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What the Market Thinks:

A Climate Risk Survey

October 2024

Foreword

In recent years, scenarios developed by scientists about our possible climate futures have been adapted by capital markets participants to help them gauge how the risks of a changing climate and the transition to a net-zero economy could impact their investments.

While such scenarios have helped financial markets supervisors and practitioners better understand a range of climate-related risks, they have not been able to tell investment professionals in particular what they say they most want to know to shape their strategies: what their peers across the industry and around the world expect when it comes to changes in policy, advances in technology, and patterns of climate-driven extremes of weather.

To address this gap, we set out to create a climate scenario that reflects today's expectations of the market. We surveyed more than 350 senior investors and risk managers across banks, insurers and investment institutions with varying knowledge about climate change for their views on the trajectory of climate policy, the pace of the energy transition and the impacts of climate-related hazards.

We supplemented the survey with panels and interviews of more than 30 experts across finance, policy and academia to test and validate how the responses inform a climate scenario that reflects market expectations

This report details findings from the survey and offers our analysis of the results. It provides a snapshot of respondents' views on topics ranging from when global greenhouse gas emissions might decline and the likelihood of various countries achieving their national climate pledges to the impact of rising temperatures and extreme weather on society.

Taken together, the findings offer a window on the current market consensus of our future climate pathways. We hope the study will help participants across the financial industry benchmark their strategies to the broader market. Policymakers may find value as well in understanding how capital-markets participants envision our climate future relative to policy-defined climate scenarios in use already.

The picture we present in this study marks one moment in an unfolding story. The market's expectations for how the transition to a low-carbon economy may affect the value of financial assets will adjust continuously in response to the effects of a warming climate on weather and the environment, breakthroughs in technology, incentives provided by policy, and the pace of the transition itself.

Though the transition may unfold in fits and starts, presenting investors with a high degree of uncertainty, capital flows toward opportunity. The rapidly warming world that investors envision today can ultimately trigger investments in innovations that change the trajectory of our climate tomorrow.

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NYU Stern School of Business
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Ontario Municipal Employees Retirement System
PSP Investments
Rothschild & Co
United Nations Intergovernmental Panel on Climate Change
Singapore National Climate Change Secretariat
United Nations Framework Convention on Climate Change
United Nations Joint Staff Pension Fund
Turning Point Solutions

The data presented in this study and conclusions drawn from it reflect the views of the Institute.

Contents

Key definitions

Climate risk: The potential for economic and social disruptions resulting from both physical risks (like extreme weather and sea level rise) and transition risks (such as policy shifts or changes in market expectations as economies move toward lower carbon emissions).

Transition risk: Risks arising from changes in policy, technology, and market sentiment during the transition to a low-carbon economy. These include regulatory risks, shifts in asset valuations, and the costs associated with adopting new technologies or business practices.

Physical risk: Risks stemming from the direct physical impacts of climate change, including both acute risks (e.g., extreme weather events) and chronic risks (e.g., prolonged temperature increases and sea-level rise). These risks can affect supply chains, property values, infrastructure resilience, and overall economic productivity.

Priced-in: A term used to describe the extent to which climate risks are already reflected in current asset prices. If risks are not adequately priced in, it means that market participants have not fully accounted for these risks in their valuations, potentially leading to future adjustments or corrections. The converse is also possible, whereby wide adoption of climate solutions is not yet fully accounted for in valuations today.

Key findings and overview of what the market thinks

Physical risk rising: A majority (57%) of respondents agree broadly that climate-related physical risks are creating economic fallout and growing in severity sooner than current climate scenarios anticipate, with an additional 36% of respondents saying that climate change will have a significant economic impact in the future.

Divergence on emissions: Roughly half of respondents say they expect that emissions would peak within the coming decade while the other half say they expect emissions to rise indefinitely.

Peak oil?: Similarly to emissions, nearly one-third (30%) of respondents said that oil consumption would peak in the next 10 years, while just over one-third (33%) of respondents said they expect consumption of oil to increase indefinitely.

Uneven progress: Roughly three-quarters of respondents say that Europe, Japan and Canada, respectively, would be either somewhat or very likely to meet their climate commitments by 2050. The U.S., China and India, in contrast, would be either somewhat or very unlikely to meet their climate pledges by 2050.

Paris Agreement threshold increasingly beyond reach: Overall, 69% of respondents say that a net-zero economy by 2050 appears to be unlikely.

A hotter world: 27% believe that global temperatures will remain under a 2°C (3.6°F) rise by 2100, while 38% believe that the world will warm by 3°C (5.4°F) or greater, including 8% who indicated a catastrophic 5°C (9°F) or more.

Climate risk not priced in: A plurality (48%) of respondents say that the prices of financial assets do not reflect climate risks, compared with 41% who said that financial assets partially reflect such risks, and 7% who said that prices capture climate risks fully.

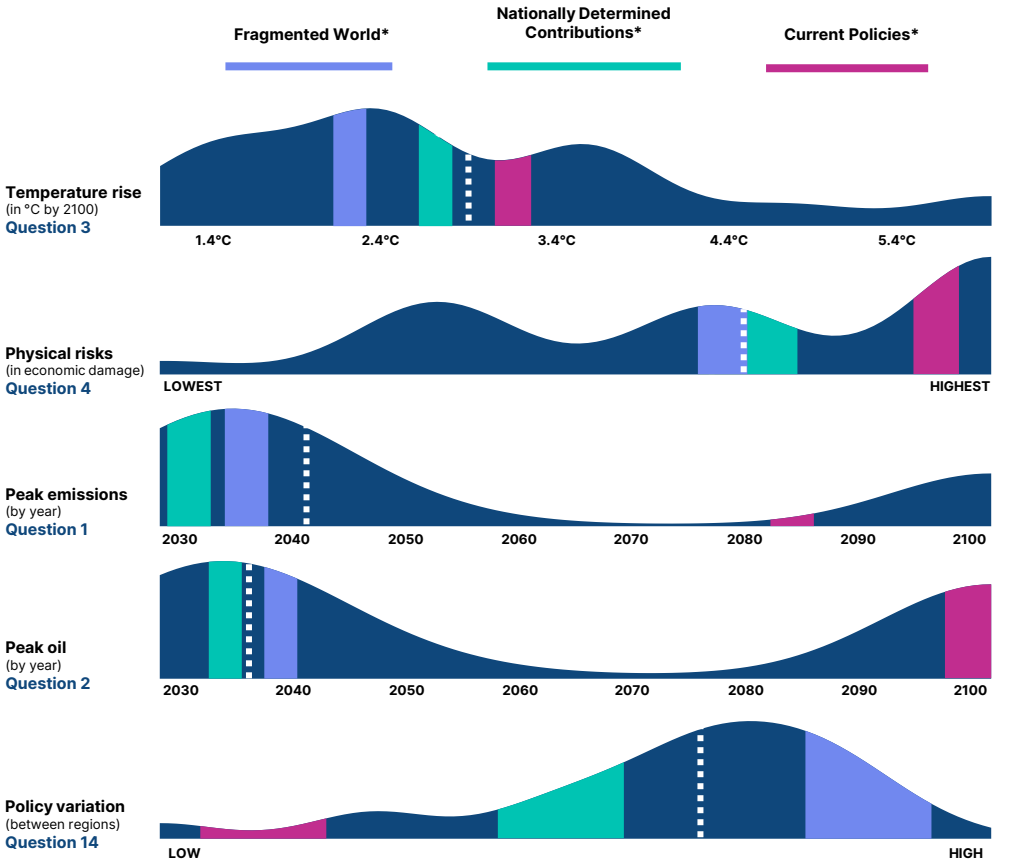
Some impact on investment decisions: Just over one-third (34%) of respondents said that climate change has had a major impact on the allocation of assets in their portfolio, but more (42%) said it has had a moderate impact.

Transition risk of sectors: More than two-thirds (67%) of respondents say they expect oil companies to underperform the market as a whole over the next 10 years because of climate transition risk, while a majority (56%) said they expect companies in the aviation industry and half of firms in industrials to underperform because of transition risk as well.

Migration, geopolitics and tipping points: Respondents largely agree on the origin and destination regions of likely migration flows. A plurality (42%) of respondents say that moderate to high levels of global warming could trigger both environmental and geopolitical tipping points, with those in Europe and Asia expecting more severe impacts than in North America.

What the market thinks: Respondents' expectations versus common climate scenarios (n=350)

Stylized visualization of survey results.



* Scenarios data from Phase IV of the Network for Greening the Financial System (NGFS) scenarios for central banks and supervisors. Note that the NGFS published Phase V scenarios on Nov. 5, 2024. See Appendix for scenario definitions.

Median answer

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A world united on physical risk but divided on emissions.

The survey shows that physical risk matters a lot to participants across financial markets, who anticipate that governments will invest in adaptation. It also shows a divide between market participants who expect global greenhouse gas emissions to peak soon and those who expect such emissions to grow indefinitely. These reflect two very different futures.

As political pressures grow and the risks of physical climate impacts intensify, capital allocators must remain agile, ready to navigate both the opportunities and challenges that this uncertain future presents.

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Overview of what the market thinks

The survey paints a picture of a market aware of climate risks but divided on when and how severely these risks will manifest. Respondents anticipate a world where the transition to a low-carbon economy is delayed, with significant regional and sectoral disparities. This creates both risks and opportunities for capital allocators.

Policy ambitions and confidence

Survey responses reveal a skepticism of government-led climate commitments, particularly for major emitters like the U.S., China, India, and Russia. These countries are seen as unlikely to meet their long-term decarbonization goals. Respondents have higher expectations for Europe, Japan, and Canada, where stronger political frameworks and regulatory environments inspire greater confidence in achieving climate ambitions.

Reading between the lines, across multiple survey questions, we can infer concerns that political ambition — especially in countries facing regular elections — might override climate ambition. As experts noted during discussions, governments may be forced to prioritize short-term, vote-winning policies over long-term climate goals. This potential dislocation between political cycles and climate action raises the risk that climate ambitions could be scaled back or delayed when electoral or economic pressures intensify.

This helps explain the divergence in global views on policy ambition and crucially how two wildly divergent emissions views can exist against a backdrop of consensus on country-level ambitions: while there is acknowledgment of ambitious goals, there is skepticism about how well these commitments will endure over time.

Emissions and temperature outcomes: an even split in expectations

Among the survey's most significant findings is an even split between respondents who believe global greenhouse emissions will peak soon and those who believe emissions will continue to rise indefinitely. This divide creates two distinct scenarios for global emissions trajectories. Those in the "peaks soon" group expect greater likelihood about the ability to reduce emissions, while the "never peaks" group sees indefinite emissions growth, which contributes to an outlook of far higher global warming.

This bifurcation in views is critical when considering temperature outcomes. Respondents who expect emissions to never peak generally forecast higher temperature rises by the end of the century, with many projecting 3-4°C or more. On the other hand, those in the "peaks soon" camp expect more moderate warming, though still beyond 2°C, aligning with scenarios like the NGFS's "Current Policies" path, which suggests global temperatures will rise beyond 3°C without additional action.

