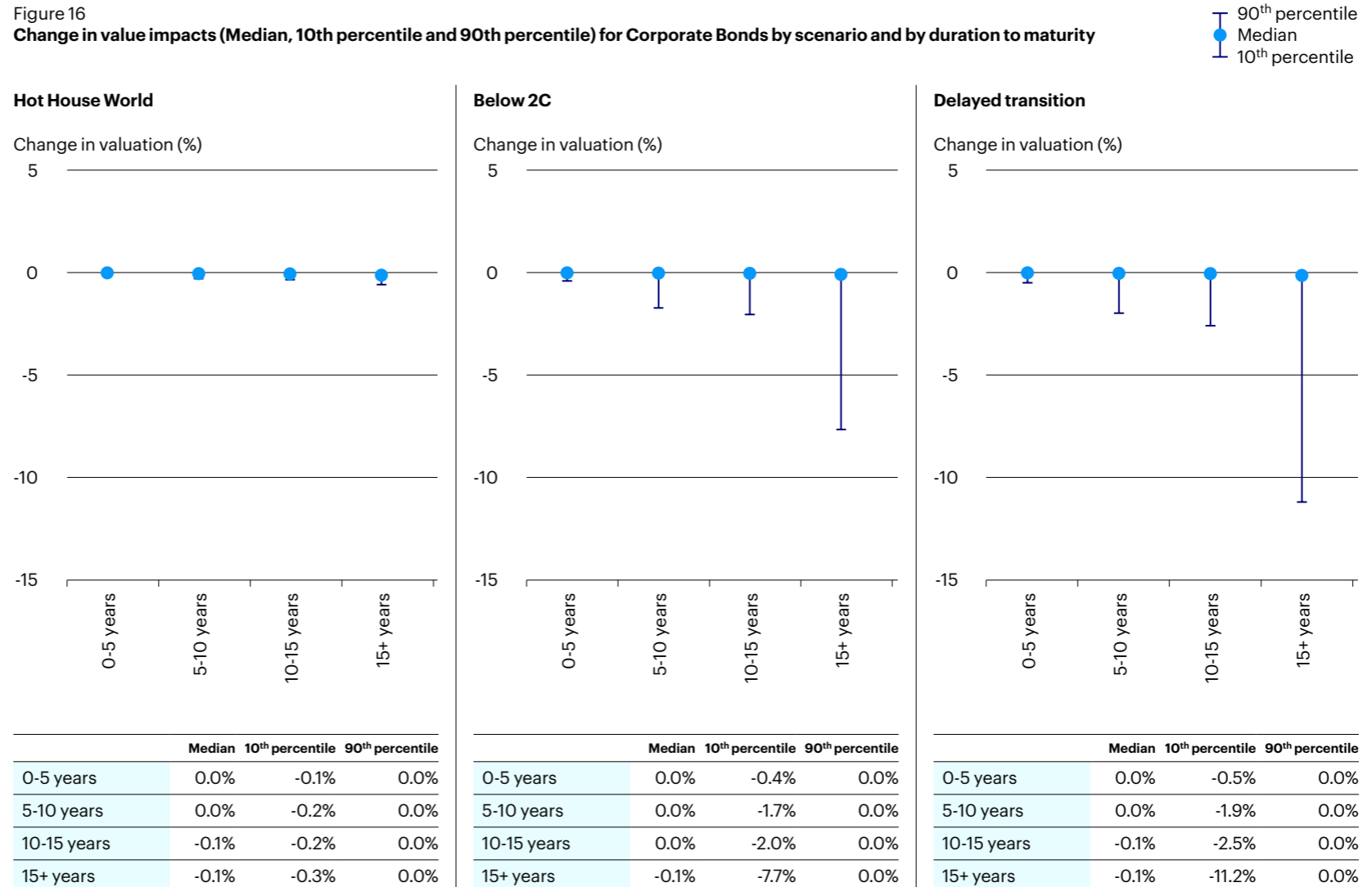
Source: Planetrics, a McKinsey & Company solution, as of 31 December 2022.

Corporate bonds experience smaller value impacts than equities, with the longer maturity bonds more strongly affected

Equities absorb much of the change in companies' profitability, with corporate bond value impacts changing only when profitability impacts are relatively large. In addition, many of Invesco's corporate bond holdings are for relatively short maturities, whereas the largest transition and physical risks materialize after 2030, resulting in lower exposure to these risks for corporate bonds.

Median impacts are small (<1%) in all scenarios and for all bond durations, but for a relatively small number of companies, impacts are significantly larger. Impacts are largest in the Delayed transition scenario, where companies in highly exposed sectors experience the deepest reductions in profitability. Value impacts for long-dated bonds with maturities of more than 15 years in the future exceed -5% for the most highly impacted companies. In all scenarios, corporate bond value impacts are smallest for short-duration bonds and largest for long-duration bonds. This is a result of the increase in both transition risks and physical risks over time in all scenarios.

Even though short duration bonds held by Invesco today present a low-level of climate risk, they could present risks in future if Invesco continues to roll over short-term bonds to any highly exposed counterparties. We will therefore proactively manage our exposure over time to track and mitigate this risk.



Source: Planetrics, a McKinsey & Company solution, as of 31 December 2022.

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

Sovereign bond values are sensitive to climate risks and can increase and decrease in value depending on countries' exposure to climate risks and their approach to managing those risks.

Whereas previously sovereign bonds on average gained value in Hot House World and Below 2C scenarios, they now see neutral to negative outlooks.

