



Minimising Exposure to Physical Risks in Passive Strategies

Roundtable - London
Q2 2023

Data Key to Tackling Physical Risks

The landscape for climate-focused passive investments has changed rapidly, but more work is needed to address physical risks to portfolios, as extreme weather events threaten businesses and critical infrastructure.

For institutional investors, rapid product innovation and regulatory change over the past decade have provided an ever-richer array of indexes, methodologies and other tools to protect passive portfolios against climate and other environmental risks. Asset owners can choose from multiple passive investment solutions that screen out or tilt toward issuers on the basis of their past and current greenhouse gas (GHG) emissions or the credibility of their plans to transition to net zero.

But are these offerings sufficient to limit exposure to the increasingly evident physical risks of climate change faced by businesses, portfolios and end-beneficiaries? And if not, what new tools, including data sources, are required? Further, how should physical risks be considered alongside other investor criteria and priorities?

The issue is become more urgent. Climate change was cited as a significant contributing factor to US\$120 billion of [insurance-covered losses](#) from natural disasters in 2022, which include Hurricane Ian in the US, plus severe flooding in Australia and Asia, notably Pakistan.

And while COP27 put climate adaptation firmly on the policy [agenda](#), our understanding of the risks to individual companies and assets – and their plans for addressing them – is limited. A survey of 500 firms in 33 countries, conducted for a recent [report](#) on company responses to climate risks, found that just 14% had a climate adaptation and resilience plan in place. “More concentrated efforts are needed towards climate adaptation planning and implementation,” the report concluded.

According to asset owners and managers convened in London last month by ESG Investor and Morningstar Indexes – for a roundtable discussion on ‘Minimising Exposure to Physical Risks in Passive Strategies’ – the way forward for investors requires tackling complex challenges on both the supply and demand sides of the market. This involves a clearer understanding of what data sources can tell them about physical risks as well as the motivations driving their responses to those risks. Given the centrality of solid, reliable information to navigating this new landscape, the need for good, and, equally importantly, relevant, data looms large.



“It’s a mistake to separate completely physical risk from transition risk.”

*Rafaella Lennox
Franklin Templeton*

Marie Dzanis, Head of Asset Management for EMEA at Northern Trust Asset Management, said: “We will demand more criteria for better data. It’s very different from anything our industry has ever done.”

Understanding and assessing the physical risks of climate change on sites, facilities and operations at multiple locations has not been required previously, on a systematic level, in the investment process. As new practices evolve, Dzanis predicted there would be an increasing demand for customisation from index providers.

Inside the black box

For Hetal Patel, Head of Climate Investment Risk at Phoenix Group, progress has already been impressive over the past decade, in terms of the development of reliable data sources to assess GHG emissions now and, thanks to nascent transition plans and frameworks, in the future. “We’ve come on in leaps and bounds,” he said. “Ten years ago, for instance, there was very little knowledge about carbon data.

“Now, not only do we have a decent coverage of basic carbon information; we have a suite of forward-looking climate metrics available to us.”

Credible data sources for mapping physical risks must not only become more available; their incorporation into indexes, and the passive investment process

more broadly, needs to be well understood, said Kristina Church, Global Head of Responsible Strategy at BNY Mellon Investment Management.

“There are a lot of black box methodologies at the moment. We must ensure our clients understand the limitations of the data we are using and what decisions it is driving. That can be hard when the methodology isn’t clear,” she said.

“However, we mustn’t wait for perfection before moving ahead with these things.”

The roundtable touched on the current debate about the need for common ground among asset managers, index providers and data providers. In October, the International Investors Group on Climate Change (IIGCC) published a ‘data vendor [catalogue](#)’, which, it said, “reached out to 16 well-known data vendors, asking them to outline their offerings in relation to the Net Zero Investment Framework”, the IIGCC’s guidelines for decarbonising portfolios.

The IIGCC is now developing an ‘investor expectations’ review of data vendors’, which will set out key requests to ensure vendors’ product offerings meet the evolving needs of investors seeking alignment with net zero goals. Such initiatives are expected to shed greater clarity on the data inputs into indexes designed to address physical risks of climate change.

