IMPAX Asset Management

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Seeking resilience

Must a man burn down his house to roast his pig?[2]

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1 "Accredited investor" within the meaning of OSC Rule 45-501, Canada.
2 Lawrence Ferlinghetti, American poet (1919–2021)

Executive summary

- This paper reviews Impax's groundbreaking physical climate risk (PCR) engagement since 2020 with companies in a range of industries, suggests what information is needed to improve physical risk assessment and pricing, and offers insights and lessons for future stewardship work in relation to climate resilience.
- Compared to four years ago, companies are now more likely to understand that PCR can pose material risks to their business, but there is still a significant gap between what investors need to know in order to price those risks and what companies are doing to evaluate them.
- Creating climate resilience starts with defining the specific physical climate risks which each company faces. In addition, companies must model for multiple climate events at the same time. They also need to imagine and build resilience for events they haven't experienced yet, via appropriate climate modeling. Most companies seem unable or unwilling to construct scenarios for high impact, low-probability events.
- Specific information that investors need from companies to assess physical risk includes geolocation of key assets and value chain nodes; value-at-risk, and actions and capex needed to build resilience. These should be publicly reported.
- To address physical climate risk, we must plan and invest today for a more volatile and uncertain future, where extreme weather events are not once-in-a-blue-moon "acts of God", but rather scenarios with estimated likelihoods, that affect physical assets in a predictable way.

Creating resilience starts with having a good grasp of what the risks are, yet our experience is that many companies do not have that understanding.

Introduction: The need for climate change resilience

Adapting to climate change presents one of the most challenging problems Homo sapiens has had to solve.

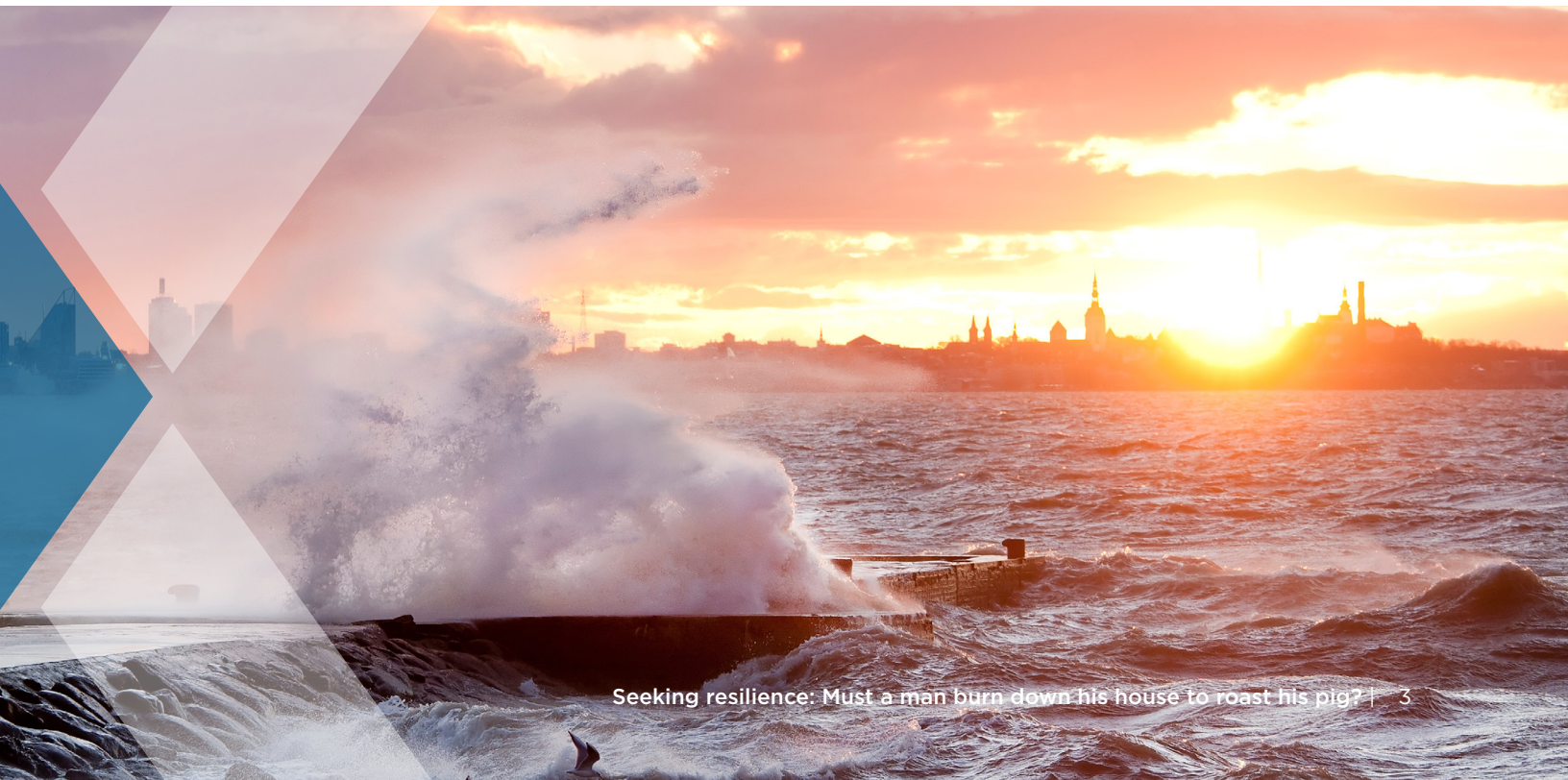
Our species has evolved to deal with imminent threats. We're nowhere near as good at solving problems that manifest slowly over years or decades. But the termites in the woodwork are just as likely to bring down your house as the wolves at the door. That is the problem climate change presents: dedicating resources, time and effort today in order to solve tomorrow's problems. The world is already facing over one hundred of billion dollars' worth of insured losses annually due to events made more likely, and more severe, by climate change.[3]