Climate risks impact sovereign bond values through two channels. Transition and physical risks reduce economic output measured in GDP, and in response to these negative shocks, central banks would tend to reduce interest rates to stimulate the economy. Increasing carbon prices also drives inflation, and increased inflation will tend to lead central banks to increase interest rates to reduce inflation. The sovereign bond modelling captures the dynamics of base interest rate changes driven by central banks optimizing policy between rising inflation and contracting GDP. Scenario modelling inputs on sovereign debt are taken from NGFS scenario modelling data and forecasts.

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 countries, the impact on GDP will dominate, while for economies that are heavily dependent on fossil fuel consumption, the inflation effect will dominate, particularly in the later years of the Below 2C and Delayed transition scenarios where carbon prices are highest. Similar to corporate bonds, impacts for sovereign bonds are largest in the later years of the scenarios, since transition and physical risks are higher. Therefore, sovereign debt that has longer maturity will have larger value impacts than shorter durations

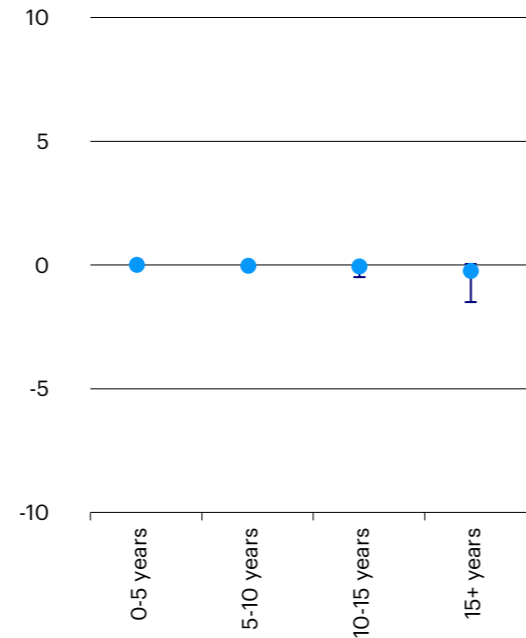
Figure 17

Change in value impacts (Median, 10th percentile and 90th percentile) for Sovereign Bonds by scenario and by duration to maturity

90th percentile
● Median
10th percentile

Hot House World

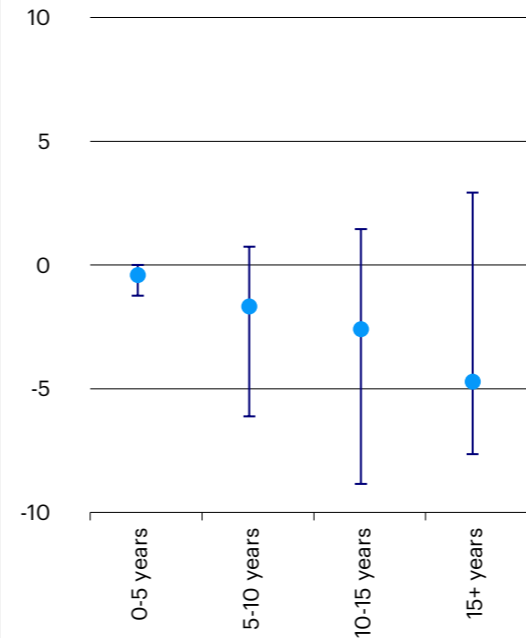
Change in valuation (%)



| | Median | 10 th percentile | 90 th percentile |
|-------------|--------|-----------------------------|-----------------------------|
| 0-5 years | 0.0% | 0.0% | 0.0% |
| 5-10 years | 0.0% | -0.1% | 0.0% |
| 10-15 years | -0.1% | -0.4% | 0.0% |
| 15+ years | -0.2% | -1.0% | 0.0% |

Below 2C

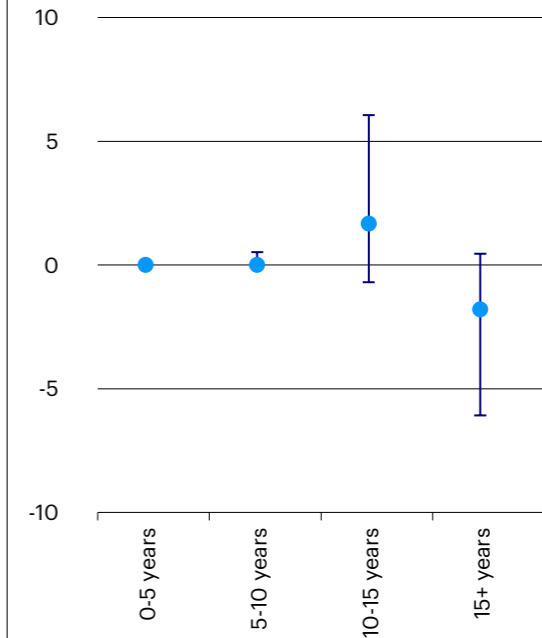
Change in valuation (%)



| | Median | 10 th percentile | 90 th percentile |
|-------------|--------|-----------------------------|-----------------------------|
| 0-5 years | -0.4% | -1.2% | 0.0% |
| 5-10 years | -1.7% | -2.8% | -0.7% |
| 10-15 years | -2.6% | -3.7% | -1.5% |
| 15+ years | -4.7% | -7.6% | -2.9% |

Delayed transition

Change in valuation (%)



| | Median | 10 th percentile | 90 th percentile |
|-------------|--------|-----------------------------|-----------------------------|
| 0-5 years | 0.0% | 0.0% | 0.0% |
| 5-10 years | 0.0% | -0.1% | 0.5% |
| 10-15 years | 1.7% | 0.7% | 2.7% |
| 15+ years | -1.8% | -6.1% | 0.5% |

4.1.4.1 Forecast Policy Scenario

Climate policy developments over the next 5 to 10 years are key to shaping Invesco's climate strategy. To explore the implications of the kinds of climate policies that could materialize within this horizon, we have again tested our portfolio against the 'Forecast Policy Scenario' (FPS). This scenario provides Invesco with an insight into how 'real-world' climate policies are likely to develop and their potential impact on the economy and energy system. This provides an alternative view to the NGFS climate scenarios, which rely solely on carbon pricing as the policy driver for reducing emissions.

