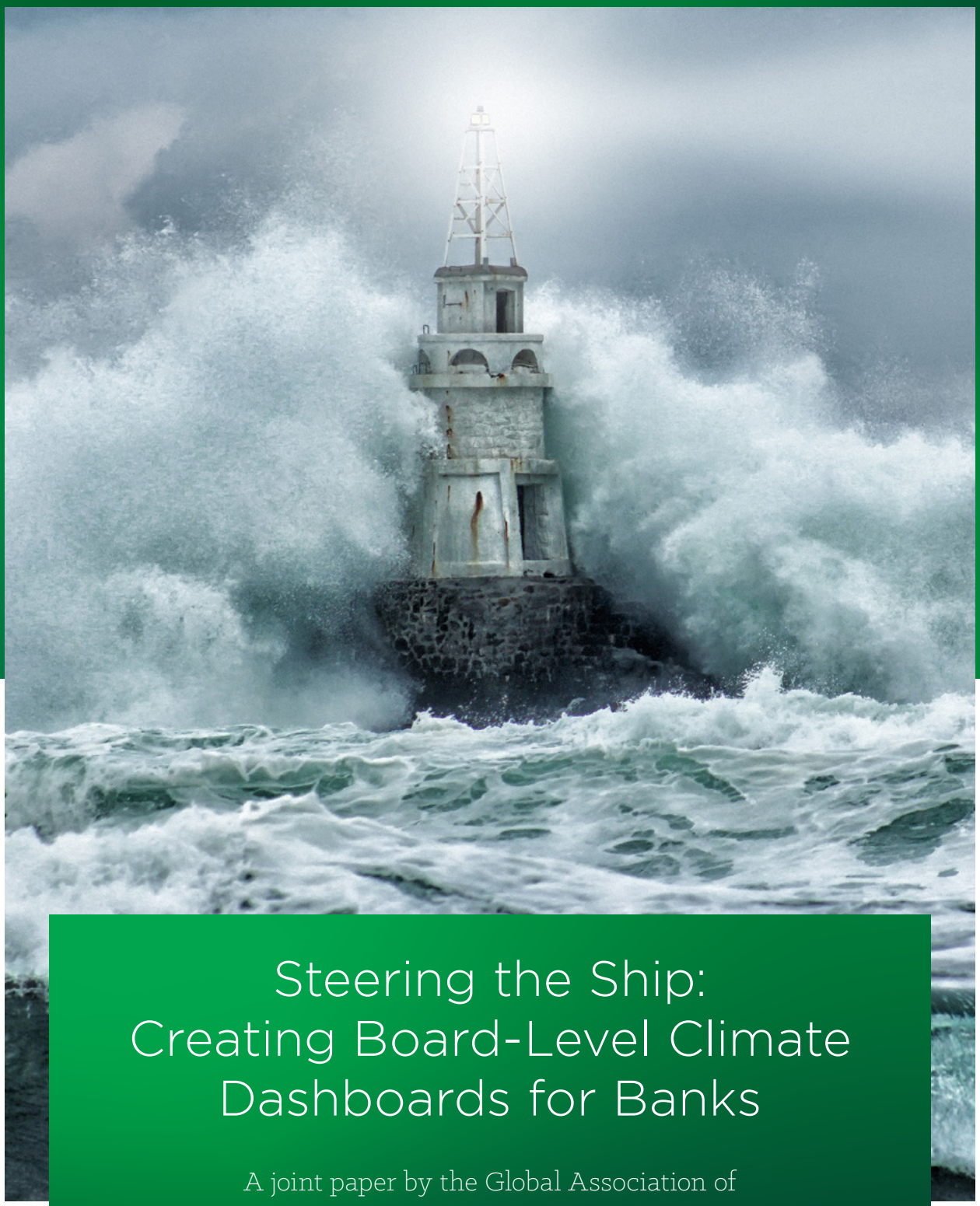
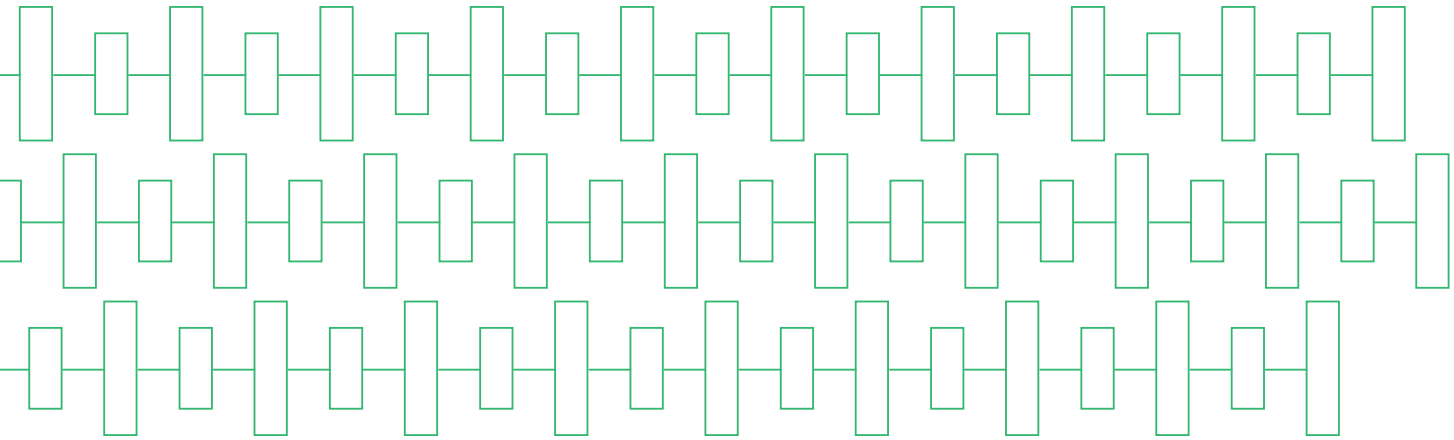


Steering the Ship: Creating Board-Level Climate Dashboards for Banks

A joint paper by the Global Association of Risk Professionals (GARP) and United Nations Environment Programme Finance Initiative (UNEP FI)

GARP® GRI | Risk Institute

UN environment programme | finance initiative



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1. Preface

This joint paper by the Global Association of Risk Professionals (GARP) and United Nations Environment Programme Finance Initiative (UNEP FI) offers a blueprint for banks to develop a climate board-level dashboard. It recognizes that many banks currently lack a framework that facilitates the reporting of decision-useful, climate-related management information and metrics to their boards. The publication helps boards of banks discharge their responsibilities for the management and oversight of climate issues.

Our dashboard covers both information for management (executive) and supervisory (non-executive) boards. It was developed through a collaborative effort, with 50 financial institutions from around the world contributing information that their board(s) already see and would like to see in the future.

About GARP

The Global Association of Risk Professionals is a non-partisan, not-for-profit 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 ongoing 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. For more information on GARP's work on sustainability and climate risk, please see https://www.garp.org/sustainability-climate.

About UNEP FI

The United Nations Environment Programme Finance Initiative (UNEP FI) is a partnership between the UN and the global financial sector created in the wake of the 1992 Earth Summit, with a mission to promote sustainable finance. UNEP FI works with more than 450 member banks and insurers, and over 100 supporting institutions, to help create a financial sector that serves people and planet while delivering positive impacts.

2. Acknowledgments

Authors

The authors of this report are Jo Paisley and Maxine Nelson from the GARP Risk Institute, with support from David Carlin, Hina Majid, and Lea Lorkowski from the UNEP Finance Initiative.

Participating banks

Input was provided by a working group of 50 financial institutions (see below), convened by UNEP FI, that participated in a survey, interviews and/or a workshop. Their contributions are anonymized throughout this paper. However, some publicly available dashboards have been included as examples of current practice.

ABN AMRO
Amalgamated Bank
Banco Bilbao Vizcaya Argentaria (BBVA)
Bank of Ireland
Banorte
Banque Misr
Barclays
BMO Financial Group
BNP Paribas
Bradesco
Canadian Imperial Bank of Commerce (CIBC)
City Developments Limited
Commercial International Bank (CIB) - Egypt
Credit Agricole
Crédit Mutuel
Credit Suisse
Danske Bank
Desjardins Group
Deutsche Bank
European Bank for Reconstruction and Development (EBRD)
First Abu Dhabi Bank
FirstRand
Folketrygdfondet
Garanti BBVA
Globalance
ING
Intesa Sanpaolo Bank
Islandsbanki
Itaú Unibanco
KB Financial Group
Link Real Estate Investment Trust
Mizuho Financial Group, Inc
Mitsubishi UFJ Financial Group (MUFG)
National Australia Bank
Nordic Investment Bank
ProCredit Holding
Rabobank
Royal Bank of Canada
Santander
Sichuan Tianfu Bank
Standard Bank Group
Standard Chartered Bank
Storebrand
TD Asset Management
TD Bank Group
UBS AG
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de Volksbank
Wells Fargo
Westpac New Zealand Limited

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3. Executive Summary

Climate risk is increasing, and boards play a critical role in steering their companies through an increasingly complex climate and sustainability landscape. Beyond ensuring that their own physical operations are resilient and on a path to carbon neutrality, banks must engage with their counterparties, support their transition to a net-zero economy, and assist them to build their physical resilience. This needs to be done while taking into account how the risk varies by industry sector and geography.

This publication provides banks with a framework for establishing a board-level climate dashboard that can be used to report decision-useful climate information and metrics to boards. It has been formulated based on a survey, interviews, and a climate dashboard workshop with 50 financial institutions.

Ultimately, it is for each board to decide how it intends to have oversight of management's responsibility to implement risk management policies and practices. But a climate dashboard is likely to become an increasingly useful way for the board to discharge this responsibility.

Banks face a range of stakeholders who will be focused on their climate awareness, including supervisors, investors, non-governmental organizations (NGOs), and society in general. Given the variety of information they expect to see, and the breadth and depth of expected climate impacts, effective climate governance will be aided by a well-designed climate dashboard, which will bring together useful information to support decision-making processes over the coming years.

