

## Synopsis

Climate risks reach beyond just rising ocean temperatures, for banks they are detrimental to the full array of traditional risk types. To understand how, this article explains the sources of climate risks, their transmission through Basel's three pillars, and the final impacts on capital for market, credit and operational risks.

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# 🔍 how will climate risk change the Basel framework and bank risk management practices?

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## introduction

Most researchers argue that the first climate risk impact in the banking industry will be to business departments. However, risk management professionals can beg to differ, for the simple reason that without a risk management policy, Key Risk Indicators (KRIs) and risk monitoring units, business departments cannot execute any transaction. Hence the role of risk professionals is vital in mapping out the risk management practices and paving the road for other departments in the bank to execute their role within the risk tolerance level and mandates of the board. This leads to a thought-provoking idea: how are risk management practices evolving to accommodate sustainability practices and climate risks alongside business needs?

Indeed, the pressure on risk professionals is mounting given that the economic outlook forecasts increasing credit losses and, therefore, an increasing need to manage risks in order to enhance profitability. Since the risk spectrum is interconnected, other risks such as regulatory risk, strategic risks and others may emerge if a holistic review is not performed.

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## background on Basel framework

A reference for mapping out the overall changes and the holistic review on risk management practices is the Basel Framework developed by the Basel Committee on Banking Supervision (BCBS). Basel Framework is divided into three distinct categories Pillar 1, Pillar 2, and Pillar 3.

Pillar 1 establishes the minimum capital requirements in accordance with the regulatory view while Pillar 2, the supervisory review process, details risk management governance and risk tools. Lastly, Pillar 3 describes market discipline, which includes transparency and reporting. All three pillars will be impacted by sustainability and climate risk going forward.

Incorporating climate risk into Pillar 1 involves identifying and assessing any gaps in the current structure and incorporating climate risks into the existing capital calculation framework. For instance, for credit risk this means enhancing the counterparty risk exposure and integrating climate risks into the internal credit scoring system while analyzing the external risks. Figure 1 exhibits the mapping by DeNederlandsche Bank (DNB) of the main risks affected by climate risk.

Risk channel	Sub-type	Credit risk	Market risk	Operational risk	Other risk types
Physical	 Chronic	Severe weather events and long-term changing weather patterns may reduce collateral values which increases credit risk via a higher loss given default	Severe weather events may result in loss of asset values and increase volatility on e.g. commodity and/or forex markets	Severe weather events may damage the bank's branches, data centres and operations	Severe weather events leading to macro-economic shocks may increase liquidity risks
	 Acute				
Transition	 Policy	New climate policies, technologies and market sentiment may generate stranded assets for CO <sub>2</sub> -intensive industries which increase probability of default (via lower debt-servicing capacity) and loss given default (via lower collateral values)	New climate policies, technologies and market sentiment may generate stranded assets for CO <sub>2</sub> -intensive industries which trigger an abrupt repricing on e.g. equity and/or bond markets	New climate policies may lead to higher liability risks of operational activities, such as outsourcing	New climate policies, technologies and (market) sentiment may increase reputation and/or liability risks related to green washing <sup>3</sup>
	 Technology				
	 Market sentiment				

Figure 1: An overview with examples on how climate change can be a driver of conventional risk types (DeNederlandscheBank, November 2019)

## sources of climate risk: physical and transition risks

Additionally, identification of climate risk also includes assessing and incorporating physical and transition risks. Physical risks are those risks that impact the organization in the physical world, such as wildfires and earthquakes. The second type, transition risk, includes the impact of climate risk on the process of transforming into a climate-friendly model, such as the risks from policy and legal, technology, market, and reputational sources. It is worth mentioning that there is always a positive side to climate risks opening up such opportunities as greater energy efficiency, tapping in new markets and increasing business resilience.

Physical risks can be further classified into acute or chronic risks. Acute risks are sudden, event driven risks or hazards, such as earthquakes and floods, whereas chronic risks are usually longer-term impacts of climate risk, such as the sea level rise.

## Basel impacts from climate risk

As described above, it is vital to incorporate sustainability concepts into risk management practices. To incorporate climate risk into the overall risk management practices, a top-down analysis starting with the overall risk management appetite and on to policies and procedures, stress testing, KRIs, internal and regulatory risk reporting should be conducted. Climate risks will impact the minimum capital requirements by impacting the RWA calculation as detailed in the Basel publication “Frequently asked questions on climate related financial risks” Published in December 2022. To clarify the impact on each risk, below is a detailed breakdown of credit, market and operational risks and impacts on Pillar 1. Figure 2 displays the impact on Basel III pillars.

