Center for Sustainable Finance India

Clarifying Concepts

Understanding Climate-Related Financial Risk

Climate-related financial risks refer to those arising from climate change impacts or efforts to mitigate climate change. Understanding and managing these risks could help prevent or reduce a fall in financial asset values, support in pricing risk premia and preserve the resilience of the financial system.

CLIMATE-RELATED FINANCIAL RISKS

The financial sector is exposed to two[1] distinct types of climate risk:

1. Physical Risks

Climate change impacts (e.g., rising sea levels and temperatures, flooding, and droughts) have potential to adversely affect economic activity, outputs, and incomes.

Risks arising due to changes in the bio-physical conditions due to climate change. Physical risks can be categorised into:

i) **Acute risks** are associated with increasing frequency and severity of climate-induced extreme weather events such as floods, cyclones, droughts, etc.

For example: Increasing frequency and severity of floods or cyclones could lead to higher-than expected claims for the insurance sector, depressing profits of insurance companies and possibly facing solvency risk.

ii) **Chronic risks** are longer term progressive shifts in climatic conditions such as increase in temperature, variability in rainfall and sea level rise (NGFS, 2019).

For example, such risks could negatively impact productivity and income in climate-vulnerable activities such as agriculture and tourism that could lead to an increase in the potential for credit defaults.

[1] Sometimes a third category of risk called 'liability risk' is also included. These risks may arise when parties are held responsible losses related to environmental damage. This are particularly high for insurance companies.

2. Transition Risks

Efforts to mitigate climate change through transition to a low-carbon economy could prompt tight regulations on greenhouse gas (GHG) emission intensive sectors, push for adoption of cleaner technologies and a shift in consumer sentiments.

Risks result from the process of transitioning towards a low carbon economy. Transition risks may arise due to introduction of climate policies (such as carbon tax), development and adoption of new technologies (such as battery storage) or change in consumer preferences.

For example, policies implementing a high carbon tax could impact earnings in carbon-intensive sectors such as fossil fuel. Banks that have higher exposure to carbon-intensive sectors might face a higher probability of default.

EFFECTS ON TRADITIONAL FINANCIAL RISKS

Both physical and transition risks can affect traditional financial risks, particularly credit, operational, and market.

Figure 1: Impact of climate risks on traditional financial risk

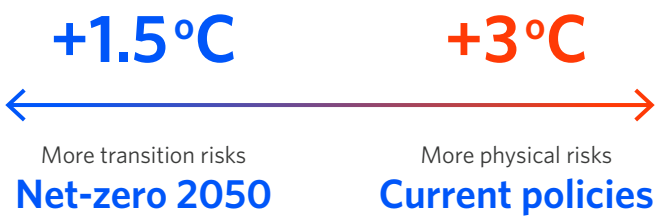
	Credit Risk (Risk arising when borrowers fail to meet contractual obligations, for example defaulting on principal or interest payment of a loan)	**Market Risk** (Risk arising due to changes in interest rates, the price of commodities or the exchange rate of a currency)	**Operational Risk** (Risk arising due to errors, interruptions, or damages caused by people, systems, or processes)
Physical Risk	Climate change impacts such as variability in rainfall may affect crop production negatively and lead to higher credit defaults in agriculture sector.	Lower valuation of properties in coastal areas due to increased risk of coastal flooding and coastal erosion can increase market risk	Headquarters and data-centres of Fis face operational risks due to climate disasters.
Transition Risk	A very high carbon pricing introduced suddenly could increase operating costs of firms which may lead to higher credit risk.	Lower valuation of carbon intensive assets can increase exposure to market risk.	--

CIRCULARITY BETWEEN PHYSICAL AND TRANSITION RISKS

Physical and transition risks are connected. In a scenario where no climate action is taken, the likelihood and severity of physical risks would increase. However, transition risks from the shift towards a low-carbon economy would be minimal.

Conversely, strong and rapid climate action to reduce emissions would increase transition risks in the short term due to potential market disruptions and adjustments in prices of financial assets in certain sectors. However, in the long run, strong and rapid climate action would reduce physical risks.

This implies that financial institutions are likely to face some degree of either one or both types of climate risk, irrespective of climate action. And therefore, setting up systems and guidelines to measure and manage managing climate risks becomes important.



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TO LEARN MORE

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The Clarifying Concepts series provides short explanations of foundational ideas and terminology in sustainable finance to help professionals from different fields navigate emerging issues.

It is produced by the Center for Sustainable Finance (CSF), a knowledge and net-working hub which aims to accelerate India's financial sector towards a more sustainable future. CSF is managed by Climate Policy Initiative (CPI).