



# **ENVIRONMENTAL & CLIMATE-RELATED RISKS**

Our service offer for French banks



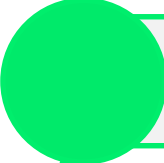
# AGENDA



Overview of key impacts on the banking sector



Our service offer



Our analysis toolbox and acceleration tools



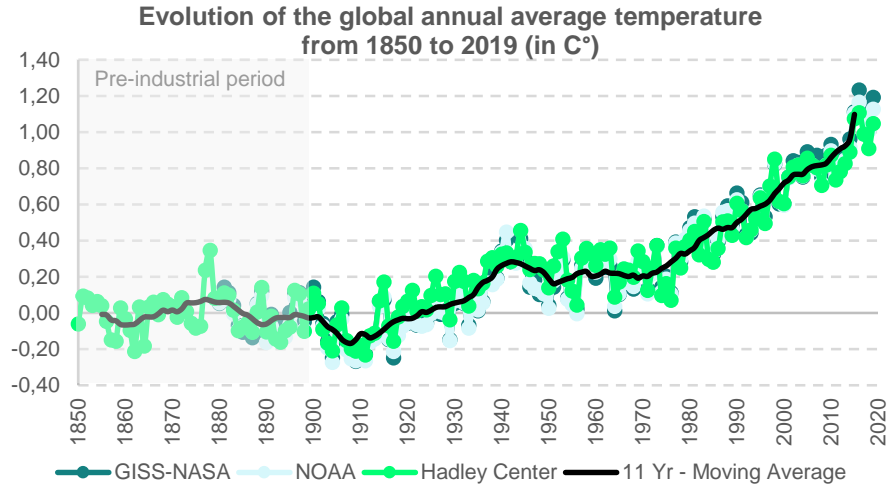
Our subject matter expert support and credentials



# 1.1 Evolution of climate change

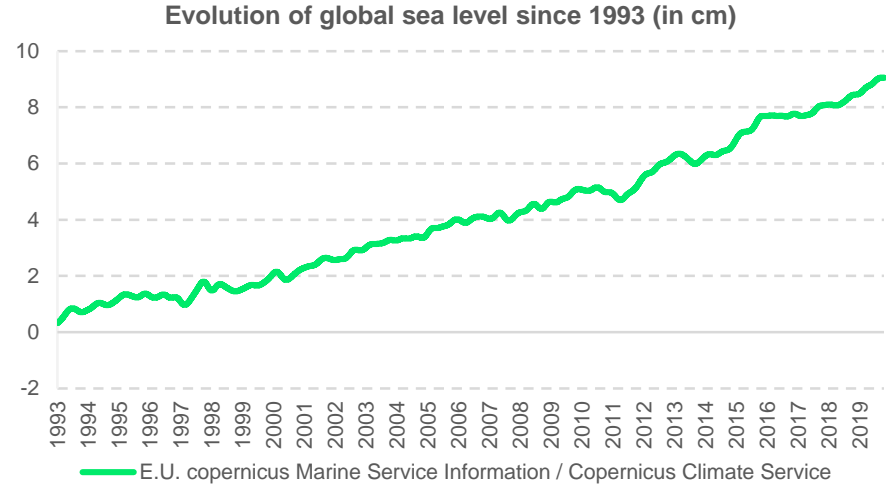
Many early warning indicators highlight the increasing effects of climate change.

Temperatures are now at least 1.1°C above pre-industrial levels (1850-1900)



- Between 1900 and 2018, **global CO2 fossil emissions increased by 67%**, leading to a warming of the global temperature, **particularly marked since 1980**.
- The last six years (2014-2019) have registered the **highest temperatures since 1850**.
- Global temperatures are projected to rise by **up to 3.1°C by 2100** ("The Sustainable Development Goals Report", United Nations, 2020).

