

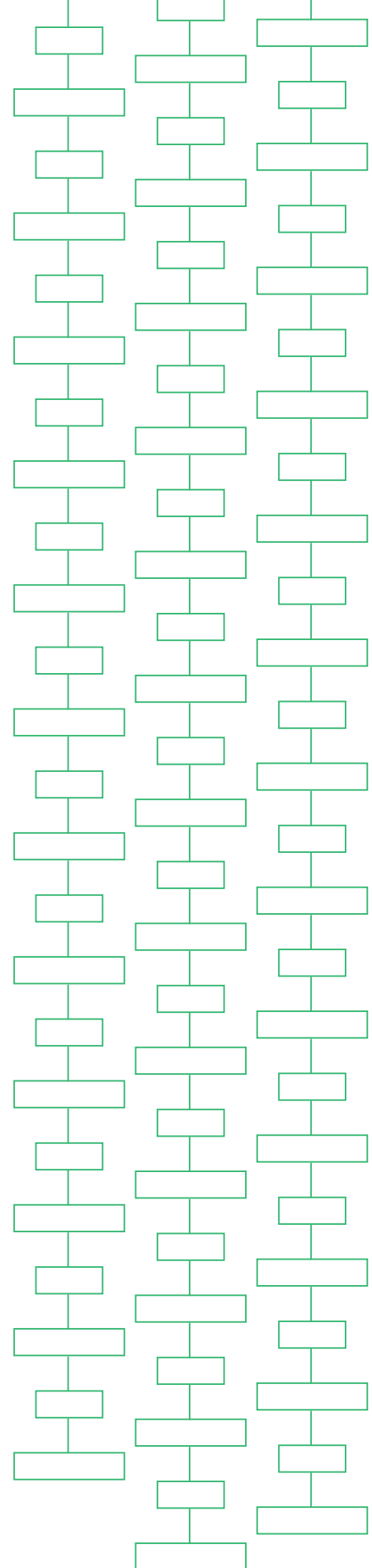
**2022**

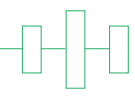
Fourth Annual Global Survey  
of Climate Risk Management  
at Financial Firms

Steady Progress Amid Increasing  
Regulatory Scrutiny

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# Executive Summary

Climate risk management is becoming more mainstream. In 2022, evidence of this trend abounds: regulation has intensified (particularly for climate risk scenario analysis), commercial opportunities from climate change have gained steam, and firms are making greater use of metrics, targets, and limits.

Furthermore, climate risk staffing has surged, and firms are now incorporating environmental and broader environmental, social, and governance (ESG) risks into their risk management. Firms are also embedding climate considerations in their due diligence, while developing climate risk appetite statements and climate dashboards.

That said, climate risks are still not fully incorporated into pricing, meaning there is still more work to be done, especially with respect to building better models and improving the availability and usability of data.

Overall, the signs point to climate risk increasingly becoming part of business-as-usual risk management, and many of the improvements we have seen can be traced to the intensification of regulatory scrutiny.

These are among the most important findings of the GARP Risk Institute's (GRI) Fourth Annual Climate Risk Survey ("Survey"), which furthers the Global Association of Risk Professionals' mission to promote best practices in risk management globally. The four GARP Surveys have occurred during a particularly important time, covering a period in which regulatory interest in climate risk management has gone from minimal to extensive.

These Surveys have provided valuable benchmarking information for participating firms, allowing them to see where they stand in terms

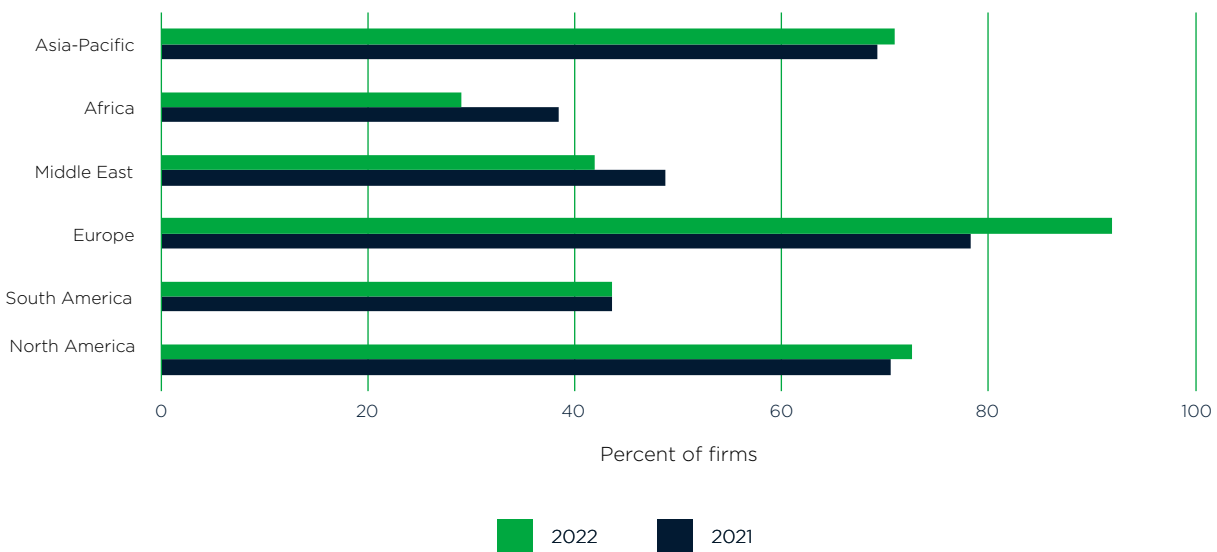
CLIMATE RISK  
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of their maturity and approach relative to others. But they have also provided insights on the range of practices across the financial system and the challenges and barriers that firms were, and to a degree still are, facing.

The 2019 [Survey](#) described how firms had made a good start, but that there was a lot more work to do. The 2020 [Survey](#) mapped out firms' continuing journey, with the 2021 [Survey](#) reporting on the emergence of a growing sophistication across the firms and improvement in quantifying climate-related risks. The 2022 Survey confirms this trend, but also notes the increase in regulatory scrutiny and formal expectations.

There were 62 firms in this year's Survey, comprising 38 banks and 24 other firms — including asset managers, insurers, and financial market infrastructure. Despite a smaller number of respondents, this year's Survey had a similar geographic reach as last year, with participating firms operating across all regions of the world (Figure 1). Collectively, these firms have around USD 43 trillion of assets on their balance sheets, manage assets of close to USD 46 trillion, and account for about USD 3.2 trillion in market capitalization.

**Figure 1: Regional Spread of Firms' Operations**



As in previous years, we have used a maturity model to score and rank the participating firms on their current climate risk management capabilities across six dimensions: (1) governance; (2) strategy; (3) risk management; (4) metrics, targets, and limits; (5) scenario analysis; and (6) disclosures. This model provides a useful snapshot of current climate risk management practices across the financial services industry; it helps firms prioritize areas to improve upon, and guides less experienced firms on their climate risk journey.

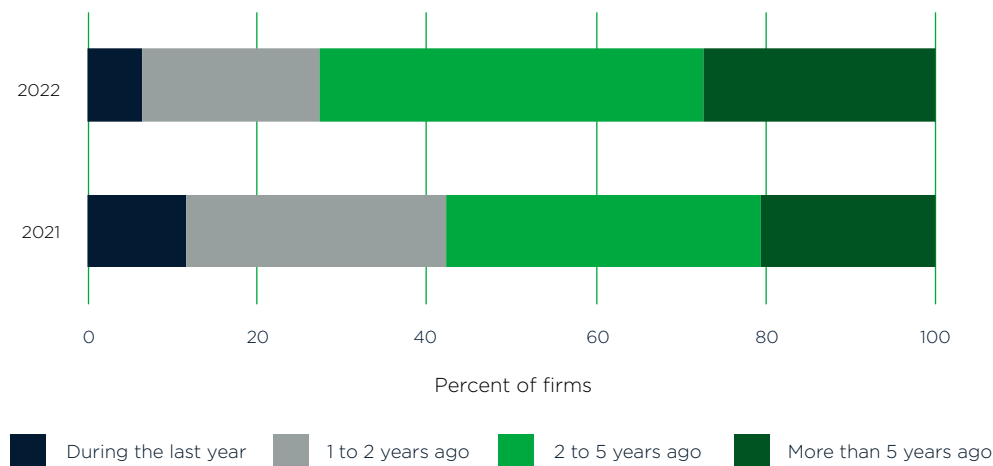
Climate risk management is a dynamic and fast-moving area, with ever-rising expectations. Reflecting this, the current Survey includes some new areas of analysis, including how firms are considering environmental risks like biodiversity, pollution, and water scarcity. Increasingly, these issues are seen as so closely related to climate change that they require consideration in tandem. We also look at how prepared firms are for developing environmental regulation, as well as broader environmental, social, and governance (ESG) trends.

The Survey has changed a little from year to year, adapting to emerging trends. This means that the charts included in this report will sometimes span different periods.

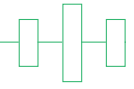
When we assess trends, it is also important to acknowledge that any year-on-year comparisons will reflect a mixture of both evolving practices at firms and changes in the population of participating firms.

Forty-nine of the 62 firms that participated in the 2021 Survey also participated in the 2022 Survey. Relative to last year's sample, we have a slightly more experienced set of firms, as can be seen in Figure 2, which shows when climate was first introduced within the firm. (This means that firms' maturity scores will tend to be somewhat higher than last year's, all else being equal. See *Maturity Model Scores for Climate Risk Management* section for more information.)

**Figure 2: When Was Climate Risk First Introduced?**



A further indication of the aforementioned higher level of experience is that around three quarters of this year's Survey respondents consider themselves to be "strategic," taking a comprehensive approach to climate risk management, with a long-term view of the financial risks. This compares with under 60% last year.



# Key Takeaways

**Supervisory activity on climate risk has intensified further in 2022.** Nearly 90% of firms report that their regulators have published formal expectations for climate risk management, while nearly 80% say that regulators are now requiring them to report their climate-related risks.

**Around three quarters of the firms said that they look beyond climate risks to other environmental risks – including water, air pollution and biodiversity loss.** Firms are approaching these risks with a range of sophistication. Many firms already felt well prepared (39%), or somewhat prepared (34%), for regulatory developments around other environmental risks.

**There has been a marked increase in the use of metrics, targets, and limits.** Ninety percent of the firms now use metrics, around 75% use targets, and just over 50% use limits. The divergence across firms, moreover, has narrowed: 10% of firms are not measuring their climate risk at all (compared with 25% last year), while 50% are using all of metrics, targets, and limits (compared with around 25% last year).

**Despite the progress that has been made, short-term challenges (across the next five years or fewer) remain.** Firms cited the availability of data (82%), availability of reliable models (72%), and regulatory uncertainty (45%) as their greatest short-term concerns. These concerns all ease, however, over the longer term.

**The commercial opportunities from climate change are becoming a more prominent focus for firms.** There has been a steady increase in the proportion of firms expecting commercial opportunities to impact their strategies significantly, especially over the longer time horizons.

**Most firms believe that physical and transition risks are only partially incorporated in market prices.** This underestimation reflects the complexity of pricing in the face of uncertainty over climate policies, challenges in obtaining the granular data, and the immaturity of methodologies.

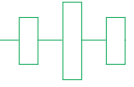
**Product innovation continues apace, with some products becoming commonplace.** Climate-driven products include ESG funds, which are offered by over 80% of asset managers, and green bonds and sustainability-linked loans, which are offered by over 70% of banks.

**More firms are undertaking climate-related assessments in their due diligence.** Eighty-five percent of firms are assessing their counterparties' exposure to transition risk, while 73% are assessing physical risks. Due diligence covering portfolio alignment considerations is less common, but tends to produce the most action (e.g., prompting increased engagement, exposure reductions or divestment).

**Boards are increasingly seeing climate-related dashboards.** Forty-two percent of firms already see a dedicated dashboard, and a further 37% are planning on introducing one. Nearly 60% of firms have a climate risk appetite statement (RAS). At many firms, this climate RAS is currently qualitative (e.g., limiting lending to coal mining), reflecting the focus on limiting exposure to financed emissions, rather than limiting financial risk per se.

