

# Climate change and biodiversity risks

How finance needs to respond  
6 October 2021

Jo Paisley  
President, GARP Risk Institute

Maxine Nelson  
Senior VP, GARP Risk Institute





**Jo Paisley, President, GARP Risk Institute (GRI),** has worked on a variety of risk areas at GRI, including stress testing, operational resilience, model risk management and climate risk. Her career prior to joining GARP spanned public and private sectors, including working as the Director of the Supervisory Risk Specialist Division within the Prudential Regulation Authority and as Global Head of Stress Testing at HSBC.



**Maxine Nelson, Senior VP, GARP Risk Institute,** where she focusses on climate risk management. Previous roles have included operational risk modelling at NAB, leading KMPG London's credit risk team, senior consultant at Oliver Wyman, responsibility for counterparty credit risk at the UK Financial Services Authority, and Global Head of Wholesale Risk Analytics and Head of Capital Planning at HSBC.

# Outline

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- ▶ Context on climate change and biodiversity
- ▶ How does it fit in financial risk management?
- ▶ How are firms addressing this?
- ▶ Overall messages and further resources

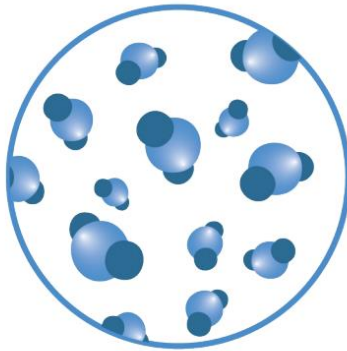
# Context

The scale and nature of the problems



# Our impact on the climate is unequivocal

**CO<sub>2</sub>**  
concentration



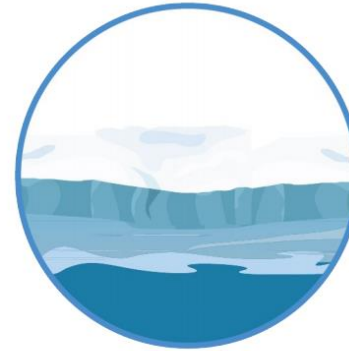
**Highest**  
in at least  
**2 million years**

**Sea level**  
rise



**Fastest rates**  
in at least  
**3000 years**

**Arctic sea ice**  
area



**Lowest level**  
in at least  
**1000 years**

**Glaciers**  
retreat

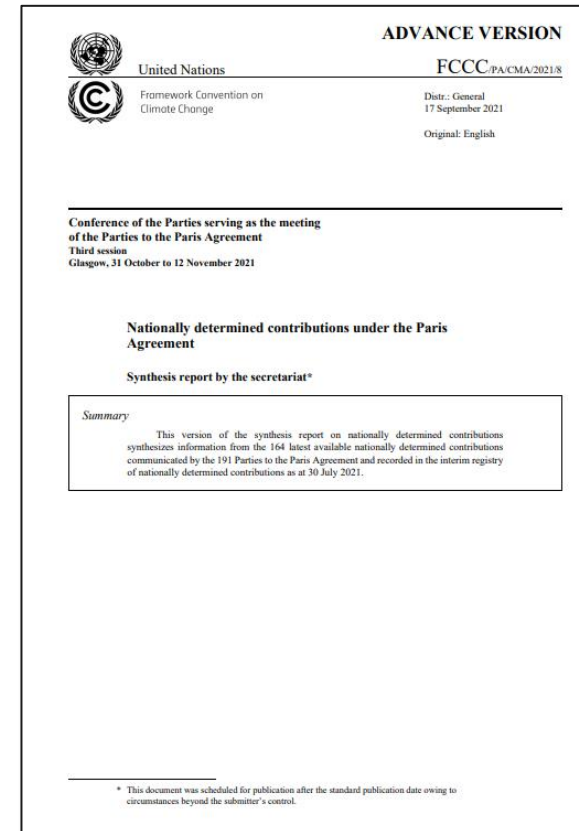


**Unprecedented**  
in at least  
**2000 years**

Source: AR6 Climate Change 2021: The Physical Science Basis

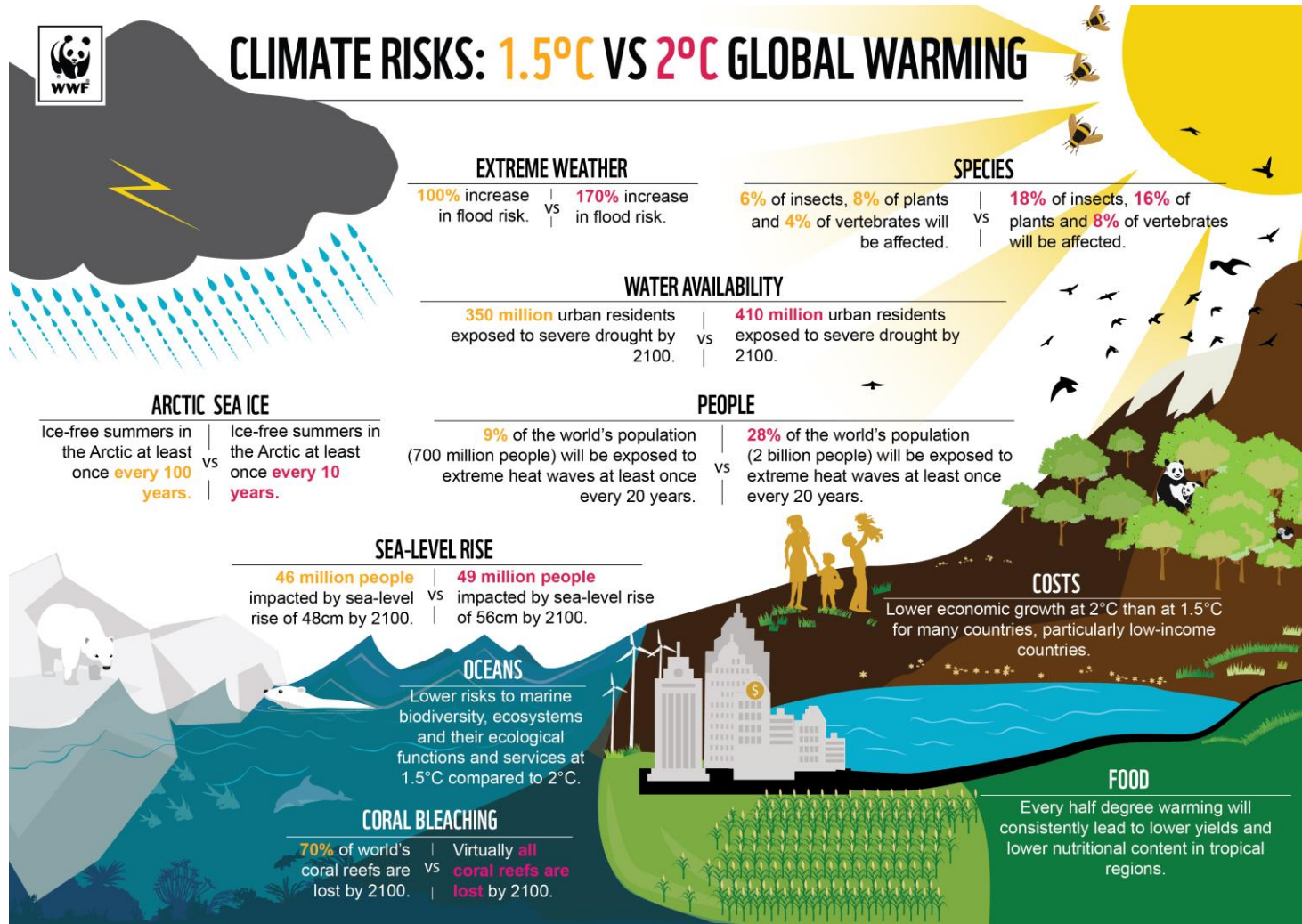
# We are nowhere near on track to limit global warming

- ▶ The most recent Nationally Determined Contributions indicate total global GHG emissions in 2030 will be 16% *above* the 2010 level.
- ▶ To limit warming to 1.5°C, GHG emissions must 45% *decline* by 2030 and reach net zero by around 2050.
- ▶ 2°C degree warming requires a 25% *decline* by 2030 and net zero by 2070.



Source: [National determined contributions under the Paris Agreement. Synthesis report by the secretariat \(unfccc.int\)](https://unfccc.int)

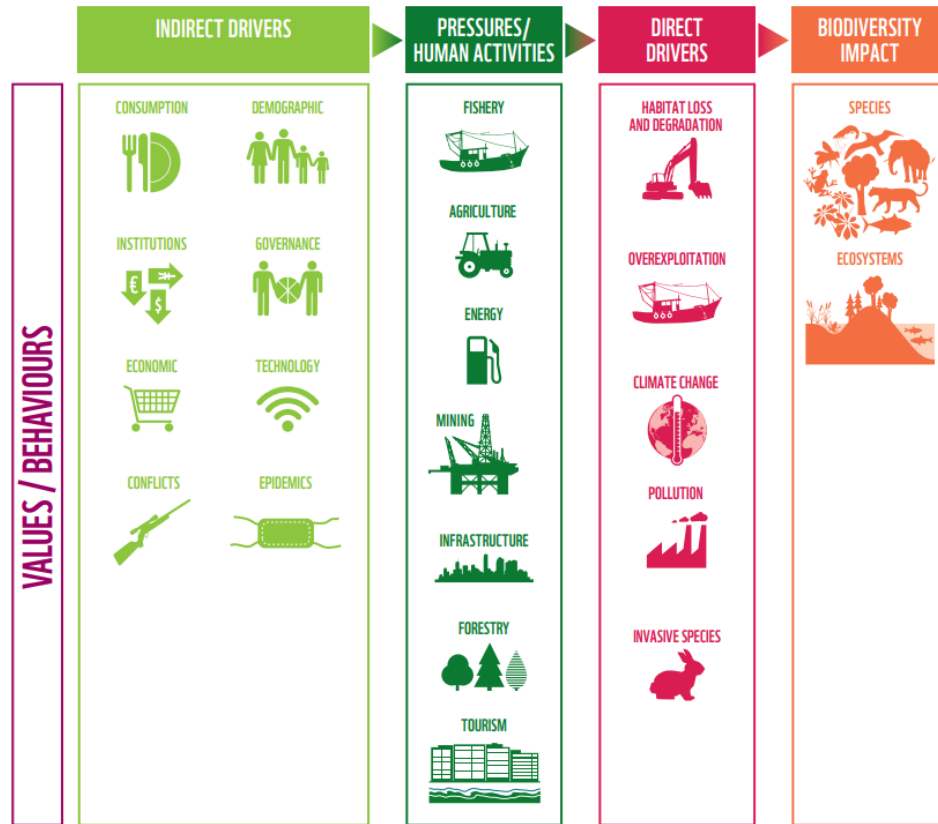
# Despite becoming far more aware of the risks of global warming



Source: <https://www.wwf.org.uk/updates/our-warming-world-how-much-difference-will-half-degree-really-make>

# Biodiversity risks are becoming more of a focus

## Threats to nature and the drivers and pressures behind them



- ▶ In 2019, the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), published their [first global assessment](#) in 15 years.
- ▶ That assessment found that there were in excess of one million plant and animal species at risk of extinction within our lifetime.
- ▶ This level of loss risks undermining progress on 80% of the SDGs, including goals related to poverty and hunger, health, clean water and cities.