The FPS forecasts higher policy ambition across eight key policy levers, including coal phase-out, zero emission vehicle legislation, and carbon pricing. This results in an emissions pathway with a 50% probability of keeping average global temperature rise to below 2°C. At COP27, IPR launched the new IPR Policy Gap Analysis assessing total progress to date against the Inevitable Policy Response scenarios in the years preceding the 2025 ratchet. It builds upon the 2022 Quarterly Forecast Trackers and provides a sector-by-sector assessment of policy developments across the G20+ economies (Table X). Analysis finds that the FPS 1.8C scenario, where policy ambition will be ratcheted up by 2025, is still in reach.

Our Henley Fixed Interest (HFI) team met with an issuer in 2022 to discuss their electric vehicle (EV) transition, supply chain risks and decarbonization strategy. See engagement case study for how we take this into consideration.

Table 3

Forecast Policy Scenario assumptions example: Electric Vehicle Policy Overview

| FPS Policy Forecast 2021 | FPS Policy Updates 2022 | Supporting policy trends ¹³ |
|--|--|--|
| <p>Sales ban of internal combustion engine (ICE) vehicles in leading countries by 2035</p> <p>Other countries follow as industry reaches a tipping point and EVs reach cost parity with ICEs by 2030</p> | <ul style="list-style-type: none"> • UK is exceeding its forecast IPR targets for EV deployment (Q1) • EV sales are increasing rapidly, exceeding IPR forecasts for growth in certain regions; charging infrastructure will need to grow at pace (Q2) • On technology developments, including deployment, there have been positive trends particularly on electric vehicles which accounted for 10% of global sales in 2021, exceeding IPR forecasts (Q2) | <ul style="list-style-type: none"> • EU voted to prohibit the sale of any new ICE vehicles in the 27-nation bloc from 2035. The timetable is set to endorse a 55% reduction in CO2 from automobiles in 2030 compared with 2021 – this is an increase from the 37.5% CO2 reduction required of automakers initially set last year. • The Biden Administration has already set a goal to electrify all new light-duty vehicles by 2027, and to make all federal vehicle acquisitions electric by 2035. • The Inflation Reduction Act and the Bipartisan Infrastructure Law included multiple policies and programs to promote the U.S. manufacturing and supply chain of these clean vehicles. • South Korea decided to phase out internal combustion engine (ICE) vehicles from its subsidy program for low-emission vehicles starting in 2024. |

Source: Inevitable Policy Response; Forecast Policy Scenario.

Aggregate Portfolio

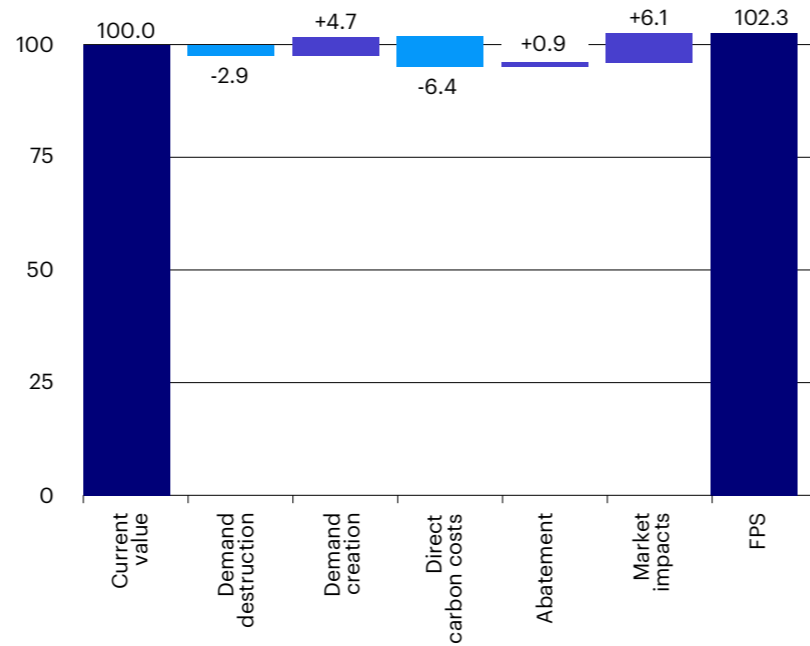
The Aggregate Portfolio has an overall slightly positive value impact in the FPS, compared with a slightly negative impact in the Below 2C. This is mostly due to greater positive value impact from the 'Demand creation' channel. This is partly driven by the impact of the more rapid uptake in EVs in the FPS, which leads to a greater increase in revenues for electric vehicle manufacturing and its supply chain, including metals required for EV batteries (e.g., lithium). Higher uptake of EVs also leads to an increase in demand for electricity, resulting in greater capacity additions for solar and wind, and more positive value impacts for low-carbon utilities and manufacturers of renewable technologies. As the projected sale of fossil fuelled vehicles continues to be phased out, there is a reduction in demand for oil, which leads to greater negative impacts from 'Demand destruction'.