**Risk staffing and training is on the rise.** Over the past two years, 67% of firms reported significant increases in staff working on climate risk, and firms expect to hire more staff in the coming two years. Ninety-five percent of firms offer training to multiple business areas, with more than 40% offering it to their entire staff.





# Governance

Effective risk management begins with engagement at the highest level of an organization – namely, the board and senior management. It is now rare for a board not to be engaged with climate risk. Over the four years of undertaking our Survey, we have witnessed a steady increase in board engagement, from 81% in 2019 to 97% in 2022. Indeed, there is now little difference in board engagement across firms in different sectors.

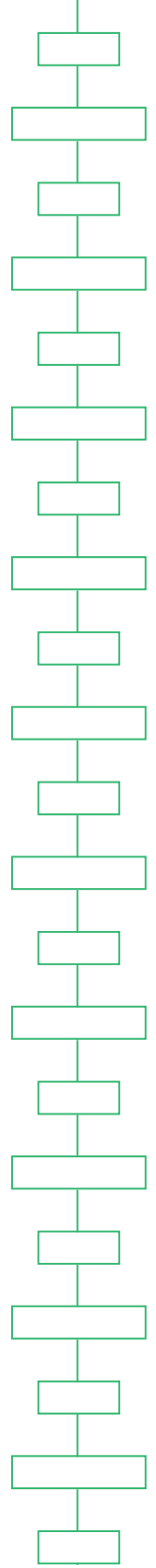
C-Level executives are accountable for climate-related risk assessments and management efforts at 98% of firms in this year's Survey, up from 91% last year, following a steady rise from our 2019 Survey. Typically, responsibility is split across more than one executive – and this year we have seen this become even more popular, across all sectors (Figure 3), possibly reflecting the breadth of issues and their complexity.

**Figure 3: Accountability for Climate-related Risk Assessments and Management Efforts**

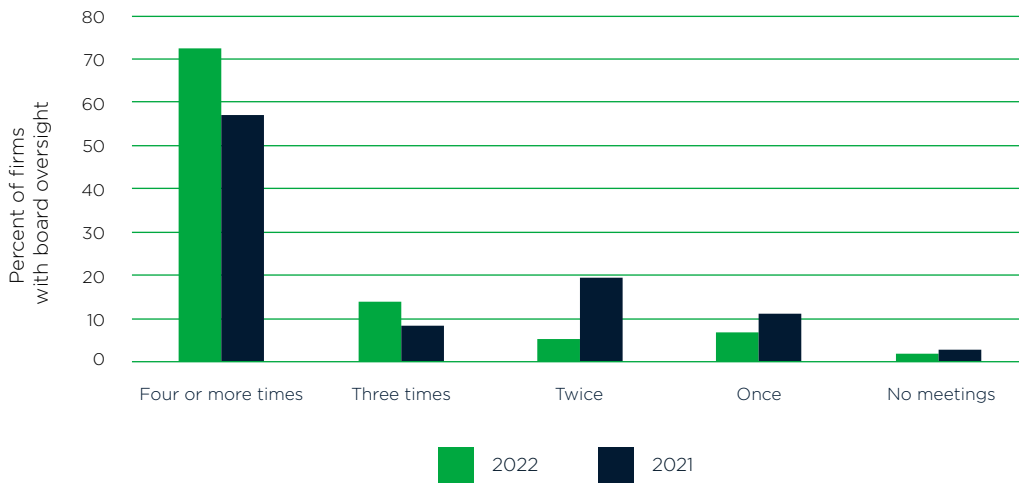


As in last year's Survey, the chief risk officer (CRO) remains the individual most commonly named as the senior executive responsible for climate risk management. This is followed by the chief executive officer (CEO), the head of sustainability, and the chief financial officer (CFO). At banks and insurers, the CRO is typically responsible, but the responsibility within asset managers is more often split between the head of sustainability and the chief investment officer (CIO).

Boards are also engaging on climate risk topics more frequently throughout the year (see Figure 4), with more than 70% of the boards discussing these topics at least four times a year, up from under 60% last year.

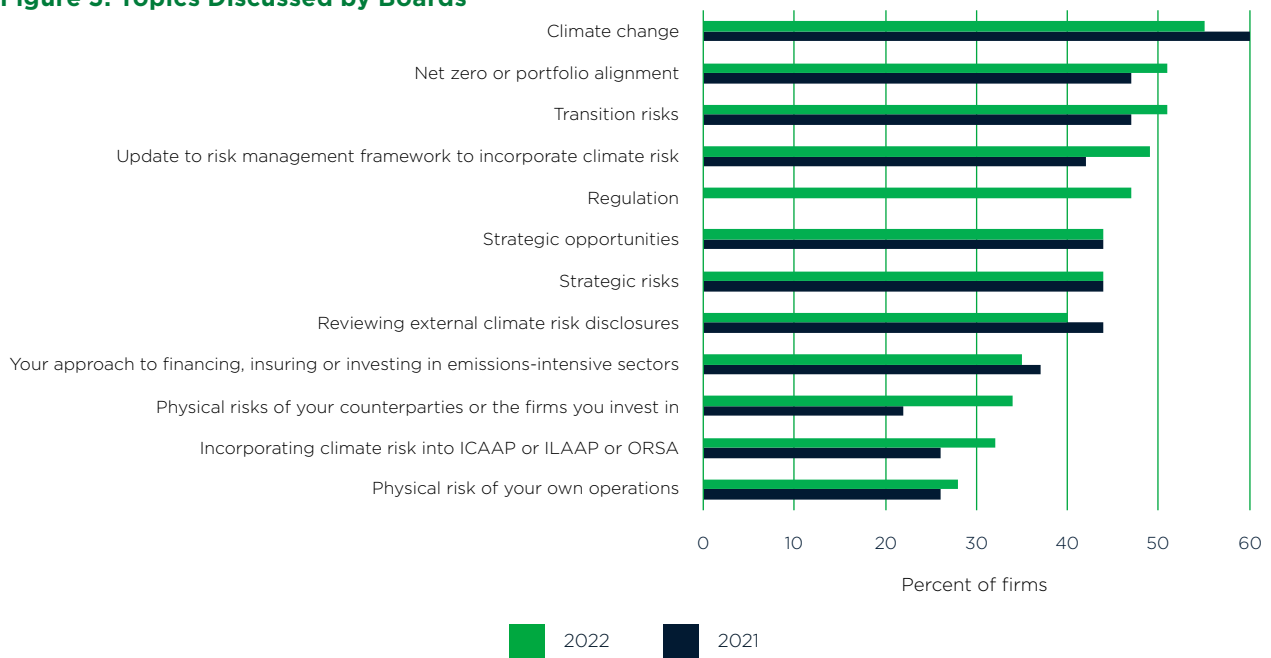


**Figure 4: Frequency of Board Engagement**



Boards continue to discuss a wide range of topics, as Figure 5 shows. The most common topic remains climate change itself, followed by “alignment” – that is, aligning the businesses/portfolios to a particular climate-related pathway – and transition risk. The least common topic is physical risks of a firm’s own operations, although it is interesting that there has been an increase in boards discussing the physical risks of their counterparties.

**Figure 5: Topics Discussed by Boards**

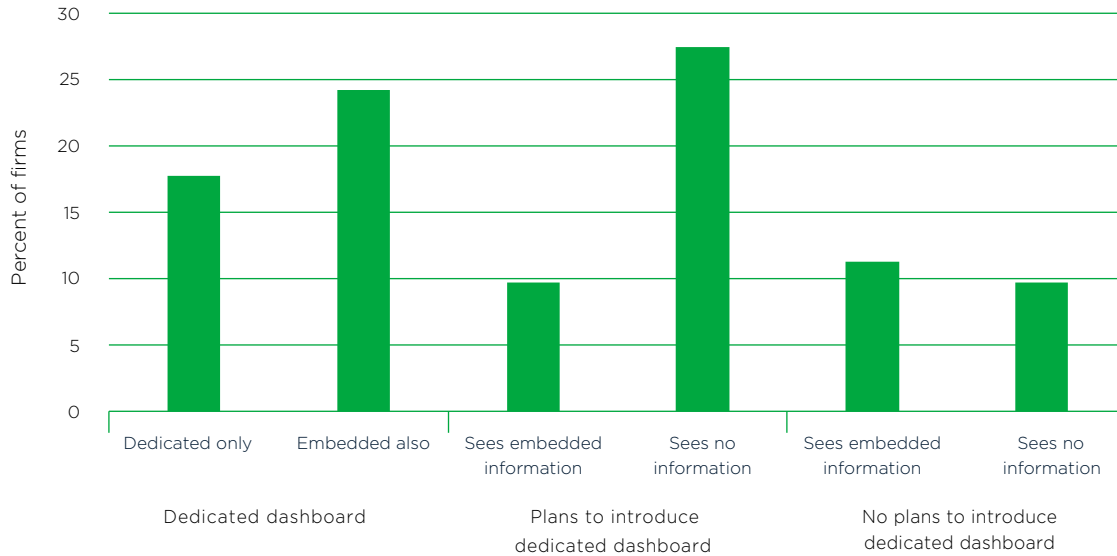


As boards increasingly grapple with a wide range of topics and stakeholders, many are developing dashboards to bring together decision-useful information. We asked this year’s participants about the ways in which they provide information to their boards. Figure 6 shows the range of firms’ practices. Forty-two percent of the firms reported that their boards currently see a dedicated climate dashboard, with a further 37% planning on introducing one. Meanwhile, 45% of boards view climate risk data that is embedded in other dashboards, such as credit or operational risk ones, either solely or in conjunction with a dedicated dashboard.



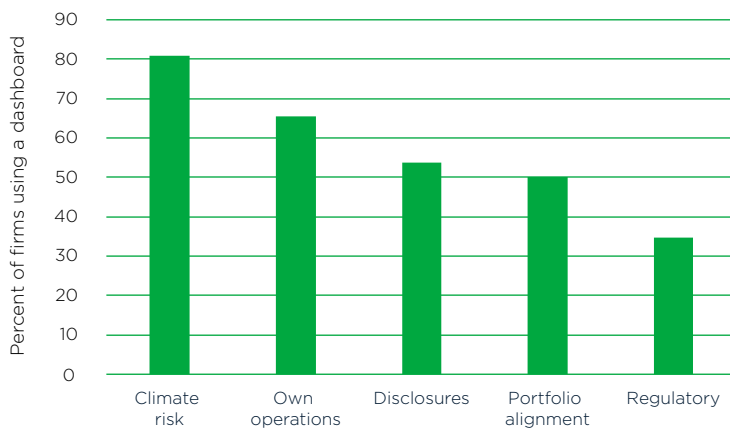
A quarter of firms' boards see a mixture of both dedicated and embedded dashboards. Surprisingly, boards at 10% of firms do not see any climate-risk-related information and have no plans to do so.

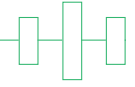
**Figure 6: Use of Board-Level Climate Dashboards**



The information within these dashboards will clearly depend on the nature of the institution, the risks it faces, and its regulatory environment — as well as any external commitments (e.g., to net zero) it has made. Figure 7 illustrates the range of topics that participants were including in their board climate dashboards. The most popular topic is simply “climate risk,” while disclosures and the impact of climate change on a firm’s own operations feature in more than half of the dashboards. Most firms that use a board-level climate dashboard reported that they include both qualitative and quantitative measures in their dashboards. (See the GARP/UNEPFI paper [Steering the Ship: Creating Board-Level Climate Dashboards for Banks](#) for more information.)

