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Impact of climate-related risks on financial services

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2022

Content

What is ESG?

Increasingly, integrating ESG activities into business-as-usual operations is not simply seen as the 'right thing to do', but also as a key factor in an organisation's sustainability, and ultimately, its success.

ESG considerations can be defined as follows:

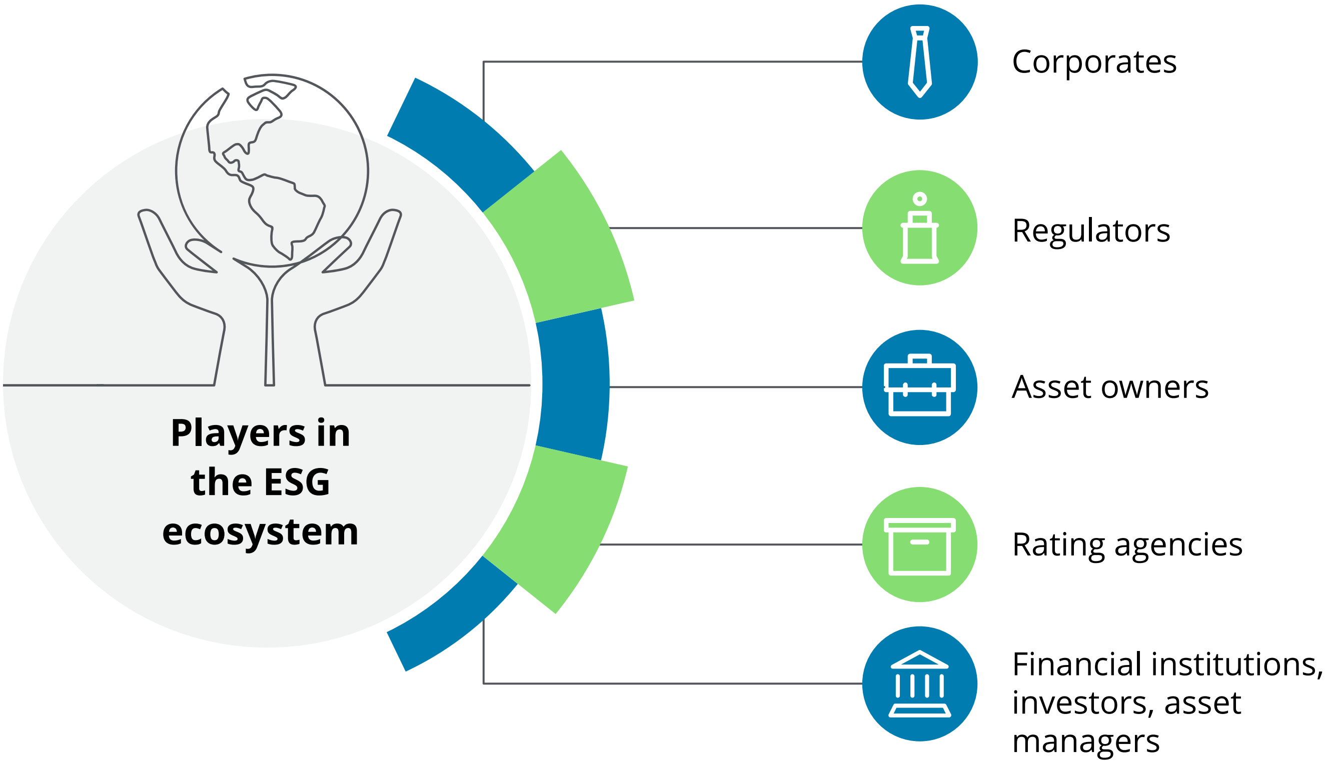
- **Environment** – the impact on the physical environment and resource consumption such as emissions, waste, and the use of energy or water;
- **Social** – societal and community issues such as health and safety, labour rights, and diversity and inclusion; and
- **Governance** – the overall management procedures and systems such as stewardship, accountability, and performance management.

ESG integration is how a corporate or financial firm incorporates, quantifies, and embeds these concepts into its own organisation and/or risk management processes.

