COLUMBIA THREADNEEDLE INVESTMENTS

Interpreting climate data for investment portfolios

At a glance

- Climate change and the energy transition will have implications for the long-term performance of investment portfolios, so it is important for investors to be able to identify and understand risks and opportunities.
- The Taskforce for Climate related Financial Disclosure (TCFD) sets out a structure for disclosure which is the basis for mandatory FCA reporting for UK investment funds, starting in 2023.
- The aim is to provide consumers with a better understanding of how funds perform on climate metrics, ultimately making climate risks and opportunities more transparent.
- However, portfolio climate data can be confusing if it is not narrated well. Here we explore how to interpret fund-level climate data and suggest ways in which climate data can be meaningfully presented.

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Introduction

In 2023 asset managers are required by the Financial Conduct Authority (FCA)[1] to produce climate reports for UK funds. FCA draws on the Taskforce for Climate related Financial Disclosure (TCFD). This has led to a surge of fund-level climate data entering the markets.

However, the data can be confusing, hard to interpret and, at worst, misleading if presented in a way that does not clarify how the different climate metrics should (and should not) be interpreted. In this article we discuss the ways we interpret and understand climate metrics, helping our clients to understand the issues.

The availability and quality of climate-related data is still evolving, and all companies are on a journey, both in assessing climate impacts on their business, and in determining how best to effectively communicate their plans to adapt and transition to a lower carbon economy – Thematic review of climate-related metrics and targets, UK Financial Reporting Council (2023)

[1] Product reports are available on our website.

Carbon metrics: charting the impacts of a fund on the planet

Scope 1, 2 and 3 emissions: what do they mean and what can they tell us about risk?

Company-level greenhouse gas (GHG) emissions are classified into three scopes.

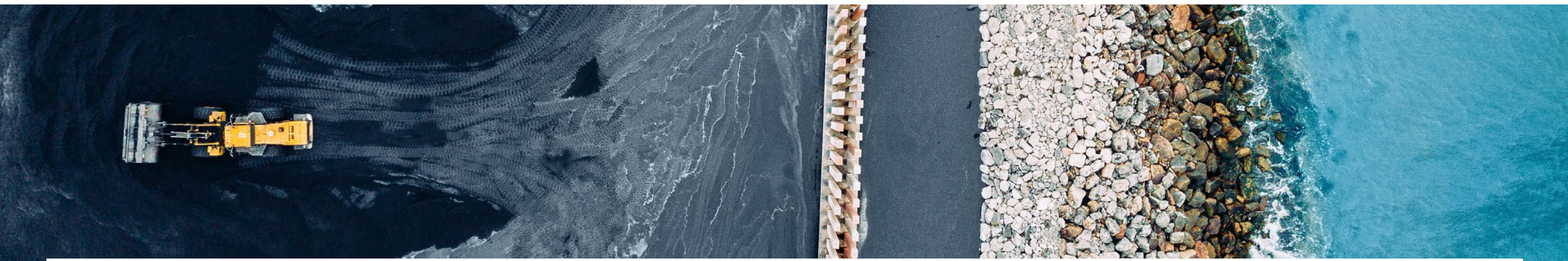
Scope 1 emissions *directly* result from a company's operations. For example, the combustion of gas to produce electricity by a power utility or burning coal to make steel.

Scope 2 emissions are the *indirect* result of the company's operations. This includes the use of purchased electricity, where the original electricity provider has generated emissions.

Scope 3 emissions are those released through the company's *value chain*. These are split into different categories, depending on their place in the chain. Examples include business travel; use of the company's products, such as emissions from driving cars produced by a car manufacturer; 'financed emissions', such as those linked to loans made by a bank; and goods and services in the supply chain, such as emissions from farmers in the case of a food retailer.

As a rule of thumb, a large emissions profile can indicate that a fund or company is at high risk from a transition to a net-zero economy.

