

EXPECTATIONS OF CLIMATE RISK MANAGEMENT ARE GROWING AND BANKS MUST CREATE THEIR FRAMEWORKS NOW

GOVERNMENTS AND REGULATORS ARE RATCHETING UP SCRUTINY AND EXPECTATIONS OF CLIMATE RISK. BANKS CAN PREPARE BY LOOKING AT EARLY MODELS.



Climate Risk Perspectives

EMERALD PATHWAYS

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Since the Paris COP of 2015, governments around the world have been looking at their economic infrastructure with a view to meeting their pledges and commitments made at that summit.

Planning for climate change inevitably starts with identification of greenhouse gas (GHG) emissions across the range of industrial sectors, and the creation of possible policies and plans that could prepare the 'real' economy for a low carbon future. Projections along various climate pathways are then priced in terms of required investments from both, public and private sources.

Lawmakers recognize that banking will not only have to act as the main conduit for green private finance but that banks will be faced with new risks to evaluate and manage as the transition towards sustainability occurs.

Guidance, from financial regulators across the world, as to how these new risks should be measured, managed, and reported is developing.

There are early movers in the regulatory space...

The UK's Prudential Regulatory Authority (PRA) worked with the Financial Conduct Authority (FCA) to create the Climate Financial Risk Forum in 2019. The result was a set of guidelines from the PRA covering how climate-related risks should be integrated within existing risk management.

Banks can use this guidance summarized below, within and outside the UK as a best practice model. The following sections are explicitly noted (taken from [PRA Supervisory Statement SS3/19](#)).

Governance

The PRA expects a firm's board to understand and assess financial risks from climate change that affect the firm, and be able to address and oversee these risks within the firm's overall business strategy and risk appetite. The approach should demonstrate an understanding of distinctive elements of financial risks from climate change and a sufficiently long-term view of the financial risks that can arise beyond standard business planning horizons.

Risk Management

The PRA expects firms to address financial risks from climate change through their existing risk management frameworks, in line with their board-approved risk appetite, while recognizing that the nature of the risks requires a strategic approach. In a manner proportionate to their business, firms should identify, measure, monitor, manage, and report on their exposure to these risks. Firms should be able to evidence this in their written risk management policies, management information, and board risk reports. This includes where appropriate, updating existing risk management policies.

Risk Identification and Measurement

The PRA expects firms to understand the financial risks from climate change and how they will affect their business model. Firms should use scenario analysis and stress testing to inform the risk identification process and understand the short- and long-term financial risks to their business model, from climate change. Firms are also expected to go beyond using only historical data to

inform their risk assessment, for example by considering future trends in catastrophe modeling. The PRA expects that such scenarios will develop and mature over time as firms learn from experience and each other.

Risk Monitoring

Where appropriate, the PRA expects firms to consider a range of quantitative and qualitative tools and metrics to monitor their exposure to financial risks from climate change. For example, these could be used to monitor exposures to climate-related risk factors, which could result from changes in the concentration of firms' investment or lending portfolios, or the potential impact of physical risk factors on outsourcing arrangements and supply chains. The PRA expects that these metrics and tools will evolve and mature over time as firms gain experience.

Risk Management and Mitigation

Where the potential impacts of the financial risks from climate change are assessed to be material (for example, as a result of scenario analysis), the PRA expects firms to evidence how they will mitigate these financial risks, and to have a credible plan or policies in place for managing exposures. This could include actions the firm is taking to reduce concentrations of these risks. Plans should be reflective of the distinctive elements of the financial risks from climate change, so may differ from other risks.

Risk Reporting and Management Information

The PRA expects firms to provide the board and relevant sub-committees with management information on their exposure to the financial risks from climate change, for example, based on scenario analysis and the mitigating actions and associated timeframe the firm proposes to take. The management information should enable the board to discuss, challenge, and take decisions relating to the firm's management of the financial risks from climate change.

