

CLIMATE FINANCIAL RISK FORUM GUIDE 2021

CLIMATE RISK APPETITE STATEMENTS

October 2021



Contents

1	Overview.....	4
2	Insurers.....	6
3	Asset Managers	14
4	Retail Banking.....	20
5	Corporate Banking.....	23

This chapter represents the output from the Risk Management Working Group of the Climate Financial Risk Forum (CFRF).

The document contains information constructing a risk appetite statement and metrics.

This CFRF guide has been written by industry, for industry. The recommendations in this guide do not constitute financial or other professional advice and should not be relied upon as such. The PRA and FCA have convened and facilitated CFRF discussions but do not accept liability for the views expressed in this guide which do not necessarily represent the view of the regulators and in any case do not constitute regulatory guidance.

Copyright 2021 The Climate Financial Risk Forum

1 Overview

Developing a climate risk appetite statement (RAS) is an essential aspect of climate risk management, to align understanding of the level and type of risk that is accepted in pursuit of a firm's strategy.

This document builds on the information in the CFRF 2020 [guide](#). The aim is to offer practical advice on writing, implementing and maintaining an effective RAS, factoring in different aspects of climate risk.

The CFRF Risk Management Use Case document outlines practical steps in specific use cases for developing and embedding the RAS. This builds on the principles outlined in this RAS document.

The content in the document comprises a range of example practices from firms, leading thinking and industry papers. It is not intended to signify a benchmark for best practice.

The document is structured by industry grouping, covering:

- Insurance
- Asset management
- Corporate Banking
- Retail Banking

In the document we have focused on a number of specific risks aspects of climate risk appetite:

- the impact of climate change on the firm through physical and transition risk;
- the impact of the firm on the climate through net zero (or other) alignment; and
- the most widely applicable financial risk categories, e.g. credit risk.

Wider sustainability and corporate social responsibilities are not considered here in line with the focus of the PRA's Supervisory Statement SS3/19 on climate-related financial risks. The operational and non-financial risk aspects of the RAS will be considered for development in future sessions of the CFRF given the ongoing development of FCA guidance in this area.

The UK Climate Financial Risk Forum: Climate Data & Metrics Report contains additional information on use cases and metrics, that are introduced throughout this document.

Integration with existing Risk Appetite Framework

Different firms may take different approaches to how climate risk appetite is presented internally. For example, a subset of metrics may be included within a RAS (at either enterprise or entity level); or there may be a standalone Climate, ESG or Sustainability RAS. These approaches are not exclusive and may even be combined.

Good practice is to align the approach for addressing climate within the risk appetite with the approach adopted for existing risk categories or cross-cutting risks.

A climate RAS should ideally consider the following elements:

- Transition risk
- Physical risk

- Alignment (to either net zero, a temperature target or some other strategic/scientific-based climate-related objective)

Ownership and Integration in Governance

The approach to establishing ownership for climate risk and integrating it with the RAS should mirror the approach for other risks. However, given the cross-cutting nature, a mechanism should be in place to ensure there is a holistic view of the climate risk. Whether this is a designated individual with formally delegated responsibility, or a full team will depend on the complexity and materiality of the risks to the organisation.

There is a clear expectation of ownership in the First Line of Defence, and a dependency on the detailed definition of strategy and business objectives.

Note: An outline of roles and responsibilities across the three lines of defence can be found in the CFRF [2020 Risk Management Chapter](#).

Longer term enhancements

More advanced firms will develop, over time, a climate RAS which incorporates insights from scenario analysis (including transition glide paths) and financial and strategic planning. A mark of success over a 3-5 year timeframe, will be the ability to cascade and embed RAS metrics into business practices, scorecards, and financial and operating plans which help steer the balance sheet.

2 Insurers

Ownership and integration into governance

Ultimately, an insurer's board of directors should own the highest level of the climate change risk governance. But the actual risk takers should assume responsibility for the more granular, concrete measures.

Climate risks should be embedded in existing governance frameworks as much as possible, and potential approaches for doing this include the following:

- Developing a defined climate strategy as part of a wider sustainability or ESG strategy;
- Incorporating climate risks into the firmwide RAS, through either qualitative or quantitative articulation of which risks to pursue;
- Integrating climate risk limits into the existing Limit Framework (where limits may be owned by either the first or second line); and
- Integrating within governance policy documents that are owned by the respective functions - for example: risk management, actuarial reserving, investment, and underwriting.

While additional oversight may be needed to ensure a comprehensive coverage of climate risks, incorporating within the firm's existing governance structures rather than by creating new ones is likely to achieve more sustainable embedding.

As both the science and risk management of climate change is evolving, firms should expect to review their approach regularly to ensure it remains up to date.

Approaches and metrics

The first stage in developing a climate risk appetite is to assess the firm's exposure to the risks from climate change. The next step is to consider the best approach to defining RAS for those exposures.

Impacted risk categories

The risk categories most impacted by climate change will largely depend on the business model of the firm and the regions in which it operates. While the impact of climate risks may be quantified, there remains significant limitations on data and models and uncertainty over the timing of when these risks will become material.

For example, for general or Property and Casualty (P&C) insurers, the potential physical losses from climate change are seen today, but may not materialise fully for 20+ years. That said, the potential transition risks within their investment portfolio may be more immediate.

For Life and Health (L&H) underwriting, climate change remains a potential, emerging risk, because of the material uncertainty of the timing and magnitude of the physical impacts.

To support the assessment of the different types of climate risks, the impacts of climate risks can be bucketed into two categories:

- **Traditional business risks** comprise climate risks that materialise through changes to the risks typically captured in existing categories, resulting in higher losses.
- **New risks and opportunities** include transitional risks that are proportionate to the carbon intensity of the underlying activity. These risks may be related to an insurer's own emissions footprint or those associated with their assets or liabilities. This includes strategic risks that change the risk profile of the firm's long-term strategic objectives.

Traditional business risks

The traditional/established risk categories of P&C insurers that are most likely to be impacted are shown below. The materiality of the impact will depend on the underlying business model of the enterprise and should be assessed individually on a firm-by-firm basis.

- **Underwriting catastrophe risk.** Climate change is increasing the uncertainty of catastrophe risk for P&C insurers, due to the potential for the frequency and/or severity of events to deviate from long-term average for perils such as flood (pluvial, coastal and fluvial) or wildfires (see [IPCC report](#)).

Reflecting long-term gradual change represents a challenge for P&C insurers, who typically take short-term underwriting risk, over one to two years. Some P&C insurers are already quantifying the likely trend in extreme flood and prolonged or repeated events, and reflecting these in business plans and reinsurance strategy.