The differences in the evolution of the economy and energy sector between the two scenarios provide insights into how different transition pathways could affect Invesco's portfolio and will inform Invesco's strategy and decision-making on climate in the coming years.

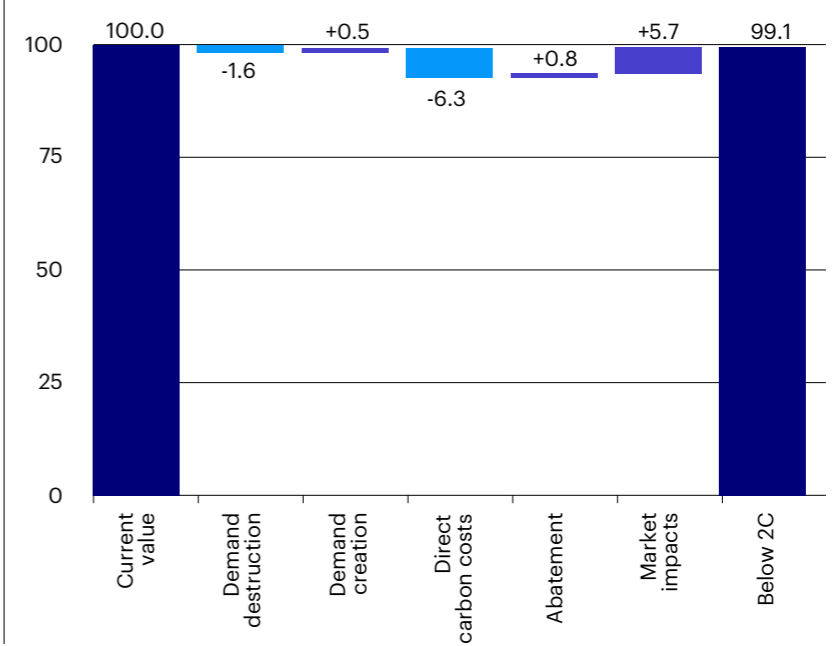
Figure 18

Change in value by impact channel for the Aggregate Portfolio in the FPS and Below 2C scenarios, for transition risk only

Aggregate Portfolio – FPS (transition only)



Aggregate Portfolio – Below 2C (transition only)



Source: Planetrics, a McKinsey & Company solution, as of 31 December 2022.

■ Initial and final valuation
 ■ Negative financial impact
 ■ Positive financial impact

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.



