

This report is intended to be used by investors to provide an overview of the greenhouse gas emissions associated with their investment and relevant climate risk factors which may be associated. The data available from companies with respect to their emissions and climate action plans is continuously developing, and this report may be subject to change. It should also be read in conjunction with all other reporting and offering documentation. All investment strategies are aligned with the Columbia Threadneedle Investments firm-level TCFD report, unless otherwise stated within this report.

Key facts

Data as at: 31 December 2022
Report currency: USD

Greenhouse gas emissions summary

Scope	Carbon footprint		Weighted average carbon intensity		Total emissions (tCO ₂ e)		Data coverage (Reported / Estimated)	
	1 & 2	3	1 & 2	3	1 & 2	3	1 & 2	3
Portfolio	66.72	-	275.54	-	10,118	-	42.10% (30.92% / 11.18%)	-

All data in the table above is provided by our third party provider, MSCI ESG. Please see the glossary included within this report for definitions and calculation methodologies. Scope 3 data is not currently available within this product level report. Please contact your relationship manager at Columbia Threadneedle Investments should you require further information in relation to scope 3 greenhouse gas emissions.

Coverage includes all investments where data is available to MSCI either through actual company reported information, or an estimate calculation made under the MSCI defined methodology. Derivatives, cash, and sovereign bonds are excluded from all data in the table above, as will be companies or investment types with no data availability. Green bonds have been allocated emissions in line with the parent issuer, as security-level data may not be available on a consistent basis. Where there are green bonds in the portfolio this may therefore overstate the portfolio's overall carbon intensity. Data coverage represents split between actual reported emissions and estimates used, when calculating emissions data, and is shown for the Carbon Footprint metric.

Sovereign bond greenhouse gas emissions summary

Percentage of net asset value (NAV) invested in sovereign bonds	Carbon footprint	Greenhouse gas (GHG) intensity	Total emissions (tCO ₂ e)	Data coverage total
41.02%	376.71	277.83	55,659	100.00%

All data in the table above is provided by our third party provider, MSCI ESG. MSCI draws its sovereign emission data from the Emissions Database for Global Atmospheric Research (EDGAR) rather than national inventories. EDGAR effectively relies on bottom-up estimation approach that is consistent with IPCC accounting methodologies. National inventories are not always directly comparable as they can have varying approaches to accounting. The Carbon Footprint for sovereign bonds is calculated as Total Portfolio holdings multiplied by government GHG emissions over total government debt. GHG Intensity measures CO₂e tonnes per USD million nominal GDP. Data coverage represents split between actual reported emissions and estimates used, when calculating emissions data, and is shown for the Carbon Footprint metric.

Data coverage

CO₂e data coverage depends on several factors. Scope 1 or 2 emissions data is widely available for developed market large cap companies, but more gaps exist in small cap, emerging markets, and private companies. Many companies do not yet report scope 3 information.

In the absence of self-reported data, scope 1,2 and 3 emissions may be imputed (which is done by our data provider MSCI ESG). To generate an imputed value MSCI relies on assumptions regarding the company's specific geography and sector. To show this nuance, we distinguish data that is reported/estimated within the total data coverage.

To ensure a minimum representation for climate metrics, TCFD product level reports are only issued for Investment Portfolios which demonstrate data coverage (estimated and reported) greater than or equal to 40% of net asset value.

Columbia Threadneedle has an Active Ownership Policy, which includes a thematic engagement focus on Climate Change through company engagement and shareholder voting. Through this approach, we seek to improve climate-related disclosures across investments made by Columbia Threadneedle. Please visit www.columbiathreadneedle.com for further details on our Active Ownership Policy.

Top 10 contributors by carbon footprint

Company	Sector	Contribution to portfolio carbon footprint (Scope 1&2)	Percentage weight of portfolio (subject to emissions data coverage)
AES Corporation	Utilities	15.66	0.62%
CRH public limited company	Materials	5.58	0.34%
thyssenkrupp AG	Industrials	4.05	0.09%
Breedon Group Plc	Materials	2.66	0.15%
NOV Inc.	Energy	2.54	1.23%
Republic Services, Inc.	Industrials	2.35	0.39%
Santos Limited	Energy	2.21	0.19%
DS Smith Plc	Materials	2.11	0.25%
Rio Tinto Plc	Materials	1.92	0.33%
Inpex Corporation	Energy	1.77	0.27%

As stated above, green bonds have been allocated emissions in line with the parent issuer, as security-level data may not be available on a consistent basis. Where there are green bonds in the portfolio this may therefore overstate the portfolio's overall carbon intensity.