Sectoral implications

Sectors such as oil and gas, industrials, and aviation are seen as lagging in decarbonization, with respondents skeptical about these industries' ability to meet science-based net-zero targets by 2050. Investors anticipate that these high-emission industries will face substantial transition risks, with potential mispricing in current asset valuations. By contrast, sectors like consumer goods, real estate, and utilities are viewed more optimistically, with respondents expecting these sectors to be better positioned for decarbonization.

Physical risks and geopolitics

Respondents overwhelmingly believe physical risks from climate change are already impacting the global economy, with 56% stating that these risks are currently significant. This suggests that extreme weather events, such as hurricanes, wildfires, and floods, are already causing substantial economic disruptions. Many respondents expect these impacts to intensify, particularly in vulnerable regions, leading to severe infrastructure damage, forced migrations, and heightened geopolitical tensions.

Climate-driven migration is expected to reshape global demographics, with drought and extreme weather forcing people to leave vulnerable regions such as the Middle East, Sub-Saharan Africa and South Asia for more resilient regions like North America, Europe and Australia/New Zealand. The movement of people could trigger significant geopolitical and economic shifts that can have long-term implications for investors in infrastructure, real estate and regional markets.

Financial markets and pricing in

Despite increased awareness of climate risks, nearly half (47%) of respondents believe that climate risks are still not fully priced into current asset values. Only 7% believe that these risks are fully priced in, highlighting a disconnect between market beliefs about our climate future and current market behavior. Respondents see the mispricing particularly acute in sectors like oil and gas and aviation, where transition risks are substantial but not yet fully reflected in asset prices.

While some respondents say they have observed market reactions to climate-related news such reactions remain the exception rather than the rule. This suggests that markets may be underreacting to the full spectrum of climate risks, particularly in terms of long-term physical impacts and transition risks.

Study purpose and approach

What climate future do investors and other capital-markets participants envision when making decisions? The findings in this report address that question.

Investors and capital allocators make daily decisions about the value of financial assets without knowing fully how other market participants view:

- The trajectory of climate policy
- The pace of the energy transition
- The impacts of climate-related hazards.

This report provides a snapshot of these expectations to help investors benchmark their strategies relative to the broader market.

The report can benefit risk analysts and corporate decision-makers who aim to understand market sentiment on climate risks. Knowing how market participants view opportunities and challenges tied to a changing climate and the transition to a low-carbon economy may also inform decision-making by policymakers.

The report does not predict outcomes or probabilities, nor does it aim to assess investors' understanding of the drivers and impacts of climate change based on what the latest science tells us. The report also does not relay investors' assessments of climate policies or technologies or views on either the effectiveness or likelihood of success for any particular pathway.

Background

This report provides a snapshot of how financial market participants currently perceive climate risks and opportunities, particularly regarding the transition to a low-carbon economy and the physical impacts of a warming world.

The findings set out in the report come from a survey conducted by MSCI that asked more than 350 senior institutional investors, asset managers and risk management professionals for their views about the effects of climate change on investments with the goal of obtaining insight into areas of consensus and divergence within current market expectations of the most likely future scenario. We supplemented the questionnaire survey with panels and interviews of more than 30 experts from finance, policy and academia to test and validate how the responses inform a scenario that reflects market expectations.

Having a snapshot of current market thinking is crucial to the investment community, as many climate scenarios currently used in financial markets are driven by regulatory supervision or based on scientific ideals rather than reflecting market behavior.

Methodology

The survey of 350 industry professionals representing asset owners and managers, banks and insurers was conducted online by a leading market research firm on behalf of the MSCI Sustainability Institute and MSCI's Climate Risk Center during July and August 2024. The survey included respondents from every region to help ensure responses that reflect regional differences, expectations across sectors, and institutional priorities. The questionnaire was translated into several languages, including Mandarin, Japanese and Korean. The survey was not limited to climate specialists to help provide a market-wide view.

The survey was designed to elicit a range of views held by market participants regarding possible a possible climate future, with 40 questions that touched on:

- Decarbonization trajectories
- Temperature rise
- Economic damage
- Government climate ambitions
- Pricing of climate risk by the market

The questionnaire aimed to balance completeness with the time necessary for participants to answer questions. Hence in some parts of this report we needed to infer and estimate reasons or rationale for a view expressed.

To help us validate these areas of interpretation, we conducted expert panels and interviews with more than 30 participants from the fields of climate science, economics, finance and engineering who provided qualitative insights from real-world experiences and practical considerations.

The MSCI Sustainability Institute is the source for all exhibits in this report.

Climate projections and economic impact

The future trajectory of emissions, anticipated warming and its effects on investments

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Q1 In your opinion, in what time frame do you think global emissions will reach their highest level?

Respondents divided in their views of when (or whether) emissions might peak (Exhibit 1).

The view that emissions already have peaked or will peak within one to 10 years is roughly balanced with the view that emissions will continue to rise indefinitely.

We refer throughout this report to the groups shown in the green bars ■ as (emissions) "peaks soon" and the group in magenta ■ who said that emissions would increase indefinitely as "never peaks." These groups provide the basis for a bifurcation in market views in other topics covered in this report.

The bimodal distribution on when emissions will peak is shared across responses from North America, Europe, and Asia-Pacific. Of note is a slight skew toward "never peaks" in North America and skewed to "peaks soon" in Asia-Pacific (Exhibit 2). We note anecdotally that engagement on energy transition, while prominent in many regions, is particularly high on the agenda in conversations between companies and investors in Asia.

For further context, we can compare respondents' expectations with climate scenarios developed by the Network for Greening the Financial System (NGFS)[1]. Over the past years, the scenarios developed by NGFS have become a de facto standard for climate scenario analysis. Given their more ambitious decarbonization, NGFS's "Net Zero 2050", "Low Demand," and "Below 2°C" squarely fall into the category "already peaked." At the other end of the spectrum, some of the models project an increase in emissions over the next decades in NGFS's hot world "Current Policies" scenario. A peak by around 2030 as expected by about a quarter of respondents is in line with all the remaining NGFS scenarios.

Exhibit 1: When will global emissions peak (% of respondents)

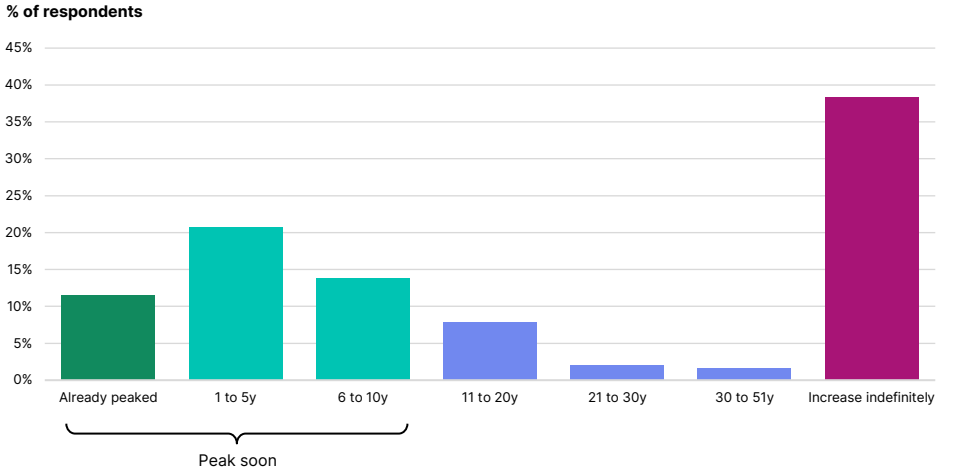

Exhibit 2: When will global emissions peak by region? (% of respondents)

	Already peaked	1 to 5y	6 to 10y	11 to 20y	21 to 30y	30 to 51y	Increase indefinitely	Don't know	Total
North America	4%	5%	4%	2%	0%	1%	17%	3%	**35%**
Europe	3%	6%	6%	4%	1%	0%	13%	1%	**34%**
APAC	3%	10%	2%	1%	1%	0%	7%	0%	**26%**
LATAM	0%	0%	1%	1%	0%	0%	0%	0%	**2%**
Middle East and Africa	1%	0%	0%	0%	0%	0%	2%	0%	**3%**
Total	**11%**	**21%**	**14%**	**8%**	**2%**	**2%**	**38%**	**4%**	**100%**

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1. "NGFS Scenarios for central banks and supervisors," Network for Greening the Financial System, November 2023.
See appendix for NGFS definitions.

Q2 When do you expect the world will reach peak oil consumption?

The "peaks soon" ■ and "never peaks" ■ groups correlate with respondents' expectations regarding the future for oil. This was the only energy commodity we asked explicitly about, and as such we must infer some to reconcile the view by the "never peaks" group that peak oil will occur within the next 20 years □ (Exhibit 3).

The never peaks group may view oil as only one element of the energy complex. In many emerging or developing markets, coal and natural gas remain prominent in the energy mix. For example, coal and gas continue to meet a significant portion of global energy demand, especially in Asia and Africa, where urbanization and industrial needs drive strong demand for energy services.[2] These regions are projected to experience continued growth in gas demand past 2030, particularly in sectors like power generation and industry, which may explain the reluctance to see an end to fossil fuel use in the near term. This suggests that respondents with this view may see the broader energy mix remaining fossil-fuel-heavy, even if oil reaches its peak soon.

The NGFS scenarios do not define peak years for oil demand in their narratives, and outputs of the three models can vary. Indefinitely rising oil demand as seen by a quarter of respondents is a more drastic view than even NGFS's most pessimistic "Current Policies" scenario, which envisions global warming of over 3°C by the end of the century. Modeled primary energy use of oil roughly remains at current levels or even slightly decreases in that scenario. Across all other scenarios, oil consumption reaches its peak long before the end of the century with "Net Zero 2050" and "Low Demand" showcasing the sharpest declines in oil consumption due to fast technological change and more stringent climate policies.