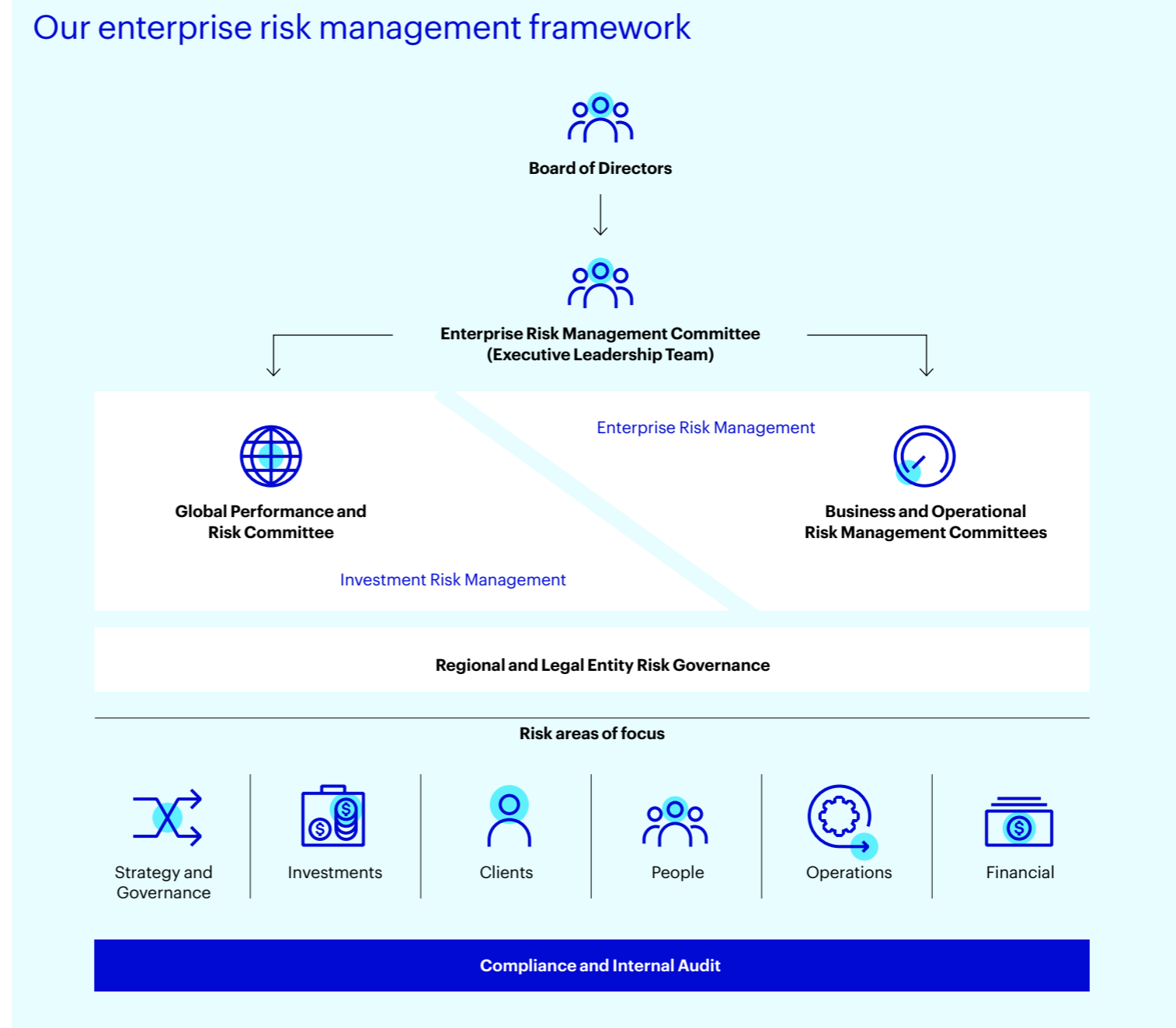
5.1 Enterprise risk

We are committed to continually strengthening and evolving our risk management activities to ensure they keep pace with business change and client expectations. We believe a key factor in our ability to manage through challenging market conditions and significant business change is our integrated and global approach to risk management. This risk management framework enables our investments to be aligned accordingly, given the market-wide risks we identify

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. 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 under four pillars of Operational Risk, Financial Risk, Strategic Risk, and Investment Risk. ESG has its own category within the Investment Risk pillar. 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. We have a comprehensive global, regional, and legal entity Risk Governance framework.

Ultimately, our enterprise 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 – including clients and other business partners.



Source: Invesco.

5.2 Investment risk

5.2.1 Integrating Financially Material Climate Risks into the Investment Process

Access to climate-related and carbon-related data is essential for our investment teams who choose to consider climate risks as part of their investment process.

Sourced from various data providers, external scores may be used by investment teams that analyse 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. All investment centres can have access to such available data, either directly or through our Global ESG team's data analytics colleagues.

Furthermore, when managing products on behalf of certain clients who ask us to impose climate-related guidelines on their portfolio, investment teams can leverage the above data to integrate management of climate risks further into their investment processes to meet our clients' specific needs. Certain of our investment teams based in Henley, UK are also integrating ESG and climate risks into their formalised Chief Investment Officer (CIO) oversight processes. To support our investment teams, the Global ESG team can screen holdings to identify issuers that are high-risk from the perspective of decarbonisation. The team uses a carbon analysis screening tool, financed emissions analysis and absolute emissions data (from ISS) to assess issuer risk.

To support our investment teams, our functions and compliance teams may provide monitoring and oversight related to some ESG risks. Our internal audit department conducts periodic independent reviews of our ESG practices. Internal Audit provides the entire organisation with independent, objective assurance and advisory services that are designed to add value and improve the company's operations.

It brings a systematic and disciplined approach to evaluate and improve the effectiveness of risk management, control and governance processes.

In all of the above steps, we recognise and acknowledge the industry-wide challenges of data availability and coverage.



5.3 Regulatory risk

5.3.1 Policy Developments

2022 was another busy year for climate and sustainable finance policy, with governments and regulators around the globe continuing to introduce further regulatory requirements, building on the work of the TCFD.

In the past year, we have seen an increasing number of jurisdictions introducing or consulting on introducing TCFD-aligned climate-related reporting requirements, including the US, Switzerland, Canada, Australia, Hong Kong and Singapore. This is in addition to the work at global level by the International Sustainability Standards Board (ISSB), who consulted on two sustainability reporting standards- a general sustainability reporting standard and a climate reporting standard. The EU also finalised its landmark sustainability reporting framework, the Corporate Sustainability Reporting Directive. Two further trends linked to this include the work of the UK Transition Plan Taskforce (TPT) to develop best practice for transition plan reporting, building on the TCFD, as well as the work of the Taskforce for Nature-related Disclosures (TNFD) to build a disclosure regime for nature to complement the TCFD.

Another trend to watch is the move, particularly in Europe, to go beyond reporting and mandate that firms must undertake environmental and human rights due diligence in their operations and their supply chains. Existing laws already existed in some EU Member States such as France, but new rules have recently been adopted in Germany as well as the EU proposing an EU-wide Corporate Sustainability Due Diligence Directive, that would require mandatory environmental due diligence for EU companies and their supply chains, as well as mandatory transition plans.

ESG product standards and disclosure is another area of focus for regulators in an effort to combat greenwashing. Notable examples of this in 2022 include the proposals from the US SEC to introduce ESG disclosures for strategies and the inclusion of ESG in the Strategy Names rule. The UK FCA's proposals for ESG investment labels and disclosures as well as, ESG Fund Disclosures & Guidance by MAS (Singapore), SFC (Hong Kong), FSA (Japan). In addition, the development of the EU's SFDR regime continues, with the detailed disclosures going into effect on 1 Jan 2023, as well as the introduction of rules for financial advisors to assess their clients' ESG preferences.

Within Asia, we are part of industry working groups for MAS' Green Finance Industry Taskforce (GFIT) and the Greater Bay Area Green Financial Alliance's (GBA-GFA) Common Ground Taxonomy. Both the MAS GFIT and the GBA-GFA are working to address climate change by promoting the use of green finance. Both taxonomies are designed to help organizations disclose information about their climate-related activities, such as emissions reduction, climate adaptation and financing climate-related activities. The Singapore Taxonomy is intended to be used by organizations in Singapore, while the Common Ground Taxonomy is intended to be used by organizations around the world.

Broader regulatory action is also being taken to address climate change in the economy. In the US, the landmark Inflation Reduction Act (IRA) will provide significant incentives for renewable and EV technologies, which is estimated to reduce carbon emissions in the US by up to 40% by 2030. In the EU, significant progress has been made in its "Fitfor55" programme aimed with aligning the EU economy with its target of reducing carbon emission by 55% by 2030. This includes overhauling its cap-and-trade system as well as introducing tougher regulatory standards for high emitting sectors, including transport and buildings.



6.0

Metrics and 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.



6.1 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 understand their activities and plans in relation to energy transition and to gauge their progress.

In select investment strategies where clients have expressed decarbonization objectives or where we have identified potential risks to long-term value, our approach aims to foster a trajectory of decarbonization among investee companies. We continuously enhance our climate change engagement with clients and investee companies, working together to develop solutions that have the potential to simultaneously reduce carbon emissions and enhance investment performance.

Invesco has a vast suite of carbon-related metrics and climate analytics at its disposal for portfolio analysis and construction. The following metrics form part of our standard client reporting at present, for portfolios and their benchmarks:

- Total Carbon Intensity scope 1 & 2 (tCO₂e per million USD of revenue)
- Scope 3 Downstream Carbon (tCO₂e) weighted average
- Scope 2 Upstream Carbon (tCO₂e) weighted average
- Scope 1 Direct Carbon (tCO₂e) weighted average

In addition to the above, some strategies and asset classes augment their reporting with the following analytical capabilities:

- 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

Our 2022 carbon metrics for our equities, corporate bonds and sovereign bonds portfolio

| Metric | Unit | Scope | 2022 | 2021 | 2020 | 2019 |
|-----------------------------------|--|---------|--------------------|---------------------|---------------------|--------------------|
| Weighted average carbon intensity | tCO ₂ e per USD million revenue | Scope 1 | 132.41 | 111.75 | 103.83 | 137.88 |
| | | Scope 2 | 31.72 | 30.76 | 31.41 | 30.13 |
| | | Scope 3 | 939.99 | 821.50 | 847.97 | 909.68 |
| Total carbon emissions | tCO ₂ e | Scope 1 | 37,710,349.95 | 56,073,982.08 | 48,103,440.59 | 42,823,587.06 |
| | | Scope 2 | 8,761,188.91 | 13,629,502.47 | 12,789,254.71 | 9,164,326.54 |
| | | Scope 3 | 308,278,505.53 | 454,903,728.14 | 445,432,338.05 | 329,177,684.38 |
| Carbon footprint ¹⁴ | tCO ₂ e/million AUM | Scope 1 | TK43.5 | 43.11 | 54.70 | 65.88 |
| | | Scope 2 | TK10.01 | 10.48 | 14.54 | 14.10 |
| | | Scope 3 | TK434.1 | 349.70 | 506.52 | 506.38 |
| Exposure to carbon-related assets | USD Million invested (% of AUM) | | 92,618.26 (7.4) | 147,659.83 (8.9) | 132,922.33 (9.8) | 98,989.84 (8.0) |

Source: Invesco; Planetrics, a McKinsey & Company solution, as of 31 December 2022.

¹⁴ Carbon footprint has been calculated using EVIC as the denominator, in line with PCAF standards.

Understanding carbon metrics

Readers will see a myriad of emissions data reported by companies and financial institutions, the reasons and purposes of which can often be confusing. The box below attempts to explain in simple terms what some of the common metrics seek to measure and what their use case is in a financial context.

| Metric | Description | Purpose |
|--|---|---|
| Absolute emissions (also called 'total emissions', 'financed emissions' or 'total financed emissions') | The total Greenhouse Gas (GHG) emissions of a portfolio apportioned to the ownership of an issuer by its enterprise value (including cash). Note that this metric can also be apportioned using market capitalization, but that would not take account of debt issuance and therefore would yield misleading results for investors attempting to attribute both equity and debt holdings | To understand the real-world impact of investments by using an absolute measure. Whilst this metric will naturally fluctuate with the size of a portfolio and therefore have limited comparability purposes, it can be used to track whether emissions reduction strategies eventually result in overall carbon reductions. Users also need to be aware that as the denominator is an issuer's enterprise value, valuation changes can also skew the output. |
| Emissions intensity | The amount of GHGs per unit of economic output, such as per million dollars of revenue, or physical output, such as MWh of electricity or tonne of steel. | Intensity metrics allow investors to understand the carbon efficiency of a portfolio (more carbon efficient portfolios may be exposed to less transition risk or be better positioned to benefit from a low-carbon economy). It also allows portfolio managers to compare the efficiency of companies within their portfolio on an equal measure. |
| Carbon footprint | Similar to absolute / total / financed emissions, this metric measures the total emissions associated with a portfolio but by more simply dividing emissions per million dollars invested. | Carbon footprinting offers a direct link between money invested with its associated emissions and unlike absolute emissions does allow for like-for-like comparisons across portfolios. |
| Weighted Average Carbon Intensity (WACI) | To understand a portfolio's exposure to carbon intensive companies. | This metric allows for the greatest comparison between portfolios as it normalizes emissions by revenue and then weights it by the size of the investment within the total portfolio. |

6.2 Targets

6.2.1 Net Zero

In April 2022, we disclosed our initial AUM commitment of USD \$195billion to be managed in line with net zero. The table below details the targets that apply to our net zero pledged products which cover both the asset and portfolio level, as well as engagement threshold targets that will contribute to the decarbonization of these products.

The interim target of a 50% global reduction in CO₂ emissions by 2030 using a 2019 baseline is based on IPCC pathway S1/P2 (47% reduction based on 2010 baseline) to have a better than 66% chance of staying under 1.5°C with limited or no overshoot. Invesco has used the Paris Aligned Investment Net Zero Framework as well as a methodology developed by Vivid Economics / Planetrics specifically for sovereign bonds.