Despite the difficulties of assessing and integrating new data sources, roundtable participants said new solutions were building on solid foundations laid by existing products and methodologies.

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BNY Mellon Investment
Management***



“For physical risks, the challenge is even harder because the information needs to be location-specific.”

*Daisy Streatfield
Ninety One*

Rafaella Lennox, Head of UCITS ETF Product Strategy at Franklin Templeton, said the recent improvements in this area were “immense”, adding: “Now we have a lot of transition indexes.

“The data is improving every year.”

Product innovation has been fuelled by investor demand. In Q4 2022, six of the top ten [sustainable investment products](#) globally were passive strategies, securing more than US\$6.7 billion of net new inflows.

But for index and data providers, expectations are being raised. In November, the UN-convened Net-Zero Asset Owner Alliance [noted](#) that institutional investors are “operating with an incomplete toolbox”, calling for rapid development of net zero-aligned benchmarks based on ten principles, covering exclusions, forward-looking indicators, and just transition metrics.

In this context, the two standards enshrined in the EU guidelines – the Paris-Aligned Benchmark (EU PAB) and the Climate Transition Benchmark (EU CTB) – are a work in progress.

Daisy Streatfeild, Sustainability Director at Ninety One, pointed out the limitations of the index framework set out by the European Commission to encourage the development of climate-aware benchmarks, noting also the broader implications for underlying data use.

“Paris-aligned benchmarks currently don’t take account of forward-looking data on how firms are transitioning. For physical risks, the challenge is even harder because the information needs to be location-specific. Even if you do have accurate information about the physical hazards and risks for the areas in which a firm is operating, you also need to know the details of what the company is doing about them,” she said.

“I don’t think we’re there yet on either front, whether as inputs for active or passive strategies. If we’re going to constrain our clients’ investible universe to reduce physical risks, we have to be doing so based on the right data and metrics.”

Risks “very material and very real”

Intimately linked with the need for more and better data is the question of what risks ought to be measured. The roundtable examined the conventional distinction between transition risks, those associated with the pace and extent to which a business adapts to climate-change mitigation policies, and physical risks, those arising directly from the real-world consequences of the climate crisis.



“Physical risks are very material and very real.”

*Gustave Lorient
London CIV*

It examined also the standard assumption that the former is shorter term than the latter. Nigel McKeeverne, Associate Director, Commercialisation for Climate Solutions at Morningstar Sustainability, said the relationship could sometimes be inverted.

“Flood risk today is greater than it will be in the long term, depending on location. If we want to understand, at issuer level, potential exposure to loss and damage, that data is becoming available,” he said.

“We are looking at the probability of loss or damage against all of the assets that we can identify as being part of an issuer’s operation. A lot of progress is being made.”

But Gustave Lorient, Responsible Investment Manager at London CIV, one of the UK’s eight pooled local government pension schemes, urged greater impetus, arguing that physical risks have not been given the attention they deserve.

He said: “Net zero and GHG emissions have been high on the agenda. But physical risks have not been taken into account in the same way as transition risks. To me this is problematic.

“Physical risks are very material and very real. But there has been a lack of frameworks and regulation around physical risk. More guidance needs to be developed.”

**“Climate ETFs
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*Frédéric Hoogveld
Amundi*

To Lennox, transition risk and physical risk are seamlessly connected, the latest iteration, perhaps, of the old adage that the long term is made up of a series of short terms. The more firms come out with robust and thorough transition plans, the more we know about how they're intending to handle physical risks, she reasoned.

“It's a mistake to separate completely physical risk from transition risk,” she said. “Properly handled, transition risk can eliminate a lot of physical risk down the road. Companies with, for example, significant water stress issues have to look at where they will be decades in the future.”

She added that, while transition risks are of a more immediate concern to companies and investors than physical risks, investors' knowledge of the latter is growing.



Seeking to dispel the notion that physical risks are not currently accorded sufficient importance by portfolio managers, Frédéric Hoogveld, Head of Investment Specialists & Market Strategy, ETF Indexing & Smart Beta at Amundi, told the roundtable: “Our climate ETF product range takes account of physical risks already.