Exhibit 3: When will oil demand peak? (% of respondents)

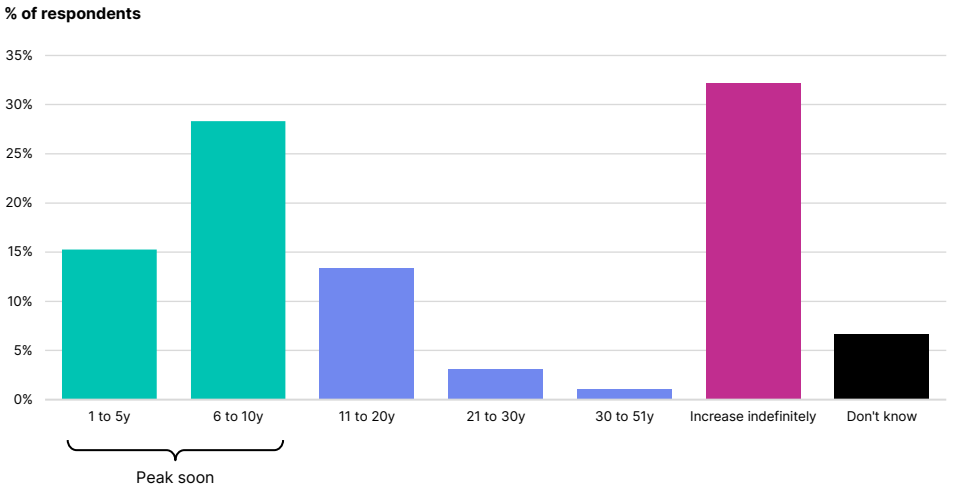


Exhibit 4: When will global emissions and oil demand peak? (% of respondents)

	Peak emissions year								
Peak oil year	Already peaked	1 to 5y	6 to 10y	11 to 20y	21 to 30y	30 to 51y	Increase indefinitely	Don't know	Total
1 to 5y	2%	7%	3%	1%	0%	0%	2%	0%	15%
6 to 10y	2%	10%	4%	3%	0%	0%	7%	0%	28%
11 to 20y	0%	2%	4%	3%	1%	1%	2%	0%	13%
21 to 30y	0%	0%	0%	1%	1%	0%	1%	0%	3%
30 to 51y	0%	0%	0%	0%	0%	0%	1%	0%	2%
Increase indefinitely	3%	1%	2%	1%	0%	0%	22%	3%	32%
Don't know	0%	1%	0%	1%	0%	0%	3%	2%	7%
Total	8%	22%	15%	9%	2%	2%	38%	5%	100%

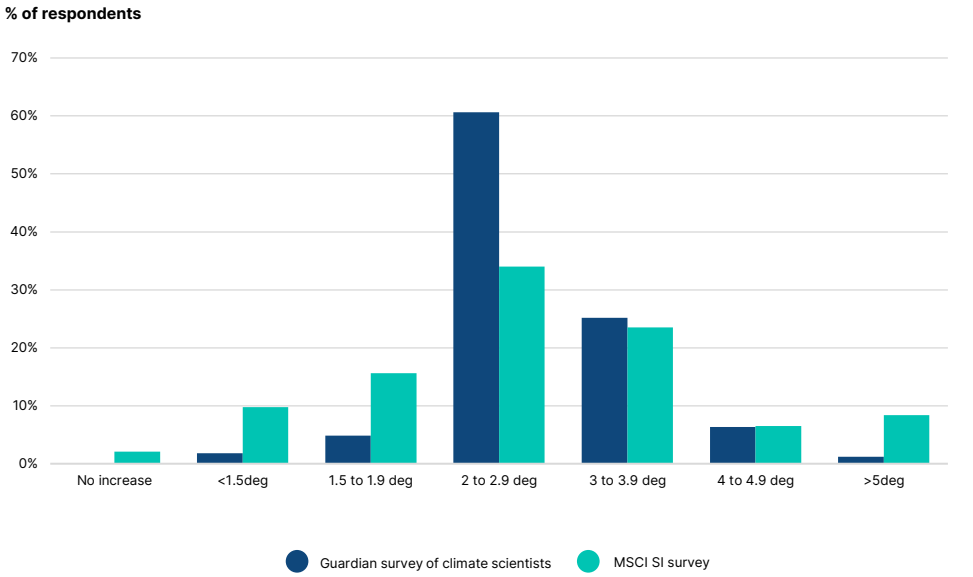
2. "Statistical Review of World Energy, 73rd edition" Energy Institute, 2024

Q3 What do you believe is the most likely global temperature increase by the year 2100?

There is broad consensus that temperatures will rise but opinions vary widely on the magnitude. Exhibit 5 compares the results of our survey (in blue) with a survey by The Guardian newspaper survey of climate scientists, the lion's share from the United Nations Intergovernmental Panel on Climate Change (IPCC).[3] The average expected temperature rise in 2100 is the same for both groups at around +2.8°C.[4] Investors, however, give more weight to lower temperature rises relative to the scientists, and a greater number of investors expect temperatures to rise by more than 5°C. This tail group comprises even numbers of asset owners, asset managers, banks and insurers, with a slight weight toward respondents in North America.

With its overall mean expected temperature rise of 2.8°C the survey result falls between NGFS' "Nationally Determined Contributions" (NDC) (2.6°C) and "Current Policies" (>3°C) scenarios. Grouped by expectations of when emissions might peak, investors could be sorted into one group seeing no decrease in emissions and higher temperatures in line with NGFS' projections under Current Policies and a second group that expects a peak in emissions over the coming decades, thus resulting in a temperature rise of below 3°C in line with NGFS' NDC or "Fragmented World" (2.3°C) scenarios.

Exhibit 5: Most likely global temperature increase by 2100 (% of respondents)



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3. "World's top climate scientists expect global heating to blast past 1.5C target," The Guardian, May 8, 2024
4. The average temperature is calculated using the midpoints of each temperature band category

What could these temperature outcomes look like?

Having highlighted the survey results for temperature outcome this century, let's illustrate briefly what these could mean.

Key thresholds of temperature rise

1.5°C (2.7°F) rise

The IPCC considers 1.5°C above preindustrial levels a critical threshold for avoiding the worst climate impacts. While not globally catastrophic, this level would still cause more extreme weather, food and water shortages, and increased migration pressures, particularly in vulnerable regions.[5] Infrastructure stress would be significant, but wealthier countries may have more adaptive capacity, whereas vulnerable regions could face localized crises.

2°C (3.6°F) rise

At 2°C, the risks of severe disruption increase significantly. We could see more frequent heatwaves, droughts, and storms, threatening food security, water availability, and health systems. Economic losses would escalate, and some regions, particularly in low-income areas, may reach the limits of their adaptation capacity, leading to societal instability.[6]

3-4°C (5.4°F to 7.2°F) rise

A rise of 3-4°C could push many systems beyond their tipping points:

- Ecosystem collapse, such as the loss of coral reefs and the Amazon rainforest.[7]
- Disruptions to global agriculture, causing food shortages and potential famine.[8]
- More extreme weather, overwhelming infrastructure and disaster response systems).[9]
- Substantial sea-level rise, displacing millions from coastal regions.
- Heightened conflict over resources, especially in politically unstable areas.

At this level, widespread societal breakdown becomes more likely, exacerbating inequality, triggering mass migrations, and increasing resource-driven conflicts.

4°C (7.2°F) and beyond

A rise of 4°C or more would likely result in catastrophic global impacts. Extreme heat could make parts of the world uninhabitable, ecosystems would collapse, and severe economic disruptions would follow. Global societal breakdown becomes more probable, as food, water, and health systems fail, leading to conflict and mass migration.[10]

Adaptation and mitigation

Different societies will face varying degrees of impact based on their ability to adapt. High-income countries may be better equipped to invest in infrastructure and technology, while low-income nations are likely to face harsher consequences more quickly. [11] To prevent these worst-case scenarios, keeping global temperature rise well below 2°C is essential. This requires rapid emission reductions, investments in resilient infrastructure, and international cooperation to support adaptation globally.[12]

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5. "Global Warming of 1.5°C," Intergovernmental Panel on Climate Change, 2018
6. "The Cost of Climate Change: Economic Estimates for Vulnerable Nations," World Bank, 2020
7. "Climate Change and Ecosystem Tipping Points," World Wildlife Foundation, 2021
8. "Climate Change and Global Agriculture," Food and Agriculture Organization, 2020
9. "Adaptation Gap Report," UN Environment Programme, 2021
10. See the reports cited in footnotes 4 and 8
11. "The Cost of Climate Change: Economic Estimates for Vulnerable Nations," World Bank, 2020
12. "Adaptation Gap Report," UN Environment Programme, 2021

Q4

Do you believe changes in our physical environment due to global temperature rise will have a significant economic impact?

A majority of respondents (57%) believe that physical climate change is already having a significant impact on the global economy. This aligns with rising concerns over the economic fallout from extreme weather events, such as hurricanes, wildfires, and floods, which are becoming more frequent and severe (Exhibit 6).

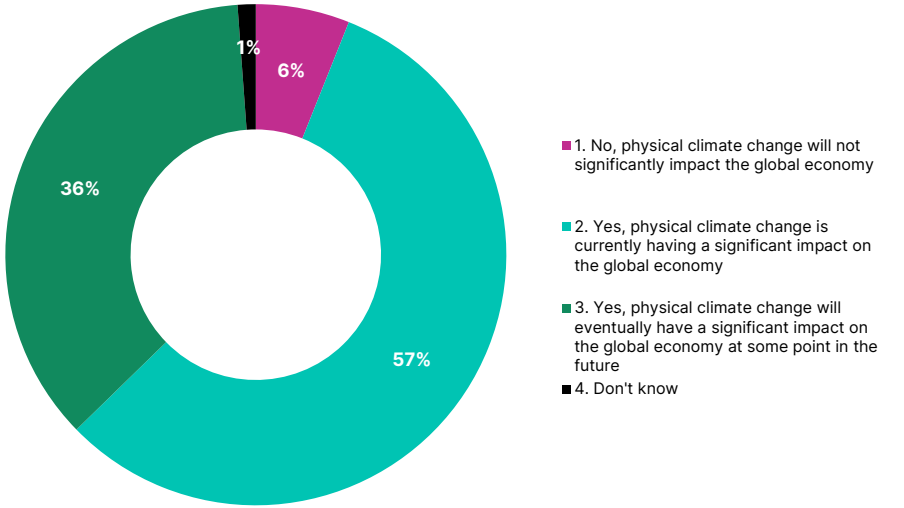
An additional 36% of respondents expect that climate change eventually will have a significant economic impact, signaling that many anticipate more severe disruptions in the future. These could take the form of chronic climate risks , like rising sea levels and prolonged heatwaves taking a toll, or acute climate risks, like hurricanes and wildfires, further intensifying. This reflects a broader market awareness of physical risks but with some uncertainty about the timeline of their full economic manifestation.

Only 6% of respondents believe that physical climate change will not significantly affect the global economy. This minority is evenly spread across regions and financial institution type.

This question highlights a key theme of the report: While the market largely acknowledges that physical climate risks affect the economy, there's still uncertainty regarding when the most severe consequences will materialize.

NGFS sees global gross domestic product (GDP) losses from acute risks in excess of -3%, with chronic risks in excess of -1%. This echoes the results of the survey, which finds that there are significant impacts today – the limitation in the set of hazards (heat, drought, tropical cyclones and flooding) suggests that the NGFS scenarios might underestimate the current impacts of such hazards.