Global sea average level has risen 9 cm between 1993 and 2019



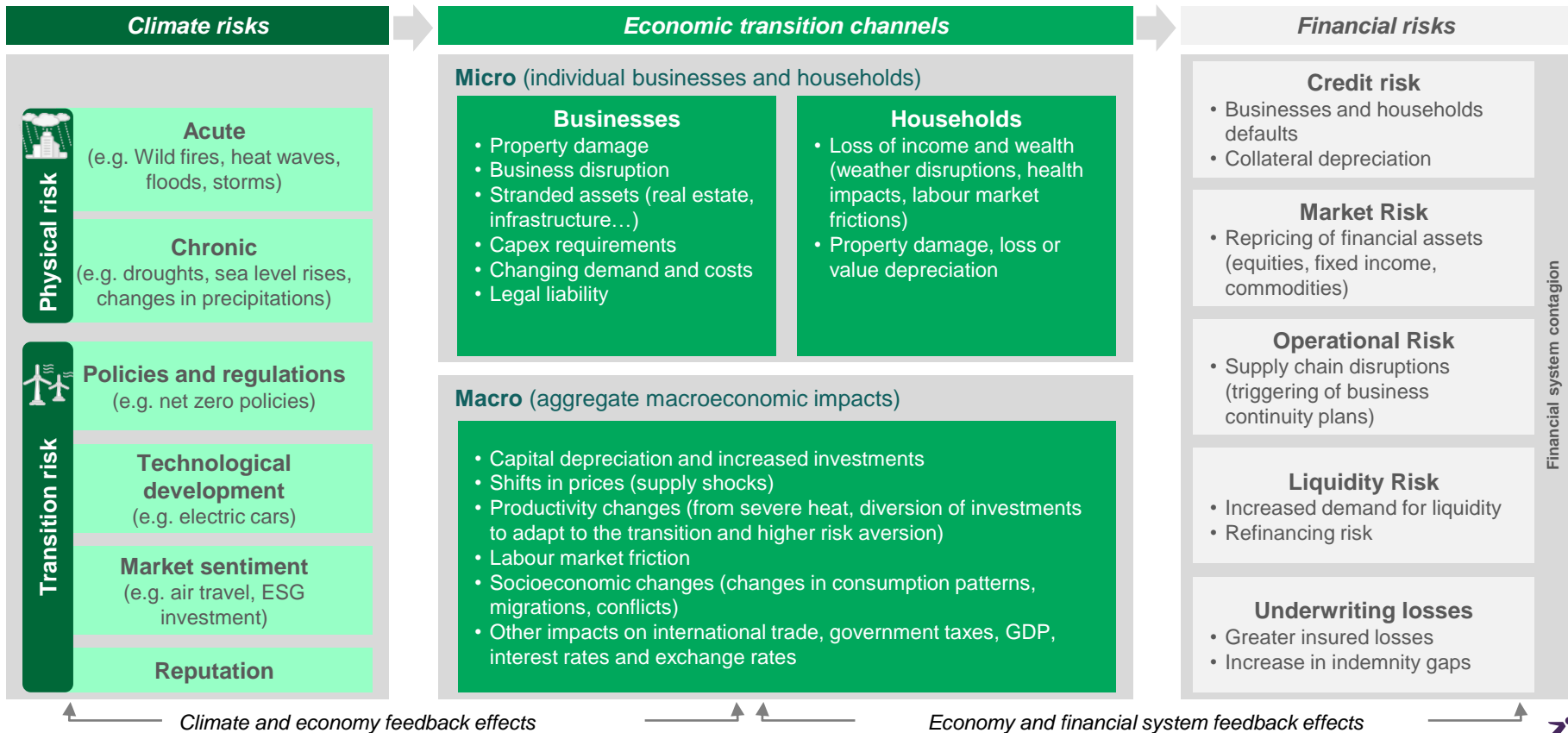
- Between 1993 and 2019, the rate of the global sea level rise was **3,3 ± 0,4 mm/year**.
- **About 30%** of the sea level rise is due to higher water temperatures.

Climate change has an impact on the occurrence of **natural disasters** such as avalanches, floods, hurricanes, heat waves, massive wildfires and droughts. **In recent years, climate change has exacerbated the frequency and severity of those disasters.**