“Climate ETFs have evolved significantly over the past ten years, from backward-looking low-carbon indices to comprehensive strategies taking into account

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forward-looking transition and physical risks,” he said, adding that deep granularity is needed to accurately map physical risks effectively across holdings in different sectors and geographies.

In April, the UN Environment Programme published the latest in a series of [reports](#) on the risks facing a number of key industries. In agriculture, it warned of multiple transition risks, alongside “important physical climate hazards such as temperature rise, extreme weather events, water stress, and wildfires”.

In real estate, it said hurricanes, wildfires and other physical risks posed major challenges for the industry, along with the likelihood of regulation. The sector accounts for about 40% of GHG emissions globally.

The industrials sector, responsible for about 25% of emissions, has both a key role to play in de-carbonisation and will face major transition and physical risks, according to the report. It added: “Relying on stable climate conditions to enable effective operations in complex supply chains, the industrials sector is also at risk from the physical impacts of climate change such as storms, droughts, and wildfires that will make current industrial practices more difficult or risky.”

**“Every investor
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‘what is our
motivation?’”**

*Hetal Patel
Phoenix Group*



“Flood risk today is greater than it will be in the long term, depending on location.”

Nigel McKeeverne
Morningstar Sustainalytics

Mixed motivations

Better information on the nature of physical risks – and on the responses of issuers – is necessary, but insufficient in the development of effective passive investment solutions. The question of motivation has assumed much greater importance, roundtable participants agreed.

Loriot said: “Doing good is good, but it is not necessarily the same thing as hedging your portfolio against physical risk. When we are building the strategies, it is important to ask ‘what is the investment case?’ Is it about building a product that will make people feel good because it will make the world a better place, or is it because through this product they are going to minimise their expected loss over the next ten, 20, 50 years?”

Patel agreed, noting the unavoidable question of profit and principles would have to be answered. “When factoring climate into their investment strategy, every investor needs to clarify ‘what is our motivation?’. Are we doing it as a risk mitigation exercise, are we trying to achieve a particular real-world impact or because we think there are returns to be optimised?”

“Articulating the motivating factor is important as this will drive investment approach. An investor wouldn’t want to end up saying ‘we saved the world, but we made a terrible return’.”

Church put the ball in the clients’ court, suggesting that with the right information they could then tell investment managers much more clearly what their goals were.

“How much impact do clients want? They could request a net zero strategy, but they need to be fully aware that this may not be aligned to real world decarbonisation and therefore understand the potential impact on returns. We need to be transparent over the trade-offs. The bounds of fiduciary duty mean there is only so far investment solutions can go without policy support to deliver real economy outcomes,” she said.

Not yet joining the dots

With nature-related risks rising up the agenda in the wake of agreement on the [Global Biodiversity Framework](#), service providers and investors must also address the tough question of whether the focus on climate change risked pulling ESG investment strategies out of shape, leaving them ill-prepared for a shift on emphasis in the sector.



“Climate indices incorporate a high degree of effectiveness and sophistication.”

*Rebecca Chesworth
State Street*

Rebecca Chesworth, Senior Equities Strategist for SDPR ETFs at State Street, feared this may be the case. “Is there a risk that we spend so long on climate that when the focus shifts for example to biodiversity, we have to start all over again?”

She added: “Climate is one part of the ‘E’ and other parts are crucial as well. Should we be broader in our thinking at the moment?”

Lennox agreed. “Investors are looking at things more broadly. Climate alone is quite a narrow topic for investors. Do they really want to invest in a portfolio that is simply mitigating physical climate risks?”

“Investors want broad ESG solutions. They certainly want a broad ‘E’ solution,” she said, adding that EU PAB indexes have the ability to incorporate both transition and physical climate risk, potentially mitigating both these types of climate risk “as well as reducing exposure to companies that are scoring poorly on other environmental indicators”.

While the shortcomings of the EU PAB/CTB framework are acknowledged, the review process built into its supporting legislation enables methodology improvement over time.

“Climate-based indexes will continue to evolve.”

*Robert Edwards
Morningstar Indexes*

“Climate-based indexes will continue to evolve, especially as regulation and data mature,” said Robert Edwards, Director of ESG Product Management at Morningstar Indexes. “We fully anticipate that climate indexes will include transition and physical risk requirements in the future.”