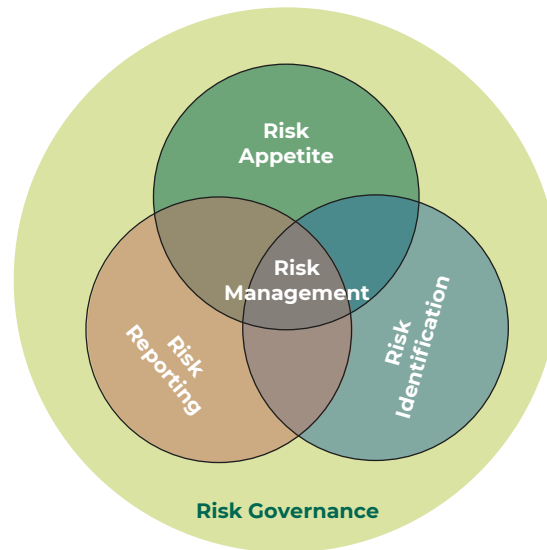
Scenario Analysis

Where proportionate, the PRA expects firms to conduct scenario analysis to inform their strategic planning and determine the impact of the financial risks from climate change on their overall risk profile and business strategy. Scenario analysis should also be used to explore the resilience and vulnerabilities of a firm's business model to a range of outcomes. The PRA expects approaches to scenario analysis to evolve and mature over time.

Disclosure

Banks and insurers have existing requirements to disclose information on material risks within their Pillar 3 disclosures (as required under Capital Requirements Regulation (575/2013) (CRR) and Solvency II), and on principal risks and uncertainties in their Strategic Report (as required under the UK Companies Act).

The strong underlying message is that, even though climate change exhibits highly specific characteristics, the financial impacts and risks to the banks need to be measured, monitored, and controlled within the standard risk framework currently in place.



Climate scenarios have unique parameters...

The PRA guidance notes that climate change analysis requires a subtly different approach, including appreciation of the specific risk types and the timeframes.

Risk Taxonomy

Financial climate risk can be split between:

- **Transition** - Risk associated with policies created by governments to meet pledges made to cut emissions. These policies become regulations and costs to impacted industries, which translate into increased credit risk to any bank financing them.
- **Physical** - Risk created by actual climate change, from rising sea levels, heatwaves, violent weather, or any other known effects from rising global temperatures. This impacts physical assets of banks' customers, as well as those of their supply chains. Such disruption has the capability of deteriorating the business model of these firms, drastically changing their credit risk profile.

Scenario Definition

Typical risk scenarios span from one to five years and are designed to test short- and mid-term liquidity. Climate scenarios, by contrast:

- Have time horizons set by the short-, mid- and long-term goals. Long-term is defined as the 2100 global warming limits (relative to 1990 temperature levels). Mid-term refers to 2035 to 2050, and GHG emission levels that would be required by these dates to meet the 2100 targets. Short-term refers to 2030 or earlier, and the policy environments required to reach the mid-term levels.
- Are defined using multiple possible pathways to reach various final heating goals.
- Require banks to interpret data as it develops and becomes available, to create working scenarios that are refined through the coming decade.

Data is incomplete, but available...

Risk management needs data, and in the case of climate change, that data is sourced from a fast-developing scientific base. It is clear that the climate models are improving, with predictions from the 1990s proving accurate. However, the fact that they deal with potential futures means that they are still predictive models, and therefore, are quite different from the vast data sets of past market data normally used by banks for stress testing and scenario building.

Even so, data from various bodies does provide a solid starting point for how businesses will be affected under various climate pathways.

- **The Intergovernmental Panel on Climate Change (IPCC)** provides a large number of research pathways that would lead to specified, end of century, temperature levels. These are created by experts across multiple sciences and detail how the GHGs would reduce over time to reach these numbers.
- **The Net Greening of the Financial System (NGFS)** works through the IPCC scenarios and provides costs in terms of local and global GDP impacts. The NGFS is a collective of central bankers and economists and includes almost all of the world's main economies.
- **The International Energy Agency (IEA)** tracks precisely which industries will be targeted by the pathways and how specified adaptations and transitions are moving along. This indicates whether the pathways are being followed in an orderly manner, implying a managed route, or, in a disorderly manner implying a higher likelihood of sudden, stringent measures being put in place.

Pathways and financial scenarios evolve over time. It is important for banks to have frameworks in place that can take in changing data sets reflecting this dynamic environment.

Bank strategy has to react to evolving pathways...

A key message in the guidance is the need for banks to manage their own climate strategies in the context of this emerging area of risk.