ESG integrated investing is how a financial institution incorporates, quantifies, and embeds reported ESG data into its investment and capital allocation decisions.

ESG reporting is the communication of these activities through sustainability reports/metrics by corporates, and increasingly, by financial firms.

The ESG ecosystem brings together key players, each with their own agenda. However, all parties are interrelated and interdependent, and are pivotal to the development of effective and comprehensive ESG strategies. We have identified five unique players:



Climate risk in the context of Financial Services

What is climate risk?

ESG

- ESG (environmental, social and governance) refers to a set of criteria that play a role in the investment decision-making process or in a company's operations.
- **Environmental** factors consider how an investment, or a company, contributes to environmental issues such as climate change and sustainability.
- **Social** factors examine the social impacts of an investment or a company on communities.
- **Governance** relates to transparency and legal compliance of an investment or a company's operations, for instance, in terms of accounting and shareholders' rights.

Global Regulatory Response

- A recent BCBS stock take (BCBS (2020) showed that a majority of jurisdictions did not have an explicit mandate regarding climate-related financial risks. However, they consider that such risks could potentially impact the safety and soundness of individual financial institutions and consequently pose risks to financial stability.
- Accordingly, some jurisdictions and international organisations have already incorporated climate-related risks into their existing supervisory and regulatory frameworks.

Climate Risk

The potential risks that may arise **from climate change or from efforts to mitigate climate change**, their related impacts and their economic and financial consequences.

"The effects of climate risk drivers on banks' financial risks are complex and existing research exhibits a range of approaches for how they should be studied" – BCBS

World Economic Forum - An evolution to green/environmental risk mitigation

The World Economic Forum has identified the most severe risks on a global scale over the next 10 years. Five of the top 10 most severe risks are climate-related.

1. **Climate action failure**
2. **Extreme weather**
3. **Biodiversity loss**
4. **Social cohesion erosion**
5. **Livelihood crises**
6. **Infectious diseases**
7. **Human environmental damage**
8. **Natural resource crises**
9. **Debt crises**
10. **Geoeconomic confrontation**

Economic | Environmental | Geopolitical | Societal

In recent years, risk perceptions have shifted to environmental issues, with **extreme weather, climate action failure, natural and human-made environmental disasters and biodiversity loss** cited as top risks from both a likelihood and impact perspective.

Climate change opens up a new risk cluster

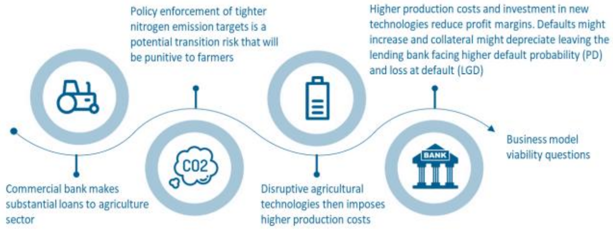
Physical risks, transition risks, will all have to be considered by financial services firms

Physical risk

From direct damage to assets to indirect effects, such as loss in biodiversity and disruption to an organisation's supply chain.

Transition risk

From risks related to the process of adjustment towards a low carbon economy e.g., policy or technology changes.



Climate change translation into financial risks

Physical and transition risks, though assessed separately by banks, are interconnected. A strong and immediate action to mitigate climate change would increase transition risks and limit physical risks. In contrast, delayed and weak action to mitigate climate change would lead to higher physical risks, without necessarily eliminating transition risks.