**Figure 7: Components in Board-Level Climate Dashboards**





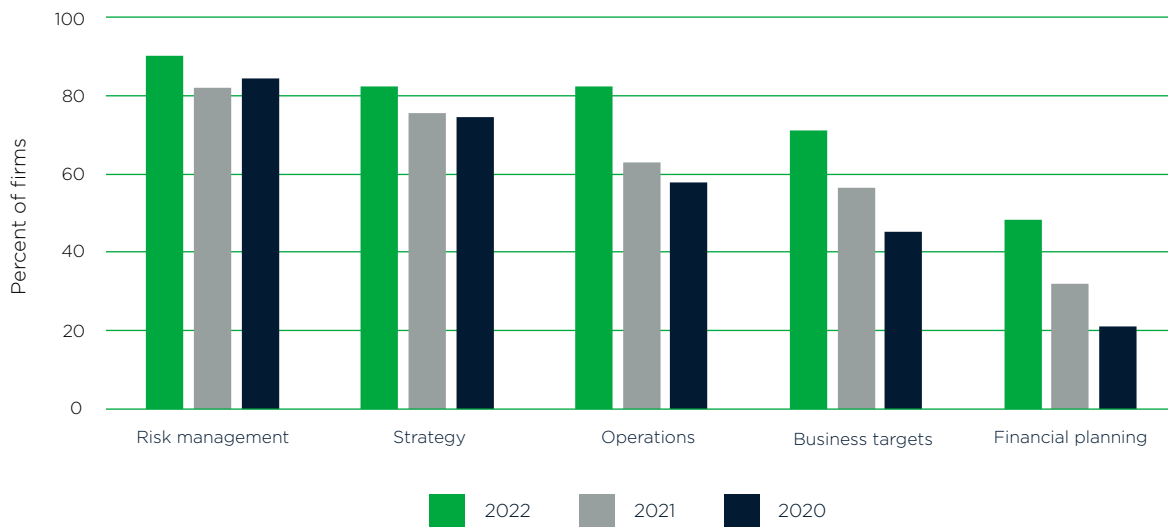
# Strategy

Effective risk management not only requires strong governance but also strategic clarity and good execution. An important motivation for embedding climate change within a firm's strategy stems from the potential for commercial opportunities.

In our sample, 95% of the firms identified climate-related risks or opportunities. (This figure has been steadily rising in the four years of the Survey and is common across all sectors.) One way to spot opportunities is to systematically assess which parts of the business are likely to be impacted by climate change.

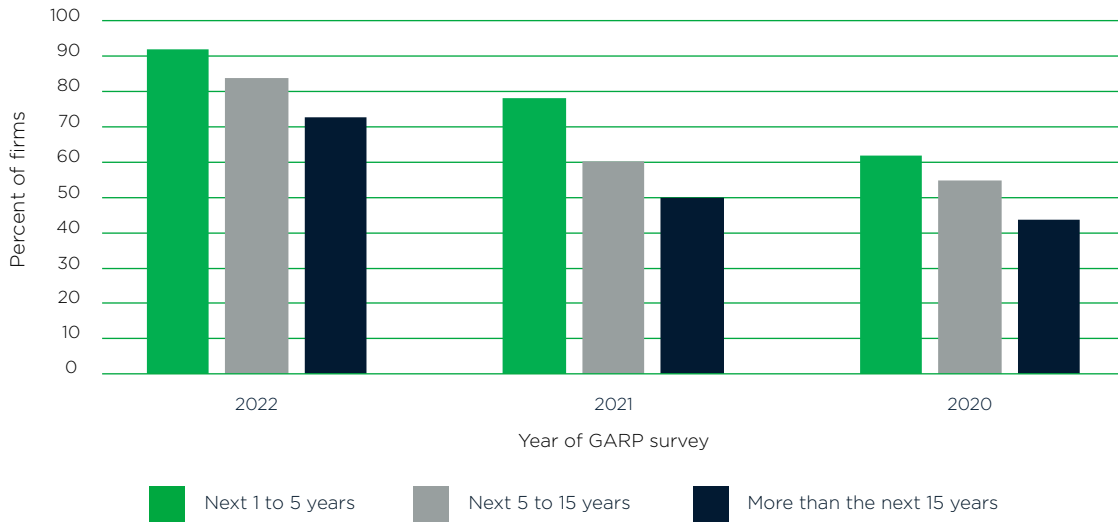
As Figure 8 shows, there has been a steady increase over the past three years in both the number of firms undertaking these types of assessments and the areas that they assess. Although risk management remains the most commonly reviewed area, strategy and operations are now nearly as popular. There has been a steady rise, moreover, in the business targets and finance/corporate planning assessments, but they remain the least reviewed areas.

**Figure 8: Aspects of Business Reviewed for Climate Risks or Opportunities**



Climate change assessments can also provide insights into the timescale of the risks and opportunities. Perhaps not surprisingly, firms consistently see them being greatest in the near term (1 to 5 years), and they progressively decrease as the time horizon extends (Figure 9).

**Figure 9: Time Horizons Where Risks or Opportunities Have Been Identified**



In the 2022 Survey, more firms reported seeing risks and opportunities at each time horizon relative to last year’s Survey. When we look at the trends over the past three years, the increases in short-, medium- and longer-term risks and opportunities are striking.

Alongside these opportunities, there will be new risks. So, how will the balance of opportunities and risks likely impact on firms’ strategies?

Figure 10 shows the proportion of firms anticipating a significant impact on their strategy from the risks or opportunities associated with climate change. Relative to last year’s Survey, fewer firms expect major impacts from climate risks; in contrast, we have seen a steady increase in the proportion of firms expecting opportunities to impact significantly on their strategies over the longer time horizons.

**Figure 10: Strategic Risks and Opportunities**

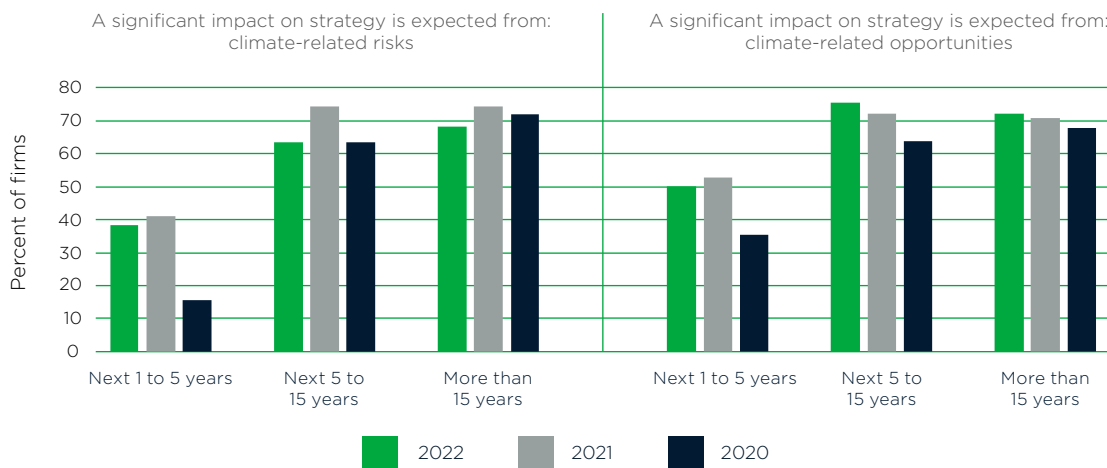
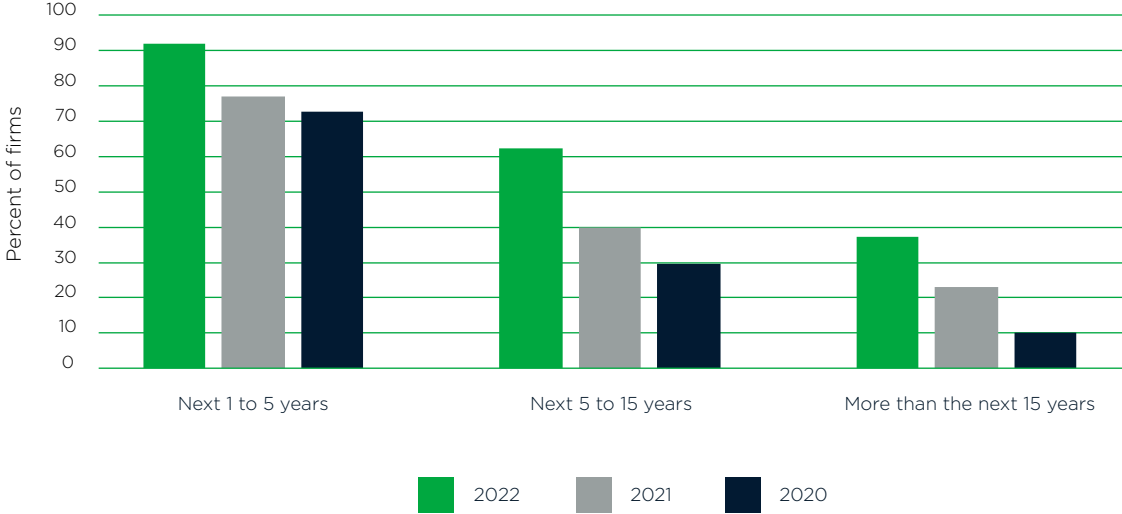


Figure 11 confirms that firms expect the most significant impacts from climate change on their strategies in the longer term. Ninety-two percent of firms felt their strategy would be resilient over the next 1 to 5 years, up from 77% in last year's Survey. But, as in previous years, that confidence weakens as we look further into the future.

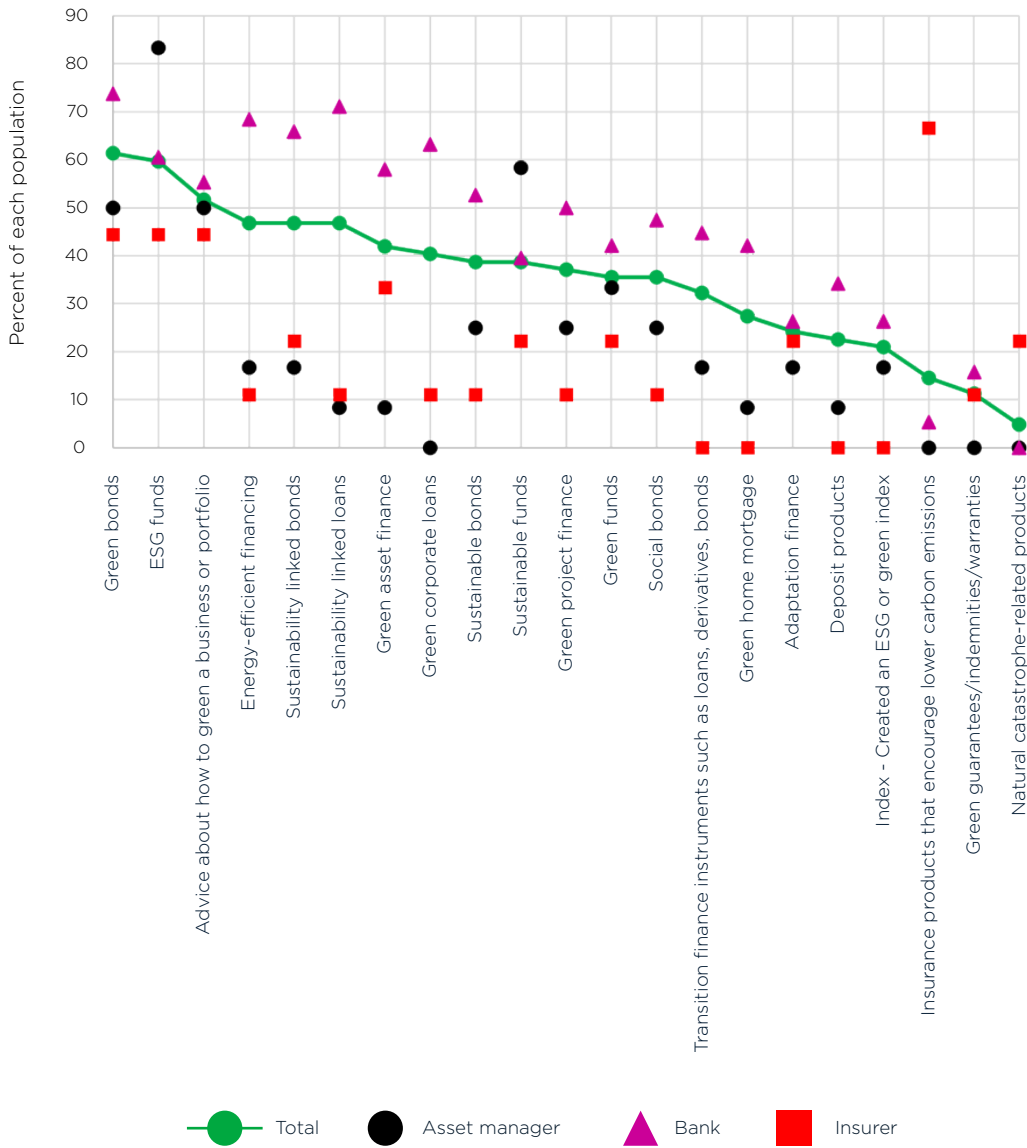
**Figure 11: Over What Time Horizon Are Strategies Resilient?**



The increased optimism about risks, opportunities, and strategic resilience will no doubt in part be a function of the scale of product innovation. Nearly 90% of firms have changed products (e.g., provided adaptation finance or developed sustainability-linked bonds), as shown in Figure 12, and over 90% are working on more new products.