The use of climate-related metrics, targets, and limits is an area in which there is both considerable methodology immaturity and divergence in practices across financial firms. Consequently, there is currently no common agreement on all the measures that boards should see.

There is also not yet a consensus on the right structure or approach to building a climate dashboard, so this report represents work in progress. Moreover, the precise structure of any dashboard will need to be determined by the issues of most interest and relevance to the bank in question.

This paper clarifies the different types of boards within banks, to ensure a common understanding of terminology. It then sets out the range of perspectives that a bank board should consider, with examples of the types of information relevant to each. It also provides concrete ideas for how to populate a relevant climate dashboard, through high-level and detailed examples of dashboards — both hypothetical and from published reports.

Insights on the sort of information that will not necessarily be suitable for inclusion in this dashboard — such as strategy and risk appetite setting; environmental, social, and governance (ESG) customer watchlists; and transaction-level assessments – are also shared.

A useful overarching framework for any climate/sustainability dashboard distinguishes between information relating to the bank's own balance sheet (such as lending, derivatives trading, investments) and information relating to the bank's own business operations. Throughout this document, the term "balance sheet" includes off-balance sheet activities and other counterparty-related transactions.

- The balance sheet information can be split into various categories, such as measures to capture the impact of climate risks on the balance sheet, information on the impact that the balance sheet has on the climate, and compliance-focused measures (e.g., measures relating to climate disclosure and regulatory regimes).
- The information on the sustainability of the bank's own business operations should cover issues such as the greenhouse gas emissions of the bank's physical footprint.

This report acknowledges the various factors that are holding banks back in making progress on establishing these dashboards — such as lack of good quality data or consensus on the best metrics. But it also argues that it is becoming increasingly untenable for bank boards to say that they are not properly positioned to know how to respond to any climate information that is presented to them. Creating a dashboard is an excellent way to start to convey the breadth and depth of issues that banks increasingly need to navigate.

4. Introduction and Context

4.1 Boards' Critical Role in Managing Business-Impactful Climate Risks

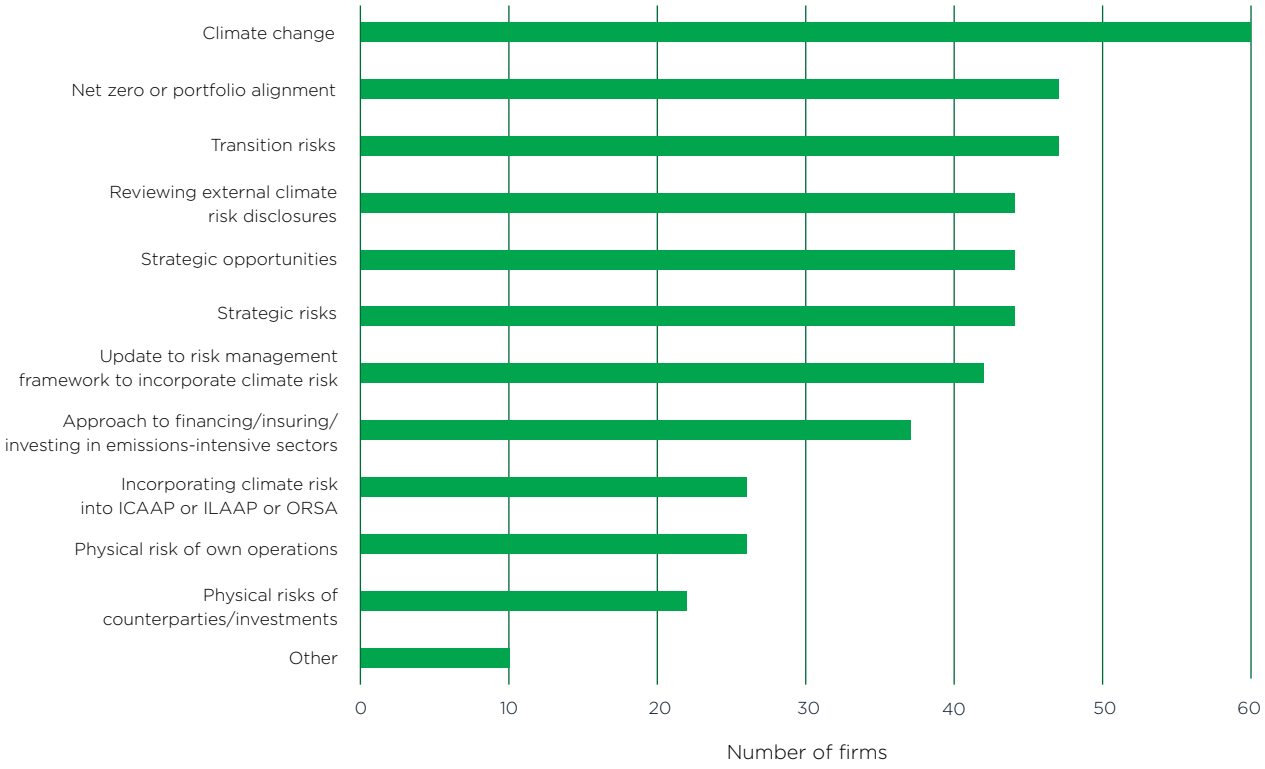
Climate change is already disrupting businesses, through increasing physical impacts from a warming planet, as well as actual and anticipated transition risks, such as changes to laws and regulations, changing customer expectations, shifting supply and demand for goods and services, and technological advances. It is a challenging landscape for companies to navigate. Companies in the real economy will face a different balance of physical and transition risks, depending on their particular industry sector (for example, high- or low-carbon intensity), their specific business model, and the geographies in which they operate. There will be differing levels of adaptation required, dependent on the location of operations and supply chains, and the nature of the hazards (e.g., sea-level rise, flooding risks, heat stress) they face.

However, there will also be significant commercial opportunities for businesses that help support the transition and the investment needed for adaptation, in part reflecting the scope for innovation to tackle these pressing environmental and economic concerns.

Beyond ensuring that their own business operations are resilient and on a path to carbon neutrality, banks must engage with their counterparties, support their transition to a net-zero economy, and assist them to build their physical resilience.

Within companies, boards have a critical role to play to help steer their organization through an increasingly complex and challenging risk landscape. Boards set policies and strategy for firms and are therefore key to addressing how climate change impacts their business model and profitability. As it is an organization-wide risk, and needs to be managed accordingly, board-level sponsorship of climate initiatives is also required. The GARP 2021 Climate Risk Management Survey found that boards had oversight of climate risk in 92% of the 78 financial institutions participating in the survey, and that nearly 90% had seen climate-related papers. The topics most frequently considered by boards are highlighted in the figure below (GARP, 2021).

Figure 1: Topics Most Frequently Discussed by Boards of Financial Institutions (GARP, 2021)



There is a range of stakeholders who are interested in a bank's climate awareness. Increasingly, prudential supervisors are setting formal expectations for how banks should embed climate within their risk management; some are setting up scenario-analysis exercises and/or exploring whether capital should be held for climate risks.

Regulators/policymakers are also setting expectations with regards to disclosure and 'ESG-related conduct,' whilst increasingly focusing on the risks of 'greenwashing.' There are also demands from investors and NGOs for accurate and transparent disclosures. Moreover, there are growing societal expectations for businesses to address these issues.

With such a wide range of topics that boards need to understand, there is increasingly a need for a climate dashboard that brings together timely, decision-useful information; this data will help banks manage the risks they are exposed to, as well as enable them to see if they are meeting stakeholders' growing expectations.

4.2 Synthesizing Information Boards Need to See in a Dashboard

Despite growing engagement by banks and their boards with climate change, initial supervisory banking assessment reports also show that banks have some way to go before they can be said to be adequately addressing their climate risks. They also note how boards specifically lack appropriate management information/metrics with which to perform oversight and management responsibilities effectively (ECB, 2021; PRA, 2020).

The ECB observed in relation to its assessment of 112 significant European banks:

> "Most management bodies are not kept comprehensively informed, so they are unable to exercise this responsibility fully. Less than 15% of institutions have effectively integrated C&E [climate and environmental] risks into the formal risk reports submitted to the management body or relevant sub-committee…Less than 10% of institutions provided evidence that their management body in its supervisory function performs oversight for C&E risks, for example by means of targets that are monitored over time." (ECB, 2021)

The GARP 2021 survey also found that metrics, targets, and limits was an area in which there was considerable divergence in practices across financial firms. Indeed, a quarter of firms in the sample did not measure climate risk at all, and only a similar percentage were using all of metrics, targets, and limits. This was also highlighted as an area that had shown little improvement since the 2020 Survey.

The remainder of this publication, therefore, helps address existing shortcomings in climate board reporting by providing banks with a board-level climate dashboard framework that can be used to provide decision-useful climate information and metrics to boards. Our dashboard covers both information for management (executive) and supervisory (non-executive) boards and has been formulated based on a survey, interviews, and a climate dashboard workshop with 50 banks.

Throughout this paper, we refer to the insights from all three sources of information. Participating banks are named in the acknowledgments, but their submissions are anonymized throughout this paper.