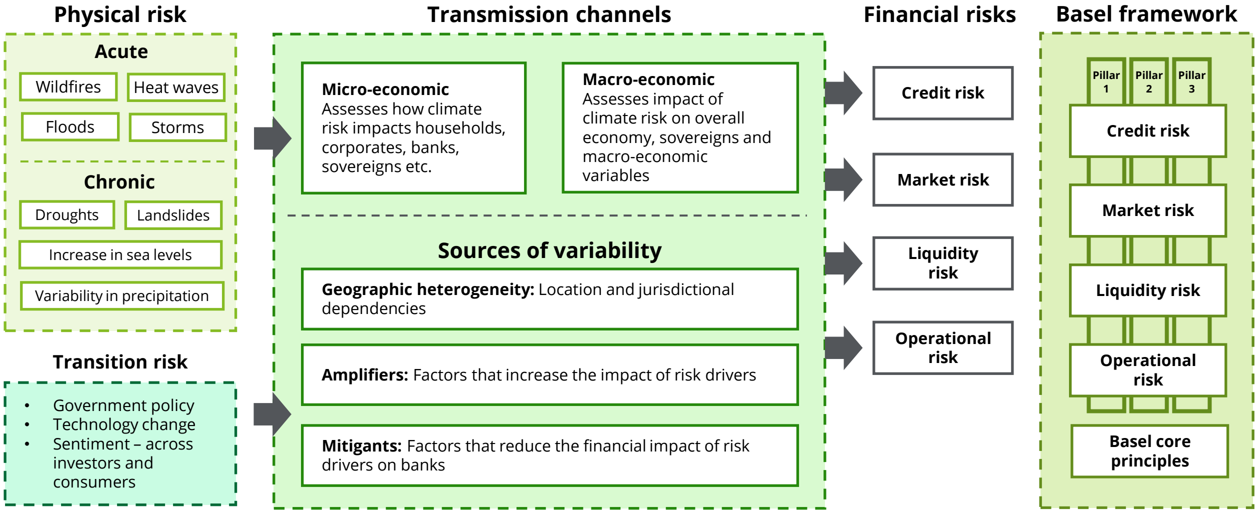
Physical and transition risks can materialise in terms of financial risk in five main ways, with many second-round effects and spillover effects among them

Credit risk	Can induce, through direct or indirect exposure, a deterioration in borrowers' ability to repay their debts, thereby leading to higher probabilities of default (PD) and a higher loss-given-default (LGD).
Market risk	Under an abrupt transition scenario (e.g., with significant stranded assets), financial assets could be subject to a change in investors' perception of profitability. This loss in market value can potentially lead to fire sales, which could trigger a financial crisis.
Liquidity risk	Banks whose balance sheet would be hit by credit and market risks could be unable to refinance themselves in the short term, potentially leading to tensions on the interbank lending market.
Operational risk	A bank whose offices or data centers are impacted by physical risks could see its operational procedures affected and affect other institutions across its value chain.
Insurance risk	For the insurance and reinsurance sectors, higher than expected insurance claim payouts could result from physical risks, and potential underpricing of new insurance products covering green technologies could result from transition risks.

Climate risk drivers and interlinkages with financial risk management

How climate change considerations feed into the Basel Framework of risk management

Physical risk drivers, both acute and chronic, in tandem with transition risk drivers, translate to climate-related financial risks using several microeconomic and macroeconomic transmission channels. These vary according to geographic heterogeneity, amplifiers and mitigants in the financial and economic environment, and generally manifest in the form of credit, market, liquidity and operational risks.



Source: Climate-related risk drivers and their transmission channels, Basel Committee on Banking Supervision

Developments in environment and sustainability management space in India

2016 - 2017

- **2016:** SEBI published its green bond guidelines, making India the second country (after China) to provide national level guidelines
- **2016:** Indian Banks' Association came out with the National Voluntary Guidelines for Responsible Financing in order to catering to banking sector's risks, opportunities and responsibilities around ESG factors

2017 - 2019

- **2018**: BSE published guidance on ESG Disclosures, which provides 33 specific issues and metrics
- **2018**:Nifty 100 ESG Index was launched
- **2018:** Launch of SBI Magnum Equity ESG fund
- **2019**: SBI Extended BRR requirement to top 1000 listed entities by market capitalisation from FY19-20

2020

2020: Committee on Business Responsibility Reporting, constituted for preparing Business Responsibility Reporting formats for listed and unlisted companies submitted a draft updated framework based on National Guidelines on Responsible Business Conduct which have been developed in the specific context of the country for BRR to MCA

2021

- **2021:** RBI has set up a Sustainable Finance Group (SFG) within the Department of Regulation to spearhead its efforts and regulatory initiatives in the areas of sustainable finance and climate risk
- **2021:** SEBI has introduced new reporting requirements on ESG parameters called the Business Responsibility and Sustainability Report (BRSR) with an intention of having standardised and quantitative disclosures on ESG parameters to enable comparability across entities, sectors and time

Functional client challenge - Led solutions

The challenges facing the FSI industry are cross-functional and require a coordinated solution. Deloitte has globally helped clients from across industries understand the impact of climate risk, assistance in ESG expansion and support banks and other industries think about the implications of climate-related changes for their reporting.

