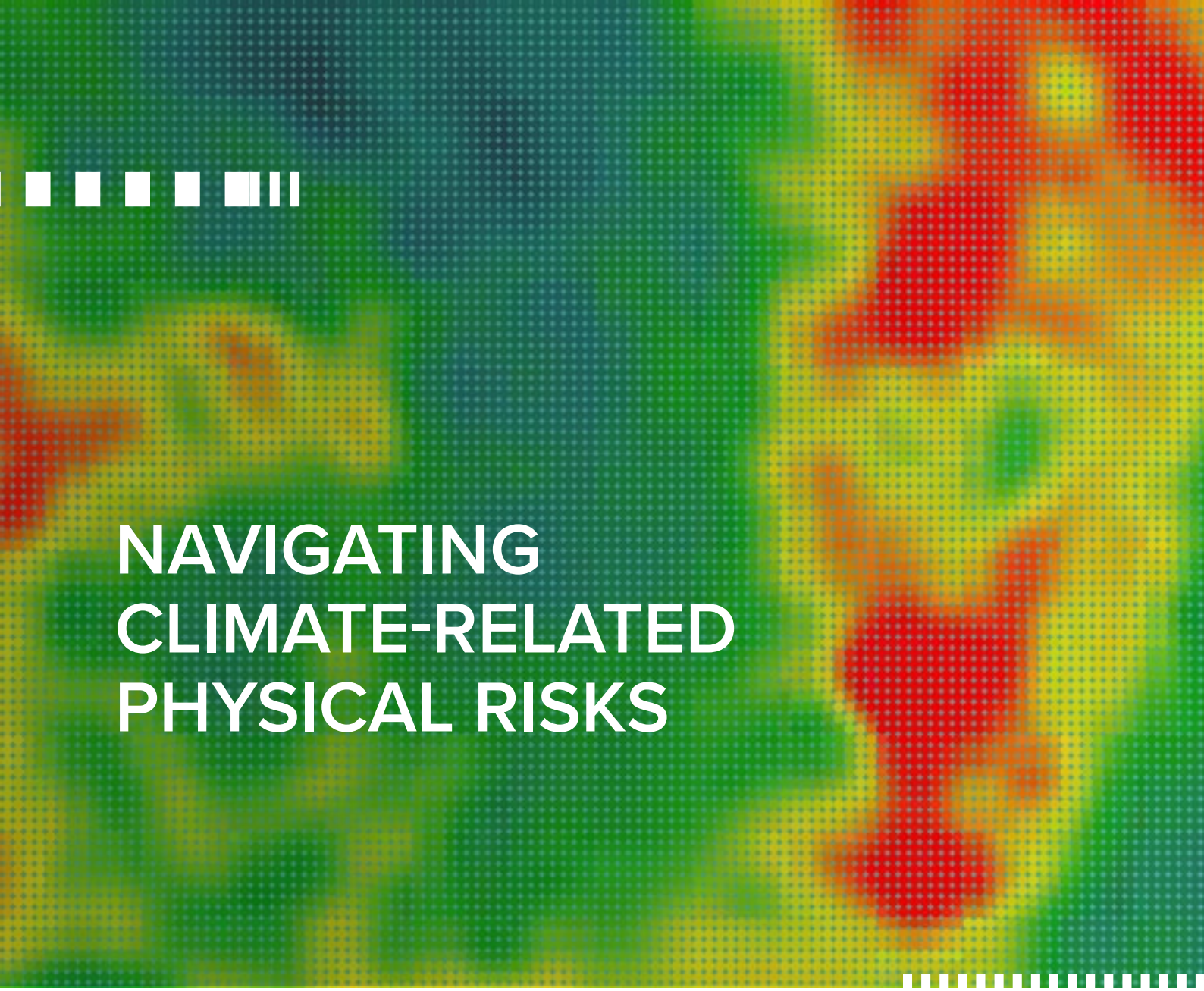

NAVIGATING CLIMATE-RELATED PHYSICAL RISKS

What are the most likely physical risks from a changing climate and how can incorporating climate analytics into forecasting and planning create opportunities for investors?