As the risk of increased catastrophe losses from climate change grows, insurers will have the ability to re-price the risk (charge increased premiums at renewal) or walk away. At the same time, they are likely to continue to work with public authorities on mitigation (e.g. flood defences) and market solutions (e.g. risk pools).

For mortality underwriting, future changes in assumptions may lead to material impacts on current reserving assumptions. (It's important to keep in mind, though, that the time horizons are long, and there is uncertainty around how long-term demographic assumptions may be impacted by changing physical impacts.)

- **Reinsurance default.** Climate change is exacerbating the extremes more than the average, and is also believed to make clustered or prolonged losses more likely. Any significant unexpected loss, including one exacerbated by climate change, could weaken reinsurance counterparties, leading to downgrades or default.
- **Reserving.** There may be an increase in litigation against companies viewed as contributing to climate change. As attribution science develops, the litigation may spread and intensify. This may lead to inadequate reserves within longer-tail casualty classes.
- **Legal.** In addition to litigation against companies, there is the potential that insurers could be sued directly for contributing to climate change.
- **Operational.** Offices or other physical locations near the coast or rivers may be at increasing risk of flooding or physical disruption.
- **Asset-side market/Investment.** On the asset side of the balance sheet, market values of equities and property risk may be affected by climate risks. Asset values could be exposed, for example, to a potentially sudden re-pricing, reflecting the

impacts of, or anticipation of physical and/or transition risks.

- Similarly, **credit risk** may also be impacted, both through movements in credit spreads and moreover, it is possible that an **enterprise's net-zero ambitions** may impact any of the above risk categories.

New risks and opportunities

Insurers are faced with the conundrum that their own underwriting activities may contribute to, or mitigate, climate change.

Supporting greenhouse-gas-intensive business activities in the short term may lead either to losses in another class of business or to losing business opportunities in the future. For example, generally one could expect that writing insurance for coal-powered energy plants today may contribute (albeit indirectly) to future wildfire claims in the next decades, although the impact may be difficult to assess for an individual company. Or, as another example, reputational risks could arise as a result of needing to disclose financed emissions.

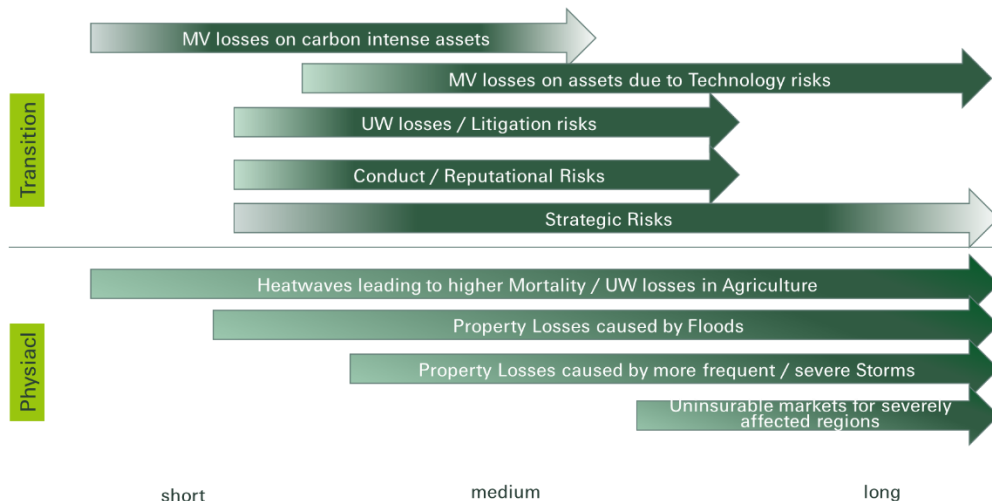
Insurers may positively contribute to climate trends by providing their know-how and capacity to support more sustainable business activities, such as renewable energy.

Insurers can choose to avoid certain carbon-intensive risks as part of their climate risk strategy, but can also seek more sustainable alternatives for meeting their net-zero ambitions. These considerations should inform firms' climate RAS, particularly with respect to the following:

- **Regulatory conduct risk and own litigation risk.** Risks related to compliance failures and/or the emergence of new regulations;
- **Reputational risk.** Failure to meet stakeholder expectations or deliver on own net-zero targets, leading to loss of market share and company value; and
- **Strategic risk.** Failure to adapt product offerings to changes in the environment, technology, risk profiles and demand. These risks could materialise through acting too soon or too late, or via a failure to take the right actions.

The figure below illustrates how certain transition and physical risks may materialise and affect risk categories over the short, medium, and long term. Materiality of impact and timing largely depends on the firm's exposures and the geographical region of the risks.

Figure 1: Evolution of Transition and Physical Risks Across Varied Time Periods



RAS Considerations

After carrying out an assessment of its exposure to the risks from climate change, an insurer needs to consider the best approach to defining RAS for the exposure. There are four general considerations that apply to insurers' RAS.

- i. **RAS should be used to articulate the types of risks to pursue and to avoid.** Strategy, risk-return, and solvency objectives should be considered, supported by a set of measures and controls. RAS may be dedicated to climate risks, or firms may consider the impacts of climate risks on existing risk categories that do not have a specific climate RAS. And a hybrid approach could also be used.
- ii. **Definition of risk appetite may be qualitative or quantitative, supported by limits for the most material risks,** including certain underwriting and financial market risks. An example of a quantitative risk limit is a limit on mortality insurance based on shortfall. To manage climate risks, metrics that can be clearly linked to the risk may be needed to enhance existing RAS.
- iii. **Firms may apply a strategic approach to climate risks.** Within the wider context of environmental, social and governance (ESG) risks insurers may, for example, follow a "no harm" approach.
- iv. **Risk appetite for climate change might be defined hierarchically,** with more general principles at the top level and more concrete measures at the level of risk takers. The highest level should be owned by the firm's board.

(Refer to next section for more information about risk metrics.)

When existing RAS do not adequately cover climate risks, additional RAS may need to be developed. To determine whether supplemental RAS is needed, insurers should consider the following factors:

- **Time horizons.** Will climate change related factors or risk characteristics be captured as they materialise over the short, medium and long term?
- **Carbon intensity.** Do current risk appetites adequately capture or integrate the new requirements or risk related to carbon-intensive activities?
- **New risks.** Does the existing risk control framework capture all aspects of the risks from climate change, or do separate RAS need to be developed? In the latter case, these will need to be aligned with the existing risk control framework.