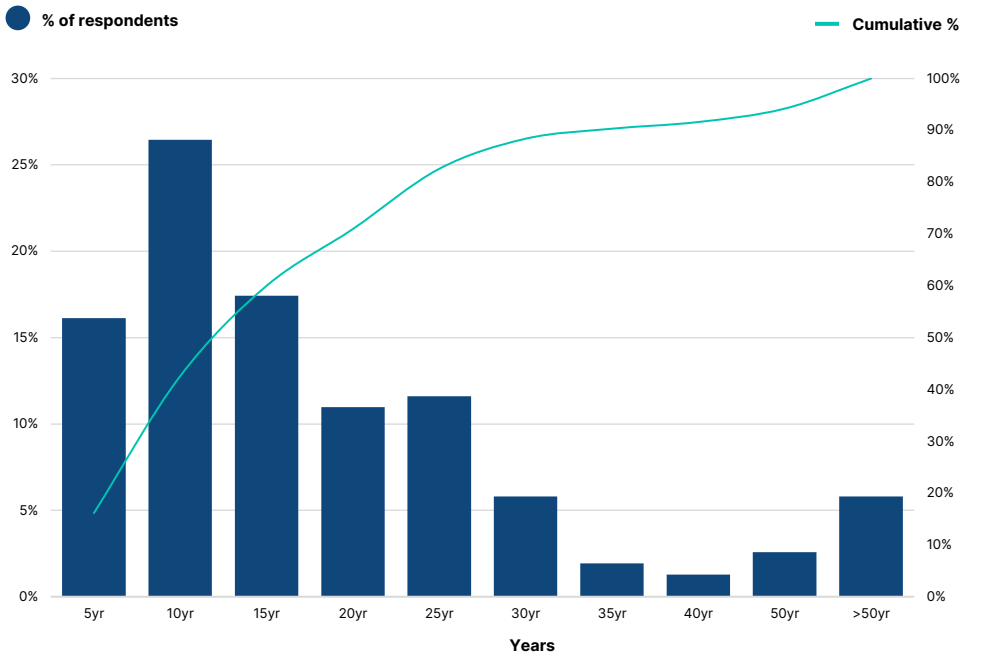
Exhibit 6: Will climate-related physical risk have a significant economic impact? (% of respondents)



Q5 When do you expect the economic impacts of climate change will start becoming noticeable?

This question reveals a clear near-term bias in respondents' expectations for when climate-related economic impacts will become noticeable. Most respondents expect these impacts to start materializing within the next five to 10 years (Exhibit 7).

Exhibit 7: When will the economic impacts of climate change become noticeable? (% of respondents)



Q6

To what degree is global average temperature linked to expected economic impact? (damage functions)

The survey responses clearly indicate that as global temperatures rise, respondents anticipate increasingly severe economic impacts. Forty-two percent of respondents believe that a combination of physical and geopolitical tipping points could lead to total economic destruction (Exhibit 8).

Regionally, there is a notable divide: European and Asia-Pacific (APAC) respondents are more likely to expect extreme impacts, with 43-46% believing in the possibility of economic collapse. Meanwhile, participants from North America had a more even distribution across moderate or non-linear economic damage, reflecting varying regional expectations of resilience or policy responses.

This has important implications for climate scenario modeling. Some researchers have warned that the current set of scenarios used by central banks and regulators could drastically underestimate the size of physical risk impacts.[13] The NGFS has indicated that it is working to incorporate better data and modeling to improve how physical risk impacts are incorporated into its scenarios. Our survey findings show that a significant number of market participants already consider that higher global warming has potential to lead to economic collapse.

Exhibit 8: Extent of economic damage due to climate change (% of respondents)

	Minor Impact (linear)	**Moderate Impact** (shallow quadratic)	**Non-linear Economic Damage** (steeper quadratic)	**Total economic destruction is plausible** (logistic function)	**Total %**
Emissions					
Peaks before 2035	5%	25%	23%	47%	**100%**
Peaks after 2035	6%	23%	37%	34%	**100%**
Never peaks	4%	29%	25%	42%	**100%**
Segment					
AO	5%	18%	27%	50%	**100%**
AM	4%	19%	25%	52%	**100%**
Wealth	11%	39%	25%	25%	**100%**
Bank	7%	29%	24%	40%	**100%**
(Re)insurer	2%	25%	30%	43%	**100%**
Inv Consultant	0%	32%	27%	41%	**100%**

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13. See, for example, "The impact of climate conditions on economic production. Evidence from a global panel of regions," Matthias Kalkuhl and Leonie Wenz, Journal of Environmental Economics and Management, September 2020

Q7

Which of the following climate-related events are you most concerned about affecting your assets in the next 10 years?

Flooding dominates as the top concern, with 27% of respondents viewing it as the most significant risk (Exhibit 9).

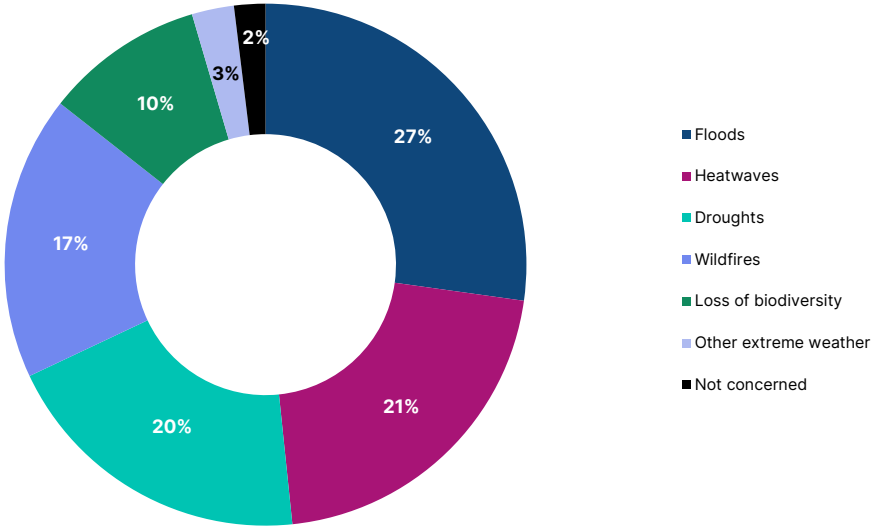
Heatwaves, wildfires and droughts also feature prominently. Drought stands out as the only peril where notable differences are observed based on the respondents' views on emissions. Those in the "never peak" group are somewhat less concerned about drought.

The regional breakdown further supports these findings. Regions particularly prone to heat stress, such as North America, the Middle East and parts of Asia-Pacific, report higher levels of concern about heatwaves and in the case of North America, wildfires. In contrast, respondents in regions such as Latin America that rely heavily on agricultural are more likely to rank drought as a primary concern.

In short, while flooding is a universal concern, other climate risks — like drought and heatwaves — are more regionally and sector-specific. This highlights the importance of tailoring climate risk assessments to the geographic and economic contexts in which they are being applied.

Drought and heatwaves pose the largest overall risk to GDP in the NGFS models and scenarios, with impacts varying considerably across different regions]. The NGFS models do not assign similar prominence to concerns over flood risk expressed by respondents in our survey. Nearly one-fifth (19%) of respondents in our survey also cited "other extreme weather," which the NGFS model does not cover either. The regional differentiation related to heat is very similar in both the survey response and the NGFS models.

Exhibit 9: Most significant climate-related risks (% of respondents)



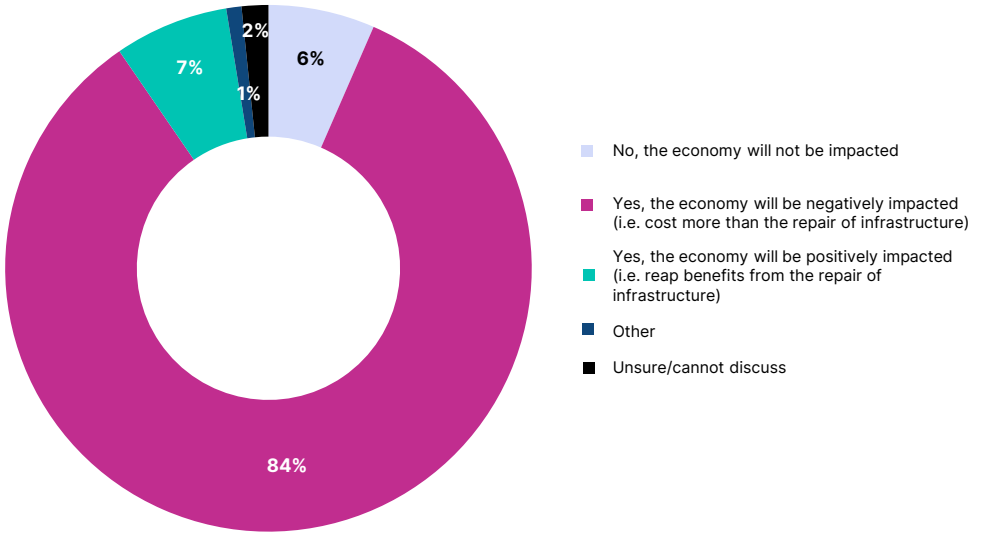
Q8

Thinking about the next 10 years, would damage to infrastructure from extreme weather events affect the economy?

A strong consensus has emerged that extreme weather events, driven by climate change, will cause significant damage to the economy — outweighing any potential stimulus from reconstruction efforts. This aligns with research finding that while reconstruction after disasters can generate short-term economic activity, the long-term negative impacts on productivity, supply chains, and capital stock are far more consequential.[14] Most respondents in our survey share this view, expecting regional economies to be negatively affected by infrastructure damage, with a small minority who believe the economy might benefit from the rebuilding process, likely through short-term job creation and economic boosts (Exhibit 10).

NGFS's scenario data corroborates this expectation of negative impacts to the overall economy stemming from both acute (extreme weather events) and chronic physical risk marked by gradual change. Compared with a hypothetical baseline without climate change, physical risk is projected to lead to growth differentials of -5% ("Net Zero 2050") to approximately –13% ("Current Policies") in the NiGEM-REMIND outputs. This means that across all scenarios, NGFS envisions significant losses in global GDP compared with a world without climate change.

Exhibit 10: To what extent will the economy be affected by extreme weather? (% of respondents)



14. "Why economic dynamics matter in assessing climate change damages: Illustration on extreme events," Stephane Hallegatte, Jean-Charles Hourcade, and Patrice Dumas, Ecological Economics, Vol. 62, Issue 2, April 2007

Q9

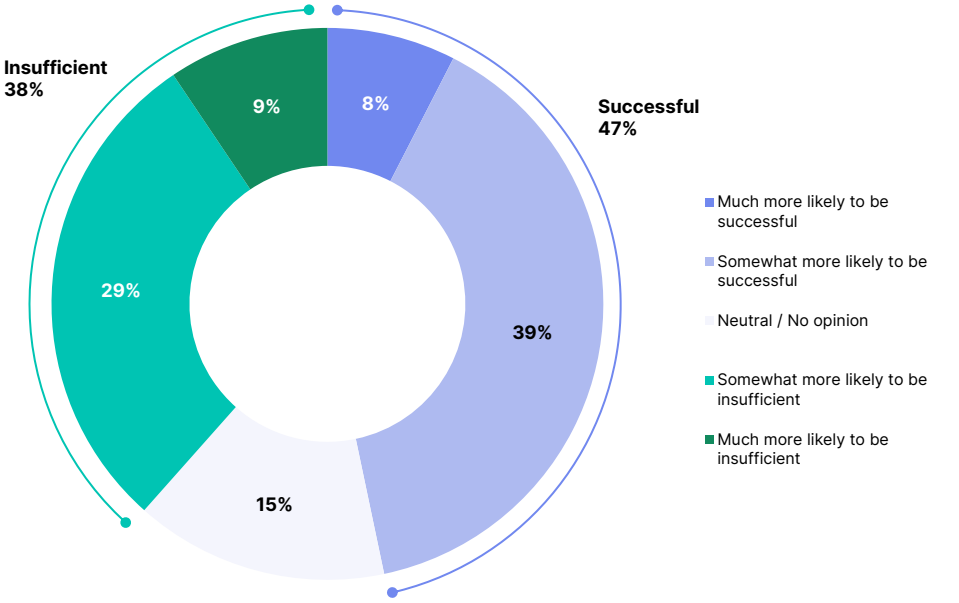
By 2100, do you think that humanity's attempts to adapt our building and infrastructure to the changing climate will allow us to avoid negative economic impact from extreme weather in most countries or be insufficient to avoid severe economic impact from extreme weather?