Looking ahead, roundtable participants highlighted the need for investment solutions to consider and tackle physical risks on a number of different levels, in order to support investors and investees.

Streatfeild said: “For investors, there are likely to be short- and long-term responses to physical risks. You might decide not to invest or lend to a firm that faces particular physical impacts in the short term, based on a calculation of financial impacts. But different measures are needed to address those longer-term systemic risks. Heatmaps might suggest you reduce your exposure to India for example, but that won’t help it become more resilient.

“Pulling up the drawbridge won’t leave clients with many investment options or support the companies or regions that need investment to become more resilient against physical risks. We need to help clients to understand and manage these trade-offs.”

As investment solutions evolve, so too does the regulatory environment for sustainable investments which can lead to short-term impacts to clients, including on price.

“It’s important to pay attention to the pace of regulation. There is a possible cost to bear if I have clients in German and Dutch markets, for example, with different reporting requirements,” said Dzanis.

“When you have more costs, my concern is that they could end up with the end-investor.”

The central role of data and its uses looks set to remain. Hoogveld noted that despite the increasing sophistication of climate indexes, differences and discrepancies remain. “Assessment of physical risk remains a challenging issue, but we believe that methodology will continue to improve to help investors better manage their climate risk.”

Chesworth argued that current and future product development is building on a solid base.



**“It’s a
journey.
We are not
done.”**

**Marie Dzanis
Northern Trust
Asset Management**

“I strongly defend selling to an index strategy. Climate indices are very well designed by our partners and incorporate a high degree of effectiveness and sophistication,” she said. But she also accepted that the pace of innovation imposed responsibilities on providers toward clients.

“We are so advanced compared with where we were five years ago. We have been advancing so quickly as an industry, which is great, but investors are wondering what’s next.”

Dzanis concluded: “At this stage, we’re not connecting the dots as an industry.

“It’s a journey. We are not done.”

MORNINGSTAR Indexes

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Morningstar Indexes was built to keep up with the evolving needs of investors—and to be a leading-edge advocate for them. Our rich heritage as a transparent, investor-focused leader in data and research uniquely equips us to support individuals, institutions, wealth managers and advisors in navigating investment opportunities across major asset classes, styles and strategies. From traditional benchmarks and unique IP-driven indexes, to index design, calculation and distribution services, our solutions span an investment landscape as diverse as investors themselves.

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ESG INVESTOR



About ESG Investor

Asset owners face a monumental task. Overwhelmingly, they are actively looking to integrate ESG factors into their investment strategies, making difficult choices with limited resources. Each investment institution must take its own path, based on its particular position and priorities, against a backdrop of fast-evolving regulations, standards, investment options and analytics.

At ESG Investor, we aim to be the practical information hub for asset owners looking to invest successfully and sustainably for the long term. As best practice evolves, we will share the news, insights and data to guide asset owners on their individual journey to ESG integration.

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LOW CARBON TRANSITION RATINGS

ALIGN YOUR PORTFOLIO TO A NET-ZERO PATHWAY

Morningstar Sustainalytics' Low Carbon Transition Ratings provide investors with a forward-looking assessment of a company's current alignment to a net-zero pathway.