Deloitte provides end-to-end services to assist you to incorporate critical steps to address climate change related financial risks into your day-to-day operations, from strategy planning, governance and risk management framework development, to performance, impact assessment, scenario analysis and stress testing, disclosure and communications, and delivery of workshops and training.

Alternatively, you can also choose individual or several service components that best fits your needs at your current stage of addressing climate risk related challenges.

Climate risk governance framework

Define the point of governance of climate risks in first, second and third line of defense. Incorporate climate risk taxonomy within the bank's risk procedures such as risk register, risk appetite statements, and ERMF

Climate risk dashboards

Design interactive dashboards for monitoring climate impact on various asset classes and periodic internal reporting to senior management

Integration of climate risk framework into credit appraisal process

Include identified climate risk factors in scoring models used in lending and investment decisions

Scenario analysis and stress testing

Perform a quantitative assessment of climate risk exposures in the bank's portfolio through climate stress test and scenario analysis

Climate related disclosures and regulatory reporting expectations

- Draft the disclosure templates based on TCFD and other globally acknowledged guidelines to disclose the initiatives in the climate risk space.
- Assist in climate-related regulatory reporting for different jurisdictions.

Financed emissions and portfolio de-carbonisation

- Use globally accepted GHG accounting principles to estimate the financed emissions related to each asset class.
- Develop methodologies to incorporate financed emissions data into portfolio management and de-carbonisation

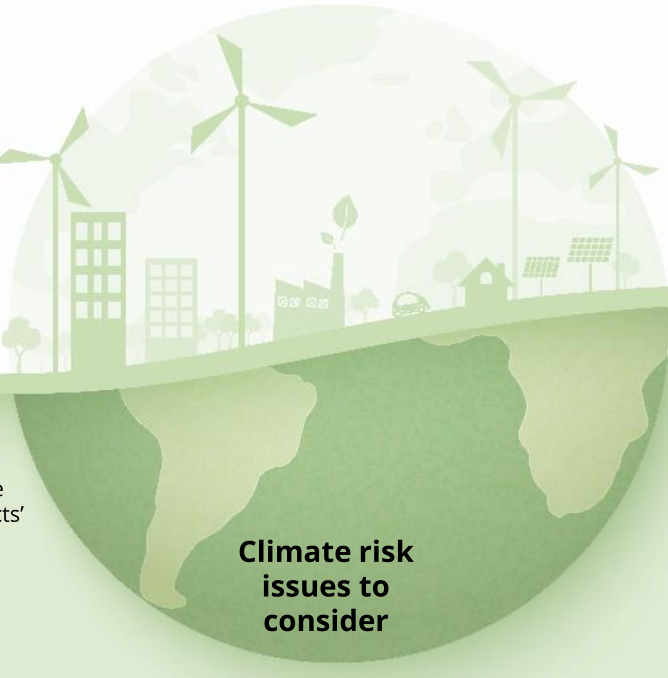
Climate risk framework design: Considerations from board level decisions to operationalisation

It is important that decisions made on climate risk at the highest levels are operationalised in a meaningful way on a day-to-day working level