- Scope 1 emissions relate to direct risks, such as carbon pricing which can increase costs.
- Scope 2 emissions also risk increased costs due to carbon pricing, though indirectly – for instance, if electricity pricing is controlled by regulators, then the impact to the consumer of carbon pricing will be limited.
- Scope 3 emissions are more likely to be modelled or estimated by a company, as full clarity on value chain emissions is still a challenge. However, scope 3 emissions are valuable for understanding how exposed a particular company is to value chain risks from transition – for example suppliers trying to pass on carbon pricing costs.



What can ‘total emissions’, ‘carbon footprint’ and ‘weighted average carbon intensity’ tell us about a fund’s overall exposure to risk?

TCFD guidance and FCA regulations ask for a variety of fund-level carbon metrics, based on aggregating data for portfolio companies. Whilst sounding similar, they all have different uses, summarised in the table below.

It is important to understand that all these metrics fluctuate depending on a range of factors, including fund investment decisions or increased data reporting of the companies held. Investors should not expect to see a straight-line reduction in carbon emissions as we move to a net zero aligned economy. There will be peaks and troughs which are carefully considered as part of a portfolios overall risk and return objective.

Metric	What does it describe?	How should I use it (and not use it)?	Formula
Total Emissions/ Financed Emissions	A fund’s total emissions is the sum of the greenhouse gases emissions of each portfolio company, weighted by the proportion of each company that the portfolio holds. The metric is also known as financed emissions. We show the total emissions of the companies held using the value of the holdings. We adjust the data for each company using the proportion of the enterprise value which comes from differing financing sources. As a result, we show only emissions financed by the investor (for shareholders it is the proportion financed by equity, for bondholders the debt-financed proportion). The metric is reported as CO_2e tonnes emitted.	Though this number is good for understanding the total magnitude of impact, total emissions should not be compared across funds as it depends on the size of the fund itself. In simple terms, a larger volume of assets under management will give a greater total emissions figure, hence the number makes poor comparison across products. To calculate this metric, portfolio companies need to have an enterprise value. This means coverage of this metric is lower for fixed income portfolios, as private companies often lack enterprise values. As a fund’s total emissions are directly linked to enterprise values, the metric will vary with market movements and inflation. Short-term changes in total emissions do not necessarily indicate a change in emissions performance.	tCO_2e = Σ (company’s scope 1 and 2 emissions* amount held in $)/Enterprise Value Including Cash (EVIC). Please take from page 34 of entity level TCFD report
Carbon Footprint/ Financed Emissions Intensity	Carbon footprint shows the total or financed emissions of the fund, but in relation to the amount invested. We calculate the total emissions of the companies held using same method as for total emissions calculation (shown above). We then express this as a proportion of each $m invested in the fund. It is reported in emissions per $m invested.	A high carbon footprint is associated with a greater volume of GHG emissions than a lower footprint fund. This figure is also known as ‘financed emissions intensity’. Unlike total emissions, the carbon footprint of different funds can be directly compared. As with total emissions, this metric will vary with market movements and inflation, so short-term changes do not necessarily indicate a change in emissions performance.	tCO_2e/ $m invested = Σ ((current value of investment $/Issuer’s EVIC) X Issuer’s GHG emission)/Current portfolio value ($) Please take from page 34 of entity level TCFD report
Weighted Average Carbon Intensity (WACI)	WACI shows the emissions impact of companies as a proportion of sales. It shows how companies generate revenue while emitting more or lesser amounts of GHGs. A low score means a fund invests in more carbon-efficient companies. WACI is calculated by dividing GHG emissions by the revenue generated by companies held. It is reported in GHG per $m of underlying revenues of holdings in the fund.	WACI gives an indication of exposure to companies with high emissions. It can be used to compare across funds. It can be useful for comparing funds with similar sector and geographic asset allocation, as the carbon intensity will be largely a function of both sector and geographic location. For example, cement and steel have a high carbon intensity, as they generate a large volume of emissions, but some companies are more carbon-efficient than others.	tCO_2e/ $m revenues = Σ ((current value investments $/ current portfolio value $) X (issuers GHG’s emissions/Issuers revenue)) Please take from page 34 of entity level TCFD report

What does the metric "CO_2 equivalent" measure?