Carbon footprint sector breakdown

Sector	Percentage weight of portfolio (subject to emissions data coverage)	Contribution to portfolio carbon footprint (Scope 1&2)	Percentage contribution to carbon footprint
Materials	3.80%	22.24	33.34%
Industrials	10.79%	13.66	20.47%
Utilities	-2.08%	12.54	18.79%
Consumer Staples	7.39%	8.12	12.17%
Energy	0.43%	5.42	8.13%
Consumer Discretionary	8.17%	2.85	4.28%
Information Technology	13.55%	2.39	3.58%
Communication Services	3.53%	0.99	1.49%
Health Care	7.32%	0.66	0.99%
Unassigned	0.11%	0.16	0.24%
Real Estate	-0.76%	-0.75	-1.13%
Financials	-10.15%	-1.56	-2.33%
Total	42.10%	66.72	100.00%

Climate scenario analysis

Information provided is intended to provide an indication of the potential impact to a portfolio from climate risks, under a variety of climate scenarios. These include acute and chronic changes to the climate ("physical risk"), as well as "transition risks", which can include policy changes, or changes in markets, technology, demand, etc. The scenarios are based on the Network for Greening the Financial System (NGFS) public scenarios and are modelled by MSCI ESG using the REMIND model.

Scenario-analysis should always be thought of as an exercise in 'stress testing' rather than looking for absolute outcomes and should be considered as part of overall portfolio risk management and not in isolation. Columbia Threadneedle seeks to identify and manage climate risks and opportunities as part of our integration of ESG factors, as set out in our TCFD report.

Orderly transition	Orderly transition scenarios assume climate policies are introduced early and become gradually more stringent, reaching global net zero emissions around 2050. We assume a 1.5°C temperature rise in this scenario.	Portfolio companies in carbon intensive sectors (such as Energy, Materials, Industrials and Utilities) are vulnerable to transition risks in this scenario, as regulation and policies are immediately set in place to allow for an orderly transition to net-zero. Companies that can provide the solutions and services required in a low carbon economy (such as increased demand for renewable energy and emissions reductions technologies) will perform better in this scenario, as opportunities arise from the transitions to net-zero. Physical risks are lower in the orderly transition scenario, as global temperature rises are limited to about 1.5°C. However, companies should still expect some adverse impacts. Exposure to these impacts will be dependent on geography. Certain regions such as those prone to flooding, storms or heatwaves may be at a higher vulnerability to these impacts.
Disorderly transition	Disorderly transition scenarios assume climate policies are delayed or divergent, requiring sharper emissions reductions achieved at a higher cost and with increased physical risks in order to limit the global temperature rise. We assume a 2°C rise in this scenario.	Portfolio companies in carbon intensive sectors (such as Materials, Industrials, Utilities & Energy) may be exposed to large transition risks in this scenario, as strong policies, manifested as high carbon prices, are needed to rapidly bring emissions down after initial delays. Carbon prices may increase rapidly from 2030 to 2050, putting companies unable to transition by then at particularly high risk. Transition risks present additional challenges due to regional divergence. In this scenario there could also be more economic volatility and an increase in societal and geopolitical tensions, as a disorderly and sharp impact on carbon-intensive sectors could lead to job layoffs and conflict situations, in particular affecting countries and regions that are dependent on fossil fuel revenues. In this scenario physical risks become more pronounced. Climate models show distinct and regionally diverse increases in physical risks under a 2°C temperature rise, including more heat extremes, heavy precipitation in several regions and the probability of drought and precipitation deficits in other regions. Risks can manifest in many ways, including asset losses or devaluations, increasing insurance premiums, or loss of operation time. Exposure to these impacts will be dependent on geography. Companies that are more resilient to these physical risks are likely to perform better.
Hothouse world	Hothouse world scenarios assume that some climate policies are implemented in some jurisdictions, but global efforts are insufficient to halt significant global warming. Critical temperature thresholds are exceeded, leading to severe physical risks and irreversible impacts. We assume a 3°C rise in this scenario.	In this scenario there is limited regulation and policy, as such risks may not correlate directly to carbon-intensive asset exposure. At 3°C, while regional diversities may remain, climate models predict global impacts will become more pronounced including increased frequency and severity of extreme weather events, such as more frequent and prolonged heatwaves and droughts. Companies in sectors with high exposure to physical risk (such as those with large real estate and infrastructure investment, as well as sectors directly exposed to changes in the climate like energy, agriculture, and tourism) may be exposed to the largest risks. However, physical risks will likely be systemic in this scenario. It is expected that climate impacts will reverberate through global supply-chains. Climate change impacts may also exacerbate multiple other societal and environmental challenges, creating new and hard-to-predict sources of risks and vulnerability.