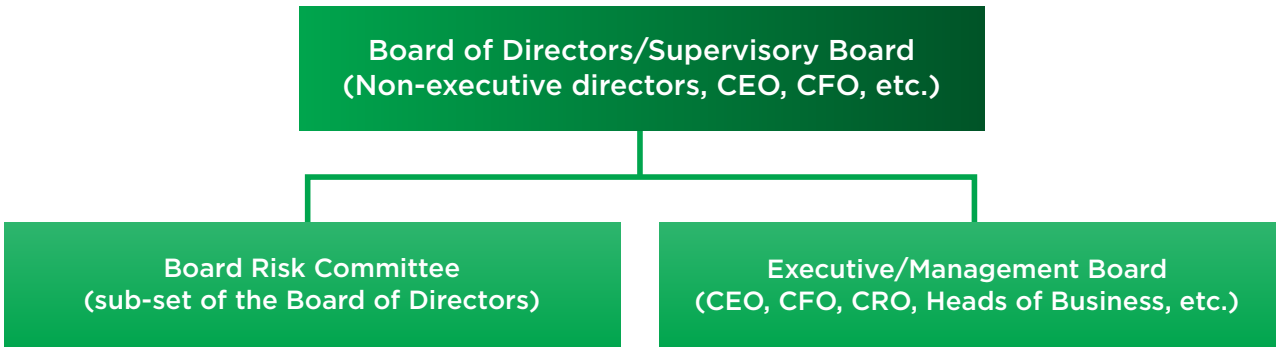
Some of the information that bank boards need will not necessarily be suitable for inclusion in a dashboard. For example, in our survey, banks told us that their boards had asked for information that is usually only periodically presented to a board, such as their climate risk management policy, portfolio alignment strategies, and risk-appetite setting. Boards had also asked for information that is commonly shown as a list or more detailed table, such as ESG customer watchlists, and information that is presented as a report, like transaction-level assessments. We provide a brief outline of some of these topics in the concluding section of this paper.

The bulk of this guide focuses on the types of information that are suitable for inclusion in a climate board-level dashboard. Given the breadth and depth of expected climate impacts, effective climate governance will be aided by a well-designed climate dashboard, bringing together useful information to support decision-making processes over the coming years. This guide will help bank boards and those who construct board dashboards to understand the type of information that boards should be viewing.

4.3 Clarifying Board Structures

Before exploring the content of a potential climate dashboard, it's useful to clarify what we mean by a 'board.' Companies have different committee structures in their governance structures, with terms of references that may not be comparable across firms. However, broadly, there will be a hierarchy within any firm, with the more senior committees typically receiving less granular information across a wider range of issues than more junior committees.

Figure 2 Typical Board Hierarchy



The most senior board, which mostly consists of non-executive directors and generally includes the chief executive officer (CEO), chief financial officer (CFO), and often the chief risk officer (CRO), is called the 'board of directors.' It can also be called the supervisory board. For simplicity, in this paper, this is referred to as the 'board' or 'main board.'

The board risk committee is a subset of this board, and reports into it. A board risk committee will help the board in its oversight of the management's responsibility to implement risk management policies and practices.

The executive, or management, board consists of the CEO, CFO, CRO, and heads of business, etc. It also typically reports into the board of directors.

Our sample of banks confirmed that one size does not fit all. The nature and size of a bank will affect the range of suitable topics for inclusion, as well as the appropriate level of granularity of the metrics included within a board dashboard. For example, a large, geographically-diversified bank will have a multitude of different boards — at group and regional levels. The level of detail in dashboards for this bank will differ across these boards, depending upon the industries and geographies they operate in, and the concentration and amount of exposure. Similarly, boards at smaller, more regionally-concentrated banks might themselves require different levels of granularity.

In the remainder of this paper, we focus on information that is suitable for any of these committees, so that the board has visibility of the range and severity of its climate exposure. To supplement this core information, individual banks also need to decide whether additional topics are required for their particular firm — as well as whether additional granularity is needed for areas with potentially high exposure.

5. Creating a Climate Dashboard

5.1 What Information Should the Board See?

5.1.1 What Climate Questions Is the Board Interested in?

There are many different climate-related questions that might interest bank boards, including:

- Risk management:
  - Is climate risk within the (board-agreed) risk appetite?
  - What is the bank's exposure to high carbon-emitting industry sectors?
  - Is there any concentration of transition and physical risk in the bank's portfolio?

- Portfolio alignment:
  - How much progress is the bank making on meeting its portfolio alignment targets?
  - How much has the bank lent to counterparties to support decarbonization?
  - How much has the bank lent to fund counterparties' adaptation to the physical risks arising from the changing climate?

- Disclosures and regulatory guidance:
  - How aligned are the bank's disclosures with jurisdictional requirements or the Task Force on Climate-Related Disclosures (TCFD) recommendations?
  - How much of the bank's loan book is aligned with the EU/other taxonomies?

- Own operations:
  - What progress is being made to decarbonize the bank's own business operations?
  - How well-progressed is the rollout of the bank's climate training program?
  - How have sustainability/environmental targets affected remuneration?

While this list is not exhaustive, it illustrates the range of potential issues that a bank board will need to consider.

The first stage in creating a dashboard is for bank boards to decide on the questions that are most relevant to their particular business model and their level of 'climate maturity' — for example, their level of experience, ambition, and sophistication.

The next stage is to consider which of the questions are sensible to include in a dashboard. This might be driven by areas where metrics are available, by exposure to areas of increasing climate-related risk, or by concerns about supervisory or shareholders' expectations.

The banks in the GARP/UNEP FI survey were asked about which information they currently include in a climate dashboard, and which information they would ideally include. There was a wide range of responses.

Table 1 provides a synthesis of the most common responses, grouped into two broad categories: information related to the bank's balance sheet, and information relating to the bank's own business operations. This is a useful dichotomy for any climate or sustainability dashboard to adopt.

Table 1: Different Types of Climate Information

	Measure category	Examples of subjects to be covered
Balance sheet management	Climate risk management	• Exposures to high carbon-emitting sectors. • Sensitivity of sectors to physical and transition risk. • Impact of physical and transition risk on portfolio. • Portfolio concentration to transition and physical risks.
	Portfolio alignment	• Degree of portfolio alignment or implied temperature rise of portfolio. • Financed emissions. • Amount of transition finance provided. • Extent of engagement with counterparties.
	Regulatory	• Progress on meeting regulatory expectations.
	Disclosures	• Alignment with jurisdictional disclosure requirements or TCFD recommendations. • Taxonomy-aligned loans.
	Audit findings	• Number of outstanding high-risk climate findings.
Own operations	Operations	• GHG emissions of own business operations. • Business continuity exposure due to physical risk events.

The balance sheet information can be split into five categories:

1. **Measures that relate to the impact of climate risks on the balance sheet.** This data links impacts from physical or transition risks to traditional risk types, such as credit or operational risks.
2. **The impact that the balance sheet has on the climate.** This data is particularly pertinent for banks that have made an external commitment to align their portfolios with a certain emissions pathway or temperature increase. (For example, some banks have committed to a 1.5°C alignment or to have a net-zero portfolio by 2050.)
3. **The impact of new regulatory requirements.** Regulators are progressively increasing their expectations of firms' climate risk management, and, correspondingly, the board wants to be kept informed about progress on the implementation of new rules.
4. **External disclosure.** Some jurisdictions are introducing climate-related disclosures. Even in countries that do not have these requirements, stakeholders are increasingly expecting companies to disclose voluntarily. Given the relative immaturity of current climate disclosures, the board is likely to be interested in their firm's progress in meeting compliance expectations.
5. **Audit findings.** Bank boards will need to be aware of any high-risk climate-related issues found by either internal or external audits.

Sections 5.2 and 5.3 elaborate on these different types of climate information and provide examples.

The precise structure of any dashboard will need to be determined by the issues of most interest and relevance to the bank in question. Before we turn to look at core measures that will be useful to include in all banks' dashboards, it's helpful to draw on insights gained from the survey and subsequent workshop to discuss common challenges faced by banks trying to compile dashboards.

Box 1: Climate Risk Drivers

Climate risk drivers are usually divided into those due to physical risks and those due to transition risks.

- **Physical risks** arise from acute hazards — due to the increasing frequency and/or severity of extreme weather or weather-related events (for example, hurricanes, floods) — and from chronic hazards, which relate to long-term trends, such as rising sea levels and average temperatures.
- **Transition risks** can arise during the shift to a net-zero environment. For example, it occurs due to changing policy or regulations, legal risks, shifting supply and demand for goods and services, technological advances, and changing stakeholder expectations that give rise to reputational risks.

For these risk drivers to create a risk, the asset or balance sheet liability needs to be exposed to, and vulnerable to, the physical and/or transition risks. For example, a storm in the middle of the ocean where there is no land and no ships should not create a climate financial risk.

- **Liability risks** have been treated as a transition risk by some actors, including the TCFD (2017). However, their treatment is changing and, according to the U.K.'s Prudential Regulation Authority (2021), litigation risks are increasingly considered a sub-category of physical and transition risks.

5.1.2 Common Challenges: Insights From the Climate Dashboard Workshop

Many participants provided insights on what prevented them from creating the 'perfect' dashboard. The most common issue was a lack of good-quality data. Ideally, they would like data on greenhouse gas (GHG) emissions of all counterparties across scopes 1, 2, and 3. (For the definitions, see *Box 2: Scope 1, 2, and 3 emissions*.) They would also like data on counterparties' exposures to physical hazards and their adaptation plans.

Box 2: Scope 1, 2, and 3 emissions

The Greenhouse Gas Protocol (WRI and WBCSD [2004]) defines:

- **Scope 1** emissions as occurring from sources that are owned or controlled by a company, for example from owned buildings or vehicles.
- **Scope 2** emissions as arising from the generation of electricity that is purchased by a company.
- **Scope 3** emissions as a consequence of the activities of a company but occurring from sources not owned or controlled by the company. For example, emissions from the extraction of production of purchased materials, or from the use of sold products and services.

Survey respondents also cited the current lack of international harmonization on best metrics (e.g., for measuring financial impacts and setting targets) as another area of difficulty. These challenges have practical implications.

Given the considerable IT costs involved in establishing and populating a regular dashboard, firms want to be reasonably confident of the measures that they should be including, as making changes will be costly. This creates hesitancy to act, which has tended to delay implementation of finalized dashboards across the population of banks in this survey.

When creating a climate dashboard, one consideration that will need to be discussed and agreed upon is the frequency with which a board wants to see this type of information. Another consideration is that some of this information might be in other reports that already exist. For example, business continuity issues might already be reported to the board in a different dashboard. However, these events might not be classified as related to 'climate change.'

