CLIMATE PHYSICAL SHOCKS RISK MANAGEMENT: WHO PICKS UP THE BILL?

ESG risk management framework for the financial sector – WU Wien / SUERF

Giovanni Callegari - Head of Economic and Risk Analysis
Wien, 29 May 2024
MAIN TAKE-AWAYS

- