



PIMCO

PIMCO Europe Ltd 2022

UK TCFD Report

CEO Statement

Climate change will potentially have profound effects on the global economy, financial markets and issuers over a long-term investment horizon. Addressing climate change is a priority for global business leaders and policymakers as risks develop and stakeholders seek opportunities to be part of the climate solution. The financial sector, including asset managers, plays a pivotal role in establishing capabilities to assess climate risks and opportunities.

Given the potential economic impact climate risks pose to financial assets and investment performance, PIMCO integrates climate assessments into our investment research processes as relevant, in order to assist in delivering on our client's objectives. Similar to our time-tested investment process, this occurs during our top-down and bottom-up work, where we assess investments' financial resilience to potential climate-related risks.

PIMCO uses an established sustainability philosophy that includes the integration of financially material factors, including environmental risks and opportunities. Our commitment to this integration was one of the main drivers that led PIMCO to become a signatory to the UN Principles of Responsible Investment (PRI) in September 2011. This also led to the build out of a proprietary climate risk evaluation framework¹ in 2019 to help our clients manage the risks and opportunities created or compounded by climate change – this is further discussed in the Risk Management section of this report. During the same year, we also launched PIMCO's Climate Bond Strategy – a global, multi-sector, thematic fixed income strategy centered on opportunities to foster the transition to a net zero carbon economy.

In 2022, we have continued to deepen our analysis and introduced PIMCO's Net Zero Framework to Decarbonize Bond Portfolios, which is specifically designed to support clients with specific climate objectives². Simultaneously, PIMCO has been continuously investing in the resources and technology to incorporate climate data into our investment process, and develop best-in-class climate assessment methodologies. As industry guidance continues to be enhanced and data quality improves, we are committed to further developing and improving our climate tools and capabilities to evaluate and manage the impact of climate-related risks and opportunities for our clients' portfolios.

In this report, we outline how our processes on climate risk and opportunities apply to PIMCO Europe Ltd (PEL) as an asset manager. In-scope managed assets include both ESG-optimized portfolios and those without a dedicated sustainability focus. PEL operates as a subsidiary of Pacific Investment Management Company LLC ("PIMCO") and is authorized and regulated by the Financial Conduct Authority (FCA), which has developed rules for asset managers, life insurers and FCA-regulated pension providers to make climate-related disclosures consistent with the recommendations of the Task Force on Climate-Related Financial Disclosures (TCFD).

The FCA reporting rules mandate the disclosure of certain indicators and issues. However, we have also endeavored to include in this report complementary content in order to offer a more complete picture of our approach, and align with best practices in the industry, recognized guidance documents on climate change disclosure, or the latest recommendations from the TCFD or FCA to include additional metrics on a "best efforts" basis.

PIMCO Europe Ltd. is a subsidiary of PIMCO LLC, which formally supports the TCFD recommendations for better climate related financial disclosure. This document seeks to offer a comprehensive depiction of our governance around climate related risks and opportunities and how these are identified, assessed, managed, and monitored by PEL within our clients' portfolios. Detailed disclosures around metrics used to measure and manage relevant climate related risks and opportunities are also provided, where such information is deemed material. Importantly, we also include extensive details on limitations and areas under development as we continuously look at ways of enhancing our process and disclosure.

On behalf of PIMCO Europe Limited, I confirm that the disclosures in this report comply with the requirements in Chapter 2 of the FCA's Environmental, Social and Governance Sourcebook.

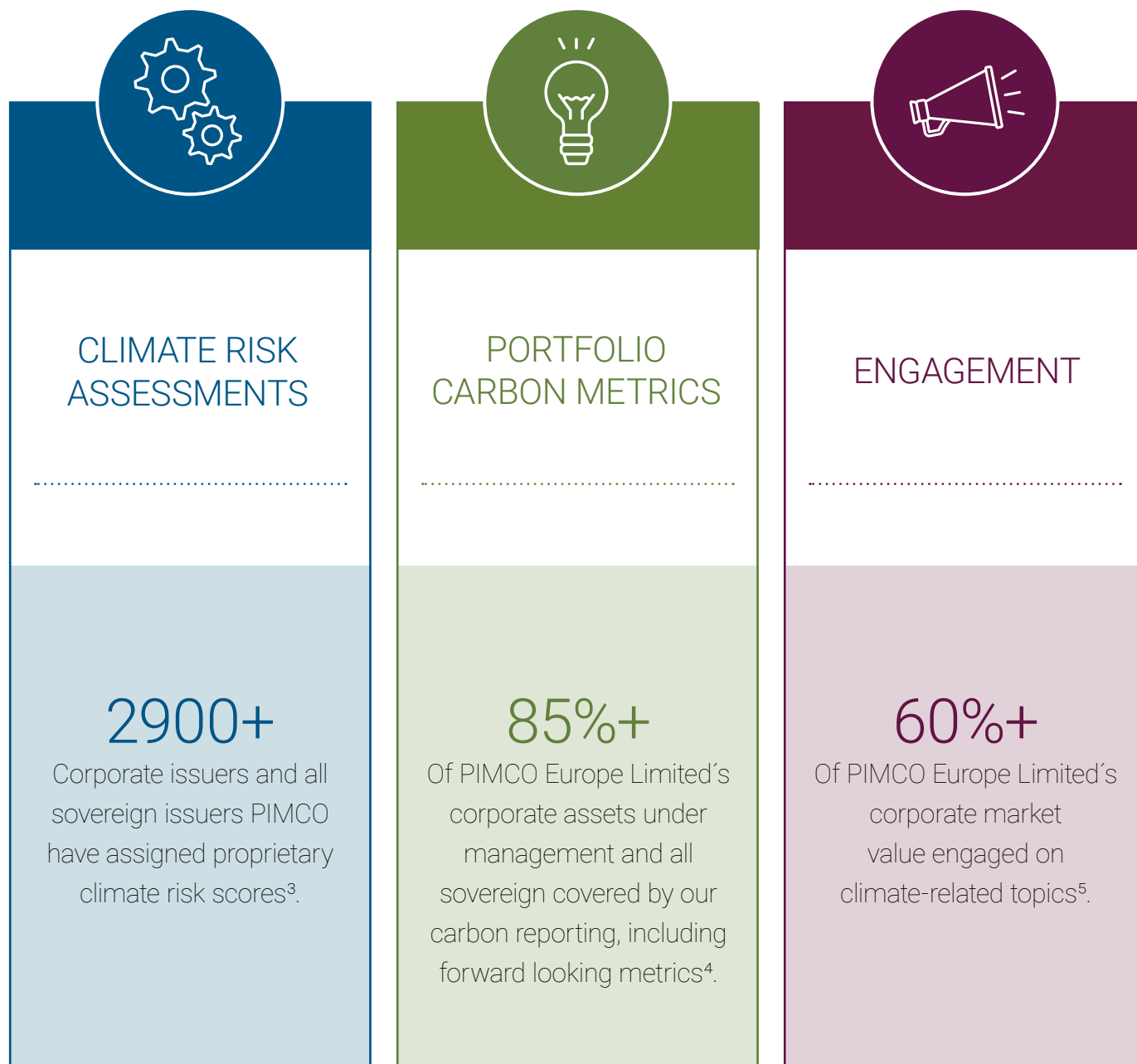


Craig Dawson
Chief Executive Officer, PIMCO Europe Ltd

¹ For more details, see PIMCO's ESG Investing Reports and PIMCO's sustainable investment policy statement.

² <https://www.pimco.co.uk/en-gb/insights/viewpoints/in-depth/pimcos-net-zero-framework-to-decarbonize-bond-portfolios>

PIMCO'S Climate Approach and Disclosures at a Glance



As of 31 December 2022. Source: PIMCO.

³ PIMCO's transition risk score.

⁴ Including at least scope 1 and 2 emissions, and available estimates and proxies of issuer's potential future greenhouse gas emissions, such as their targets and commitments.

⁵ Engaged on one or several climate-related topics, with greenhouse gas emission reduction being the main one.

Introduction

In order to help all stakeholders better understand an organization's climate-related risks and opportunities, the Financial Stability Board established the Task Force on Climate-related Financial Disclosures (TCFD). Enabling decision-useful and forward-looking information, the framework's four main areas are governance, strategy, risk management and metrics and targets.

- Governance disclosures illustrate how an organization's board and management team monitor and assess climate risks and opportunities.
- Strategy disclosures provide insight on the actual and potential impact of climate risks and opportunities on the organization.
- Risk management disclosures highlight how the firm identifies, assesses and manages these risks.
- The final section consists of the metrics and targets that are relevant to manage and assess these climate-related risks and opportunities, for example Scope 1, 2 and 3 greenhouse gas emissions.

The purpose of this report is to disclose PIMCO Europe Ltd.'s procedures and capabilities in these four areas, as well as share practical case studies to illustrate these efforts where relevant. Importantly, this report encompasses both PEL's ESG optimized portfolios as well as those that do not follow a sustainability strategy. Therefore, the extent to which the frameworks, assessments and metrics discussed are applied and optimized in individual portfolios will vary dependent on client driven preferences. In line with the requirements of the FCA's ESG Sourcebook, this report covers PEL's TCFD in-scope business.

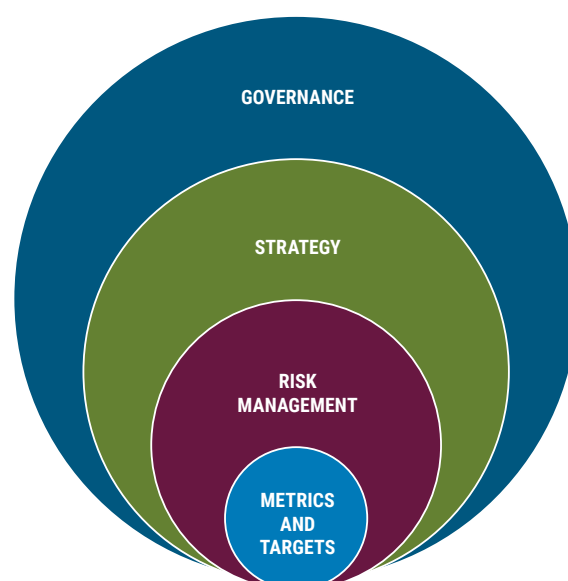
In line with our firm-wide sustainability philosophy, PIMCO integrates material climate considerations into the investment process, which is reflected across a range of asset classes and portfolios. This commitment to integrate ESG factors, including climate-related risks and opportunities, into our investment process was one of the main drivers that led us to formalize our support to the Task Force on Climate-related Financial Disclosures (TCFD) in 2019. We aim to integrate material climate factors into our top-down (i.e. longer term macro and socio-economic view) and our bottom-up assessment to enhance clients' risk-adjusted returns. We believe these factors should be part of a robust investment process. We argue that climate risks are increasingly essential inputs when evaluating

global economies, markets, industries and business models – potentially affecting the full range of fixed income and related asset classes.

Integrating relevant climate related risks and opportunities into the evaluation process does not mean that this is the sole or primary consideration for an investment decision; instead, PIMCO's portfolio managers and analyst teams consider a variety of factors including the financial materiality of those factors to make investment decisions. Importantly, by increasing and diversifying the information available to the portfolio management team we are able to provide a more holistic view of an investment, which we believe will ultimately benefit our clients.

As an asset manager and fiduciary, our primary goal is to achieve our clients' stated investment objectives, which vary across portfolios based on investor direction. We are supportive of the ambitions to achieve net zero emissions over a long-term horizon, but also recognize the diversity of strategies, approaches and commitments to get there, and that our role as a fiduciary differs from asset owners that set targets to reduce their portfolio emissions. Without instruction to do so, we have not imposed any transition targets or climate-related exclusion policies on our client portfolios, as our fiduciary duty obliges us to manage portfolios consistent with our clients' preferences.


CORE ELEMENTS OF RECOMMENDED CLIMATE-RELATED FINANCIAL DISCLOSURES



TCFD recommendations to Asset Managers		Section's focus	Title	Summary
Governance	Describe the board's oversight of climate-related risks and opportunities.	PIMCO's governance concerning climate-related risks and opportunities.	PIMCO's Board oversight of ESG risks including climate-related risks and opportunities.	ESG risk (including climate-related risks) is considered as a risk category in PIMCO's risk taxonomy, risk management framework and risk appetite. Overseen and reviewed regularly by PIMCO's Board and its Risk Committee.
	Describe management's role in assessing and managing climate-related risks and opportunities.		Management's role in assessing and managing climate-related risks and opportunities.	PIMCO's governance framework includes defined roles and groups that are responsible for the facets of sustainable investing.
			Sustainability Leadership team and committees overseeing climate risks and business strategy.	Sustainability Leadership is responsible for overseeing climate risk integration into the investment process, guiding PIMCO's portfolio management team.
			PIMCO's Forums, Global Advisory Board, and specialized Committees.	Climate risks have been assessed as part of both PIMCO's Secular and Cyclical forums as well as regional committees.
Strategy	Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term.	Actual and potential impacts of climate-related risks and opportunities on PIMCO's business, strategy and financial planning.	Climate-related risks and opportunities: potential impacts, specific issues and time frames	Over the cyclical horizon (short term: 0-1 year), we see mixed trends for the energy transition and continued potential for weather-related disruptions. Over the secular horizon (medium to long term: 1-5 years and beyond), key developments suggest a structural rise in both transition and physical risks.
	Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning.		The impact of climate-related risks on PIMCO's business, strategy and financial planning	These potential impacts led us to continuously deepen our framework that aims to systematically integrate relevant climate factors into our investment process.
			The impact of climate-related opportunities on PIMCO's business, strategy and financial planning	PIMCO has developed a framework to seize opportunities linked to ESG-labelled bonds financing the transition. Launched our Climate Bond Strategy, investing in issuers at the forefront of the climate transition. Introduced PIMCO's Net Zero Framework to Decarbonize Bond Portfolios to support clients with specified decarbonisation goals.
			Describe how climate-related risks and opportunities are factored into relevant products or investment strategies. Asset managers should also describe how each product or investment strategy might be affected by the transition to a lower-carbon economy.	How climate-related risks and opportunities are factored into PIMCO's investment strategy
	Climate risks and impact embedded into PIMCO's sustainable investment solutions			In PIMCO's sustainable investment solutions, we embed climate change into our three-step approach of exclusion, evaluation and engagement.
	Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.		Climate scenario analysis models: assessing the resilience of assets from top-down from top-down to bottom-up	Our climate scenario models suggest it is important to pay attention to climate change now, before damage in the future becomes irreversible and much more severe.
			Collaboration to advance climate risk measurement and management	PIMCO assists with climate efforts in numerous regions and via multiple initiatives.

TCFD recommendations to Asset Managers		Section's focus	Title	Summary
Risk management	Describe the organization's processes for identifying and assessing climate-related risks.	How PIMCO identifies, assesses and manages climate-related risks.	Process for identifying, assessing and managing climate-related risks.	<ul style="list-style-type: none"> PIMCO measures and manages portfolio risk by focusing on a series of factor-based risk measures. PIMCO's ESG specialists designed proprietary climate tools and frameworks covering a range of perspectives and metrics. We can engage with issuers for enhanced corporate disclosure on climate change.
	Describe the organization's processes for managing climate-related risks.			
	Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management.			
	Describe, where appropriate, engagement activity with investee companies to encourage better disclosure and practices related to climate-related risks in order to improve data availability and asset managers' ability to assess climate-related risks.			
	Asset managers should also describe how they identify and assess material climate-related risks for each product or investment strategy. This might include a description of the resources and tools used in the process.			
Metrics and Targets	Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process.	Climate-focused investment exposure of PIMCO.	Metrics and targets: climate-focused investment exposure of sample PIMCO portfolios.	<p>This section shows, for PIMCO, selected metrics linked to the recommendations of the Task Force on Climate-Related Financial Disclosures and similar disclosure frameworks:</p> <ul style="list-style-type: none"> PIMCO's weighted average carbon intensity and carbon footprint (scope 1 and 2) are slightly higher than those of the global credit benchmark. PIMCO has lower exposure to issuers with verified decarbonization targets than the global credit benchmark. At present, PIMCO does not yet employ any universal climate-related targets on the assets managed on behalf of our clients.
	Describe metrics used to assess climate-related risks and opportunities in each product or investment strategy. Where relevant, asset managers should also describe how these metrics have changed over time. Where appropriate, asset managers should provide metrics considered in investment decisions and monitoring.			
	Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks.			
	Provide the weighted average carbon intensity, where data are available or can be reasonably estimated, for each product or investment strategy. In addition, asset managers should provide other metrics they believe are useful for decision-making along with a description of the methodology used.			
	Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.			

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GOVERNANCE

Roles and Responsibilities



PIMCO Europe Ltd Board's oversight of climate-related risks and opportunities

ESG risk (including climate-related risks) is considered as a risk category in PIMCO Europe Ltd ("PEL") risk taxonomy, risk management framework, and risk appetite (the "Risk Statements"). The Risk Statements consider a broad range of ESG-related risks, including risks arising from new and changing regulation, and risks arising from implementation of new investment strategies and establishment or distribution of new products (such as potential misrepresentation or greenwashing).

PEL undertakes a regular top-down and bottom-up risk assessment process. Its top down risk assessment evaluates the potential for enterprise/strategic business risk impacts from

ESG risks. The risk & control self-assessment (RCSA or bottom-up approach) identifies and measures ESG risks inherent in business function activities and the effectiveness of control mitigation.

PEL's Internal Capital Adequacy and Risk Assessment (ICARA) process considers the material risks (harms) from business activities for the development of risk scenario analysis and stress-testing. ESG risk is considered through this process.

The Risk Statements and the ICARA are overseen and reviewed regularly by PEL's Board and its Risk Committee.

Management's role in assessing and managing climate-related risks and opportunities

PIMCO's governance framework includes defined roles and groups that are responsible for the facets of sustainable investing, including keeping our Risk Committee and Executive Committee apprised of our efforts.

Our ESG Leadership Team sets the strategic priorities for the platform and oversees our firm-wide integration efforts, including our research frameworks, systems and tools. Key members of PIMCO's ESG team with clearly defined oversight function include:

- Executive Committee member who is responsible for oversight of our ESG and Sustainability initiatives, providing strategic direction and firm wide coordination of the team's efforts
- Head of Corporate Sustainability who oversees all aspects of corporate sustainability including the firm's strategy, initiatives and external partnerships

- Portfolio Management Lead for ESG Investing who coordinates with the broader credit research team and oversees the ESG analyst team responsible for evaluating and engaging with issuers globally, ESG integration across the trade floor, and consistent implementation of our research frameworks
- Head of ESG Product Strategy who is responsible for product development, marketing and messaging for all of our Sustainable Investment Solutions as well as messaging around our firm-wide integration of ESG

Business Management group functions each have one or more designated contacts to help coordinate functional support for sustainability efforts across areas such as Operations, Legal & Compliance, Information Technology and Marketing.

ESG LEADERSHIP TEAM AND COMMITTEES OVERSEEING CLIMATE RISKS AND BUSINESS STRATEGY

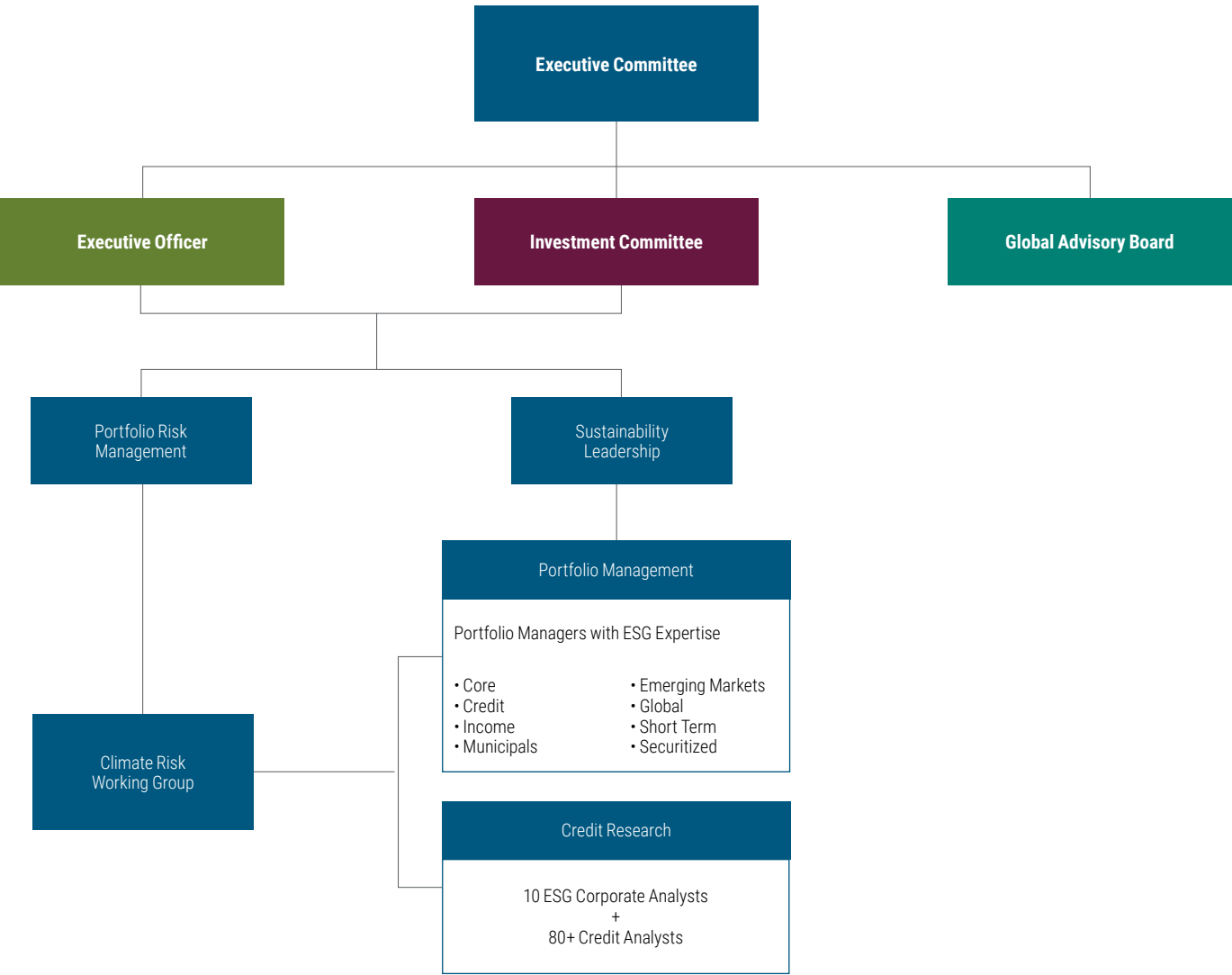
The Environmental, Social, and Governance (ESG) Leadership team, including Grover Burtney, PIMCO’s Head of ESG Portfolio Management, manages PIMCO’s ESG investment process that seeks to factor-in climate change risks across selected portfolio management teams, from credit and sovereign research to mortgage and municipal analysis.

The ESG Leadership team builds on inputs from PIMCO professionals focused on climate research and investing as well as technology and analytics tech teams who have developed tools available firm-wide to assess climate risks. This involves portfolio screeners or a weekly dashboard shared with portfolio managers that is comprised of key data on ESG-labelled bond issuances, pricing, and notable market observations

including a list of news flows and research covering important developments linked to climate risks (e.g. regulatory updates).

PIMCO’s Executive Committee is responsible for PIMCO’s strategic direction and management including setting of firm-wide business strategy and deciding upon a range of financial, operational and other material matters, while PIMCO’s investment strategy is established by our Investment Committee, guided by our economic forums and subsequent strategy sessions. Notably, in recent years, our Investment Committee covered the topic of “stranded assets” defined as those that turn out to be worth less than expected as a result of changes associated with the energy transition.

PIMCO’s Global ESG structure



PIMCO'S FORUMS, GLOBAL ADVISORY BOARD AND SPECIALIZED COMMITTEES

PIMCO's active investment process combines our top-down macroeconomic view with bottom-up research and analysis. Top-down views are driven by our economic forums, consisting of the Secular and Cyclical forums.

During our Secular forums, the firm formulates its outlook for global financial markets over the next five years and, as relevant for such considerations or discussions, considers relevant climate-related issues. For example, in PIMCO's 2021 annual Secular forum, the transition from brown to green energy was highlighted as one of the major disruptive trends to likely drive a major transformation of the global economy and markets. In 2022, the Secular Forum addressed physical risks and climate resilience, including a focus on the agriculture sector. PIMCO's Global Advisory Board, which comprises macroeconomic thinkers and former policymakers, participates in these forums and typically provides insights on global economic, political and strategic developments and their relevance for financial markets. The impact of climate risks was notably highlighted by Mark Carney, UN Special Envoy on Climate Action and Finance, who is part our Global Advisory Board. These topics are also analyzed in the context of PIMCO's quarterly Cyclical forums to the extent that they affect our bottom-up perspective, as well as growth and inflation forecasts over the business cycle horizon of the next 6-12 months. The momentum for green, sustainability and sustainability-linked bonds associated with climate targets was explored during the latest quarterly forums held in 2022, for instance.

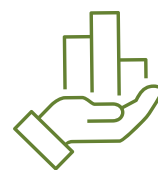
PIMCO's Secular and Cyclical forums build on PIMCO's research and economic data from presentations by the firm's three regional portfolio committees and the ESG research team, among others. Our regional committees are supplemented by additional committees focused on certain sectors (e.g., PIMCO's European Credit Committee) meeting weekly and addressing a broad range of climate-related risks throughout the year. In recent years, these presentations examined topics such as the US, Asian or European climate policy agenda for businesses and the finance sector in particular (such as the US Inflation Reduction Act, or the EU taxonomy for sustainable activities), and the consequences of the international climate policy ambition (takeaways of the United Nations Climate Change conferences). These presentations were led by PIMCO's ESG research team in collaboration with credit research analysts and portfolio managers. Metrics included a review of portfolio greenhouse gas emissions, and net zero alignment methodologies or portfolios' exposure to long-dated bonds in the energy and fossil fuel industries, with a focus on issuers whose transition plan is less advanced.

Further, over the past few years, we have conducted a number of climate-focused teach-ins for PIMCO's investment professionals with internal and external experts focusing on specific topics, including portfolios' decarbonization, net zero, green bonds or carbon pricing risks. Lastly, PIMCO has formed a Climate Risk Working Group, which includes representatives from various teams such as Economist, Risk, Analytics, Client Solutions, Credit and Portfolio Management. This group's focus areas include further embedding climate-related risk into existing PIMCO core stress-testing tools, portfolio risk-profiling and research.



STRATEGY

Climate Risk Integration



PIMCO'S ROLE IN THE TRANSITION TO A LOW CARBON ECONOMY

PIMCO is committed to providing the best advice and solutions for clients on a range of sustainability issues, including climate change.

PIMCO, as an asset manager, recognizes the distinct role that it plays relative to asset owners, who each have varying investment objectives, preferences and regulatory regimes. Our role is to manage our clients' assets and we must do so using the parameters that they have set out, which can often incorporate climate risk considerations but will do so to varying degrees and in varying formats. Consequently, PIMCO has not imposed explicit absolute climate targets on portfolios managed by it. However, as clients begin or continue to assess the possibility of adding these targets, we will work collaboratively with them on structuring and managing these.

Our strategy has been to:

1. Provide clients with investment solutions to meet their decarbonization ambitions
2. Develop portfolio analytics for our portfolio managers to use to evaluate investments and manage portfolios
3. Engage with issuers to make sure their transition plans are maximizing value for investors
4. Work with industry groups to develop standards and educate constituents

As part of our support to clients with specified decarbonization goals, we have introduced PIMCO's Net Zero Framework to Decarbonize Bond Portfolios, including a four-pillar framework (reduce portfolio's carbon intensity, invest in climate leaders, support climate solutions, and encourage change).

Climate-related risks and opportunities: potential impacts, specific issues and time frames

PIMCO recognizes that climate change will likely have a profound impact on the global economy, financial markets, and issuers. While the horizon of climate models can span a very long period, which we typically characterize as the secular or super-secular horizon (1-5 years and beyond), the pace of change can be swift and relate to our cyclical horizon (0-1

year). Risks and opportunities related to climate change may materialize in unexpected ways, and can affect investments across asset classes, including a wide range of fixed income securities, such as corporate credit, mortgage-backed securities, sovereign debt and municipalities. The impact on financial markets and bond prices may be abrupt and sudden.

How climate-related risks and opportunities are factored into PIMCO's investment strategy

When evaluating climate-related risks of specific sectors and issuers as part of PIMCO's integration of ESG factors into our credit research and investment process firm-wide, we begin with two broad categories:

1. Transition risks, including policy, legal, technology, market and reputation risks (e.g., tighter regulations on carbon emissions, climate-related litigation).
2. Physical risks, including both acute and chronic. Acute are event-driven, such as hurricanes and wildfires. Chronic risks are longer-term shifts in climate patterns, such as how the rising intensity and frequency of extreme weather events affects critical assets and natural resources used by the issuer.

Transition Risk		Physical Risk
Examples	<ul style="list-style-type: none"> Carbon regulation (e.g. tax or cap and trade systems) Energy-related technology changes (e.g. rise of low-carbon sources of energy such as renewables) Shifting customer preferences Liability e.g. litigation against governments and companies due to a lack of action 	<ul style="list-style-type: none"> Acute physical risks (e.g. increased severity of extreme weather events, such as cyclones and floods) Chronic physical risks (e.g. changes in precipitation patterns and extreme variability in weather patterns, rising mean temperatures and sea levels) Air pollution Water stress Forest and land degradation
	Corporates	Autos, Energy, Coal mining
	Sovereign	Fossil fuel-exporting and energy-intensive sovereigns, depending on their fiscal positions and savings
	Munis	Coal-fired generation among utilities
Mortgage- and asset-backed securities (MBS and ABS)		ABS: Aircraft, auto loans, leases affected by carbon regulations; MBS: 'Brown' assets lacking compliance with energy efficiency and environmental standards MBS: Holders of residuals or Mortgage Servicing Rights, mostly on the private side; activities with concentrated exposure to specific geographies, such as Commercial Real Estate lending

As of 31 December 2022. **Illustrative climate risk drivers and assets exposed to these drivers**

PIMCO has developed a climate risk scoring methodology that evaluates sectors' exposure to these two climate risks over different time horizons, the cyclical (0-1 year), secular (1-5 years), and super-secular (>5 years). This assessment serves as a starting point before drilling down into specific issuers. The graphic below provides an illustration of this scoring methodology, examining PIMCO Europe Limited and one corporate credit-focused benchmarks.

	Cyclical (0-1)						Secular (1-5 years)						Super-secular (>5 years)					
	Physical Risk		Transition Risk				Physical Risk		Transition Risk				Physical Risk		Transition Risk			
	Acute	Chronic	Policy and legal	Technology	Market	Reputation	Acute	Chronic	Policy and legal	Technology	Market	Reputation	Acute	Chronic	Policy and legal	Technology	Market	Reputation
PIMCO Europe Ltd.																		
Bloomberg Global Agg Corporate Index																		

For Illustrative Purposes Only

As of 31 December 2022. Source: Moody's, PIMCO, IPCC, IEA, DNB, IPR Climate Transition Forecasting Consortium.

Lower Risk

Elevated Risk

This table provides more information on the time horizons we use to assess climate-related risks and opportunities, alongside selected issues identified and analyzed in terms of potential investment implications (illustrative given that PIMCO Europe Limited's global footprint across various asset classes involves a broad range of climate-related risk drivers) and other types of impacts, such as on our clients or PIMCO from a regulatory or reputational perspective.

Time horizons	Time horizon label	Short term (0-1 year)	Medium term (1-5 years)	Long term (>5 years)
	PIMCO's investment process (forums' terms)	Cyclical	Secular	Super-secular
	Perspective	How to identify potential changes in monetary and fiscal policies, market risk premiums, and relative valuations that drive portfolio positioning		How to position portfolios to benefit from structural changes and trends in the global economy
Transition Risk	Policy and Legal	Greater support for low-carbon energy sources, such as renewable energy and storage, as part of government's response to the energy shock		Carbon price increase in terms of value and coverage of greenhouse gas emissions phase-out (including bans) of certain high carbon sources of energy, technologies and products
	Technology	Record growth of renewables capacity additions amid improved competitiveness		Renewable energy emerges as the dominant source of electricity generation
	Market	Increased uncertainties and growing demand for fossil fuel ESG-labelled bonds growth and diversification (e.g. transition-related green bonds and sustainability-linked bonds)		Increased investments into renewable energy and lower investment into fossil fuels supply Declining demand for fossil fuels, especially oil
	Reputation	Increased scrutiny and concerns over "greenwashing" (e.g., misrepresentation of climate characteristics of an issuer or financial product), including ESG data and standards integrity		
Physical Risk	Acute	Rising costs of disasters such as hurricanes, wildfires, floods		
	Chronic	Disruptions to energy supply brought about by droughts	Heatwaves could result in labor productivity and crop yield losses, disrupting soft commodity supply	

As of 31 December 2022. **Source:** IEA, PIMCO, S&P, Munich Re, Swiss Re.

Over the cyclical horizon we see some headwinds for the energy transition (i.e. mixed transition risks and policy progress⁶ given geopolitical risks and the focus on energy security) and continued potential for weather-related disruption impacting our investments, as seen in previous years. Over the long term, key developments suggest a structural rise in both transition and physical risks.

The impact of climate-related risks on PIMCO Europe Limited's Business

In recent years, we built out proprietary climate risk evaluation framework, which we have been continuously expanding and enhancing. This led to the development of tools and methods that seek to integrate over time relevant climate risk evaluations in our investment decisions as per applicable investment guidelines or business considerations.

PIMCO aims to consider all potential risks and opportunities that could affect particular issuers or industries where appropriate, including climate-related risks – both physical and transition. For instance, PIMCO's fundamental analysis

of credits in the energy sector closely examines companies' exposure to different types of energy sources and extraction methods, environmental and regulatory risks to their business activities, the relative cost positions of companies and their commitments, and steps taken to diversify into lower-carbon sources of energy.

Ultimately, we look to map the extent to which long-term climate risks are reflected in our credit views and bond prices, and, if they are not, what this could mean for issuers' credit quality considering bond characteristics (e.g., duration) over time.

⁶ See our viewpoint 'Climate and COP27: Political Pressures, Investment Implications' for details on the recent UN Climate change conference [progress](#).

The impact of climate-related opportunities on PIMCO Europe Limited's Business

As risks mount, many issuers around the world are shifting from climate awareness to action, giving rise to new investment opportunities. Investors are monitoring government responses to climate risks in the form of regulation, carbon taxes, and public investment, as well as shifts in consumer sentiment and business models. We expect these trends to materially change the investment landscape: the transition away from fossil fuels toward clean energy, for example, could create attractive investment opportunities not just limited to the energy sector (e.g. clean transports, energy efficient buildings) and significantly transform the global economy.

Fixed income markets, in our view, currently offer a diverse array of sustainable investment options and even more so in the years to come. The sustainable bond market, including green and sustainability-linked bonds, continues to grow at a rapid pace, offering compelling opportunities to finance – among others – the climate transition. PIMCO's ESG analyst team has published best practices for issuers of ESG-labelled bonds in both the corporate, sovereign and municipality space, as well as specific viewpoints on sustainability-linked bonds.

[PIMCO's Best Practice Guidance for Corporate Sustainable Bond Issuance](#)

[PIMCO's Best Practice Guidance for Sovereign Sustainable Bond Issuance](#)

[PIMCO's Best Practice Guidance for Municipality Sustainable Bond Issuance](#)

[PIMCO's Sustainability Linked Bonds: Coming of Age](#)

To provide clients a fixed income solution for the transition to a lower-carbon economy, PIMCO launched the Climate Bond Strategy, investing in issuers at the forefront of the climate transition. Additionally, for clients looking to implement decarbonization targets, PIMCO has developed a four-pillar decarbonization framework to help investors target long term objectives to reduce portfolio exposure to greenhouse gases. This framework provides a meaningful and realistic approach to decarbonizing fixed income portfolios over time, while engaging and investing in the climate solutions and leaders best positioned to contribute to real-economy emissions reductions.

As certain asset owners explore the possibility of incorporating decarbonization targets in their investment portfolios, PIMCO has collaborated with numerous clients on assessing the feasibility and portfolio implications of implementing decarbonization targets.



CASE STUDY: PORTFOLIO LEVEL DECARBONIZATION TARGETS IN CREDIT MANDATES

PIMCO recently worked with an Asia based insurance client to explore the potential implementation of a near-term portfolio decarbonization target. This target was aligned with the company's firm-wide commitment, and consisted of a 30% reduction in their weighted-average carbon intensity by 2024 compared to a 2019 baseline. PIMCO's tailored solution assessed numerous possible ways to implement this, balancing the greenhouse gas emissions

reduction with minimizing portfolio impact (e.g., transaction costs, constraints on investment universe).

At PIMCO, we realize that every client has different needs and ambitions. Importantly, PIMCO's decarbonization framework can be adapted to account for investors' preferences, as well as support those who have opted not to follow a specific pre-defined approach.

PIMCO'S ASSESSMENT OF CLIMATE RISKS ACROSS ASSET CLASSES – CASE STUDIES

This section provides details on climate risks identified and analyzed for major asset classes relevant to PIMCO (for illustrative purposes only), including how they may be affected by the transition to a lower-carbon economy: Corporate, Sovereign, Municipal, Securitized, and Alternative.

While the findings of this climate risk assessment may inform various actions (e.g. engagement), the examples below illustrate how they impact our research and investment decisions. They broadly show that our evaluation of climate risks fits into PIMCO's global credit investment process, including the assessment of issuer's credit quality and whether we are appropriately compensated for the climate-related financial risks analyzed.



CASE STUDY: CORPORATE CREDIT CLIMATE-RELATED RISKS AND OPPORTUNITIES

Physical risks: There have been a limited number of instances where acute risks already had a more significant impact on corporate issuers. In these scenarios, the impact has been on a rather small number of corporate issuers (e.g., hurricanes for US refiners or chemicals, or floods in Europe for financials).

Chronic physical risks are inherently set to be more apparent over a longer period. While there are large uncertainties, we evaluate the possibility for those to occur sooner than later and thus to potentially have a significant importance already over a medium-term horizon. In the short term, heatwaves and reduced rainfall are two examples of risks that had a limited and temporary impact on corporate issuers' financials, for example for food and beverages and utilities in Europe.

While on a global level, risks from extreme weather events are already moderate, as underscored by the Intergovernmental Panel on Climate Change (IPCC), they are very likely to be more frequent and severe in the coming decades as global average surface temperatures continue to rise. Climate models suggest that these impacts will be exacerbated in the very long term

Below are select examples which illustrate how material climate factors may affect a PIMCO analyst's overall credit view on a corporate issuer.

(second part of the century) and could potentially remain moderate in the coming decade (e.g. by 2035).

Transition risks: Policy, technology, market and reputation transition risks have had a significant impact in Western markets, for example in the utilities sector given carbon regulations, renewables subsidies, shifting demand from end-use sectors, changing economics of coal versus modern renewables, as well as the growing reputational risks linked to thermal coal.

Transition risks also had a significant impact on the automobile sector given tightening carbon standards and the shift to electric vehicles. However, their impact remain relatively moderate for other sectors, although they are clearly growing.

As we expect the energy transition to accelerate, those risks are likely to become more prominent in the future and could have a greater financial impact on high-carbon sectors, notably: energy; transport beyond automotive (airlines, shipping); metals and mining and building materials.

Issuer	EM Infrastructure	Multinational Utility	US Utility
Asset Class/Sector	Corporate	Corporate	Corporate
Climate risk type	Transition risk	Transition risk	Physical risk
Issuer profile	Transportation services	Global power generation company	US-focused power generation company
Material climate factors affecting analyst overall view	Related party transactions from controlling shareholder which owns and develops coal assets Refinancing risks associated with coal businesses	Ambitious low-carbon transition plan will benefit from infrastructure package and demand for renewable energy R&D toward battery storage, hydrogen and other emerging energies likely accretive to enterprise value	High climate physical risk exposure for the coming decades compared to peers Historical impacts of physical risks also considered (wider spreads given financial losses, reputational damages and regulatory action)
PIMCO Credit research and investment implication	Lower PIMCO Credit Rating, relative to the Agency Rating	Higher PIMCO Credit Rating, relative to the Agency Rating	Risk already reflected into bond prices, PIMCO and Agency Ratings



CASE STUDY: SOVEREIGN CREDIT CLIMATE-RELATED RISKS AND OPPORTUNITIES

Physical risks: Countries' exposure and costs from both acute physical risks (wildfire, flooding, and storms) and chronic risks (those manifesting over the medium to longer term, including changes to precipitation and temperature patterns and sea level rise) are increasing. Countries around the equator or small islands tend to be more at risk, while economies more reliant on sectors such as agriculture are likely to be more affected. Southeastern Asia, Central and Eastern Africa regions, the Caribbean and Central America are among the regions most impacted.

Climate hazards can affect countries and their wealth over a long-term horizon through direct damage to their physical capital stock (loss of land, changing crop yields, depleted natural resources, damages to infrastructure etc.), but also via indirect social impacts (food insecurity, productivity loss, international migration, civil unrest etc.), or biodiversity loss and international trade disruptions (climate change impacts on supply chains).

Public finance could be particularly affected by climate shocks (e.g. loss of revenues, increasing insurance costs, loss of value), leading to greater debt burdens that can undermine the financial stability of a country e.g. increased probability of default. In the U.S., for example, extreme weather event such as wildfires, floods, and heat waves could be more prevalent, with certain states and cities expected to be more exposed to material environmental and social risks such as coral reef loss, coastal flood risks leading to lower property values.

Different sovereigns will have differing levels of buffer to absorb the impacts of physical climate risks and results will vary according to policy responses that governments may take to manage and adapt to such risks. Opportunities could arise from mitigation actions, including climate resilience investments (e.g. seawalls, climate-smart agriculture, and infrastructure that is more resilient to high heat and extreme storms).

Below is an example which illustrates how material climate factors may affect a PIMCO analyst's fundamental valuation on a sovereign.

Issuer	EM country
Asset Class/Sector	Sovereign
Climate risk type	Physical risks
Issuer profile	Asian country
Material climate factors affecting analyst overall view	<p>While the country is among the lowest greenhouse gases emitters, they are among the countries most vulnerable to the effects of climate change (and highly dependent on climate-sensitive sectors, such as agriculture, water, and natural resources) with limited adaptation capacity.</p> <p>A recent uptick in extreme climate events and a lack of infrastructure capacity has resulted in major loss of lives, infrastructural damage, and massive economic losses further deteriorating the economic position of the country and deepening the country's dependence on external funding.</p>
PIMCO Credit research and investment implication	Lower fundamental valuations vs market pricing



CASE STUDY: SOVEREIGN CREDIT CLIMATE-RELATED RISKS AND OPPORTUNITIES

Transition risks: Transition risks are likely to be especially relevant to sovereigns over the medium and long term. The time considerations depend on the channel of impact and scenarios. For example, countries with a large dependence on fossil fuels may see their budget pressured by tightening climate-related legislation as the energy transition could hamper the growth of the relevant sectors as well as tax resources.

In the IEA Net Zero Scenario, peak oil already occurred (while it could only materialize in the mid-2030s in scenarios assuming a slower and less ambitious transition), a significant portion of fossil fuel reserves could not be extracted e.g. assuming no new oil and gas fields from 2021 “beyond projects already committed as of 2021” and unabated natural gas-fired generation peaks by 2030 and is 90% lower by 2040. Canada, Russia, the United States, the Middle East and North Africa are

examples of regions that could be particularly affected, while other countries such as the UK, Germany or France have a lower exposure to this risk.

The general trend towards more aggressive carbon targets and tightening carbon policies across carbon intensive sectors could entail material implications for businesses, households and government spending. The impact could stem from both domestic and international action, e.g. carbon border tax or reduced demand for fossil fuel.

Mitigation actions partly depend on countries’ response and resilience. Significant opportunities could arise on the back of low carbon technology and governments propping up these sectors could in turn foster their economic growth. Transition policies that would help advance the global net zero target in an orderly fashion could alleviate these risks.



CASE STUDY: SECURITIZED CREDIT CLIMATE-RELATED RISKS AND OPPORTUNITIES

Similar to other financial assets, securitized products are subject to transition and physical risks, which can be material.

Physical risks: We view physical risk affecting securitized credit predominantly through the risk that natural hazards could impose on the underlying collateral.

Given the wide span of securitized credits, we think that a differentiated approach to measure physical risk is warranted. For those where collateral is mostly concentrated in real assets, such as RMBS or CMBS, we utilize proprietary tools to locate the real estate assets in the underlying pool and combine the geographic data with climate research data (e.g. Federal Emergency Management Agency) to estimate the aggregated historical impact of various natural hazards (e.g. Hurricanes or Wildfire) on these assets.

For those where collateral is mostly concentrated in financial assets, such as CLOs, we look to leverage physical risk tools, including forward-looking data that we are developing for the underlying corporates, but further extend the analysis to the CLO manager and structure level.

While we think that physical risk could have more a meaningful impact in both the medium term (more likely via acute risks) and long term (via both chronic risks and more frequent occurrences of acute risks), we note the collateralization nature could to some extent alleviate risk from certain tranches and the impact across different tranches may be different.

Transition risks: The main transition risk focus for securitized credit stems from the potential impacts of an acceleration of the energy transition and tightening carbon regulations on the underlying sectors and assets (e.g., reduced value for those lacking compliance with energy

efficiency and environmental standards). Therefore, we leverage internal corporate sector frameworks designed to evaluate climate risks for those relevant to the underlying loans, such as automotive, banks or real estate.

From the risk perspective, we focus on not only the greenhouse gas (GHG) emissions from underlying assets, but also collateral's exposure to carbon-sensitive or hard-to-abate sectors (e.g. aircraft ABS). We're actively engaging with industry groups such as Partnership for Carbon Accounting Financials (PCAF) to evaluate and refine our estimate of financed GHG emissions for structured credit, especially for sectors most exposed to transition risks.

From the opportunity side, we focus on the ability of underlying assets to decarbonize across the value chain.

Select Securitized Credit Potential Materiality Exposure

	Transition Risk	Physical Risk
RMBS	High	High
CMBS	High	High
Auto ABS	High	Low
Student Loan ABS	Low	Low
Credit Card ABS	Low	Low
CLO	Medium	Medium
Covered Bond	Medium	Medium

As of 31 December 2022. Source: PIMCO. For illustrative purpose only.

■ High ■ Medium □ Low

Note: High/Medium/Low refer to the perceived materiality (potential exposure) in scenarios that may be deemed relatively extreme relative to the current situation and unfold over several decades from now (e.g., disorderly transition to net zero, or limited climate action resulting in a significant increase in the intensity and frequency of extreme weather events). 'Low' includes areas where there is a particularly low visibility given data availability and quality.

Below are examples showing how climate factors may influence a PIMCO analyst's view on a securitized investment.

Issuer	Solar Loans / Leases Asset-Backed Security (ABS)	Non-Agency Commercial Mortgage-Backed Securities (CMBS)
Asset Class/Sector	Securitized	Securitized
Climate risk type	Transition risk	Transition risk
Issuer profile	Residential solar installer and financier	Single-asset / single-borrower fixed-rate deal secured a newly constructed certified building
Material climate factors affecting analyst overall view	Extension of solar Investment Tax Credit given recent passage of Inflation Reduction Act will continue to provide economic incentives to residential customers Secular trend of electrification and de-carbonization, spearhead by major metropolitan cities where residential solar has been serving traditionally, further supports sector growth.	Attractive from an ESG perspective (environmental impact credentials, including energy efficiency), as well as desirable from a tenant perspective The CMBS financing framework reflects industry best practice, aligned to ICMA Green Bond Principles
PIMCO Credit research and investment implication	Supportive. PIMCO participated in the new issue	Supportive. PIMCO participated in the new issue



CASE STUDY: ALTERNATIVE INVESTMENTS

Alternative investments are subject to potential transition and physical risks which, similar to other financial assets, can be material and partly depend on the segment in scope.

Physical risks: Alternative assets with physical underlying collateral have the greatest exposure to physical risks. Natural hazards and perils are taken into consideration during the pre-investment due diligence process,

particularly when underwriting commercial real estate deals, as asset performance can be severely impacted in extreme weather events.

Transition risks: Alternative assets are exposed to potential transition risk with the built environment and transportation-related collateral having the greatest potential exposure.

Select Alternative Investment Potential Materiality Exposure

	Transition Risk	Physical Risk
Aircraft Finance	High	Low
Auto Loans	High	Low
CMBS	High	High
Consumer Loans	Low	Medium
CRE Equity / Debt	High	High
Equipment Finance	Medium	Low
Land Development	High	High
Private Resi	Medium	High
REIT	High	High
Small Business Loans	Low	Medium
Telecom Infrastructure	Medium	Medium

As of 31 December 2022. Source: PIMCO. For illustrative purpose only.

Note: High/Medium/Low refer to the perceived materiality (potential exposure) in scenarios that may be deemed relatively extreme relative to the current situation and unfold over several decades from now (e.g., disorderly transition to net zero, or limited climate action resulting in a significant increase in the intensity and frequency of extreme weather events). 'Low' includes areas where there is a particularly low visibility given data availability and quality.

High

Medium

Low



CASE STUDY: MUNICIPAL CREDIT CLIMATE-RELATED RISKS AND OPPORTUNITIES

Physical risks: Physical risks represent both short-term and long-term risks, with exposure to acute events in the near term, such as flooding, wildfire, and hurricanes, and the expectation of long-term changes to communities from permanent sea level rise, temperature change, extended droughts, damage from acute events, and other physical impacts. Currently, the Federal Emergency Management Agency (FEMA) plays a significant role in helping state and local governments recover from acute events, though FEMA does not eliminate the risk entirely. Additionally, we expect that physical hazards will continue to worsen, having more significant long-term impacts on communities that do not have the ability or means to sufficiently adapt or retreat, with the potential to substantially impair a community's tax and/or employment base.

Transition risks: While physical risk is a more immediate consideration for the municipal market than transition risk, we consider how transition risk could affect communities with significant ties to the fossil fuel industry, such as significant concentration in the fossil fuel industry in the tax or employment base. We view transition risk as a more medium-term risk and more likely to have a nearer-term impact on communities located in states with more robust renewable portfolio standards, net zero carbon targets, or other climate-related regulations. We also look at where the transition away from fossil fuels could have positive impacts on communities. For example, where communities are experiencing growth in sectors that are supportive of the transition, such as renewable energy technology manufacturing plants or generation facilities, the transition could be a net job creator.

Climate risks and impact embedded into PIMCO's sustainability strategies

In PIMCO's portfolios that follow ESG strategies, we embed climate change into our three-step approach of exclusion (e.g. fossil fuels⁷), evaluation (e.g. climate performance) and engagement to assess both the portfolio's contribution to climate change, and the impact of climate change from a credit risk perspective. Sustainability strategies look to be better positioned than their respective benchmarks with respect to their exposure and management of climate risks, given their relative focus on issuers with stronger climate characteristics

overall (e.g., issuers with lower carbon intensity than peers, and companies with science-based carbon emission reduction targets and robust transition plans).

PIMCO's process to evaluate these risks includes both the incorporation of this analysis into our credit and ESG research as well as the implementation of climate scenario analysis and stress tests.

Climate-scenario analysis models: assessing the resilience of assets from top-down to bottom-up

PIMCO has developed models taking both top-down and bottom-up approaches to climate scenario analysis in order to assess our portfolio's potential resilience to relevant climate risks. PIMCO's Climate Risk Working Group conducts scenario analysis based on emerging methodologies and guidelines,

such as those seeking to model the potential impact an extreme and sudden climate transition would have on bond prices (value at risk). Existing climate models could also examine the potential impact on bond prices in the event where no action is taken on climate change.

The following section expands further on these models and demonstrates how considering different climate scenarios enables PIMCO to have a more holistic assessment of the resilience of its investment strategies in relation to climate related risks.

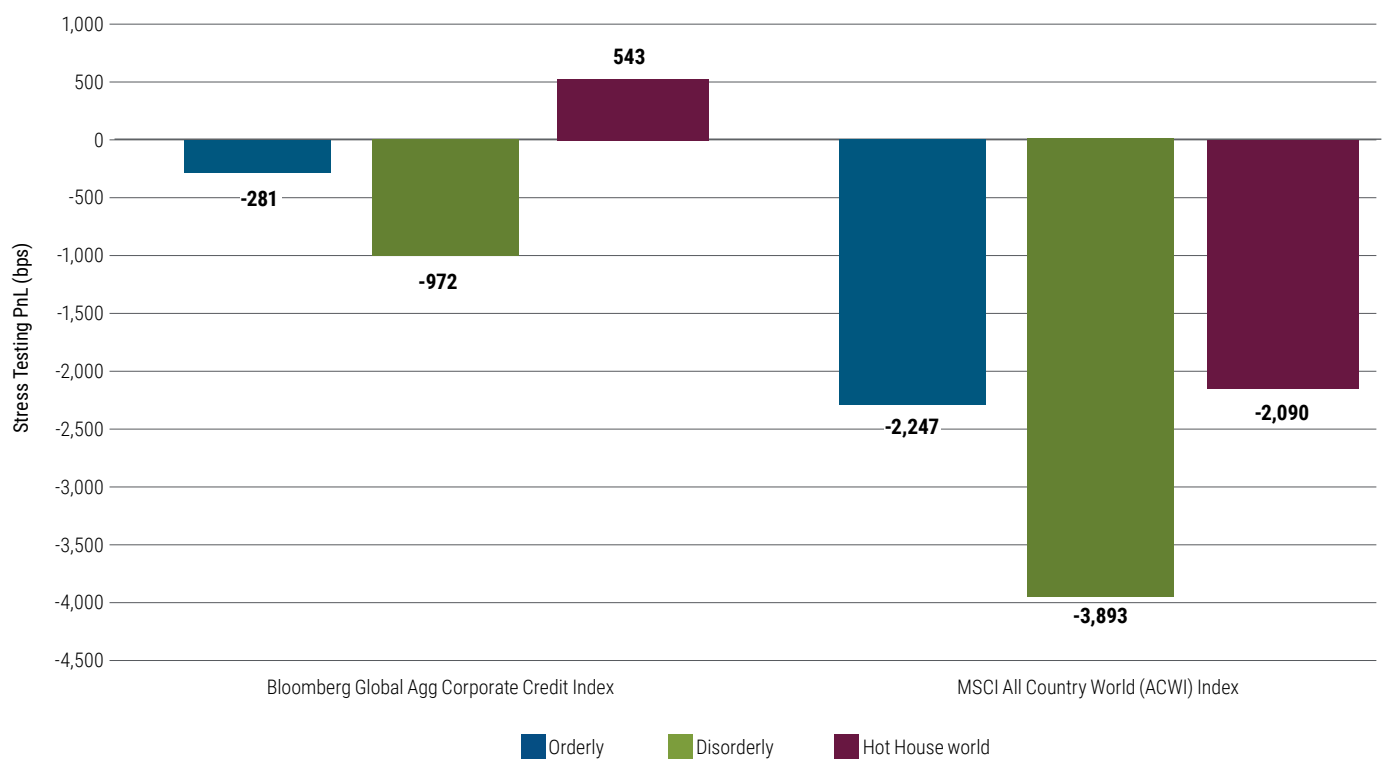
⁷ issuers principally engaged in the oil industry, including extraction, production, refining, transportation, or the production, sale of coal and coal-fired generation.

TOP-DOWN MODEL

We have created a PIMCO model which uses empirical data to capture the main mechanisms linking climate change to the global economy, such as changes in environmental taxes, impacts of rising temperatures, etc. With this model we can simulate the cumulative impact climate change could have on real GDP for the world, the U.S., and Europe over the years 2020-2050 under the three different scenarios designed by the NGFS (More information on the top down model and the NGFS Scenarios can be found in the Appendix).

To determine the impact of climate scenarios on asset prices, we map the loss in real GDP onto real equity returns and real rates. Detailed below are the PIMCO model results ('climate value-at-risk (VaR)') for a global fixed income benchmark and a global equity index.

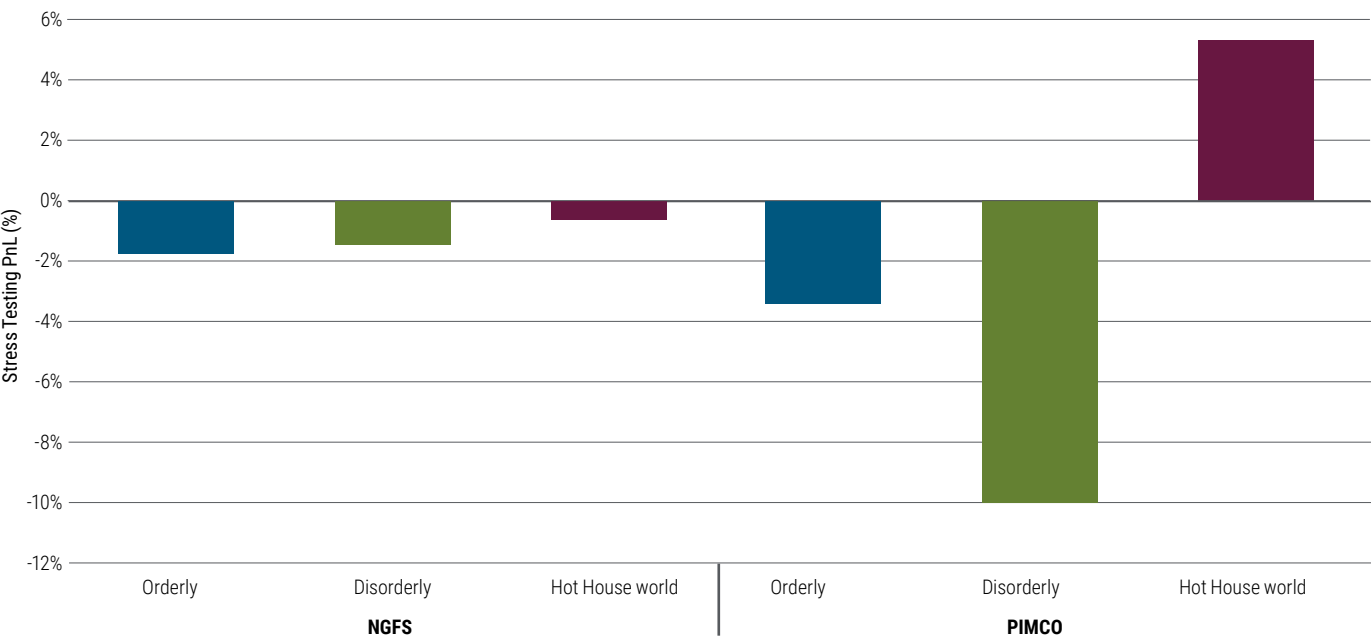
PIMCO top-down model implied impact on benchmark returns by scenario



⁸ As of 31 December 2022. Source: Burke and Tanutama (2019), Bloomberg, BP, IMF, OECD, Our World in Data, PIMCO. **For illustrative purposes only**

⁸ Source: PIMCO Proteus model output as of 31 December 2022. for the MSCI ACWI Net Total Return USD Index. For illustrative purposes only. The top-down macro model maps a NGFS climate scenario to two types of outputs: macroeconomic and risk factor. The outputs are a panel with country and time dimensions. The time series dimension is annual over the same horizon as the input scenario. We assume the climate scenario affects the macroeconomic outputs through two channels: 1) Physical risks: Loss in productivity due to human-driven increase in global temperature; 2) Transition risks: Increased inflation and loss in growth from taxing carbon and subsidizing renewable investment. These macroeconomic shocks flow through to asset prices which we capture using a set of risk factors. The risk factor outputs are then plugged into PIMCO's risk model (Proteus) and then applied to the desired account, index or security to generate the final return impact of the climate scenario. Given the uncertainties linked to climate models and data, this work inherently includes a host of assumptions and is exploratory and iterative. Scenarios are not forecasts or predictions. Sources: NGFS, IMF, OECD, BloombergNEF, World Bank, FRED, Our World in Data, Burke and Tanutama (2019).

Top Down Model Impacts on PEL Entity



⁹ As of 31 December 2022. Source: Burke and Tanutama (2019), Bloomberg, BP, IMF, OECD, Our World in Data, NGFS, PIMCO. **For illustrative purposes only**

In the orderly and disorderly scenarios, the implementation of a carbon tax causes lower real GDP and higher inflation. Based on our mapping to asset prices, this implies that equities fall and rates rise. For the Bloomberg Global Aggregate Corporate index, we find the negative return on equity also means credit spreads widen.

The disorderly scenario features a delayed transition and larger losses in real GDP due to transitioning later, and also larger inflation causing a more negative return for the fixed income benchmark compared to the orderly scenario.

In the hot house world scenario, there is no inflation to offset the large losses in real GDP due to physical risk. As a result, equities and rates fall leading to losses in the equity benchmark and gains in the fixed income benchmark due to duration. While this simplified modelling inherently does not capture the specific impacts on fixed income sectors and securities given their characteristics and respective vulnerability to climate risks, it is useful as a first step to shed light on the connections between climate-induced GDP shocks and portfolio returns, all else equal.

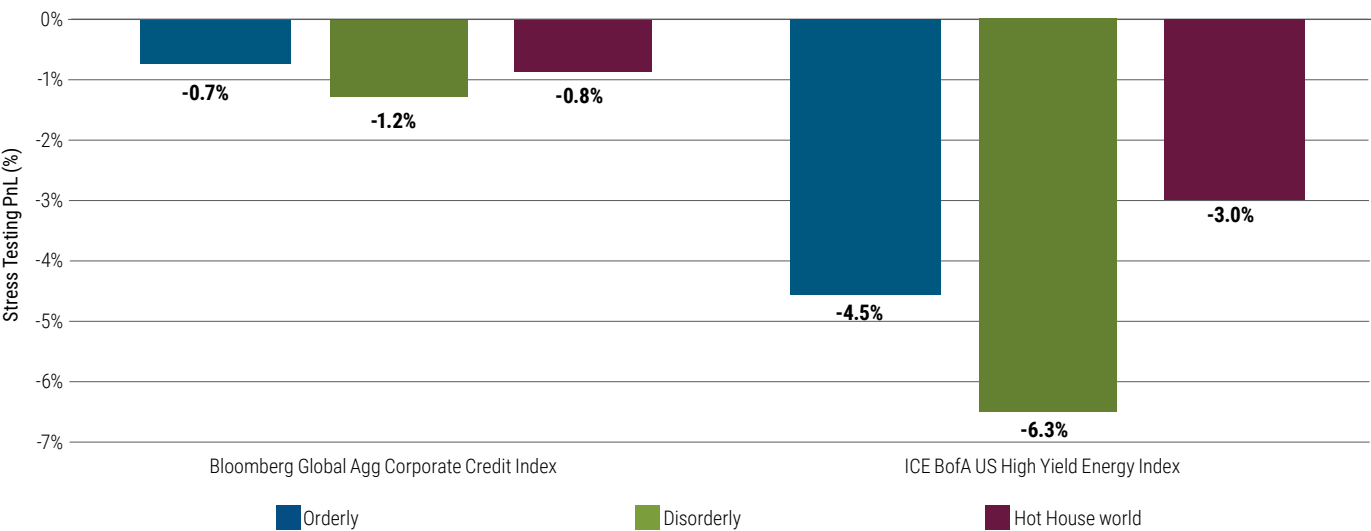
⁹ Represents in scope PEL using 31 December 2022 PIMCO and NGFS model inputs. Macroeconomic shocks flow through to asset prices which we capture using a set of risk factors. The risk factor outputs are then plugged into PIMCO's risk model (Proteus) and then applied to the desired account, index or security to generate the final return impact of the climate scenario. Given the uncertainties linked to climate models and data, this work inherently includes a host of assumptions and is exploratory and iterative. Scenarios are not forecasts or predictions. Sources: NGFS, IMF, OECD, BloombergNEF, World Bank, FRED, Our World in Data, Burke and Tanutama (2019).

BOTTOM-UP MODEL

PIMCO has developed a bottom-up sector stress-testing model using a distinct set of assumptions separate from those of the top-down approach. This model builds upon internal research and central bank stress testing exercises to determine equity price shocks for material sectors¹⁰. These shocks incorporate both physical and transition risks across the NGFS’s six scenarios¹¹. PIMCO then translates these equity shocks into fixed income shocks and can apply them to corporate bonds in a portfolio¹².

The charts below illustrate the impact climate change could have on two different corporate credit benchmarks, the Bloomberg Global Aggregate Corporate Index and the ICE BofAML US High Yield Energy Index as well as the PIMCO PEL contracted assets. Portfolios with a higher allocation to materially exposed sectors (e.g. energy), can increase the severity of losses across scenarios. The disorderly scenario produces the most severe outcomes, as the world’s abrupt transition materially affects the equity valuations of high carbon-emitting sectors.

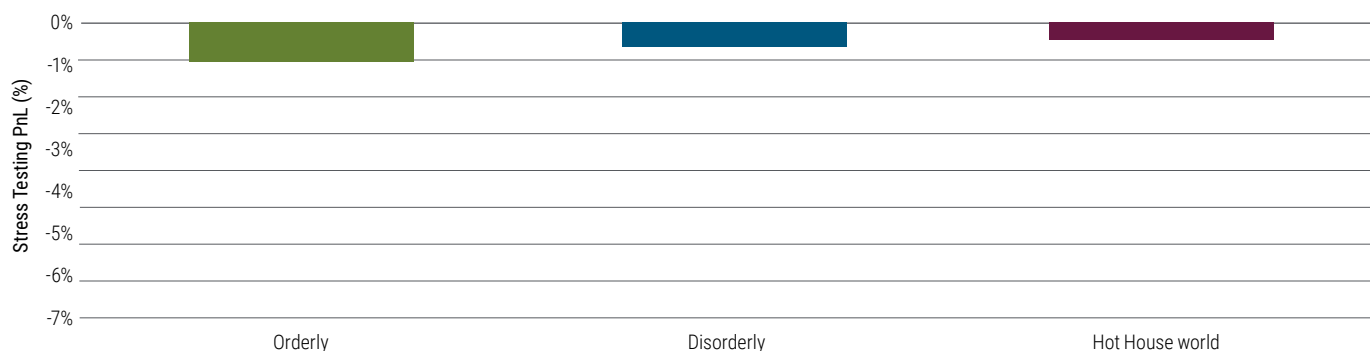
PIMCO’s bottom-up model’s impact on benchmark returns per scenario



As of 31 December 2022. Source: Bank of England, NGFS, PIMCO bottom-up model output as of 31 December 2022 for the ICE BofAML US High Yield Energy index. Output represents the impact on corporate bonds for both transition and physical risk. **For illustrative purposes only**

10 <https://www.bankofengland.co.uk/stress-testing>
11 <https://www.ngfs.net/ngfs-scenarios-portal/>
12 Source: PIMCO Bottom-up model output as of 31 December 2022. for the Bloomberg Global Aggregate Corporate unhedged USD index. Output represents the impact on corporate bonds for both transition and physical risk. For illustrative purposes only. This model draws on a simplified method suggested by the Bank of England to assess the potential corporate sector shocks (equity and bond prices change under each climate scenario), for climate-relevant sectors, including both transition and physical risk. These sectors are then mapped to their equivalent subsectors. The Bank of England’s three climate scenarios (Orderly, Disorderly, and Hot House) are expanded to include the three new NGFS scenarios released in 2021. Each new scenario is calculated as a change compared to the original three scenarios. Expansion from three to six scenarios is accomplished by using multipliers for transition and physical risk. The transition risk multiplier is based on the NGFS carbon price for a given base and new scenario. The physical risk multiplier is based on temperature differences under each scenario. Bond price impact is estimated to be 15% of equity impact. Given the uncertainties linked to climate models and data, this work inherently includes a host of assumptions and is exploratory and iterative Sources: NGFS, Bank of England, Merrill Lynch.

PIMCO PEL Assets



As of 31 December 2022. Source: Bank of England, NGFS, PIMCO. **For illustrative purposes only**

While the model does not account for a company's specific dynamics, which we address via a complementary bottom-up research approach¹³, it provides insights into sector selection that can help structure more climate-resilient portfolios.

Climate resilience of PEL

In general, preliminary data produced by these models suggest a moderate impact of climate scenarios on PIMCO Europe Limited. However, limitations of stress testing methodologies and data described in the appendix (page 49) alongside the areas for improvement we focus on warrant great caution.

To help address these risks, we focus on two types of risk mitigation levers:

1. PEL's business model and investments diversification in terms of asset classes, credit quality, sectors and geographies.

Climate-related risks have the potential to impact the value of our assets under management (AuM), which would affect our future profitability. PIMCO's exposure to climate related risks is predominantly via the financial assets we manage on behalf of our clients; our business model offers us a certain degree

of flexibility and agility to adapt our exposure depending on the realized climate scenario, in order to effectively mitigate such risks.

Moreover, our portfolios are broadly diversified across a number of asset classes and geographies; a large portion of our assets is invested in high-quality, highly liquid instruments of the fixed income market including investment grade corporate credit, government and government-related securities, and cash equivalents. Climate risk-driven expected losses for bonds are typically smaller in magnitude compared to other asset classes (such as equities); diversification helps avoid unwanted concentrations towards economies that are geographically and/or structurally more vulnerable to climate change.

2. Our climate risk integration and management process as described in other sections.

PLANS FOR TRANSITIONING TO A LOW-CARBON ECONOMY

As an organization that operates in jurisdictions with GHG emissions reduction commitment, PEL is closely monitoring the implications for its clients and portfolios but has not set GHG emissions targets as an organisation. However, as detailed throughout this report and in the next section,

we are taking various actions to support the transition, for example as it relates to investment solutions for clients with decarbonization objectives or our engagement with issuers and various organisations on best practices.

¹³ Source: PIMCO bottom-up model output as of 31 December 2022 for the Bloomberg Global Aggregate Corporate unhedged USD index. Output represents the impact on corporate bonds for both transition and physical risk. For illustrative purposes only. This model draws on a simplified method suggested by the Bank of England to assess the potential corporate sector shocks (equity and bond prices change under each climate scenario), for climate-relevant sectors, including both transition and physical risk. These sectors are then mapped to their equivalent subsectors. The Bank of England's three climate scenarios (Orderly, Disorderly, and Hot House) are expanded to include the three new NGFS scenarios released in 2021. Each new scenario is calculated as a change compared to the original three scenarios. Expansion from three to six scenarios is accomplished by using multipliers for transition and physical risk. The transition risk multiplier is based on the NGFS carbon price for a given base and new scenario. The physical risk multiplier is based on temperature differences under each scenario. Bond price impact is estimated to be 15% of equity impact. Given the uncertainties linked to climate models and data, this work inherently includes a host of assumptions and is exploratory and iterative. Sources: NGFS, Bank of England, Merrill Lynch.

Collaboration to advance climate risk measurement and management

As a leading global asset manager, PIMCO helps define global climate metrics for investment purposes, and encourages greater climate-related disclosure from issuers. Below is a select list of our industry leadership with global affiliations and initiatives that are involved with improving global climate-related practices with regards to investment analysis and diligence. This includes a range of industry initiatives that are linked to the implementations of the TCFD, such as the [Bank of England's Climate Financial Risk Forum's \('CFRF'\) scenario analysis working group](#). In recent years, the CFRF published a

series of guides to climate-related financial risk management. These guides aim to help financial firms understand the risks and opportunities that arise from climate change, and provides support for how to integrate them into their risk, strategy and decision-making processes. Here, a PIMCO case study is provided in the Climate Solutions Chapter of the latest session (released in December 2022), demonstrating PIMCO's leadership and commitment to engaging with issuers on the global transition to a net zero economy.



CDP NON-DISCLOSURE CAMPAIGN

Formerly the Carbon Disclosure Project, CDP is the world's largest, most comprehensive dataset on environmental action, empowering investors to make more informed decisions. Each year CDP supports thousands of companies and state entities to measure and manage their ESG risks and opportunities.

PIMCO'S INVOLVEMENT

PIMCO supports the development of enhanced corporate disclosure regarding alignment with the Paris Agreement and the UN's Sustainable Development Goals (SDGs). We see CDP as a key source of data on opportunities for ESG investment and how corporates respond to ESG trends.

PROGRESS TO DATE

Following participation in CDP's pilot fixed income investor campaign in 2020 (an investor backed pilot program focused on a small group of unlisted bond-issuing companies), PIMCO joined the CDP's Non-Disclosure Campaign in 2021 and 2022. This campaign offers investors the opportunity to engage companies that have received a CDP disclosure request but have not provided a response. CDP's 2022 Results report stated the disclosure rate for companies targeted by this initiative increased from 19% in 2020 to 27.9% in 2022 for the climate change section. Specifically, 32% of the companies at which we supported engagement via this campaign submitted their response to CDP in 2022 (30% in 2021).



INTERNATIONAL CAPITAL MARKETS ASSOCIATION (ICMA)

The International Capital Market Association (ICMA) sets out guiding principles that shape and enhance the market for green, social, sustainability, and sustainability-linked bonds.








PIMCO'S INVOLVEMENT

PIMCO is a member of ICMA's executive committee, which is responsible for addressing all matters related to the ICMA's Principles: the Green Bond Principles (GBP), Social Bond Principles (SBP), Sustainability Bond Guidelines (SBG), and Sustainability-Linked Bond Principles (SLBP).

HOW PIMCO HELPED ADVANCE ICMA'S GOALS

Supported by the release of ICMA's Sustainability-Linked Bond Principles in June 2020, the sustainability-linked bonds (SLBs) market took off and experienced strong growth in recent years (\$194.8 billion of total issuance in 2021 and 2022 according to Bloomberg New Energy Finance). As additional guidance, ICMA updated in 2022 its Q&A for SLBs as well as illustrative examples for the selection of key performance indicators (KPIs) for sustainability-linked bond issuers. PIMCO is one of the coordinators of the SLB working group and contributed to both documents.

In addition to the initiatives mentioned earlier, the following is an expanded list of PIMCO's industry affiliations that are significantly engaged in addressing climate risks and opportunities.

Industry Leadership	Overview
 <p>PIMCO is a Member</p>	<ul style="list-style-type: none"> • This is a pledge made by investors to work with 100 of the highest-emitting companies globally to do more to tackle the threat of climate change. • More than 200 institutional investors with \$26 trillion in assets under management pledged to support this initiative.
 <p>PIMCO is a Member</p>	<ul style="list-style-type: none"> • The leading investors coalition on climate change with more than 170 members across 13 countries, with over €23 trillion in assets. • The IIGCC is the membership body for investor collaboration on climate change and the voice of investors taking action for a prosperous, low-carbon future.
 <p>PIMCO is a Supporter</p>	<ul style="list-style-type: none"> • A global asset owner-led initiative (including clients and investment consultants) that assesses companies' preparedness for the transition to a low-carbon economy. • TPI data and tools help inform our assessment of climate risks and engagement with bond issuers.
 <p>PIMCO is a Partner</p>	<ul style="list-style-type: none"> • A leading organization focused on fixed income and climate change solutions. • CBI has been instrumental in supporting more robust data and standards to propel the Green bond market, and remains heavily involved in shaping new Green bond-related regulations.
 <p>PIMCO is a Member</p>	<ul style="list-style-type: none"> • A global collaborative investor network that raises awareness of the environmental, social and governance (ESG) risks and opportunities brought about by intensive livestock production, with over \$23 trillion in member AuM. • The aim of the initiative is to build a network of investors who are aware of the issues linked to intensive animal production and seek to minimize the risks within the broader food system.
 <p>PIMCO is a Member</p>	<ul style="list-style-type: none"> • Initiative created following the 2015 Paris Agreement to collectively mitigate the effects of climate change. • Aims to help Sovereign Wealth Funds foster a shared understanding of key principles, methodologies, and indicators related to climate change; identify climate-related risks and opportunities in their investments; and enhance their decision-making frameworks to better inform their priorities as investors and financial market participants.
 <p>PIMCO is a Member</p>	<ul style="list-style-type: none"> • Collaboration of Australian and New Zealand institutional investors focused on the impact of climate change on investments. • Represents investors with total funds under management of over \$2 trillion in Australia and New Zealand and \$20 trillion around the world. IGCC members cover over 7.5 million people in Australia and New Zealand.

ASSESSMENT OF THIRD PARTY PROVIDERS FOR CLIMATE DATA

In regards to strategy for selection of third parties, including climate data providers that support our assessment, most procurement at PIMCO is done centrally by an affiliate of PIMCO Europe Limited (PEL). PEL benefits from the affiliate's procurement processes under which ESG criteria and environmental practices of potential service providers are evaluated as part of a qualitative assessment during the due diligence review. Service providers are requested to confirm if their organization has an environmental policy or is aligned to any environmental certification standards.

Moreover, the increased scrutiny on the quality of ESG data requires asset managers like PIMCO to assess the comprehensiveness and robustness of the data we obtain from third parties. At PIMCO we do not rely on one source, and continue to draw from multiple data providers which we believe have strong reputation and boast strong data coverage in their respective fields. Importantly, we take external data as one of many inputs to our own research and decision making processes.



CASE STUDY: PHYSICAL RISK DATA IN CLIMATE ANALYSIS

Physical risks represent both short-term and long-term risks, with exposure to acute events in the near term, such as flooding, wildfire, and hurricanes, and the expectation of long-term changes to communities from permanent sea level rise, temperature change, extended droughts, damage from acute events, and other physical impacts. This area of research has been growing in importance as new models and techniques emerge to better account for potential physical risk impact on portfolios. PIMCO research, open data sources, and academic literature help evaluate the possible materiality of physical risk for sovereign and sectors, but PIMCO determined additional data procurement was needed to inform engagement and investment decisions. PIMCO carried out an exercise to evaluate data providers on their physical data and ultimately narrowed to two leading candidates with the selected vendor delivering better coverage and model flexibility than

competitors. This being said, physical risk data coverage remains challenging for all market participants and is an area that PIMCO consistently monitors for developments. In selecting its data providers, PIMCO evaluates a range of criteria including:

- Corporate asset database coverage
- Scenario diversity
- Climate hazard coverage
- Vulnerability modelling
- Value chain and market risk differentiation
- Pricing
- Capacity to integrate with PIMCO's IT systems

The following table provides an illustration of how certain factors such as, data coverage and assessment of both direct and indirect risks allowed us to differentiate some of these providers.

	PROVIDER 1	PROVIDER 2
SPECIALIZATION		
Corporates	X	X
Sovereign / Sub-sovereign		X
Available in the future?		
OUTPUT		
Scoring	X	X
Available in the future?		
Climate VaR/PD/probabilistic metrics	X	
Available in the future?		X
Raw financial Metrics		
EVALUATION		
Number of Companies	3	4
Number of Assets	5	3
Number of hazards	3	3
Forward-Looking climate hazards	4	5
Sensitive Modeling	4	3
Broad Value Chain (upstream-Supply Chain risk & downstream-Market risk)	5	1
Available in the future?		
Final Score	4.07	3.53

Source: PIMCO. For illustrative purposes only

RISK MANAGEMENT

Framework to Identify,
Assess and Manage
Climate Risks.



Processes for identifying, assessing and managing climate-related risks

Risk management is a major focus at PIMCO and has been a cornerstone of the firm's investment philosophy since the firm's inception. PIMCO measures and manages portfolio risk by focusing on a series of factor-based risk measures, which aim to capture each portfolio's positioning. PIMCO believes that successful risk management demands constant reassessment of the investment landscape in order to anticipate future market events and evolutions in potential risk frameworks.

The Portfolio Risk Management team is integrated into the broader Portfolio Management group at PIMCO with members of the team located in each of the regions with major trading centres: Asia, Europe and North America. This enables 24-hour portfolio coverage and greater continuity of information flow from each region. Additionally, integration into the portfolio management organization helps to ensure the timely escalation of any potential concerns.

The identification and assessment of relevant climate-related risks in our portfolios starts with our in-house investment research team. PIMCO's climate research is led by credit

analysts – experts in their market sectors – who build on the structure of our broader ESG specialist desk for coordination and consistency. Where applicable, climate risk features in our credit recommendations and our proprietary ESG scores for the issuers we evaluate. In this way, PIMCO leverages the expertise of our analyst teams, while harmonizing climate risk analysis across asset classes and sectors. Importantly, our ESG scores inform broad PIMCO portfolios, not only portfolios with specific sustainability objectives. Material ESG factors may include but are not limited to: climate change risks (both transition and physical risks), nature-related risks, social inequality, shifting consumer preferences and other factors associated with the concept of a Just Transition¹⁴ or human rights (e.g. supply chain risks). PIMCO's ESG scores have been developed based on proprietary frameworks and methodologies relevant to various fixed income sectors, such as: CLOs; corporate credit; covered bonds and Danish mortgages; municipal debt; and sovereign- or government-related debt, such as local authorities, supranational issuers and development banks.

¹⁴ According to the ILO, a Just Transition, "involves maximizing the social and economic opportunities of climate action, while minimizing and carefully managing any challenges – including through effective social dialogue among all groups impacted, and respect for fundamental labor principles and rights".

Please see below an illustration of select ESG indicators and examples of sector-specific metrics used by PIMCO's analysts to assess corporate issuers' exposure to ESG risks as well as practices to mitigate those risks.

	Theme	Issue	Key Performance Indicators & Topics
Environmental	Climate Change	Greenhouse Gas Emissions	<ul style="list-style-type: none"> Carbon and GHG Emissions Energy Management, Mix and Reserves Transition risks (Market, Policy, Technology) Climate strategy, for risk mitigation
		Physical Risks and Resilience	<ul style="list-style-type: none"> Extreme weather impacts Adaptation and mitigation
	Resource efficiency and Natural Capital	Water	<ul style="list-style-type: none"> Water security & scarcity Water use, recycling & efficiency
		Land use and Biodiversity	<ul style="list-style-type: none"> Agriculture, Forestry, Land use change Soft commodities sourcing and production, including restoration costs
		Waste	<ul style="list-style-type: none"> Materials Efficiency & Process Mass Intensity Waste recycling, Hazardous waste management Critical incidents, environmental remediation & fines
		Air Pollution	<ul style="list-style-type: none"> Air quality
Social	Human Capital	Human Capital Management	<ul style="list-style-type: none"> Employee training, development, & engagement Attraction and retention & pay equity Diversity, equity & inclusion
		Human & Labor Rights and Health & Safety	<ul style="list-style-type: none"> Occupational health and safety incident rates Organized labor policies and relationships Supplier policies on worker rights, health, safety and compulsory labor
		Community & Stakeholder Relationships	<ul style="list-style-type: none"> Community engagement & relationship management Conflict minerals sourcing Involvement in controversial projects
	Product Health, Quality, Safety & Innovation	Product Safety & Quality	<ul style="list-style-type: none"> Product safety & lifecycle management, Recall track record Product liabilities, controversies and fines User data policies, data security
		Product Innovation & Wellness	<ul style="list-style-type: none"> Products & services tied to secular sustainability trends Innovation and intellectual capital, dedicated R&D Social/Inclusive business models ("triple bottom line")
Governance	Corporate Governance	Board, Management & Ownership	<ul style="list-style-type: none"> Qualifications, Characteristics and Oversight & Effectiveness, Remuneration & Succession Shareholder profiles (majority, family, government, activist), voting rights & proxy access Conflicts of interest and/or related party transactions
		Business Ethics, Conduct & Culture	<ul style="list-style-type: none"> Bribery & Corruption, Litigation, Anti-Competitive Practices & Tax Transparency Regulatory capture and political influence Code of ethics, Corporate behavior & Conflicts of Interest Treatment of customers and Key stakeholders, Reputation
		Delivery on Business & Balance Sheet Strategy	<ul style="list-style-type: none"> Track record in achieving guidance and targets Controls over capital allocation, Share buybacks and distributions Acquisitions, asset sales, divestitures or other transactions
	Risk Management & Transparency	Risk Management	<ul style="list-style-type: none"> Climate / Critical Incident / Systemic / Cyber Enterprise Risk Management Susceptibility to headline risks
		Transparency & Reporting	<ul style="list-style-type: none"> ESG data disclosure, Accounting practices & Audit quality Internal controls and reporting (timeliness and accuracy) Communication with key stakeholders (customers, employees, clients, investors)

To help analysts evaluate climate risk, PIMCO's ESG specialists designed various proprietary tools, drawing on our decades of experience in fixed income analysis. The insights these tools provide are intended to help portfolio managers with managing and mitigating climate-related credit risks— as always, working within specific portfolio objectives and guidelines.

Insights from PIMCO's climate tools along with general ESG-related analysis are incorporated into PIMCO's proprietary ESG scores, as well as asset class and sector views where applicable. These assessments are subsequently made available to portfolio managers firm-wide in order to account for and manage relevant ESG risks and opportunities within investment strategies. For portfolios that do not follow any ESG strategy, the management of climate risks involves evaluating if we are sufficiently compensated for such risks over the investment horizon.

Further, for our portfolios that follow ESG strategies, management of climate risks involves actively optimizing portfolios in order to avoid positions most exposed to climate risks and tilting to issuers best suited to take advantage of the identified climate opportunities. Our ESG Analyst team, in conjunction with the Portfolio Risk Management team, provide relevant portfolio managers with ESG reports on a weekly basis to actively monitor and manage these risks. Quarterly fund reviews also take place to update Portfolio Managers regarding various trends, including engagement progress or issuer's climate-related performance and controversies. In addition, ESG risk reports have been made available to our Portfolio Management team to provide additional details on a portfolio's exposure to carbon-sensitive sectors, climate solutions, and issuer's alignment with the Paris Agreement or our proprietary climate risk score.

PIMCO's seven climate tools for risk analysis and management¹⁵

Integrating material Climate risk into broad investment decisions

Objective	Tool #	Focus	PIMCO Tool Name	Key Question
Lower Credit Risk	1	Economic Impacts (Top-down)	Climate Macro Tracker	How to assess and decrease portfolio exposure to financial risks brought about by climate change
	2	Credit Risk Impacts (Bottom-up)	Portfolio Climate Risk Heat Map	
	3		Issuer Climate Risk Score	
Reduce Carbon Emissions	4	Brown Bonds	Energy and Technology mix compared with the Paris Agreement (IEA Scenarios)	How to reduce portfolio exposure to activities contributing to global warming
	5	Carbon Intensity	Portfolio Carbon Intensity Analysis	How to reduce portfolio's carbon footprint
	6	Green Bonds	Green Bonds Score	How to increase portfolio exposure to activities that help mitigate global warming
Both	7	Engagement	Expectations toward issuers on climate change	How to influence companies' strategy

Tools / Analytics to support construction of ESG portfolios

As of 31 December 2022. Source: PIMCO. For illustrative purposes only

¹⁵ For a description of these tools, see PIMCO ESG Investing Report 2020.

ENCOURAGING BETTER DISCLOSURE AND PRACTICES RELATED TO CLIMATE RISKS

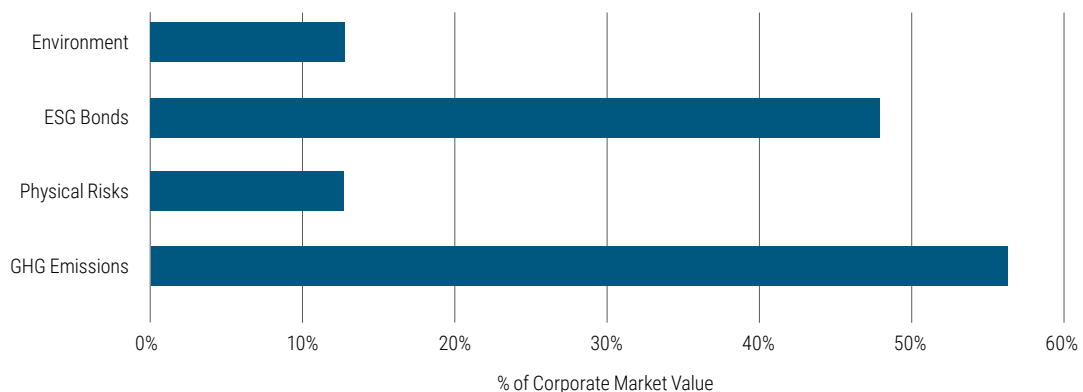
We engage with issuers for enhanced corporate disclosure on climate change and transition plans.

We evaluate the evidence of issuers' activities in relation to the points highlighted in the table further below (illustrative), acknowledging issuers are at various stages, and the importance of the direction of travel and momentum. These expectations build on several frameworks, including the TCFD, Science-Based Targets initiative, or International Sustainability Standards Board¹⁶.

1	Climate Awareness	Recognition	I	<ul style="list-style-type: none"> Recognize climate change as a significant issue Develop a policy
2	Climate Readiness	Reporting	I	<ul style="list-style-type: none"> Report absolute and relative carbon emissions across entire value chain Report carbon intensity based on relevant metrics
		Target	II	<ul style="list-style-type: none"> Set a greenhouse gas (GHG) emissions reductions target
3	Climate Alignment	Scenarios	I	<ul style="list-style-type: none"> Implement comprehensive qualitative scenario analysis
			II	<ul style="list-style-type: none"> Factor an internal price of carbon into business decisions
			III	<ul style="list-style-type: none"> Address potential financial impacts of transition and physical risks
		Strategy	I	<ul style="list-style-type: none"> Set a Paris Agreement-aligned (science based) GHG emissions reductions target
			II	<ul style="list-style-type: none"> Report business alignment with Paris Agreement and potential climate adaptation needs
			III	<ul style="list-style-type: none"> Set a net zero commitment detailing interim targets, emissions covered, and any absorption or offset mechanisms

These engagement efforts resulted in having the majority of PEL's corporate bond exposure (63%) engaged on one or several climate-related topics, with greenhouse gas emission reduction being the main one.

Breakdown of Engagement Topics for PIMCO Europe Ltd. in 2022



Source: PIMCO. As of 30 December 2022. Engagement refers to any interaction with issuers, in which PIMCO asked for details on their business relating to an ESG topic and may have communicated recommendations. ESG-related interaction refers to any conversation PIMCO analysts have with issuers such as email exchange, deal or non-deal roadshows, calls or meetings at conferences, bilateral or small group calls or meetings. ESG Bonds refers to ESG-labelled bonds e.g. green bonds. "Environment" refers to other topics not captured by named themes, as well as engagements which may span across several named topics as relevant (e.g. responsible sourcing linked to environmental topics or environmental reporting).

PIMCO continues to view stewardship and engagement as a long-term and dynamic process that evolves over several years. While changes may take time to materialize (e.g. issuer's implementation of the TCFD recommendations or development of science-based targets often take at least two to three years), PIMCO analysts reinforce and follow up on ESG engagement objectives as part of their regular interactions with issuers¹⁷.

¹⁶ Exposure draft named 'IFRS S2 Climate-related Disclosures'.

¹⁷ For more details on our ESG engagement and escalation approach, including on how this may affect investment decisions (e.g. purchasing hold or divestment consideration), see PIMCO's UK Stewardship Report (e.g. page 72)

ENGAGEMENT ESCALATION EXAMPLE



U.S. BASED REIT

Background: The company issued a sustainability bond in 2020 with some disclosure practices falling short of market best practices, such as second party opinion and indication of impact reporting post issuance. They did not provide any impact report two years after the issuance, which misaligns with the standard market practice as per ICMA to publish it annually, starting one year after the issuance.

Engagement: Given the slightly weaker disclosure at issuance, PIMCO engaged with the company to share our expectations on impact reporting and best practices for ESG bonds more broadly. When they failed to publish any impact reports two years into the three-year maturity, PIMCO reached out to the company about the timeline for the impact report publication and had not received

any expected timeline for the disclosure. We escalated to the company that we would assume the bond program misaligned with ICMA principles in the absence of such update and highlighted the lack of plan to align its overall environmental disclosure with industry standards such as TCFD, CDP, GRI or SASB. PIMCO spoke with their Treasury team several times to reinforce our recommendations and potential impacts on ESG assessment for the program.

Updates: The company published an allocation report and obtained a second-party opinion for the program, including impact metrics, showing some progress in improving disclosure. PIMCO will continue to engage the issuer on best practices such as more ambitious eligibility criteria and impact metrics.

Besides cross-sector recommendations, our bilateral and collaborative engagement also focuses on specific themes, sectors and initiatives, such as net zero portfolio emissions¹⁸ for banks, methane emissions or CDP's non-disclosure and science-based target campaigns. As it relates to our engagement with policy makers, we have provided responses either directly or via industry affiliations to a number of consultations, such as the U.S. Securities and Exchange Commission on Climate Change Disclosures.

The CDP non-disclosure campaign offers investors the opportunity to engage companies that have received a CDP disclosure request but have not provided a response, while the Science-Based Targets Campaign allows investors to contribute to the adoption of science-based emission reduction climate targets (a proxy of issuer's commitment that we report in the TCFD Metrics section of this report).

¹⁸ For more details, see PIMCO's viewpoint '[Engaging With Stakeholders to Reduce Methane Emissions From Oil and Gas Production](#)'

ENGAGEMENT CASE STUDIES

The below are select case studies from engagements PIMCO conducted in 2022 with issuers where topics of engagement included disclosure and practices related to climate risks.

Climate Risk Disclosure – Multinational Conglomerate

- **Background:** PIMCO met with Investor Relations team for the company's Energy subsidiary to discuss the lack of disclosure on consolidated emissions (at least Scope 1 & 2 in line with SEC climate proposal) and setting GHG and waste targets at the parent level.
- **Engagement:** PIMCO urged the company to begin reporting consolidated emissions data and to set decarbonization and waste reductions targets beyond its energy subsidiary and including the insurance, manufacturing and building materials segments. The company was encouraged to consider options to phase out coal production earlier than its 2049 target date.
- **Looking Forward:** The company expressed that they would like to phase-out coal production earlier than 2049 (and that over 2/3 of their coal production will be decommissioned by 2035). They will continue to invest to potentially eliminate coal earlier than 2049.

Target Setting – Multinational Bank

- **Background:** PIMCO had a 1x1 call with the investor relations team, with an emphasis on climate change.
- **Engagement:** Discussed progress on sectoral target setting, financed emissions, client engagement on transition, clarifications on sector policy. We also discussed the issuer's gaps in their lending policies on natural capital and alignment with net zero and are reviewing the policy though unlikely to be updated in 2022. We encouraged the issuer to clarify their approach to assess and engage clients on transition progress, including clear criteria for assessing clients' transition progress (e.g. against 1.5C pathways, net zero framework by TPI or CA100+). We recommended more explicit reference to net zero in sector policies, particularly setting out time-bound expectations for all carbon-intensive sectors to have a credible transition plan and/or net zero targets. Furthermore, PIMCO recommended the issuer to set clear criteria for assessing client transition progress, defining engagement strategy, outcomes and escalation process.
- **Looking Forward:** The issuer is reviewing the lending policies, with updates expected through 2022. The issuer's efforts to enhance their climate strategy should advance their capabilities to manage climate transition risks.

ESG Labelled Bond Issuance – European REIT

- **Background:** A German-Czech Republic commercial real estate company, CPI Property invests mainly in Central and Eastern Europe, a region that is still in the early stages of ESG investing compared to Western Europe.
- **Engagement:** Following interactions on CPI's green bond program and ESG strategy, PIMCO shared guidance on best practices when issuing sustainability-linked bonds, including an explicit link to ambitious GHG emissions reduction targets.
- **Looking Forward:** In January 2022, CPI issued its inaugural Sustainability-Linked Bond, with a strong focus and comprehensive scope on reduction in carbon emissions. The company's emissions reduction targets have now been validated by the Science Based Targets initiative (SBTi). The implementation and verification of targets as part of a broader climate strategy enhancement should improve their readiness to cope with climate transition risks.
- **Impact of Bonds:** Green Bond proceeds to be allocated towards expenditures related to green buildings and energy efficiency projects targeting LEED certifications of Gold or above and BREEAM certifications of "Very good" or above.

TAKING A HOLISTIC APPROACH TO CLIMATE RISKS

We explore and engage on climate change in the context of broader sustainability risk and are supportive of the Sustainable Development Goals (SDGs) as the reference framework to assess these wide-ranging risks, e.g. biodiversity, water scarcity, Just Transition, human and labor rights.

Further, deforestation – an important topic from both a biodiversity and Just Transition perspective – has been a particular area of thematic focus for our engagement, as halting and reversing land degradation is crucial to limiting global warming and mitigating a wide variety of risks, such as

biodiversity loss and human rights violations. On this front, while our direct exposure to forest-risk commodities was limited, we engaged companies across sectors, including food manufacturers, retailers, and banks, on their commitment to eliminating deforestation in their value chain.

In terms of portfolio screener and issuer level evaluation, we have explored the use of tools that help evaluate the impact and dependence of our portfolio holdings on nature using publicly available data such as ENCORE (Exploring Natural Capital Opportunities, Risks and Exposure).



METRICS AND TARGETS

Climate-focused
investment exposure
of sample PIMCO
portfolios



Metrics and targets used to assess and manage relevant climate-related risks and opportunities

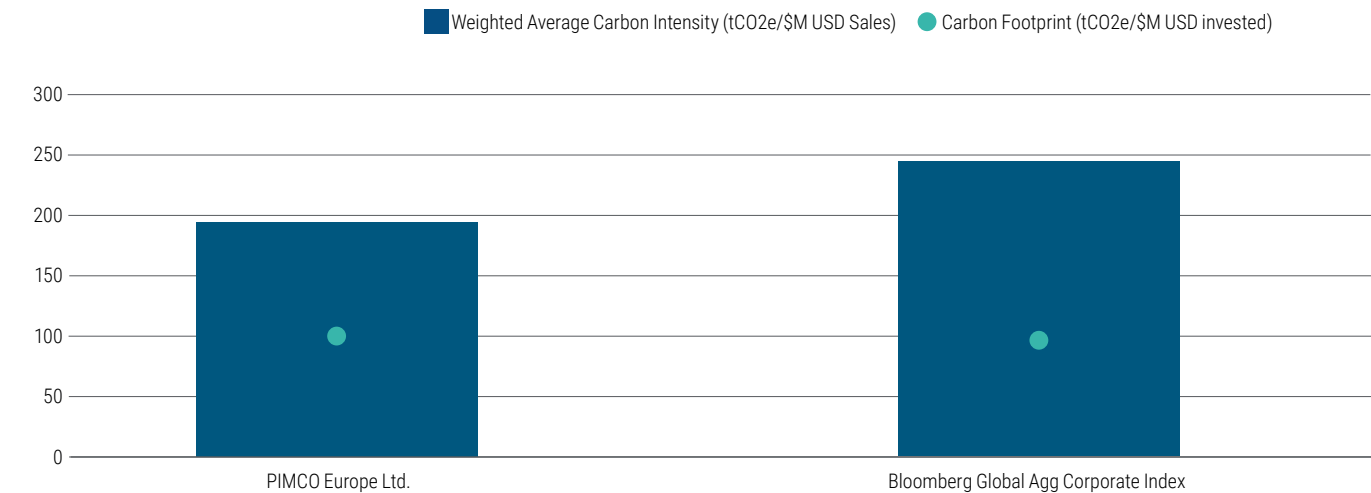
As the world economy evolves toward a net-zero future, investments within the sample PIMCO portfolios are exposed to a share of the carbon emissions within the broader global bond market.

This section shows for sample PIMCO portfolios, representative of the assets that fall under PIMCO Europe Ltd. (PEL), and benchmarks selected metrics linked to the recommendations of the Task Force on Climate-Related Financial Disclosures and similar disclosure frameworks. Importantly, these figures consist of ESG optimized portfolios

as well as those that do not follow a sustainability strategy. Therefore, although these metrics may be optimized in portfolio construction for mandates that follow ESG strategies, they are not optimized on aggregate across all of our portfolios. Our main priority as an asset manager and fiduciary is to deliver on our clients' investment objectives, which vary across portfolios depending on investor preference.

PEL's weighted average carbon intensity for corporate credit is lower than the global credit benchmark and its carbon footprint is slightly higher.

2022 Carbon Intensity and Footprint



As of 30 December 2022. Source: MSCI. **For illustrative purposes only.** The benchmarks may materially vary from the composition of the portfolios. Weighted Average Carbon intensity: Is intended to reflect how an issuer's greenhouse gas (GHG) emissions (expressed as tonnes of CO2 equivalent (tCO2e)) compares to its overall sales. The carbon intensity of the securities portfolio is defined as the weighted average carbon emissions (Scope 1 + Scope 2 emissions (tCO2e))/ Sales in USD of corporate bond holdings only in the portfolio (for issuers with available data). Carbon Footprint: Is intended to reflect how the sum of the issuer's absolute greenhouse gas (GHG) emissions (expressed as tonnes of CO2 equivalent (tCO2e)) attributed to the portfolio compared to the portfolio's market value (USD invested). As defined by the U.S. Environmental Protection Agency (EPA), Scope 1 emissions are direct GHG emissions that occur from sources owned or controlled by a company (for example, company vehicles and facilities), and Scope 2 emissions are indirect GHG emissions from the purchase of electricity, steam, heating or cooling. Data used by PIMCO to calculate carbon intensity is sourced from MSCI based on data reported by companies, a company specific model, or an industry specific model (MSCI's methodology is available here: <https://www.msci.com/index-carbon-footprint-metrics>). This Figure is provided for information purposes and should not be construed as a solicitation or offer to buy or sell any PIMCO or other securities or related financial instruments in any jurisdiction. The portfolio structure is a representation of a sample portfolio and no guarantee is being made that the structure of the portfolio will remain the same or that similar results will be achieved.

The following table shows that the top five sectors in terms of contribution to PEL's carbon total carbon emissions (Scope 1, 2 and 3), with energy deemed the most exposed to transition risks.

Sector	% of Total Carbon Emissions of PIMCO Europe Ltd. in 2022 (only Scope 1 and 2)	% of Total Carbon Emissions of PIMCO Europe Ltd. in 2022 (Scope 1, 2, and 3)	% of Total Corporate Bond Exposure of PIMCO Europe Ltd. In 2022	Transition Risk Exposure
Utilities	28.2%	24.3%	7.1%	
Energy	26.3%	21.7%	3.9%	
Raw Materials	17.6%	12.2%	3.0%	
Automotive	0.6%	9.7%	2.4%	
Finance Companies	0.4%	7.8%	4.4%	

As of 30 December 2022. Source: MSCI, PIMCO. The share of exposure by sector for the universe of corporates with Scope 1, 2 and 3 carbon data available in PIMCO Europe Ltd. varies (from 2% of the corporate market value for energy to 8.1% for utilities)

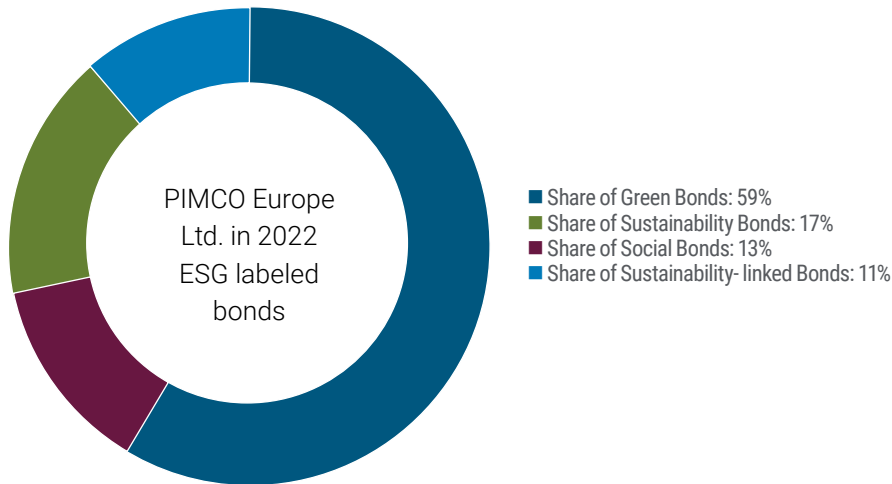
Please see below the greenhouse gas emissions (production emissions excluding land use, land-use change, and forestry¹⁹) attributed to PEL for its main sovereign bonds holdings, together with metrics that help evaluate transition risks (fossil fuels exports) and physical risks (assessment of country's resilience and readiness to cope with climate risks). They indicate that the US is the main contributor to PEL's carbon footprint by one definition while these countries have a relatively low exposure to physical risks.

Country	Share of PEL Treasury (Sovereign) Bond Exposure	Production Emissions Scope 1 GHG (tCO ₂ e, excl LULUCF)	Fossil Fuel Exports as a % of GDP (5Y avg)	Fossil Fuel Exports as a % of total merchandise exports	ND-GAIN Country Index
United States	25.16%	4,911,318	0.78%	10.07%	66.2
Japan	22.56%	2,697,075	0.22%	1.61%	65.5
United Kingdom	7.36%	643,126	1.18%	7.52%	69.4
France	4.69%	406,110	0.57%	2.77%	66.9

As of 30 December 2022. Source: S&P (Trucost), ND-GAIN. Scope 1 refers to Production Emissions which are Territorial emissions of a country, excluding land use, land use change and forestry (including direct exports). Greenhouse gas emissions are calculated based on PCAF's recommendations. Under this approach, a sovereign is seen primarily as a national territory, and direct (scope 1) GHG emissions are attributable to emissions generated within its boundaries and are equivalent to Production emissions which are emissions produced domestically and inclusive of domestic consumption and direct exports (this definition follows the territorial emissions approach adopted by UNFCCC for annual national inventories and is typically referenced by sovereigns in their Nationally Determined Contributions (NDCs)). The ND-GAIN Country Index summarizes a country's vulnerability to climate change and other global challenges in combination with its readiness to improve resilience. It aims to help governments, businesses and communities better prioritize investments for a more efficient response to the immediate global challenges ahead. The higher the score the better. Those are data based on the latest update (2020). The average for all countries covered is 49.2 and the median is 48.1.

¹⁹ Direct (scope 1) GHG emissions are attributable to emissions generated within its boundaries and are equivalent to Production emissions.

PEL’s exposure to projects and companies that aim to support the energy transition can be approximated via green, sustainability and sustainability-linked bonds that represent 4.4% of the market value of total PIMCO Europe Ltd. assets, including renewable energy or green buildings among major categories in terms of allocation for the use of proceeds bonds.



As of 30 December 2022. Source: PIMCO, Bloomberg, MSCI. **For illustrative purposes only.** Green, social, and sustainability bonds are identified based on Bloomberg definitions (issuer or underwriter must clearly and publically demonstrate in issuance documentation that 100% of all proceeds will be used to finance or refinance acceptable green projects or activities) and includes issuers that may not comply with the Green Bond Principles. These portfolios are being shown to illustrate the difference between ESG portfolios and the broad global credit market (represented by the Bloomberg Global Aggregate Credit Index USD Hedged). This Figure is provided for information purposes and should not be construed as a solicitation or offer to buy or sell any PIMCO or other securities or related financial instruments in any jurisdiction. Total sustainable bond issuances grew from \$340 billion to \$1.1 trillion during this period (232% growth).

Summary table for PIMCO Europe Ltd. portfolios

This table includes the aggregated value for PEL portfolios for selected climate-related metrics based on the recommendations of the TCFD and other initiatives providing guidance on carbon measurement and reporting from financial institutions (e.g. Partnership for Carbon Accounting Financials or PCAF, Science-Based Targets initiative or SBTi).

This includes:

- A data quality score to give a sense of the degree of external verification of the underlying data.
- Both data for the latest reporting year and 2021, which suggests several trends, e.g., slight increase in the coverage of carbon data for corporate credit, relative stability of key carbon emissions metrics such as weighted average carbon emissions or carbon footprint, material increase in the share of issuers with science-based greenhouse gas emission reduction targets.
- Data on the coverage per indicator: as mentioned in the Appendix, Corporates IG and HY represent less than a quarter of PEL’s assets while Government account for around to a third, which indicates that a material share of assets are not covered by carbon metrics.

Metric type	Metric	Asset class covered ²⁰	Units	2022 Value PIMCO ²¹	2022 Value Benchmark ²²	Diff Over Index	2021 Value PIMCO ²³	2021 Value benchmark ²²	2022 PIMCO Coverage ²⁴	2021 Coverage ²⁴
Portfolio Alignment Metrics	Share of issuers with a Science Based Target set	Corporates	%	18.9%	24.6%	-5.7 p.p.	14.7%	20.2%		
	Definition: % of Corporate Market Value of portfolios invested in issuers with a Science Based Target set									
	Weighted Average Temperature Score (WATS)	Corporates	Centigrade Degrees	2.38	2.35	-	-	-	-	-
	Definition: The respective weighting of companies' implied temperature rise is the invested value in a company divided by the total value of the portfolio.									
	Share of Corporate Market Value potentially aligned with a well below 2 degrees Scenario (incl. 1.5-degree)	Corporates	%	40.5%	47.2%	-6.7 p.p.	16.1%	22.5%	-	-
	Share of Corporate Market Value potentially aligned with a 1.5-degree Scenario	Corporates	%	20.8%	27.5%	-6.7 p.p.	7.8%	14.0%	-	-
	Definition: Based on an estimate of the global temperature rise associated with the greenhouse gas emissions of each company (source: TPI, SBTi, Trucost). It incorporate current GHG emissions or other data and assumptions to estimate expected future emissions associated with the entity. Then the estimate is translated into a projected increase in global average temperature (in °C) above preindustrial levels that would occur if all companies in corresponding sectors had the same carbon intensity as the selected asset(s).									
Exposure to carbon-related assets	Share of carbon sensitive sectors	Corporate	%	31.0%	46.7%	-15.7 p.p.	31.6%	43.1%	-	-
	Definition: % of Corporate Market Value of portfolios invested in sectors deemed particularly sensitive to risks brought about by the energy transition (energy; materials and buildings; transportation; food and agriculture; forest products).									
Engagement	Share of Corporate Market Value Engaged in Climate-related Topics	Corporates	%	63.4%	-	-	-	-	-	-
	Definition: Engagement refers to any interaction with issuers, in which PIMCO asked for details on their business relating to an ESG topic and may have communicated recommendations.									

All data as of 31 December 2022. Sources: MSCI, PIMCO, TCFD, PCAF, SBT, TPI, Trucost, Bloomberg, EDGAR. For illustrative purposes only. Calculations for carbon metrics are based on the guidance developed by the TCFD and the Partnership for Carbon Accounting Financials (PCAF). Carbon data reflects the last level of emissions reported by the company, although in some instances it can reflect emissions data that had been disclosed before 2022 (e.g. 2021 and 2020), subject to availability.

20 Corporates refer to Corporate Bonds, Commercial Paper, Certificate of Deposit, Time Deposit, Bankers' Acceptance.
This is repeated across all the charts and tables in this section.

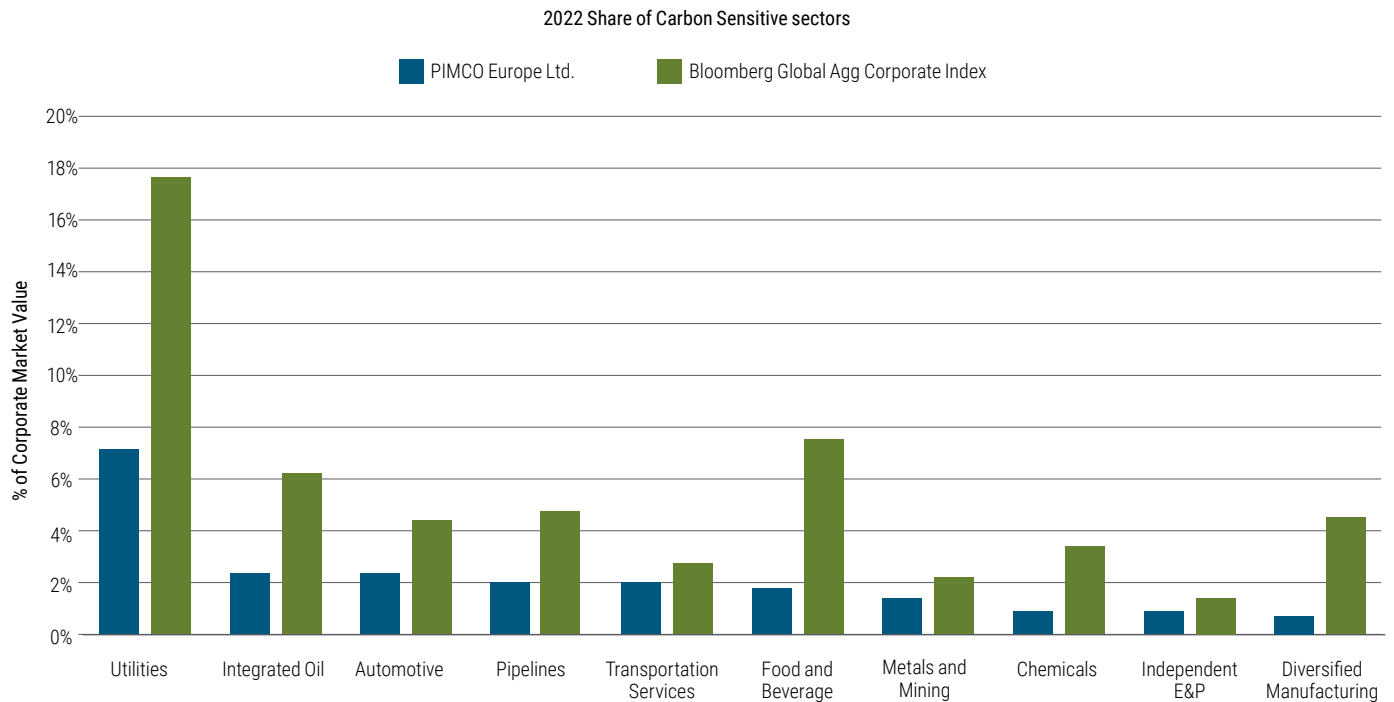
21 PIMCO's aggregate value is based on 369 accounts in PIMCO Europe Ltd as of 31 December 2022, subject to data availability.

22 Benchmark value is based on Bloomberg Global Agg Corporate Index, subject to data availability.

23 PIMCO's aggregate value based on 333 accounts in PIMCO Europe Ltd as of 31 December 2021, subject to data availability.

24 Coverage metrics represent the share of securities with data as a % of the corporate1 market value of assets under management.

Carbon Sensitive Sectors



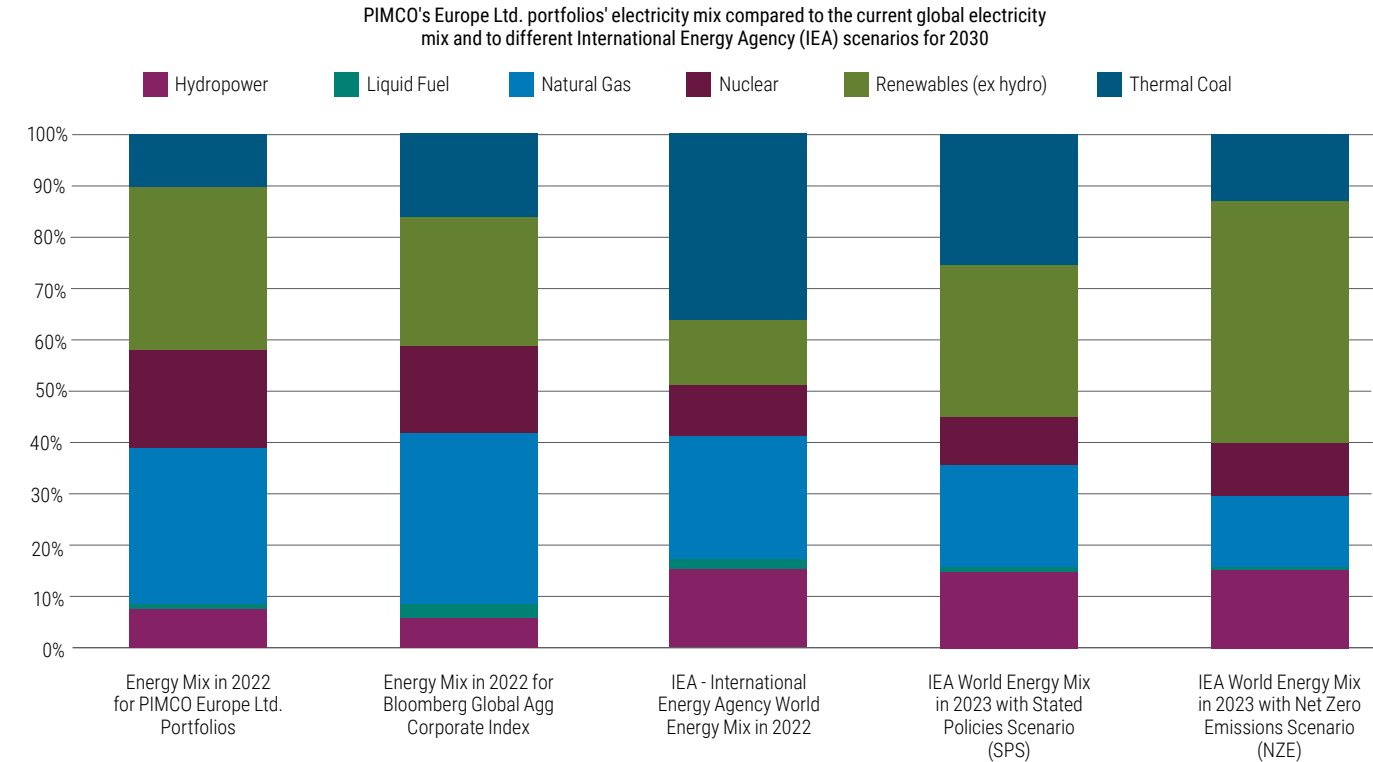
As of 31 December 2022. Source: MSCI. For illustrative purposes only. Showing top 10 carbon-sensitive sectors by Corporate Market Value. Carbon-sensitive sectors represent sectors deemed particularly sensitive to risks brought about by the energy transition (energy; materials and buildings; transportation; food and agriculture; forest products). This Figure is provided for information purposes and should not be construed as a solicitation or offer to buy or sell any PIMCO or other securities or related financial instruments in any jurisdiction.

Total Carbon Emissions per Carbon-Sensitive Sector

Sector	Units	Total Carbon Emissions PIMCO Europe Ltd (Scope 1,2,3)	Total Carbon Emissions BBG Global Agg Credit (Scope 1,2,3)
Automotive	tCO2e	1,401,549	2,061,936
Construction	tCO2e	368,507	798,258
Energy	tCO2e	3,143,558	5,740,164
Food	tCO2e	263,633	1,288,974
Industrial Services	tCO2e	27,757	65,648
Manufacturing	tCO2e	929,899	2,075,216
Pipelines	tCO2e	475,838	676,844
Raw Materials	tCO2e	1,761,396	2,865,693
Retail	tCO2e	30,171	50,657
Transportation	tCO2e	241,883	107,877
Utilities	tCO2e	3,514,501	5,001,692

As of 31 December 2022. Source: MSCI.

Electricity Generation Mix



Source: PIMCO, MSCI and IEA data. All rights reserved. www.iea.org/statistics. License: www.iea.org/t&c. As of 31 December 2022, unless otherwise indicated. **For illustrative purposes only.** Note: "PIMCO Europe Ltd." refers to the electricity generation mix of the portfolios inside PIMCO Europe Ltd. Entity. IEA SPS refers to Stated Policies Scenario (existing policy frameworks and today's announced policy intentions) and IEA Net Zero Emission Scenario (aligned with the Paris Agreement and ~1.5°C trajectory). For corporate bonds only. No guarantee is being made that the structure of the portfolio will remain the same or that similar returns will be achieved. This Figure is provided for information purposes and should not be construed as a solicitation or offer to buy or sell any PIMCO or other securities or related financial instruments in any jurisdiction.

Physical risk



As of 31 December 2022. Source: Moody's ESG Solutions. Weighted average percentile scores per sector based on corporate issuers held by PEL. This percentile score means that each company score has been rescaled by percentile with respect to the universe of companies covered by Moody's ESG Solutions in order to put them on a 0-100 scale: 0 (low risk) and 100 (high risk). The percentile score is useful to directly benchmark the hazard score of a company relative to the others. Four Twenty Seven's physical climate risk scoring methodology for corporations assesses three types of risk: Operations Risk, Supply Chain Risk, and Market Risk. Operations Risk measures the overall climate hazard exposure associated with the facilities a company owns or operates. Supply Chain Risk and Market Risk capture respectively upstream (supply chain) and downstream (distribution, customers) climate risks for companies. Operations Risk constitutes 70% of the total company score, while Supply Chain and Market Risk each account for 15%. This chart focuses on PEL's largest sectors in terms of market value exposure, excluding financial institutions. It shows for example that most of the physical risks for all sectors are estimated to come from operations while for utilities they stem from supply chain risks. This Figure is provided for information purposes and should not be construed as a solicitation or offer to buy or sell any PIMCO or other securities or related financial instruments in any jurisdiction

Sovereigns

Metric type	Metric	Asset class covered	Units	Value PIMCO 2021	Value Benchmark 2021	Diff Over Index	Definition
Financed emissions	Production Emissions (Scope 1 emissions) – including LULUCF	Sovereigns	tCO2e	17,581,110	21,396,125	-17.8%	Territorial emissions of a country, including land use, land-use change and forestry, based on the PRIMAP dataset, weighted by portfolio Adj PAR/\$M PPP adjusted GDP
Financed emissions	Production Emissions (Scope 1 emissions) – excluding LULUCF	Sovereigns	tCO2e	16,918,529	18,584,887	-8.9%	Territorial emissions of a country, excluding land-use, land use change and forestry, based on the PRIMAP dataset, weighted by portfolio Adj PAR/\$M PPP adjusted GDP
Financed emissions	Scope 2 Emissions	Sovereigns	tCO2e	2,980	6,475	-53.9%	Direct Imports GHG emissions of the electricity, gas, steam and air conditioning supply sector weighted by portfolio Adj PAR/\$M PPP adjusted GDP
Financed emissions	Scope 3 Emissions	Sovereigns	tCO2e	6,694,223	7,175,998	-6.7%	GHG emissions embedded in the goods and services directly and indirectly imported by a country, based on the PRIMAP dataset minus direct Imports GHG emissions of the electricity, gas, steam and air conditioning supply sector, weighted by portfolio Adj PAR/\$M PPP adjusted GDP
Financed emissions	Consumption Emissions (incl. LULUCF)	Sovereigns	tCO2e	22,009,515	24,610,941	-10.5%	Scope 1 (incl LULUCF) + Scope 2 + Scope 3 minus imports (direct & indirect) weighted by portfolio Adj PAR/\$M PPP adjusted GDP
Financed emissions	Consumption Emissions (excl. LULUCF)	Sovereigns	tCO2e	21,452,302	22,063,462	-2.7%	Scope 1 (excl LULUCF) + Scope 2 + Scope 3 minus imports (direct & indirect) weighted by portfolio Adj PAR/\$M PPP adjusted GDP
Financed emissions	Weighted Average Production emission (incl. LULUCF) intensity	Sovereigns	tCO2e/\$M_GDP adjusted	261	339	-23.0%	Production emissions (defined as Scope 1 emissions incl. LULUCF) divided by \$M PPP adjusted GDP (weighted based on portfolio Market Value)
Financed emissions	Weighted Average Production emission (Excl LULUCF) intensity	Sovereigns	tCO2e/\$M_GDP adjusted	248	286	-13.2%	Production emissions (defined as Scope 1 emissions excl. LULUCF) divided by \$MPPP adjusted GDP (weighted based on portfolio Market Value)
Financed emissions	Weighted Average Consumption emission (incl. LULUCF) intensity	Sovereigns	tCO2e/Capita	14.9	14.2	+4.9%	Consumption emissions (defined as Scope 1 (incl. LULUCF) + Scope 2 + Scope 3 minus imports (direct & indirect) per capita (weighted based on portfolio Market Value)
Financed emissions	Weighted Average Consumption emission (excl. LULUCF) intensity	Sovereigns	tCO2e/Capita	14.8	13.4	+10.4%	Consumption emissions (defined as Scope 1 (excl LULUCF) + Scope 2 + Scope 3 minus imports (direct & indirect) per capita (weighted based on portfolio Market Value)

As of 31 December 2021. Source: S&P (Trucost). The asset class named Sovereign covers here bonds classified as Treasury (i.e. excluding government-related securities such as quasi-sovereign, agencies and supranational). Scope 1 refers to Production Emissions which are Territorial emissions of a country, excluding/including land use, land use change and forestry (including direct exports). Scope 2 are Direct Electricity imports. Scope 3 are direct and indirect imports excluding electricity imports. Greenhouse gas emissions are calculated based on PCAF's recommendations. Under this approach, a sovereign is seen primarily as a national territory, and direct (scope 1) GHG emissions are attributable to emissions generated within its boundaries and are equivalent to production emissions which are emissions produced domestically and inclusive of domestic consumption and direct exports (this definition follows the territorial emissions approach adopted by UNFCCC for annual national inventories and is typically referenced by sovereigns in their Nationally Determined Contributions (NDCs)). Note: Given a divergence of views among emissions data providers and climate experts regarding the accounting of land use, land-use change, and forestry (LULUCF) emissions, PCAF states that investors have to report Scope 1 twice, including and excluding LULUCF as separate metrics. Scope 2 emissions are attributable to the purchase, in this case import, of electricity, steam, heat and cooling from outside the country territory. Scope 3 emissions are related to all other (non-energy) direct and indirect imports from goods or services from outside the country territory as a result of activities taken place in the country territory. Consumption Emissions reflect the demand side of sovereign emissions and account for consumption patterns and trade effects. This metric provides a broader view of a sovereign's GHG emissions and tackles the issue of carbon leakage that arises due to production shifts from countries where goods are actually consumed later. Consumption Emissions are equal to Production emissions (Scope 1 incl./excl. LULUCF) minus direct exported emissions + Imported emissions (direct Scope 2 and direct and indirect Scope 3).

Note: Sovereigns' emissions and socio-economic data is based on the TRUCOST dataset from August 2022 which uses PRIMAP v2.3.1. TRUCOST extrapolated the 2021 data by calculating the Compound Annual Growth Rate (CAGR) over a period of four years. Therefore, for each country the 2021 data was estimated using CAGR for 2017-2020. The CAGR was then used to extrapolate the data forwards so that modelled data remained consistent with the most recent years.

*Emissions from ABU Dhabi, Dubai and SHARJAH are mapped to the United Arab Emirates.

**While this is PIMCO first attempt to fully align with PCAF Sovereign Carbon Accounting guidance published in December 2022, data consistency, reliability and availability (especially on Scope 1 incl. LULUCF) remain a challenge.

Multi-assets

ESG-labelled Debt metrics

Metric type	Metric	Asset class covered	Units	2022 Value PIMCO ²⁵	2022 Value Benchmark ²⁶	Diff Over Index	2021 Value PIMCO ²⁷	2021 Value Benchmark ²⁶	Definition
Exposure to climate solutions	Share of Green Bonds	Corporates, Supranational, Sovereign and Agency, Municipal Bond, Collateralized Mortgage Obligation, Asset Backed Security, Local Authority	%	2.6%	4.2%	-1.6 p.p.	2.4%	3.2%	% Market Value of portfolios invested in Green Bonds
Exposure to climate solutions	Share of ESG-Labelled Bonds	Corporates, Supranational, Sovereign and Agency, Municipal Bond, Collateralized Mortgage Obligation, Asset Backed Security, Local Authority	%	4.4%	8.1%	-3.7 p.p.	4.4%	6.1%	% Market Value of portfolios invested in Green, Social, Sustainability or Sustainability-linked Bonds

All data as of 31 December 2022. Sources: MSCI, PIMCO, TCFD, PCAF, SBT, TPI, Trucost, Bloomberg, EDGAR. For illustrative purposes only. Calculations for carbon metrics are based on the guidance developed by the TCFD and the Partnership for Carbon Accounting Financials (PCAF). Carbon data reflects the last level of emissions reported by the company, although in some instances it can reflect emissions data that had been disclosed before 2022 (e.g. 2021 and 2020), subject to availability.