Ownership	Process	A worked climate risk example – fossil fuels / carbon tax
Board/ executive	**Definition of risk appetite**	1. The **board and executive** define the organisation's risk appetite with regards to doing business with organisations that deal with fossil fuels via its **Risk Appetite Statement (RAS)**
Risk function	**RMF modification / integration**	2. Integration into RMF e.g., modification of existing risk type(s) or creation of new risk types; agreement of risk owner(s); confirmation of risk assessment methodology; risk limits set in line with the RAS; monitoring performed on an agreed frequency with clear escalation mechanisms
Risk, business heads, climate risk functions	**Policy establishment**	3. The organisational risk position on fossil fuels is integrated into the policy framework – either as part of existing policies, or as part of new/standalone policies
Impacted functions	**Operationalisation** Considerations should include: • Roles and responsibilities • Controls/control framework • Data sources • Data usage and ownership • Updating existing processes e.g., financial crime risk process, credit risk process	4. Based on the above, there should be clarity on a day-to-day level as to how business relating to fossil fuels is handled, e.g.: • Processes and procedures are implemented to ensure that RMS and credit officers are on alert to perform the relevant checks during the periodic and ad hoc reviews • Data and systems enabling relevant checks to be performed are established • Risk function performs the necessary tasks • Checks are performed by audit

Climate risk framework design: Integrating climate risk into a bank's risk management framework (RMF)

Incorporating sustainability factors such as climate risk issues to your existing risk management framework is an important process - doing so will provide a holistic view to identify, assess, and address the impact of these to your organisation.



Environmental
- Climate change
- Materials sourcing and use
- Paper and waste IT products' management
- Energy efficiency
- Water management
- Biodiversity
- Environmental policy

Governance/other
- Corporate governance
- Political accountability
- Solvency
- Voting policies
- Environmental and social impacts of investments, products and services

Social
- Employment practices
- Labour conditions
- Occupational safety risks
- Political funding
- Financial products and services information to customers
- Financial consumer protection

Bank risk categories (illustrative)

Credit risk	Market risk	Operational risk	Reputational/ strategic risk	Regulatory risk	Climate risk (incl. climate) risk

Climate risk issues may reflect in the bank's existing risk categories and/or may be reflected in a new climate risk and climate risk category

Risk culture

Risk strategy and appetite

Key integration steps

01 **Risk governance** – Provide management oversight on climate risk related risks; maintain on-going monitoring and ensure alignment to the organisation's risk appetite

02 **Identify -** Conduct a gap analysis to understand the full spectrum (both established and emerging climate risk risks) of your organisation's risks

03 **Engage –** Leverage the subject matter experts within the organisation to interpret the climate risk related risks

04 **Assess -** Prioritise material climate risk issues based on the impact and likelihood for inclusion into the existing risk management framework

05 **Integrate –** Mapping climate risk issues can be one to one or one to many risk categories

06 **Monitor and escalate –** Monitor the implementation and performance of climate risk related risks and make revisions if progress falls short of expectations

07 **Communication and reporting –** Establish information and communication channels to cascade relevant climate risk-related risk information to internal and external parties

Measuring financed emissions

The challenge of measuring financed emissions is one of a kind. The lack of a uniform, globally accepted standard for measurement and disclosure of financed emissions has led to the poor uptake of financed emissions' accounting across the industry.

Financial institutions emit Greenhouse Gases (GHG) **not only to power their offices and branches, but they also finance the emissions of other companies through their various financial services including loans and investments**. These constitute a **major portion of the financial institutions' GHG footprint**. It is very important for these institutions to be able to measure these emissions, as a first step to managing their climate-related risk.

GHG accounting enables financial institutions to measure, disclose and monitor their financed emissions. This further allows them to identify climate-related transition risks and set baseline targets in alignment with the Paris Agreement. However, **the lack of any globally accepted standard** for measuring and reporting financed emissions **has led to inconsistent disclosures across financial institutions**.

The Global GHG Accounting and Reporting Standard for Financial Institutions was launched in 2020. Widely tested by banks and financial institutions, the standard provides detailed guidance for the measurement and disclosure of financed emissions across the following **six asset classes**.

Financed Emissions

- Listed equity and corporate bonds
- Motor vehicle loans
- Mortgages
- Business loans and unlisted equity
- Project finance
- Commercial real estate

Measuring financed emissions – Corporate loan book use case

It is important to develop a methodology for measuring financed emissions and tracking it at the portfolio level, for the financial institution to be able to make active choices and set a carbon limit on the activities they finance to reshape their portfolios and align themselves with the Paris climate agreement.