The table below (see Figure 2) provides an overview of how the identified RAS gaps may be addressed. This approach reflects the initial separation of risks into traditional risks – where the approach is to focus on assessing and developing the underlying methodologies – and new risks – where the approach is to identify new data sources (e.g., carbon measures that can be used in scenario analysis).

Thresholds or limits should be practical and aligned to both short-term and long-term strategy and corporate plans. Stress testing exercises should be run for a range of scenarios to assess potential thresholds and limits. In particular, insurers should perform stress testing to consider different climate pathways and consider the impacts each pathway would have on the shape of their underwriting portfolio.

Figure 2: Potential RAS Gaps and Options for Better Integration

Potential Gaps	Options for better integration
<p>Impacts on existing business risks are not captured</p> <p>For example, the impact of heatwaves on mortality assumptions, due to insufficient data or research about sensitivities to a heatwave, the time horizon, and the region that may be affected</p>	<ul style="list-style-type: none"> • Review modelling of risk factors to assess how much of the impact from climate change factors is incorporated • Companies may use existing risk factors and limits or introduce new ones. For example, the same mortality limit might still be workable but will lead to lower business volumes that can be written to stay within a risk limit. • Define forward-looking risk limits – i.e., the anticipated increase in impact from physical risks and/or transition risks when determining limits applicable for future business.
<p>Shortcomings in RAS for carbon-intensive activities</p> <ul style="list-style-type: none"> • No explicit risk appetite statement • Exposure to carbon-intensive activities is not clearly identified, thereby making it hard to manage • In some situations, it is difficult to steer portfolios under carbon intensity targets. 	<ul style="list-style-type: none"> • Firms might define a separate risk appetite statement for carbon-intensive business activities or fully integrate measures within existing appetite frameworks. • TCFD framework may be leveraged for metrics and supporting steering. • Targets may be defined over a certain time horizon, either per year or a target date in the future. • Risk appetite may be defined as a tolerance range around the target for each year.

Potential Gaps	Options for better integration
<p>The RAS does not capture well the potential trade-offs between risk appetite for traditional business risks and risk appetite for carbon-intensive risks.</p> <p>For example, should the firm insure a carbon-intensive manufacturer against property damage?</p> <p>Can the RAS capture the trade-off between the strategic ambition to meet a net zero target, and thereby preserve the market in the longer term, versus a shorter term profit perspective?</p>	<ul style="list-style-type: none"> • Qualitatively define the firm’s sustainability/climate strategy in a way that provides the objective for all risk taking. • Introduce steering: <ul style="list-style-type: none"> ◦ exclusions for risks that should not be tolerated on an individual basis – e.g., unacceptable reputational/conduct risk. ◦ use capacity limits for carbon intensity – e.g., employ forward-looking metrics for multi-year engagements. • Allocation of capacities left to risk takers (e.g., allocate capacity considering profit/risk optimisation).

Climate risk metrics will be refined over time. To begin, firms can use a range of relatively simple metrics that can support initial analysis and provide useful insight into the materiality of their climate risk exposures. This analysis can be used to support the development of more sophisticated metrics to assess the insurer’s material risk categories.

Where climate risk impacts established risk factors, existing metrics may be used – e.g., average loss, shortfall, 1-in-200-year return period, aggregate exceedance probability (AEP), value-at-risk (VaR), shortfall and loss ratios. The impact of climate risks should be measured through assessing the sensitivity of these metrics to climate-related factors and the underlying climate assumptions underpinning the metrics.

Insurers can utilise stress testing for a range of climate pathways, to understand the impact on the shape of their underwriting portfolio and to inform setting tolerances. Several timeframes should be considered, with the analysis centred on transition risks in the shorter term – assuming that the more significant physical risks will emerge on a longer time horizon.

While it is important to understand and take into consideration these sensitivities, insurers’ attribution of observed losses in any particular year to climate change may be subject to uncertainty (e.g. around weather events, time horizons that risks may emerge over). New metrics will need to be developed for new risks, such as how a company is aligning to net zero. Useful metrics that can be used include the proportion of the portfolio that has set (and verified) science-based targets that align with Paris Agreement objectives, or independent sustainability ratings (e.g., from CDP or TPI); and the transparency and extent of a company’s climate disclosures (e.g., TCFD reporting).

Temperature alignment metrics and mapping of the portfolio to the EU taxonomy are more complex alternatives. In the future, more developed metrics will include a quality review of the company’s carbon disclosures; benchmarking against peers or sector; and assessment of transitional plans. The IFRS Foundation and IOSCO are also looking at establishing an International Sustainability Standards Board (ISSB) which could also create greater expectation for companies to disclose climate-related financial

disclosures in their financial reports¹

Specific examples of metrics that can be used to manage climate risk – for both assets and liabilities – are shown below.

For assets

- Carbon intensity of the asset;
- Carbon footprint of underlying counterparty;
- Benchmarking carbon footprint against sectorial averages;
- Scenario VaR;
- Credit impacts from scenario analysis; and
- Temperature alignment metrics.

For liabilities:

- Average loss, shortfall, 1-in-200 year, return period, aggregate exceedance probability (AEP);
- P&C: severity and frequency of weather events; and
- L&H: increase in excess mortality, monitoring early warning indicators (EWIs) for longevity/ future mortality assumptions.

The above examples can be broken down by asset class, such as equity, debt, real estate, sovereign and mortgages.

To assess the physical impact of climate change, insurers can use heat maps of directly-held assets – as well assessments of the physical risk exposure of underlying companies in which investments are held.

Thresholds

Where climate risk factors impact existing risk measures that have defined limits, no changes may be needed to thresholds, if these limits are already aligned with the risk tolerance objectives (e.g., capital impact).

Where carbon-intensive business is covered under (new) governance, 'hard' and 'softer' targets and metrics can be considered when setting thresholds. Initially, 'softer' targets may be rolled out with the expectations that over time, as the business' understanding of dynamics of the metric increases, the thresholds will become harder. With respect to harder steering limits, less sophisticated but more concrete metrics can be set from an earlier date.

The time horizon for achieving limits/targets (to ensure that targets remain achievable) is among the other factors that should be considered before setting thresholds.

To create proper risk tolerances, insurers can also take the following steps:

- Prioritise mitigating risks where there is a higher loss potential due to materialisation of climate risks for certain carbon-intensive assets;
- Allocate carbon intensity capacities to first line - i.e., decentralise optimisation of risk vs. return; and
- Define triggers, that will require expert oversight and input, to build experience and inform future setting of thresholds. (These thresholds need to evolve to reflect the pace of change in this area of risk management.)