Targets used by the organization to manage climate-related risks and opportunities and performance against targets

At present, PIMCO Europe Ltd. does not yet employ any broad explicit targets on the assets managed on behalf of our clients. Our main priority as an asset manager is to deliver on investment objectives driven by our clients, the asset owners. Currently, the extent to which we employ carbon-related targets in portfolios on behalf of clients is limited and consists only of relative targets, where portfolios seek to have a better carbon intensity compared to relevant benchmarks.

²⁵ PIMCO's aggregate value is based on 369 accounts in PIMCO Europe Ltd as of 31 December 2022, subject to data availability.

²⁶ Benchmark value is based on Bloomberg Global Agg Corporate Index, subject to data availability.

²⁷ PIMCO's aggregate value based on 333 accounts in PIMCO Europe Ltd as of 31 December 2021, subject to data availability.



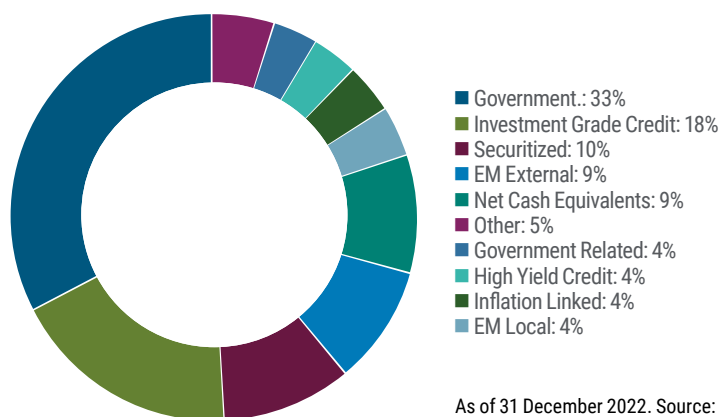
APPENDIX



Scope of this report

Data refer to assets under management (AuM) contracted with PIMCO Europe Ltd and AuM not contracted with PEL but where a PEL employee is the main portfolio manager.

2022 PEL Breakdown per Asset Class



Climate data

GENERAL NOTE

We have generally favored the inclusion of a broad range of available metrics based on recommendations from the TCFD and similar voluntary frameworks, recommendations or proposals developed by various initiatives (e.g. CDP, ISSB, PCAF, CFRE, UK Transition Plan Taskforce (TPT)). This inherently involves methodologies and data that are at various degrees of development, quality and acceptance, notably as it relates to greenhouse gas emissions accounting, asset classes beyond corporate credit, and forward-looking assumptions. For example, certain metrics such as portfolio's climate at risk, implied temperature rise²⁸, or greenhouse gas emissions for sovereign when including land-use change and consumptions, are subject to particularly significant limitations. In the

future, regulators, investors' own constituents, academics, and non-governmental organizations could have different interpretations and expectations for GHG accounting and climate risk disclosure in portfolios. There is no representation that data presented in this report will suffice to draw conclusions linked to investment decisions or make a positive or negative environmental impact claim. Past environmental performance and available proxies for the potential future performance is no guarantee of future results

In this section, we share details on methodology considerations (including uncertainties and broader limitations) and the room for improvement identified as we continuously look at ways of enhancing our ESG evaluation and disclosure, while increasing our transparency.

²⁸ 'In addition to a baseline of core metrics, we proposed that firms make 'best efforts' to disclose additional, mostly forward-looking, metrics (climate value-at-risk (VaR), portfolio alignment metrics, and any other metrics that they would consider decision-useful to disclose). We recognised that methodologies are still developing but considered that these metrics represent the direction of travel of the industry and are likely to be decision-useful to clients and consumers.' (source: FCA, [Enhancing climate-related disclosures by asset managers, life insurers and FCA-regulated pension providers](#)).

Methodology

Category	Use case	Metric type	Metric	TCFD Reference	Definition	Use case	Strengths	Weaknesses
Impact of the firm on climate change	Portfolio decarbonization	Financed emissions	Weighted Average Carbon Intensity	TCFD Implementation Guidance: Cross-Industry, Climate-Related Metric Categories (page 80), and others.	Portfolios' exposure to carbon-intensive companies (Scope 1 absolute emissions + Scope 2 absolute greenhouse gas emissions)/ issuer's revenues in \$M USD (weighted based on Market Value).	Proxy for the portfolio's efficiency in terms of emitting less carbon considering a certain level of activity.	Factors in company's size. Enables some comparison over time and between portfolios. Easier to manage than absolute carbon emissions. Helps assess carbon (transition) risks but is far from equating it.	Coverage of Carbon Emissions of issuers (especially for Scope 3) remains the biggest challenge when calculating carbon performance metrics such as Weighted Average Carbon Intensity, Total Carbon Emissions or Carbon Footprint. Carbon metrics including Scope 3 data are considering only issuers that have all the Scopes populated (Scope 1, 2 and 3). It is worth noting that even when Scope 3 emissions are reported, sometimes they only include a few categories (emissions from use of sold products often lacking). To cover this gap, we are using estimated Scope 3 emissions provided by MSCI when the issuer is not reporting Scope 3 data.
Impact of the firm on climate change	Portfolio decarbonisation	Financed emissions	Total Carbon Emissions	TCFD Implementation Guidance: Cross-Industry, Climate-Related Metric Categories (page 80), and others.	Proxy for the carbon emissions that the position in the security is responsible for. Total GHG emissions for portfolios (scope 1 and 2 emissions). Based on enterprise value including cash.	Proxy for the portfolio's contribution to global warming.	Can be linked to the absolute impact and a portfolio's total contribution to GHG emissions.	For the sake of a fair comparison in Total Carbon Emissions, the market value of the benchmark has been rescaled to match the market value of PIMCO Europe Ltd.
Impact of the firm on climate change	Portfolio decarbonisation	Financed emissions	Carbon Footprint	TCFD Implementation Guidance: Cross-Industry, Climate-Related Metric Categories (page 80), and others.	Total GHG emissions for a portfolio normalized by the market value of the corporates in the portfolio with Scope 1+2 GHG emissions data, expressed in tons CO2e/\$M invested. Based on enterprise value including cash.	Proxy for the portfolio's efficiency in terms of emitting less carbon considering a certain level of investment.	Can be linked to the absolute impact and a portfolio's total contribution to GHG emissions.	Total Carbon Emissions and Carbon Footprint are linked to volatility, notably due to biases linked to EVIC changes and changes in the equity/debt structure. Difficult to determine appropriate capital structure of private issuers.
Impact of the firm on climate change	Portfolio decarbonisation	Financed emissions	Data Quality Score	PCAF – Global GHG Standard for Financed Emissions (page 57), and others.	Data Quality score (1 to 3 – 1: best, 3: worst) that takes into account if the emissions are reported or estimated and if there is existence of assurance audits for the emissions data.	Proxy for the portfolio's carbon data quality.	Directly comparable across companies regardless of size. Provides a general indication of the degree of advancement in company's carbon reporting.	Weighted Average Carbon Intensity use revenues as a denominator, which introduces bias. Not a proxy for the portfolio's contribution to global warming. The quality gap between the highest and lowest Data Quality Scores is significant. Lacks additional buckets to further differentiate company data that is estimated.

Category	Use case	Metric type	Metric	TCFD Reference	Definition	Use case	Strengths	Weaknesses
Impact of the firm on climate change	Portfolio decarbonisation	Portfolio alignment metrics	Share of issuers with a Science Based Target set	Summary of Changes to Guidance, October 2021 (page 6, 47, 48), and others.	% of Corporate Market Value of portfolios invested in issuers with a Science Based Target set.	Proxy for the exposure to issuers with more advanced decarbonisation strategies Proxy to map alignment of the Portfolio with the objectives of the Paris Agreement.	Forward looking, only publicly available initiative that verifies decarbonisation targets based on a transparent process and methodologies.	Limitations to SBTi's coverage and methods, e.g., sectors are covered to varying degrees.
Impact of the firm on climate change	Portfolio decarbonisation	Portfolio alignment metrics	Share of issuers aligned with the Paris Agreement	Summary of Changes to Guidance, October 2021 (page 6, 47, 48), and others.	% of Corporate Market Value of portfolios invested in issuers aligned with the Paris Agreement climate targets.	Proxy for the exposure to issuers with more advanced decarbonisation strategies Proxy to map alignment of the Portfolio with the objectives of the Paris Agreement.	Forward looking. Uses a waterfall logic leveraging sources such as SBTi, TPI, Trucost and MSCI to address data gaps.	It is not a standardized metric (e.g. no standard methodology to calculate it). The use of a waterfall logic means that the value might be driven by different data sources which carry different assumptions.
Impact of the firm on climate change	Portfolio decarbonisation	Portfolio alignment metrics	Implied Temperature Rise	TCFD Implementation Guidance (page 48, page 5 – footnote 7), and others.	% of Corporate Market Value of portfolios invested in issuers with an Implied Temperature Rise aligned with the objectives of the Paris Agreement.	Proxy for the exposure to issuers with more advanced decarbonisation strategies Proxy to map alignment of the Portfolio with the objectives of the Paris Agreement.	Forward looking. Granular, as it is calculated at company level and later aggregated at portfolio level.	High dispersion in the results depending on the methodology to evaluate the warming potential of an entity and how to aggregate those at portfolio level.
Impact of climate change on a firm	Transition Risks	Exposure to carbon-related assets	Share of Carbon Sensitive Sectors	Common Carbon Footprinting and Exposure Metrics (page 55), and others.	% of Corporate Market Value of portfolios invested in sectors deemed particularly sensitive to risks brought about by the energy transition (Energy; Materials and Buildings; Transportation; Food and Agriculture; Forest products).	Proxy for the exposure to carbon risks.	Get an order of magnitude regarding the exposure of the portfolio to securities from sectors that are carbon-intensive and sometimes hard to decarbonize.	The list of carbon sensitive sectors is created by PIMCO based on the evidence regarding the materiality of the energy transition and industry best practice, leaning on several external sources (TCFD, IPCC, TPI). Does not reflect idiosyncratic factors and the dispersion within sectors.
Opportunities derived from Climate Change	Climate Solutions	Exposure to climate solutions	Exposure to ESG-labelled bonds (Green, Sustainability and Sustainability-linked bonds)	TCFD Implementation Guidance: Cross-Industry, Climate-Related Metric Categories (page 80), and others.	% Market Value of portfolios invested in Green, Sustainability or Sustainability-linked Bonds.	Proxy for the exposure to climate solutions in portfolio.	Guarantee on which are the projects funded and how can they help mitigate and/or adapt to climate change. Generally audited by third parties.	Partial visibility on the projects being funded by the proceeds and capital raised through the bonds. Full allocation to the project categories described by the framework in case of Use of Proceeds bonds can only be achieved some months or years after the bond has been issued.

Additional limitations and areas under development

BESIDES STRENGTHS AND WEAKNESSES MENTIONED IN THE PREVIOUS TABLE, WE NOTE THAT:

- **The coverage of carbon emissions of issuers**

(especially for Scope 3) remains the biggest challenge when calculating carbon performance metrics such as Weighted Average Carbon Intensity, Total Carbon Emissions or Carbon Footprint. Carbon metrics including Scope 3 data consider only issuers that have all the Scopes populated (Scope 1, 2 and 3). We are using both reported and estimated Scope 3 emissions provided by MSCI. There are significant limitations associated with each approach (reported or estimated). It is worth noting that even when Scope 3 emissions are reported, sometimes they only include a few Greenhouse Gas Protocol categories (e.g. emissions from use of sold products often lacking) and may omit the most material ones. Issuer's disclosure on the types and sources of data as well as methodology to calculate these emissions may also be partial while the heterogeneity of practices, together with uncertainties associated with these calculations, hamper the comparison over time or between issuers. Besides, MSCI's methodology uses various assumptions and proxies (e.g. estimating emissions based on sectoral revenues and intensities) that may make these values materially differing from actual emissions. There is also inherently some double counting issues associated with both scope 2 and scope 3 (the same ton of carbon is counted several times within a portfolio).

For the sake of a fair comparison for Total Carbon Emissions, the market value of the benchmark has been rescaled to match the market value of PIMCO Europe Ltd. As explained individually in the "Definition" column, metrics representing a share of market value have been adjusted for data coverage (e.g. calculating the share only within the corporate universe with data available). Metrics using weights (e.g. for Weighted Average Carbon Intensity) have used a weighting system which calculates the weight based on the market value universe of corporates with carbon data populated.

- **The list of carbon-sensitive sectors** is created based on PIMCO's classification system, as there is no guidance from the TCFD regarding the specific classification categories to use. This list can be both considered too broad (e.g. it doesn't exclude industries or sub-industries that are appropriate to exclude according to the TCFD, such as water utilities and independent power and renewable electricity) and too narrow (there may be issuers with potentially material exposure to carbon risks across their value chain that are not in scope).
- **Use of proceeds bonds:** All data on carbon emissions are in this report at issuer level, i.e. without applying any assumptions regarding green bonds that fund low-carbon projects such as renewable energy.

Scenario analysis covered in Strategy section

METHODOLOGY DETAILS

Below we show more illustrative results and background information from two different models taking a top down macroeconomic approach to climate scenario analysis, examining fixed income markets' resiliency to future climate risks. The first is an off-the-shelf model developed by the Network for Greening the Financial System (NGFS), a coalition of central banks dedicated to assessing the impact of climate change [1]. Their approach tries to capture all the major components of the global economy including government policy, labor and capital markets, and trade flows.

The second is the PIMCO model used in the scenario analysis of the strategic section, a reduced form approach using empirical data to capture the main mechanisms linking climate change to the global economy. This bespoke approach abstracts away from modeling all components of the economy and chooses instead to focus on the key mechanisms that are linked to climate change. The PIMCO top-down macro model maps the NGFS climate scenarios to two types of outputs: macroeconomic and risk factor. The outputs are a panel with country and time dimensions. The time series dimension is annual over the same horizon as the input scenario. We assume the climate scenario affects the

macroeconomic outputs through two channels: 1) Physical risks: Loss in productivity due to human-driven increase in global temperature; 2) Transition risks: Increased inflation and loss in growth from taxing carbon and subsidizing renewable investment. These macroeconomic shocks flow through to asset prices which we capture using a set of risk factors. The risk factor outputs are then plugged into PIMCO's risk model (Proteus) and then applied to the desired account, index or security to generate the final return impact of the climate scenario.

Using the two models, we can simulate the cumulative impact climate change could have on real GDP or equity for the world, the U.S., and Europe over the years 2020-2050 under three different scenarios (designed by the NGFS²⁹):

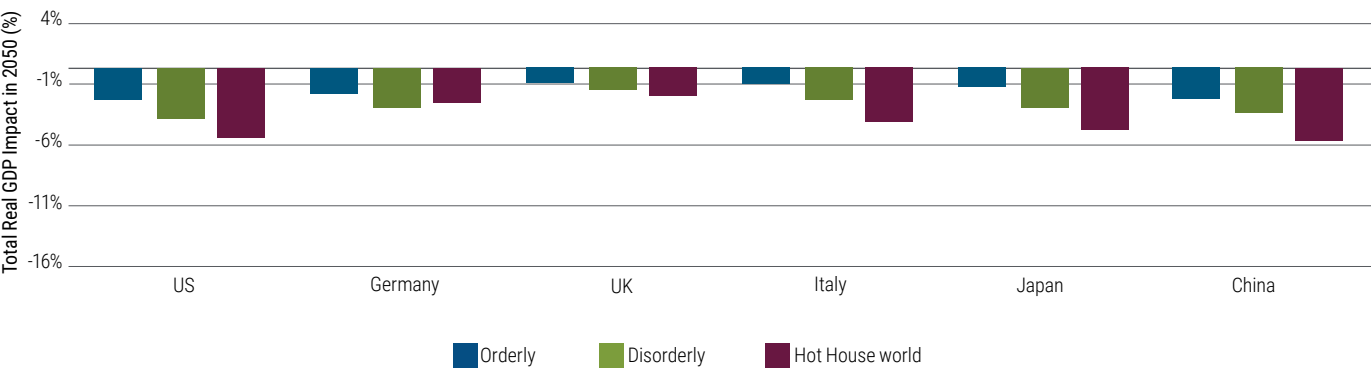
1. Orderly transition: Net zero (medium transition risks, low physical risks)
2. Disorderly: Delayed transition (high transition risks, medium physical risks)
3. Hot house world: Continuation of current policies (low transition risks, very high physical risk)

[1] The model combines "REMIND," an integrated assessment model, and "NIGEM," a large global macroeconomic model. NGFS home page is <https://www.ngfs.net/en>. MAGIC home page is <http://www.magicc.org/>. NIGEM home page is <https://nimodel.niesr.ac.uk/>

29 Orderly scenarios assume climate policies are introduced early and become gradually more stringent. Disorderly scenarios explore higher transition risk due to policies being delayed or divergent across countries and sectors. Hot house world scenarios assume that some climate policies are implemented in some jurisdictions, but globally efforts are insufficient to halt significant global warming. The scenarios result in severe physical risk including irreversible impacts, such as sea-level rise.

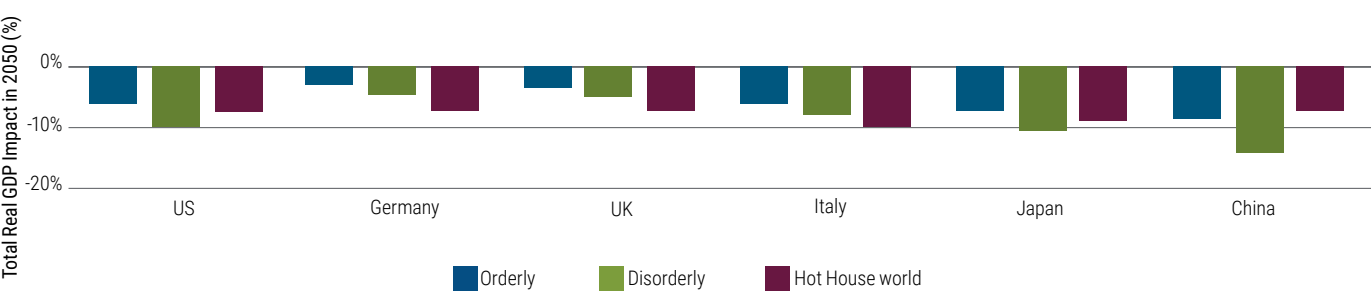
https://www.ngfs.net/sites/default/files/medias/documents/ngfs_climate_scenarios_for_central_banks_and_supervisors_.pdf.pdf

NGFS model predictions for real GDP per region and scenario ³⁰



As of 31 December 2022. Source: NGFS, PIMCO. **For illustrative purposes only**

PIMCO model predictions for real GDP per region and scenario ³¹

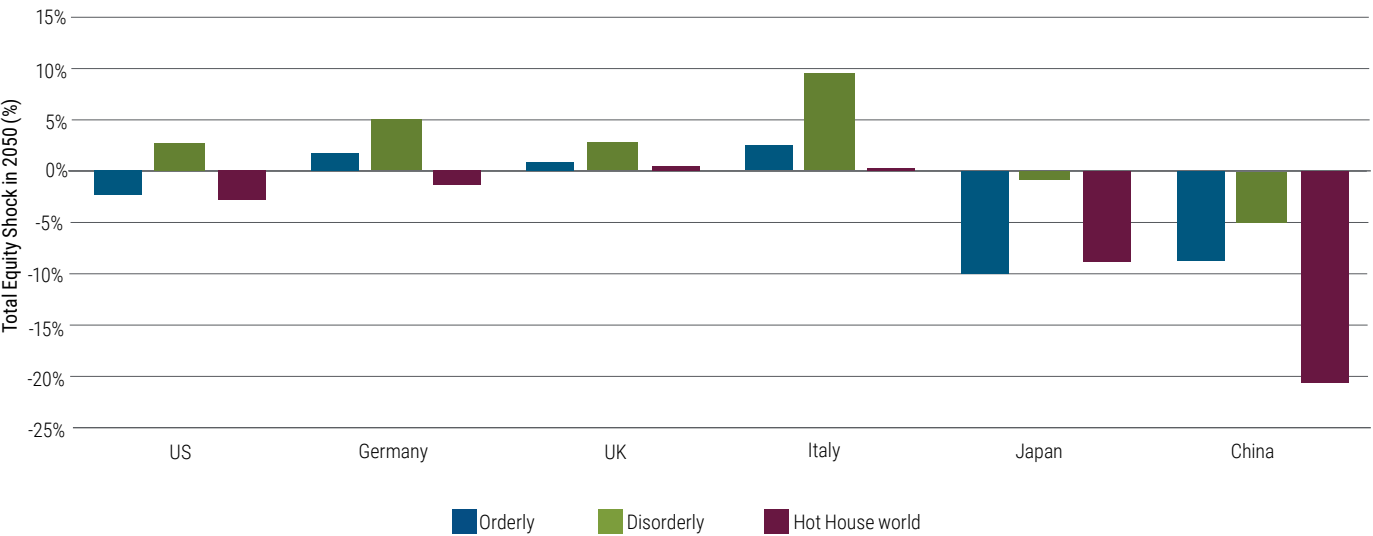


As of 31 December 2022. Source: Burke and Tanutama (2019), Bloomberg, BP, IMF, OECD, Our World in Data, PIMCO. **For illustrative purposes only**

30 For illustrative purposes only. Represents NIGEM|Gross Domestic Product (GDP) figures for the NGFS's REMIND-MagPIE 2.1-4.2 inputs model.
Source: NGFS Phase 3 data set, V3.4, October 2022

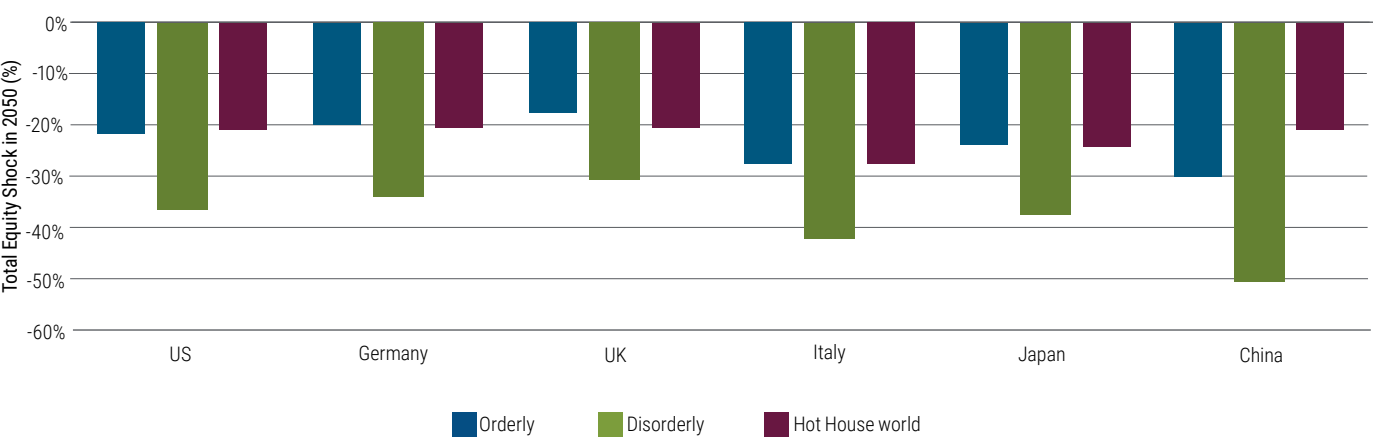
31 Source: PIMCO as of 12/31/2022. For illustrative purposes only

NGFS model predictions for equity shocks per region and scenario



As of 31 December 2022. Source: NGFS, PIMCO. **For illustrative purposes only**

PIMCO model predictions for equity shocks per region and scenario



As of 31 December 2022. Source: Burke and Tanutama (2019), Bloomberg, BP, IMF, OECD, Our World in Data, PIMCO. **For illustrative purposes only**

Both the NGFS and PIMCO models predict a negative cumulative impact on real GDP across scenarios. For the orderly and disorderly scenarios, the negative impact is driven by transition risk. Carbon taxes help the world to transition to a greener economy, however they cause a negative impact on real GDP along the way. For the hot house world scenario, the loss in GDP comes from physical risk; increasing temperatures impact output through losses in productivity and increased disaster risk.

