Climate risks: Closer look

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Physical and transition risks

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- **Physical** risks stem from more frequent, more intense natural phenomena:
  - **Acute:** Heatwaves, floods, hurricanes, …
  - **Chronic:** Lower crop yields, lower labor productivity, …
  - …
- **Transition** risks stem from policies implemented to adapt, mitigate
  - Carbon pricing
  - Stranded assets
  - Energy prices
  - …
- For advanced economies, **transition risks are the dominant issue**
- For developing economies, **transition risks are probably also the dominant issue**
  - Physical risks can be important, but their frequency and intensity will not change abruptly, so our current models are still relevant and useful

Within the context of traditional risk categories

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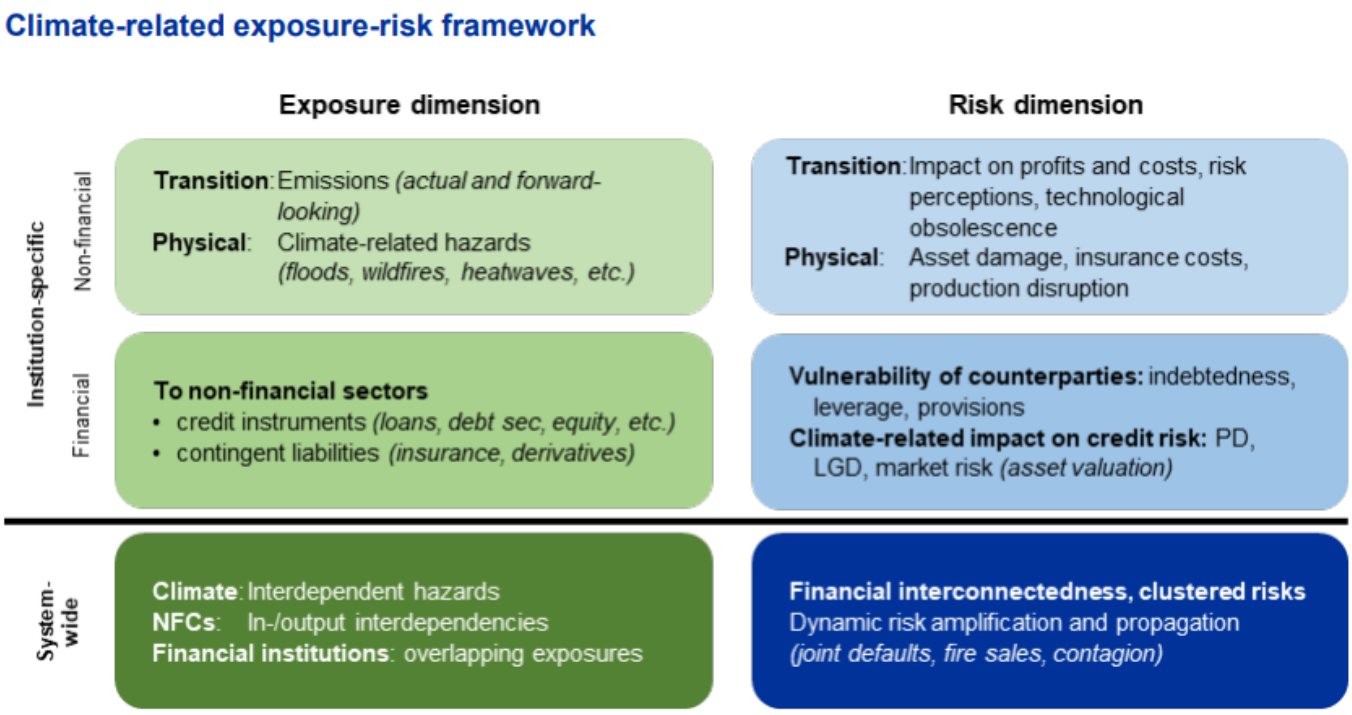
- Climate risks can be understood and interpreted within the traditional risk categories
- We can (and should) utilize our existing tools to the fullest extent possible
- "Monetary policy approach" to macropru - try to capture as many issues within a limited number of frameworks and tools

Risk	Potential effects of climate risk drivers (physical and transition risks)
Credit risk	Credit risk increases if climate risk drivers reduce borrowers' ability to repay and service debt (income effect) or banks' ability to fully recover the value of a loan in the event of default (wealth effect).
Market risk	Reduction in financial asset values, including the potential to trigger large, sudden a negative price adjustments where climate risk is not yet incorporated into prices. Clima risk could also lead to a breakdown in correlations between assets or a change in mark liquidity for particular assets, undermining risk management assumptions.
Liquidity risk	Banks' access to stable sources of funding could be reduced as market conditions chang Climate risk drivers may cause banks' counterparties to draw down deposits and credit lines.
Operational risk	Increasing legal and regulatory compliance risk associated with climate-sensitive investments and businesses.
Reputational risk	Increasing reputational risk to banks based on changing market or consumer sentiment

BIS Paper on classification and understanding of climate-related risks

ECB Exposure-risk framework:



What is special about these risks?

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- Most empirical literature focuses on **physical** risks - we have previous observations
- Transition risks can be analyzed basically only through **scenarios**, often in the context of climate modeling
- These risks can be highly **unevenly distributed** across economic sectors and also geographically
- Greater **uncertainty** about magnitudes, transmission channels, non-linearities, exposures
- Some likely to be more relevant for **non-bank financial institutions** such as insurance companies

What is not special?

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BIS posits that these risks can be observed through **traditional risk categories.**

Examples how to treat climate-related risks within current risk categories.

Microeconomic: Impact on counter-parties but also the banks themselves (cost of financing)

- *Credit risk:* Household wealth reduction from physical risks, energy sector and mining sector affected by carbon tax, technology, …
- *Market risk:* repricing of physical and financial assets, e.g. value of unextracted coal reserves
- …

Macroeconomic: impact on growth, productivity, inflation, interest rates, commodity prices

BIS Paper has some quantitative estimates for various types of climate-related risks. Generally small, but not negligible.