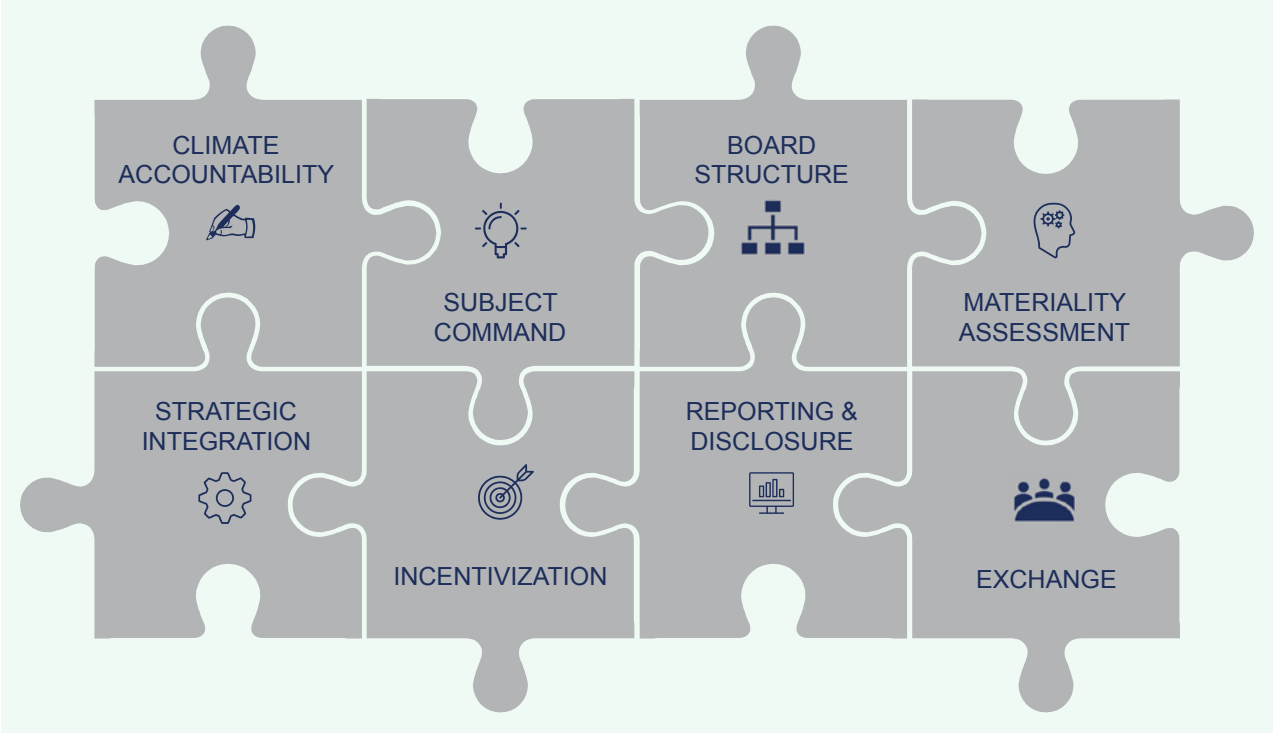
Similarly, the board might be receiving information on risks and exposures, but this might be embedded in existing credit, operational, or liquidity risk reports, for example. Each bank will therefore need to decide how to deal with potential gaps and overlaps with other dashboards. If they do not have all the climate-related information together, there is a risk that the board will not fully appreciate the range of impacts that climate change is having on its institution(s) — and that they therefore may not take the proactive steps necessary to be properly prepared for climate threats.

5.1.3 Further Resources for Boards

Some banks reported that their boards were not yet aware enough of the issues surrounding climate change. This is clearly untenable, particularly with rising supervisory expectations. There are a variety of climate-risk-related resources that could prove useful to boards, including the following:

- The World Economic Forum (2018) paper on setting up board climate governance, which has eight guiding principles for effective board climate governance.

Figure 3: WEF Guiding Principles for Effective Board Climate Governance



- The Climate Governance Initiative (CGI), which supports a global network of chapters to mobilize chairs, and non-executive and independent directors through enhancing their skills in climate governance and climate action.
- The Board Toolkit developed by the U.K.'s CGI Chapter (also known as "Chapter Zero"), which helps boards structure a discussion about climate change and explains a five-step process to help protect enterprise value.
- The Climate Financial Risk Forum Guide 2020, Risk Management chapter (see "Questions to ask boards," page 13).

The next sections of this paper look at the categories in Table 1: Different Types of Climate Information, providing examples of how to build out dashboard measures that are helpful for bank boards.

5.2 Balance Sheet Management Information

5.2.1 Measures to Capture Climate Financial Risk

One of the key roles of a board is to ensure that a firm is receiving sufficient return for the risks that arise from the business activities that it undertakes. This means it needs to understand the risks that the firm is currently running and how climate change will affect those risks. The board can then determine if any increased risk is still within risk appetite and/or agree to actions that need to be taken to mitigate the risks.

To make this more tangible, take the example of a hypothetical bank, which lends to the automotive and oil-and-gas industry sectors. How will climate change affect the credit risk of its lending portfolio? This will depend on how these counterparties are affected by physical and transition risk, and how the future evolves. A world that successfully transitions to net-zero emissions will be characterized by higher transition risk and lower physical risk relative to a 'hot-house world' — where emissions remain high, global warming accelerates and physical risks intensify, but transition risks remain low.

Lags in the global climate system mean that the increase in the physical risk profile over the next decade or so is similar across different scenarios (GARP, 2022). While the risks are rising everywhere, they are rising at different rates in different parts of the world (IPCC, 2021). Boards will want to understand how their counterparties will cope with the various rising physical risks, and whether they have adapted sufficiently.

The degree of transition risk, however, will differ considerably across scenarios, and boards will want to understand how their counterparties will perform in high and low transition risk scenarios. But transition risks will not uniformly affect all firms in the same industry. Within industry sectors, there will be winners and losers. For example, automotive firms that are producing electric vehicles should be better able to thrive in a high transition risk scenario than those firms that are still producing internal combustion engines. Bringing a climate lens to the portfolio may mean that traditional views of a sector's risks need to be rethought.

The question for a bank is how to incorporate these risks into their risk management frameworks, and then into their board reporting. Some banks choose to treat climate risk as a principal risk, meaning that it would be reported alongside their other principal risks (e.g., credit risk, operational risk, cyber risk). This treatment would give climate risk prominence in any risk dashboards presented to the board.

However, climate risk is a transverse risk, which means that it manifests through existing risk types. Hence another way to report it is to include it in the existing reports for credit, market, operational risk, etc. Irrespective of the approach that is chosen, banks generally first view it through the perspective of the cause of the risk (physical and transition risk) and then assess its impact on the traditional risk types. This enable banks to understand the drivers of the risks and then manage them using the standard risk management tools.

The way in which a bank chooses to embed climate risk may affect the nature of reporting to the board. A climate dashboard could contain a collation of information that has been taken from existing credit risk, market risk, and operational risk dashboards. Alternatively, the board may not see a standalone climate risk dashboard but may see climate risk metrics embedded in existing risk dashboards. Either way, it is important that bank boards have a holistic view of the climate-related impacts on their bank.

As climate risk is only one factor that influences the amount of risk in a transaction (loans, derivatives etc.), banks don't tend to set a risk appetite for climate risk, per se. Instead, the risk appetite for an industry sector, counterparty, or transaction may be adjusted, taking climate risk into account. Therefore, if a bank wants to understand whether climate risk is within its risk appetite, it needs to assess the potential risk to industry sectors, counterparties, or transactions that are expected to have a material exposure to climate risk. For more information, please see the Climate Financial Risk Forum Guide on Risk Appetite Statements (CFRF, 2021a).

Given the complexity of quantifying climate risk, some firms choose to start with a qualitative approach, building on their existing dashboards. Figure 4 gives an example of a published summary of exposure, indicating the sensitivity of different aspects of the bank's business to a granular breakdown of physical and transition risk. As different possible futures are associated with different levels of physical and transition risk, the risks are associated with one or more specific scenario(s), which should be described for the board.

Figure 4: Example Dashboard of Climate-Sensitive Business Activity (Desjardins)

Climate-related risk factors			Examples of affected sectors and populations (members and clients)	Desjardins sectors most likely to be affected				
				Investing	Lending	Property and casualty insurance	Life and health insurance	Operations
Physical risk	Chronic	Increase in average temperature	Real estate, vulnerable populations	•	•		•	•
		Changes in precipitation patterns	Extractive industries, agriculture	•	•	•		
		Rise in sea level	Infrastructure and buildings (coastal areas)					
		Drought	Agriculture and livestock farming, forest products		•			
		Deforestation	Forest products					
	Acute	Flooding, extreme precipitation and storms	Vulnerable populations, real estate, infrastructure	•	•	•	•	•
		Forest fires	Forest products, extractive industries	•	•	•		
		Heatwaves	Vulnerable populations, construction, real estate, agriculture		•		•	•
Transition risk	Political and legal	Price of carbon	Extractive industries, energy, transportation, manufacturing	•	•			
		Increased regulatory requirements	Transportation, extractive industries, energy, financial disclosure	•	•			•
		Liability exposure	Extractive industries, energy, transportation, automobile, financial disclosure	•	•			
	Reputational	Stigmatization of certain industries	Extractive industries, energy, transportation, agriculture and livestock farming	•	•			
	Market	Changes in consumer habits	Automobile, energy, agriculture and livestock farming	•	•			
		Access to capital	Energy, transportation, real estate	•	•			

Simplified mapping of climate-related risk. (Source: 2020 risk analysis; non-exhaustive list of affected sectors; work underway to determine the scope of repercussions on Desjardins Group's sectors.)