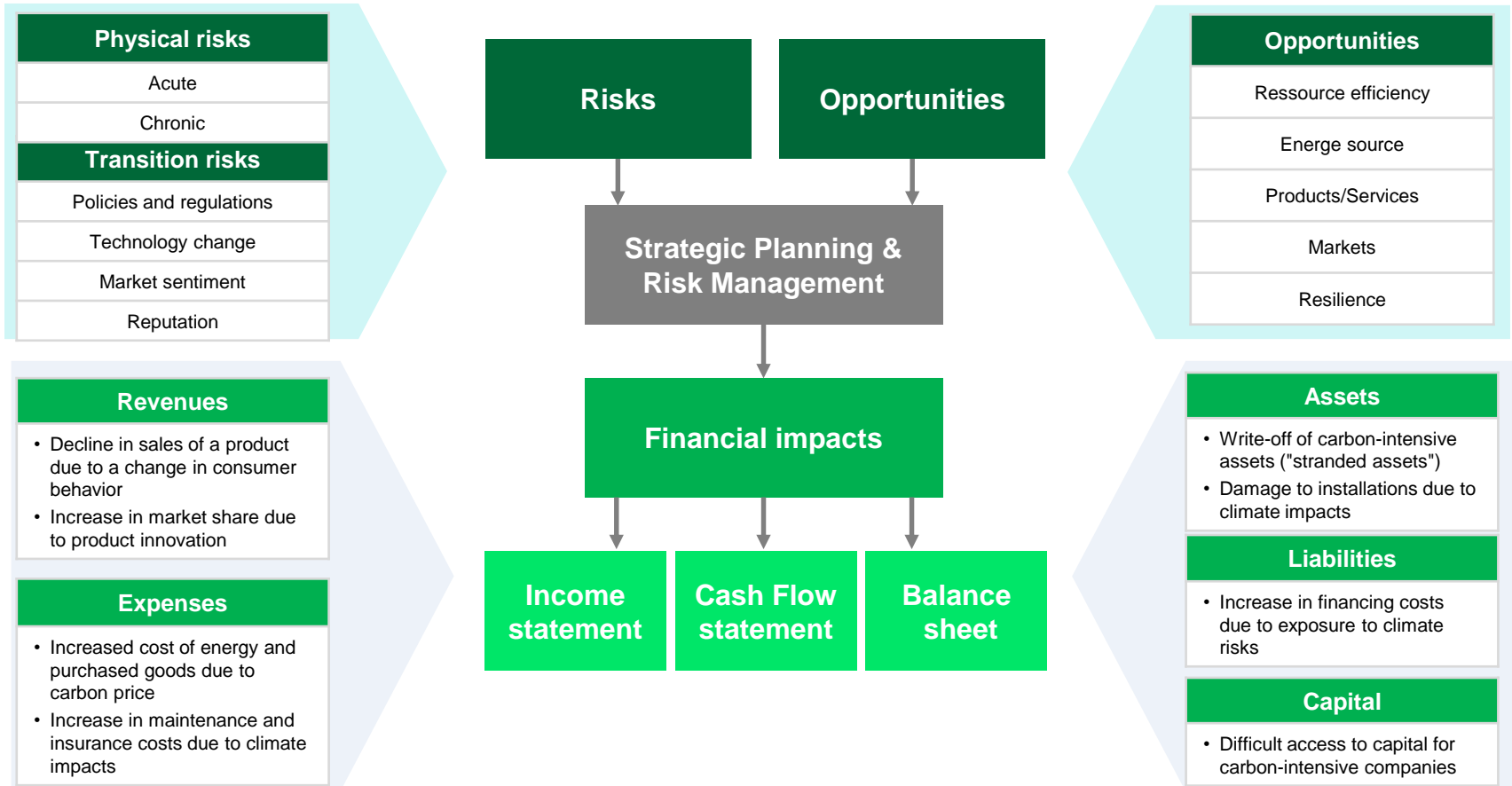
# 1.2 A multiple and transversal challenge

## Key propagation channels for Environmental and Climate-related risk drivers



# 1.3 Key challenges for financial institutions

## Risks, opportunities and financial impacts of climate change



# AGENDA



Overview of key impacts on the banking sector

**Our service offer**

Our analysis toolbox and acceleration tools

Our subject matter expert support and credentials





# 2.1 Overview of Avantage Reply France

## Subject matter expert consulting and a strong european footprint



- European management consulting firm founded in 2004
- Subject matter expert support for ALM department, Finance and Risk functions
- Combines business, regulatory and quantitative skills



- Expert and methodological support on strategic risk management and processes, governance and steering, modeling and stress testing and climate-related challenges
- Strike force of 120 French-speaking consultants, part of 300 specialized consultants of Avantage Reply workforce
- 7000 employees of the Reply group covering technological, IT and innovation competencies



- Major player at European level through our presence in the largest European countries (including UK)
- Strong benchmarking capabilities and overview of market best practices
- Our teams support Deputy CEOs, CROs and CFOs from the design of target framework to the operational implementation at group or entity level.