The survey responses show a notable split in on whether humanity's adaptation efforts will be sufficient or insufficient to avoid severe economic impacts this century (Exhibit 11). While a slight majority of respondents indicate that adaptation efforts are more likely to be successful (category 1 and 2), a significant minority lean toward insufficient (category 4 and 5 combined), indicating a view that the scale of necessary adaptation may simply outpace humanity's ability to respond in time.

Taken together with the views on the linkage between climate change and economic damage, these findings perhaps indicate a moderation in the overall expected impact. Subdividing these results by emissions view, those in the "never peak" group are evenly split between successful adaptation and insufficient. In contrast, respondents who believe emissions will peak soon lean more toward likelihood of success - that adaptation efforts will succeed in limiting damage.

This divergence speaks to a broader theme of the report: Market participants are aware of the risks but uncertain about the sufficiency of adaptation measures in scale or pace. The split views suggest that while many believe positively in humanity's ability to adapt, significant portions of the market are preparing for a future where adaptation may fall short.

Exhibit 11: Likelihood of adaptation efforts avoiding severe economic impacts by 2100 (% of respondents)



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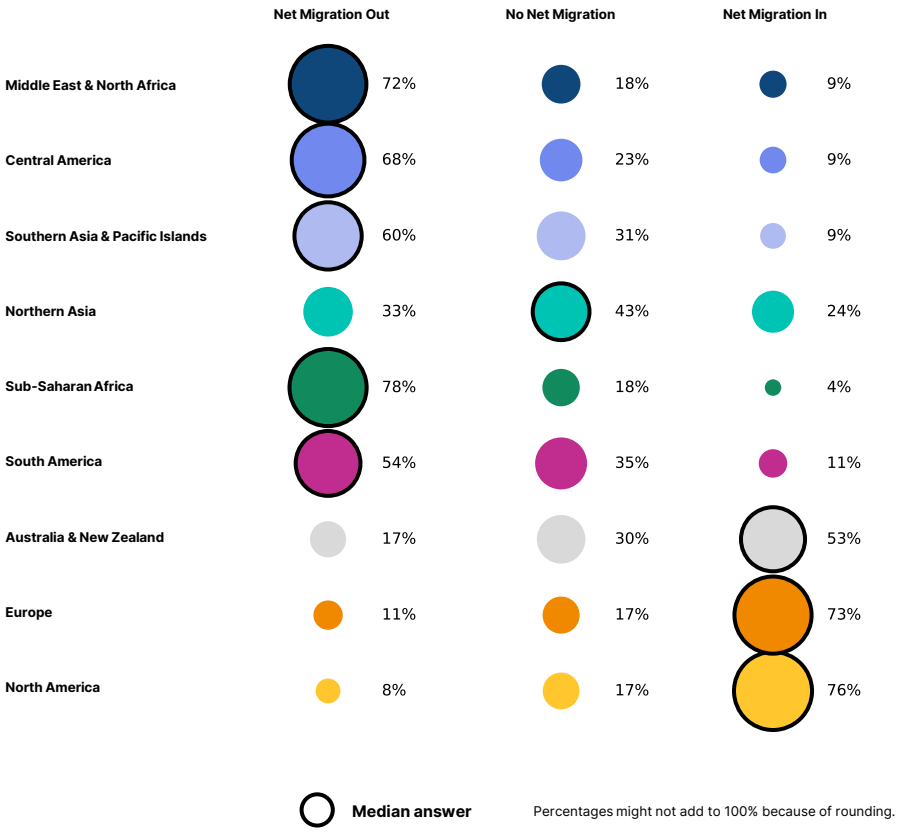
Q10 In the next 10 years, which of the following regions do you believe could experience significant changes in migration patterns (either people moving in or out) due to environmental threats from climate change?

A strong consensus has emerged that climate risks will significantly affect migration patterns over the next decade. Respondents overwhelmingly expect people to leave vulnerable regions such as the Middle East and North Africa, Sub-Saharan Africa, and South Asia and the Pacific Islands—areas likely to face heightened environmental threats such as droughts, sea-level rise, and extreme heat (Exhibit 12).

North America, Europe, and Australia/New Zealand would be expected to receive the largest numbers of people fleeing their countries because of climate change. This reflects a global perception that wealthier, more resilient regions will serve as destinations for those fleeing environmental challenges.

Some respondents expect that climate-driven migration will drive significant geopolitical and economic shifts, which could have broader implications for capital allocation related to infrastructure, real estate and regional markets.

Exhibit 12: Likelihood of climate-driven migration by region (% of respondents)



Percentages might not add to 100% because of rounding.

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Policy and government action

The role of governments and policies in addressing climate risks, including decarbonization commitments and adaptation efforts

MSCI Sustainability Institute

Q11 In your opinion, what is the likelihood that the global economy will achieve net-zero emissions by 2050?

Survey responses reveal that a sizable majority of respondents are doubtful (41%) or highly doubtful (28%) of the likelihood of achieving global net-zero emissions by 2050. Approximately one-third of the respondents indicate that it is somewhat likely (23%) or highly likely (7%) (Exhibit 13).

Respondents' emissions outlooks correlate highly with views on likelihood of reaching net-zero by 2050. Those who believe emissions will peak soon tend to express more optimism about reaching net-zero, which the "never peak" group are more likely to view the net-zero goal as unrealistic.

Regionally, albeit with small sample sizes, there is greater optimism from respondents in Asia-Pacific, Latin America and Middle East and Africa — areas that could face the most severe consequences from physical climate risks of failing to avert climate change (Exhibit 14). Forty-six percent of Asia-Pacific respondents indicated that it their home region was somewhat or highly likely to achieve net-zero by 2050.

The NGFS scenarios provide deterministic projections rather than probabilities, with the Current Policies scenario projecting continued warming above 3°C by 2100, while Net Zero 2050 limits warming to below 1.5°C through rapid and coordinated global action. These projections offer context but are not intended to indicate the likelihood of success in achieving net-zero.

Exhibit 13: Likelihood of achieving net-zero by 2050 (% of respondents)

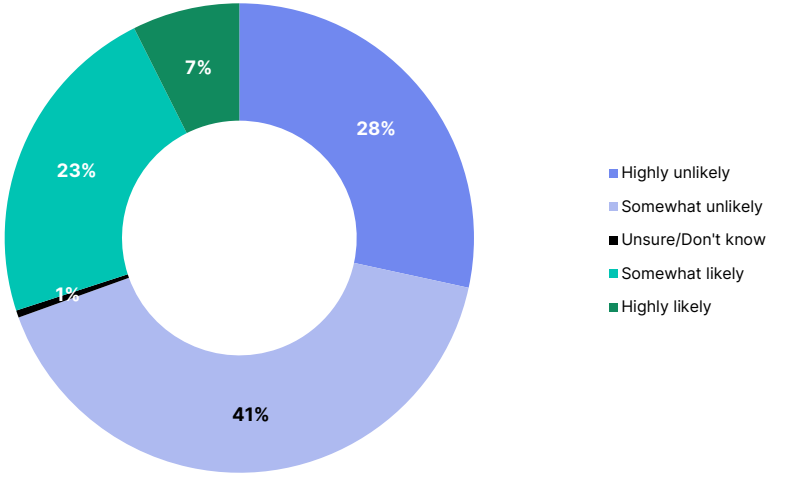


Exhibit 14: Regional variance on likelihood of achieving net-zero by 2050 (% of respondents)

	Net-Zero Likelihood					
	Highly unlikely	Somewhat unlikely	Somewhat likely	Highly likely	Unsure/ don't know	Total %
North America	33%	44%	17%	5%	1%	100%
Europe	34%	41%	23%	3%	0%	100%
APAC	19%	36%	28%	17%	0%	100%
LATAM	11%	56%	22%	11%	0%	100%
Middle East & Africa	13%	53%	33%	0%	0%	100%

Q12 In your view, what kind of physical risk event is most likely to trigger a shift in government decarbonization or adaptation efforts? Please describe briefly.

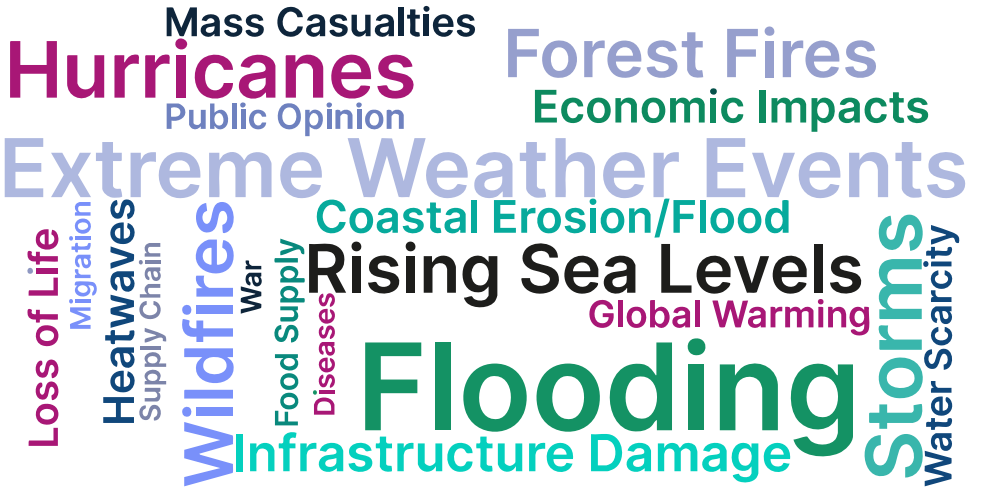
Survey responses suggest that acute events are far more likely to prompt government action than chronic or indirect risks (Exhibit 15). This aligns with insights from behavioral economics — availability heuristics make vivid, firsthand experiences much more impactful. In essence, it's the boiling frog paradox on a global scale: gradual risks are often ignored, while sudden, devastating events demand immediate attention.

The most frequently mentioned themes included:

- Flooding
- Extreme weather events, including hurricanes and storms
- Rising sea levels
- Wildfires and forest fires

Other triggers noted by respondents included infrastructure damage, heatwaves, and significant economic impacts, further emphasizing that catastrophic events are seen as the most likely to spur governments into action.