Many funds have been reporting Greenhouse Gas (GHG) metrics for a while (often shortened to 'carbon metrics' even though not all GHG are carbon-based). GHG's refer to the range of emissions that lead to global warming. The most important GHGs are carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O).

The "warming potential" of these GHGs vary. Methane's effect on the climate is 28 times more potent than CO_2, but it doesn't stay in the atmosphere as long. CO_2 still accounts for most emissions for most of the companies that we consider, but CH_4 is particularly important in energy and agriculture.

Investors report GHG emissions as CO_2 equivalent (CO_2e) – the metric we use to compare the effects of different GHGs. The CO_2e metric makes accounting for GHG emissions easy to understand and report.

Does this all mean that I should choose funds with a low carbon footprint if I aim to invest with climate change in mind?

Not necessarily. A fund's carbon footprint is typically driven by the extent to which it holds companies in carbon-intensive sectors – like electric utilities, oil and gas, mining and materials, industrials, and transportation. Many companies in these sectors provide essential goods and services to everyday life, such as electricity, cement, and steel.

More and more companies are committed to decarbonise and are investing in the low-carbon transition. Funds holding companies making the transition – and engaging those which are not doing enough – have a greater real-world impact than those with who boast a low footprint by simply avoiding the sectors with highest GHG emissions.

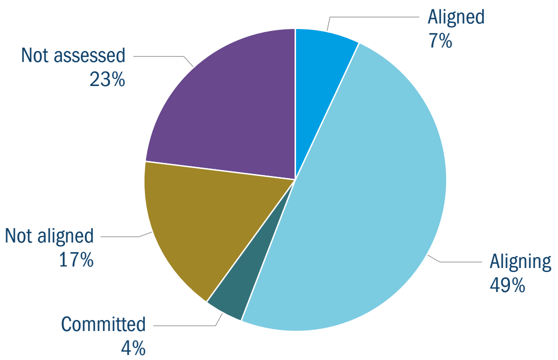
To provide this context, good fund-level climate reporting needs to break down the contribution to the carbon footprint by sector and company, highlighting the biggest contributors. It should explain how engagement helps us assess climate change risks and opportunities. For example, for the funds at Columbia Threadneedle that have formally committed to a net zero target by 2050 or sooner, we have published the "alignment" status of companies. The alignment status is based on our net-zero model and shows how a company is managing the transition to net-zero. Our model gives a forward-looking view of decarbonisation potential based on a company's decarbonisation strategy. This contrasts with the fund-level metrics described above, which provide a backward-looking view as they are based on reported GHG emissions data that is typically 6-18 months old.

Some of our funds exclude certain fossil fuel-related activities: for example, our responsible and sustainable fund range, which is intended for clients who wish to avoid these exposures altogether.

Figure 1: Net Zero alignment of the CT Responsible Global Equity Strategy. This chart is included in our reports to illustrate how companies in the fund are aligning to net-zero. It provides additional context to clients in interpreting the funds climate risk and climate impact.

Portfolios which have committed to an ambition to reach Net Zero by 2050 (or sooner) are evaluated using our net-zero data model[1] and approach.

Alignment status of portfolio companies – percentage weight of portfolio



Net zero aligned: The company has specific commitments, targets, and a clear strategy in place to meet its net zero objectives by 2050 or sooner.

Net zero aligning: The company is progressing towards implementing sufficient commitments and targets to progress toward a net zero future.

Net zero committed: The company has committed to net zero by 2050 or sooner but has not yet set a pathway or strategy to achieve its goals.

Not aligned: The company does not meet minimum expectations on climate strategy.

Not assessed: The company is not rated in the model. This includes financials and companies that are small and/or in sectors where climate change is less material.

Figure 2: Summary of top ten contributor by carbon footprint for CT Responsible Global Equity Strategy, which is another graph we include for net zero committed funds to add context.