Sources: [https://ipbes.net/sites/default/files/inline/files/ipbes\\_global\\_assessment\\_report\\_summary\\_for\\_policymakers.pdf](https://ipbes.net/sites/default/files/inline/files/ipbes_global_assessment_report_summary_for_policymakers.pdf)  
<https://www.zsl.org/sites/default/files/LPR%202020%20Full%20report.pdf>



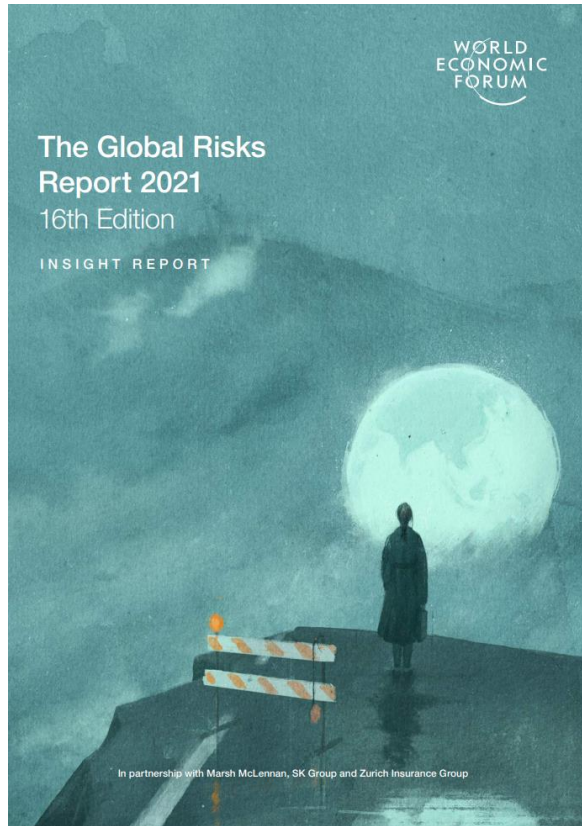
# Tackling climate and biodiversity together is critical

- ▶ In June 2021, IPBES and IPCC published their first joint report on biodiversity and climate change.
- ▶ They noted 'climate change and biodiversity are inextricably connected'.
- ▶ Recommendations included: stopping the loss and degradation land and ocean ecosystems; increasing sustainable agricultural and forestry practices; enhancing conservation actions.
- ▶ We must stop actions which help climate but hurt biodiversity:
  - Planting bioenergy crops in monocultures over a very large share of land areas.
  - Planting trees in ecosystems that have not historically been forests and reforestation with monocultures.
- ▶ Climate change mitigation and adaptation actions should be evaluated by *overall* benefits and risks, e.g. mining activity or land required

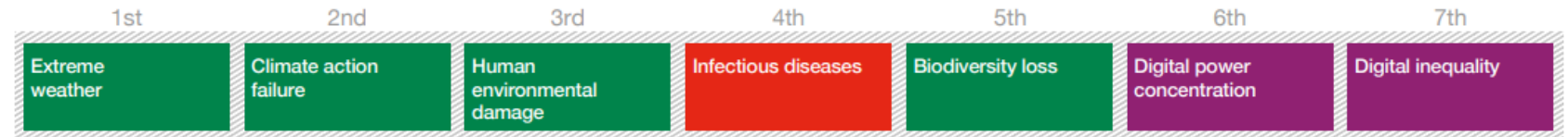


Source: [IPBES IPCC WR 12 2020.pdf](#)

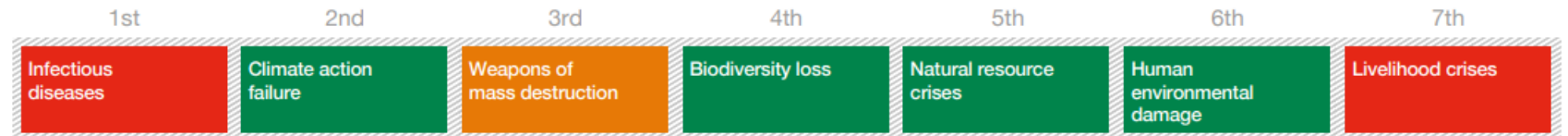
# WEF 2021 top global risks landscape



## By Likelihood



## By Impact



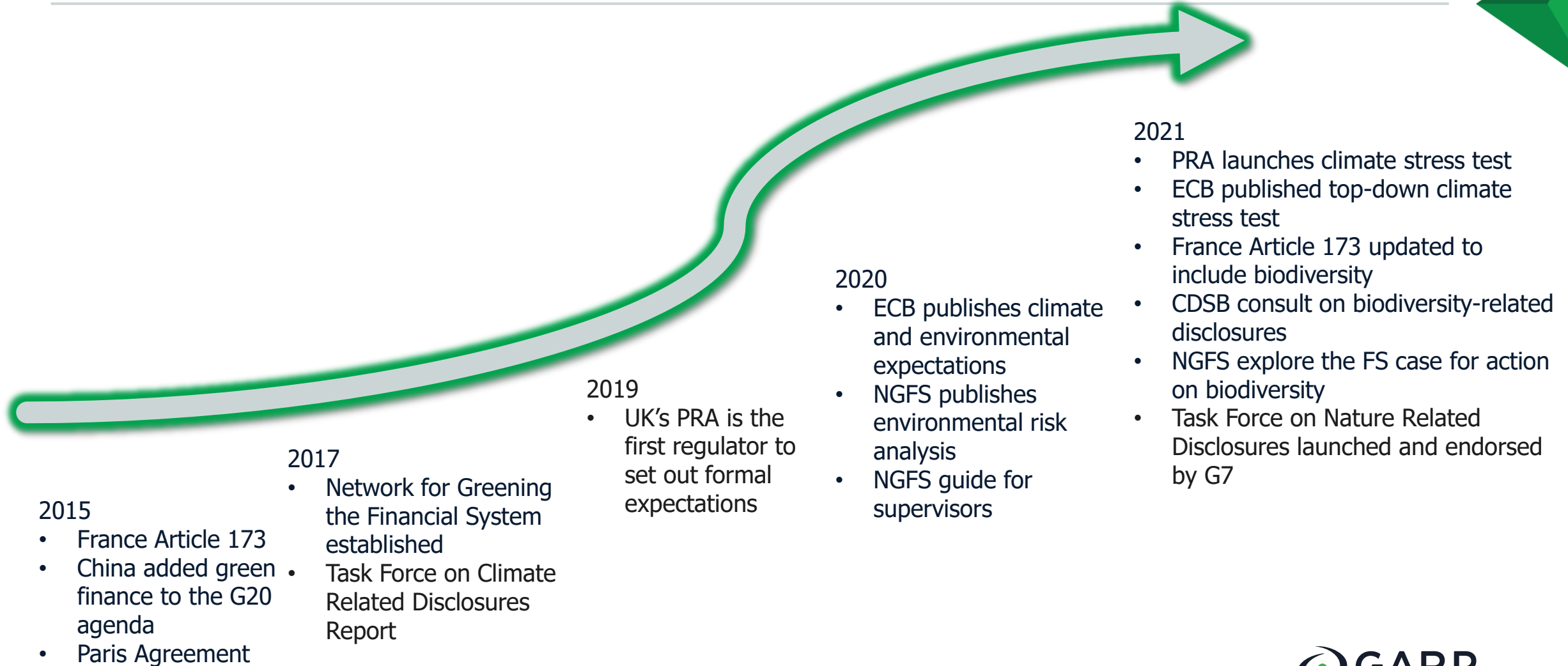
'No vaccine for environmental degradation'

Source: [WEF The Global Risks Report 2021.pdf \(weforum.org\)](https://www.weforum.org/reports/the-global-risks-report-2021)

# How does this fit in financial risk management?

And a growing regulatory focus

# Regulatory focus is expanding to include biodiversity



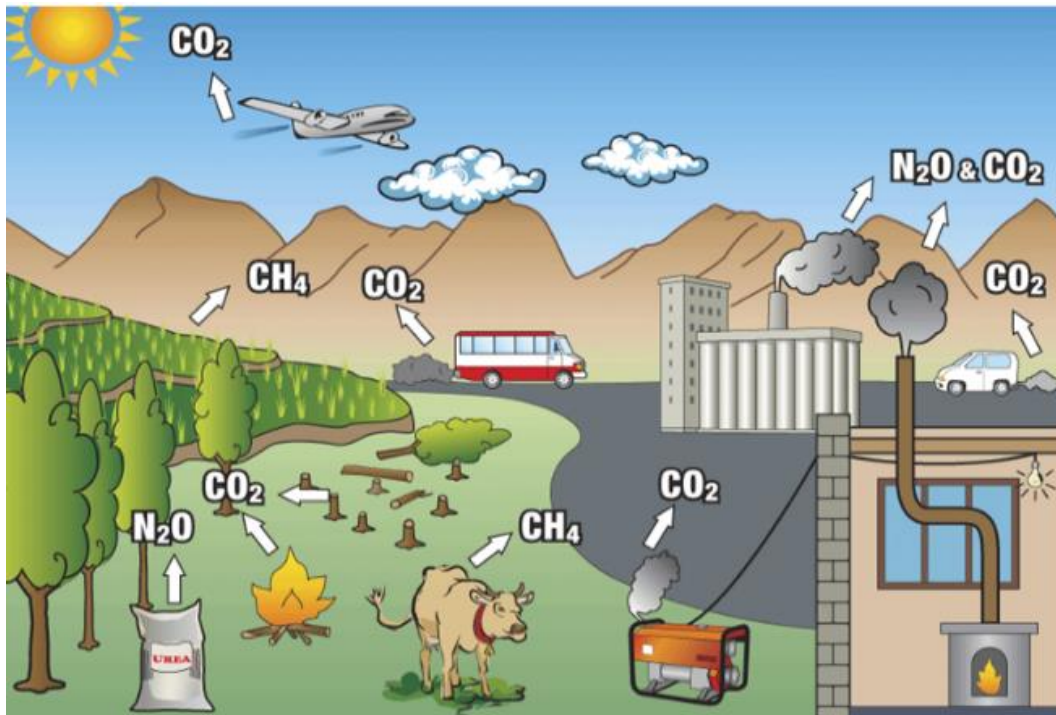
# Supervisory activity on climate risk has intensified