Source: Social and Cooperative Responsibility Report, Desjardins (2020)

As banks become more sophisticated in their climate risk management capabilities, they will want to move from qualitative information toward more quantitative metrics. Moreover, as more accurate and detailed assessments are developed, banks can move from identifying entire industry sectors that could have a higher risk to differentiating between individual counterparties or transactions (FEBRABAN described a method for progressively assessing credit risk impact starting at the industry sector level, then counterparty level, and moving to transaction level [FEBRABAN, 2019]).

The identification of climate-sensitive industry sectors or climate-related risks that often occurs, per traditional risk categories, can be broken down into potential impacts from physical and transition risks. Figure 5 provides a stylized example of a heatmap, illustrating how the sectoral breakdown of the bank's portfolio is performing relative to the bank's internal limit structure.

In this example, the amounts shown reflect some measure of exposure, such as expected credit losses (ECL), exposure at default (EAD), or risk-weighted assets (RWAs). The %limit column shows how near the metrics are to the limits set within the risk management framework. For example, oil and gas 'exposures' are running at 70% of the limit set.

Figure 5: Illustrative Heatmap of Climate Risk Sensitive Industry Sectors

Industry	ECL or EAD or RWA		Sectoral sensitivity to	
	Amount	%Limit	Physical risk	Transition risk
Oil and gas	80	70		
Mining	50	85		
Manufacturing	80	65		
Transport	70	50		
Agriculture	60	70		
Commercial property	40	60		
Retail property	20	90		
Services	50	60		

Note: Any such heatmap would also require clarity on definitions. Thresholds would need to be defined for the RAG status, including timescales over which the risks have been assessed, and the scenario that has been used for the analysis needs to be described.

The red, amber, green (RAG) status is a rating of the vulnerability of these exposures to both physical and transition risk. For instance, the example bank's exposures to oil and gas, manufacturing, and transportation are deemed to be high transition risk (red) but are rated as either a medium (amber) or low (green) physical risk.

Starting at this high level gives the board a sense of which industry sectors are more exposed to climate risks and where further analysis could be needed to understand whether that gives rise to increased financial risk. For example, this board might wish to understand the specific drivers of the high transition risk ratings for oil and gas, manufacturing, and transport.

There are many examples of these types of dashboards that have been published in annual reports and TCFD reports. Below we reproduce a selection of them, to give an overview of some of the ways that banks are choosing to illustrate the sensitivity of their exposures to climate-related risks.

Figure 6 shows an example of a published credit risk sector dashboard, showing the sensitivity to different climate risk drivers across the portfolio, as well as the materiality of these exposures. The dashboard differentiates between different transition risk drivers and between chronic and acute physical risks. This enables a board to understand the exposure in industry sectors that are most exposed to climate risk, as well as what is driving the climate component of the credit risk.

Figure 6: Example Heatmap of Sector Sensitivity (TD Bank)

Climate Risk Heatmap[33]

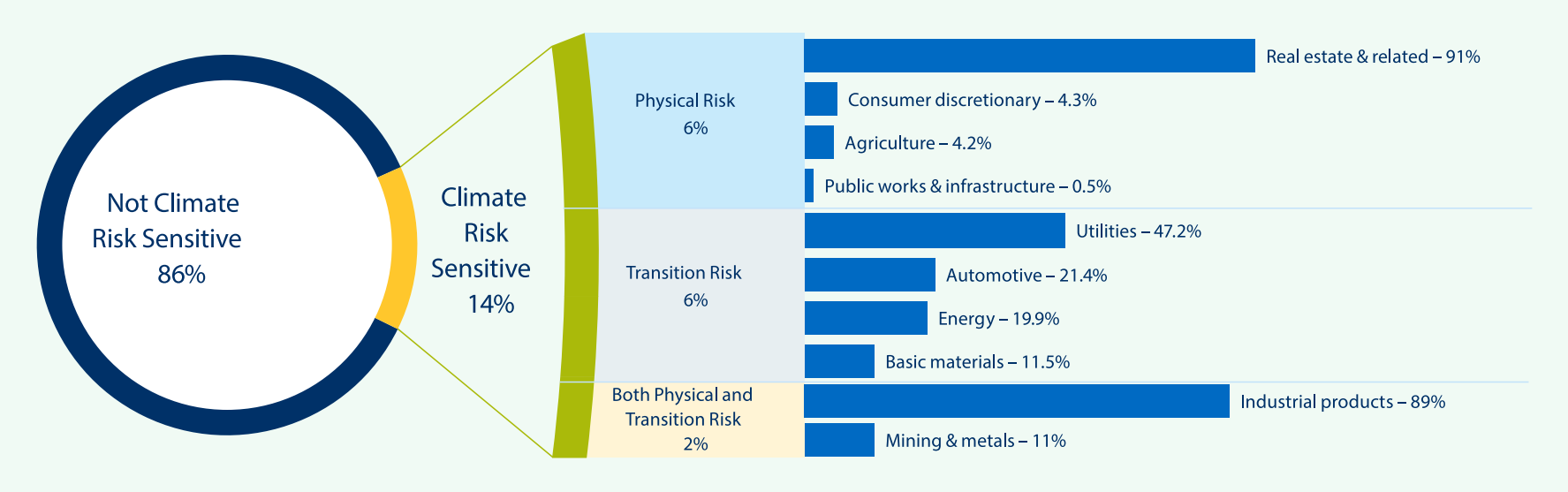
Low Impact — High Impact

		Transition Risk					Physical Risk		Outstanding Loan Balance ($M)[34]	% of Total RESL
Counterparty Type	**Jurisdiction**	Policy	Technology	Reputation	Market	Legal	Acute	Chronic		
Retail	Canada Real-Estate Secured Lending (RESL)								$333,608	88.0%
	US RESL								$45,401	12.0%
	Industry Sector								**Gross Credit Risk Exposures ($M)[35]**	**% of Total Non-Retail**
Non-Retail	Real Estate								$86,531	10.6%
	Agriculture								$9,179	1.1%
	Automotive								$16,580	2.0%
	Financial								$65,374	8.0%
	Food, beverage, and tobacco								$10,785	1.3%
	Forestry								$2,126	0.3%
	Government, public sector entities, and education								$449,737	55.0%
	Health and social services								$27,734	3.4%
	Industrial construction and trade contractors								$8,391	1.0%
	Metals and mining								$8,205	1.0%
	Pipelines, oil, and gas								$18,468	2.3%
	Power and utilities								$21,017	2.6%
	Professional and other services								$24,956	3.1%
	Retail sector								$11,594	1.4%
	Sundry manufacturing and wholesale								$19,125	2.3%
	Telecommunications, cable, and media								$13,256	1.6%
	Transportation								$15,072	1.8%
	Other								$9,623	1.2%

Source: TCFD report, TD Bank (2022)

Figure 7 presents similar information in a more condensed way, with % of total exposures affected by physical and/or transition risk.

Figure 7: Example Infographic of Climate Risk Sensitive Credit Risk Exposure (Royal Bank of Canada Europe Limited)



Source: TCFD report, Royal Bank of Canada (2021)

As climate risk management methodologies and approaches mature, banks will increasingly want to populate dashboards with quantitative metrics. Table 2 provides some metrics that measure the amount and extent of assets or business activities vulnerable to transition and physical risks, according to the TCFD (TCFD, 2021a). Clearly, banks will need to choose or develop metrics that suit their idiosyncratic needs.

Table 2: Transition and Physical Risk Credit Risk Metrics

Metric	Description	Purpose
Transition risk		
Concentration of credit exposure to carbon-related assets	Metrics to capture the risks of lending that is exposed to transition risk. • EAD to high carbon industries. • EAD to high carbon companies as a percent of total EAD. • ECL for high carbon industries. • ECL for high carbon industries as a percent of total ECL. • RWA for high carbon industries. • RWA for high carbon industries as a percent of total RWA. • PD distribution for sensitive sectors.	To understand the credit risk associated with industry sectors or counterparties with a high exposure to transition risks. One or more of the metrics could be used, depending upon which metrics the board usually sees, and which ones (if any) constrain the business.
Physical risk		
Concentration of credit exposure subject to flooding, heat stress, or water stress	Metrics to capture the risks to lending that is subject to flooding, heat stress, or water stress. This can cover lending secured on property, such as mortgage loans or commercial real estate; lending to infrastructure, or other alternative asset portfolios; and commercial lending to companies that have direct or supply chain exposures in an area: • Number of assets at risk. • EAD of assets at risk. • ECL of assets at risk. • RWA of assets at risk. Each of these metrics can be shown as an absolute amount or a percentage. To identify concentrations, these metrics can also be shown using a geographical/regional split.	To understand the credit risk associated with these portfolios. One or more of the metrics could be used, depending upon which metrics the board usually sees, and which ones (if any) constrain the business.

Adapted from: Task Force on Climate-related Financial Disclosures Guidance on Metrics, Targets and Transition Plans (2021)

The information highlighted in Table 2 can be presented for either the scenario that the bank thinks is most probable or for a number of scenarios, so that the board is aware of the range of potential impacts, given different transition speeds.

Figure 8 offers an example of this approach, showing the exposure for sectors with higher vulnerability to transition and physical risks. The transition risk methodology was based on the method in From Disclosure to Action (UNEP FI, 2020). These metrics help provide boards with a measure of the climate risk-sensitivity of their lending.