Measuring financed emissions

- The methodology for measuring financed emissions builds on and extends existing industry approaches to cover not only lending but also capital markets financing.
- The flowchart below gives us a picture of the methodology that can be used to measure financed emissions and how it can be further used in making decisions in real time.
- We start by selecting an appropriate benchmark for a sector, which determines how financed emissions need to change over time in line with the goals of the Paris Climate Agreement.
- We then measure how our actual portfolio is performing against those benchmarks: by measuring the emissions that our clients produce, determining how those emissions are linked to the finance provided and aggregating them into a portfolio-level metric.
- We then compare the portfolio-level metric to the benchmark, and then ultimately publish it in the form of a climate dashboard. This can also be included in climate-related disclosures.
- We can also leverage this metric into our risk management processes (Portfolio de-carbonisation and lending decisions) as well as stress testing.

- Sector-wise client
- Exposure data

Key financial metrics of client:

- Total debt
- Capital structure
- Revenues split by LOB
- Cash

Apply globally accepted GHG accounting principles to estimate emissions

- Available client
- Emissions data

Compute financed emissions attributable to financial institution which is aggregated at portfolio level

- Climate dashboard
- Climate-related disclosures

Risk management processes:

- Portfolio de-carbonisation
- Lending decisions
- Stress testing

Consideration of climate risk factors into credit appraisal process

The typical steps for climate risk framework assessment and integration with the banking systems are identified to ensure comprehensiveness of the assessment and integration effort.

Understanding existing climate risk framework

- Understand existing climate risk framework and current regulatory environment
- Perform benchmarking and peer/competitor analysis to identify leading practices

Understanding risk exposure

Undertake an initial assessment of the bank's climate risk exposure by mapping business line activities to industry sectors, scoring them on their known climate risk profiles in a portfolio heat map

Making a comprehensive list of potential climate risk issues

Identify a comprehensive list of climate risk issues the bank could be exposed to, while providing financing and services to each of the medium- and high-risk industry sectors

Documenting and discussing the identified climate risk issue

- Document the identified climate risk issues relevant to the bank
- Discuss the findings to gather more detail and agree on any enhancements required

Assessing bank's current level of integration

- Study the current level of integration of CRA model and climate risk framework based on provided documents
- Identify the gaps based on the study conducted

Developing integration approach

Based on bank's risk appetite and risk exposure, develop an approach to include climate risk factors in current CRA models used for lending or investing purposes

Documenting and discussing the identified approach for integration

- Document the identified roadmap for integration of climate risk framework and CRA model
- Discuss the findings to gather more details and agree on any enhancements required

Climate risk assessment - Scenario analysis and stress testing

Inputs

Climate scenarios should have the following characteristics	Reference examples of climate scenarios:
Based on latest scientific knowledge	• International energy agency (IEA) scenarios
Political, technological and economic viability	• NGFS scenarios
Transparent on external data and hypotheses	• IAM consortium scenarios
Comparable with existing approaches	• Private sector scenarios

Our approach

Communication within relevant units (e.G., Risk, business, finance, IT)

Communication to regulators

Define

Discuss with risk and business to **define** the scope for climate risk stress testing

Stress scenarios

- **Review** the scenarios and parameters (e.g., Sector or industry specific)
- **Communicate** with relevant units of the recommendations

Data

- **Collect** necessary data for stress testing
- **Standardise** and assess **data accuracy**

Assess

- **Calculate** the capital under normal and stressed circumstances
- **Assess** the impact to **portfolio and capital**

Report

- **Document** the stress test results
- **Provide details** of models and methods, and assumptions
- **Report** to board and senior management

Management action

Integrate the results of stress testing into **daily business operations**, including business planning, risk decision making, solvency, liquidity and capital management, and self-risk assessments

Climate risk dashboards and disclosures

Workflow for risk and opportunity dashboard design to report climate risks and metrics internally and externally

Select data attributes

Industry tagging using country specific codes

Methodology/key assumptions for development climate risk metrics and green finance targets

Analysis for the data metrics and report the performance against the targets

Draft the MIS and climate risk disclosure templates

Characteristics of the climate risk and opportunity dashboard

- Provides management information on climate risks and opportunities and supports a bank's progressive adoption of the recommendations set forth by the G-20 financial stability board's TCFD.
- Focusses on exposure to fossil fuel sectors (coal mining, oil & gas, utilities/power generation) characterised through a range of established financial measures, and broken down by regions, sectors and business types.
- Addresses the information needs for low/positive carbon benchmark, and offers potential for green financing by providing bank's exposure to opportunities in the renewable sector.
- Provides disclosure of GHG emissions and carbon intensity for the highest financed emissions as a systematic pathway to assessing and managing environmental and social risk in projects.