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As each year passes, we see the effects of climate change having a broader impact on the investing landscape and the financial health of businesses. Unmitigated climate change will increase risks related to extreme weather events, energy costs and carbon liability – and companies are already exposed to numerous weather-related risks that could result in construction delays, production downgrades and damage to assets.

What are the climate-related risks?

The Task Force for Climate-Related Financial Disclosure (TCFD) is a market-driven initiative established by the G20's Financial Stability Board (FSB). Its role is to improve and increase reporting of climate-related financial information.

In line with TCFD recommendations, climate risks fall into two categories:

1. **Transition risks** are financial risks which could result from the process of transitioning towards a lower-carbon economy
2. **Physical risks** are risk arising from the physical effects of climate change materials on livelihoods, activities and assets (increased droughts leading to water scarcity, increased damages due to more frequent cyclones)

So far, climate risks assessments have mainly focused on transition risks. The growing acknowledgement of the imminent reality of climate change and the growing availability of climate data now brings physical risks into the spotlight too, with negotiations around a 'loss and damages' fund for developing countries – those especially vulnerable to the adverse effects of climate change – taking centre stage at COP27 in Egypt.

What does this mean for investors? How can company data and climate models help businesses better understand the physical climate risks associated with their investments and implement adaptation plans to manage them better – while supporting the transition to a low-carbon economy?

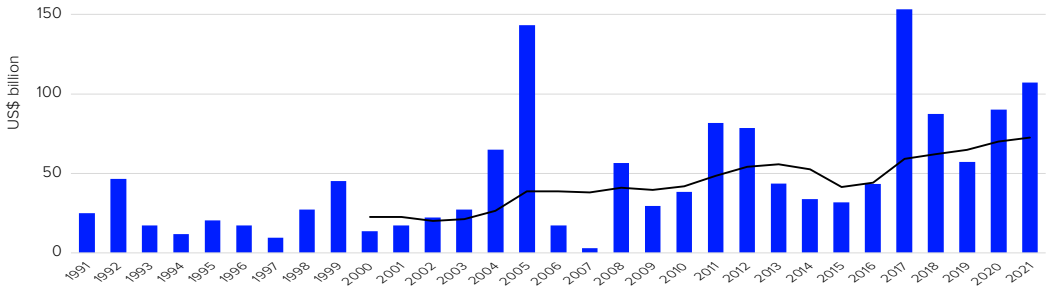
Accepting new realities

The world is facing a new reality which sees more frequent and extreme weather events such as hurricanes, prolonged droughts, cyclones, inland flooding and heatwaves – all of which are expected only to increase in severity and frequency.

The world will have to learn to adapt to such extreme weather events. In 2021, global losses from natural disasters were estimated at US$280bn. The US saw over US$65bn in losses from Hurricane Ida and Europe over US$50bn from major flooding alone.[1]

Over the past 20 years, insured losses from natural catastrophes have been following an upward trend, with a 5-7% annual growth.[2]

Figure 1: Annual insured losses from climate and weather-related events and 10-year moving average (black line)



Source: Swiss Re, 2022

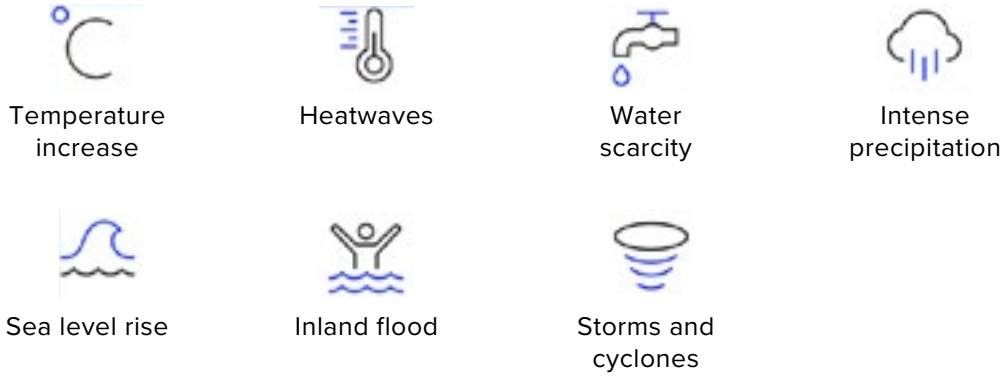
1 MunichRe, 2022. Weather disasters in USA dominate natural disaster losses in 2021, Press Release. Last accessed on November 28th, 2022.