Exhibit 15: What climate-related physical risks could spur government action? (by frequency of mention)



Q13 How likely do you think it is that governments in the following markets will meet their climate commitments?

Survey results reflect skepticism toward government-led climate commitments, especially for key countries like the U.S., China, India, and Russia. These countries are seen by survey participants as unlikely to meet their climate targets, with respondents indicating little faith in their long-term efforts to decarbonize (Exhibit 16).

In contrast, respondents are more confident about the prospects of Europe, Japan, and Canada meeting their commitments. These regions are viewed as having stronger political will and regulatory frameworks that may better support their climate ambitions. Respondents across the board tend to express greater likelihood of their own region's chances of success, reflecting some domestic bias . Asset managers and owners, risk managers and corporate leaders responded in roughly equal shares to these questions, highlighting a strong consensus in this view.

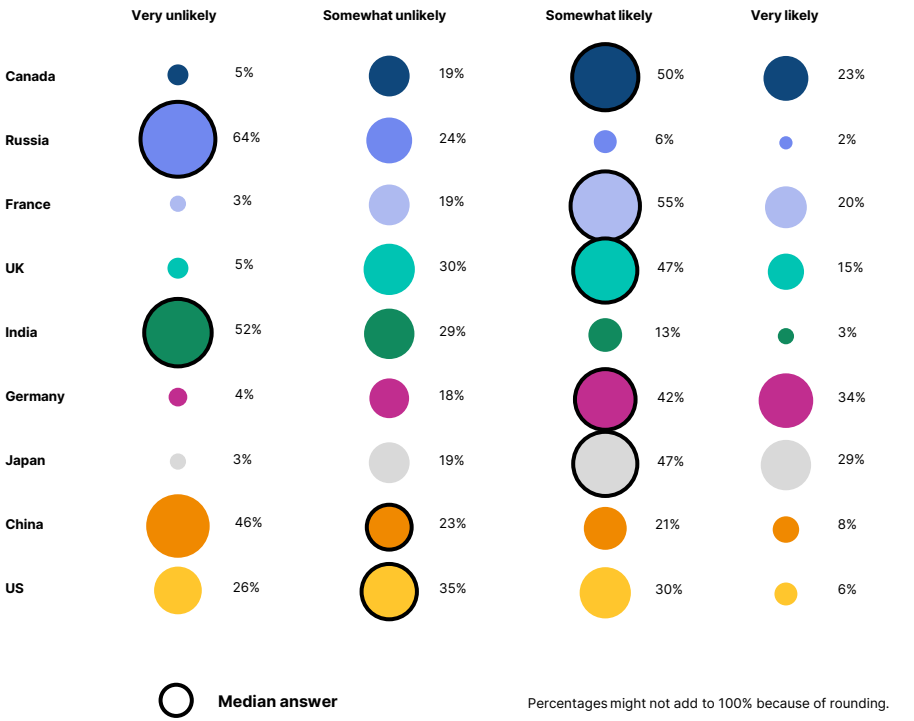
An important insight from our panel discussions is the mismatch between regional beliefs about government policy versus realized policy. For example, European investors may expect stronger policy action from the EU, while U.S. and Asian counterparts remain skeptical. While the evidence for this in the survey is slight, this creates potential market opportunities, depending on which view is correct. Either domestic investors know their governments better, providing useful insights for other market participants, or there is a local bias, with domestic investors consistently overestimating the likelihood of expected policy outcomes.

Investors at our panels expressed surprise at the result for China. In our interviews, experts postulated that while other countries may see ambitions fall away as politicians respond to short-term, vote-winning concerns, they would have expected market participants to be more confident about China's likelihood to deliver on a policy goal of decarbonization. This potential dislocation between ambition and reality could explain why we observe consistent views on policy ambition, yet divergent views on emissions.

Respondents' outlook regarding the U.S., China, India and Russia aligns closely with the NGFS Current Policies scenario, in which only existing policies are maintained, leading to warming above 3°C this century. In this scenario, major emitters fail to make significant progress, which mirrors respondents' doubts about these countries meeting their 2050 climate goals.

The survey results also mirror NGFS's Fragmented World scenario. Both indicate a clear divide in climate ambition, with regions like Europe, Japan, and Canada seen as more likely to meet targets, while countries like the U.S. and Russia lag. Fragmented World reflects these uneven efforts, leading to uncoordinated global action and projected warming of 2.6°C.

Exhibit 16: Likelihood of governments meeting climate commitments by 2050 (% of respondents)



Percentages might not add to 100% because of rounding.

Q14 By 2050, how likely do you think it is that governments in the following markets will invest sufficiently to adapt to changes in the physical environment due to climate change?

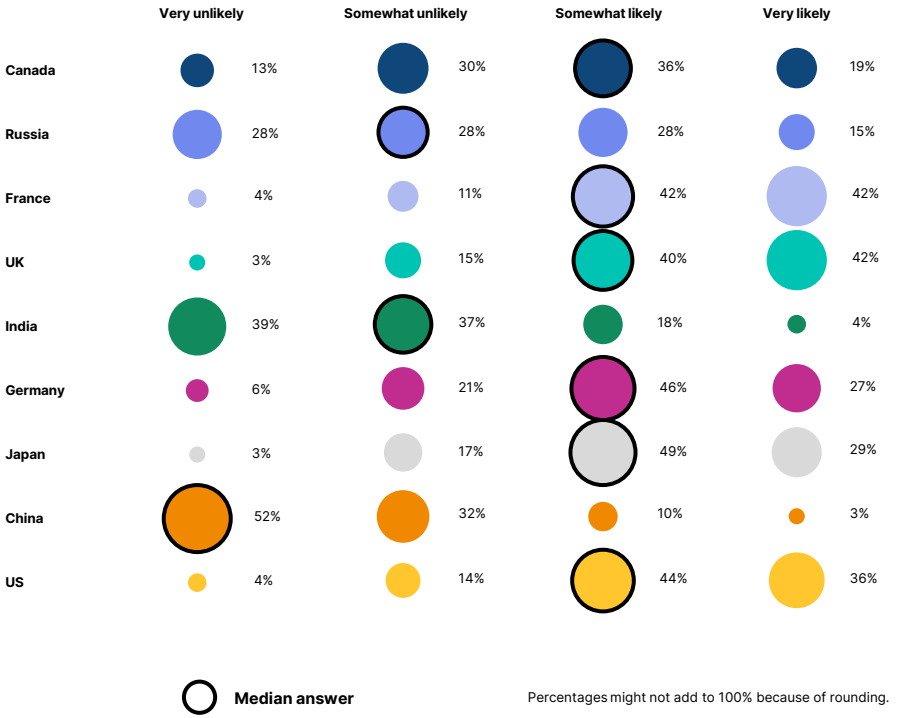
Respondents expressed higher expectations that governments will invest adequately in climate adaptation compared with mitigation efforts. The "peak soon" group expresses one category higher confidence in governments' ability to invest adequately compared with "never peak" group, which remains somewhat more skeptical (Exhibit 17). Respondents had homogenous views for other regions.

Adaptation and Mitigation

Scientists have warned that keeping global temperature rise well below 2°C would prevent the costliest impacts of a warming climate. Respondents, however, anticipate a temperature rise beyond this threshold. Regions have varying capacities to adapt to climate change.[15] High-income countries may have more resources to invest in the necessary infrastructure and technology to protect against environmental threats. Lower-income and more climate-vulnerable nations, in contrast, are likely to face more severe consequences sooner, as they struggle to adapt with fewer resources.

While NGFS scenarios do not model adaptation directly, respondents' views here draws attention to the importance of assessing adaptation in financial decision-making and modeling the true scale of economic loss stemming from physical risk.

Exhibit 17: Likelihood of sufficient government investment in climate adaptation (% of respondents)



Percentages might not add to 100% because of rounding.

15. "IPCC Sixth Assessment Report: Impacts, Adaptation and Vulnerability," Feb. 28, 2022. See also, "Climate Change 2022: Mitigation of Climate Change," IPCC, April 2022

Market and sectoral reactions

How markets and sectors are expected to respond to both climate risks and government policies, with a focus on decarbonization and pricing of assets

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Q15 To what extent do you expect companies in the following sectors will decarbonize in line with what science says is required for a net-zero world by 2050?

The responses reveal low expectation for decarbonization by the oil and gas, industrials, and aviation sectors. Investors remain skeptical that these high-emission industries will achieve the necessary decarbonization targets by 2050. Respondents, however, expressed more confidence with sectors like consumer goods, real estate, and to some extent, utilities, where decarbonization plans are viewed as more credible.

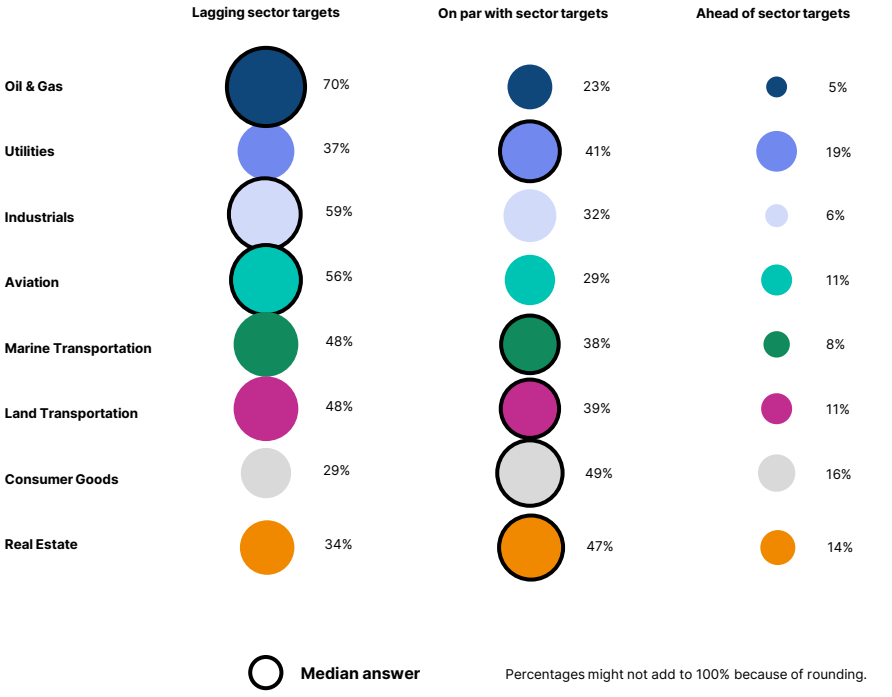
Exhibit 18 illustrates the distribution of expectations by sector. There is notable confidence for utilities, though it varies depending on the respondent's financial institution type. Respondents from banks, for instance, tended to express a wider range of views, giving more credibility to utilities and transportation sectors' transition ambitions.