**More than 10 fully integrated European offices:  
A pan-European experience available for our clients**



## 2.2 Overview of our service offer

### Our expertise

	Strategy and governance	Steering	Modeling	Regulatory
Finance	Business model assessment	ICAAP	P&L Modeling and Stress tests	<ul style="list-style-type: none"> <li>Regulatory watch</li> <li>Regulatory strategy</li> <li>Remediation</li> <li>Project management</li> </ul>
	Capital management governance	Capital allocation policy	Business / Capital modeling	
	Solvency stress testing governance	TLAC/MREL	Resolution modeling	
Risk	Risk governance	Material risk assessment	Pillar 1 models design and validation	
	Model risk management	Risk appetite	Model risk tiering and scoring	
	Regulatory strategy	Recovery plan	Pillar 2 models and risk stress tests	
ALM	ALM governance	ILAAP	ALM risk metrics	
	ALM strategy (including hedging)	IRRBB	ALM models	
	Fund transfer pricing	Contingency plan	Liquidity stress tests	
Climate	Business model assessment and sensitivity analysis	E&C risk driver analysis and materiality assessment	Environmental and Climate risk models (credit, op...)	
	Environmental and Climate risk governance	Green weighting factor	Credit quality index	
	Board/Senior management training and SME support	Carbon risk assessment	Environmental and Climate risk stress tests	
				SREP/TRIM
				BRRD
				CRR/CRD 4
				CRR2/CRD 5
				Guidelines EBA/BCE...





## 2.3 Our practical experiences and benchmarking capabilities

*Tailor-made solutions for our customers leveraging on our pan-european network*

### Business areas

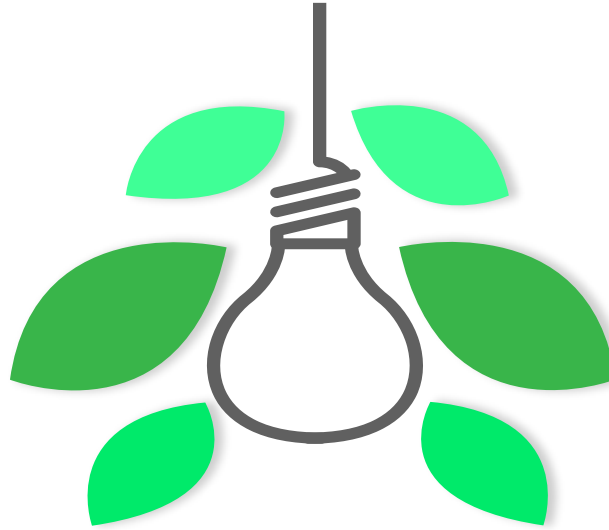
Very good knowledge of the banking and insurance sectors and business processes

### Products & Services

In-depth knowledge of financial products and services provided by banks and insurers

### Finance & Risk challenges

Very strong expertise in the organizations, processes and frameworks of Risk and Finance functions



### Geographical/ Local specificities

Good vision of local specificities or a geographical area of a market or a sector through our international presence,

### Proportionality

Strong ability to appreciate specificities relating to the size of the institution in terms of the nature and / or complexity of the business model

### Technological challenges

A major player in innovation and aware of cutting-edge practices

### Client experience

*We work with the largest banking and insurance groups in France and Europe*

### Practical experience

*Very good practical experience in terms of steering, modeling and management of banking and insurance risks but also of finance processes including management control and ALM*

### Supervisory experience

*Very long experience and very good knowledge of prudential requirements and their practical implementations within financial institutions*



# AGENDA



Overview of key impacts on the banking sector

Our service offer

Our analysis toolbox and acceleration tools

Our subject matter expert support and credentials



# 3.1 Key challenges to be addressed

## Advice and challenge

### Business and risk alignment

- Business model and risk driver analysis (mapping of activities, products,...)
- Advice and challenge on integrating environmental and climate-related issues into business planning including corporate planning, product development, business model changes.
- Advice and challenge on embedding climate risk management into strategic processes.

### Stress testing / scenario analysis

- Advice and challenge on the end to end environmental and climate-related risk stress testing /scenario analysis including:
  - Scenario generation linked to risks and business drivers taking into account the different pathways to transit to a lower carbon economy (Paris agreement) and physical risks
  - Interpreting and applying prescribed methodology to translate climate and macroeconomic variables into economic impacts
  - Modelst project key risk factors to assess the impacts on financial measures



### Governance and risk alignment

- Gap analysis and options to implement a RACI approach for environmental and climate-related risks
- Design and implementation of a dedicated environmental and climate-related risks risk management function
- Advice and challenge on integrating environmental and climate-related issues into risk management frameworks (including risk identification, risk appetite...)