# Risk perspectives

It is fundamental to understand which perspective is being considered

## Our impact on the climate/nature



Source: <https://www.climateemergencyinstitute.com/glemissions.html>

## Climate/nature's impact on us



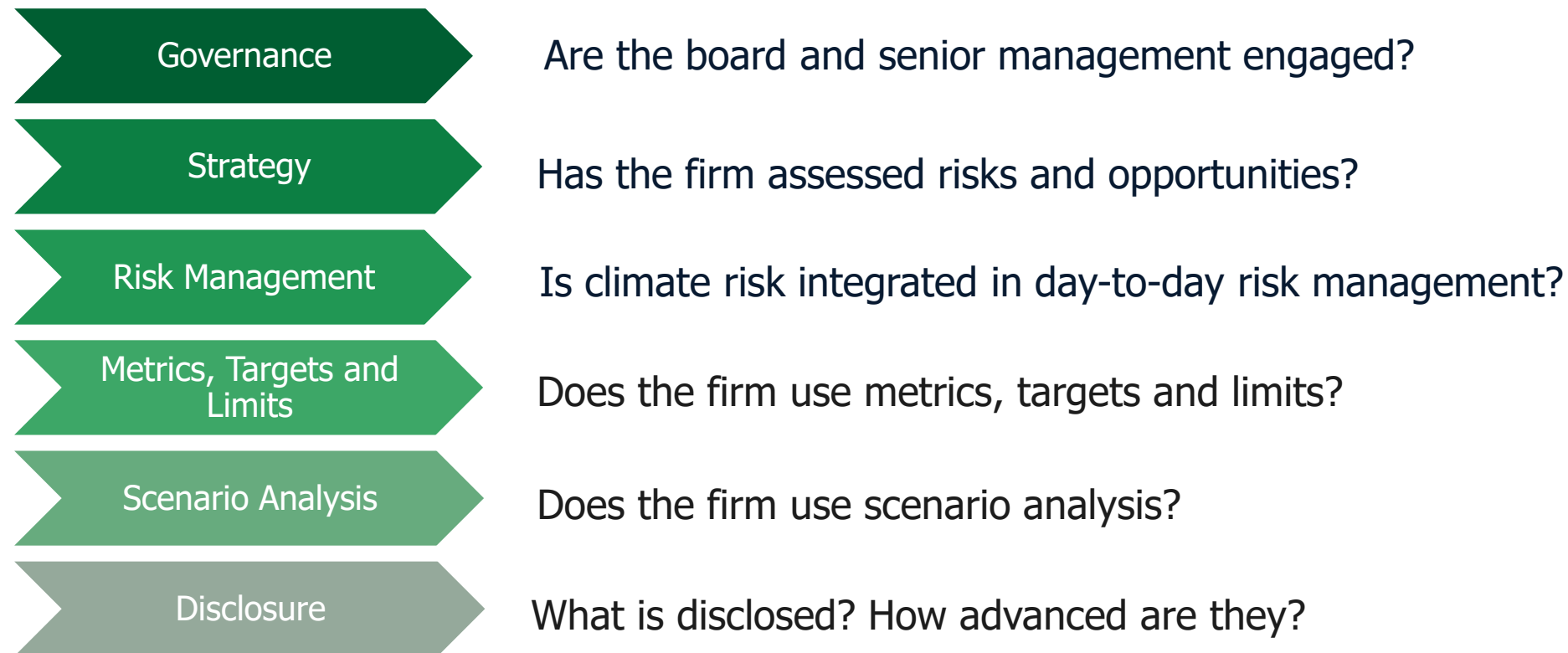
Source: Phil Creighton <https://www.wokinghampaper.co.uk/mill-lane-closed-due-to-flooding-hotel-is-open-but-dont-try-and-charge-your-car/>

# How are firms tackling this?

Insights from GARP's third annual climate risk management survey, 2021



# GARP's third annual survey of climate risk management

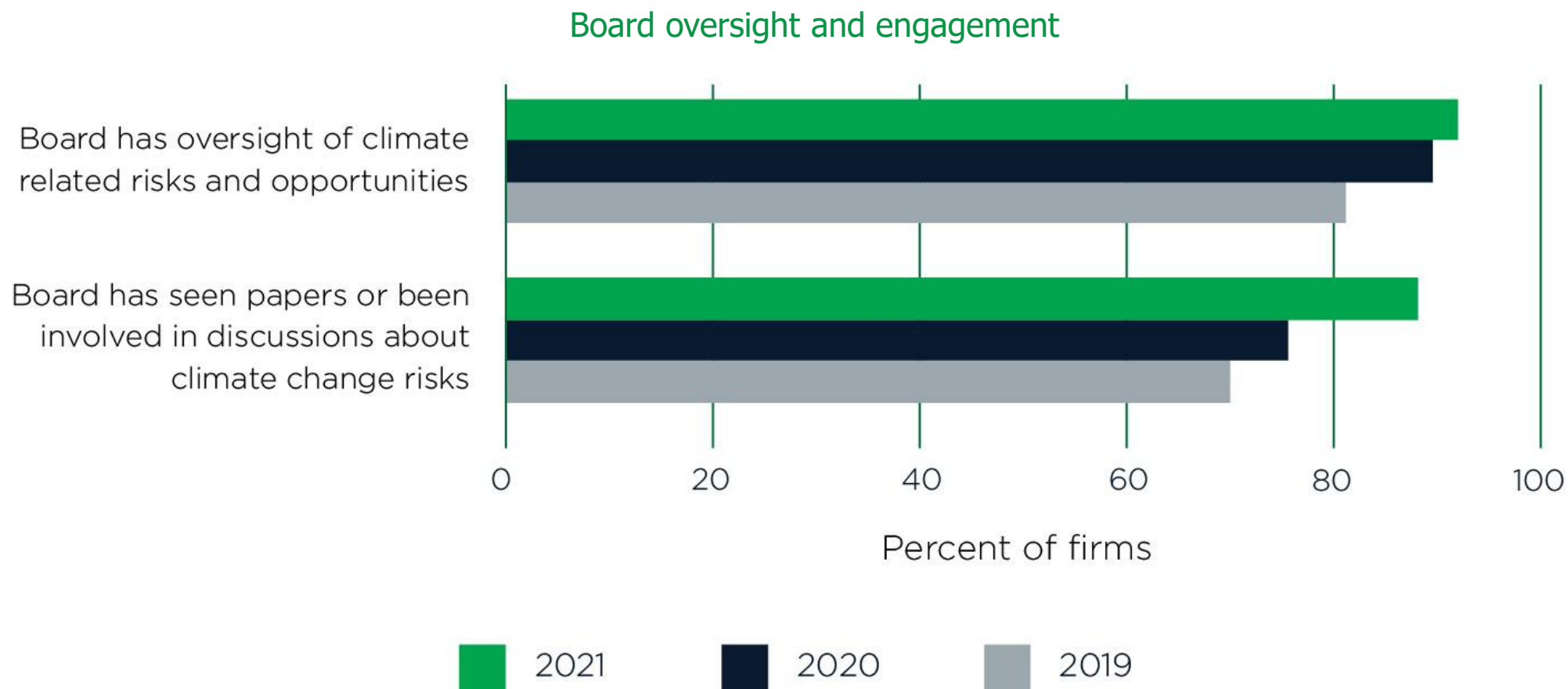


Governance	Are the board and senior management engaged?
Strategy	Has the firm assessed risks and opportunities?
Risk Management	Is climate risk integrated in day-to-day risk management?
Metrics, Targets and Limits	Does the firm use metrics, targets and limits?
Scenario Analysis	Does the firm use scenario analysis?
Disclosure	What is disclosed? How advanced are they?

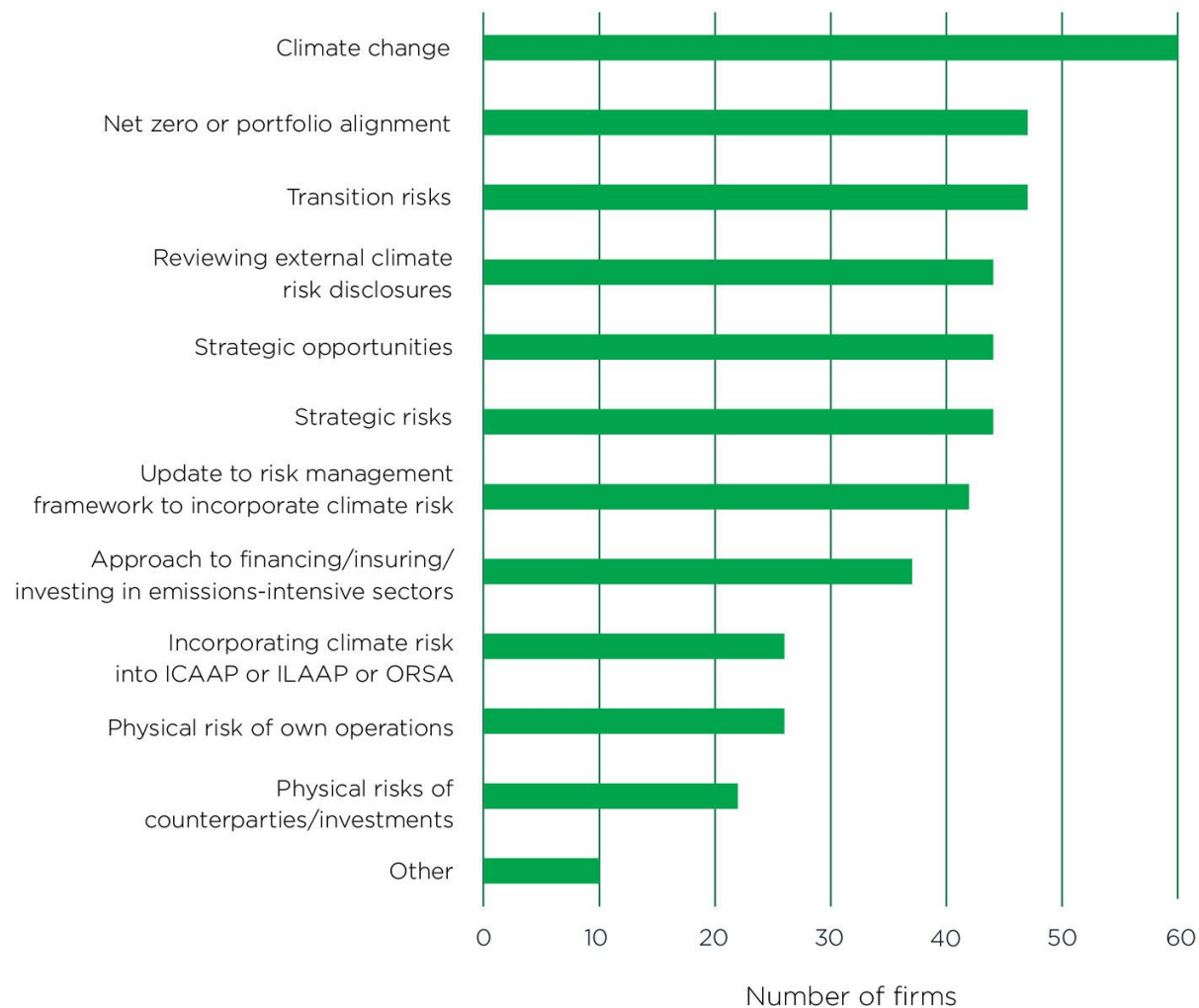
78 firms participated: 47 banks or building societies; 20 asset managers; 11 other firms (insurers/FMIs)  
\$46 trn assets on balance sheets; \$50 trn of assets under management; \$3.3 trn market capitalization