> Estimates of annual losses and damage of climate-related events run into the US$ trillions throughout the 21st century.[4]

The challenge for investors is to find a way to evaluate the potential financial impacts of a company's exposure to physical climate risk (PCR) using the tools we have, and one of the best tools we have as investors is engagement. This paper reviews Impax's groundbreaking PCR engagement with companies in a range of industries, suggests what information is needed to improve physical risk assessment and pricing across sectors, and, drawing from the experience of our engagement activity, offers insights and lessons for future stewardship work.

Physical risk takes many forms, some of which are well understood and others not so well. For sectors such as utilities, whose assets are mostly immobile and whose products enable the entire economy to function, there is nowhere that is safe from physical climate risks. Creating resilience starts with having a good grasp of what the risks are, yet our experience is that many companies do not have that understanding. This will require companies to model for multiple climate events and plan for long term - not temporary - adaptations, and policymakers to provide necessary support. Ultimately, as investors, we would like to see management teams that can better understand physical risk and by doing so, imagine and build resilience for events they haven't yet experienced.

3 Swiss Re, March 2024: New record of 142 natural catastrophes accumulates to USD 108 billion insured losses in 2023 finds Swiss Re Institute
4 Gorte, J. and Donovan, C., 2023: Climate change: the impact for investors, Impax Asset Management



Breaking ground: Impax and PCR engagement

In 2020 Impax petitioned the Securities and Exchange Commission to make reporting on asset locations required for every asset whose loss or damage due to a climate-related event would be material. We followed that petition up with a letter to all companies in the S&P 500 Index, in partnership with the New York State Common Retirement Fund.[5]

The first round of engagement, which we summarized in a 2021 report, was focused mainly on geolocation, which is one piece of the information investors need to put a proper value on physical risk.[6] Starting in 2022, the focus of our engagement turned to resilience, the other piece of the puzzle.

We have now conducted two further rounds of engagement with utilities and semiconductor producers focused on companies' own awareness of their value-at-risk from climate change, and what they're doing to adapt.

We learned that these issues are better understood now than they were four years ago. Companies are now more likely to understand that physical risk can pose material risks to their business and is therefore a concern to investors, but there is still a significant gap between what investors need to know and what companies are doing in evaluating physical risks. Many companies have adjusted their business continuity plans or conducted their own analyses of their value chain vulnerabilities. But that's often where things seem to stop, and this is very far from conducting the kind of analysis – including scenario analysis – needed to price physical risk.

Getting real: What's needed to assess physical risk

Investors need the following from companies in order to accurately assess physical risk:

- **Key value chain nodes.** In assessing vulnerabilities, companies should map both their own key assets and important supply chain nodes that, if damaged or destroyed, could have material impacts.
- **Value-at-risk.** Mapping key assets, with an additional overlay that considers factors like an asset's ease of replacement, permanently or temporarily; repair times and costs; and the impact of lost capacity on other company assets and revenue streams.
- **Scenario analysis.** Historical weather patterns and climate conditions are not a good guide to understanding future risks. To be resilient, companies and investors must scope out and prepare for events and conditions that may never have happened before, or only occurred rarely.
- **Actions taken to create resilience.** It may be possible to shift some assets to less risky areas, provide backup for critical infrastructure, or protect assets to withstand more severe events and conditions. This includes the capital expenditures needed for such actions.
- **Informing investors about work to reduce emissions and adapt to PCR.** If work to address PCR is not publicly reported and available, it makes almost no difference to investors. As we have stated previously, reporting should be required for all assets and value chain nodes where climate risk could have material impact.