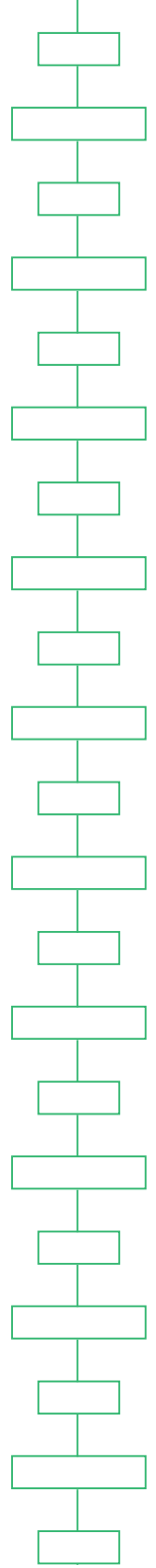
Different types of financial institutions are innovating products that fit with their business models, with some products becoming completely commonplace for some types of firms. For example, more than 80% of asset managers offer ESG funds; more than 70% of banks offer green bonds and sustainability-linked loans; and about 70% of insurance companies offer products that encourage lower carbon emissions.

**Figure 12: New Products or Services Changed Due to Climate Risk**



Firms still face challenges as they establish their climate risk strategic and management practices. As Figure 13 shows, the availability of data and reliable models dominate the short-term challenges. Regulatory uncertainty is also highly significant, with 45% of firms citing it as a short-term concern.

Practically all firms' concerns ease in the longer term. This indicates that they expect more reliable data to become available, regulatory regimes to become established, and modelling approaches to mature.

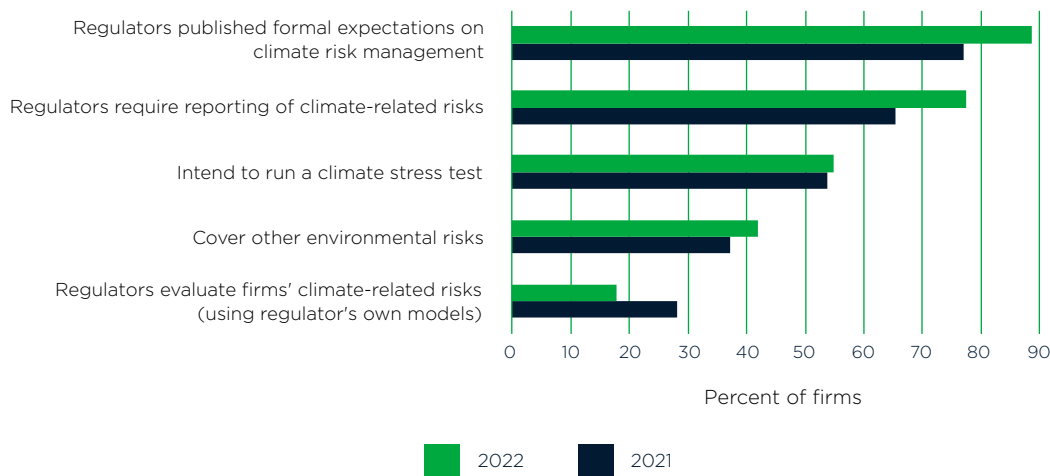


**Figure 13: Future Barriers and Challenges**



In last year’s Survey, we noted the intensification of supervisory activity on climate risk; this year, we have seen this increase further (Figure 14).

**Figure 14: Regulatory Expectations on Climate Risk Management**

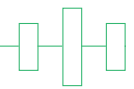


Nearly 90% of the firms report that their regulators have published formal expectations for climate risk management, while roughly 80% say that regulators are now requiring them to report their climate-related risks. Similar to last year, just over half of the firms have regulators who have announced their intention to include them in a climate risk stress test.

This year, fewer regulators started evaluating climate-related risks at firms using their own models — for example, via “top-down” stress testing. This may be a sign of a growing maturity in regulatory approaches, as some regulators start with a top-down stress test to help inform them about how to design a “bottom-up” stress test that involves the regulated firms more directly.

With just over 40% of firms reporting that their regulators have expanded their scope to cover other environmental risks (like biodiversity loss or pollution), it is reasonable to assume that regulators will also start expecting these risks to be disclosed and measured. Firms are similarly looking beyond climate risk to other environmental issues, as well as broader social and governance issues. (For more details see the *Other Environmental Risks and ESG: A Deep Dive* section.)





# Risk Management

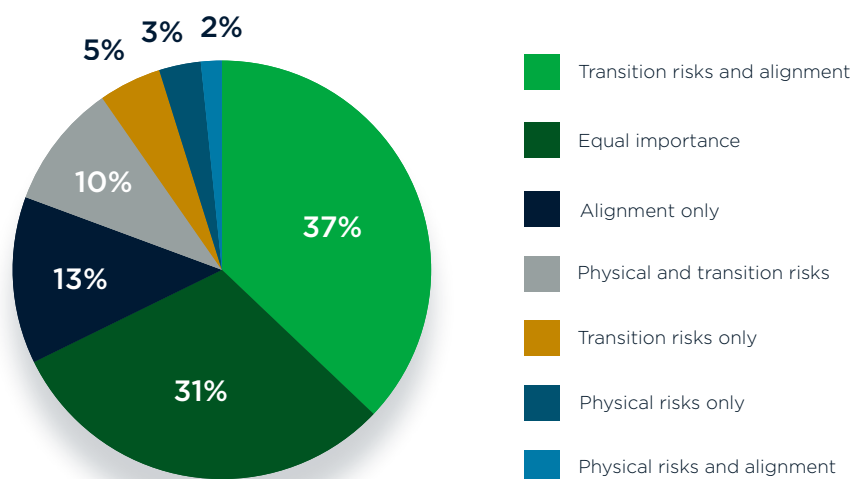
A key part of risk management is understanding the level of risk that the firm is willing to take in order to achieve its business objectives. This is typically articulated in a risk appetite statement (RAS), which is approved by the board.

Nearly 60% of firms in our Survey have adopted a climate RAS. Many of the firms note that their RAS is qualitative at this stage. This is not surprising, given that the methodologies for quantifying climate risks are not well established.

We might expect firms to start with a qualitative approach before they subsequently develop quantitative measures. But the qualitative focus might also reflect the way that RASs are currently expressed. For many firms, their RAS is linked to portfolio alignment or financed-emissions targets (e.g., limiting exposures to coal mining), rather than directly limiting the exposure to financial risk (e.g., credit or market risk).

We asked firms which of physical risk, transition risk, or portfolio alignment was their biggest priority. Transition risk and portfolio alignment were jointly cited as the most significant priorities for just under 40% of firms (Figure 15). All three risks were on an equal footing at just under a third of firms.

**Figure 15: Which Is the Bigger Priority: Physical Risk, Transition Risk, and/or Portfolio Alignment?**



Note: Figures are expressed as a percent of firms. Values reported are rounded.

Alignment alone is the most important driver at 13% of firms, while only 3% of the firms thought that physical risks alone were the most significant. Adding up all the pieces of the pie, transition risk and net zero/temperature alignment (at 82% apiece) were firms' biggest priorities; 45% of firms, on the other hand, cited physical risk as their main concern.

Once firms have determined which types of risks are their main priority, they need to decide how they wish to embed climate risk within their risk management framework. There are two main approaches being

adopted: (1) to treat climate risk as a standalone (principal) risk type; or (2) to treat it as a cross-cutting (transverse) risk that should be embedded within other existing risk types.

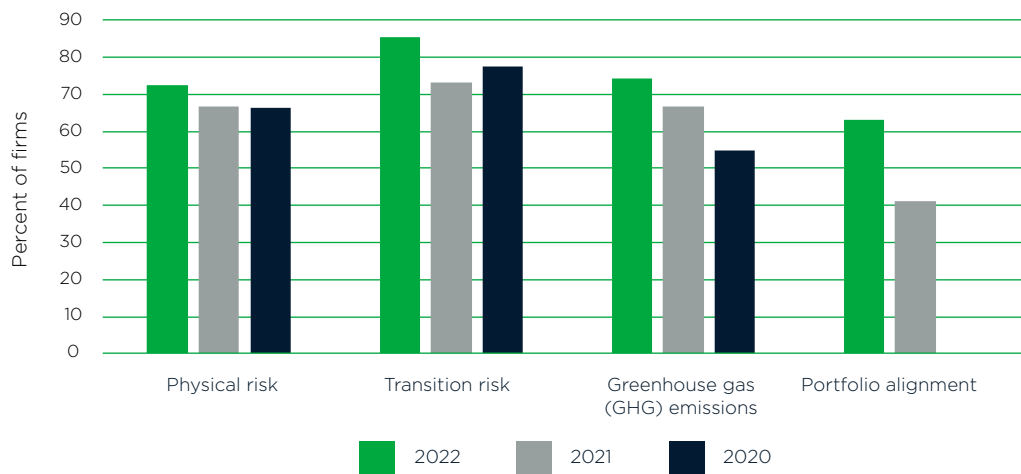
This year, like last year, a minority of respondents (15%) consider climate financial risk as a principal risk only. It is treated as both a principal and a transverse risk at 20% of firms, which has increased from 8% in 2021, potentially to bring more focus to it. The majority of firms still consider climate financial risk as a factor in other risk types – principally, credit, operational, business/strategic, and reputational risk.

There are also differences across financial institution types. Almost all banks consider climate risk in credit risk and operational risk; around three quarters consider it in reputational and business/strategic risk; and 50 to 60% consider it in legal risk, liquidity risk, and market/traded risk. Insurers, meanwhile, tend to also consider it within insurance underwriting, while asset managers have prioritized it in business/strategic and market/traded risks. The different focus of financial institutions is not surprising, given the variation in their balance sheets and business models.

One way that firms can embed climate considerations into day-to-day risk management is to include it in due diligence – either for counterparties that firms lend to, the companies they invest in, or those they insure.

Figure 16 shows the different types of assessments that firms are including in their due diligence.

**Figure 16: Due Diligence of Counterparties' Climate Risk Coverage**



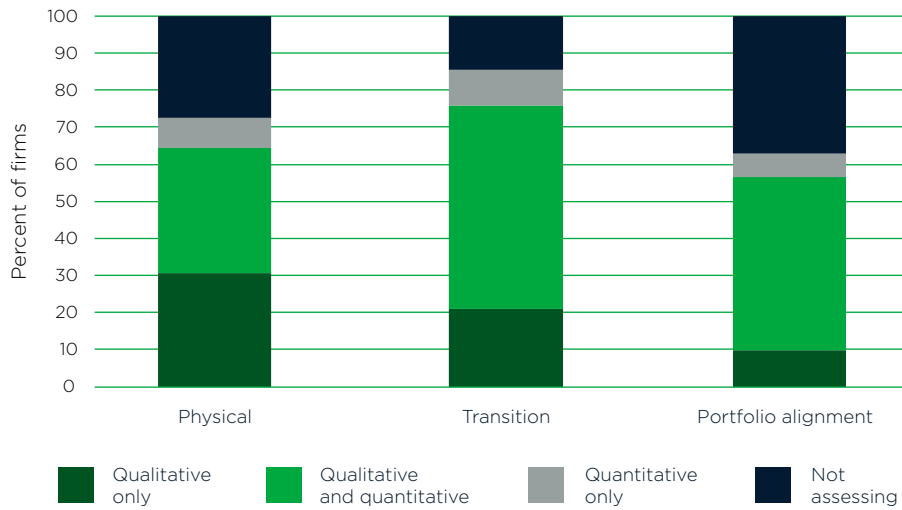
This year, we found that a higher proportion of firms were undertaking climate-related assessments in their due diligence, with 85% of the firms assessing their counterparties' exposure to transition risk and more than 70% of firms assessing how physical risks will affect their counterparties.

Portfolio alignment considerations are also now far more likely to be part of due diligence, which is not surprising as more firms are making external 'net zero' or pathway alignment commitments.