# Board engagement and senior accountability are critical

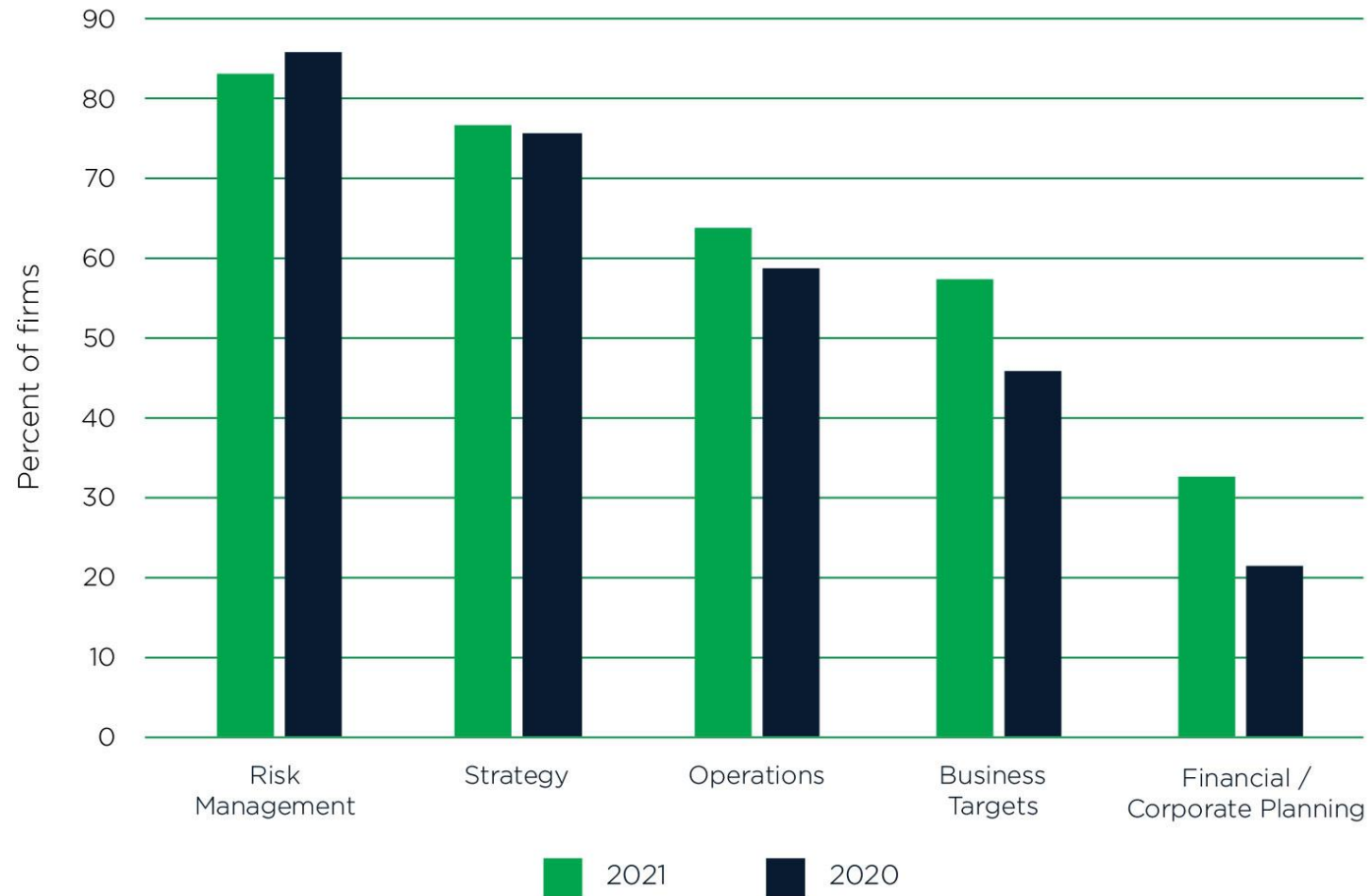


# Boards are discussing a range of climate risk topics

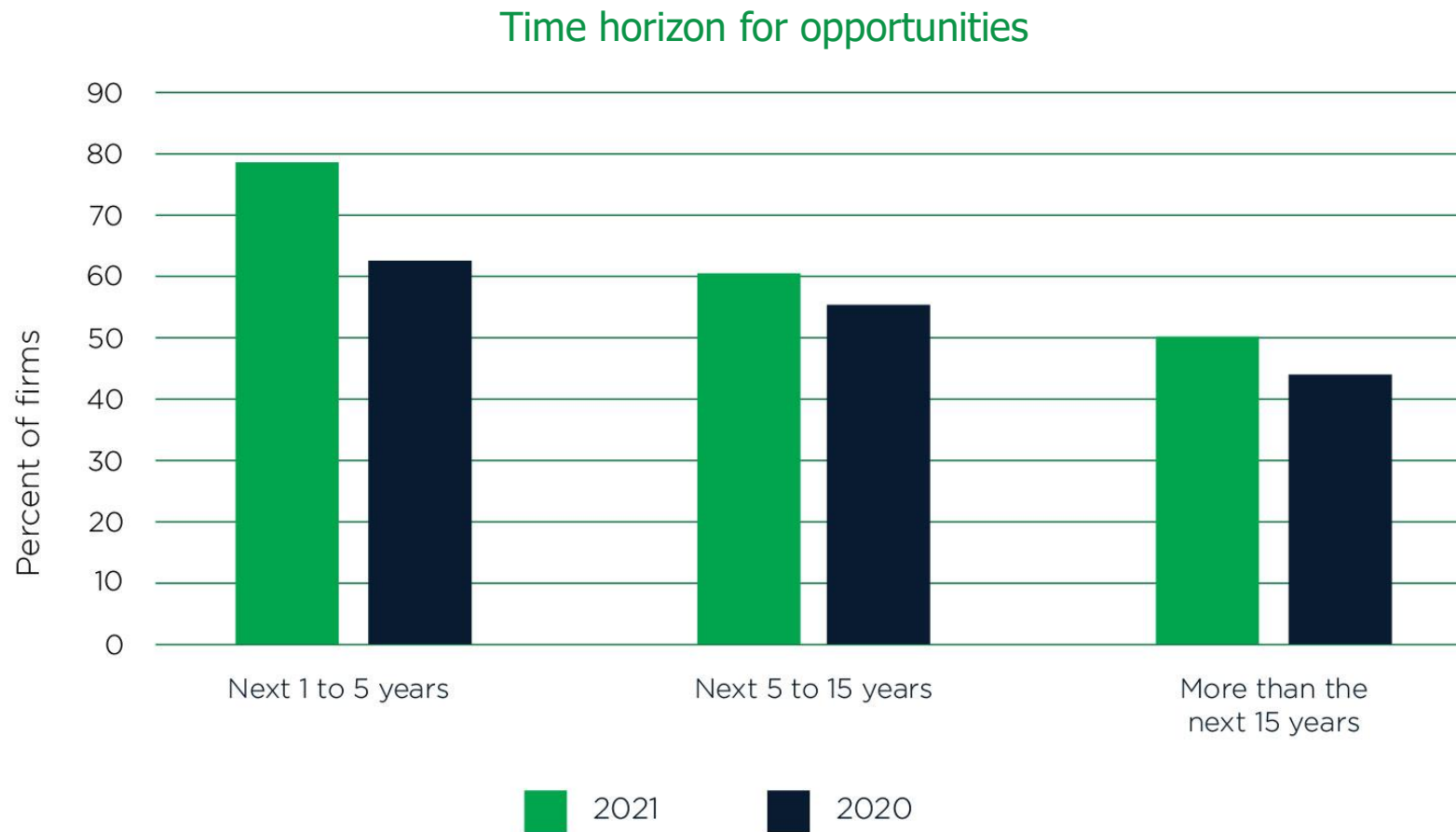


# A wider range of business aspects have been reviewed

Aspects of Business Reviewed for Climate Risks and Opportunities



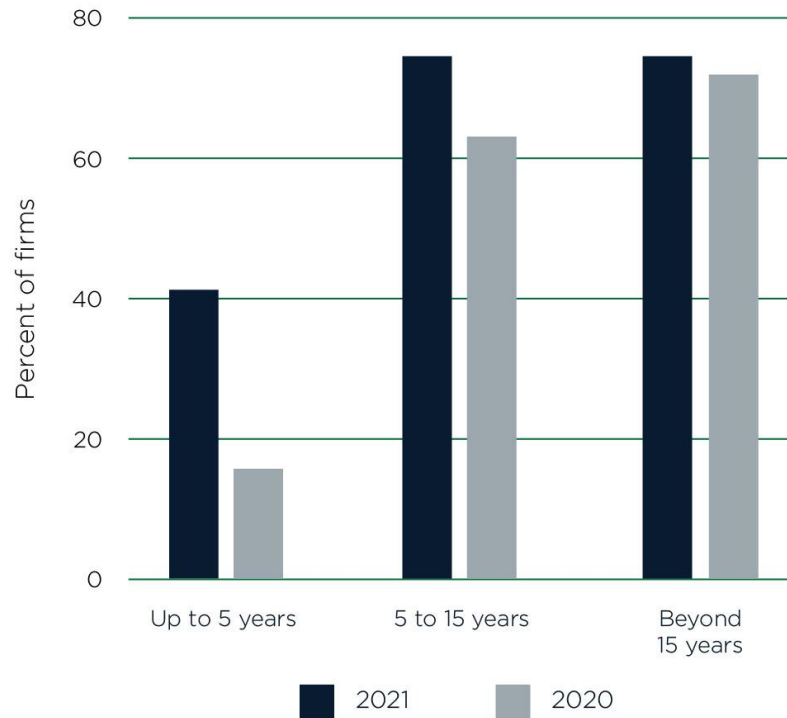
# And more firms are seeing opportunities



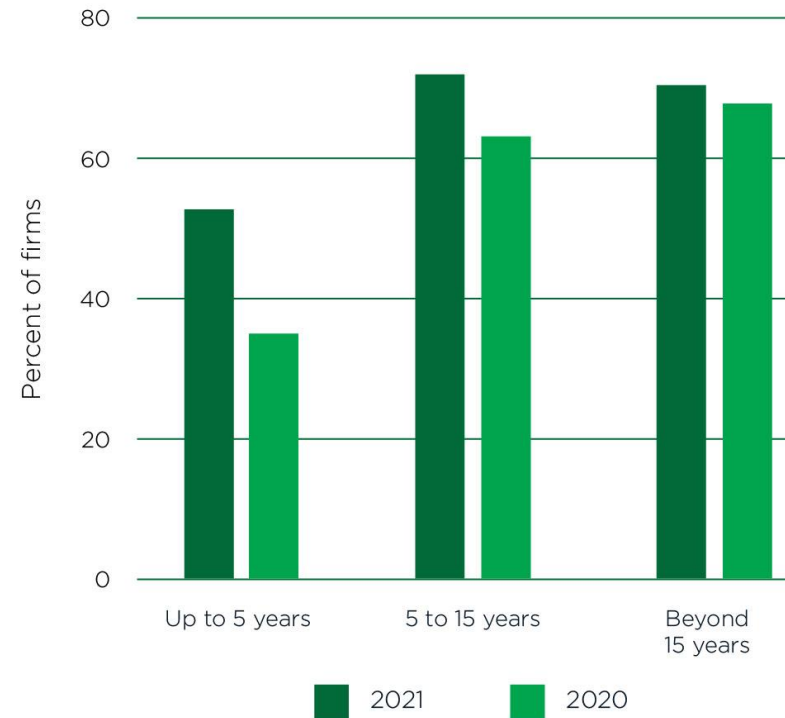
# More firms expect significant strategic risks and opportunities