¹ <https://www.ifrs.org/news-and-events/news/2021/03/trustees-announce-strategic-direction-based-on-feedback-to-sustainability-reporting-consultation/>

When limits are breached or are close to being breached, the general protocol in the policy for limit breaches should be followed. For example, depending on type of limit, there may be various possibilities, including management awareness/consideration of actions; review of limits; de-risking; and mitigation/offsetting.

How can risk appetite be cascaded?

It is important that climate risk appetites are integrated into existing frameworks. The actions of each firm impact climate change, which in turn affects its business, strategy and, ultimately, profitability and long-term viability. There should therefore also be sufficient steps taken to ensure that the climate-driven RAS actions have an impact on the external environment – a consideration that is not typically accounted for in a traditional enterprise risk management (ERM) framework.

Climate risk appetite can be cascaded using the steps below:

- The board sets a climate strategy. This may be part of a wider sustainability or ESG strategy;
- The board articulates which types of business to pursue and objectives to be taken into account qualitatively, and eventually quantitatively, at the company level;
- Group-level risk managers provide a breakdown (such as capacities) for certain risk-taking (business) units, wherever quantitative limits are defined;
- Business units consider capacity limits for risk taking, and balance these limits with other objectives for risk taking; and
- Risk management, underwriting, and asset management incorporate principles into their governance frameworks to control their limits, monitor adherence to the limits, and describe escalation procedures (as necessary).

3 Asset Managers

Ownership and integration into governance

The chief investment officer (CIO) typically owns and is responsible for climate risks impacting client portfolios and funds managed by the asset manager.

In smaller firms, this may be assigned to the chief executive officer (CEO) or a director of the board. In any case, the board of directors are ultimately accountable and should be aware of potential risks and opportunities from climate change through their embedded risk processes, governance and oversight.

Asset managers distinguish risks they are managing on behalf of clients, in portfolios and funds, from risks they take which impact the performance of their business. Whilst these are often closely related, the setting of risk appetite for client portfolios is part of the commercial process of providing a service, whilst the setting of risk appetite for the asset manager (or firm) itself is a key governance mechanism for oversight and control of the business. It is important to both distinguish these and understand where they overlap.

Climate risks impacting the firm – i.e., risks that could harm the firm such as physical and transition risks – may have a variety of owners. Ultimately, however, they should be covered at the board level and/or by a delegated risk committee.

Physical risks should be addressed through existing business resiliency/ operational resilience plans, while transition risks have a wide range of uncertain business risk outcomes. These risks are likely to be addressed and owned by the CEO, the chief operating officer (COO), or the chief sustainability officer (CSO).

Climate risks will typically be escalated and monitored through existing risk governance. Portfolio/investment risks are monitored by the first line, while the board and the risk committee have oversight of all other climate risks.

Additionally, asset managers face product risks associated with offering funds and client portfolios with stated climate related aims. These product risks bring the climate risks impacting client portfolios into the set of risks impacting the firm. The risk is that commitments made to clients are not fulfilled, that the actual portfolios are found to be inconsistent with the stated investment position, and that this causes damage to the firm's reputation. This may arise from many causes including: through using erroneous emissions data which allow inappropriate investment in high-carbon companies; through having a marketing and product approach which over-promises relative to research and portfolio management capabilities; through making incorrect judgements of the timescale for climate effects to become recognised as problematic for a particular sector or issuer. Each of these could lead to individual client dissatisfaction and potentially wider reputational damage and franchise loss.

Approaches and metrics

The key dimension to consider for asset managers is balancing climate risk management with fiduciary and agency responsibilities. Firms will need to balance what client mandates allow and what the firms' desired outcomes are in relation to climate risks. For example, a passive fund cannot simply divest out of a security because it is a high-carbon emitter, if the security is within the benchmark of the fund mandate.

Asset managers provide their services based on an agreed portfolio / fund strategy and mandate to deliver against specified performance commitments and targets. There is

limited scope for an asset manager to deviate from portfolio guidelines, and assets managed are subject to tolerances set (with prescribed thresholds monitored).

Asset owners will therefore need to clearly articulate their appetite towards climate risks. The challenge will be using appropriate data and a methodology that will measure or attribute performance returns in the context of climate risk outcomes. This is compounded further by the timeframe to model risks and scenarios with a wide range of uncertain outcomes of when climate risks will impact client assets.

For asset managers, this creates a high level of potential liability if products or mandates do not perform to objectives – especially if they are based on methodologies and data that are not yet mature. Climate risk appetite for investments will need to be agreed upon with clients (and varied by asset class), through the mandate or fund product processes, with achievable and measurable targets.

It is important to note that, without consistent and universally-accepted practices, it will be difficult to conduct typical performance return attribution due to certain climate-risk factors. Again, it is up to asset owners to specify what exposure and appetite they have to climate risks and opportunities.

Propriety trading is generally limited on asset manager balance sheets, so the focus should be on the potential harm to clients, i.e. the impact of negative financial and investment risk to client assets that are exposed to climate risk. Fiduciary responsibilities may include making clients aware that these risks could materialise, or that there are opportunities in assets better suited for potential climate pathways or outcomes.

The risk of declining portfolio asset values due to climate risk factors will need to be integrated into the investment management process. There are also opportunities to innovate in an environment demanding lower carbon outcomes – and to generate alpha in investments that are expected to transition well.

Furthermore, the asset manager's appetite for decarbonising portfolios – either proactively or via client requests – may require them to approach climate risks through influencing clients, stewardship, engagement and proxy voting.

The most impacted risk categories will be business and strategic risks. The asset manager's ability to prepare for and mitigate risks for investor assets will present reputational impacts; if poorly managed, these risks will create negative outcomes for their client relationships and reduce opportunities for new business growth.

Other climate-driven risk exposures asset managers will face are operational in nature:

- **Product development and sales.** Asset managers must provide suitable products that meet client expectations and client's climate risk appetite;
- **Legal/regulatory risks.** Adherence to regulatory disclosure requirements and fulfilment of asset-owner mandates are necessary;
- Potential **product risks** and tarnished **reputation of 'greenwashing'**;
- Client take-on and ongoing engagement / proxy voting **conflicts**; and
- Potential **Business disruption.**

Determining firms' preparedness to measure carbon emissions, and to assess temperature alignment metrics for client portfolios, is an important first step. Some firms may be further along, and it is clear that such firms have invested in resourcing.