Asset Level 1

Portfolio Coverage Targets

- Every five years, meaningfully increase the percentage of AUM in material sectors which are considered net zero, aligned or aligning and annually report on progress.
- 100% of AUM in material sectors is considered net zero or aligned by 2040.
- In support of our clients and investments teams we will continue to progress collective understanding of Net Zero solutions as data and methodologies evolve.

Asset Level 2

Engagement Threshold Targets

- Companies making up 70% of financed emissions in material sectors will either be assessed as Net Zero, assessed as aligned or subject to direct engagement / active management by 2025
- Companies making up 90% of financed emissions in material sectors will either be assessed as Net Zero, assessed as aligned or subject to direct engagement / active management by 2030
- 100% of assets in material sectors are aligned or achieving Net Zero by 2040, as stipulated in the IIGCC PAII Framework.

Portfolio Level 1

Portfolio Decarbonisation Reference Targets

- 50% lower carbon footprint as measured by tCO₂e per USD mn invested by 2030 versus 2019 baseline of 73 tCO₂e per USD mn
- Net zero by 2050 against 2019 baseline

Coverage of scope 1, 2, and the extent of scope 3 emissions

Our measurements include Scope 1 and 2 top-down portfolio reduction targets. Given the estimated nature of current scope 3 assessment methodologies available, this measurement is too immature at this stage to include in portfolio construction against a meaningful net zero target.

Whilst scope 3 emissions are not considered in the top-down portfolio emissions target (i.e., 50% reduction by 2030), they still are crucial in assessing the alignment of companies at the issuer-level.



In 2022, we have engaged with 59% of our issuers in Net Zero committed AUM making up to 70% financed emissions in material sectors.

6.2.2 Other targets

6.2.1.1 Real estate specific

Invesco Real Estate has embraced the goal of targeting net-zero emissions by 2050 for direct real estate assets operational scope 1 and 2 emissions.

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 for funds in scope. They include the following:

- We intend to have a 3% annual reduction in energy and emissions by 2030 from a 2018 baseline.
- We intend to reduce water consumption by 1% annually.
- We intend to increase the rate of waste diversion by 1% annually.



6.2.3 Operational Responsibility

6.2.3.1 Energy and emissions

In 2021, Invesco set a goal to reduce our energy use and emissions output in line with the Science Based Targets initiative by 4.2 percent year-over-year, reaching 46 percent by 2030, and net zero by 2050, or sooner, to help mitigate the effects of climate change.

In 2022, we began the development of a global decarbonization strategy for our corporate properties, beginning with audits of our higher-emission locations. This strategy will likely result in an increased use of renewable energy and green leasing in our leased properties, providing Invesco with a foundation for reaching net zero emissions.

In our corporate operations, our largest environmental impacts are our GHG emissions, which come from three main areas: Scope 1, direct emissions from sources owned or controlled by Invesco; Scope 2, indirect emissions from purchased electricity, steam, heat and cooling; and Scope 3, all other emissions associated with our activities, such as purchased goods and services, capital goods, waste, business travel, employee commuting and investments (not included in the scope of the operations emissions).

Since our 2019 baseline year, electricity use has decreased by 39 percent and natural gas use reduced by 69 percent, for an overall energy use reduction of 39.5 percent (market-based) and 50 percent (location-based). Additionally, our Scope 1 and 2 (location-based) emissions have decreased by 43 percent. These reductions are a result of ongoing energy efficiency initiatives at our offices and increased use of renewable energy, reduced office space and significantly less corporate energy usage and travel in 2020 and 2021. Our emissions assurance statement for our 2022 emissions will be published upon completion.

Invesco has disclosed data and actions to the CDP Climate Change Disclosure recommendations since 2016. We received a B score for the 2022 CDP Climate Change Disclosure, demonstrating management and coordinated action on climate issues. We received an A- score for the 2022 CDP Supplier Engagement Rating, which indicates that Invesco is effectively engaging our suppliers on climate issues. See our 2022 Global Corporate Responsibility Report for more details.

6.2.3.2 Water and waste

At Invesco, we aim to improve in our environmental performance year over year. This includes conserving water and reducing waste in our offices as much as possible. Because many of our offices are green buildings with LEED¹⁵ or ISO 14001 certification, they follow stringent requirements for sustainability, including water use and waste management.

On an ongoing basis, we find innovative ways to drive water efficiencies and reduce our waste and continue to focus on eliminating single-use plastic (SUP) from our offices. Most Invesco sites in the APAC region are now SUP-free. In 2022, we conducted SUP-free pilots at select offices in North America and EMEA. Many of our offices have recycling programs for e-waste, batteries and other items, in addition to common items such as aluminum, glass and paper.

In addition, our North America offices partner with Green Standards – an organization dedicated to responsible office decommissioning. Through this partnership, we have reduced waste and maximized ESG impact.