## Strategic Risks and Opportunities

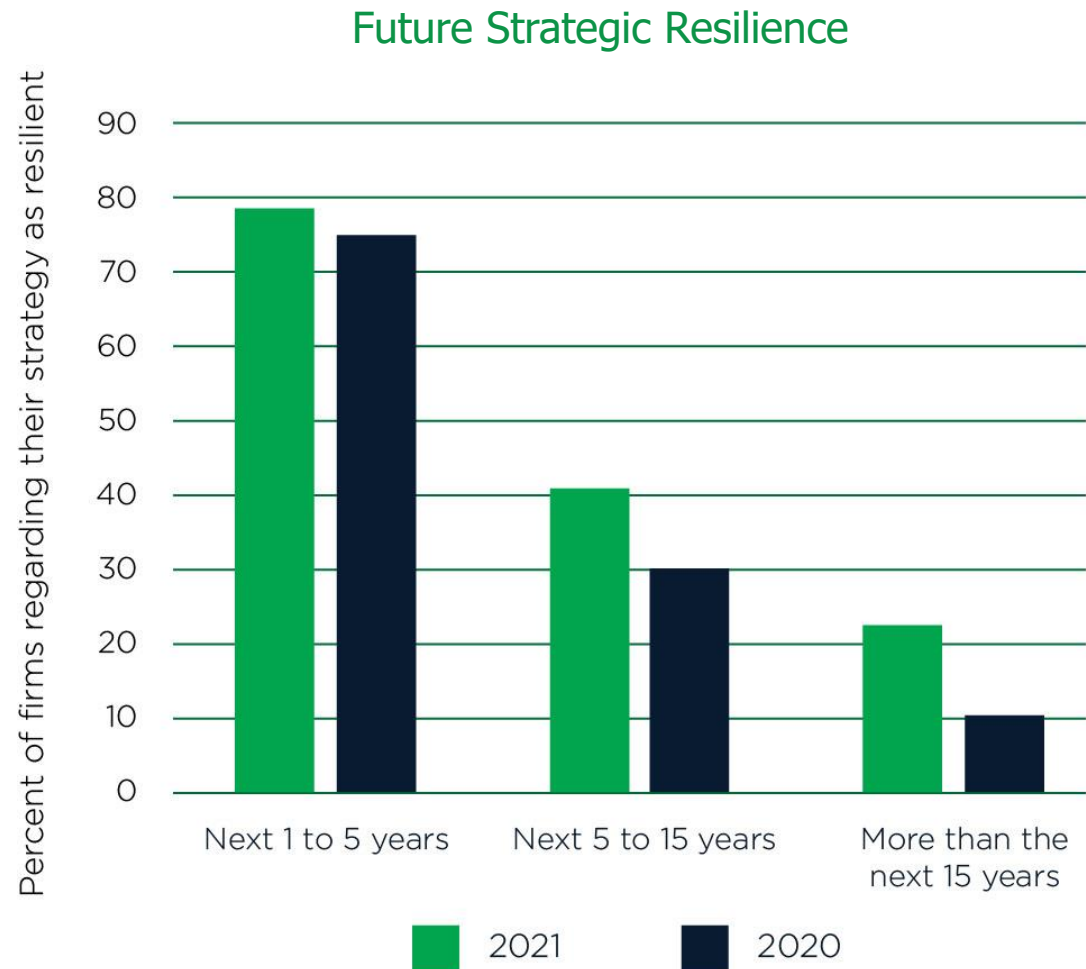
A significant impact on strategy expected from: climate risks



A significant impact on strategy expected from: climate opportunities

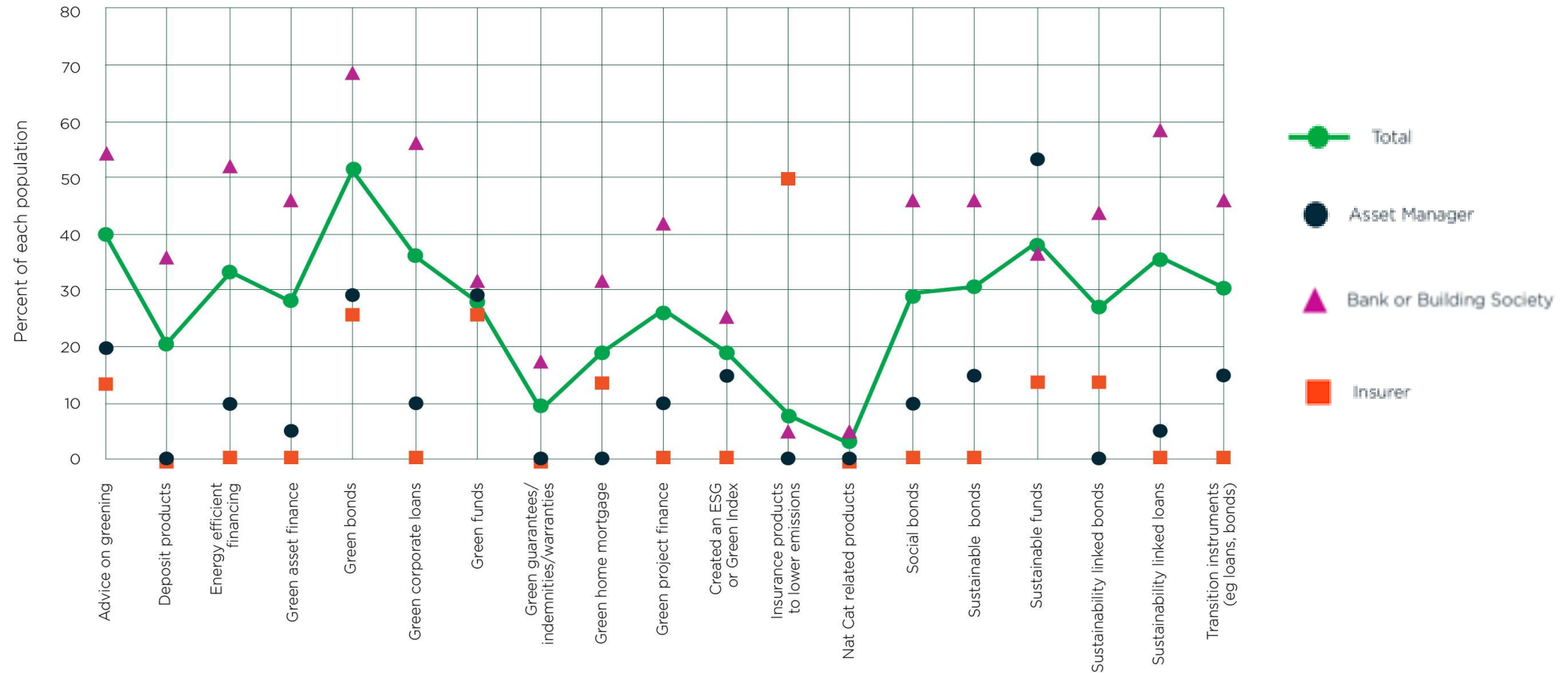


# Firms have higher strategic confidence in the near term



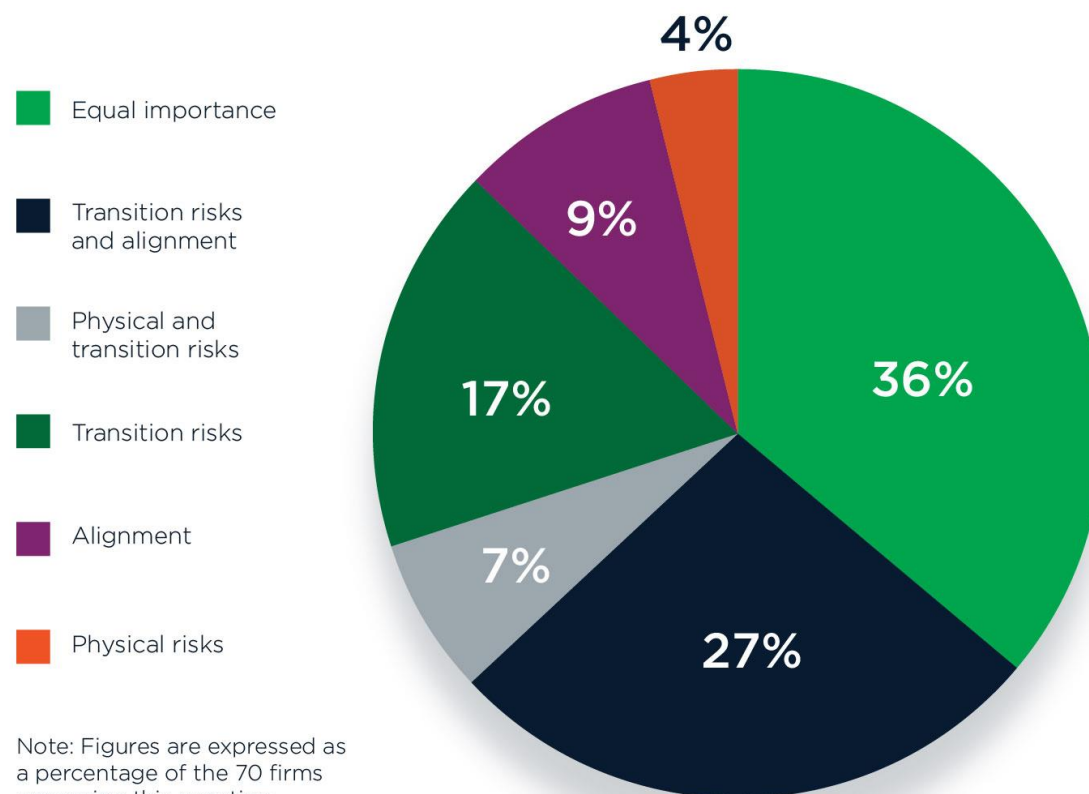
# There is a great deal of product innovation