Over the past two years, we have noted our surprise that more firms were not looking at greenhouse gas (GHG) emissions, since we would expect this to be an input into any transition risk or portfolio alignment assessment. The fact that it is now picking up suggests that there has been some improvement in the usability and availability of counterparties' GHG data (or proxies).

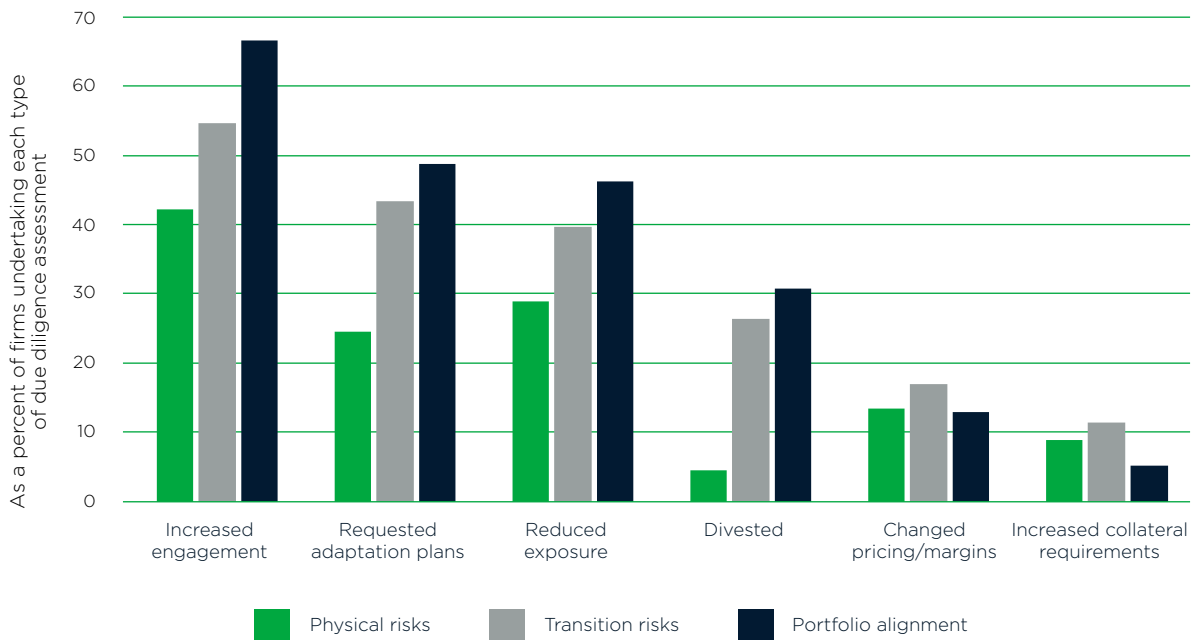
In 2022, we also looked at whether the various due diligence assessments are qualitative or quantitative. Across all the risk types, qualitative analysis remains the most popular, although most firms are doing both qualitative and quantitative analysis (Figure 17).

**Figure 17: Type of Risk Assessment Used in Due Diligence**



Considering the fact that more firms are embedding climate risk into their due diligence, this year we chose to dive deeper into whether this prompted any action by the firms undertaking these assessments. Due diligence that is focused on portfolio alignment produces the most action (the sum of navy bars in Figure 18 is greater than the sum of the grey or green bars). Transition risk concerns are the next most widespread prompt for action, followed by physical risks.

**Figure 18: Actions as a Result of Different Forms of Due Diligence**

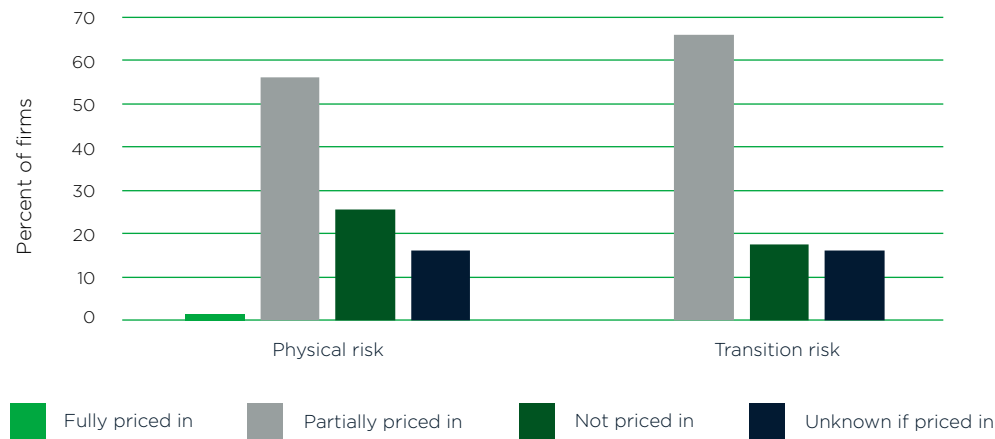


Firms are undertaking a variety of actions. The most common action is to increase engagement with counterparties – but firms are also requesting adaptation plans, reducing exposure, or divesting/not entering into transactions.

At the moment, most firms are not choosing to change their pricing or increase collateral requirements. So, firms are taking actions to reduce their prima facie risks, rather than increase the returns they receive or mitigate the risks.

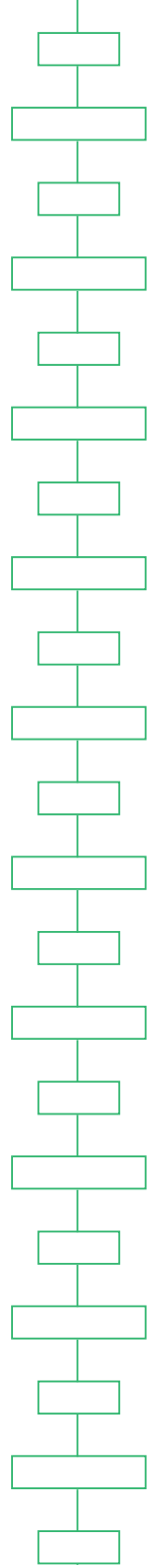
Taking into account questions posed to the firms about whether they think climate risks are currently being priced in the market, this reluctance to change pricing is interesting. As Figure 19 indicates, most firms believe that physical and transition risks are only partially included in product pricing. There is more confidence about the pricing of transition risk at present, with 66% considering that transition risk has been partially priced in, compared with 56% for physical risk.

**Figure 19: Are Physical and Transition Risk Being Priced in by Markets?**

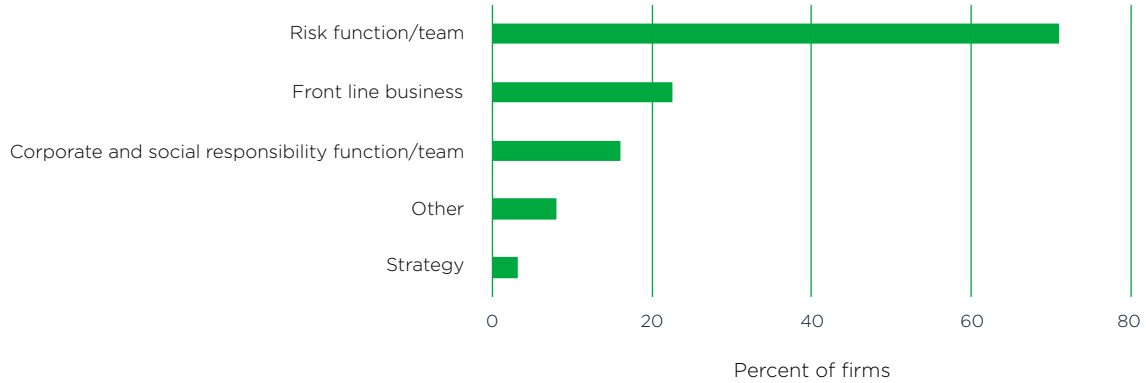


No one felt that transition risk was being priced fully, and only one firm (an asset manager reporting on what they thought was happening in insurance) thought that physical risk was being fully priced. Many firms noted the complexity of incorporating either risk into their pricing, particularly given uncertainty over climate policies, challenges in obtaining granular data, and the immaturity of methodologies.

Firms are also choosing different operating models for climate risk management. However, in the vast majority of firms, it is the risk function that has responsibility for climate risk (71% of firms). In a few firms (15%), this is shared with corporate social responsibility (CSR) and/or front-line business (Figure 20).



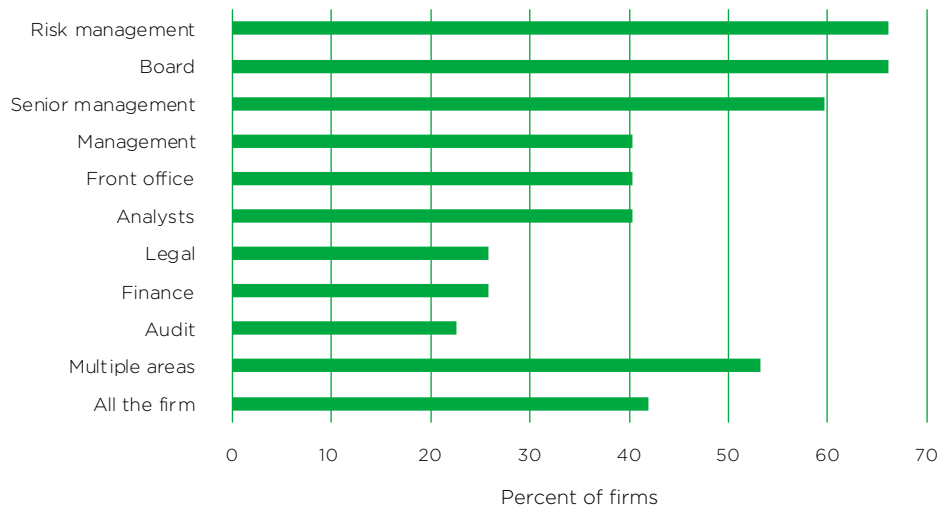
**Figure 20: Climate Risk Responsibility**



Over 95% of climate risk teams are led by senior staff — i.e., staff with more than 10 years’ experience. Interestingly, the majority of staff are mid-level or senior, with only about 20% of staff being junior.

Firms are also doing a range of things to build capability, in particular training. Ninety-five percent of firms offer climate risk training in multiple areas, with more than 40% of the firms offering it to their entire staff. In terms of targeted training, this is most commonly offered to risk managers, board members, and senior management (Figure 21).

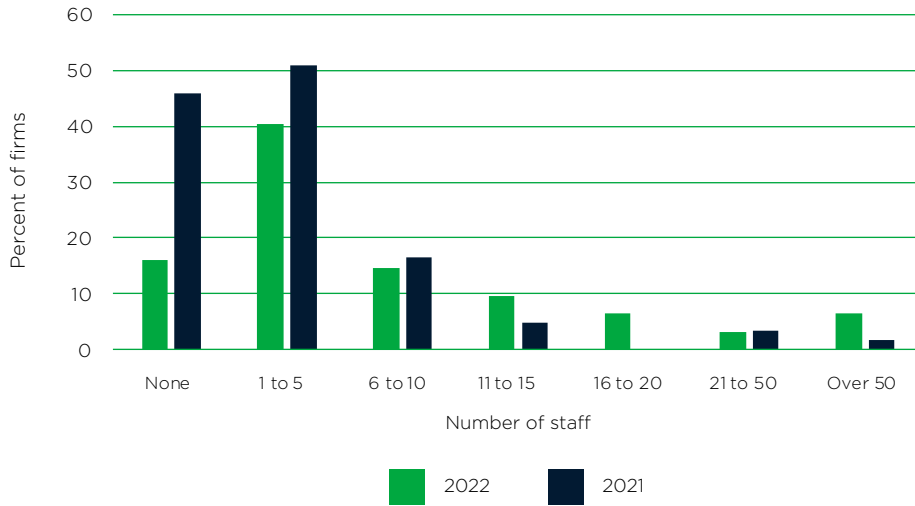
**Figure 21: Which Staff Are Being Offered Climate Risk Training?**



Another way to build capability has been to hire more staff. As we noted in last year’s Survey, it is difficult to get an accurate picture of the current level of climate risk staffing.