This implies:

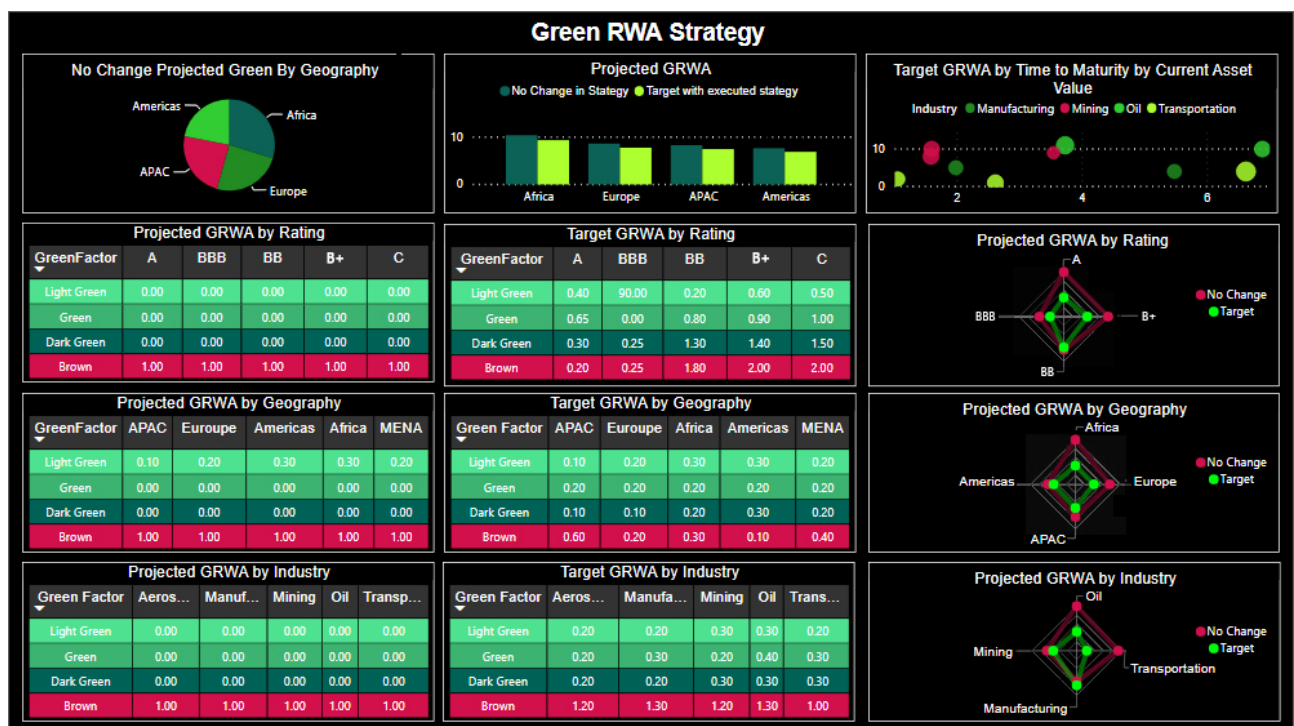
- Short-term analysis of current financial risks faced by banks if no changes are made to their loan books and specific pathways are followed by world governments.
- A mid-term analysis of various scenarios, both orderly and disorderly, regarding the impact on the balance sheet and its credit profile/capital requirements.
- Longer-term green targets that the bank believes fit its climate strategy and wider risk appetite.
- Monitoring these targets and the capacity to report to stakeholders about their progress.
- Front line tools that are designed to recognize the changing credit risk profile, and reflect it in new credit facility pricing.

It has to be emphasized that this is a new risk category, and it does have unique properties, but it has to fit into a bank's core view of risk management and governance.

GreenCap can help...

GreenCap is a ready-to-use risk system, designed to specifically answer these questions:

- What is the bank's financial exposure to transitional and physical climate change along various pathways?
- What would be the change in that impact scenario, given a bank's green strategy for its balance sheet?
- Is the bank moving towards, or away from its target sustainability levels?



GreenCap was designed to work with existing bank measures and to augment the risk appetite, and fit in with current risk governance practices.

Visit greencap.live for more details on the system as well as information on best practices, international climate risk institutions, and a wealth of resources aimed at equipping a bank with what it needs to manage this new and evolving area of risk.