## New Products or Services Changed due to Climate Risk



# Transition risk is a priority for most firms

## Assessing the Relative Significance of Physical Risk, Transition Risk and Portfolio Alignment

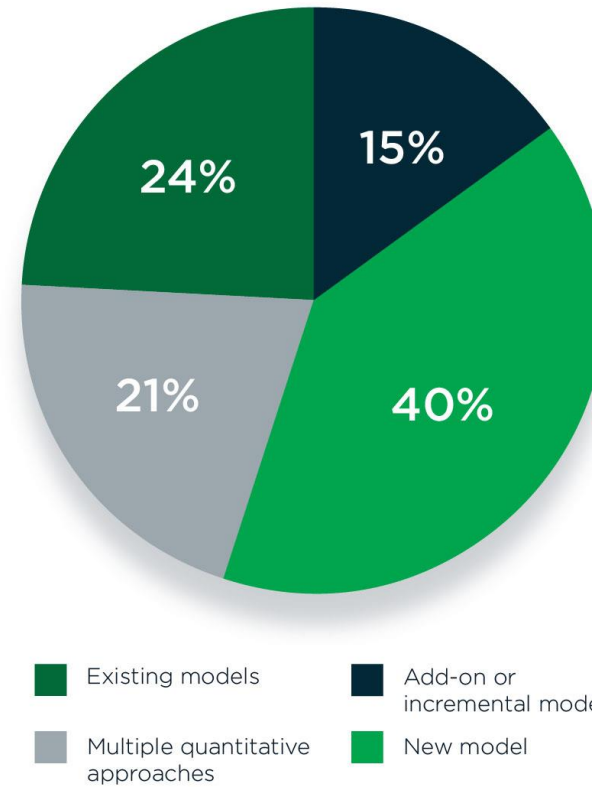
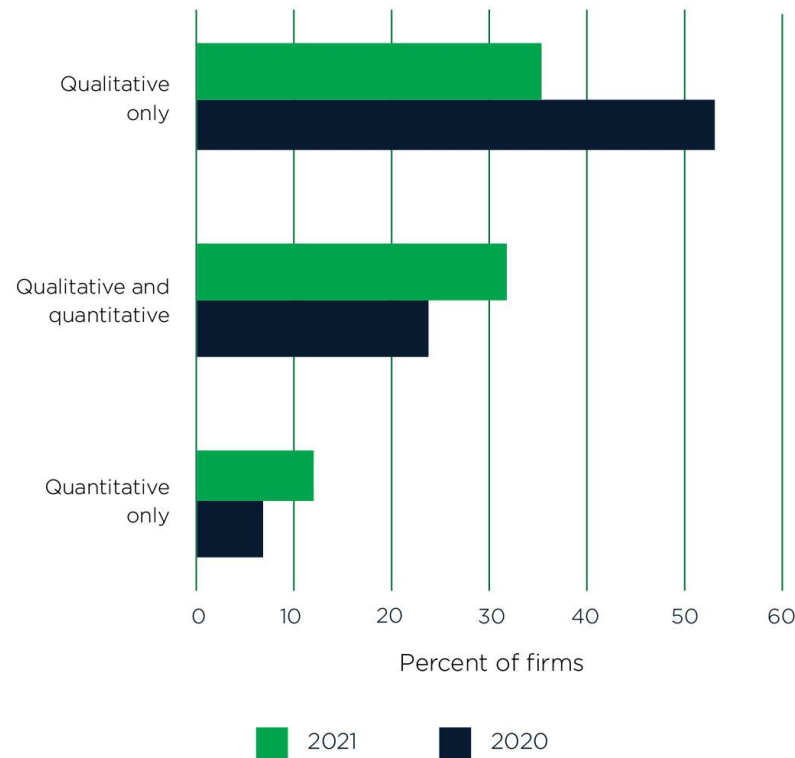


Note: Figures are expressed as a percentage of the 70 firms answering this question.



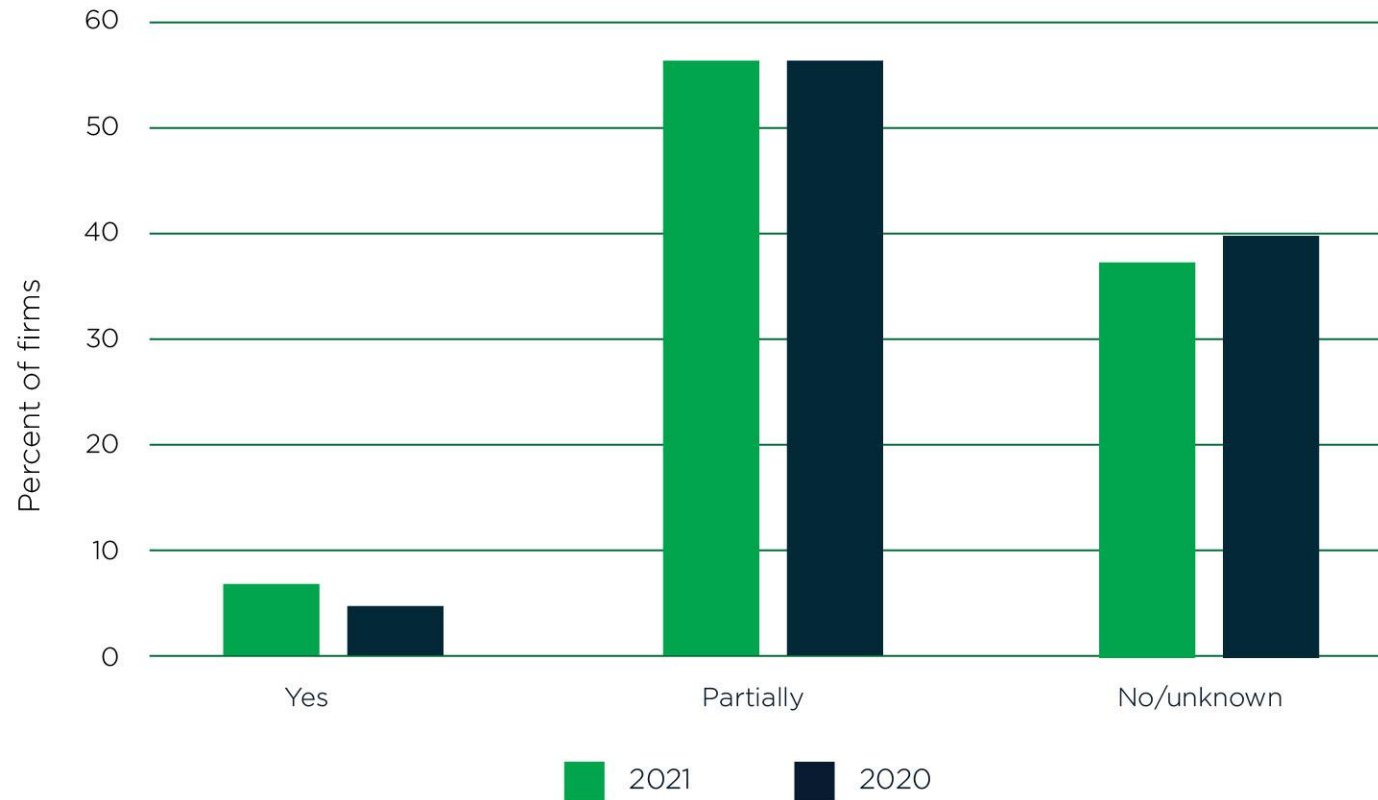
# Quantitative analysis is becoming more widespread

## How Counterparties are Risk Assessed and Forms of Quantitative Assessments



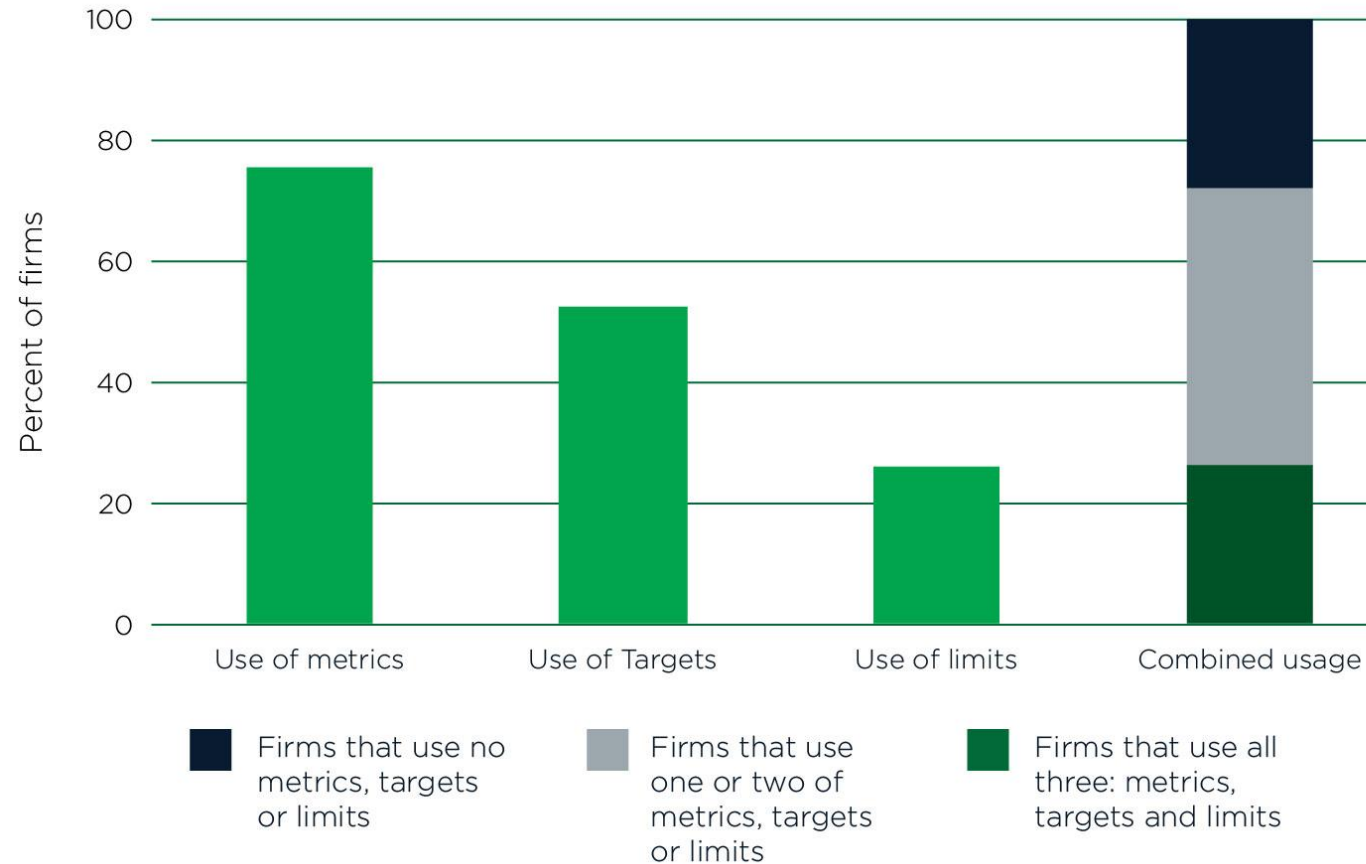
# But climate risks still aren't being priced

Is climate risk being priced in by markets?