Eventually, all firms will need to determine their capacity to start analysing and disclosing climate information. This reporting could be performed at client, portfolio,

asset class and/or firm levels – and may also include results of stress tests and other types of climate risk analysis.

This requires business risk appetite decisions to be set at the board level. Asset managers will need to set a risk appetite for the risks associated with offering products with stated climate related aims. The risk that the product outcomes are not aligned with the objectives set is a risk for every product. Climate risk adds an extra dimension to these product risks. Asset managers should set a, likely low, risk appetite with respect to not fulfilling the objectives, commitments and promises that are made on client-related products.

Asset managers will also be expected to disclose their own carbon emissions (operational emissions), and targets that will be measured and monitored. One approach to this is to include an integrated climate risk disclosure within the financial report.² A firm may make pledges (such as being net-zero for their own business operations) by a set date, but the greater challenge is whether this can be aligned with the objective and mandate of client portfolios.

A firm wishing to be net-zero for all assets under management (financed emissions) will be challenged to consider how their business risk appetite aligns with these statements – i.e., via either turning away clients where mandates do not meet desired outcomes, or /and influencing existing clients into lower carbon impact mandates, products and assets.

The asset owners/investors, too, will increasingly apply filters to asset managers, if their appetites do not align with those of the asset owner – or if the asset manager is unable to demonstrate climate risk awareness and be able to produce reporting of climate risk metrics on their portfolios.

Case Study:

The Net Zero Asset Managers Initiative, an international group of 87 asset managers (as of April 2021) with almost £37tn under management, have committed to:

- *work in partnership with asset owners on decarbonisation goals consistent with an ambition to reach net zero by 2050 (or sooner) across all assets under management;*
- *set interim targets for proportions of assets to be managed in line with attainment of this ambition; and*
- *review interim targets regularly with a view to ratcheting upwards until 100% of assets are included.*

However, the Initiative acknowledges that the scope for asset managers to meet these commitments depends on the mandates agreed with clients and clients' and managers' regulatory environments, and relies on governments following through on their own commitments to ensure the objectives of the Paris Agreement are met.

There will also be data consistency and methodology difficulties, which can be pronounced between different asset classes. Risk appetite may diverge with varying methodologies or data sources – for example, it may differ for corporates (fixed income/equities), real assets (real estate, infrastructure), sovereigns, securitized assets, derivatives and other alternatives.

Asset managers will, moreover, need to determine their risk appetite for providing more

² For examples, see <https://cdn.ifrs.org/content/dam/ifrs/news/2019/november/in-brief-climate-change-nick-anderson.pdf?la=en> or <https://www.cdsb.net/climateaccounting>

products and strategies that will meet asset owners' demand for climate-focused outcomes. This is a business risk appetite decision at the board level, and should be decided based on client demand and the ability to deliver based on measurable thresholds.

The tables below consider risks to clients, firms and the broader market, with initial considerations for risk appetite.

Figure 3: RAS Drivers, Impacts, Considerations, Actions and Ownership

Risks Drivers and Impacts		Risk considerations		Action	Proposed Owner / Business Lead
		Physical Risks	Transitional Risk		
Harm to Clients (Asset Owners)	How climate change could financially impact client portfolios.	Client assets impacted negatively by physical risks of climate change, e.g. floods or more frequent weather disruptions that destroy asset values.	Client assets impacted negatively by the transition to a lower carbon economy, e.g. Government Policy, legal costs and changing consumer behaviour.	<ul style="list-style-type: none"> Measure portfolio climate impact for Asset Owners. Determine ability and requirements to publish data. Scope of assets under management. Ability to influence: Set thresholds to manage targets. Client take on process – engagement / clarity of strategic objectives in line with firms' risk appetite. 	Chief Investment Officer, and/or assigned Board member
Harm to Firm	How climate change could impact the operational resiliency of services, reputation and firms financial position.	Office location and operational disruption from severe weather event, e.g. power disruptions.	<p>Financial impact to firm e.g. loss of Assets Under Management and revenue / increased costs / loss of new opportunities as a result of the firm's ability to:</p> <ul style="list-style-type: none"> Demonstrate appropriate ESG integration / Climate risk governance and action. Product range unsuitable and unable to meet climate risk investor appetite and preferences of investors. Significant legal costs from potential product misrepresentation, e.g. "Greenwashing" where product does not meet climate objectives of investor. 	<p>Define metrics that lead to a responsible and sustainable climate risk strategy, e.g. defining strategic targets over time horizon such as:</p> <p>a) target to be net zero by year X in respect of its own operations;</p> <p>b) target to be net zero across all its activities and including investment portfolios by year X.</p> <p>Risk appetite statement to support the delivery of these strategic objectives, e.g. "firm has no appetite to deviate from publicly disclosed targets", with interim measurements required to demonstrate progress against these targets.</p>	Chief Executive Officer, or Chief Sustainability Officer, or Chief Risk Officer, and/or assigned Board member
Harm to Market (and firms' impact to climate change)	How firms' operations and activities impact climate change agenda, the broader financial market and its ability to influence Asset Owners' investment strategies.	Firms' operations e.g. office and travel are primary contributors to their carbon emissions.	<ul style="list-style-type: none"> Lack of appropriate climate disclosures and action demonstrated by the firm resulting in reputational impact. Lack of progress to reduce AM industry carbon emissions. Firms inability to influence asset owners under scrutiny. 	<ul style="list-style-type: none"> Disclosure of firm's carbon footprint. Noted above in Harm to Firm. Consider if changes / divestments disrupt the market? Consider if disclosures could impact reputation of the Asset Management Industry as whole? 	Chief Executive Officer, or Chief Sustainability Officer, or Chief Risk Officer, and/or assigned Board member

