

# THE ECB HAS LED THE WAY IN CLIMATE GUIDANCE; NOW, BANKS NEED TO FOLLOW IT

IN 2020, THE EUROPEAN CENTRAL BANK (ECB) RELEASED ITS GUIDANCE FOR INCLUSION OF CLIMATE CHANGE IN RISK MANAGEMENT FRAMEWORKS. THE 2022 SURVEY CONDUCTED BY THE CENTRAL BANK SHONE A LIGHT ON WHERE THE INDUSTRY IS IN ITS JOURNEY AND HOW MUCH FURTHER IT HAS TO GO.

Climate Risk Perspectives

# GREEN LIGHTS

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By **Marcus Cree**, FRM SCR



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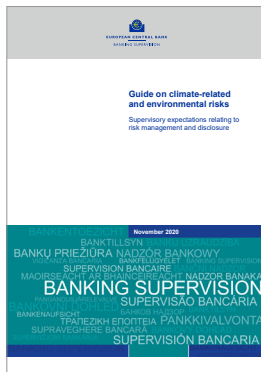
**GreenPoint**>  
Financial

[www.greenpoint.financial](http://www.greenpoint.financial)

[marcus.cree@greenpointglobal.com](mailto:marcus.cree@greenpointglobal.com) | [sanjay@greenpointglobal.com](mailto:sanjay@greenpointglobal.com)

International Corporate Center, 555 Theodore Fremd Avenue, Suite A102 Rye, NY 10580

## The ECB issued guidance on how financial institutions should incorporate climate-related risks into existing frameworks...



The ECB's 'Guide on climate-related and environmental risks' was written with the aim of clearly laying out how directly supervised institutions must incorporate both physical and transition-related risks into their existing risk frameworks. It was also clear that it was intended to be a risk management blueprint for all banks across the EU bloc.

Covering 'Risk Appetite', 'Risk Frameworks', 'Credit Risk', 'Liquidity Risk', 'Market Risk', 'Operational Risk', and 'Risk Reporting', the guide explicitly speaks to climate-specific stress testing and scenario analysis. The supervisory expectations were as follows at a high level:

### Overview of ECB supervisory expectations

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1. Institutions are expected to understand the impact of climate-related and environmental risks on the business environment in which they operate, in the short, medium and long term, in order to be able to make informed strategic and business decisions.
2. When determining and implementing their business strategy, institutions are expected to integrate climate-related and environmental risks that impact their business environment in the short, medium or long term.
3. The management body is expected to consider climate-related and environmental risks when developing the institution's overall business strategy, business objectives and risk management framework, and to exercise effective oversight of climate-related and environmental risks.
4. Institutions are expected to explicitly include climate-related and environmental risks in their risk appetite framework.
5. Institutions are expected to assign responsibility for the management of climate-related and environmental risks within the organisational structure in accordance with the three lines of defence model.
6. For the purposes of internal reporting, institutions are expected to report aggregated risk data that reflect their exposures to climate-related and environmental risks with a view to enabling the management body and relevant sub-committees to make informed decisions.

7. Institutions are expected to incorporate climate-related and environmental risks as drivers of existing risk categories into their existing risk management framework, with a view to managing, monitoring and mitigating these over a sufficiently long-term horizon, and to review their arrangements on a regular basis. Institutions are expected to identify and quantify these risks within their overall process of ensuring capital adequacy.
  8. In their credit risk management, institutions are expected to consider climate-related and environmental risks at all relevant stages of the credit-granting process and to monitor the risks in their portfolios.
  9. Institutions are expected to consider how climate-related and environmental events could have an adverse impact on business continuity and the extent to which the nature of their activities could increase reputational and/or liability risks.
  10. Institutions are expected to monitor, on an ongoing basis, the effect of climate-related and environmental factors on their current market risk positions and future investments, and to develop stress tests that incorporate climate-related and environmental risks.
  11. Institutions with material climate-related and environmental risks are expected to evaluate the appropriateness of their stress testing with a view to incorporating them into their baseline and adverse scenarios.
  12. Institutions are expected to assess whether material climate-related and environmental risks could cause net cash outflows or depletion of liquidity buffers and, if so, incorporate these factors into their liquidity risk management and liquidity buffer calibration.
  13. For the purposes of their regulatory disclosures, institutions are expected, to publish meaningful information and key metrics on climate-related and environmental risks that they deem to be material, with due regard to the [European Commission's Guidelines on non-financial reporting: Supplement on reporting climate-related information](#).
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The guidance makes it clear that financial institutions must treat both transitional and physical climate risk as drivers of existing risk categories, specifically pointing to how the costs of transitional policies will likely cause increased credit spreads and potentially impact national GDPs during that transition.