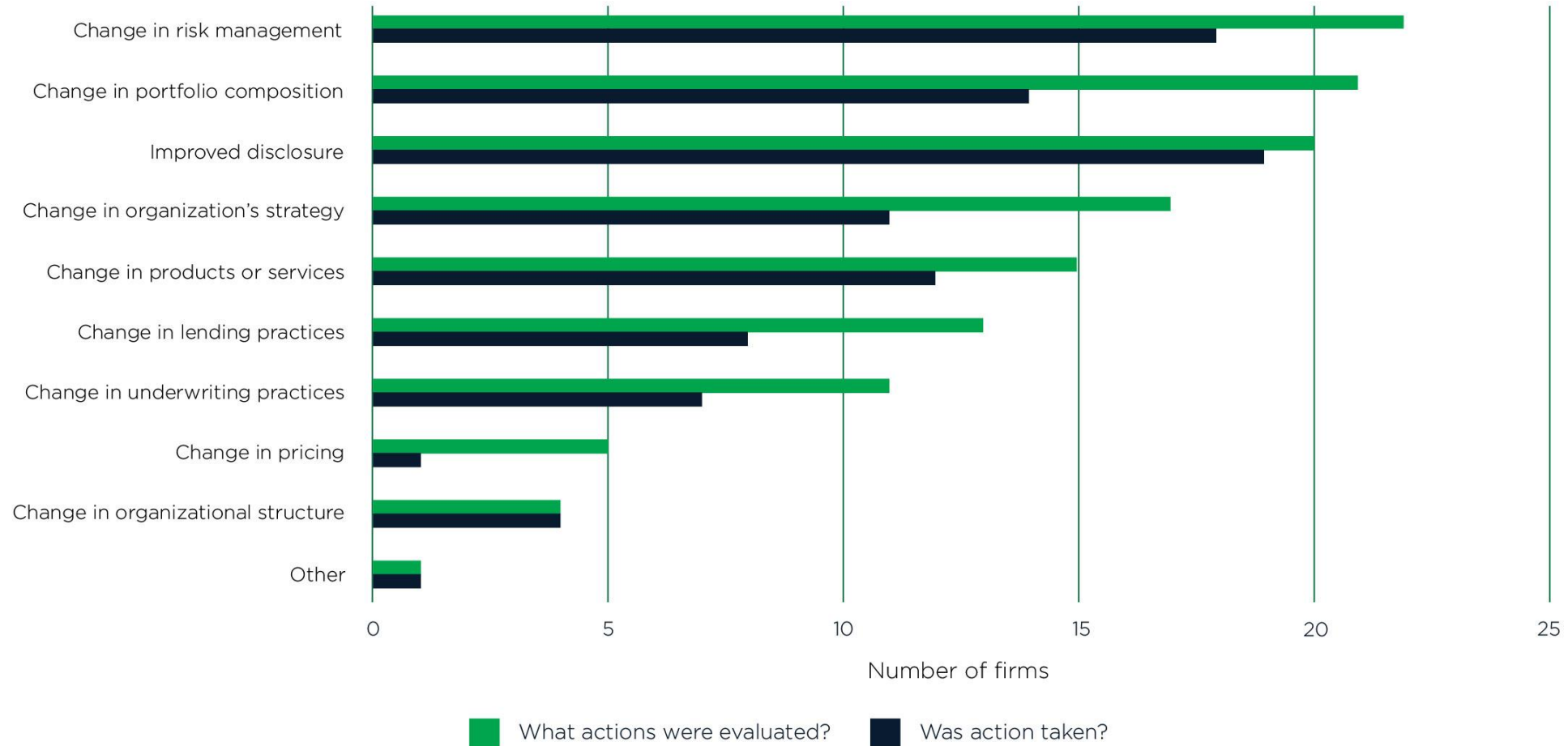


# Metrics, targets and limits practices diverge considerably

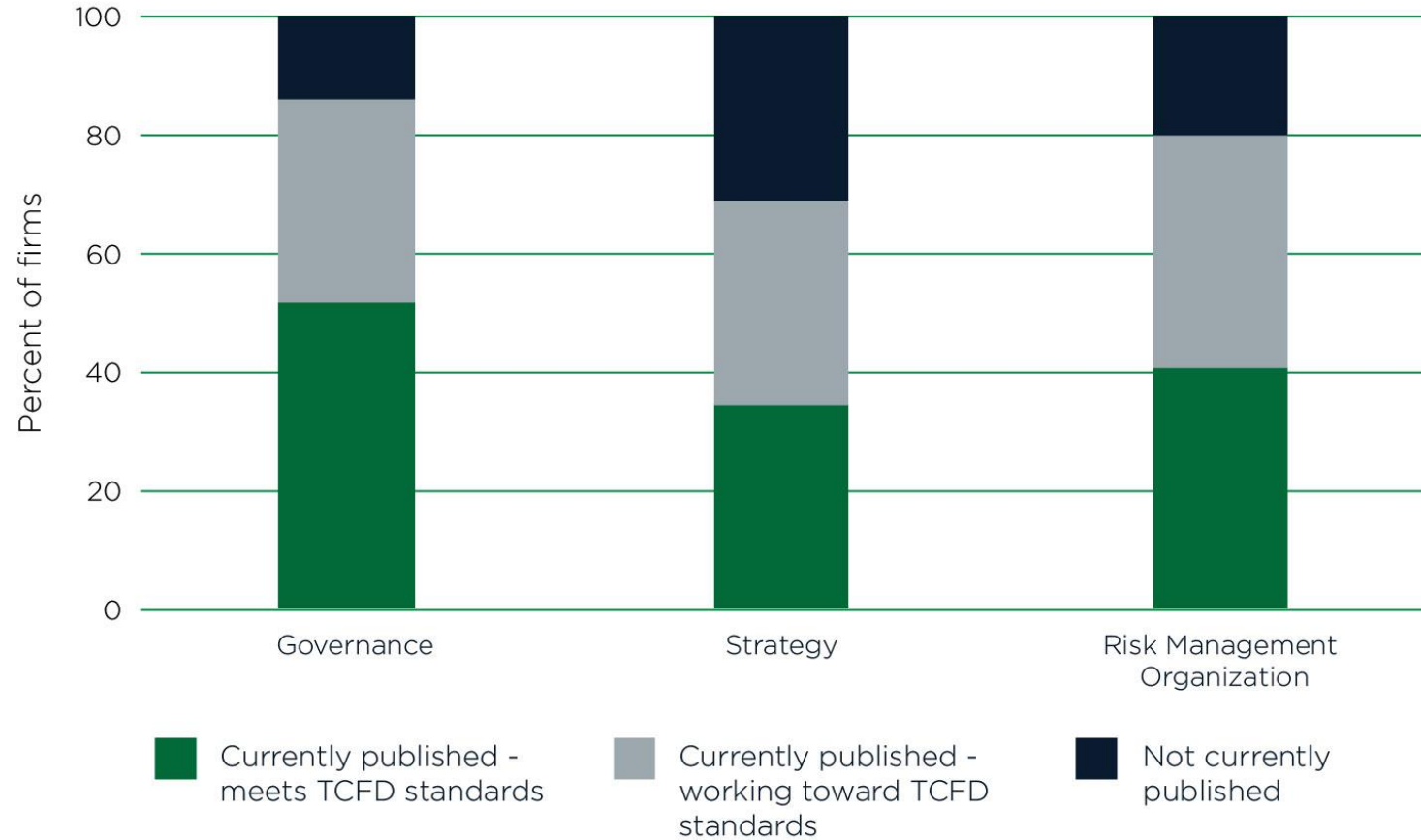
Use of Metrics, Targets and Limits across Respondents