### Risk measurement & management

- Environmental and climate risk driver identification and assessment (transition risk, physical risk...)
- Portfolio analysis and/or risk factor sensitivity analysis to transition and physical risk (e.g. sector exposures)
- Design and implementation of climate risk metrics (carbon footprint, asset lifespan...)
- Integration of climate-related issues into risk measures
- Design and implementation of "Climate quality index" to incorporate climate risk costs into credit risk models
- Design and implementation of green/brown scorecard / green weighting factor approaches



## 3.2 Key areas of investigations

### Sample of questions to be assessed

#### Identify

- Has the institution identified climate-related risks (physical and transition risks) and environmental risks that would affect the institution's business model ?
- Has the institution identified and documented key factors and drivers for transition risk (policy/regulation, technology...) and for physical risk (droughts/extreme heat, sea level rises) related to climate change that can impact its business environment ?
- Has the institution performed a materiality assessment of climate-related risks for its business environment in the short, medium and long term ? Has it been done in qualitative and/or quantitative manner ?



#### Control and monitoring

- Does the institution's management body regularly receive management information concerning the institution's exposures to climate-related and environmental risks ?
- Has the risk management teams' tasks and responsibilities in terms of monitoring and control of climate risks been defined?
- If the institution established a proper control framework for climate-related and environmental risks management, has the integration into existing processes and interfaces with other functions been defined and documented (reporting lines, description of each function's tasks and responsibilities, procedures and controls) ?



#### Modeling and measurement

- Has the institution developed specific methods to measure climate-related and environmental risks or adapted existing methodologies (credit/market/liquidity/operational) taking into account climate/environmental dimensions ?
- Is there any internal risk quantification approach to assess the environmental impact on financing through an environmental rating/score to either the asset or project being financed?
- Is there any internal risk quantification approach to model the PD and the LGD taking into account climate-related risks?
- Does the institution monitor the impact of climate and environmental risks on the market value of its financial instruments (e.g. securities, derivatives), products and services?

#### Reporting

- Does the institution cover all material climate-related risks in its reports (business model, strategy and risk profile reports) ?
- Taking into account the current lack of common definitions, taxonomies and data gaps, has the institution established reporting processes and procedures based on internal or external qualitative risk metrics to ensure that climate-related and environmental risks are adequately reported to the management body ?
- Does the institution 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 ?

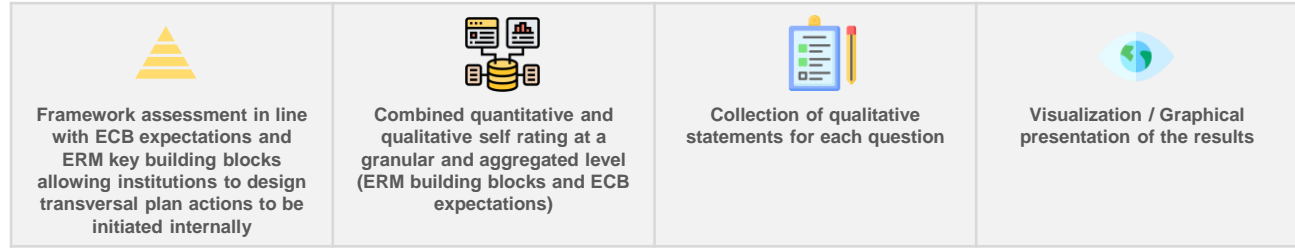


# 3.3 Our assets to support our clients

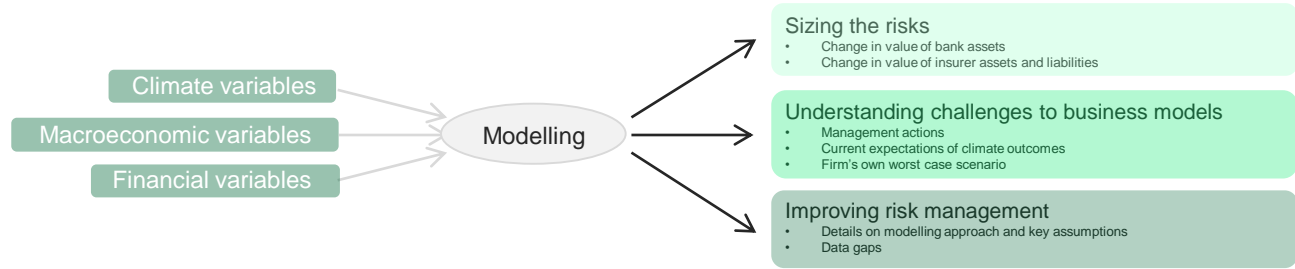
## Key Avantage Reply Acceleration tools