ABOUT GREENCAP

- GREENCAP is a turnkey 'Risk as a Service' (RaaS) solution, designed for banks to include climate change as a category in their risk management frameworks.
- The solution allows banks to replicate climate pathways within their scenarios for economic impact and risk analysis.
- Using GreenCap, banks can modify pathways and scenarios to include the timing effects of delayed sustainability transition measures.
- Loans and credit facilities are measured and monitored against risks arising from both 'physical' and 'transition' impacts.
- GreenCap provides support for risk reporting and governance in the areas of 'Responsible Banking' and climate change.
- With GreenCap, banks can ensure that their climate strategies are financially grounded, and loan pricing is optimized throughout the transition to a green global economy.



ABOUT GREENPOINT FINANCIAL

- GreenPoint Financial is a division of GreenPoint Global, which provides software-enabled services, content, process and technology services, to financial institutions and related industry segments.
- GreenPoint is partnering with Finastra across multiple technology and services platforms.
- Founded in 2006, GreenPoint has grown to over 400 employees with a global footprint. Our production and management teams are in the U.S, India and Israel with access to subject matter experts.
- GreenPoint has a stable client base that ranges from small and medium-sized organizations to Fortune 1000 companies worldwide. We serve our clients through our deep resource pool of subject matter experts and process specialists across several domains.
- As an ISO certified by TÜV SÜD South Asia, GreenPoint rigorously complies with ISO 9001:2015 and ISO 27001:2013 standards.
- GreenPoint is owned by its founders and principals and is debt free.



Marcus Cree

MANAGING DIRECTOR AND
CO-HEAD OF FINANCIAL TECHNOLOGY AND SERVICES

Marcus has spent 25 years in financial risk management, working on both the buy and sell side of the industry. He has also worked on risk management projects in over 50 countries, gaining a unique perspective on the nuances and differences across regulatory regimes around the world.

As Managing Director, Marcus co-heads GreenPoint Financial Technology and Services and has been central in the initial design of GreenPoint products in the loan book risk area, including CECL and sustainability risk. This follows his extensive experience in the Finastra Risk Practice and as US Head of Risk Solutions for FIS. Marcus has also been a prolific conference speaker and writer on risk management, principally market, credit and liquidity risk. More recently, he has written and published papers on sustainability and green finance.

Marcus graduated from Leicester University in the UK, after studying Pure Mathematics, Psychology and Astronomy. Since graduation, Marcus has continually gained risk specific qualifications including the FRM (GARP's Financial Risk Manager) and the SCR(GARP's Sustainability and Climate Risk). Marcus's latest academic initiative is creating and teaching a course on Green Finance and Risk Management at NYU Tandon School of Engineering.



Sanjay Sharma, PhD

FOUNDER AND CHAIRMAN

Sanjay is the Founder and Chairman of GreenPoint Global - a risk advisory, education, and technology services firm headquartered in New York. Founded in 2006, GreenPoint has grown to over 380 employees with a global footprint and production and management teams located here in the U.S, India and Israel.

During 2007-16 Sanjay was the Chief Risk Officer of Global Arbitrage and Trading Group and Managing Director in Fixed Income and Currencies Risk Management at RBC Capital Markets in New York. His career in the financial services industry spans over two decades during which he has held investment banking and risk management positions at Goldman Sachs, Merrill Lynch, Citigroup, Moody's and Natixis. Sanjay is the author of "Risk Transparency" (Risk Books, 2013), Data Privacy and GDPR Handbook (Wiley, 2019) and co-author of "The Fundamental Review of Trading Book (or FRTB)- Impact and Implementation" (RiskBooks, 2018).

Sanjay was the Founding Director of the RBC/Hass Fellowship Program at the University of California at Berkeley and is an Adjunct Professor at EDHEC, Nice in France. Sanjay is also Adjunct Professor at Fordham University where he teaches a similar master's capstone course and at Columbia University. He has served as an advisor and a member of the Board of Directors of UPS Capital (a Division of UPS) and is a frequent speaker at industry conferences and at universities. He served on the Global Board of Directors for Professional Risk International Association (PRMIA).

He holds a PhD in Finance and International Business from New York University and an MBA from the Wharton School of Business and has undergraduate degrees in Physics and Marine Engineering. Sanjay acquired his appreciation for risk firsthand as a merchant marine officer at sea where he served for seven years and received the Chief Engineer's certificate of competency for ocean-going merchant ships. Sanjay lives in Rye, NY with his wife and two teenage sons.