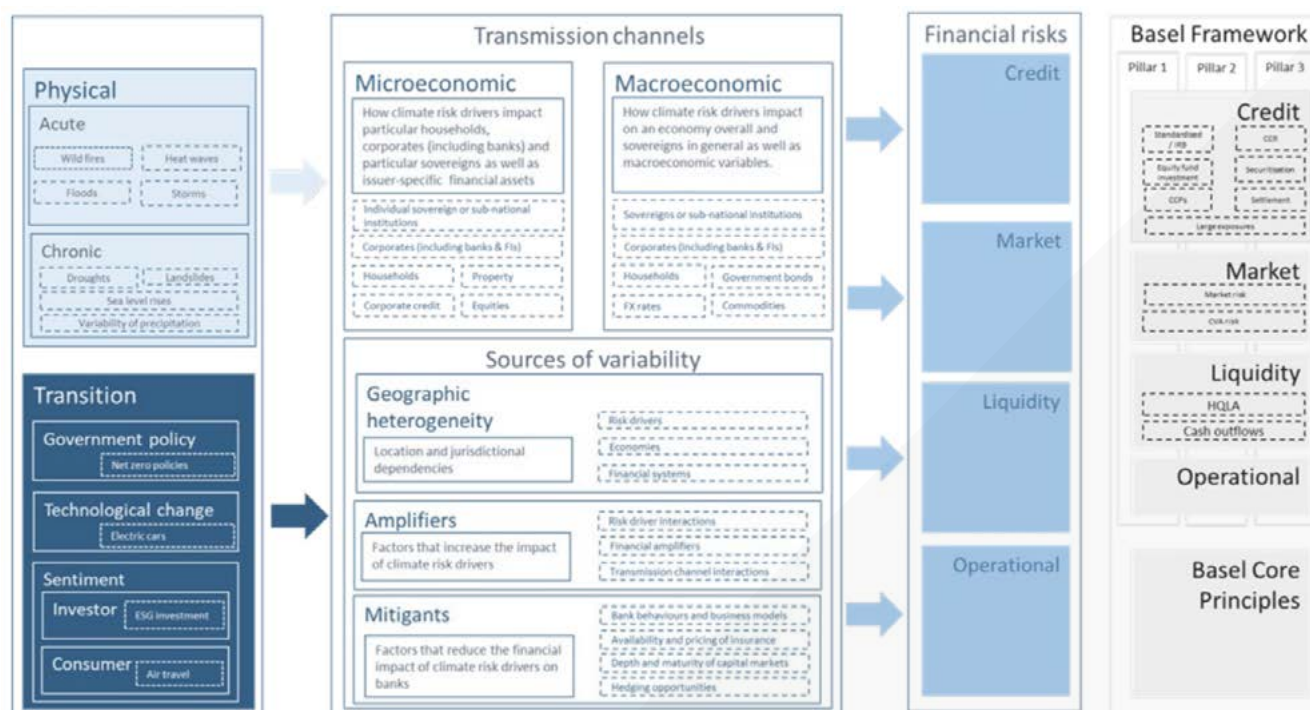


Figure 2: Impact on Basel Three pillars (BCBS, April 2021)

## pillar 1: minimum capital requirements

### Credit risk management

Credit risk is considered banks’ largest area of concern, and since banks are revenue driven, their main concern is how climate risks will impact the credit risks of clients, i.e. the risk of customer default. According to Basel, the calculation of risk weighted assets (RWA) for credit risk is impacted going forward to the extent that the risk profile of a counterparty is affected by climate-related risks. These risks should be integrated into their own internal credit risk scorings or when using external ratings in the form of ESG ratings.

Climate risks will impact credit risk management significantly. Current credit scoring assesses the creditworthiness of clients and the newly developed ESG scoring is used to assess the compliance of the organization to ESG pillars. Although ESG ratings have negligible impact on the lending and investment decisions now, they are gaining importance and momentum.

Overall requirements for calculation of RWAs for credit risk include probability of defaults (PDs), loss-given defaults (LGDs) and exposure at default (EAD). All three metrics should incorporate the relationship between climate risks and financial risks.

## **Market risk management**

Market risk is the external risk of uncertainties due to financial market conditions that can impact a firm, similar to interest rate risk and foreign exchange risks. In order to adequately assess the market risk of a given investment or portfolio, banks should consider incorporating material climate related risk drivers in their stress testing models. Banks should measure the impact of those risks on their market positions, correlations and the pricing and availability of hedges.

## **Operational risk management**

Many operational risks are directly triggered by sustainability risks such as failures in strategy, legal disputes, operations, reputation, systems, processes, people and many more. Strategic risks can stem from firms that either opt out or lag in implementing sustainability initiatives and this can trigger operational risks from non-compliance with regulatory guidelines, incurring legal risks as well. Operational risks can also stem from external events that can directly affect the firm's operations, such as floods and earthquakes i.e. acute risks.

Calculation of RWA for operational risk, according to Basel, involves additional analysis to identify and incorporate losses stemming from climate-related risks identifiable from the loss database; these losses can be mapped to the event type category "Damage to physical assets". A bank that misrepresents sustainability-related practices or the sustainability-related risks of its investment products could face litigation; this is classified as (event type category "Clients, products and business practices").