Figure 8: Example Dashboard of Lending Volumes Sensitive to Transition Risks and Physical Risks (UBS)

UBS lending to climate-sensitive sectors[1]

		Climate-sensitive exposure: elevated transition risks, as of 31.12.21[2]			Climate-sensitive exposure: elevated physical risks, as of 31.12.21[2]	
USD million, except where indicated	Trend (%) 2019–2021	Gross exposure[3]	Share of total in %	Trend (%) 2019–2021	Gross exposure[3]	Share of total in %
Climate-sensitive sector[4]						
Aerospace and defense	↓	831	0.18	↓	338	0.07
Automotive	↓	703	0.15	↓	1,042	0.23
Business services				↓	853	0.19
Chemicals	↓	1,112	0.24	↓	991	0.22
Constructions and materials	↓	3,637	0.79	↓	302	0.07
Consumer products and retail	→	355	0.08	↑	650	0.14
Entertainment, leisure, and services				↓	1,308	0.28
Food and beverage	→	2	0.00	↑	1,334	0.29
Industrial materials	↓	121	0.03	↓	243	0.05
Information technology				↓	274	0.06
Machinery and equipment	↑	1,040	0.23	↑	2,732	0.60
Medical equipment and services				↑	408	0.09
Mining	↓	2,920	0.64	↑	1,153	0.25
Oil and gas	↓	5,823	1.27	↓	5,538	1.21
Pharmaceuticals/biotechnology	↑	1,400	0.30	→	814	0.18
Plastic and rubber	↓	299	0.07	↓	280	0.06
Primary materials	→	13	0.00	→	320	0.07
Real estate management	↓	18,029	3.93	↑	528	0.12
Sovereigns and financials				↓	4,371	0.95
Transportation and equipment	↓	849	0.18	↓	419	0.09
Utilities	↓	375	0.08	↑	1,579	0.34
Total, climate-sensitive sectors[2]	↓	37,510	8.17	↓	25,476	5.55
Total, all sectors		459,061	100.00		459,061	100.00

1 Not additive across transition risks and physical risks. 2 Global Wealth Management corporate lending to customers represents 1.1% of all on- and off-balance sheet loans and advances to customers, and is not rated. 3 Reported as IFRS9 expected credit loss (ECL) calculation, and represents both on-balance sheet: total loans and advances to customers and off-balance sheet: guarantees and irrevocable loan commitments (within the scope of ECL). Physical risk exposures include USD ~4 billion in loans backed by real estate. 4 The table includes only those sector exposures that are defined as climate-sensitive. Climate-sensitive sectors defined as business activities rated as having high, moderately high or moderate vulnerability to transition and physical risks. Transition risk methodology was initially developed in collaboration with UNEP FI TCFD working group and disclosed in Phase II "From disclosure to action – a guide to implementing the TCFD framework within financial institutions" report. Physical risk methodology is based on country, sectoral, and value chain risk factors derived from a range of academic and expert sources. Both methodologies have been adapted internally and enhanced.

Source: Annual Report, UBS (2021)

As per usual risk management practices, each heatmap and set of metrics should drive decision making and have associated policies and processes for managing or mitigating the risks. For example, thresholds should be defined for closely monitoring risks, and for high risks (such as too much exposure or too high a concentration in an industry sector).

Using these metrics to identify industries that will be exposed to climate risks is a good start. Firms can then monitor trends in the data which should indicate whether the climate-related risks are changing.

However, to really understand how financial risks are changing requires more in-depth analysis, which needs a more granular assessment of the exposures, as companies will be affected differently by the transition. A good example is to examine how the introduction of a carbon tax might affect companies. Some may find it easier than others to switch to alternative low-carbon inputs/raw materials, depending on their technology and production processes. Some companies may be able to pass on the increased costs, depending on how price-sensitive their customers are. Companies with low-cost operations will be better placed to cope with a carbon tax than their relatively higher-cost rivals. Further analysis and modeling will therefore be required to understand the relationship between increased transition risk and increased financial (e.g., credit) risk.

Banks usually also keep their boards informed about conduct and litigation risks. Firms in the GARP/UNEP FI survey reported a range of practice for doing so, including monitoring it in operational risk, reputational risk, compliance, or audit reports.

5.2.2 Measures to Capture the Impacts of the Portfolio on the Climate

Banks are increasingly making external commitments about the impact that their business activities will have on the environment. In many cases these commitments are effectively qualitative risk appetite statements and are distinct from the more traditional quantitative exposure or loss-based metrics. For example, as well as setting credit risk limits for industry sectors with high emissions a bank may set limits on its financed emissions — these limits are not directly related to potential losses that may be suffered, but reflect the bank's appetite for harm to the climate and any associated reputational impact. Different banks are approaching this differently and are consequently assessing their portfolios against different outcomes and measures. The more popular measures are described in this section.

Measuring Financed Emissions

The first step to understanding the impact a bank's portfolio has on the climate is to understand the amount of emissions that are being financed by measuring the greenhouse gas emission from lending or investment — that is, a bank's downstream scope 3 emissions. (Upstream scope 3 emissions are included in own operations metrics. For further detail about upstream and downstream emissions, see *Box 3: Financial Institutions' Scope 3 Emissions*.) The Partnership for Carbon Accounting Financials (PCAF) is an industry-led initiative to standardize the way that financial institutions measure and disclose financed emissions.

Table 3 sets out some of their proposed metrics for measuring financed emissions, which provide a board with measures of the impact of the bank's portfolios on the climate.

Table 3: Financed Emissions Metrics

Metric	Description	Commentary
Absolute emissions	The total GHG emissions of an asset class or portfolio.	To understand the climate impact of loans and investments and set a baseline for climate action.
Economic emissions intensity	Absolute emissions divided by the loan and investment volume, expressed as tCO_2e/million invested. (tCO_2e is short for tonnes of carbon dioxide equivalent).	To understand how the emissions intensity of different portfolios (or parts of portfolios) compare with each other per monetary unit. Useful for comparing different portfolios or parts thereof and for managing climate transition risks.
Physical emissions intensity	Absolute emissions divided by an output value, expressed as tCO_2e/MWh, tCO_2e/ton product produced.	To understand the efficiency of a portfolio (or parts of a portfolio) in terms of total carbon emissions per unit of a common output. Useful for setting science-based targets and for comparing the emissions intensity of companies in the same industry sector.
Weighted average carbon intensity (WACI)	Portfolio's exposure to carbon-intensive companies, expressed as tCO_2e/million counterparty revenue.	To understand exposure to carbon- intensive companies.

Source: PCAF (2020) and UNEP FI (2021)

More information about Scope 1, 2, and 3 emissions can be found in The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (WRI and WBCSD, 2004). It contains a specific category for investment activities, which includes lending. The PCAF standards were created to meet its requirements, and to be a globally accepted standard for the measurement and disclosure of financed emissions, with the goal of increasing the use and consistency of these disclosures.

Portfolio Alignment Measures

Portfolio alignment includes actions that are taken to align a portfolio of, for example, loans or assets under management, with the objectives of the Paris Agreement. This is usually operationalized through setting portfolio decarbonization targets, such as 2030 targets and 5-yearly targets to achieving a net-zero portfolio by 2050 (UNEP FI, 2021). The financed emissions will then be compared to the target to assess whether a bank is on track to meet its alignment commitments.

Banks that have chosen to make net-zero commitments themselves will also be looking at counterparties through this lens. These banks often work with high-emitting counterparties and those that don't yet have a net-zero plan, to help them reduce their emissions. However, if these counterparties don't make meaningful progress to reduce their emissions, they may be a client with which a bank will wish to terminate its business relationship.

As noted in CFRF (2021b), once a target has been chosen, the bank needs to work out the starting point from which to measure progress. For example, how many counterparties currently have net-zero targets, or the temperature increase with which the current portfolio is aligned. The scope of the target also needs to be decided – e.g., does it just cover a bank's lending portfolio(s), or should it also cover capital markets activities?

Table 4 provides some metrics that have been developed to capture alignment, with a brief commentary. These measures are particularly important for any bank that has committed to reach net zero, allowing the board to assess its progress on meeting its external commitments.