Company	Sector	Contribution to portfolio carbon footprint (Scope 1&2)	Percentage weight of portfolio (subject to emissions data coverage)	Net zero status
Linde Plc	Materials	9.23	4.91%	Aligning
Smurfit Kappa Group Plc	Materials	3.28	1.47%	Aligning
SSE Plc	Utilities	3.04	1.52%	Aligning
Americold Realty Trust, Inc.	Real Estate	0.73	1.53%	Committed
Umicore	Materials	0.70	1.02%	Aligning
Murata Manufacturing Co., Ltd.	Information Technology	0.48	1.55%	Aligning
Taiwan Semiconductor Manufacturing Company Limited	Information Technology	0.31	1.62%	Aligning
Kerry Group Plc	Consumer Staples	0.27	1.33%	Committed
Acuity Brands, Inc.	Industrials	0.24	2.05%	Aligning
Kubota Corporation	Industrials	0.21	1.03%	Aligning

Source: Columbia Threadneedle Investments, 31 August 2023.

Scenario analysis: a tool for 'stress-testing' a fund's climate risks

To understand funds' climate risk exposure, the FCA requires us to undertake climate scenario analyses.

Scenario analyses are well-established in investment risk, but the mandate to include it in fund reports is new. Scenario analyses pose "what-if" questions like" "what would be the impact to a portfolio if high carbon taxes were introduced?" or "what if the world warms by 3 degrees beyond pre-industrial levels?".

In a comprehensive climate scenario analysis, risks caused by both changes to the climate ("physical risks") as well as "transition risks" – like policy, technology, and demand changes due to a net-zero transition – are considered. Results are currently reported in various ways, with some asset managers opting to not report on scenario analysis at all. However, as the nascent field of scenario reporting develops, we expect to see more consistency across asset managers and see this as an area of focus going forward.

What limitations should be kept in mind while interpreting scenario data?

We are conscious of how climate data might be interpreted and used in financial risk analyses, particularly the consideration of climate impacts (physical risks). We have previously published an article discussing some of the key limitations to physical risk data (which you can **access here**).

In short, the key points are that:

- Many economic climate models omit some climate risks (such as tipping points or the impact of two climate events happening at the same time).
- Macroeconomic considerations and supply-chains are often excluded.
- Reports often fail to show the uncertainty of model outputs.

These assumptions and modelling short-cuts can lead to an underestimation of the financial risk, a concern shared by the Faculty of Actuaries. Their **recent report** found that key science considerations are not embedded into models.

Asset managers should communicate the output and limitations of scenario analyses in a way that is helpful to clients and not misleading. As we see it, it is more helpful to understand relative risk than absolute risk, so our reports compare the value-at-risk for fund and benchmark. If a fund does not have a benchmark, we have chosen to not disclose the absolute risk, until we are more confident in the accuracy of the data. Taken out of context, absolute risk is hard to interpret and can, at worst, lead to underestimating risks.

Communicating climate data is a skill that requires narration and signposts

Delivering more climate data to the market is a commendable step forward in transparency, and one that we see as important for better understanding the impacts of investments on the climate. However, as we have outlined in this article, care should be taken in interpretation and narrating the. We prioritise reporting that is useful to clients as it conveys a full picture of risks, opportunities, and impacts. For example, this is the main reason for taking the additional step of including net zero alignment analysis within TCFD reports, for funds with a formal prospectus commitment.

Get to know the authors

Vicki Bakhshi, Director, Climate Strategist, Responsible Investment

Vicki joined the Responsible Investment team in 2006. She has worked on climate change for two decades, with her previous roles including climate advisor in the UK Prime Minister's office, and a member of the Stern Review team. Outside of work she enjoys hiking in different parts of the UK.

Albertine Pegrum-Haram, Senior Associate, Responsible Investment

Albertine joined the Responsible Investment team in the summer of 2022, concentrating on climate change. Albertine's background is in climate science and before joining she worked as a researcher and adviser at a range of academic, third- and public-sector organisations. When not working she enjoys spending her time reading, running, and climbing.

Joe Horrocks-Taylor, Senior Associate, Responsible Investment

Joe joined the Responsible Investment team in 2021 and is focusing on climate change and biodiversity. Before joining us, Joe worked as a sustainability consultant with a range of private and public sector clients. Outside work he enjoys playing sport, hiking and birdwatching.

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