Our panel discussion on the economics of electrification and adoption of electric vehicles (EVs) highlighted the opportunities and challenges of this transition, and the role of regional variability. EVs are crucial for decarbonization, but success will depend on policy incentives, infrastructure investments, and consumer demand which could differ greatly by region. Such factors as the pace of advancements in battery technology and the expansion of charging infrastructure contribute to uncertainty on adoption rates that may create opportunities for investors with greater insights into on-the-ground market dynamics. The group also discussed potential stranded assets in the fossil fuel and automotive sectors as the shift accelerates. Participants also cited geopolitical factors and dependencies within supply chains, particularly for critical minerals, as increasingly important considerations in projecting asset values across the value chain.

Whether respondents believe emissions will peak soon or never peak doesn't significantly alter the picture, as the decarbonization expectations are fairly consistent across views.

A direct comparison with NGFS scenarios is difficult but insights can be gained from looking at gaps in 2050 between various scenarios and the sectoral pathways in the Net Zero 2050 scenario Decarbonization by 2050 in the industrials and oil sector are found to be especially lagging across REMIND projections in both the Current Policies and Fragmented World scenarios as well The distribution of survey responses seems roughly in line with these findings and emphasizes the inadequacy of current policies to curb emissions in these sectors in particular.

Exhibit 18: Sector decarbonization prospects (% of respondents)



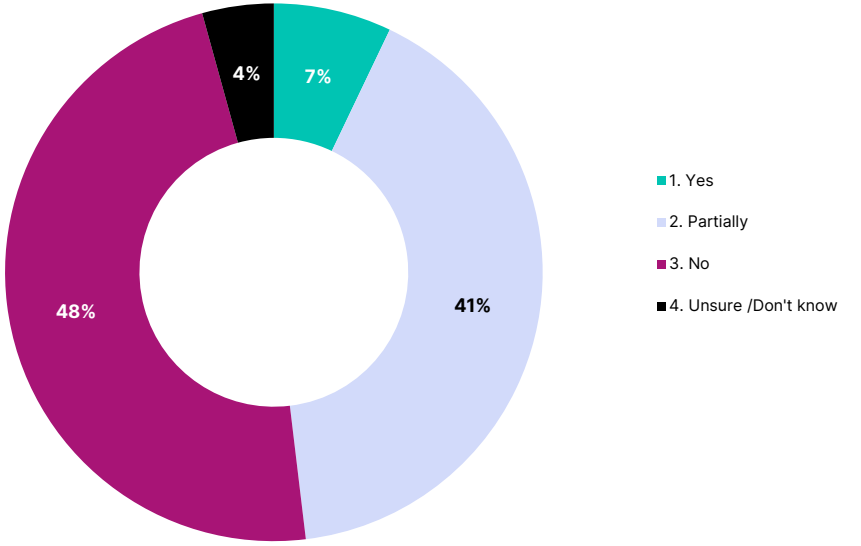
Q16 To the best of your knowledge, do asset prices today accurately reflect climate risk?

Only a small minority (7%) of respondents said that asset prices fully capture climate risks. A plurality (47%) believe that climate risks are not reflected in asset prices, while 41% believe that such risks are partially priced in (Exhibit 19).

Differences emerge across respondent groups. Investors (such as asset owners, insurers, and asset managers) tend to be less likely to consider climate risk as priced-in. Banks (especially those focused on lending) said they see climate risks reflected in asset prices. Investment consultants appear to fall somewhere in the middle, with a mix of views.

The differences in perspectives set the stage for deeper exploration in the following sections, where we'll examine how different sectors and institutions approach the pricing of climate risks.

Exhibit 19: Do asset prices reflect climate risks? (% of respondents)



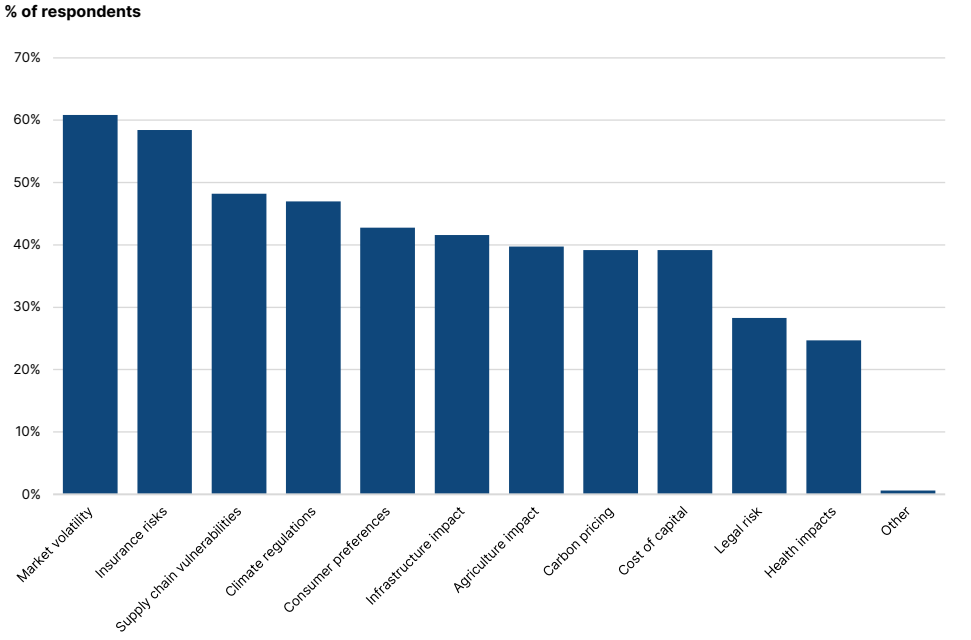
Q17 You indicated that asset prices today either accurately or partially reflect climate risk - which of the following climate risks do you believe are accurately reflected in current asset prices? (Select all that apply)

This question reveals nuance across responses. Respondents cited market volatility most frequently and largely agreed that climate-related fluctuations in the market are well accounted for (Exhibit 20). This suggests that investors are aware of the market's susceptibility to sudden price swings caused by climate events and have, perhaps, factored this into their assessments.

Roughly one-quarter of respondents flagged other risks, including for insurance, impacts on infrastructure impacts and vulnerabilities in supply chains vulnerabilities. These results suggest that while some areas of climate risk are being priced in, the overall picture remains incomplete.

The inclusion of insurance risks among the main risks cited may be noteworthy. Reinsurance has been the one of the first areas to provide some evidence of pricing in climate risks in insurance premiums and policy terms offered to their clients.[16] Our expert panel, however, raised the challenge for investors of obtaining sufficient information (and a corresponding level of comfort) with the adequacy of insurance protection for specific assets in their portfolio. The current lack of granular data to help project future insurance costs associated with potential investments prevents accurate pricing of asset value, panelists said.

Exhibit 20: Which climate risks do the prices of financial assets currently reflect (% of respondents)



16. "Reinsurers: placing an economic price on climate change," Impax Asset Management, June 17, 2024

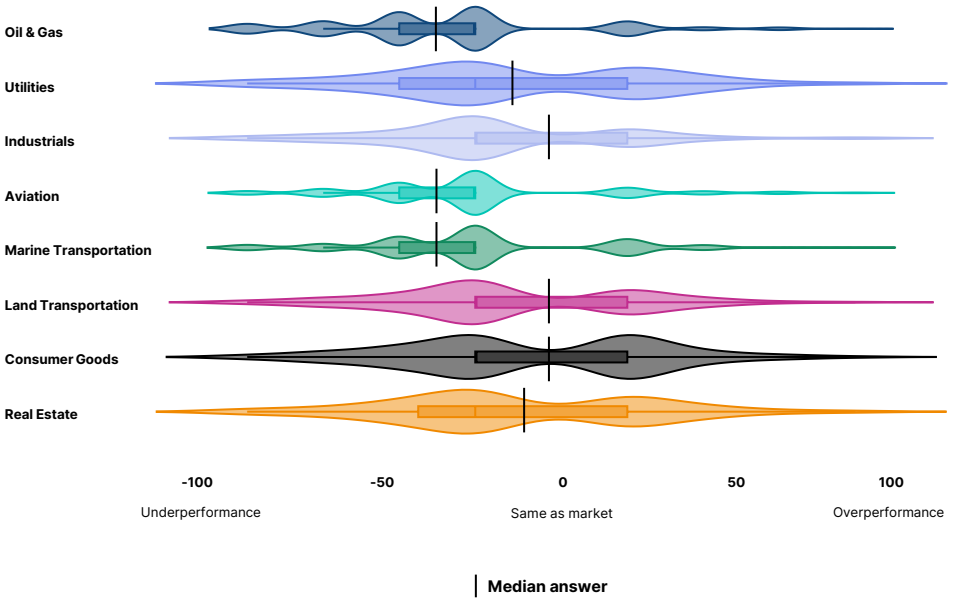
Q18 Considering the regions you cover, how do you anticipate the value of assets in each sector will be affected by transition risk, relative to the market as a whole, over the next 10 years?

This question sought to uncover views on the relative mispricing of sectors in light of transition risks. If the market were pricing these risks accurately, there would be no potential for outperformance, as one panelist from a global bank noted. Respondents expressed a wide diversity of views on sector returns (Exhibit 21).

The survey's prevailing sentiment is that oil and gas, industrials, and transportation sectors are overpriced relative to the market, indicating skepticism about their ability to navigate transition risks. The consumer goods and real estate sectors show a more balanced view, with respondents split on whether these sectors have upside or downside potential.

Notably, the paucity of zero responses suggests that participants feel compelled to have a view, even if it is uncertain.

Exhibit 21: Expected performance of assets vs. the overall market due to transition risks (% of respondents)



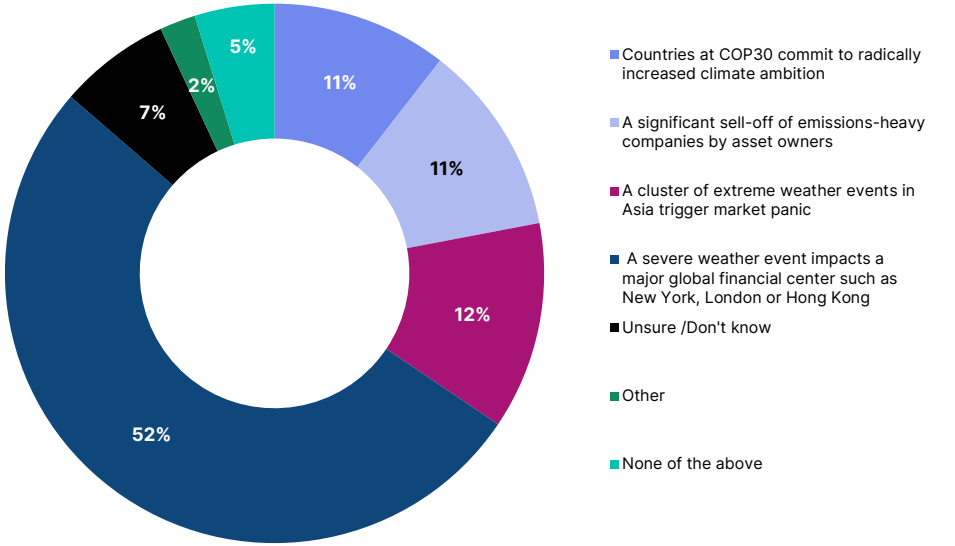
Q19 Which of the following climate-related scenarios do you feel would be most likely to trigger a severe financial market shock in the next 10 years?