Banks are required to assess the impact of climate-related risk drivers on their operation and the continuity of their operation. This can impact their business continuity plans.

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## **pillar 2: supervisory review process**

In Pillar two, supervisors are required to evaluate and determine banks consideration of material climate related risks in their reporting, business strategy, governance structure and internal reporting.



**Management and Governance:** Most prominent is the need to formulate a subcommittee within the board assigned to resolve sustainability issues. Moreover, it is good practice to appoint a chief sustainability officer (CSO) with a designated team; however, some banks approach this by adding this role to an existing employee that either has a strategic or risk role. It should be noted that creating a governance structure should be in line with the size and complexity of the bank.

**Risk Appetite Document:** The risk appetite statement is a tool used to assess the amount of risk to be taken in pursuit of objectives, or risk-to-reward mechanism within an organization. Integration with sustainability risks is implemented qualitatively and quantitatively. Qualitative changes include embedding positive screening (encouraging and selecting investments based on positive ESG criteria) and gradually phasing out investments that are fossil fuel intensive. On the other hand, quantitative features include measurable data which can be used for monitoring and decision making. Examples include calculating the emission level, portfolio warming potential, and targeted increase in renewables financing.

**Risk Management Policies:** Incorporating sustainability and climate risks into the existing set of policies and procedures is inevitable; so is introducing new policies and procedures to enhance the framework. Impacted policies include introducing or enhancing the climate risk management policy (part of the corporate social responsibility policy), incorporating sustainability into the lending policies and investment policies to encourage positive screening, enhancing the corporate governance policy to include the new sustainability responsibilities and roles as mentioned above, enhancing HR policies to include employee and diversity policies, introducing sustainability reporting to stakeholders and ensure stakeholder engagement.

Most banks should prepare an environmental and social risk management (ESRM) policy, which includes revamping and creating sustainability related policies regarding: setting the risk management framework, client onboarding policies, product development policies, transactional level policies, portfolio level policies and supply management policies.

**Stress Testing:** Basel, in its paper “Principles for the effective management and supervision of climate-related financial risk,” published in 2022, directed banks to use climate scenario analysis (CSA). Designing an effective CSA requires that banks incorporate scenarios in plausible pathways. These pathways should incorporate short and long term, adjust to business size and complexity. Various examples such as the ECB, Fed and DNB devised stress testing and scenario analysis as detailed below.

According to the ECB, it was proposed to extend scenarios to include transition risk, whereby one is orderly (a structured and easy transition towards Paris agreement targets), while the second is disruptive (quick transition towards Paris). As with physical risks, the ECB stated in its papers how to assess the physical risks and how it will affect the client portfolio and any collateral associated with it. (ECB, 2024)

The US Federal Reserve incorporates stress testing by formulating a climate risk factor, or Climate Beta, that is inversely related to the portfolio impacted by transition risk and ultimately measures stock return sensitivity. Another metric proposed is CRISK, directly influenced by how firm value, size, and leverage are impacted by a climate stress test. (Fed, 2023)

Another prominent example of the implementation of stress testing is the Netherland's central bank, the DNB, which was among the first central banks to develop a climate stress test. According to the DNB, climate stress testing is done by formulating four severe but plausible scenarios; these four scenarios revolve around two risk factors which are government policy and technological developments. All those changes will impact the Internal Capital Adequacy Process (ICAAP).

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## pillar 3: transparency and market discipline

**Risk Management Reporting:** Stakeholders are increasingly interested in seeing sustainability risks in financial reporting, so many companies have voluntarily included sustainability metrics. Sustainability risk frameworks include the Task Force on Climate-Related Financial Disclosures (TCFD), Carbon Disclosure Project (CDP), Global Reporting Initiative (GRI), and the International Integrated Reporting Council (IIRC). GRI is the most widely accepted reporting standard of all. Basel has been coordinating with other international bodies and standard setters, including the International Sustainability Standards Board (ISSB), as it drafted Pillar 3 of the Basel framework guidelines. Pillar 3 promotes a common disclosure baseline for climate-related financial risks across internationally active banks.

Pillar 3 requires qualitative disclosures in four areas by banks: governance, strategy, risk management and concentration risk. Quantitative disclosures include financed emissions, exposure by sector (transition risk), exposure to physical risk per geographic area.

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## conclusion

It should be noted that banks are value-driven entities and managing climate-related risks can be a complex process, with conflicting motives from banks and regulators. BCBS attempts to influence banks from the stage of drafting the initial strategy, amending their tools and techniques to the final disclosures as detailed in the Basel framework. Although Basel Committee guidelines are essential in driving and aligning the global financial system, climate risk is a dynamic topic and the BCBS must acknowledge this by publishing more guidelines and addressing any gaps in the model. Banks, on the other hand, should ensure adherence to those guidelines not as a tick-the-box exercise but rather to deliver impact.

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***“The impact of our collective actions today will determine the state of our planet tomorrow.”***

**- Leonardo DiCaprio**

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