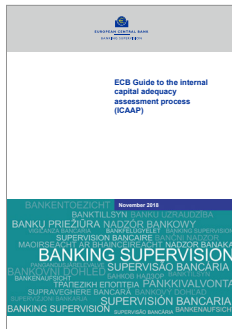
## Examples of climate-related and environmental risk drivers

Risks affected	Physical		Transition	
	Climate-related	Environmental	Climate-related	Environmental
	<ul style="list-style-type: none"> <li>› Extreme weather events</li> <li>› Chronic weather patterns</li> </ul>	<ul style="list-style-type: none"> <li>› Water stress</li> <li>› Resource scarcity</li> <li>› Biodiversity loss</li> <li>› Pollution</li> <li>› Other</li> </ul>	<ul style="list-style-type: none"> <li>› Policy and regulation</li> <li>› Technology</li> <li>› Market sentiment</li> </ul>	<ul style="list-style-type: none"> <li>› Policy and regulation</li> <li>› Technology</li> <li>› Market sentiment</li> </ul>
<b>Credit</b>	The probabilities of default (PD) and loss given default (LGD) of exposures within sectors or geographies vulnerable to physical risk may be impacted, for example, through lower collateral valuations in real estate portfolios as a result of increased flood risk.		Energy efficiency standards may trigger substantial adaptation costs and lower corporate profitability, which may lead to a higher PD as well as lower collateral values.	
<b>Market</b>	Severe physical events may lead to shifts in market expectations and could result in sudden repricing, higher volatility and losses in asset values on some markets.		Transition risk drivers may generate an abrupt repricing of securities and derivatives, for example for products associated with industries affected by asset stranding.	
<b>Operational</b>	The bank's operations may be disrupted due to physical damage to its property, branches and data centres as a result of extreme weather events.		Changing consumer sentiment regarding climate issues can lead to reputation and liability risks for the bank as a result of scandals caused by the financing of environmentally controversial activities.	
<b>Other risk types (liquidity, business model)</b>	Liquidity risk may be affected in the event of clients withdrawing money from their accounts in order to finance damage repairs.		Transition risk drivers may affect the viability of some business lines and lead to strategic risk for specific business models if the necessary adaptation or diversification is not implemented. An abrupt repricing of securities, for instance due to asset stranding, may reduce the value of banks' high quality liquid assets, thereby affecting liquidity buffers.	

It is also mentioned that the costs of this transition and the costs of dealing with the physical impacts are highly correlated and largely dependent upon the speed and nature of the transition. There are choices to be made between orderly and disorderly transition routes, as well as climate targets, expressed as ultimate global warming limits by the end of this century.

## The climate guidance invokes the Capital Requirements Directive (CRD)...

The [CRD](#), specifically articles 73 and 74, require institutions to implement internal governance and processes that ensure effective and prudent management. This must include the identification, assessment and monitoring of climate change on the business environment that they operate within. This must include geographic and sector-specific degradation brought about by climate change and policies designed to mitigate it.



The ECB also point out that these recommendations are explicitly covered by requirements specified in the 'Internal Capital Adequacy Assessment Process' ([ICAAP](#))

## Risk management frameworks are expected to carry much of the weight for compliance...

The guidance document lays down several expectations of risk management, including:

- Incorporation of climate-related risks as drivers of existing risk categories, with a view to managing, monitoring, and mitigating over short-, mid- and long-term time horizons.
- Consideration of climate-related risks at all stages of the credit granting and risk monitoring process.
- Consideration of how climate-related events may impact their own business continuity and any impacts that may have on their liability or reputation.
- Developing stress tests that monitor potential impacts on their market risk positions and future investments.
- Examining existing stress testing capabilities with a view to evaluating them for climate-related appropriateness.
- Assessment of climate-related risks to net cash outflows and/or liquidity buffers.