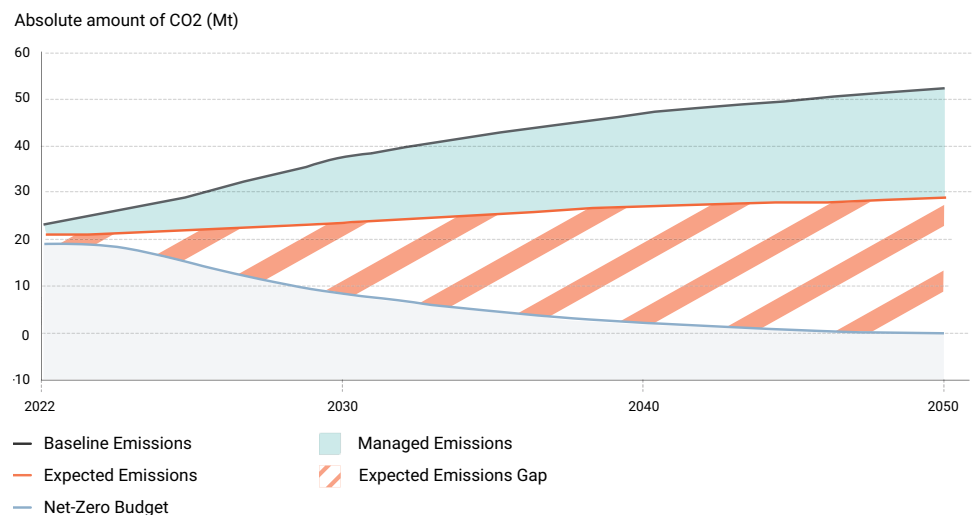
Mandatory climate-related financial disclosure is becoming a universal reality, with more governments around the world adopting the recommendations of the Task Force on Climate-related Disclosures (TCFD) and other leading expert groups. In parallel, companies are setting targets and developing strategies to do their part in meeting the global objective of minimizing global warming to 1.5°C by 2050.

Leveraging our Low Carbon Transition Ratings, investors can respond to regulatory initiatives, implement net-zero strategies, fulfill client net-zero mandates and obtain transparency into company actions by integrating climate research into their investment decision-making processes.

Overview of Sustainalytics' Low Carbon Transition Ratings

Our comprehensive framework measures the degree to which a company's projected greenhouse gas (GHG) emissions differ from a net-zero pathway between now and the year 2050. The ratings leverage a two-dimensional framework that measures an issuer's exposure from their expected emissions, while also accounting for management actions. They assess the

company's progress toward their stated net-zero commitments by evaluating the quality and ambition of their GHG reduction targets, as well as any demonstrated short-term investment plans, policies and programs such as Climate Transition Resilience Program, Product Decarbonization Strategy and a GHG Emissions Reduction Policy – Supply Chain.



Key Benefits



Holistic Integration of Management Preparedness

With more than 85 general and subindustry-specific management indicators - weighted by a company's distribution of GHG emissions across Scopes 1, 2, 3 upstream, and 3 downstream — investors gain transparency into management preparedness and can integrate granular climate insights into their company assessments and valuation models.



Analyze Expected Issuer Emissions Against the UN PRI 1.5°C Policy Scenario

Our Low Carbon Transition Ratings are driven by a bottom-up scenario analysis, evaluating companies' emission trajectories against expected regional policy and technology pathways required to meet the Paris Agreement and net-zero ambitions by the year 2050. Additional scenarios for further analysis are in development.



Dedicated Module to Assess Issuer Reporting with TCFD

A TCFD module is included in the rating to assess and track the comprehensiveness of issuer reporting and translate our assessment of issuers' managerial preparedness across the four thematic areas recommended by the TCFD (governance, strategy, risk management, and metrics and targets).



Access to our Transparent Methodology and Granular Data

A transparent methodology, multiple levels of data and clear indicator guidance underpin our ratings. This allows for validation and customization of the weighted data points to generate unique insights that align to investors' objectives.



5,000+ Companies Covered

Sustainalytics' Low Carbon Transition Ratings span more than 5,000 companies and encompass most major global indices. Future expansion of the company database will align with the coverage of our ESG Risk ratings (12,000+).



Developed by an Industry-Leading Team

Our solution was developed by our dedicated Climate Solutions business unit of over 100 climate experts in partnership with our industry-leading ESG Risk Ratings team.

Use Cases



Climate Research Integration

- Measure alignment of companies against a 1.5°C scenario
- Deepen insights into transition risk and opportunities for portfolio management



Reporting and Client Communication

- Support TCFD-aligned regulatory reporting
- Report to clients on how portfolios are aligned with global climate goals
- Respond to client net-zero mandates



Implement Net-Zero Strategies

- Assess forward-looking carbon emissions of companies, portfolios, funds and benchmarks with net-zero pathways
- Meet commitments of global alliances and member groups such as the Net-Zero Asset Manager Initiative and the Institutional Investors Group on Climate Change (IIGCC)