Both the NGFS and PIMCO model predict that early climate action is better than late climate action. This effect is driven by how a late transition in the disorderly scenario causes

larger and more sudden increases in carbon policy. An orderly transition is less disruptive, causing less deadweight loss and less inflation. The models diverge in their predictions of magnitude and relative ordering.

It is important to note the worst of climate change will occur after 2050 if temperatures continue to rise and the effects of sustained carbon concentration begin to appear. The results suggest that between 2020-2050 the immediate effect of climate change may be moderate, which implies that it is crucial to pay attention to climate change now, before damages in the future become irreversible and much more severe.

LIMITATIONS AND AREAS UNDER DEVELOPMENT (ILLUSTRATIVE)

- Asset class coverage: Data and methods are at a very early stage besides corporate credit and sovereign credit.
- Top-down versus bottom-up: The illustrative scenarios addressed in this report evaluate separately the impact on macroeconomic parameters (top-down model) from the impact on corporate credit (bottom-up model).
- Country-specific climate change-related macroeconomic effects are difficult to quantify (whether in terms of transition risk or physical climate risk) and their time horizon is challenging to predict.
- Physical risks: Estimates used to model physical climate risks are based on historical data and chronic, not acute climate physical risks, and may thus underestimate future climate shocks.
- Nature of the shock and complexity:
 - Future climate pathways are inherently uncertain and non-linear and historical data cannot apply.
 - Second order effects, negative feedback loop and irreversible tipping points, migration, low probability high impact events together are not taken into account.
 - None of these models calculates the GDP endogenously by adding the activity in individual sectors. The effects of the mitigation policies on GDP are calculated at the macro level, by taking into account the overall changes in the costs of energy, not the increasing or decreasing activity in individual sectors.
- The interplay between transition and physical risks is hard to model.
- The nexus with broader environmental and social factors add to the complexity. For example, energy prices and economic disruptions associated with fossil fuels are not factored in.
- Input macro variables: the impact on other key macroeconomic variables (currency changes versus USD) is not addressed.
- Time horizon: Physical risks materialize far in time across scenarios. The scenarios deviate more in the 2nd half of the century.
- Issuer, policy and market reactions: There are no 'dynamic' assumptions regarding the actions taken by issuers, policy makers or the market (e.g. based on their commitments, policies or adaptive capacity).
- Capital Market Assumptions (CMAs) and Strategic Asset Allocation (SAA): the output of this climate scenario analysis can be connected to the existing models and infrastructure used for CMA.

GLOSSARY

Term	Description
Adaptation	Actions that minimize or remove the negative impacts of global warming or climate change. Adaptation takes different forms depending on how well the potential damage is understood, and the type of damage it is designed to prevent.
Avoided Emissions	Emission reductions that the financed project produces versus what would have been emitted in the absence of the project (the baseline emissions).
Bank of England Climate Financial Risk Forum (CFRF)	The CFRF is an initiative to build capacity and share best practice across industry and financial regulators to advance our sector's responses to the financial risks from climate change.
Biodiversity	The variability among living organisms from all sources, including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.
Carbon Dioxide	A naturally occurring gas, CO ₂ is also a by-product of burning fossil fuels (such as oil, gas and coal), of burning biomass, of land-use changes (LUC) and of industrial processes (e.g., cement production).
Carbon Disclosure Project (CDP)	The CDP is an organization that runs the global disclosure system for investors, companies, cities, states and regions to manage their environmental impacts.
Carbon Footprint	Total carbon emissions for a portfolio normalized by the market value of the portfolio, expressed in tCO ₂ e/USDmm invested.
Carbon Price	The price for avoided or released carbon dioxide (CO ₂) or CO ₂ -equivalent emissions. This may refer to the rate of a carbon tax, or the price of emission permits. In many models that are used to assess the economic costs of mitigation, carbon prices are used as a proxy to represent the level of effort in mitigation policies.
Climate Action 100+	Climate Action 100+ is a pledge made by investors to push 100 of the highest-emitting companies globally to do more to tackle the threat of climate change.
Climate Bonds Initiative (CBI)	CBI is a leading organization focused on fixed income and climate change solutions.
Climate Risk Score	Assesses climate change risks for a wide range of relevant sectors and issuers.
Ecosystem	A network of relationships between organisms, their environment, and other organisms. An ecosystem is usually defined by its primary environment (e.g. a desert ecosystem, or a freshwater ecosystem). Ecosystems include living components (e.g. plants and animals) and non-living components (e.g. weather, water, rocks).
Enterprise Value Including Cash (EVIC)	The sum of the market capitalization of ordinary shares at fiscal year end, the market capitalization of preferred shares at fiscal year-end, and the book values of total debt and minorities' interests.
Environmental Degradation	Reductions in the health and resilience of the environment (or an ecosystem) from human activity. Environmental degradation is also referred to as 'ecological degradation'. Environmental degradation includes the depletion and pollution of resources (e.g. soil, water, air), habitat destruction, and the extinction of species.
FAIRR	FAIRR is a global collaborative investor network that raises awareness of the environmental, social and governance (ESG) risks and opportunities brought about by intensive livestock production, with over \$23 trillion in member AuM.
Global Mean Surface Temperature	Estimated global average of near-surface air temperatures over land and sea-ice, and sea surface temperatures over ice-free ocean regions, with changes normally expressed as departures from a value over a specified reference period. When estimating changes in GMST, near-surface air temperature over both land and oceans are also used.

Term	Description
Global Warming	The estimated increase in global mean surface temperature (GMST) averaged over a 30-year period, or the 30-year period centered on a particular year or decade, expressed relative to pre-industrial levels unless otherwise specified.
Green Bonds	Portfolio exposure (%MV) to green bonds – bonds issued with use of proceeds devoted to environmental projects.
Green Bonds Score	We assess green bond instruments both prior to and after issuance, mapping them across a spectrum based on strategic fit, potential impact, red flags, and reporting, resulting in PIMCO's impact score for green, social, or SDG bonds.
Greenhouse Gas (GHG) Emissions	The seven gases mandated under the Kyoto Protocol and to be included in national inventories under the United Nations Framework Convention on Climate Change (UNFCCC)—carbon dioxide (CO ₂), methane (CH ₄), nitrous oxide (N ₂ O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF ₆), and nitrogen trifluoride (NF ₃).
Greenhouse Gases	A naturally occurring gas, CO ₂ is also a by-product of burning fossil fuels (such as oil, gas and coal), of burning biomass, of land-use changes (LUC) and of industrial processes (e.g., cement production).
Greenium	Pricing differential between green bonds (issues where proceeds are used to finance or re-finance environmentally sustainable projects) and conventional non-green fixed income securities.
Institutional Investors Group on Climate Change (IIGCC)	The IIGCC is a leading investor coalition on climate change with more than 170 members across 13 countries, with over €23 trillion in assets.
Integrated Assessment Model (IAMs)	Integrated assessment models (IAMs) integrate knowledge from two or more domains into a single framework. They are one of the main tools for undertaking integrated assessments. One class of IAM used in respect of climate change mitigation may include representations of: multiple sectors of the economy, such as energy, land use and land-use change; interactions between sectors; the economy as a whole; associated GHG emissions and sinks; and reduced representations of the climate system. This class of model is used to assess linkages between economic, social and technological development and the evolution of the climate system. Another class of IAM additionally includes representations of the costs associated with climate change impacts, but includes less detailed representations of economic systems.
Intergovernmental Panel on Climate Change (IPCC)	The IPCC is a United Nations intergovernmental body that assesses and synthesizes the body of scientific knowledge regarding climate change.
Interim Target	Refers to a short-term milestone between the organization's medium- or long-term target and current period.
International Capital Markets Association (ICMA)	ICMA is an association that promotes building internationally accepted standards of best practice in markets through the development of appropriate, broadly accepted guidelines, rules, recommendations, and standard documentation. In order to maintain and enhance the framework of cross-border issuing, trade, and investing in debt securities.
Investor Group on Climate Change (IGCC)	The IGCC is a collaboration of Australian and New Zealand institutional investors focused on the impact of climate change on investments.
Issuers Engaged on Net Zero	Net zero engagement topics includes: environment, greenhouse gas emissions, transparency and reporting, land use and biodiversity, physical risks and resilience and ESG bonds.
Just Transition	Involves maximizing the social and economic opportunities of climate action, while minimizing and carefully managing any challenges – including through effective social dialogue among all groups impacted, and respect for fundamental labour principles and rights.
Mitigation	Actions that minimize or remove the processes that cause global warming or climate change. Mitigation involves minimizing greenhouse gas emissions and/or maximizing greenhouse gas sequestration.
Nationally Determined Contribution	A term used under the United Nations Framework Convention on Climate Change (UNFCCC) whereby a country that has joined the Paris Agreement outlines its plans for reducing its emissions. Some countries' NDCs also address how they will adapt to climate change impacts, and what support they need from, or will provide to, other countries to adopt low-carbon pathways and to build climate resilience.

Term	Description
Net Zero	Achieving an equal balance between GHG emissions produced and GHG emissions removed from the atmosphere.
Network for Greening the Financial System (NGFS)	The NGFS is a coalition of central banks dedicated to assessing the impact of climate change. Their approach tries to capture all the major components of the global economy including government policy, labor and capital markets, and trade flows.
New Energy Vehicles (NEV)	NEV includes Battery Electric Vehicles or BEV and Plug-in hybrid electric vehicle (PHEV).
One Planet Asset Management Initiative	Initiative created following the 2015 Paris Agreement to collectively mitigate the effects of climate change. Aims to help Sovereign Wealth Funds foster a shared understanding of key principles, methodologies, and indicators related to climate change; identify climate-related risks and opportunities in their investments.
Paris Agreement	The Paris Agreement, adopted within the UNFCCC in December 2015, commits participating countries to limit global temperature rise to well-below 2°C above preindustrial levels and pursue efforts to limit warming to 1.5°C, adapt to changes already occurring, and regularly increase efforts over time.
Partnership for Carbon Accounting Financials (PCAF)	An industry-led initiative enabling financial institutions to measure and disclose greenhouse gas (GHG) emissions of loans and investments.
Physical Risk	Physical risks from climate change broadly include risk to facilities and infrastructure, impact on operations, water and raw material availability and supply chain disruptions. Physical risks affect the economy in two ways. <ul style="list-style-type: none"> • Acute impacts from extreme weather events can lead to business disruption and damages to property. Historically these impacts were considered transient but this will change with increased global warming. These events can increase underwriting risks for insurers and impair asset values. • Chronic impacts, particularly from increased temperatures, sea levels rise and precipitation, may affect labour, capital and agriculture productivity. These changes will require a significant level of investment and adaptation from companies, households and governments.
Portfolio Carbon Intensity Analysis	Consists of high-level portfolio screens that allow comparison of carbon intensity of different portfolios and benchmarks, for example based on the weighted average sum of both direct greenhouse gas emissions and greenhouse gas emissions due to purchases of electricity, heating, and cooling (i.e., scope 1 + scope 2 emissions in tonnes of carbon dioxide equivalent, or tCO ₂ e / revenues in USD (weighted based on percentage of market value)).
Portfolio Climate Risk Heat Map	Gives a high-level overview of exposure to climate risk (both transition and physical) among relevant sectors and assets. It illustrates a "heat map" of select corporate sectors' exposure, from low risk (green) to high risk (red), along with examples of relevant climate risks within each sector.
Scenario Analysis	A plausible description of how the future may develop based on a coherent and internally consistent set of assumptions about key driving forces (e.g., rate of technological change, prices) and relationships.
Science Based Target initiative (SBTi)	The Science Based Targets initiative is a collaboration between the CDP, the United Nations Global Compact, World Resources Institute and the World Wide Fund for Nature.
Investor Group on Climate Change (IGCC)	The IGCC is a collaboration of Australian and New Zealand institutional investors focused on the impact of climate change on investments.
Scope 1 Emissions	Corporate: Direct GHG emissions that occur from sources owned or controlled by the reporting company—i.e., emissions from combustion in owned or controlled boilers, furnaces, vehicles, etc. Sovereign: Domestic GHG emissions from sources located within the country territory.
Scope 2 Emissions	Corporate: Indirect GHG emissions from the generation of purchased or acquired electricity, steam, heating, or cooling consumed by the reporting company. Scope 2 emissions physically occur at the facility where the electricity, steam, heating, or cooling is generated. Sovereign: GHG emissions occurring as a consequence of the domestic use of grid-supplied electricity, heat, steam and/or cooling which is imported from another territory.

Term	Description
Scope 3 Emissions	<p>Corporate: All other indirect GHG emissions (not included in Scope 1 and 2) that occur in the value chain of the reporting company. The 15 Scope 3 GHG Protocol categories consist of;</p> <ul style="list-style-type: none"> • Purchased Goods and Services • Capital Goods • Fuel and Energy related Activities (Not included in Scope 1 and 2) • Upstream Transportation and Distribution • Waste Generated in Operations • Business Travel • Employee Commuting • Upstream Leased Assets • Downstream Transportation and Distribution • Processing of Sold Products • Use of Sold Products • End of Life Treatment of Sold Products • Downstream Leased Assets • Franchises • Investments <p>Sovereign: Emissions attributable to non-energy imports as a result of activities taking place within the country territory.</p>
Shared Socioeconomic Pathways (SSPs)	Based on five narratives, the SSPs describe alternative socio-economic futures in the absence of climate policy intervention, comprising sustainable development (SSP1), regional rivalry (SSP3), inequality (SSP4), fossil-fueled development (SSP5) and middle-of-the road development (SSP2).
Sovereign Consumption Emissions	Reflect the demand side of sovereign emissions and account for consumption patterns and trade effects. This metric provides a broader view of a sovereign's GHG emissions and tackles the issue of carbon leakage that arises due to production shifts from countries where goods and services are actually consumed later.
Sovereign Production Emissions	Emissions attributable to emissions produced domestically and include domestic consumption and exports. This definition follows the territorial emissions approach adopted by UNFCCC for annual national inventories and is typically referenced by sovereigns in their Nationally Determined Contributions (NDCs).
Stranded Assets	Assets that turn out to be worth less than expected as a result of changes associated with the energy transition
Sustainable Development Goals (SDGs)	A collection of seventeen interlinked objectives designed to serve as a "shared blueprint for peace and prosperity for people and the planet, now and into the future".
Total Carbon Emissions	The absolute greenhouse gas emissions associated with a portfolio, expressed in tons CO ₂ e.
Transition Pathway Initiative (TPI)	TPI is a global asset owner-led initiative (including clients and investment consultants) that assesses companies' preparedness for the transition to a low-carbon economy.
Transition Risks	Transitioning to a lower-carbon economy can entail extensive policy, legal, technology and market changes to address mitigation and adaptation requirements related to climate change. Transition risks will affect the profitability of businesses and wealth of households, creating financial risks for lenders and investors. They will also affect the broader macroeconomy through investment, productivity and relative price channels, particularly if the transition leads to stranded assets.
Unlabeled Green Bonds	Portfolio exposure (%MV) to unlabeled green bonds – issuers fundamentally aligned to low carbon products and services, including renewable energy pure plays.
Weighted Average Carbon Intensity	Portfolio's exposure to carbon-intensive companies, expressed in tCO ₂ e/USDmm sales.

Source: PIMCO, IPCC, PCAF, NGFS, TCFD

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Past performance is not a guarantee or a reliable indicator of future results. An investment in a fund involves a risk of total loss of capital.

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ESG

Socially responsible investing is qualitative and subjective by nature, and there is no guarantee that the criteria utilized, or judgment exercised, by PIMCO will reflect the beliefs or values of any one particular investor. Information regarding responsible practices is obtained through voluntary or third-party reporting, which may not be accurate or complete, and PIMCO is dependent on such information to evaluate a company's commitment to, or implementation of, responsible practices. Socially responsible norms differ by region. There is no assurance that the socially responsible investing strategy and techniques employed will be successful. Past performance is not a guarantee or reliable indicator of future results.

The purpose of this report is to disclose PIMCO Europe Ltd.'s procedures and capabilities in these four areas, as well as share practical case studies to illustrate these efforts where relevant. Importantly, this report encompasses both PEL's ESG optimized portfolios as well as those that do not follow a sustainability strategy. **Therefore, the extent to which the frameworks, assessments and metrics discussed are applied and optimized in individual portfolios will vary dependent on client driven preferences.** In line with the requirements of the FCA's ESG Sourcebook, this report covers PEL's TCFD in-scope business.

Outlook

Statements concerning financial market trends are based on current market conditions, which will fluctuate. There is no guarantee that these investment strategies will work under all market conditions, and each investor should evaluate their ability to invest for the long term, especially during periods of downturn in the market. Outlook and strategies are subject to change without notice.

Risk

Investing in funds is subject to risks, including market, interest rate, issuer, credit, inflation risk, and liquidity risk. The value of most bonds and bond strategies are impacted by changes in interest rates. Bonds and bond strategies with longer durations tend to be more sensitive and volatile than those with shorter durations; bond prices generally fall as interest rates rise, and the current low interest rate environment increases this risk. Current reductions in bond counterparty capacity may contribute to decreased market liquidity and increased price volatility. Bond investments may be worth more or less than the original cost when redeemed. Commodities contain heightened risk, including market, political, regulatory and natural conditions, and may not be suitable for all investors. Currency rates may fluctuate significantly over short periods of time and may reduce the returns of a portfolio. Derivatives may involve certain costs and risks, such as liquidity, interest rate, market, credit, management and the risk that a position could not be closed when most advantageous. Investing in derivatives could lose more than the amount invested. Equities may decline in value due to both real and perceived general market, economic and industry conditions. Investing in foreign-denominated and/or -domiciled securities may involve heightened risk due to currency fluctuations, and economic and political risks, which may be enhanced in emerging markets. Sovereign securities are generally backed by the issuing government. Obligations of US government agencies and authorities are supported by varying degrees, but are generally not backed by the full faith of the US government. Portfolios that invest in such securities are not guaranteed and will fluctuate in value. High yield, lower-rated securities involve greater risk than higher-rated securities; portfolios that invest in them may be subject to greater levels of credit and liquidity risk than portfolios that do not. Mortgage- and asset-backed securities may be sensitive to changes in interest rates, subject to early repayment risk, and while generally supported by a government, government-agency or private guarantor, there is no assurance that the guarantor will meet its obligations. Income from municipal bonds may be subject to state and local taxes and at times the alternative minimum tax. Swaps are a type of derivative; swaps are increasingly subject to central clearing and exchange-trading. Swaps that are not centrally cleared and exchange-traded may be less liquid than exchange-traded instruments. Inflation-linked bonds (ILBs) issued by a government are fixed income securities whose principal value is periodically adjusted according to the rate of inflation; ILBs decline in value when real interest rates rise. Treasury Inflation-Protected Securities (TIPS) are ILBs issued by the US government. Certain US government securities are backed by the full faith of the government. Obligations of US government agencies and authorities are supported by varying degrees but are generally not backed by the full faith of the US government. Portfolios that invest in such securities are not guaranteed and will fluctuate in value.

As of 31 December 2022.