The highest focus is given to the credit risk section, as would be expected due to its capacity to deteriorate the profitability, liquidity and, ultimately, viability of a financial institution through capital requirement escalation.

Climate-related credit risks are expected to be part of loan origination and pricing and are constantly monitored. Climate-related in this context, includes:

- Exposure to physical hazard
- Potential increases in default risk
- Client risk mitigation measures
- Development of climate-related risk limits
- Climate-related deleveraging strategies

One suggestion from the ECB is the development of 'Climate-informed shadow probabilities of default', which could be reported in parallel.

As expected, liquidity risk is also a concern, and the ECB may also invoke the 'Internal Liquidity Adequacy Assessment Process' ([ILAAP](#)), encouraging institutions to include direct and indirect impacts of climate-related risks in their reporting. They specifically focus on the potential erosion of the value of liquidity buffers through the falling value of 'High Quality Liquid Assets' (HQLA).

Regarding appropriate stress tests, institutions are encouraged to use a variety of scenarios in line with pathways developed by the 'Intergovernmental Panel on Climate Change' (IPCC). Scenarios used for stress testing must include:

- How the institution may be affected by physical risk and transition risk.
- How climate-related risks may evolve under various scenarios, taking into account that these risks may not be reflected in historic datasets.
- How climate-related risks may materialize over short, mid and long terms.

The guidance also covers internal roles and responsibilities and disclosures.

## Recommendations of the Task Force on Climate-related Financial Disclosures

Governance	Strategy	Risk management	Metrics and targets
<p>Disclose the organisation's governance around climate-related risks and opportunities.</p>	<p>Disclose the actual and potential impacts of climate-related risks and opportunities on the organisation's businesses, strategy and financial planning, where such information is material.</p>	<p>Disclose how the organisation identifies, assesses and manages climate-related risks.</p>	<p>Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities, where such information is material.</p>
Recommended disclosures			
<p>a) Describe the board's oversight of climate-related risks and opportunities.</p> <p>b) Describe management's role in assessing and managing climate-related risks and opportunities.</p>	<p>a) Describe the climate-related risks and opportunities the organisation has identified over the short, medium and long term.</p> <p>b) Describe the impact of climate-related risks and opportunities on the organisation's businesses, strategy and financial planning.</p> <p>c) Describe the resilience of the organisation's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.</p>	<p>a) Describe the organisation's processes for identifying and assessing climate-related risks.</p> <p>b) Describe the organisation's processes for managing climate-related risks.</p> <p>c) Describe how processes for identifying, assessing and managing climate-related risks are integrated into the organisation's overall risk management.</p>	<p>a) Disclose the metrics used by the organisation to assess climate-related risks and opportunities in line with its strategy and risk management process.</p> <p>b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions and the related risks.</p> <p>c) Describe the targets used by the organisation to manage climate-related risks and opportunities and performance against targets.</p>

Source: TCFD.

These should be included in the overall planning by financial institutions.

## 2022 saw a European wide assessment of bank readiness for climate risk inclusion...

The ECB [surveyed](#) 104 significant institutions with the aim of determining how far banks had integrated climate-related risks into their risk management. Specific aims included:

- Progress banks have already made in developing climate risk stress-testing frameworks;
- Capacity of banks to produce climate risk factors, an intermediate step towards developing climate risk stress test estimates;
- Capacity of banks to produce climate risk stress test projections;
- Risks banks are facing in the form of transition risks (both short-term and long-term) and acute physical risk events.

The central bank looked at qualitative assessments, risk factor stock takes and also ran qualitative stress tests based upon scenarios and metrics from the 'Network for Greening the Financial System' (NGFS), covering both transition and physical risks. The scenarios used for the qualitative part of this exercise covered short- and long-term horizons, as well as multiple climate pathways. There was a focus on residential mortgages and corporate loans.