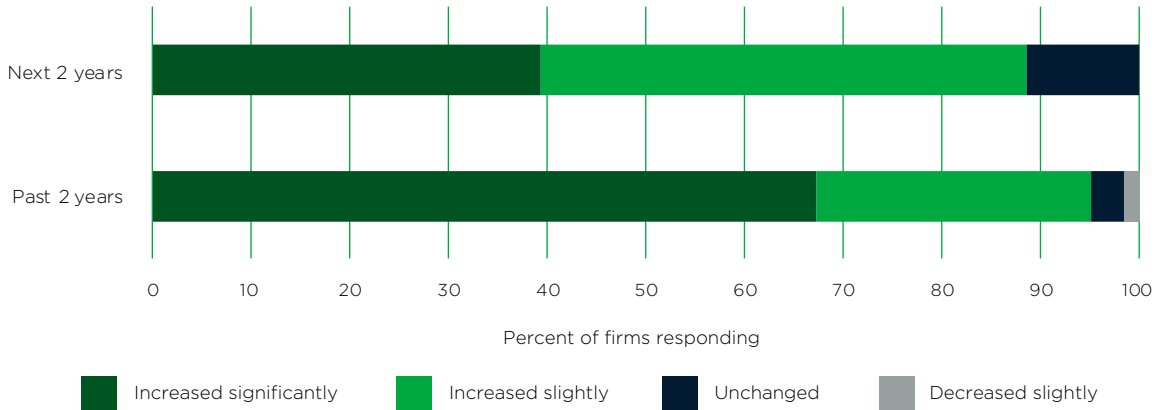
We asked firms to report the number of employees they have working full- and part-time on climate. Figure 22 illustrates the range of full-time staff, which should be more reliable than the part-time figures. It shows that most firms have 1 to 5 staff working on climate risk, but a few firms have more than 50. Like last year’s Survey, there remains considerable variation across firms.

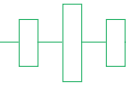
**Figure 22: Number of Full-Time Staff Working on Climate Risk**



Over the past two years, 67% of firms reported significant increases in staff working on climate risk, with a further 28% reporting modest increases. Firms expect to hire even more staff in the coming two years, although the hiring pace is expected to ease (Figure 23).

**Figure 23: Changes in the Number of Staff Working on Climate Risk**



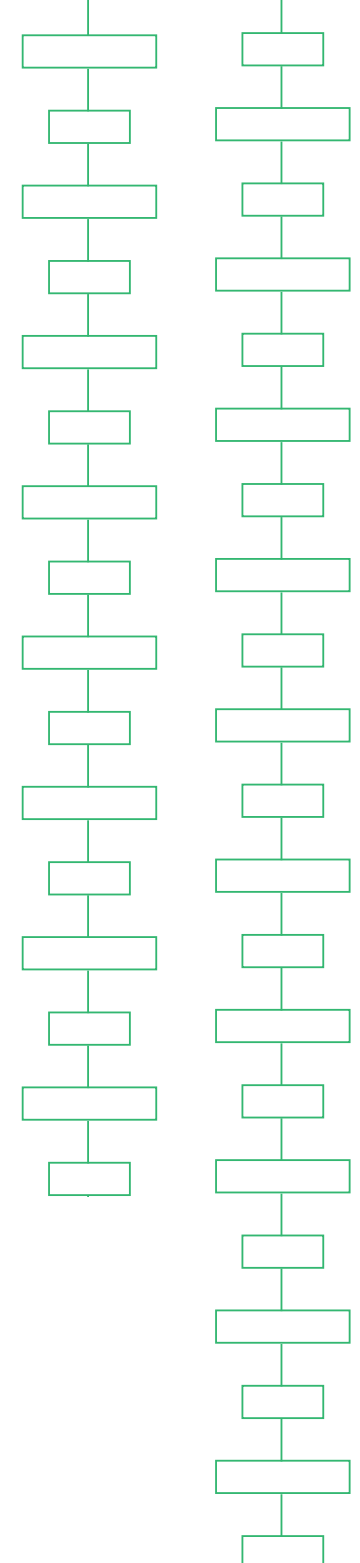
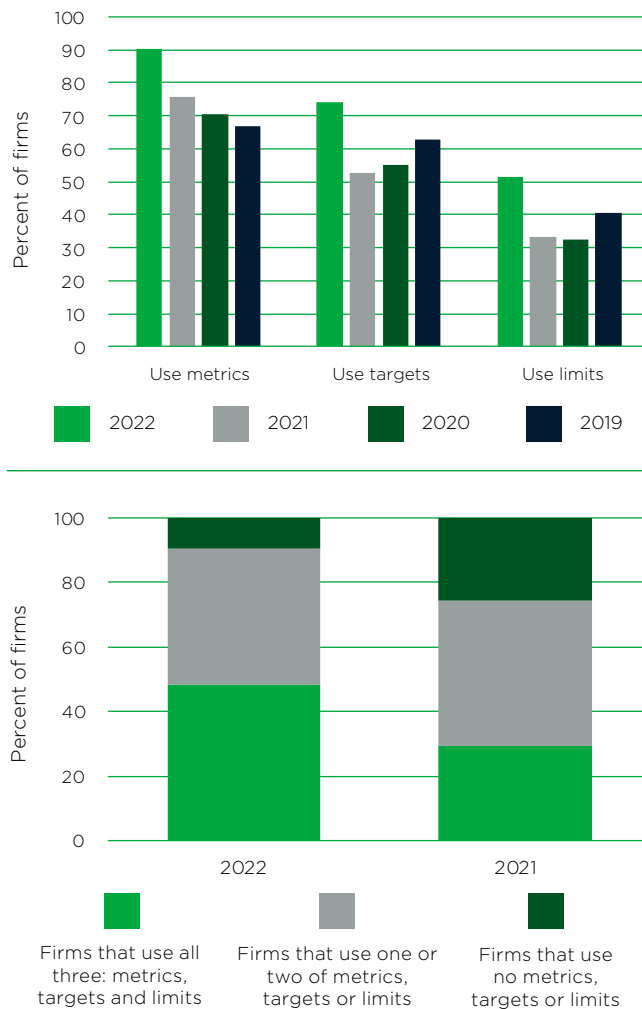


# Metrics, Targets, and Limits

An integral part of effective climate risk management is the use of metrics, targets, and limits, which collectively help firms to assess, monitor, and manage these risks and incorporate them into their risk appetite statements. For the Survey, these terms were defined as follows:

- A metric is a measure used to assess climate risk (e.g., portfolio carbon intensity)
- A target is the outcome the organization aims to achieve (e.g., the goal of portfolio carbon intensity below  $\alpha$ )
- Limits represent the worst outcome the organization is prepared to accept without taking corrective action (e.g., portfolio carbon intensity must remain below  $\beta$ ).

**Figure 24: Use of Metrics, Targets, and Limits Across Respondents**

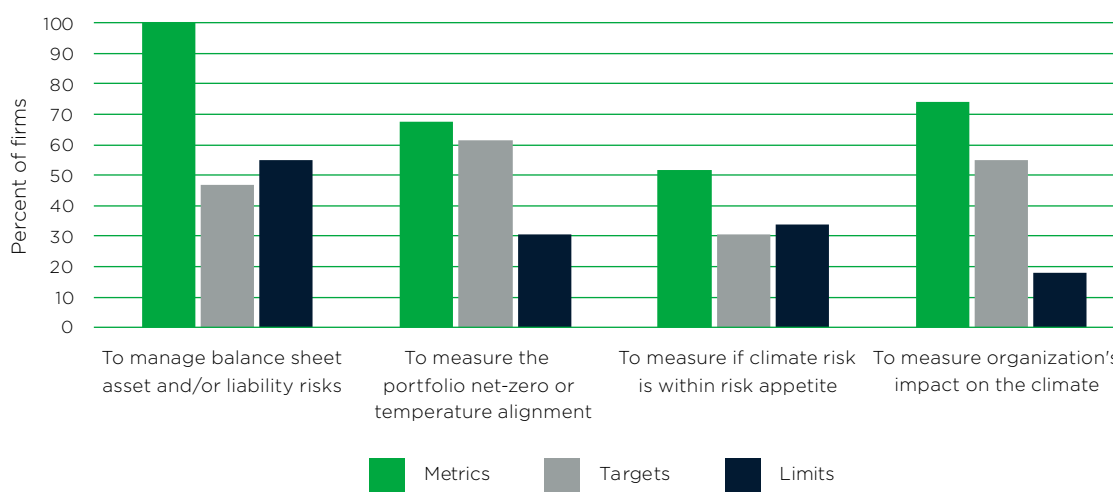




This year there has been a marked increase in the use of metrics, targets, and limits. Ninety percent of the firms use metrics, around 75% use targets, and just over 50% use limits (Figure 24). There is a divergence in practices, but less than in last year's Survey: 10% of firms are not measuring their climate risk at all (compared with 26% last year), while 50% are using all of metrics, targets, and limits (compared with 29% last year). This is encouraging and suggests that climate risk is becoming more integrated into a wider range of firms' risk management frameworks.

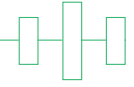
Each of these tools are used for different purposes. Figure 25 shows the most common uses. Metrics are the most common in each category. Targets are more commonly used for managing the firms' direct impact on the climate from its own operations (e.g., measuring emissions from the buildings it uses) and for measuring the portfolios' net-zero or temperature alignment. Limits are set to cap a firm's exposure to risks and are used most frequently to manage asset risks.

**Figure 25: Uses of Metrics, Targets, and Limits**



Metrics, targets, and limits used by firms are not only part of the risk management framework, but also support firms' strategies. As in last year's Survey, portfolio alignment targets are least likely to be part of risk management. It seems likely that firms are choosing to align portfolios strategically, with particular emissions or temperature pathways, rather than on the basis of risk management.

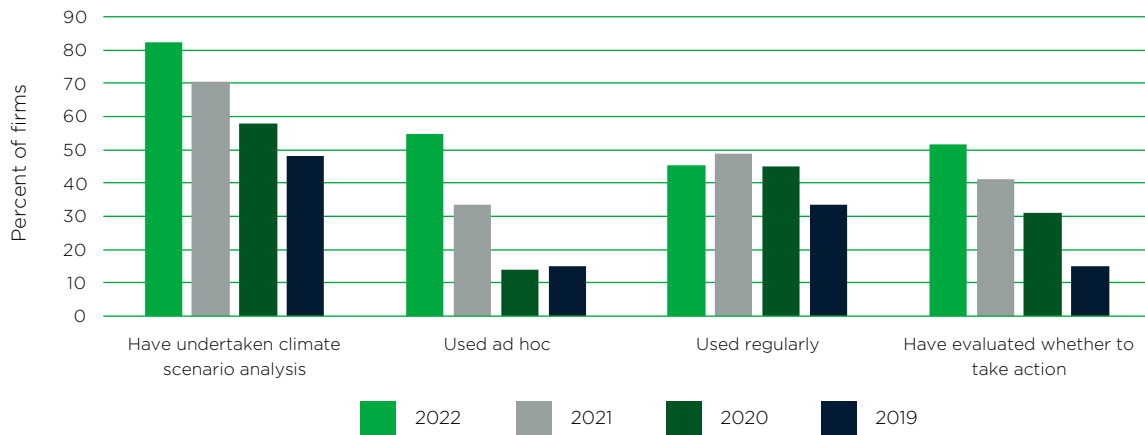
The [Global GHG Accounting and Reporting Standard for the Financial Industry](#) (developed by the Partnership for Carbon Accounting Financials, also known as PCAF) is the most common method that firms employ to assess their financed emissions, with 63% of firms using it. Almost a quarter of firms use their own internal method (which in many cases was based on the PCAF method), and about a quarter use other external measures.



# Scenario Analysis

Climate scenario analysis is one of the key tools for identifying and quantifying the potential financial risks from climate change, given the range of uncertainty over issues such as climate policies, technology shifts, and the path of emissions. Many firms are facing increased supervisory interest in this area, prompting a further increase in capability building.

**Figure 26: Use of Scenario Analysis**



As Figure 26 shows, just over 80% of firms in this year’s Survey stated that they use scenario analysis, up from 71% in last year’s Survey. This rise has been driven by firms using it on an ad hoc basis.

Just over half of the firms have evaluated whether to take action. We found this year — for the first time — that all firms that don’t yet use scenario analysis intend to introduce it in the future.