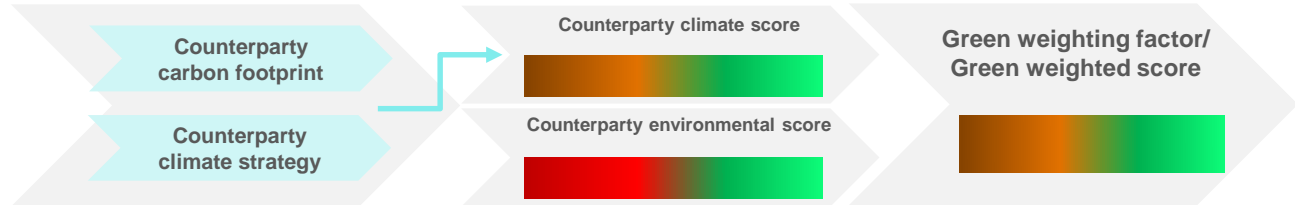
- Self-assessment tool for financial institutions to evaluate their capabilities in terms of environment and Climate-related risk management framework.
- Integration of climate dimensions at the highest level of the organization and the strategy



- Medium- and long-term view of the impact of environmental and climate risk on the Business model
- Multiples scenarios to transit to a lower carbon economy and to capture potential physical risk events
- Assumptions related to policy decisions and technology and business model adaptation



- Determine the color score/rating to each counterparty of the portfolios depending on its climate adaptation and mitigation strategy and its sensibility to key environments impacts (e.g. pollution, waste...)



# AGENDA

Overview of key impacts on the banking sector

Our service offer

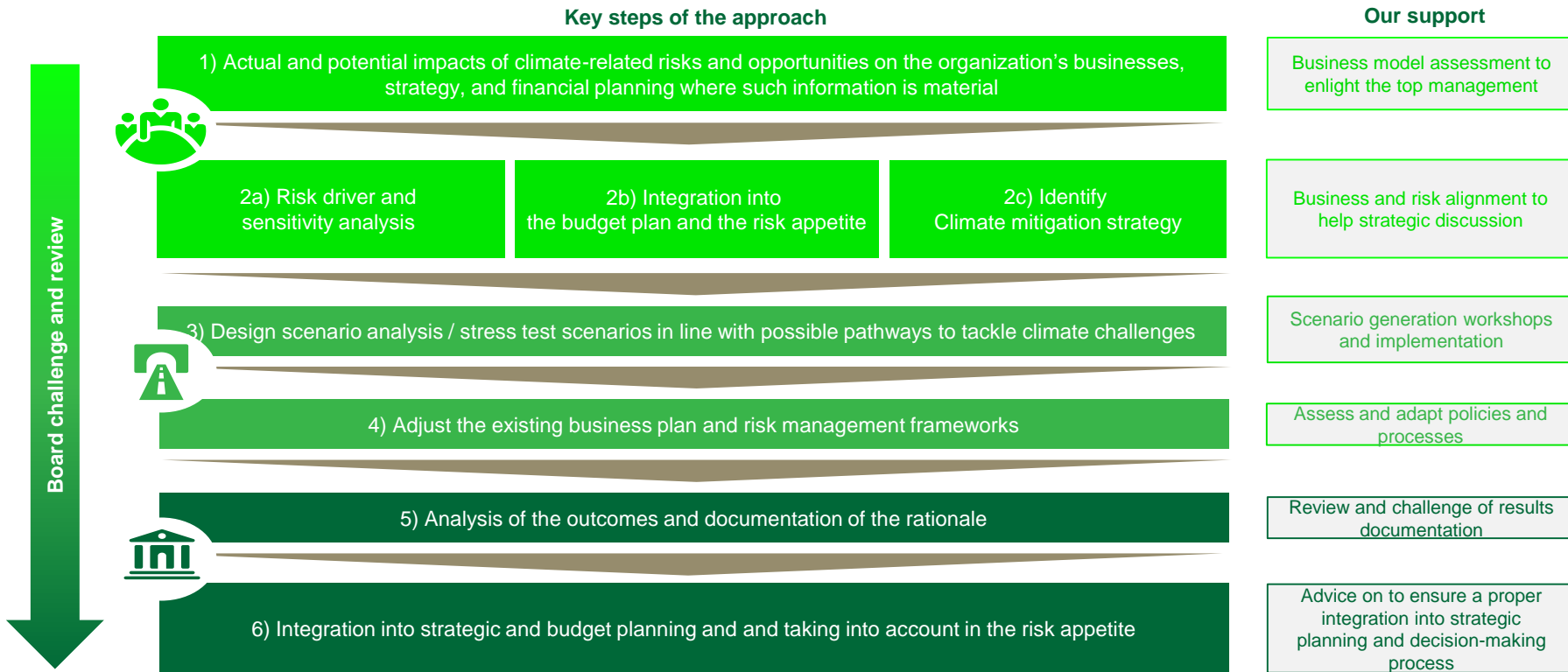
Our analysis toolbox and acceleration tools