### Module 3 scenarios and risk dimensions

	Exposures	Scenario	Projections <sup>1</sup>	Horizon	Credit risk	Market risk	Operational risk
Transition risk	Global	Short-term stress	Baseline	3 years (2022-2024)	Corporate loans (incl. SME, CRE) + mortgages	Bonds + stocks issued by NFCs <sup>2</sup> (incl. accounting and economic hedges)	Operational and reputational risks to be assessed via a qualitative questionnaire
			Stress				
		Long-term paths	Orderly	30 years (2030, 2040, 2050)	Corporate loans (incl. SME, CRE) + mortgages		
			Disorderly				
			Hot house				
		Physical risk	EU countries	Drought & heat risk	Baseline		
Stress							
Flood risk	Baseline			1 year 2022	Mortgages + CRE loans		
	Stress						

Source: ECB, climate risk stress test 2022, methodology, October 2021.

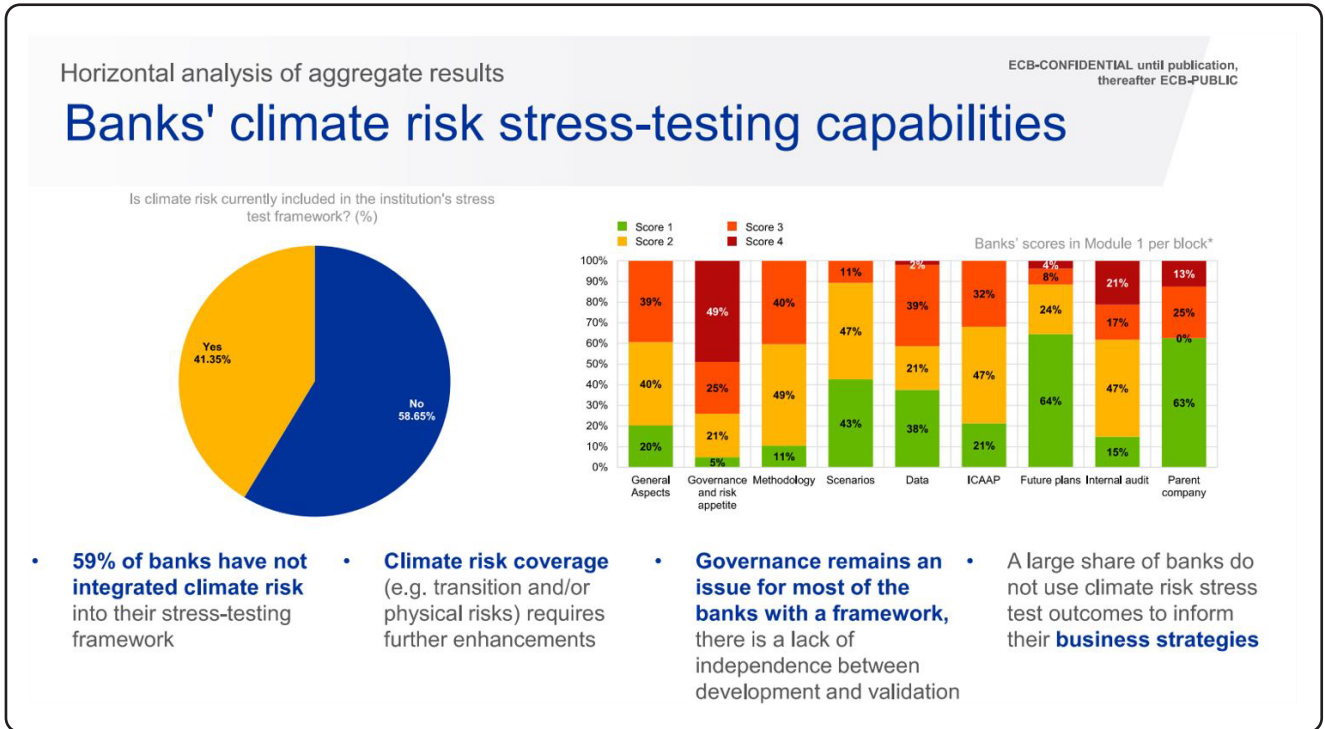
Notes: CRE stands for commercial real estate; NFC stands for non-financial corporation; SMEs stands for small and medium-sized enterprises.