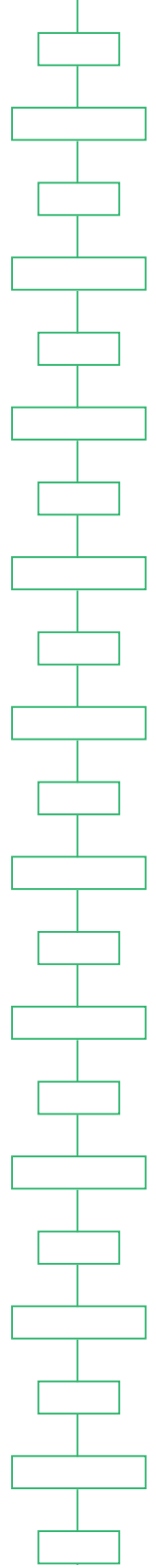
**Figure 27: Actions Evaluated and Taken as a Result of Scenario Analysis**



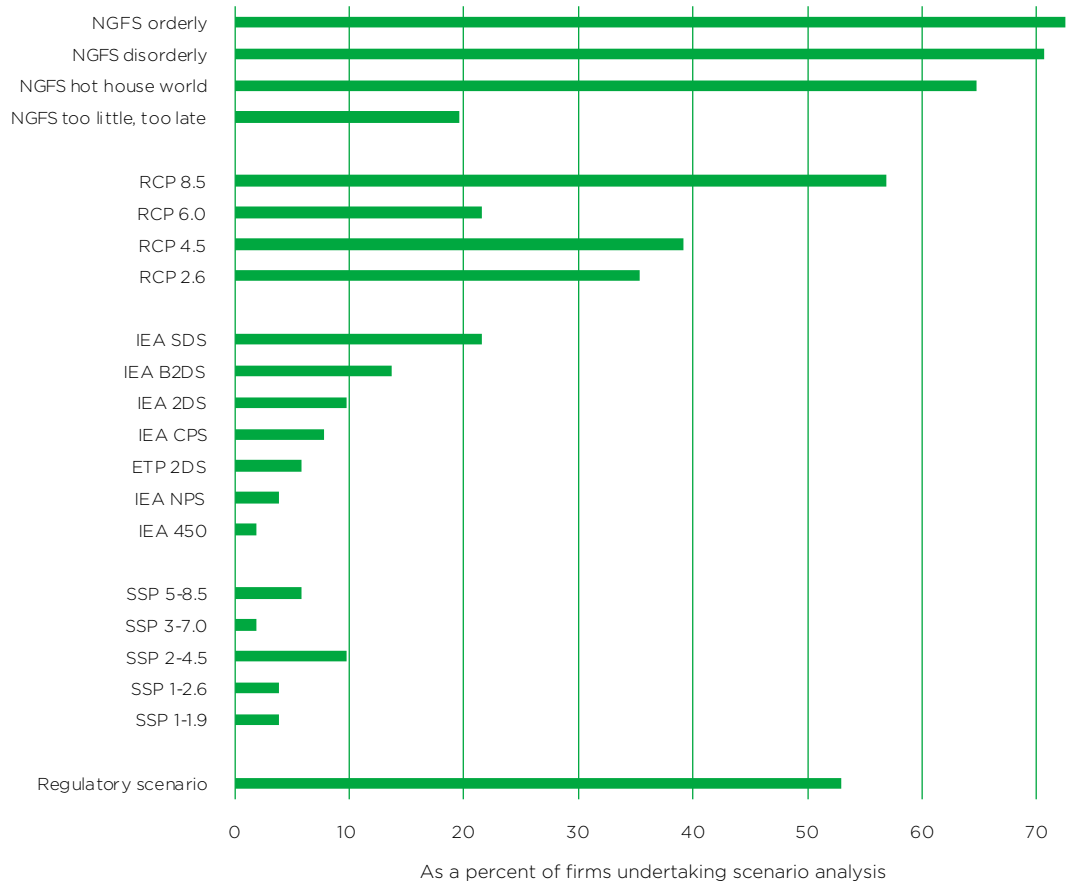
The most common actions evaluated were whether there should be changes in the firm’s risk management, portfolio composition, and organizational strategy, as well as improvements to disclosures (Figure 27). Roughly one-third of firms undertaking scenario analysis took action to improve disclosures and to change risk management. Furthermore, 43% of the firms doing scenario analysis have undertaken more than one action as a consequence.

It is encouraging to see scenario analysis being used to help manage the business. As we noted last year, climate scenario analysis is becoming far more mainstreamed across the financial sector.

The most commonly used scenarios now are those produced by the Network for Greening the Financial System (NGFS), which published its second vintage of [scenarios](#) in June 2021. These reference scenarios are most widely used by supervisors, so perhaps it is not surprising how widespread their adoption has been across the financial sector (Figure 28).

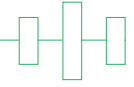


**Figure 28: Scenarios Used by Financial Firms**



In the four years of the GARP Survey, the most commonly used time horizon for climate scenario analysis has been 10 to 30 years.

This year, GARP has re-run its deep dive on a range of aspects of climate scenario analysis on behalf of the UK's [Climate Financial Risk Forum](#) (CFRF). The analysis provides more detail on the current maturity of firms' practices, covering issues such as the motivation for undertaking scenario analysis; the range of scenarios used and why they were selected; the scope of their analysis; and the risks examined. This analysis will be published alongside other CFRF outputs in 2022.



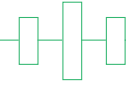
# Disclosures

Firms' disclosures within the maturity model provide a useful additional insight into the advancements we have seen in climate risk management practices. This is because firms that disclose must go through rigorous approval processes before signing off on any public statements.

We asked participants about their governance, strategy, and risk management disclosures, as well as their progress in meeting the Task Force on Climate-Related Disclosures (TCFD) recommendations. Figure 29 shows that not only has there been a steady increase in the percentage of firms disclosing information on their climate-related governance, strategy, and risk management over the past three Surveys; an increasing proportion are also meeting the TCFD recommendations.

**Figure 29: External Disclosures and TCFD Requirements**





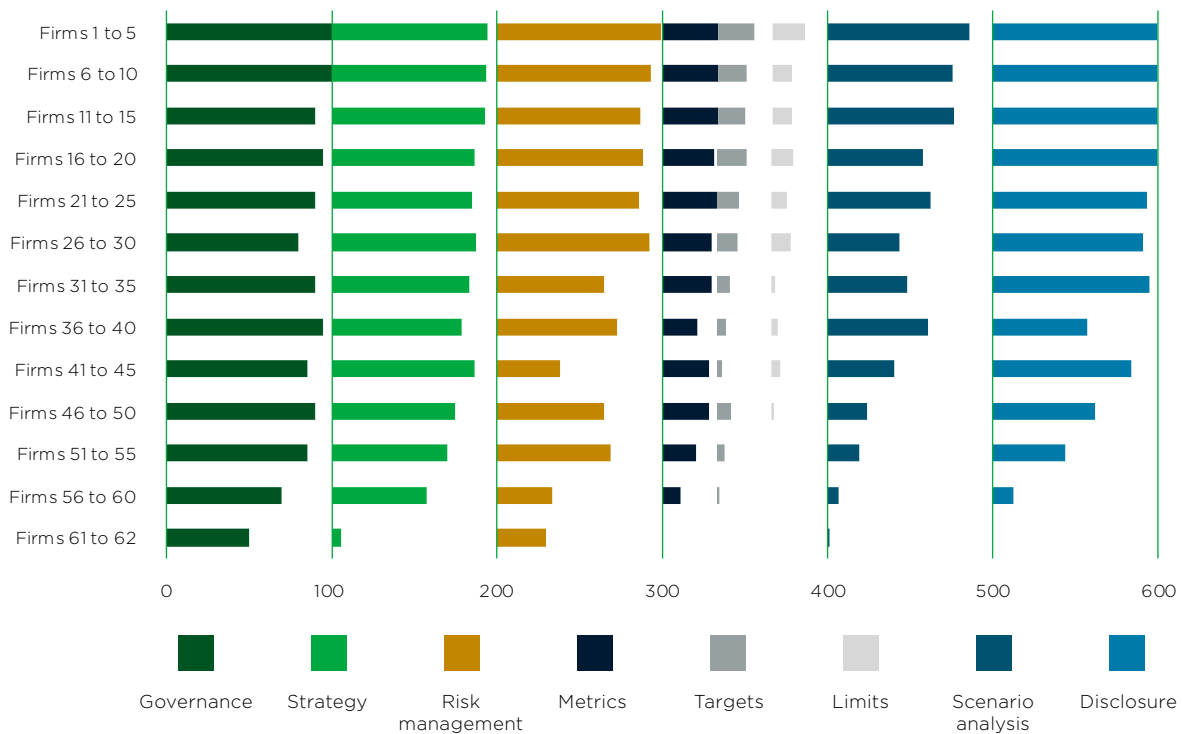
# Maturity Model Scores for Climate Risk Management

A maturity model for climate risk management has been, and continues to be, a useful tool for measuring firms' capabilities. Our model has been refined each year, reflecting both changes to the questions and rising expectations. For the participating firms, the scores they receive provide a measure of their particular levels of achievement, and a sense of how they stand relative to their peers.

Figure 30 shows the scores firms received for each dimension. The completeness of each color within its 100-point bar provides a snapshot of current capabilities within that dimension.

Firms 1 to 5, for example, score very well on governance, risk management, metrics and disclosure, and a little less well on strategy and scenario analysis. Firms 61 to 62, in contrast, score low for most categories, and do not score at all for metrics, targets, limits and disclosures.

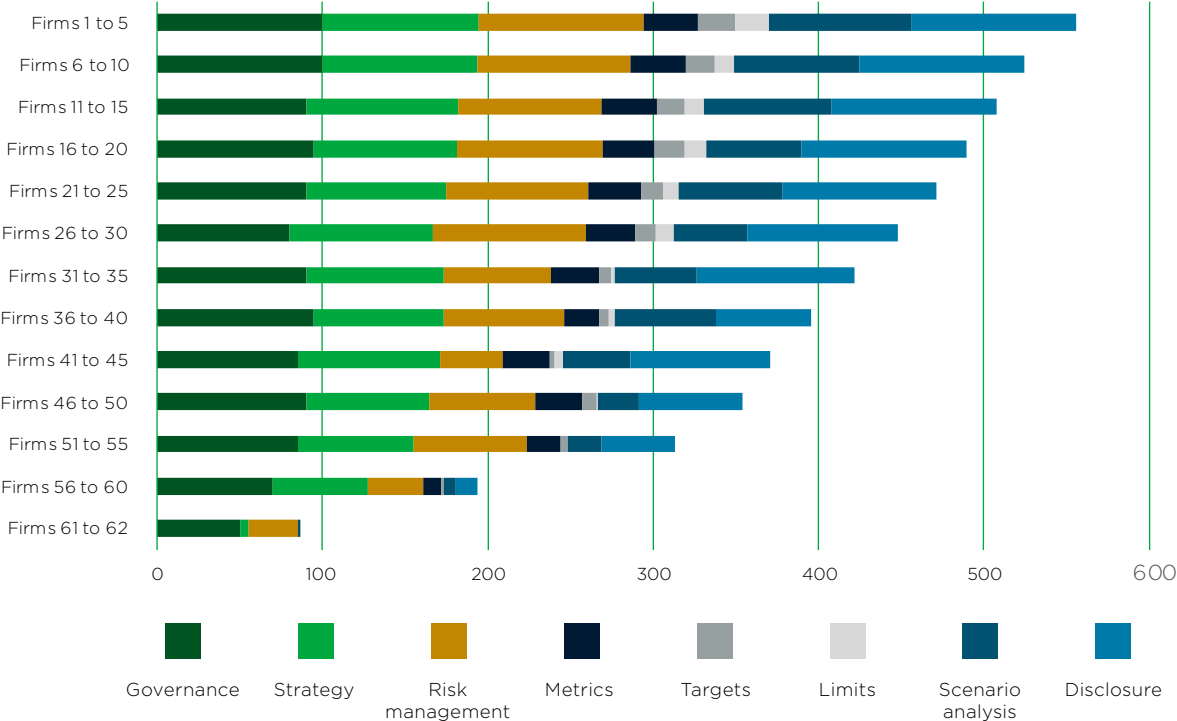
**Figure 30: Maturity Model of Climate Risk Management**



Similar to last year, we see that most firms scored well on governance, combining board-level governance with C-Level responsibility for climate risk. Many firms also now score well on strategy and disclosures. The picture is more mixed for risk management and scenario analysis, with the least well-advanced dimension being metrics, targets, and limits.