Our subject matter expert support and credentials



# 4.1 Our top-down approach

## Framing





## 4.2 Our key capabilities

### *Subject matter expert support on the following themes*

#### **Business & Risk Strategy**

Integrating climate-related risks into business model assessment, risk strategy (RAF) and strategic steering processes (ICAAP, ILAAP, recovery plan)

#### **Governance**

Designing and implementing a climate risk management governance framework

#### **Risk Identification**

Integrating climate risks into the material risk identification processes (e.g. as driver of traditional risk categories, carbon asset risk assessment framework...)

#### **Risk Measurement**

Integrating climate risks into existing risk metrics (e.g. “climate quality index” into credit risk models, green/brown scorecard approach into portfolio exposure metrics...)

#### **Stress Testing & Scenario Analysis**

Design and implementing a climate risk stress testing exercise or scenario analysis (e.g. interpreting and applying prescribed methodologies, calibrating scenarios with bank’s risks and business drivers, adjusting models...)

#### **Supervisory compliance**

Gap analysis or action plan to design a climate risk management framework in line with supervisory expectations and market best practices (e.g. climate-related self assessment tool: a scorecard approach for a proper integration of climate risks into ERM)

## **SERVICE OFFER**



## 4.3 Sample of credentials regarding climate risk management

### Gap analysis / Regulatory roadmap for the designing of a climate risk management framework

*Assignments in the context of the risk management framework*

- Impact analysis of ECB guide on climate and environmental risks for banks
- Conducting methodological workshops with the various interlocutors to analyze the existing framework
- Establishment of areas for improvement and sharing of elements of market practices
- Development of the roadmap in line with supervisory expectations

### Integration of climate risks in risk mapping

*Assignments as part of the strengthening of group risk mapping*

- Proposal of a link matrix between the classic risk categories and climatic risk drivers (physical and transition)
- Implementation work with a view to constructing an initial mapping of climate risks
- Proposal of a preliminary version of a Carbon Asset Risk assessment framework

### Integration of climate risks into risk measurement

*Various assignments within the context of transversal risk measurement*

- Analysis of portfolios and their sensitivity to carbon risk
- Definition and implementation of a set of metrics to reflect the carbon footprint of the portfolio
- Proposal of a limited number of metrics to assess the carbon risk by counterparty (carbon intensity, asset lifespan, % EBIT)
- Proposal for the implementation of a green weighting factor and climate risk scoring methods

### Intégration of climate risks into the Risk appetite framework

*Various assignments within the context of annual update of the Risk appetite framework*

- Proposal of metrics related to the greatest carbon exposures and calibration of tolerance thresholds (very preliminary version)
- Introduction of the Green weighting factor to enrich the calibration of the tolerance thresholds associated with credit RWAs



# Key contacts



**Nathanael Sebbag**  
Partner

**Reply France**  
3 Rue du Faubourg Saint-Honoré  
75008 Paris - France  
tel +33 (0) 1 70 23 08 74  
mob +33 (0) 6 29 47 16 10  
[www.reply.com](http://www.reply.com)  
[n.sebbag@reply.com](mailto:n.sebbag@reply.com)