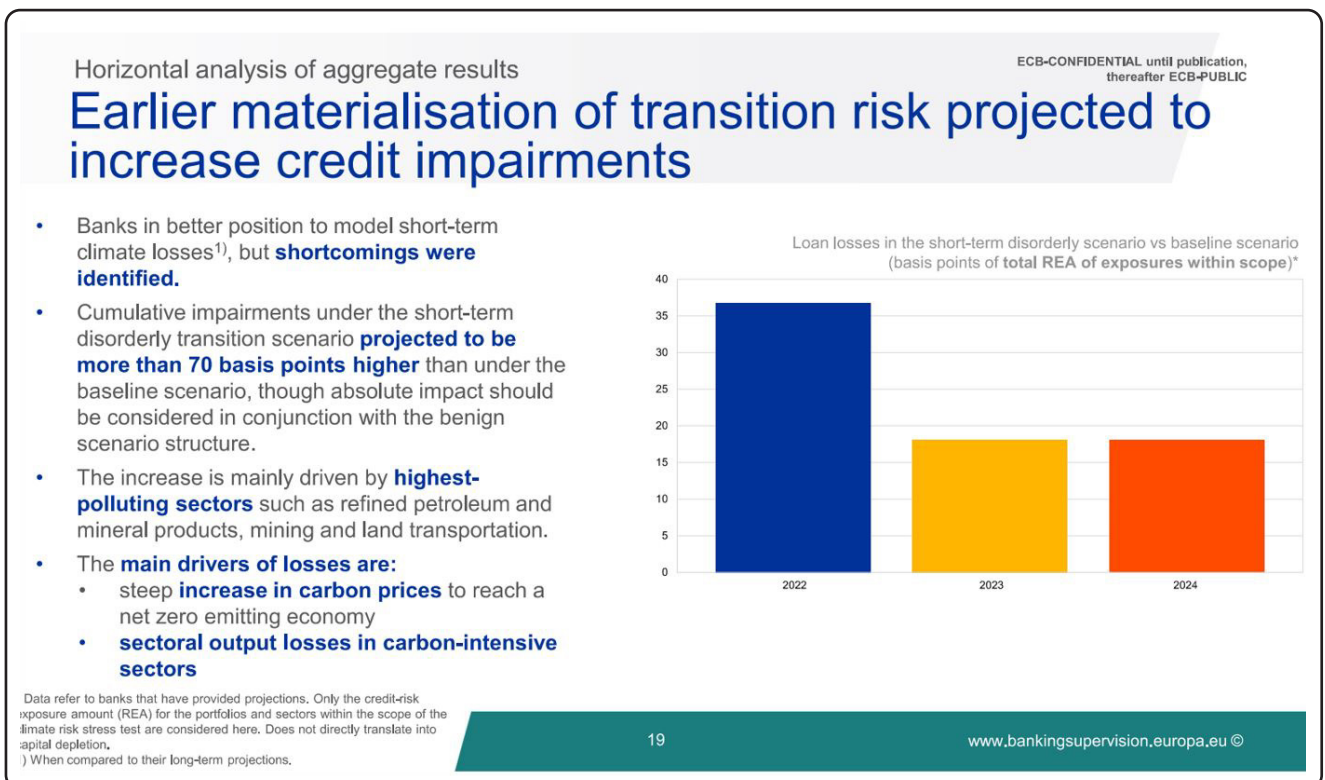
Ultimately, the ECB gained an insight into both potential losses to the European financial system arising from physical climate change and transitional policies, as well as the readiness of surveyed banks to manage those risks in a prudent manner.

Findings included:

- Slow integration of climate risk into risk management and stress testing.



- Early materialization of transition risk may significantly increase credit impairments



Ultimately, the ECB concluded with six strong recommendations:

- › Banks need to integrate climate risk stress into their ICAAPs.
- › Banks need to enhance their climate risk stress-testing frameworks to account for various transmission channels and asset classes, covering physical and transition risks.
- › Banks need to establish a robust governance structure for their climate risk stress-testing frameworks and integrate climate risk stress tests into their banking activities.
- › Banks need to incorporate climate risk scenarios into their stress-testing models, both transition and physical.
- › Banks should enhance climate risk management, understand their client's transition plans and strengthen their strategic plans to exploit the opportunities of a green transition.
- › Banks need to invest much more in climate-relevant data collection by engaging with customers and improving their proxy assumptions.