2 SwissRe, 2022. Natural catastrophes in 2021: the floodgates are open. Last accessed on January 12th, 2023.

Although perhaps less spectacular than extreme weather phenomena, chronic and interlocking long-term effects such as water scarcity and decreasing yields will potentially be more debilitating in the long term. Failure to mitigate climate change would be catastrophic, putting billions of people at risk and inflicting estimated damages and losses at over US$20 trillion annually by the end of the century.[3]

Of course, strong mitigation efforts to keep global warming below 2°C, as described in the Paris Agreement, would significantly limit these impacts. But even in this best-case scenario, physical climate risks will continue to grow for decades to come. The harsh reality is that societies, businesses and investors will need to adapt to living – and investing – on a hotter planet.

Key threats to business hazards



This would see extreme and chronic hazards impacting businesses along their whole value chain, from disrupting the supply of raw materials to impacting market demand and delivery systems. For capital-intensive sectors, physical and operational impacts on a company's assets (e.g. flood-related damages on production facilities, decreased productivity due to heat) are among the major threats.

For example, the risks to the mining sector and its supply chain are indisputable. With many mines located in remote and challenging physical environments, the effects of climate change, including extreme weather patterns and scarce availability of critical resources such as water, inevitably exacerbate the challenges of businesses.

The agriculture and food industry is another example of a sector facing high physical risks, with long-term investments, adaptation measures and technological developments needed to mitigate the impacts of rising temperatures and more variable precipitation on crop yields.

Responding to the risks and opportunities

Across all sectors, management teams will have to incorporate climate analytics into all forecasting and planning and be able to assess key hazards across multiple scenarios and time periods.

With a sound adaptation strategy and a greater emphasis on sustainable practises and efficiency, companies should be able to prepare and adapt in order to minimise the impacts of this changing environment.

Furthermore, businesses should conduct a thorough analysis of climate-related risks to understand the impacts of operations in climate change-affected regions.

[3] Kompas, T., Pham, V. H., & Che, T. N., 2018. The effects of climate change on GDP by country and the global economic gains from complying with the Paris Climate Accord. Earth's Future,6, 1153–1173

Understanding physical risks for sound financial decision-making

In recent years institutional investors have focused increasingly on understanding, measuring and managing transition risks in their portfolios. But they need to play catch-up when it comes to focusing on physical risks – the reality is that advances in our expanding scientific understanding of physical climate risks into investment decisions and financial risk management remains limited.