Engagement and Voting

- Evaluate company management of transition risks and opportunities
- Obtain transparency on corporate's disclosure sufficiency to current TCFD recommendations



Screening and Benchmarking

- Set decarbonization targets and monitor performance
- Screen investable universe based on company exposure to and/or management of transition risks



Thematic Investing

- Create climate-aware investment products

Low Carbon Transition Ratings Output

1. Company rating

A company's top-level rating is expressed as an Implied Temperature Rise signifying the expected level of global warming if the global economy had the same proportion of emissions misaligned to the net-zero budget. The absolute emissions gap across each scope of the company's business activity are summarized through time series graphs, with the underlying components of the assessment illustrated in decomposition charts.

2. Value Chain Analysis

The degree of overall alignment to the net-zero budget is summarized for each scope of emissions across an issuer's value-chain, providing transparency into how much each scope of emissions is contributing to the overall rating. A separate value-chain analysis for each of the exposure and management components is also provided.

3. Peer Analysis

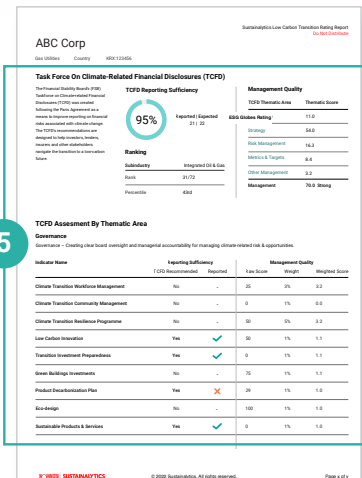
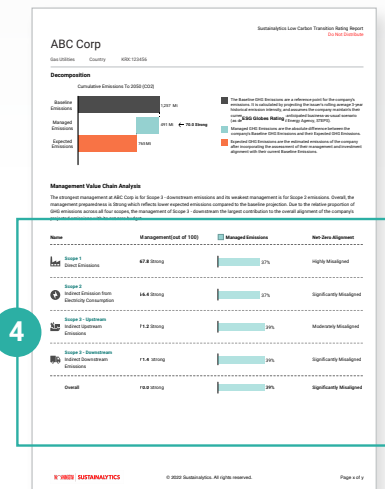
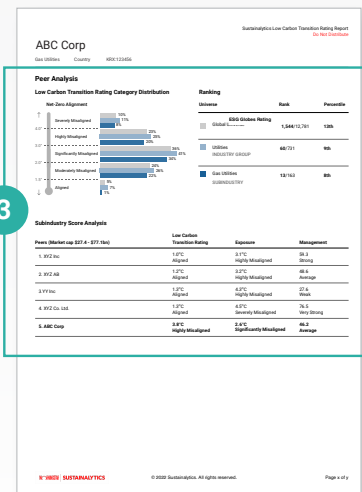
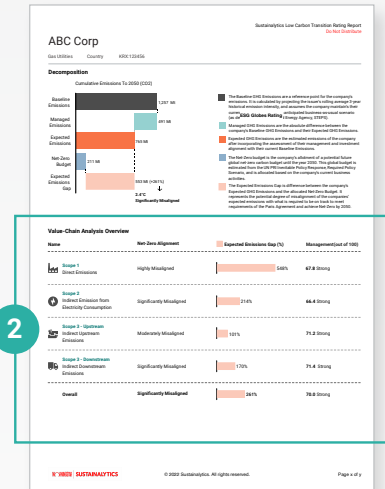
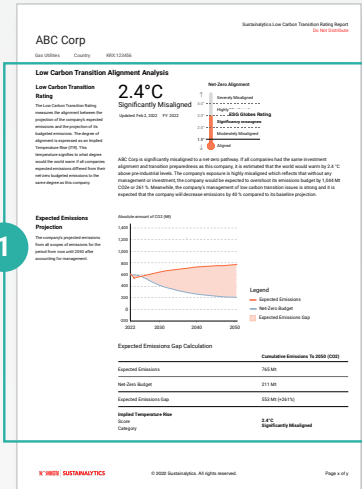
The issuer's rating is analyzed in context of their peers in global public equity and bond markets, as well as industry and sub-industry specific peers. The issuer's top peers by market capitalization are summarized with a view of their overall rating, Exposure and Management scores.