## Banks need to take action...

All banks must consider the speed at which the ECB rolled out its guidance and how it is testing its directly-governed institutions. It is highly likely that these recommendations will become general reporting requirements sooner rather than later.

Of course, it must also be borne in mind that the reason for this speed of action is because the ECB recognizes the material risk that climate change represents to the European financial system.

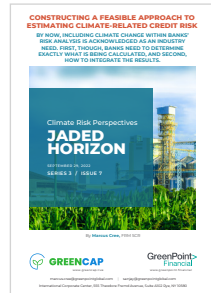
Financial institutions need to extend their risk management systems in ways that can capture specificities of climate-related threats. At a minimum, they must:

- › Develop the means to understand how multiple physical climate pathways may impact their customers and their credit profiles.
- › Understand how transition policies built into these pathways may deteriorate the business models of their corporate customers.
- › Work with customers to create adaptation plans to protect them from the worst effects and avoid business losses and stranded assets.
- › Include potential climate-specific losses as a range and as a standard in their capital and liquidity reporting.

Because of the unique nature by which IPCC climate pathways are created, it will be necessary to use deterministic scenarios for climate-specific stress tests and analysis rather than reusing historically calibrated stochastic processes already in place.

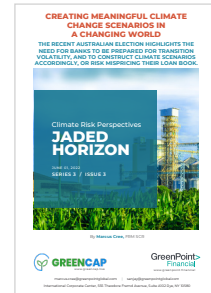
Climate-specific scenarios have been covered in -

[Constructing a feasible approach to climate-related credit risk](#)



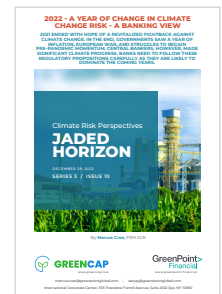
And

[Creating Meaningful Climate Change Scenarios in a Changing World](#)



Global regulation advances have been covered in -

[2022 – A year of change in climate change risk – A banking view](#)