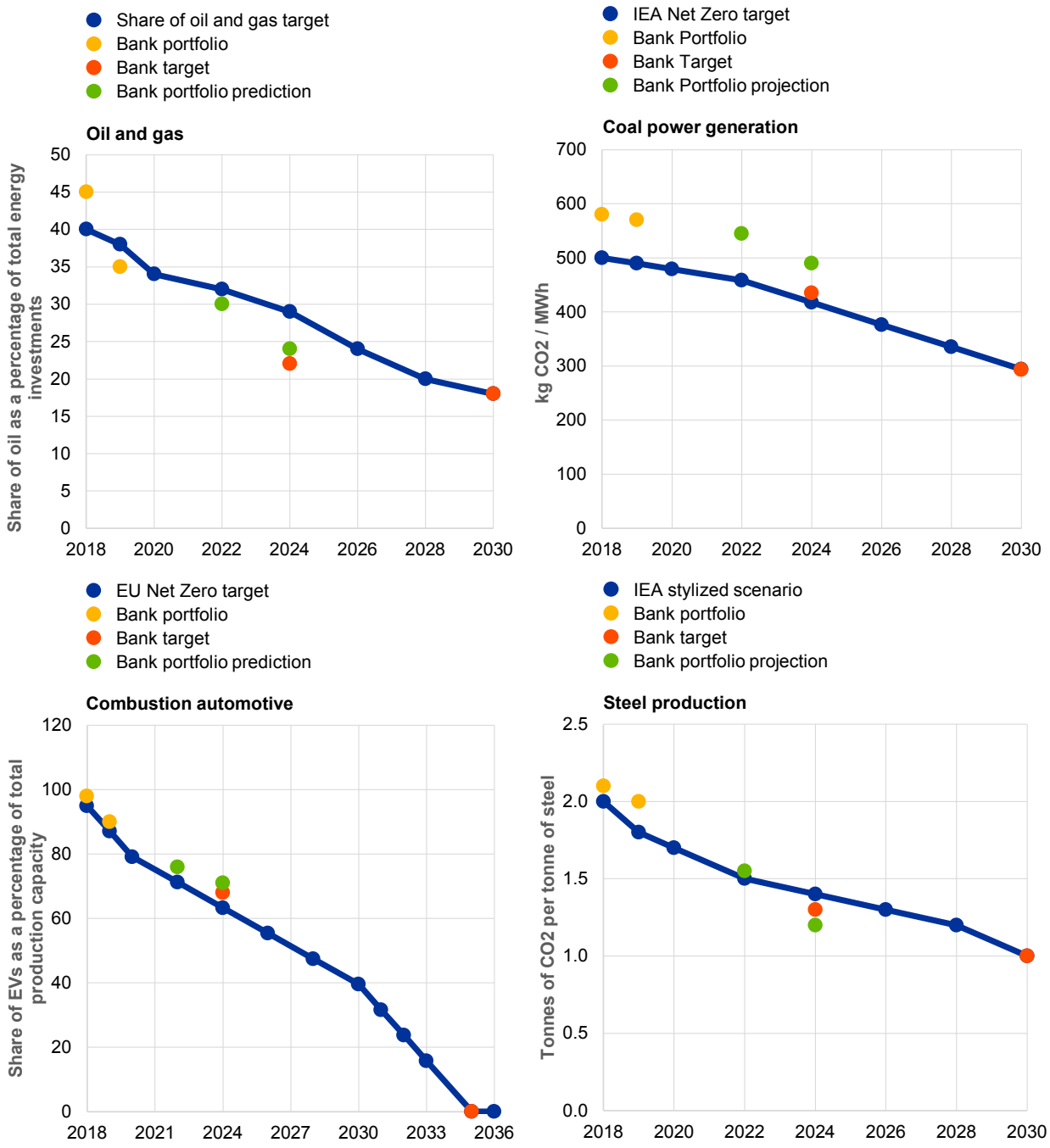
Table 4: Portfolio Alignment Metrics

Metric	Description	Commentary
Proportion aligned	Percent of counterparties or EAD with declared net-zero targets.	Incentivizes target setting but does not provide temperature alignment assessment.
Benchmark divergence	Measures forward-looking performance against normative benchmarks.	The primary issue is that poorly constructed methods can lead to additional unintended consequences.
Implied Temperature Rise	Translates the degree of alignment with a particular pathway into impact in the form of a temperature score.	These scores can be complex and opaque regarding the influence of key assumptions.
Implementation progress	Percent completion of rollout of portfolio alignment strategy.	Standard project management update of rollout progress.

Adapted from: Task Force on Climate-related Financial Disclosures Guidance on Metrics, Targets and Transition Plans (2021)

Figure 9 is an example of a stylized dashboard. It shows different industry sectors' alignment to net-zero targets, over time, as well as the financed emissions from certain industry sectors. This enables the board to readily track how well its portfolio is decarbonizing relative to its targets and other benchmarks. These charts provide the board with a handy visualization of the progress that it is making in decarbonizing its portfolios across different sectors, against various external benchmarks.

Figure 9: Example Portfolio Alignment and Financed Emissions Dashboard (ECB)



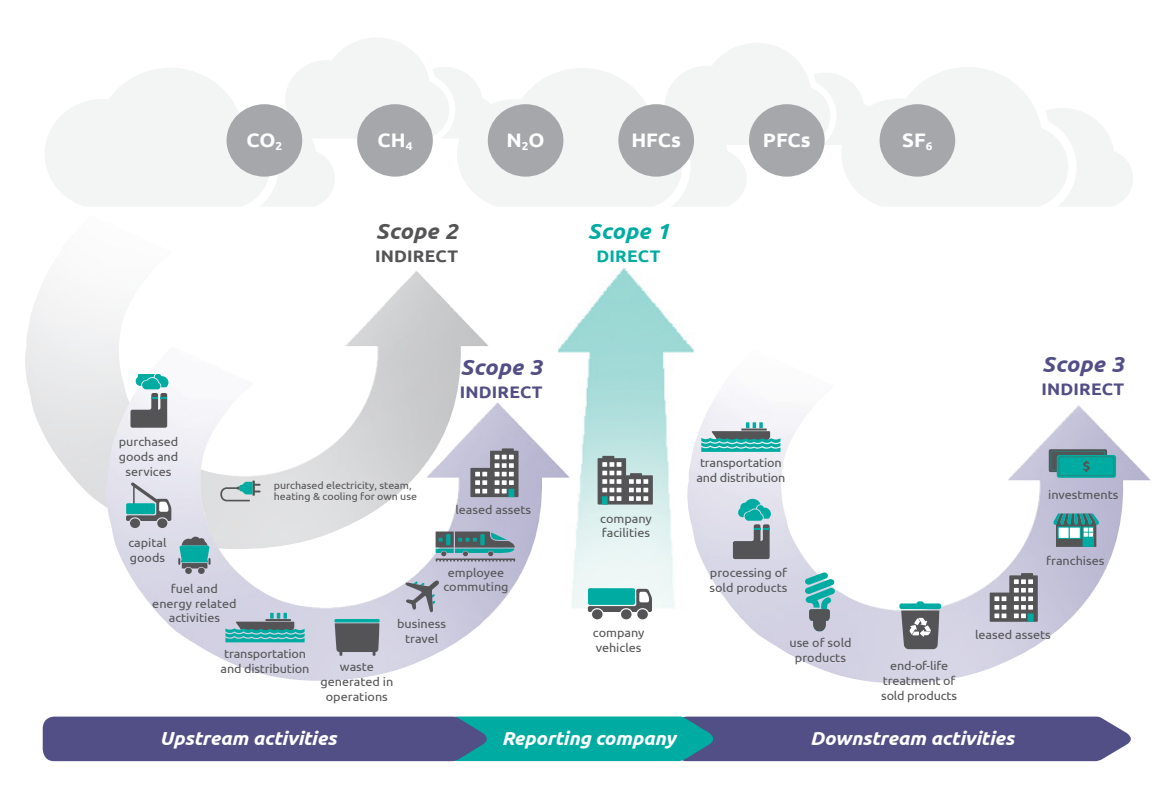
Source: ECB (2022)

Box 3: Financial Institutions' Scope 3 Emissions

Bank's upstream and downstream scope 3 emissions are included in different metrics (WRI and WBCSD [2021]).

- Upstream emissions are indirect GHG emissions related to purchased or acquired goods and services, such as business travel or leased buildings. They are therefore included in 'own operations' metrics.
- Downstream emissions are indirect GHG emissions related to the provision of capital or financing. They are commonly referred to as 'financed emissions.'

Figure 10: Overview of GHG Protocol Scopes and Emissions Across the Value Chain



Source: WRI and WBCSD (2021)

Measuring the Bank's Progress on Mobilizing Transition Finance

Many banks have committed to providing a specified amount of finance to industries or companies that are transitioning to a low-carbon economy, either by reducing the carbon intensity of their business or by developing low-emission alternatives.

Where a bank has made these commitments, a board will find it helpful to monitor whether the amount of finance to be provided is on track. Table 5 provides some potential metrics. These could be shown for specific sectors, such as high-carbon sectors that require finance to decarbonize, or low-carbon sectors that are expanding. These metrics will help a board assess how well the bank is doing in supporting the transition to a net-zero economy.

Table 5: Mobilizing Transition Finance Metrics

Metric	Description
Transition lending	Net lending related to energy efficiency and low-carbon technology.
Income	Revenues from products or services that support the transition to a low-carbon economy.
Greening retail mortgages	Proportion of homes financed certified to a third-party, multi-attribute green building standard.
Investments	Investment in financial instruments issued by companies that are related to energy efficiency and low-carbon technology.

Adapted from: Task Force on Climate-related Financial Disclosures Guidance on Metrics, Targets and Transition Plans (2021)

Banks may also have made commitments to providing funding for adaptation. If so, equivalent metrics should be reported to the board.

Measures to Capture the Bank's Progress on Engaging with Counterparties

Banks are increasingly engaging with their customers to understand their transition plans, typically starting with large corporates. The extent of the engagement can be tracked, providing board members with helpful information to enable them to respond to external queries about the action they are taking to understand and influence the risk in their portfolio. For example, metrics might show the percentage of companies that they have engaged with by industry sector. Table 6 shows some engagement metrics. Boards may also want to understand any sector-wide or value chain engagement, or if the bank has contributed to position papers, either individually or jointly. United Nations Environment Programme Finance Initiative (2022) provides ideas for metrics for asset owners, which can be adapted to suit a particular bank's needs.

Table 6: Engagement Metrics

Metric	Description	Commentary
Engagement meetings	Number and percent of counterparties in high-emitting industry sectors. Number of largest counterparties engaged with, and percent of EAD they represent.	These metrics measure engagement with the most GHG-intensive and GHG-emitting industry sectors within a portfolio, which are key to the transition to a net-zero carbon economy.
Positive progress achieved	Number and percent of engagements where positive progress has been achieved.	This metric assesses the effectiveness of client engagement. It could be calculated for counterparties in high-emitting industry sectors, or for the largest counterparties.

Adapted from: NZBA Commitment Statement and CFRF (2021c)

5.2.3 Measures to Capture Progress on Meeting Regulatory Expectations

Regulators are progressively increasing their expectations of firms' climate risk management. Correspondingly, the board is also likely to want to be kept informed about the progress of implementing new requirements.

Metrics will likely include whether the bank has open supervisory actions, and the progress in closing them, as well as the progress of implementing new climate-related regulatory requirements. However, the relevant metrics will clearly be dependent on the nature of the expectations and how they fit with the rest of the dashboard. For example, if one expectation is for the bank to publish climate-related disclosures, then this category can be combined with the disclosure metrics.

Table 7: Climate-related Regulatory Action Metrics

Metric	Description	Commentary
Regulatory actions	Number of climate-related supervisory actions/remediations the bank has open. Whether the bank is on track closing the actions.	Standard project management update of task progress.
Implementation progress	Percent completion of projects to implement regulatory climate-related requirements.	Standard project management update of rollout progress to implement new regulatory requirements.

5.2.4 Measures to Capture the Maturity of the Bank's Own Disclosures

There is increasing pressure for banks to disclose both their climate-related risks and the impact of their portfolio on the climate. As external stakeholders' expectations rise, boards should be aware of the progress that their firms are making towards being able to disclose in line with applicable regulations and recommendations.