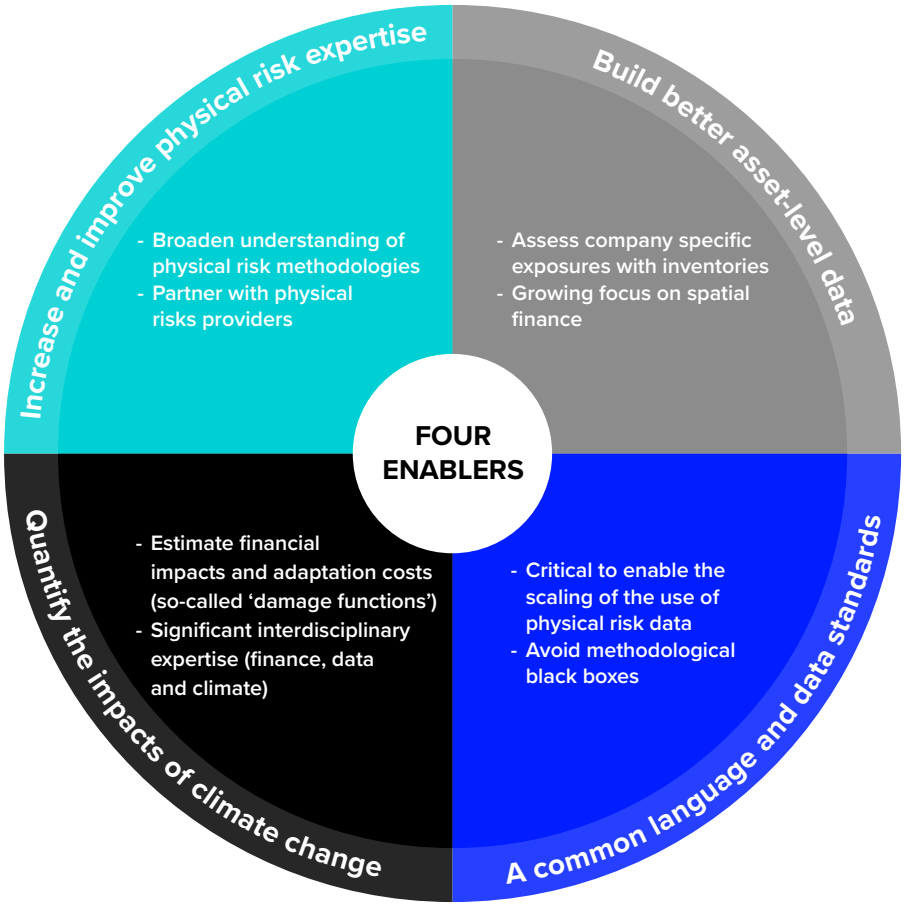
For many institutional investors, physical risks remain an unknown territory, despite making economic sense. As the UN Environmental Programme (UNEP) summarises in their Adaptation Gap Report,[4] the Global Commission on Adaptation estimated a return of US$7.1 trillion in avoided costs and other benefits, for a US$1.8 trillion investment in adaptation measures.[5]

Overcoming this challenge means raising awareness about how escalating physical climate risks are changing risk/return profiles across sectors and asset classes. It also requires overcoming resistance among mainstream investors to integrate yet another large, complex, sustainability-linked information set into their already increasingly crowded investment process. There are significant technical challenges inherent in making expanding physical risk data useful for financial decisions.

Physical risk datasets are structured in decades, expected precipitation patterns, cyclone pathways, longitudes and latitudes. Connecting them with the world of security identifiers and valuation ratios is a challenging task.

Integrating physical climate risk into the investment process

We believe that triggering four enablers are key to integrating physical climate risk into the investment portfolio.



[4] United Nations Environment Programme, (2021). Adaptation Gap Report 2020. Nairobi.
[5] Global Commission on Adaptation (GCA) (2019). Adapt Now: A Global Call for Leadership on Climate Resilience. Rotterdam and Washington, D.C.: Global Center on Adaptation and World Resources Institute.

Creating and improving data are of vital importance, but enabling users to access, understand and use the data is even more crucial to embedding climate mitigation into financial risk management. Companies face a unique series of risks related not only to their operations but also to their ability to operate. But companies that are striving to understand these risks now can mitigate them, future-proof their business and even seize new opportunities.

At LSEG we have already begun this journey. We recognise that embracing climate-related risk disclosure will give businesses in all sectors an advantage over their competitors. In response, we are investing in physical risk and geospatial capabilities and bringing expertise in-house while also collaborating with academia, start-ups and third-party suppliers.

Accelerating the low-carbon transition to mitigate climate change must remain a priority, as physical climate risk increases exponentially with global warming. For the finance sector this means creating better tools and insights to anticipate shifting physical risk profiles and mobilising capital to invest in adaptation and resilience – and thus, most importantly, seeing climate risk-reporting companies as attractive options for investment.

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