Figure 4: RAS Examples, Metrics and Constraints

	Risk Appetite Statement considerations	Risk Appetite Example Data; complexity to implement?	Risk Appetite metrics (consider time bound) 5 year (built into ICAAP), 10 year and 20+ (aspirational appetite)	Data and metrics to measure / Data traps / other constraints
Measure and Disclose	<ul style="list-style-type: none"> Firms' preparedness to measure carbon emissions of client portfolios. Appetite towards resource allocation Internal capacity / allocation of resources and. Client / Fund mandate. Required vs proactive. Third party assets. 	<ul style="list-style-type: none"> To provide portfolio carbon intensity reporting for (x% clients, client types, asset classes) by X date. Outperform target benchmark + reduce carbon intensity of portfolio over 1, 3, & 5 year period. Outperform target benchmark + increase green rated assets by X %. 	<p>e.g. portfolio X should have no more than Y% loss under a 2 degree warming scenario over a timeframe of Z years (more difficult)</p> <p>e.g. Investing in corporate issuers having an emission intensity per million USD sales above X (data more available and easier to do).</p> <p>e.g. portfolio X % of green rated buildings or number of green building certifications.</p>	<p>Data consistency for different asset classes.</p> <p>Risk Appetite for different asset classes e.g. Corporates (Fixed Income / Equities), Real Assets (Real Estate, Infrastructure), Sovereigns, Securitized Assets, Derivatives and other Alternatives</p>
	<ul style="list-style-type: none"> Firms' preparedness to disclose carbon emissions data at firm level and at portfolio level as well as results of stress tests and other types of climate risk analysis. 	<ul style="list-style-type: none"> Firm to be net zero by X date (e.g. 2050) Assets under management to be net zero by X date (Difficult without client alignment). X% Paris aligned temperature benchmarks. 	<p>% of portfolios with net zero targets</p> <p>Degree warming metric reductions by x date</p> <p>Deviation from portfolio targets</p>	<p>Client mandates or funds not within control of asset manager can not reach outcome of net zero without client willingness. No common method for assessing degree warming metric.</p>
Engagement / Influence / Stewardship	<ul style="list-style-type: none"> Appetite for decarbonising portfolios (proactively or on client requests) or improving real world impact of assets (e.g. through engagement/ proxy voting / stewardship). Commitments and targets. Ability to implement and measure deviation. Will action negatively impact performance return. i.e. is there a trade off between climate outcomes vs performance return? Exposure to defined investments. 	<ul style="list-style-type: none"> Engagement with investors to address the issue. Ability to influence climate transition plans the extent is reasonable and measurable climate related targets. The firm has X appetite for exposures to certain defined excluded investments, e.g. high polluters/ emitters which have shown low / no willingness to engage with investors to address climate risks. 	<p>Disclose x % of proxy voting?</p> <p>"Stewardship to divestment pathways" from carbon intensive corporates?</p> <p>Influence impact of carbon emitters</p> <p>Disclosure of X% of voting records</p>	<p>What the firm controls in terms of assets vs funds where there may be independent boards or specified investment mandates.</p> <p>Impact of portfolio for decarbonising? E.g. taking high carbon sector (such as energy) out of target benchmark involves risk / uncertainty where decision of who bears risk and how it can be measured. Attribution of portfolio return to climate risk factors still immature.</p>
Product	<p>Firm's appetite to increase product availability for climate / ESG focused strategies.</p>	<p>Funds offered with climate / ESG focused strategies to increase by X%.</p>	<p>Develop x % of products by y date.</p>	

4 Retail Banking

Ownership and integration into governance

Responsibility for climate risk should be owned at the executive level, as per the Senior Management Function requirement in the PRA's supervisory statement SS3/19. The CRO is typically the key owner of this risk category, but some firms have assigned aspects of the responsibility to the CEO and/or CFO to encourage first-line ownership of risks.

Approaches and metrics

For retail banking, the risk categories most impacted by climate risk include credit risk, conduct risk, and operational risk – particularly business continuity risk (BCR) and reputational risk. Regulatory requirements are also likely to increase model risk and capital risk.

Climate risk can be treated as a separate risk category, but the general view is that this would be a short-term solution, intended to increase focus while processes mature. Integrating climate risk as a driver within existing risk frameworks is more likely in the medium term. This will enable alignment within existing risk management processes, while simultaneously encouraging first-line ownership.

Given the nature of climate change to cut across multiple risk types, it is likely that there will also need to be a holistic consideration of a firm's climate risk approach. This will not only help a bank avoid unintended consequences but also ensure that broad impacts on customers – including conduct – are fully considered.

Key risks to be considered are:

- **The impact of a decline in asset values in the longer term, as a result of physical or transitional risks being experienced.** Whether assets will be insurable in the future needs to be considered, as does current valuation practices that do not account for longer-term climate risk. This risk will be observed through increased loss given default (LGD) over time.
- **Borrowers' ability to repay loans as a result of direct or indirect links to physical risk or transition risk.** This risk can result from items such as elevated energy prices, carbon taxation and the costs of mitigating physical risks or improving the energy performance of homes. This risk will be observed through increased probability of default (PD) over time.
- **Conduct-related risk.** Customer losses as a result of climate impacts can create conduct risk. Product lifecycle management and customer disclosure will likely be factors to consider in assessing and managing this risk.

Climate risk will also drive the potential for creating 'mortgage prisoners' in higher-risk properties. This potential risk will increase once financial institutions can measure risks at a property level over the longer term. The industry will most likely be better able to interpret the data than customers, raising the prospect of potential conduct concerns. It is likely that regulators' expectations of how the industry should protect and inform customers will evolve.

- **Operational risk.** There may be a number of different operational risks, but the main impact is expected to be Business Continuity Risk (BCR). Climate impacts on business continuity through affected property, infrastructure or suppliers could

all drive operational risk.

- **Model risk.** Increased use of models that extend out over a long timeframe will increase the level of model-related risk, and the uncertainty in model outputs will be greater than with shorter-term forecasts. Some of this will be driven by assumptions and data availability (e.g., for external natural catastrophe models and internal mortgage models).
- **Capital risk.** Banks may eventually have to allocate additional capital to reflect climate risks
- **Reputational risk.** Broader expectations of stakeholders, including customers and investors, could lead to a bank facing greater pressure to protect its reputation. ESG-linked issues are setting expectations against which firms will be measured in the future, through the quality of their disclosures and outcomes noted in them.

It is likely that all firms will start with high-level qualitative statements, possibly linked to externally-disclosed commitments on the intent of the firm.

Risk metrics could either be portfolio-level risk measures or more granular measures. Portfolio-level metrics – such as the proportion of properties with an Energy Performance Certificate (EPC) rating at E and above or the proportion of the book at high physical risk.

Some banks are already measuring the proportion of their mortgage portfolio that has a higher risk of flooding. To create metrics, firms will first need to understand the current risk exposure of their portfolios, and then decide the level of potential risk the organisation is willing to accept.

Standard metrics will likely form over time, but the proportion of the book at high risk – across both physical and transitional risk dimensions – is likely to be a way of benchmarking firms against each other.