Source: World Economic Forum global risks perception survey 2021-2022

The journey towards fully integrated climate risk management

Given the challenges and constraints along the way, this is expected to be a long, but dynamic path

Climate Risk Management – Maturity Model

Learning and discovery

- Up-skilling and understanding of the climate risk expectations
- Preparing for the climate risk future

Regulatory alignment

- Driven by regulatory guidance, work towards setting up
- Established the climate risk roadmap, align to reg views
- Lay out foundational blocks such as policy & governance aspects

Integration with business and strategy

- With governance in place, mobilize resources to include climate considerations in planning
- Introduce and action business decisioning based on climate risk
- Continue with the laid-out roadmap, fine-tuning along the way

Quantification/assessments driving decisioning

- Fully integrate climate risk considerations top-down & bottom-up
- Have stress testing & scenario analyses inform strategy & capital planning
- With data in place, have external and internal disclosures and dashboards automated
- Stand-alone climate risk management framework, with typical components for operationalization

Focus Areas

- Governance
- Climate risk taxonomy
- Risk dashboards and disclosure templates
- Climate risk sensitive credit appraisal
- Climate stress tests and ICAAP

The Deloitte difference

We have globally helped clients from across industries understand the impact of climate risk, provided assistance in ESG expansion and supported banks and other industries think about the implications of climate-related changes for their corporate reporting. Our experience from working with the banks on the emerging non-financial risks across the last several years has streamlined our approach. Our approach focuses on how risks are to be integrated with existing risk management frameworks; be it across policy and governance, identification and assessment, or monitoring and reporting.

Our experience

Rich experience in financial services

Our experience from working with the banks on emerging non-financial risks across the last several years has streamlined our approach to - how risks are to be integrated with existing risk management frameworks; be it across policy and governance, identification and assessment, or monitoring and reporting.

Accelerators and enablers for climate risk management

This view specifically for climate risk management has led us to develop accelerators in the space of ESG overlays for existing credit appraisal/rating models, templates for climate risk policy structures, as well as approaches to modifying stress testing methodology to incorporate climate change considerations.

Quant-oriented skill-sets

The team has significant experience in several statistical modelling techniques which can be leveraged to assess and quantify climate risks such as risk modelling, survival analysis, stochastic calculus, multivariate modelling, time series analysis, loss reserving, contingency modelling, and financial analysis

Global expertise and network

Our team that focuses on climate risk considerations is supported by a global network of experts in this area, who have led and delivered transformational engagements at large banks in response to regulatory experiences, as well as liaising with the regulatory authorities in shaping expectations related to risk management and disclosures.

Connect with us

Rohit Mahajan

President - Risk Advisory
Deloitte India
rmahajan@deloitte.com

Sandeep Sarkar

Partner, Risk Advisory
sarkars@deloitte.com

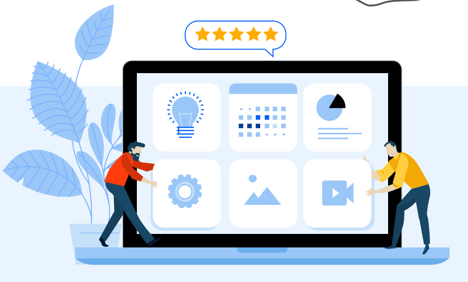
Aruna Pannala

Partner, Risk Advisory
apannala@deloitte.com

Rajat Bahl

Partner, Risk Advisory
rajatbahl@deloitte.com

Key contributors



Saurabh Sharma
Dheeraj Khatri
Vinayak Bhardwaj