This question aimed to disclose participants' mental models for stress-testing their market assumptions. A common theme of extreme weather covers the top two responses: the potential impact of a major weather event on a developed financial market (e.g., New York, London, Hong Kong) and the risk of clustered extreme weather events. These responses reflect a fear well explored in behavioral economics—likely an availability heuristic—where people prioritize risks that feel close to home and vividly imaginable.

Though respondents also expressed concerns over climate transition risks, particularly the possibility of asset owners rebalancing their portfolios abruptly to meet interim net-zero targets, concerns over transition risk lagged those over extreme weather (Exhibit 22).

Together, these insights emphasize the growing awareness that while both physical and transition risks could lead to severe market disruptions, physical risks weigh heaviest on the minds of investors and risk managers.

Exhibit 22: Which of the following might trigger a shock to the market? (% of respondents)

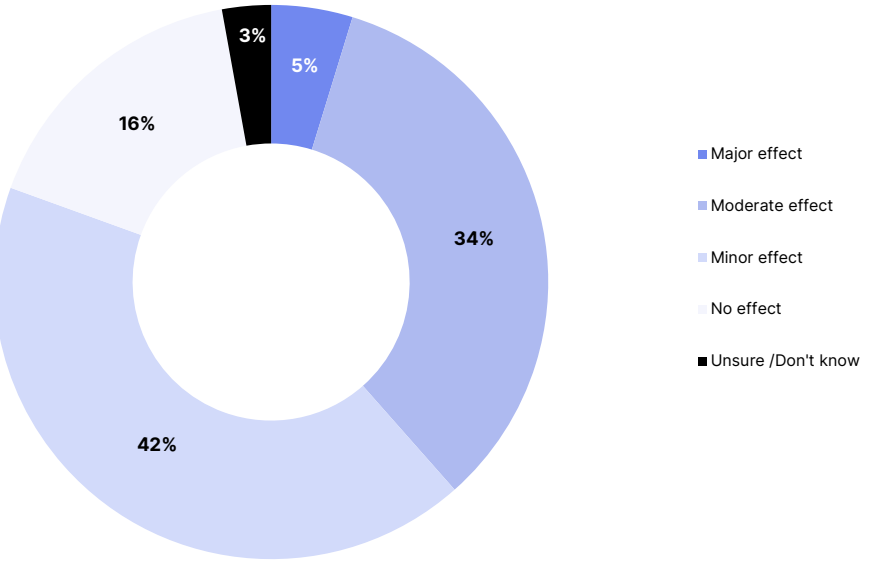


Q20 To what extent, if at all, has climate change affected your asset allocation?

Survey responses suggest that many market participants think that al repricing of financial assets to reflect climate-related risk is still to come, with the vast majority taking a measured, gradual approach (Exhibit 23).

Only 5% of respondents indicated that climate change has had a major effect on their asset allocation, far outweighed by the 17% that indicated climate change has had no effect so far. In between the extremes, 42% of respondents indicated that climate change has had a minor effect on their asset allocation so far, and 34% reported a moderate effect.

Exhibit 23: What effect is climate change having on how you allocate assets? (% of respondents)



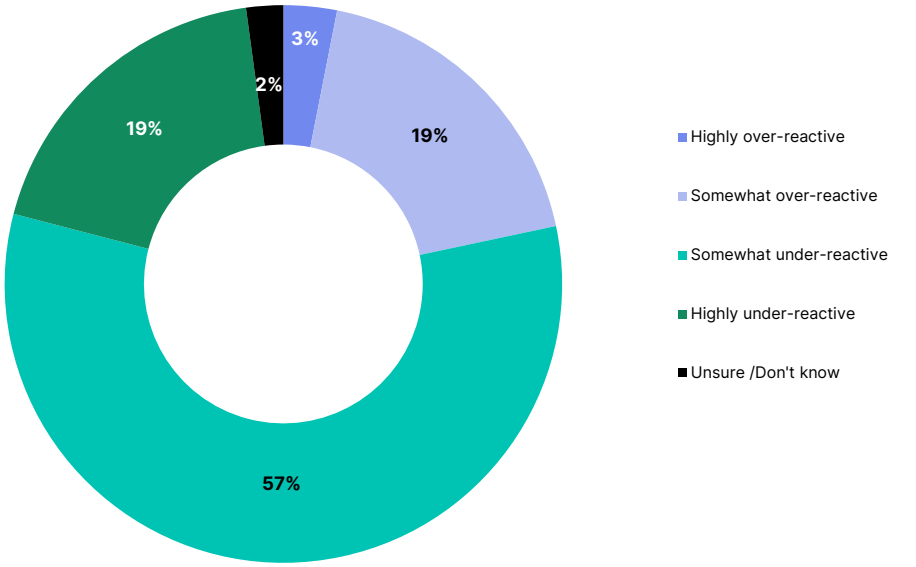
Q21 To what extent do you think financial markets today react to news related to climate change?

The final piece of the pricing-in puzzle concerns how markets respond to climate-related news. A clear majority of respondents (57%) believe that financial markets underreact to climate news, with nearly one-fifth (19%) saying that markets appear to be largely indifferent (Exhibit 24). This suggests a prevailing sentiment that climate risks are not yet fully reflected in market responses to news and announcements.

While some research has documented measurable market responses to major climate announcements—such as the incorporation of climate policy into law or key events like COP summits—these appear to be the exception rather than the rule. For instance, studies have shown that policies like the Inflation Reduction Act in the U.S. or the adoption of climate policies that incentivize investment have triggered observable market shifts.[17] These reactions, however, may be more pronounced around landmark announcements and less visible in everyday market behavior.

This gap in market responsiveness underscores the need for a deeper integration of climate risks into financial models and valuations to help align market movements with the increasing frequency and scale of climate-related events.

Exhibit 24: How does the market react to climate-related news? (% of respondents)



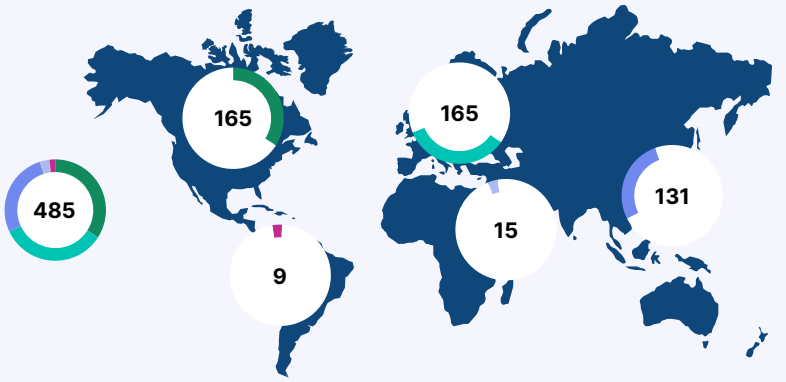
17. See, for example, "The effect of US climate policy on financial markets: An event study of the Inflation Reduction Act," The Brookings Institution, Sept. 19, 2023

Appendix: Respondent profiles

Respondents represented a variety of regions and market participants, include owners and managers of assets, banks, insurers, and regulators. Because the survey aimed to elicit a market-wide view, participation was not limited to climate specialists.

Respondents' investment decision horizons were predominantly between one and five years. When asked about the time frame in which climate-related impacts are relevant for investments, half expressed uncertainty and half a time frame either aligned with or slightly longer than their investment-decision horizon.

Regional distribution of respondents



	Asset Owner	Asset Manager	Wealth Manager	Bank	Central Bank / Supervisor	Reinsurer	Total
AUM							
<$1 billion	3%	4%	3%	2%	0%	2%	**14%**
$1 billion to <$10 billion	2%	5%	2%	4%	0%	3%	**16%**
$10 billion to <$100 billion	4%	9%	3%	5%	1%	3%	**25%**
$100 billion to <$500 billion	5%	5%	2%	7%	0%	4%	**21%**
$500 billion to <$1 trillion	1%	2%	1%	7%	0%	2%	**14%**
>$1 trillion	1%	2%	1%	4%	1%	1%	**10%**
Total	**15%**	**27%**	**13%**	**30%**	**2%**	**14%**	**100%**
Seniority							
C-Level executive	4%	4%	2%	5%	0%	2%	**17%**
Lead a division or department	4%	6%	5%	10%	1%	4%	**30%**
Lead a large group	4%	6%	2%	7%	1%	3%	**22%**
Lead a small team or individuals	3%	6%	5%	6%	0%	2%	**23%**
Analyst / Specialist	0%	3%	2%	1%	0%	3%	**9%**
Total	**14%**	**26%**	**16%**	**29%**	**2%**	**14%**	**100%**

Time horizon used for climate-related decisions

	<1y	1 to 3y	c.5y	c.10y	>10 y	Don't know/Can't discuss	No climate strategy	Total
Overall decision horizon								
Less than 1 month	0%	0%	0%	0%	0%	0%	0%	**1%**
1 to 6 months	0%	1%	4%	1%	0%	4%	1%	**12%**
7 to 12 months	0%	1%	1%	2%	0%	2%	1%	**7%**
1 to 3 years	2%	3%	10%	5%	1%	7%	5%	**33%**
Roughly 5 years	0%	1%	12%	6%	1%	7%	3%	**31%**
Roughly 10 years	0%	1%	3%	3%	2%	2%	1%	**12%**
Other (please specify):	0%	0%	0%	1%	0%	2%	0%	**4%**
Total	**4%**	**8%**	**31%**	**18%**	**4%**	**24%**	**11%**	**100%**

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Appendix: NGFS climate scenarios

Climate scenarios developed by the Network for Greening the Financial System (NGFS), a global network of central banks and supervisors, provide a basis for assessing economic and financial impacts of climate change based on the latest science and have emerged as a de facto standard in investment-industry practice and reporting.

The NGFS Phase IV model considers seven possible futures based on varying transition and physical risks:

Net Zero 2050

Limits global warming to 1.5°C through stringent climate policies and innovation that leads to net-zero CO_2 emissions around 2050 (1.4°C)

Low Demand

Behavioral changes reduce energy demand (1.4°C)

Below 2°C

The immediate introduction of policies less stringent than in Net Zero 2050 achieves net-zero emissions after 2070 (1.6°C)

Delayed Transition

Assumes that emissions do not decrease 2030 at higher societal costs (1.6°C)

Nationally Determined Contributions (NDCs)

Countries meet pledged policies even if not implemented as specified in national climate plans. (2.6°C)

Fragmented World

Countries without net-zero targets follow current policies while others achieve 80% of their target. (2.3°C)

Current Policies

Only currently implemented policies are maintained, increasing emissions until 2080 and producing high climate-related physical risks. (3°C+)

Acknowledgments

This study was prepared jointly by the MSCI Sustainability Institute and MSCI's Climate Risk Center under the supervision of **Linda-Eling Lee,** the Institute's founding director, and **Oliver Marchand,** MSCI's head of climate risk research**.**

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