Alignment With Jurisdictional Disclosure Requirements or TCFD Recommendations

In 2017, the TCFD published a report with recommendations for disclosing decision-useful, forward-looking information on the financial impacts of climate change, with a five-year time frame for adoption. Some countries also now require certain companies to disclose information that is TCFD-aligned, and more are proposing to do so or to leverage key aspects of the TCFD in their own disclosure regimes. As the pressure for more public disclosures increases, boards therefore need to understand the progress their organizations are making. Banks also need to monitor jurisdictional and global disclosure requirements to stay up to date with current expectations for climate metrics. For example, ISSB (2022) are consulting on, and EBA (2022) has published, banking specific disclosure requirements which include detailed tables of information that should be published.

Table 8 depicts one method for measuring a bank's progress in implementing the TCFD recommendations. The amount of information that a board will want to see about this will depend upon several factors, including how mature its current disclosures are, the focus from external stakeholders, and what peers are disclosing.

Table 8: Progress on Meeting TCFD Recommendations

Governance	**Maturity**
Describe the board's oversight of climate-related risks and opportunities	5
Describe management's role in assessing and managing climate- related risks and opportunities	4
Strategy	
Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term.	5
Describe the impact of climate related risks and opportunities on the organization's businesses, strategy, and financial planning.	3
Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario	2
Risk Management	
Describe the organization's processes for identifying and assessing climate-related risks.	5
Describe the organization's processes for managing climate-related risks	4
Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management.	2
Metrics and Targets	
Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process.	2
Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks	3
Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.	1

Key

5	4	3	2	1
Fully implemented	Majority implemented	Partially implemented	Preparation started	Identifying data

Taxonomy-Aligned Loans

Green taxonomies have been introduced in a number of jurisdictions, including China and across Europe, and other countries are considering following suit. Some of the regulations associated with taxonomies will require disclosure of certain information, such as the green asset ratio in Europe (see EBA, 2021). Boards will therefore need to see this information before it is published.

5.2.5 Measures to Capture Audit Scope and Findings

The NGFS calls for external assurance of climate-related financial disclosures (NGFS, 2021) and this is increasingly reflected in current regulatory disclosure proposals e.g., in the U.S. and EU. The board should therefore stay aware of the audit scope for disclosures, actions that are opened and progress on closing them.

Table 9: Climate-related Audit Action Metrics

Metric	Description	Commentary
Audit scope	Percent of EAD that is audited. Number of counterparties included in audit coverage.	These metrics enables the board to understand how much of the portfolio is material enough to be included within audit's scope.
Audit actions	Number of open climate-related audit findings the bank has. Whether the bank is on track closing the findings.	Standard project management update of task progress.

5.3 Measures to Capture Sustainability of Own Business Operations

This section focuses on measures that relate to the bank's own business operations. Whilst the emissions from financial institutions' portfolios are much larger than their own emissions, banks are also expected to measure their own emissions and reduce them to net-zero. Boards also need to understand how the changing climate could impact their operations.

5.3.1 GHG Emissions of Own Business Operations

Many banks have already made net-zero commitments for their own business emissions: most firms started with Scopes 1 and 2 and are subsequently adding downstream Scope 3 greenhouse gas emissions. (For more information on the different scopes of emissions, please refer to the Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard [WRI and WBCSD, 2004]).

Since firms need to report externally their progress on these public commitments, the board should see information about this. The TCFD, moreover, recommends that Scope 1 and Scope 2 emissions should be disclosed irrespective of their materiality (TCFD, 2021b).

Disclosure of upstream Scope 3 emissions — those related to purchased or acquired goods and services, such as business travel and emissions from leased buildings — is subject to materiality. However, organizations are encouraged to disclose them.

Table 10: Business Operations Metrics

Metric	Description	Purpose
Absolute Scope 1, Scope 2, and upstream Scope 3 emissions	The total GHG emissions of a bank's operations. (This excludes financed emissions, which are covered in the section 5.2.2.) Measured in metric tons of CO2 equivalent.	To understand the climate impact of a company's operations.
Waste	Kilogram (kg) of waste: total or per FTE.	To understand the potential negative impacts of waste generated by the business.

Source: Task Force on Climate-related Financial Disclosures Guidance on Metrics, Targets and Transition Plans (2021)

Many financial institutions already report the emissions from their business operations in line with the relevant standards issued by the International Organization for Standardization (ISO 14064-1:2018) and the Global Reporting Initiative (GRI 305: Emissions 2016).

5.3.2 Number and Nature of Business Continuity Incidents

The changing physical climate could impact whether bank offices and branches can be used. They may be inoperable due to direct physical damage (for example, from flooding), or due to facilities such as electricity being unavailable. Alternatively, the premises may be functioning, but staff are unable to get to the building.

Incidents such as these might already be incorporated into other dashboards (e.g., operational risk dashboards). Careful thought will be needed on how to ensure that boards are made aware of the full range of risks facing their institution, while not being confused by overlaps with other reporting structures.

6. Summary Dashboard and Conclusion

As this paper makes clear, there is no one-size-fits-all for creating a climate dashboard. The information that is relevant will depend on the institution, its size and complexity; the type of lending it does; the location of its counterparties and their collateral; and the bank's level of ambition and sophistication. This guide provides a starting point of core metrics for banks to consider how such a dashboard might be organized and the type of metrics suitable for populating such a dashboard.

Figure 11 presents a mock-up of a hypothetical dashboard for a board to monitor its climate progress, drawing on the measures outlined in the paper.

Figure 11: Board of Directors Summary Climate Dashboard

	Topic		Level	Trend	Outlook	Goal	To date	Comments
Balance Sheet Management	Risk	Transition Risk	Medium	↑	↑	Within limit	Within limit	The exposure to sectors that are sensitive to transition risk is within agreed limits, but has been increasing and is expected to continue to increase No excess concentrations in these sectors
		Physical Risk	Low	→	↑	Within limit	Within limit	The exposure to locations that are sensitive to physical risk is within agreed limits No excess concentrations in these locations
	Financed emissions		Medium	→	↓	50% reduction in emissions intensity by 2030	30% reduction	We are aiming to reduce financed emissions to the highest carbon intensity sectors by 75%. These account for 40% of our exposure. The balance of the emissions reductions will come from the remaining 60% of the portfolio.
	Portfolio alignment		High	↑	↑	100% of portfolio net-zero	20%	By 2050 all of the bank's financing will have net-zero greenhouse gas emissions. By 2030, achieve a 45% reduction in portfolio greenhouse gas emissions relative to 2010 baseline.
	Mobilizing transition finance		Low	→	→	$100 bn by end of 2030	$40 bn	Provide $100 billion funding that supports the transition to a low-carbon economy by the end of 2030
	Client engagement		Medium	↑	→	Engage 100% high risk clients by end 2025	68% large corporate clients engaged	Engagement with all corporates in industries that have high transition or physical risks in the next ten years
	Regulatory actions		Low	→	→	Implement 100% regulatory requirements	Completed	100% of regulatory requirements will be implemented within the required timescale
	Disclosure Alignment		Low	↑	↑	Disclosure 100% aligned	6 recommendations met Working to meet 5 recommendations	By 2024 climate-related disclosures are in line with all 11 TCFD recommended disclosures
	Audit Findings		Low	→	→	No outstanding high impact audit actions	0	Aim to clear all audit findings within Audit determined timetable
Own Operations	Own emissions		Low	→	→	Net-zero by 2030	Emissions reduced 40% since 2010.	Our scope 1 (company facilities and vehicles), 2 (electricity, heating and cooling), and direct/downstream scope 3 (e.g. business travel, homeworking, supply chain)
	Business continuity incidents		Low	→	→	Meet resilience standards for all weather-related incidents	No relevant incidents over past quarter	All facilities should meet bank's resilience and recovery standards

Trend: How the risk levels have altered over the past time period since the board last saw the dashboard (for example, over the last 1, 3, 6 or 12 months)
Outlook: How the risk levels are expected to alter over a future time period (for example, the next 6 or 12 months)

↑ Increasing → Constant ↓ Decreasing

Many firms may also show their board a breakdown of transition and physical risk sensitivity or exposure like the examples shown in Section 5.2.1 *Measures to Capture Climate Financial Risk*.

In this paper, the focus has been on different aspects of climate-related issues: balance-sheet risks, portfolio alignment, regulatory expectations, disclosure, audit findings, and emissions from own business operations. Many firms may be taking a broader focus, also looking at these aspects for other environmental factors, such as biodiversity or water scarcity.

Clearly, the dashboard can be expanded or changed to cater for any such extension of coverage. However, it remains very useful to keep the fundamental distinction between (1) balance sheet risks and impacts, and (2) own business operations. This is because different types of actions are used to affect balance sheet and own business operations emissions, and maintaining the distinction allows these to be clearly identified and tracked.

As noted in Section 4 *Introduction and Context* some topics that a board should be aware of may not be amenable to inclusion in a summary climate dashboard that is regularly seen by the board. Rather, they may be better served by ad hoc papers or presentations, or by some other form of periodic reporting, including:

1. **Balance sheet management information:**
    - Portfolio alignment strategy and plans to achieve it
    - Climate risk management strategy
    - Risk appetite setting information
    - Transaction-level assessment for high-risk projects
    - ESG customer watch list and action plans
    - Internal carbon price: the price per ton of CO2e financed, used when determining counterparties' future profitability
    - Cost of financial risks and opportunities
    - Peer analysis benchmarking
    - Global trends and emerging risks
    - Regulatory comparison across different jurisdictions
    - Climate risk measurement methodologies
    - Conduct risk related issues, that aren't captured in the dashboard
    - Developments in litigation, such as new types of litigation that could affect banks

2. **Measures to capture sustainability of own business operations:**
    - Climate risk training programs: progress in developing and rolling out training
    - How climate change is reflected in staff remuneration

Ultimately, it is for each board to decide how it intends to have oversight of the management's responsibility to implement risk management policies and practices. A climate dashboard is likely to become an increasingly useful way for the board to discharge this responsibility.

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