4. Management Score and Analysis

An overall management score out of 100 is provided, as well as an analysis identifying where action may be needed across the issuer's business activities. This is communicated through a breakdown of their management scores and contribution of key management indicators for each scope of emissions across the issuer's value chain.

5. Assessment of issuer TCFD reporting

An overall score of the comprehensiveness of issuers' climate related disclosures, and a detailed analysis across the key TCFD thematic areas of governance, strategy, risk management and metrics & targets provides transparency into quality of their management.



CLIMATE SOLUTIONS

PHYSICAL CLIMATE RISK METRICS

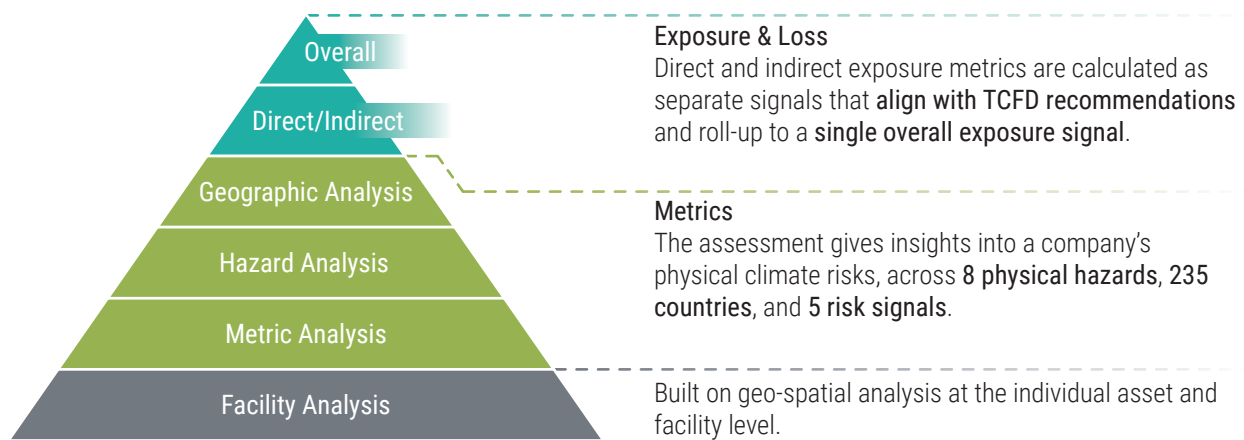
EVALUATE THE PHYSICAL CLIMATE RISKS FACING YOUR PORTFOLIO COMPANIES

Morningstar Sustainalytics' Physical Climate Risk Metrics provide investors with forward-looking scenario analysis on a company's exposure to direct and indirect physical climate risks.

The physical impacts of climate change are challenging investors, both due to physical damages and disruptions, and evolving marketplace expectations. By 2050, physical climate risk could reduce GDP by up to 25% in some regions.¹ Evolving regulatory requirements and disclosure expectations, like the Task Force on Climate-related Financial Disclosures (TCFD), will require investors to integrate transition and physical climate risks into their decision-making and disclosures.

Physical Climate Risk Metrics offer a bottom-up assessment of physical climate risks from eight physical hazards, spanning 12 million assets and covering 135 sectors and 235 countries. Investors can understand their direct and indirect exposure to physical climate risks and the potential financial impacts to their portfolio companies. To create these metrics, Sustainalytics collaborated with XDI, an award-winning global leader in physical climate risk analysis on companies and their assets.

INTRODUCING PHYSICAL CLIMATE RISK METRICS



¹ Swiss Re Institute. 2021. "The economics of climate change: no action not an option," April 2021. <https://www.swissre.com/dam/jcr:e73ee7c3-7f83-4c17-a2b8-8ef23a8d3312/swiss-re-institute-expertise-publication-economics-of-climate-change.pdf>

Key Benefits



Comprehensive Issuer & Asset Coverage

Analysis for over 12,000 issuers underpinned by 12 million+ assets and facilities to enable granular discovery of an organization's direct and indirect exposure to physical risks related to climate change.