Thresholds

Climate-risk thresholds for retail banks will be developed over time, and are likely to include:

- **Portfolio-level measures of the proportion of the book at higher risk.** One example is the proportion of properties with an Energy Performance Certificate (EPC) rating at E and above, which could provide a good proxy for the transition risk of a given property, or portfolio of properties when aggregated.
- **Granular-level views measuring overall levels of risk and implications.** Banks should consider the level of potential loss in certain scenarios (examples can be found in the PRA's Climate BES exercise), incorporated into stress testing and driven by a property-level view of risk, likelihood and losses.
- **Potential flow-level limits on higher-risk assets.** Criteria may be set to reduce or avoid risk from a new business flow perspective. For example, specific limits may be set at transaction level for criteria such as energy efficiency ratings. It is worth noting that this may not provide a solution to improving the energy efficiency of housing stock; therefore, to mitigate climate risk, a bank may need to consider other ways in which it can encourage the low-carbon transition.
- **Remedial actions to make housing stock more energy efficient.** This will likely be managed through a range of possible options, including: (i) Softer

measures, such as watchlist monitoring and mortgage-product construction; or (ii) Firmer options, such as limiting the flow of business of higher-risk stock – via, e.g., exclusions from lending criteria or increased pricing (to reflect the risk).

There are a number of challenges to consider when setting risk appetite. Housing stock cannot be split easily in the same way as other industry segments. Also it is challenging to categorise unsecured products, like credit cards, by the level of carbon emissions they generate. These challenges should not be a cause for inaction in these areas, but it is anticipated that the greatest level of focus will be on mortgages initially – as they are the products that drive the greatest level of long-term climate risk in a retail portfolio.

Very granular data will be required, but this level of data is not readily available today. Areas where external data is likely to be needed include:

- **Physical risk data** for specific geographical areas or properties.
- **Up-to-date EPC data** for each property. (While this is likely the best proxy for measuring transition risk, the proportion of properties without an EPC is relatively high, and there will likely be issues in accessing EPC data in some parts of the UK.)
- **Measurement and benchmarking of high risks.** It would be beneficial to the industry if banks could agree upon a definition of high risk. This type of consensus would enable more consistent measurement and benchmarking, but would also likely increase the risk of a two-tier market.

A separate challenge is how to map physical and transition risk over an extended time horizon into risks such as credit risk, where the probability of default and the loss-given-default are not typically measured over that longer time horizon. Indeed, over the extended time horizon, customer behaviour, capital paydown, inflation and house price inflation (HPI) all have much greater impacts than are typically seen over shorter-term reporting.

Secondary and tertiary impacts, such as knock-on impacts to customer employability or changes to markets, are not currently being considered but as approaches mature it is likely that these will be considered as part of risk assessments.

How can risk appetite be cascaded?

Climate risk appetite cascades through existing governance framework and policies, as with other risks faced by the organisation.

Other factors that support a cascade of climate-risk awareness include the TCFD (seen through the lens of external disclosures), integrating climate-related financial disclosures into financial reports, a strategic commitment towards net zero and a bank's desire to align with the goals of the Paris Agreement.

5 Corporate Banking

Ownership and integration into governance

Depending on a firm's operating model and approach to other risks, a climate RAS may either be a standalone document or a subset of bounding metrics that are incorporated in the bank-wide RAS.

Note that this section focuses on corporate level assessment, as opposed to asset/project finance level risk appetite statements.

Approaches and metrics

Developing a qualitative statement

The qualitative statement should be as explicit as possible, covering both the impact of the firm on climate change and the impact of climate change on the firm. It should outline a firm's strategic goals and commitments relating to climate, policy/framework/disclosure commitments and commitments to customers and shareholders, considering all financial risks from climate change.

Commitments, moreover, should be made with regards to the bank's own operations, including its supply chain. Metrics can still be used to track progress against these targets – e.g., timeframes met and scope of coverage.

Developing Quantitative Metrics

To develop [bounding](#) quantitative climate risk metrics, a bank can employ the following four-step approach:

1. For any stated commitments under the qualitative statement, consider metrics that can be used for measurement – e.g., progress to achieving net zero.
2. For transition and physical risks, identify materially-impacted risks in the risk taxonomy – e.g., credit risk through the devaluation of assets and unviability of counterparty business models.
3. For materially-impacted risks (say three to five risk categories), identify the key risks to the business.
4. Establish risk-monitoring metrics (see categorisation, below). Consider what additional information – such as data mined through existing reports or sourced through questionnaires – is needed.

Standard Metrics

Current views are that there are no standard metrics that should be used for all banks to monitor transition and physical risk. A bank's definition of metrics should be aligned with its existing risk management practices and the nuances of its individual risk profile.

Standardised metrics are currently more likely to measure strategic risk and alignment; because these are a cornerstone of external disclosures, where there is a drive towards comparability across firms.

Further guidance can be found in the CFRF Data & Metrics Report.

Figure 5: Developing RAS at Corporate Banks

Risk Appetite Statement: Bank X is committed to (i) managing the transition and physical risks faced today and under future scenarios; and (ii) managing the risks associated with the strategic commitment to align to net zero.	
Transition risk	<p>In client portfolio</p> <ul style="list-style-type: none"> • Transition Risk Scores for customers in high transition risk sectors. • Carbon asset risk of portfolio. • Impairment/ECL to high risk sectors under a specified stress scenario • RWA utilisation of high-risk sectors. • Where the above metrics are not available, consider existing metrics (such as those below) with a high-risk client overlay. <i>This simpler approach does not take into account readiness and could be more effective for portfolio review.</i> • Impairment charges as % advances for high transition risk sectors. • % limit on exposures or investments in high transition risk industries. • Client on-boarding and transaction level risk assessment processes/coverage measures. • Specific credit, concentration and sectorial policies. <p>Note: Conduct / greenwashing risks would be considered here but are not developed further in this document.</p>
Physical risk	<p>To client portfolio</p> <ul style="list-style-type: none"> • e.g., % of portfolio exposure to high physical risk locations under scenario X. • Specific credit, concentration and sectorial policies. • To operations (direct) or supply chain: • Annual loss under 1/250 scenario to be within \$X.
Alignment/ Strategy	<p>Alignment metrics:</p> <ul style="list-style-type: none"> • Portfolio Warming Potential. • Portfolio Temperature Alignment Tools. • Weighted-average carbon intensity. • % of portfolio with green taxonomy <p>See further information at https://www.tcfhub.org/wp-content/uploads/2020/10/PAT-Report-20201109-Final.pdf</p> <p>Strategic Metrics that track against firms' commitments:</p> <ul style="list-style-type: none"> • % of commitment reached on renewables/sustainable financing. • Reduce its thermal coal exposure to zero by 2030.