5 In the succeeding years, we also added more investors to this engagement, including CalSTRS and GIC.
6 Gorte, J. and Wright, M., 2021: Seeking coordinates: A unique engagement on physical climate risk, Impax Asset Management

Learning from our engagements on physical risk

One of the most important things we've learned is that the kind of outside-the-box thinking needed to prepare for physical risks is rare. Without exception, we have found that the companies best prepared to deal with future climate disasters have already been through at least one, and that the lessons they have learned changed their planning processes.

- **Electric utilities:** Three of the companies that we engaged with in this sector follow the principles for physical risk reporting outlined above – and all three have had major wildfire incidents over the past three years that have resulted in material (or potentially material) liabilities.
- **Semiconductor companies:** The companies we have engaged with have planning processes incorporating physical climate risk and use scenario analysis, but the results were largely invisible in public communications, so it was difficult to judge the robustness of the planning.

Four lessons emerge from these dialogues.

1 **First,** it is rare to find companies with thorough planning processes that incorporate scenarios for high impact, low probability events ("worst-case scenarios"), and even more rare among companies that have not experienced this kind of event.

This requires investors to develop approaches for pricing physical risks without knowing exactly what measures companies take to make their operations more resilient to physical risk.

2 **Second,** disclosures are essential prerequisites for well-informed pricing decisions.

No matter how thorough the planning process, if it's invisible to investors, the company will not get credit.

3 **Third,** public authorities can be very helpful in building resilience, though there is still much room for improvement.

With the utilities where we found robust resiliency planning, many of the disclosures were required by state or other regulatory authorities, though some may also have resulted from the rear-view clarity brought on by a catastrophic event.

4 **Finally,** investors, particularly those managing or relying on passive funds with long holding periods, must overcome the notorious myopia of the financial industry and think in terms of truly long-term planning horizons.

For most sell- and buy-side analysts, "long-term" means three or five years, respectively. In the context of climate, this view will invariably mean that physical risks seem negligible, since even the most severe scenarios don't change much over such short time spans. However, when we consider that many of our investee companies' assets have depreciation periods that stretch to decades, the picture on value-at-risk changes.

Building resilience often takes years' worth of time and resources. That is certainly the case for all the utilities we spoke to, and for the semiconductor industry (due to the billions of dollars needed to finance a new wafer fabrication facility). It is essential that both companies and governments understand this, and don't wait until after a major disaster has occurred to start creating more resilient enterprises and infrastructure.

Prudent precautions

Our extended engagement on PCR has provided a synthesis of emergent issues arising from the series as a whole, of which three merit further attention.

1 Everything everywhere all at once

Most planning processes for business interruptions or changing conditions resulting from climate change focus on single events. What happens to this power plant in the event of a Category 5 hurricane? How can we continue business operations if there is a prolonged drought affecting a major wafer fabrication facility? Many companies, explicitly or implicitly, assume that global dispersion of planning, logistics, production and other key facilities can provide protection from physical risk. Geographically dispersing operations is becoming less and less useful as a strategy to buffer impacts of physical climate risks, however, as multiple events can happen at the same time, across operations and regions.

2 Temporary fixes are temporary

We did speak with a few companies that point with some confidence to resilience "solutions" that are at best temporary. We need longer-term thinking to conceptualize high impact, low probability events, and figure out how to cope with them over the lifetime of the assets at risk.