Glossary

Carbon footprint

- Total carbon emissions for a portfolio normalized by the market value of the portfolio, expressed in tonnes CO₂/\$M invested.

Coverage

- Is the portfolio's percentage of market value consisting of holdings for each applicable metric. Cash, derivatives, sovereign bonds. Fund of funds and asset-backed-securities are excluded from coverage and all climate emission calculations, unless otherwise stated in the case of sovereign bonds.

Data inclusion

- This report contains data related to the Greenhouse Gas emissions (GHGs) and associated climate risks within the portfolio. Due to accessibility or relevance of data for certain investment types, it excludes derivatives to show emissions that have been financed directly by the portfolio only. Sovereign bonds are excluded from the 'Climate Scenario Analysis' section (for all portfolios excluding LDI and sovereign bond funds) to ensure reporting of the GHG emissions of the companies in which the portfolio invests, and to not double count with emissions associated with the country in which those companies operate. Fund of funds and asset backed securities are excluded due to availability of third-party data sources. Cash is also excluded.

Engagement

- Refers to the stewardship activities of our investment professionals in engaging fund-owned security issuers. This includes long-term active dialogue on key topics related to their climate impact.

Net zero

- References to Net Zero are focused on the efforts to reduce generation of CO₂ emissions for our held security issuers to net zero by 2050 with interim target reduction values determined by our Net Zero firmwide reduction policy.

NGFS Scenario

- The NGFS scenarios bring together a harmonised set of transition pathways, physical climate change impacts, and economic indicators that have global coverage and integrated risk assessments. These provide a common reference point for understanding climate risks.

REMIND model

- REMIND (Regional Model of Investment and Development) is a numerical model that represented the future evolution of the world economies. It was developed by the Postdam Institute for Climate Impact Research (PIK) to analyse the interactions between land-use, economy, energy, and climate systems.

Resilience

- We calculate the "resilience" of a portfolio as the range of outcomes for this portfolio between the different climate scenarios, compared to its benchmark (e.g. the changes from the 1.5 C orderly, 2 C disorderly and the 3 C hothouse world total value at risk). If a portfolio has a high range across the three scenarios, we interpret this as having a high level of sensitivity to different future climate outcomes. A "resilient" portfolio in this definition is one that shows low sensitivity to changes across the climate scenarios.

TCFD

- Task Force on Climate-related Financial Disclosures.

Total CO₂e emissions

- Annual GHG emissions, measured in tonnes of CO₂ equivalent (tCO₂e). The measure used is $\sum(\text{company's scope 1 and 2 emissions} * \text{amount held}) / \text{Enterprise Value Including Cash (EVIC)}$. This is reported for Scope 1 & 2 together and Scope 3 separately. We give data for the overall portfolio and a comparison with similar data for the index. This measure is influenced not only by the size of issuers and their industries, but also the size of the portfolio. This is reported for Scope 1 & 2 together and Scope 3 separately.

Weighted average carbon intensity (WACI)

- This measures carbon emissions relative to the size of issuers, measured by revenues. The measure used is tonnes of CO₂e emitted (tCO₂e) per \$1M of revenues. We give data for the overall portfolio based on the weightings of the securities held and a comparison with similar data for the index. This is reported for Scope 1 & 2 together and Scope 3 separately.

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