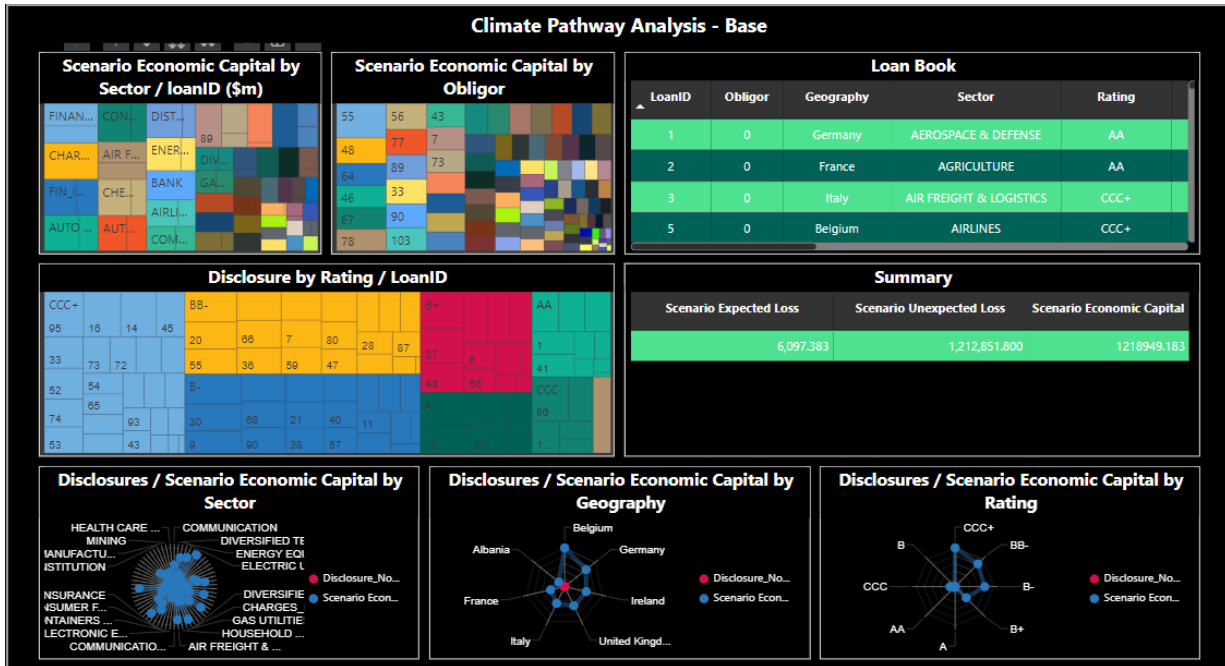


## GreenCap can help...

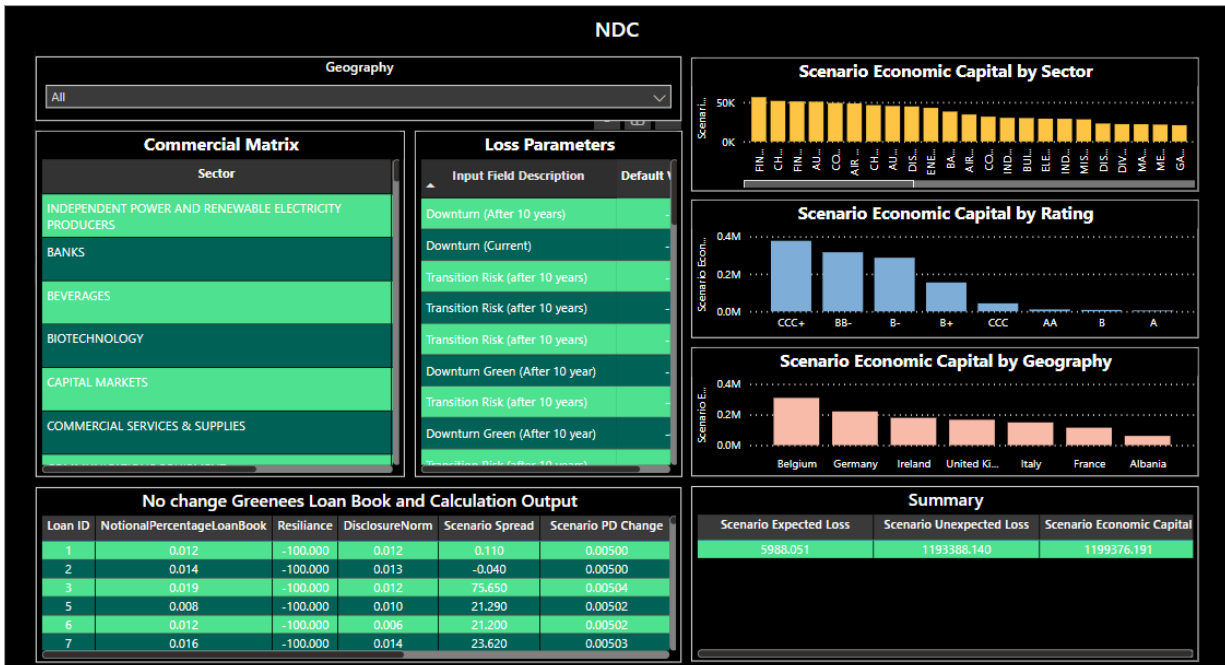
GreenCap is a 'Risk As A Service' (RaaS) solution that enables banks to run transitional and physical risk assessment against their balance sheet that reports individual loan and portfolio level, providing:

- Implied PD changes across multiple climate pathways
- Economic capital changes - Broken into expected and unexpected losses
- Implied spreads on climate-impacted loans