Thresholds

Setting thresholds

Once a bank has decided its longer-term, qualitative RAS, and implemented the infrastructure to measure the aforementioned quantitative metrics, it should measure the current baseline.

The first step is deciding the target values of those metrics, in line with announced commitments, strategy and corporate plans. For example, when a bank commits to reduce its coal exposure, it must measure its current level of financed coal exposure, before committing to a target level that must be achieved by a certain year with a detailed plan agreed for implementing this objective.

Subsequently, to track compliance with these commitments, a series of annual targets can be developed. The time-bound interim targets could be in the shape of limits to overall exposures. Alternatively, they may trigger a series of thorough risk acceptance analyses that are aligned with the bank's strategy and current business practices.

To ensure the feasibility of interim targets, a bank can use stress testing to assess threshold levels under a range of scenarios.

Managing within thresholds

There should be a scope for balancing conflicting trade-offs – for example, financing of high-carbon initiatives that provide a near-term social benefit (through energy supply or jobs). A longer term, mature RAS allows for the flexibility to tighten the thresholds in some business lines where there is greater availability of mitigating actions. This can be done while still adhering to the group-level risk thresholds.

However, since board-level thresholds will also get gradually tighter in a pathway to meet the group-level commitments, the flexibility will diminish and more stringent thresholds will be cascaded down to all business lines and, eventually, to the counterparty level.

Thresholds may be implemented as triggers or soft limits to explain breaches (as opposed to caps) for certain metrics while climate risk appetite is maturing. Systems and data can then be further developed – via, e.g. segmenting 'green', 'transition' and 'non-green' lending. These can then become hard limits over time, to support steering of the portfolio.

Escalations and breaches of risk appetite metrics should be managed in accordance with existing risk appetite governance.

Integration of Scenario Analysis

Integration of scenario analysis can be achieved via four mechanisms – in order of growing maturity: (i) calibration of thresholds through scenario analysis; (ii) projection of existing metrics; (iii) development of new metrics; and (iv) embedding in financial and strategic planning processes.

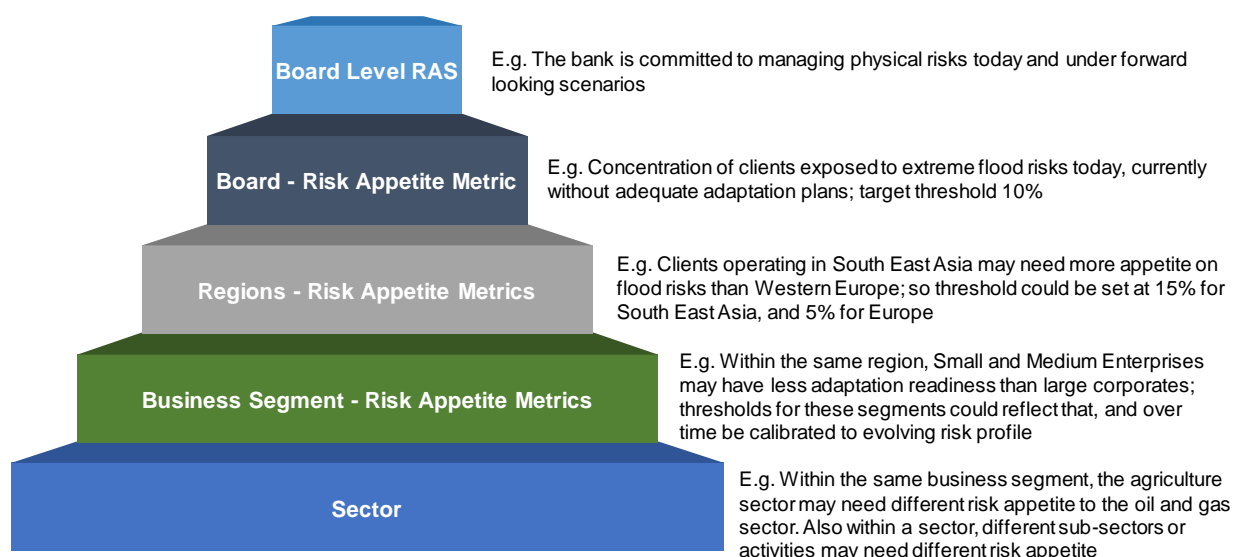
How can risk appetite be cascaded?

Whilst the board will monitor the overall loan book against thresholds or limits (via

bounding metrics), these will be cascaded down to more granular sector limits, caps and policies split by business line or geographies, before shifting to individual operational limits per counterparty. These will be monitored and reported through key indicator dashboards.

There should also be a defined process for escalating and addressing risk limits breaches, together with an appropriate follow-up procedure.

Figure 6: Cascading Effects of Climate Risk



For corporate banks, the key principles of cascading include the following:

- Proportionate allocation of risk appetite and returns – e.g., more risk appetite may be needed in businesses with high revenue contribution.
- Allocation of risk appetite in line with strategy – e.g., certain risks (like storm risk in HK or flood risks in some parts of southeast Asia) are inevitable when operating in some markets.
- Measurement of both gross and readiness levels - e.g. adaptation measures implemented or planned to be implemented – is important.
- Since climate risk may have a disproportionate impact on different businesses, implementation of risk appetite statements can be more *or less* granular, allowing for tailoring to the risk identification process. For example, for a client in the agriculture sector, physical risks may require more attention in the shorter term, whereas transition risk may be more relevant for a client in the oil and gas sector.
- Based on both feasibility and importance, targeted and granular sector-level risk appetite can follow a series of interim targets with varied timelines for different business lines. For example, if governments announce stricter policies for the power sector to favour the renewable sources of energy, a bank's risk thresholds can be adjusted to more aggressively reduce exposure to power companies with a high-carbon energy mix.

The cascading of risk appetite and thresholds should be implemented over a timeline aligned to a bank's commitments. Implementation should start with board-level

thresholds, then move to regional-level and business-segment- level thresholds – before finally shifting to country-level or counterparty-level thresholds.

Considering that climate risk is still an evolving field, the risk metrics specific for climate risks are also expected to evolve over time. To update measurements on a periodic basis (with frequency to be determined by internal governance, based on risk materiality), a bank should plan for investments in new data sources and infrastructure upgrades. In addition, it is also noted that data availability will be more challenging in some sectors, and also for small and medium enterprises (SMEs) and certain regions. A proportionate, materiality based, approach is recommended in these cases.