Visibility of Business Activity Impact & Asset Impairment

Physical Climate Risk Metrics moves beyond basic exposure assessment to include damages and losses to assets, as well as disruptions to the company and its region's productive capacity.



Geographic & Hazard Coverage

The metrics provide global estimations of the future probability and severity of 8 hazards: coastal inundation, extreme heat, extreme wind, flooding, forest fire, freeze-thaw, soil subsidence, and cyclone wind.



Assessment of Expected Financial Losses

Evaluate a company's projected financial losses and financial capacity to absorb losses, based on a company's owned or leased global assets.



Covering the Full Business Value-Chain

The risk surrounding an asset is often much greater than the direct risk to the asset itself. Direct and indirect exposure metrics are calculated as separate signals, aligning with TCFD recommendations, and roll-up to a single overall exposure signal.



Comparable Metrics for Peer Analysis

Each metric ranks companies in combination with short and long-term time horizons and climate change scenarios, helping investors easily compare a company's exposure to physical climate hazards to its industry peers as well as the broader company universe.

Investor Use Cases



Climate Reporting

Support TCFD-aligned disclosures on direct and indirect physical climate risks.



Research

Aggregate millions of data points to produce company-level signals. Derive proprietary physical climate risk data and insights for stock valuation, universe or portfolio construction, managed product creation, and risk/scenario analysis.



Engagement

Engage with companies on their physical climate risks with quantitative metrics. Identify priority topics, such as specific hazards and geographies.



Portfolio Screening

Build resilience by identifying individual issuer exposures to physical climate risks and minimize losses by managing the exposure to this underlying risk. Screen investable universe based on company exposure to physical climate risks.



Scenario Analysis

Conduct forward-looking scenario analysis of expected losses due to physical climate risks in two climate change scenarios.


Physical Climate Risk Signals

The metrics consider the direct and indirect exposure of a company to physical climate risks, including the risk of damage due to physical loss and business disruption. These roll up to an overall company exposure signal and show the expected financial impacts due to climate change.

Financial Signals

- **Loss Ratio:** A ratio between the expected physical climate risk-related damages and cash flow from now until 2050. It measures whether the company is expected to be able to cover its expected physical climate risk-related losses.
- **Loss Amounts:** The expected physical climate risk-related financial loss to a company, based on expected impacts to revenue and productivity from direct and indirect risks.

A set of **Risk Signals** underpins the financial impact signals:

	High Risk Assets The degree of direct exposure. The percentage of a company's total assets under a high risk of damage from physical hazards.
	Asset Damage Risk The relative vulnerability to direct infrastructure damage. Relative Average Annual Loss due to direct damage as a proportion of total replacement cost.
	Productive Capacity Loss The percentage of annual productivity disruption due to component failure, damage, repairs, and non-physical damage-related loss (e.g., heat stress) of own operations.
	Local Critical Infrastructure Risk The probability of asset damage based on the vulnerability of the area immediately surrounding the asset.
	Regional Risk The vulnerability of the broader geopolitical region surrounding the asset.

Delivery Channels

Five standard reports are included to help investors better understand the extent of their exposure to physical climate change, delivered through Sustainalytics' Data Services or API.

- 1 **Exposure & Loss:** Calculates loss ratios and financial losses for each climate change scenario to understand a company's total exposure & financial resiliency to physical climate risks between now and 2050.
- 2 **Benchmarking:** Benchmarks and ranks companies universally and by industry for each of the 5 metrics – High Risk Assets, Asset Damage Risk, Productive Capacity Loss, Local Critical Infrastructure Risk, and Regional Risk – across RCP2.6 and RCP8.5, and in increments from the current research year to 2100.
- 3 **Hazard Contribution:** Breaks down the direct metrics in the Benchmarking report by each of the 8 hazards, and analyzes which ones contribute most to a company's overall direct exposure.
- 4 **Country Contribution:** Summarizes the metrics in the Benchmarking report by asset country, analyzing a company's global distribution of exposure to physical climate risks.
- 5 **Loss Time Series:** Measures the annual expected discounted and undiscounted loss amounts for revenue, asset damages, direct, and indirect losses in 5-year increments.