Figure 31 adds all the scores into a cumulative total, which provides a better indication of the range of practice between the best in class (Firms 1 to 5, which score around 550 out of a theoretical maximum of 600) and the weakest in class (Firms 61 and 62, which score less than 100). The maturity model for 2022 shows a wide distribution of progress in climate risk management, as in previous years, with some firms already having really quite advanced capabilities, and others just getting started.

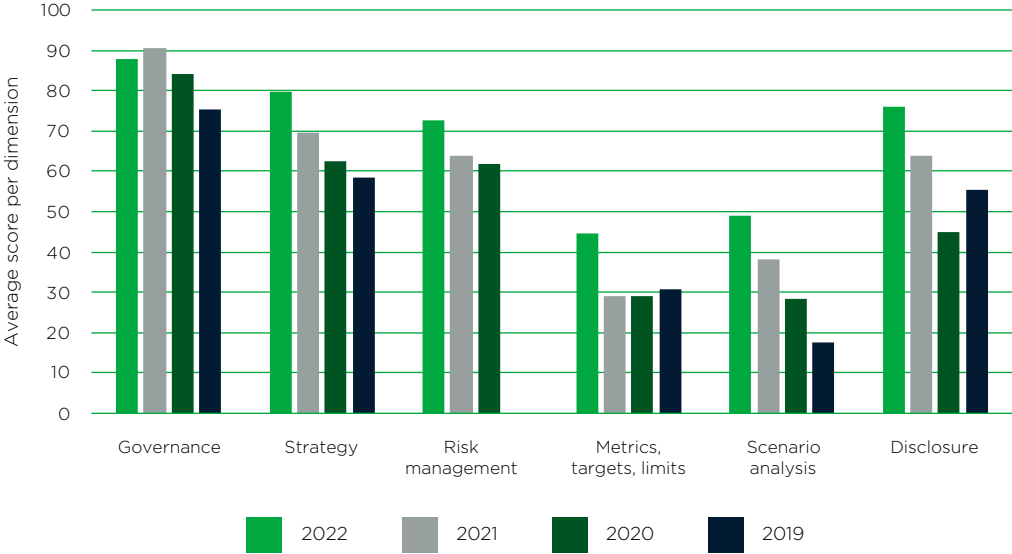
**Figure 31: Range of Practice Across Firms**



Standing back and looking at the trends over the four years of the survey, climate risk management has certainly improved (Figure 32). This year we have seen improvement in almost all dimensions, including metrics, targets, and limits, which has traditionally been the most difficult aspects for firms to establish and evolve. (Note that Risk Management was not a separate dimension in the 2019 Survey).



**Figure 32: Climate Risk Management**



In the governance section, this year we introduced scored questions about whether boards see climate-related dashboards. Interestingly, at 37% of firms, boards still do not see them. This decreased the overall governance score compared with last year, even though the scoring for the other governance questions improved.

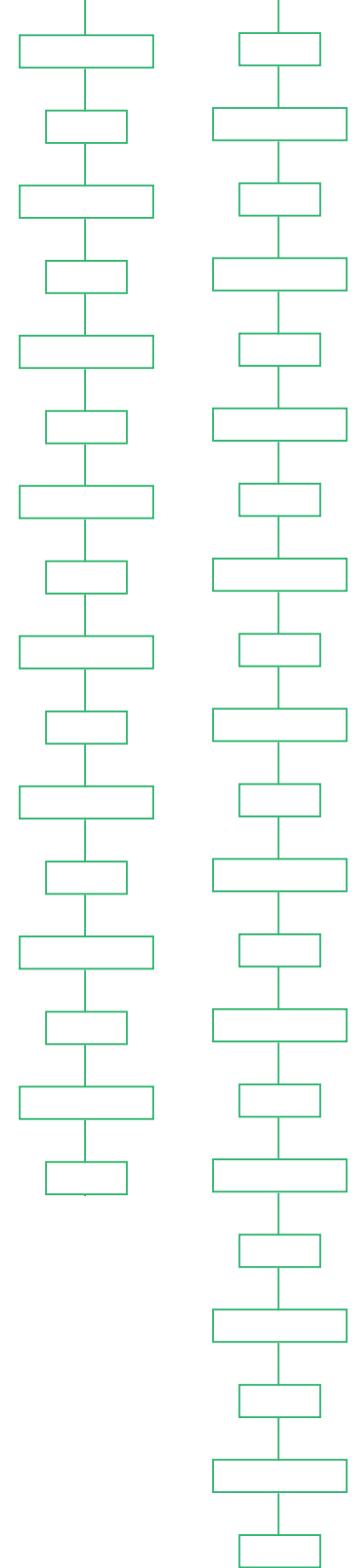
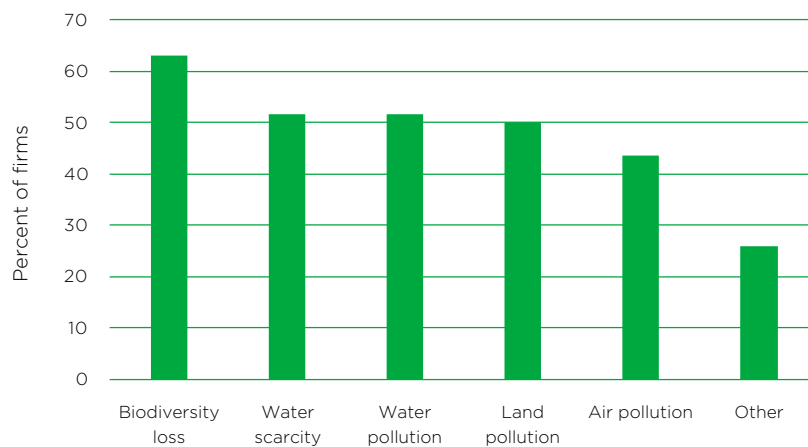
# Other Environmental Risks and ESG: A Deep Dive

In light of the growing awareness about the interconnections with broader environmental risks, this year we included questions about risks beyond climate change, as well as environmental, social, and governance (ESG) topics. We are not only interested in how firms identify, assess, measure, and manage all of these risks, but also the extent to which they are concerned about their portfolios' impacts on them.

None of the questions in this section are scored, and they therefore do not feed into the firms' maturity scoring. (For more context on the history of ESG, please see [The ABCs of ESG](#).)

We asked firms about the environmental risks beyond climate that they were considering. More than 60% of firms look at biodiversity loss, and around half of firms look at water scarcity, water pollution, and land pollution (Figure 33). Other risks — such as deforestation, land use, waste management, animal welfare, and site contamination — are also being investigated.

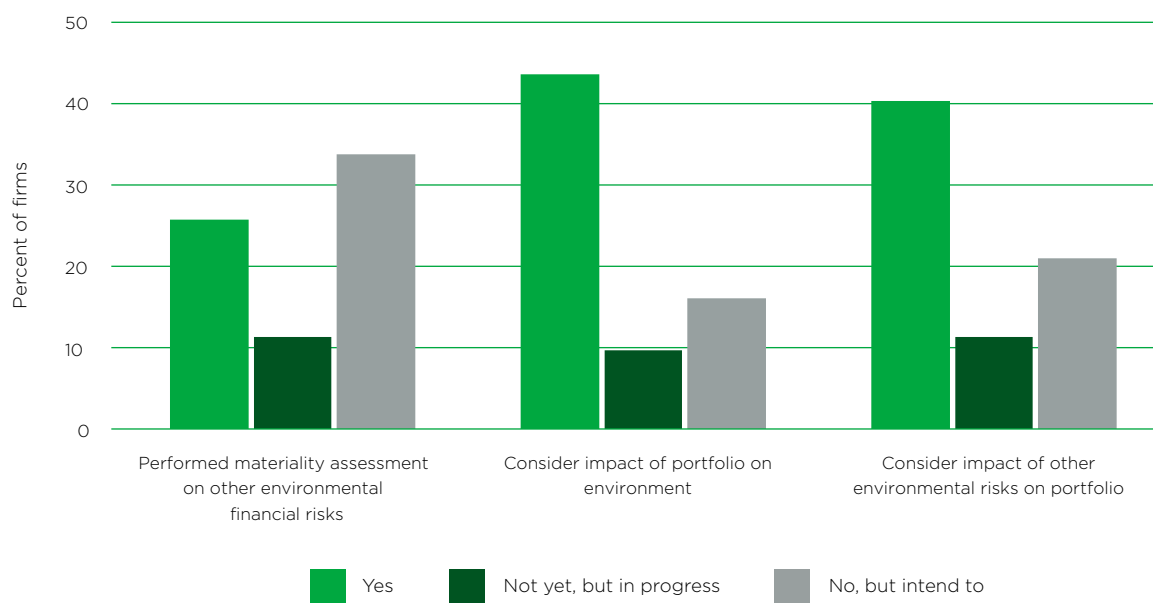
**Figure 33: Environmental Risks Considered Beyond Climate Risk**



We drilled a little deeper to see how many firms were undertaking assessments of the impacts of these different types of risks on their portfolios and found a range of maturity.

About 40% of firms report that they are already considering both the impact of the environmental risks on their portfolio and their portfolio's impact on the environment. About 10% of them were not yet doing either, but considered them works in progress – while around 20% had yet to start the formal work. Just over 25% of firms had actually undertaken materiality assessments, and nearly half the firms have plans to do so.

**Figure 34: How Mature Are Environmental Risk Assessments?**



Although the maturity of firms varied across these different aspects, firms that do not look at environmental risks and do not intend to are in the minority. Furthermore, a lot of firms felt well prepared (39%) or somewhat prepared (34%) for regulatory developments around environmental risks beyond climate change.

We widened the frame of questioning to see how many firms thought about climate and environmental risk within a broader ESG framework. Just over 70% of all firms have a formal ESG framework. At those firms, climate risk can then be incorporated with the “E” pillar of that framework.

More than 65% of all firms consider the impact of other ESG risks on their portfolio. Many firms (57%) are also concerned with the impact that their own portfolios might have on ESG aspects (so-called double materiality). Interestingly, most firms that have not yet adopted this approach are at least building out this capability; only 10% of firms indicate that they have no intention of adopting a double materiality perspective.

In nearly 80% of firms, the risk management function has second-line responsibility for the oversight of ESG-related risks. Firms are also gearing up for more formal regulation of ESG risks. Nearly 60% of firms regard themselves as ready for this regulatory scrutiny, and the majority are somewhat prepared.

Despite all the work that’s already being done, 75% of firms expect to be doing even more development (e.g., in the form of people, tools and technology) of their ESG capabilities.

# Conclusions

As demonstrated in our fourth annual Survey, many firms are making progress in climate risk management. Though there have been improvements across every Survey, it is particularly encouraging this year that we have seen an increase in the use of metrics, targets, and limits — an area that has proven stubbornly difficult.

The intensification of regulatory scrutiny is a key trend, evident in the increase in firms facing scenario analysis exercises and formal supervisory expectations. Firms are looking beyond climate risks to other environmental risks, as well as to broader ESG issues, expecting supervisory scrutiny to follow suit.

Moreover, firms are assessing their businesses for opportunities and risks, hiring and training staff while continuing to build their capabilities. Significant short-term concerns remain around the availability of reliable climate risk data and models, but these issues should ease over time.

The overall message from this year's Survey is that we see improvements across many aspects of climate risk management, with perhaps more evidence of firms focusing on the commercial opportunities that climate change will imply. Though it's certainly not "job done," the progress on climate risk management for the firms involved in the Survey has been steady and reassuring.

GARP will review whether to continue to undertake the annual Survey and would welcome feedback from participating firms and readers. Please email any comments to [climaterisksurvey@garp.com](mailto:climaterisksurvey@garp.com).

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**Maxine Nelson**, Senior Vice President, GARP Risk Institute, currently focuses on climate risk management. In her career, she has held several senior roles where she was responsible for global capital planning and risk modelling at banks, including global head of wholesale risk analytics and head of capital planning at HSBC. She also previously worked at the UK Financial Services Authority, where she was responsible for significantly expanding counterparty credit risk management during the last financial crisis.



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