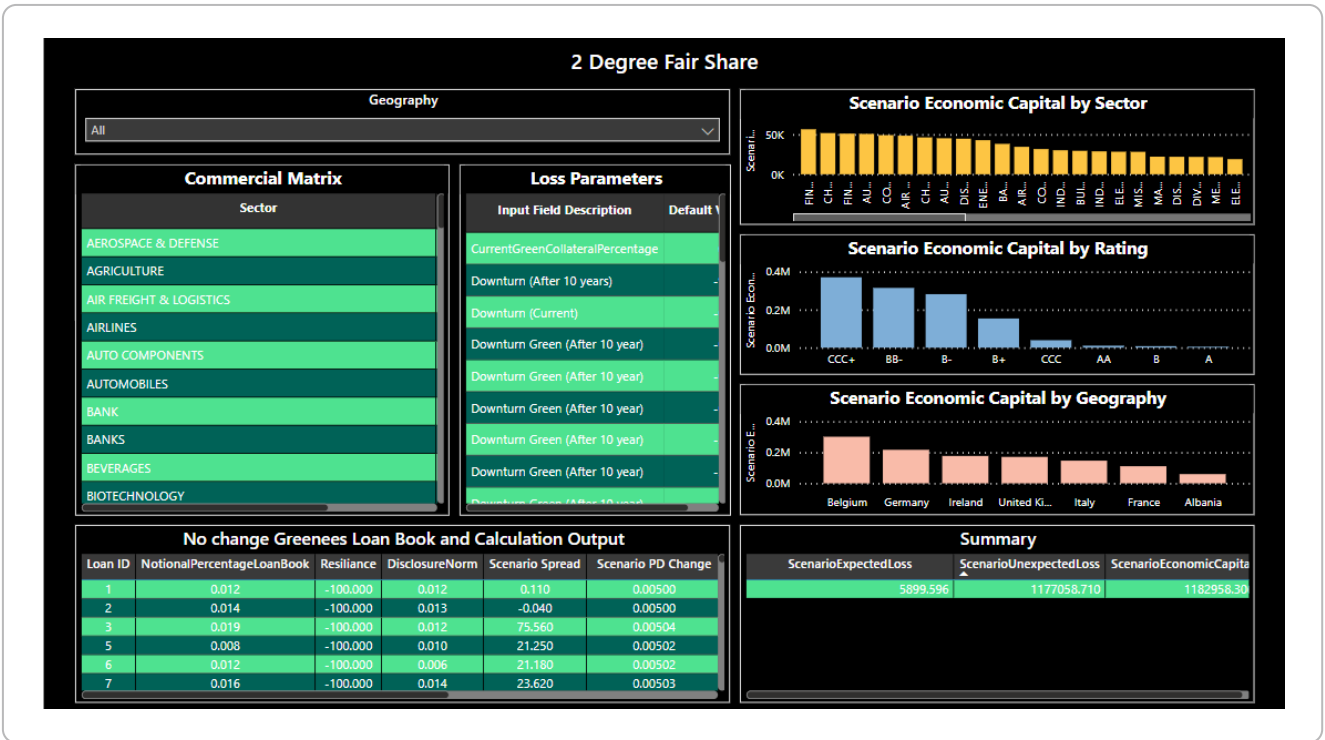
The system supports multiple scenarios and pathways and allows bottom-up adaptations to be added at the customer level for fine-tuning risks and exposures. As a cloud service, GreenCap is extremely fast to implement and use for exactly the type of analysis that is being asked for by the ECB and other Central Banks around the world.



## Scenario



## Scenario



GreenCap is designed to be used by banks of all sizes.

Visit [GreenCap.live](https://GreenCap.live) for more insights and resources designed to assist banks in navigating the challenges posed by climate change and policies introduced to mitigate it.



## 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 500 employees with a global footprint. Our production and management teams are in the US, 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 Nord, GreenPoint rigorously complies with ISO 9001:2015, ISO 27001:2013, and ISO 27701:2019 standards.



## Marcus Cree

MANAGING DIRECTOR AND  
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 provides strategic and tactical guidance to GreenPoint senior management and serves as client ombudsman. His career in the financial services industry spans three decades during which he has held investment banking and C-level risk management positions at Royal Bank of Canada (RBC) 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" (Risk Books, 2018).

Sanjay was the Founding Director of the RBC/Hass Fellowship Program at the University of California at Berkeley and has served as an advisor and a member of the Board of Directors of UPS Capital (a Division of UPS). He has also served on the Global Board of Directors for Professional Risk International Association (PRMIA).

Sanjay 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. As well as being a regular speaker at conferences, Sanjay actively teaches postgraduate level courses in business and quantitative finance at EDHEC (NICE, France), Fordham, and Columbia Universities.