Since 2021:

- 222 tons of office waste converted into \$27,210 of in-kind charitable donations
- 100% landfill diversion rate with 6 non-profit and community beneficiaries
- 222.5 tons diverted from landfills
- 588 metric tons of CO₂e emissions reduced

Which is equal to:

- 65,834 gallons of gasoline not burned
- 15,048 tree seedlings grown for 10 years

Our corporate metrics on climate change, 2019-2021

| Environmental indicators | | 2022 | 2021 | 2020 | 2019 |
|--|---|------------|------------|------------|-----------|
| Greenhouse gas emissions and energy ¹⁶ | Total energy consumed (kWh) | 26,518,155 | 35,666,991 | 41,402,480 | 46,385,67 |
| | Scope 1 emissions (tCO ₂ e) | 509 | 688 | 1,060 | 1,021 |
| | Scope 2 emissions (Location based) (tCO ₂ e) | 9.6 | 12.5 | 13.6 | 16.8 |
| | Scope 2 emissions (Market based) (tCO ₂ e) | 10.7 | 12.2 | 14.3 | 17.5 |
| | Scope 3 emissions (Exc. Investments) (tCO ₂ e) | 380,136 | 278,833 | 293,981 | 334,097 |
| Waste | Waste to landfill (tonnes) | 52 | 83 | 87 | 72 |
| | Waste to energy (combustion) (tonnes) | 50 | 59 | 196 | 136 |
| | Waste to energy (anaerobic digestion) (tonnes) | 14 | 11 | 0 | 25 |
| | Waste to unknown disposal (tonnes) | 26 | 10 | 1 | 33 |
| | Composted (tonnes) | 26 | 2 | 39 | 35 |
| | Closed-loop recycling (tonnes) | 86 | 82 | 111 | 28 |
| | Open-loop recycling (tonnes) | 45 | 32 | 35 | 251 |
| Water | Water withdrawn (m ³) | 75,029 | 92,501 | 106,587 | 134,110 |
| | Water recycled (m ³) | 810 | N/A | N/A | N/A |
| | Water discharged (m ³) | 64,059 | 87,280 | 106,597 | 143,160 |

Source: Invesco.

¹⁵ LEED certifications are a green building rating program developed by the U.S. Green Building Council ("USGBC"). Fees are paid to the USGBC to receive building-level certifications.

¹⁶ Actual data (e.g., utility bills, invoices, meter readings) is used where available. Where data gaps exist, estimations and assumptions have been made to provide a complete data set

7.0

Addressing climate change at the 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 2021 Corporate Responsibility Report, as originally referenced in section 1.3.



7.1 Our environmental management system

Our Environmental Management System (EMS) serves as a framework for how we manage our environmental impact at our Henley, London, Dublin, Frankfurt, Toronto, Atlanta, Dallas, Houston, New York, Charlottetown, Downers Grove and Hyderabad offices. Our EMS meets ISO 14001 requirements and other relevant compliance obligations and is assured by the British Standards Institute through continuing assessments on an annual basis, with recertification audits taking place every three years. We also conduct an annual internal review of our EMS at both the global and location levels. These environmental assessments take into consideration risks, opportunities and compliance obligations associated with environmental aspects. Results from reviews are used to identify the areas for improvement and environmental control procedures

To ensure the effective management and continuous improvement of Invesco's EMS, we assigned operational EMS responsibilities to Corporate Properties, supported by local facilities teams and subcontracted services. I

Invesco is committed to ensuring the occupational health, safety and well-being of its employees, contractors and visitors to its offices and events. The health and safety of our staff, clients, contractors and visitors is of paramount importance. Invesco also uses an independent consultant S2 Partnership Ltd. and its IT operating platform RiskWise to perform audits in all facilities around the world for safety risk and to ensure that our operations are in line with local regulations and international best practices. In 2022, 100 percent of our risks were controlled.



Environmental Committee

Top management



Global Environmental Management team

Global Corporate Properties Director

Global Operations Director, Facilities

Global Health, Safety and Environmental Manager



Local Environmental Management team

Local Management

Local Environment Management Representative

Global Health, Safety and Environment Manager



Green team

Employee Representatives

Source: Invesco.

Green buildings

In 2022, Invesco completed construction on our new global headquarters at Midtown Union in Atlanta, a state-of-the-art building that prioritizes environmental sustainability and our team members' health and well-being. We aim to obtain LEED and WELL Platinum certifications and WELL Equity Rating in 2023—which would make our headquarters the first in Georgia and seventh in the United States to receive both recognitions for a commercial interior project. We obtained the WELL Health Safety Rating, a subset of the WELL standard, which ensures we have taken steps to address a post-COVID-19 environment and mitigate any health and safety-related issues.

We're excited to welcome our colleagues, customers and community members into our new headquarters, and proud to call it Invesco's new home.

Environmental sustainability features include:

Water use is designed to be

40%

less than a code-compliant space

Energy use is

18%

more efficient than a code-compliant space

Over

75%

of construction materials have been recycled or reused

To further operate responsibly and to continuously reduce our impact on the environment, Invesco prioritizes leasing office space in green buildings. While we have limited control on energy procurement in our leased offices, we work with our landlords to encourage them to buy green energy whenever possible. Our leased offices meet the following certifications:

- Atlanta, Georgia, U.S. (MTU Building) LEED Silver
- Dallas, Texas, U.S. LEED Silver
- Denver, Colorado, U.S. LEED Gold
- Dublin, Ireland LEED Platinum
- Frankfurt, Germany LEED Gold
- Henley, England 100 percent renewable energy
- Houston, Texas, U.S. LEED Silver
- Hyderabad, India LEED Platinum
- New York, New York, U.S. LEED Gold
- Vancouver, B.C., Canada LEED Gold and BOMA

Energy Star certified buildings:

- Atlanta, Georgia, U.S.
- Boston, Massachusetts, U.S.
- Dallas, Texas, U.S.
- Denver, Colorado, U.S.
- Downers Grove, Illinois, U.S.
- New York, New York, U.S.
- Newport Beach, California, U.S.
- San Francisco, California, U.S.
- Toronto, Canada
- Washington D.C., U.S.

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.

Important information

All data is as of 31 December 2022 and sourced by Invesco unless otherwise noted.

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