# More firms are undertaking scenario analysis and taking actions



# Progress has been made across all climate disclosure categories



# Overall messages

And further resources

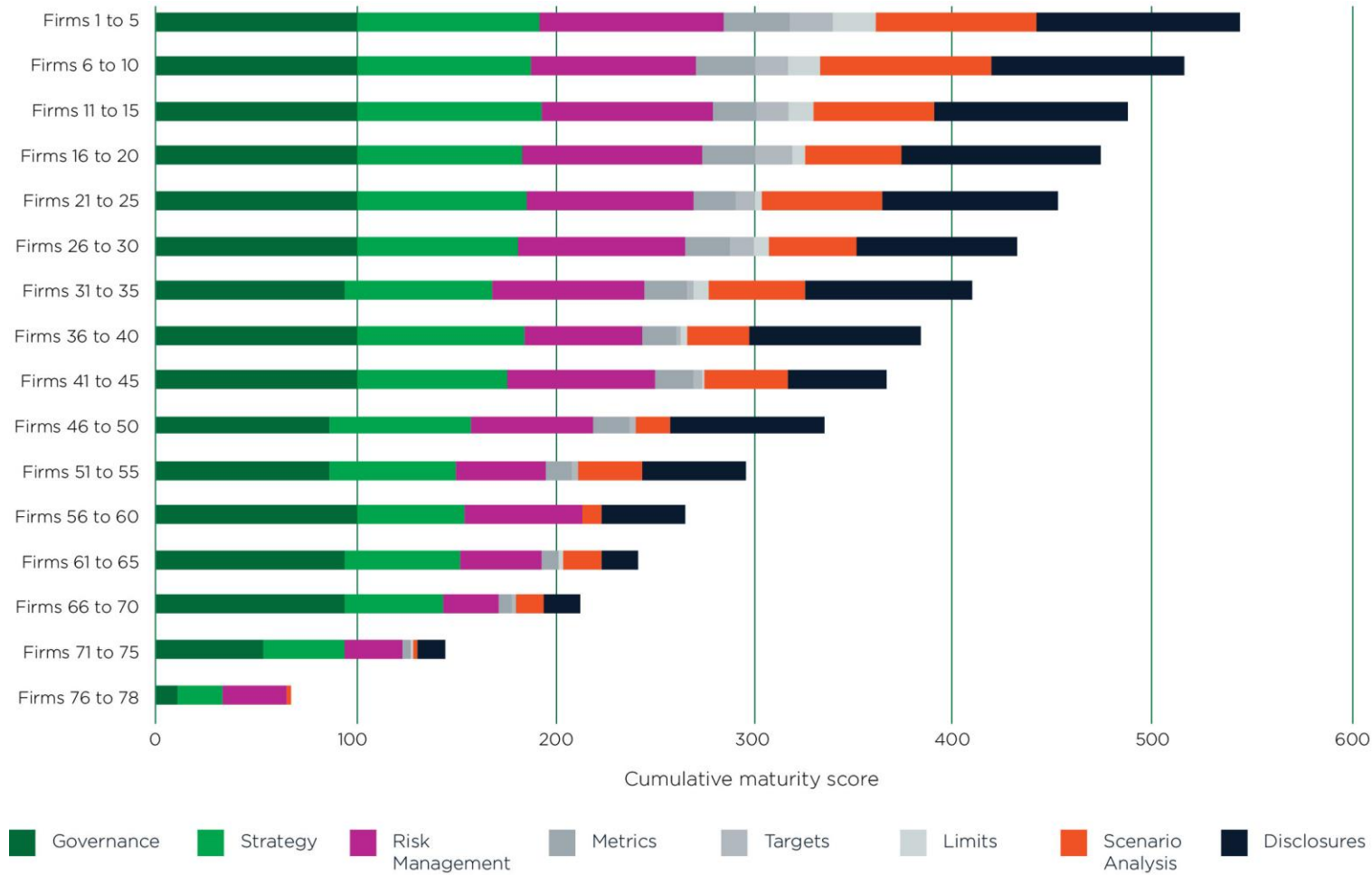


# There are signs of growing sophistication ...

## Maturity Model of Climate Risk Management

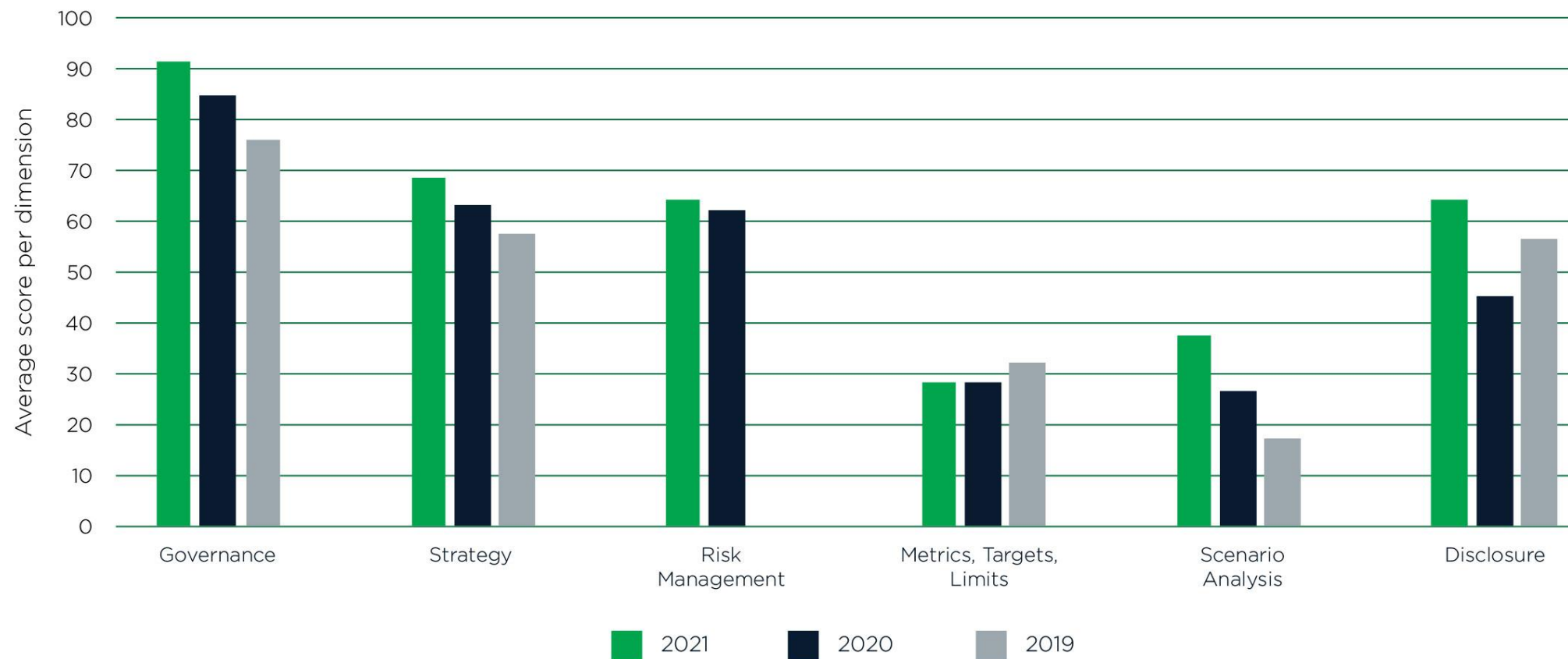


# ...but quantification continues to be a challenge





# Climate risk management improves over time

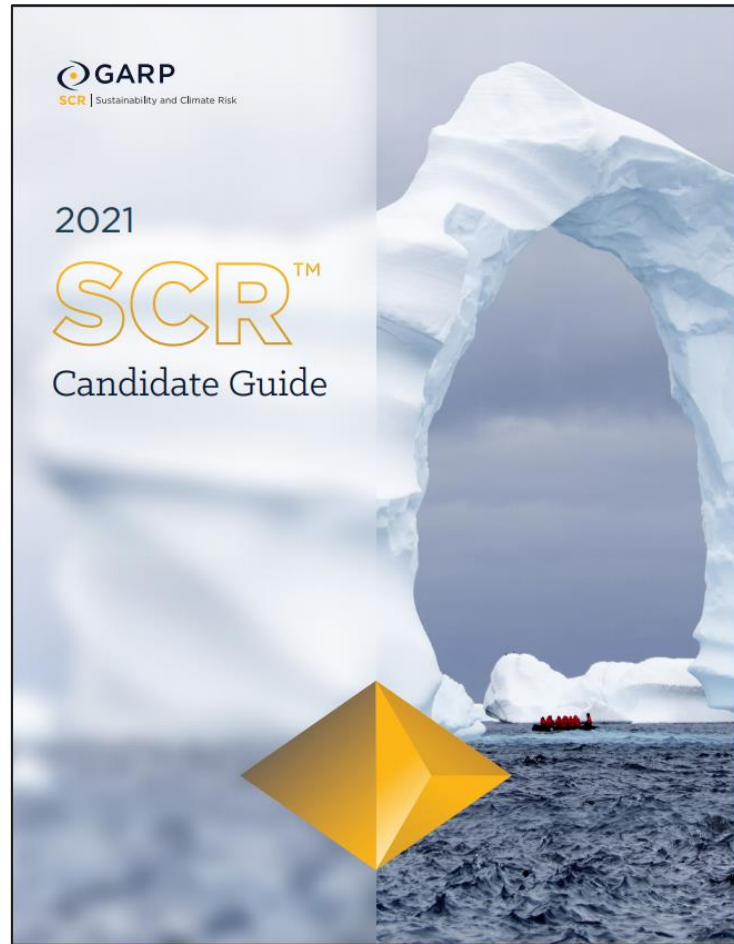


# Key messages

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- ▶ There has been an intensification of supervisory activity on climate risk and growing focus on biodiversity and other environmental risks
- ▶ Biodiversity is around 5 years behind climate, but the focus is coming and firms will need to get prepared
- ▶ Scenario analysis is becoming more mainstream
- ▶ We see a shift towards greater use of quantitative analysis to assess the climate risk of counterparties
- ▶ Transition risk is a higher priority at more firms than physical risk or portfolio alignment
- ▶ Firms are confident in the resilience of their climate risk strategies in the short term, but not over the long term

# Risk education



- ▶ As the leading professional association for risk managers, GARP developed the SCR program to prepare candidates for sustainability and climate risk challenges.
- ▶ Sustainability and Climate Risk (SCR™) Certificate covers:
  - ▶ Foundations of Climate Change
  - ▶ Policy, Regulations and Implications
  - ▶ Green and Sustainable Finance
  - ▶ Climate Risk Measurement and Management
  - ▶ Climate Scenario Analysis
  - ▶ Current Issues in Sustainability and Climate Risk

# GARP's climate risk resources: <https://climate.garp.org/>



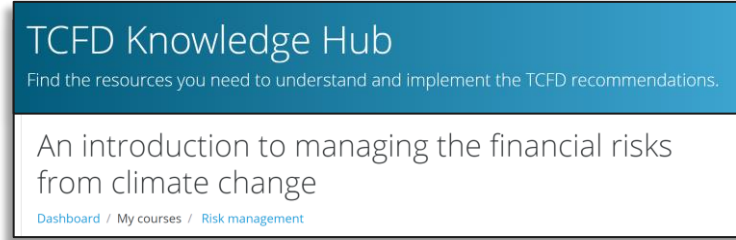
**GARP** Events

## 2021 Climate Risk Symposium

New Frontiers in Climate Risk Management

November 23, 2021 | 1:00 - 2:30pm GMT  
November 30, 2021 | 1:00 - 2:30pm GMT

The banner features a dramatic landscape with a dark, stormy sky over a body of water and a forested shoreline. A white diamond-shaped graphic is in the bottom left corner.



**TCFD Knowledge Hub**  
Find the resources you need to understand and implement the TCFD recommendations.

An introduction to managing the financial risks from climate change

[Dashboard](#) / [My courses](#) / [Risk management](#)

The box has a blue header and a white body with a thin black border.



**GARP**  
**CLIMATE RISK**  
**PODCAST**

The logo features the GARP logo at the top, followed by the text 'CLIMATE RISK' in large, bold letters, and 'PODCAST' below it. A stylized globe with a flame is to the right of the text.



**GARP**  
SRI | Sustainability and Climate Risk

### THE CLIMATE IMPERATIVE: OPPORTUNITIES FOR RISK MANAGERS

THE 2020 SUSTAINABILITY AND CLIMATE RISK MANAGEMENT REPORT

The cover features a dark background with a landscape image of a forest and a white diamond graphic in the bottom left corner.



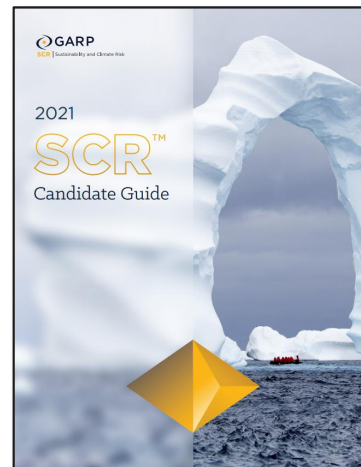
**GARP**  
GRI | Risk Institute

### TODAY'S CLIMATE LEADERS:

What Are They Doing Right, and How Can Other Firms Follow?

Houma Nelson, Senior Vice President, GRI  
Ryan Littfield, Associate Vice President, GRI

The cover features a dramatic sky with dark clouds and a white diamond graphic in the bottom left corner.



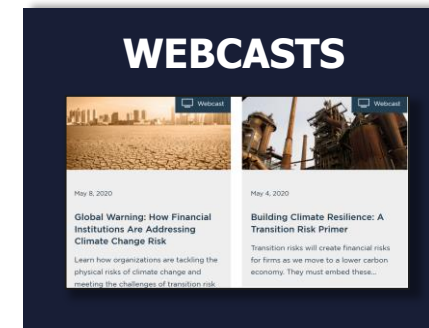
**GARP**  
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2021


## SCR™

Candidate Guide

The cover features a white diamond graphic in the bottom left corner and a background image of an ice archway over the ocean.



## WEBCASTS

 May 8, 2020 <b>Global Warning: How Financial Institutions Are Addressing Climate Change Risk</b> Learn how organizations are tackling the physical risks of climate change and creating the challenges of transition risk.	 May 4, 2020 <b>Building Climate Resilience: A Transition Risk Primer</b> Transition risks will create financial risks for firms as we move to a lower carbon economy. They must embed these...
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The section features two webcast thumbnails with their respective dates and titles.

Q&A



**ABOUT GARP** | The Global Association of Risk Professionals is a non-partisan, not-for-profit membership organization focused on elevating the practice of risk management. GARP offers the leading global certification for risk managers in the Financial Risk Manager (FRM®), as well as the Sustainability and Climate Risk (SCR®) Certificate and on-going educational opportunities through Continuing Professional Development. Through the GARP Benchmarking Initiative and GARP Risk Institute, GARP sponsors research in risk management and promotes collaboration among practitioners, academics, and regulators.

Founded in 1996, governed by a Board of Trustees, GARP is headquartered in Jersey City, N.J., with offices in London, Beijing, and Hong Kong. Find more information on [garp.org](http://garp.org) or follow GARP on LinkedIn, Facebook, and Twitter.

For more information on GARP's work on sustainability and climate risk, please see [climate.garp.org](http://climate.garp.org)

**Headquarters**

111 Town Square Place  
14<sup>th</sup> Floor  
Jersey City, New Jersey  
07310 USA  
+1 201.719.7210

**London**

17 Devonshire Square  
4<sup>th</sup> Floor  
London, EC2M 4SQ  
UK  
+44 (0) 20.7397.9630

**Beijing**

Unit 1010 Financial Street Centre  
No 9A, Financial Street  
Xicheng District  
Beijing 100033 P.R. China  
+86 (010) 5737.9835

**Hong Kong**

The Center  
99 Queen's Road Central  
Office No. 5510  
55<sup>th</sup> Floor  
Central, Hong Kong  
+852 3168.1532