3 Policy fixes are needed

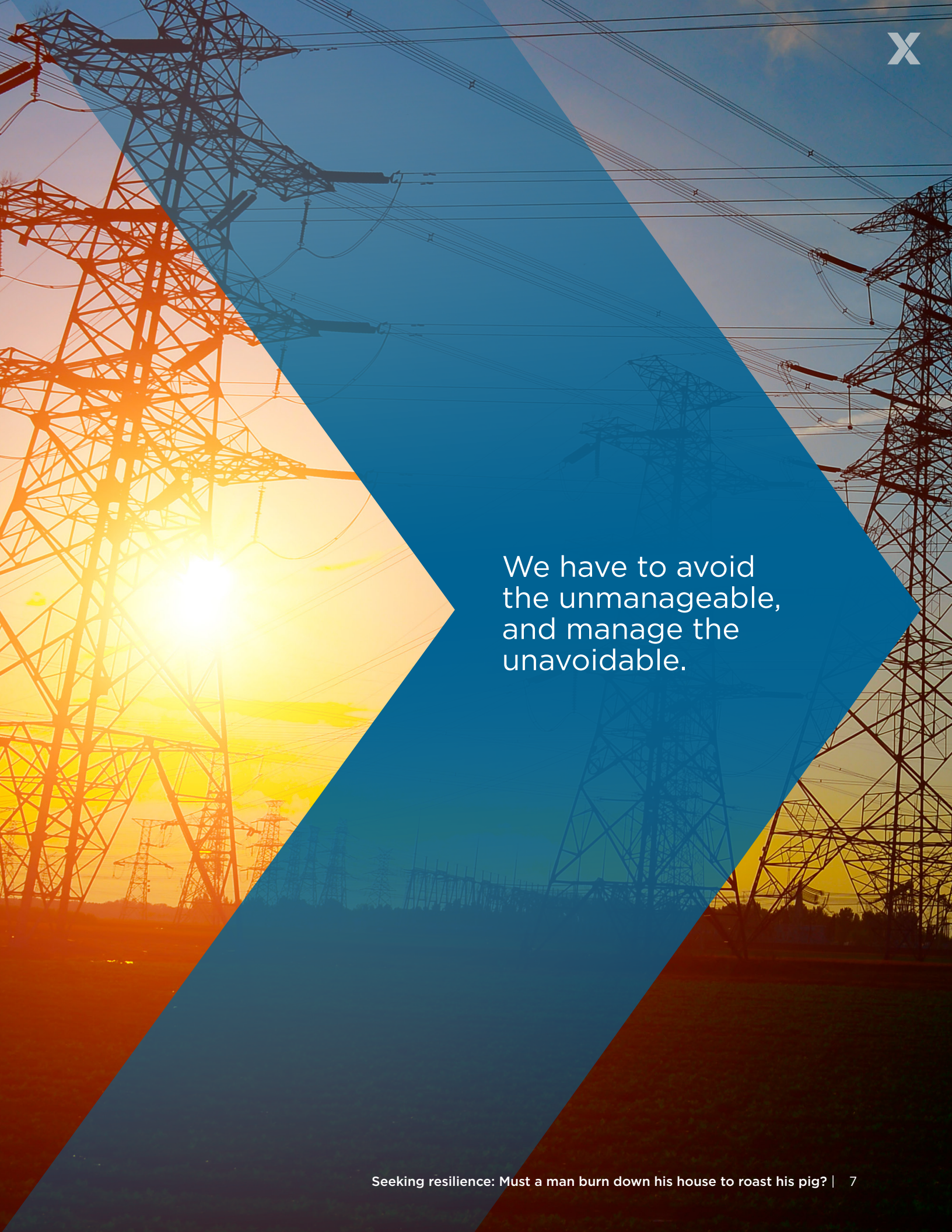
Companies are often the focus of investors, but they shouldn't be alone in planning for climate resilience. Regulators and public authorities can be enormously helpful; in all the cases where we found robust company resilience planning, there was some help or support structure in public policy as well, from federal agencies to state and municipal authorities. Mandates, while unpopular, may be necessary to get companies and investors thinking about vulnerabilities in a future that will not look like the past.

The California Public Utilities Commission, for instance, now requires California utilities to submit Climate Adaptation and Vulnerability Assessments, following the disastrous fire season in 2017. The US Department of Energy administers a US$1.5 bn Grid Resilience and Innovation Partnerships programme that can help build resilience for electric utilities and service providers. Even requiring reporting on climate risks is useful; S&P Global found that climate risk disclosure requirements "appear to drive increased awareness of potential financial impacts from climate hazards."[7]

Conclusion: Engaged, aware and more prepared

The physical risks that come with climate change have received less attention than emissions reduction. While the best way to limit future physical risks is still to turn off the tap by attacking the cause of the problem (i.e., emissions of greenhouse gases), the economic and human toll of climate-related physical impacts is already worsening by the day. As a society we must do two things in parallel: reduce emissions as quickly and economically as possible, and adapt to the changes we cannot dodge. We have to avoid the unmanageable, and manage the unavoidable. Awareness of physical risks is growing rapidly, but turning that awareness into financial information that can be used to make investment decisions is still in its infancy. Disclosure of the additional information needed to price physical risks will help to harness the enormous power of financial markets to address climate change.

7 Munday, P. Georges, P. et al, April 2024: Risky Business: Companies' Progress on Adapting to Climate Change, S&P Global



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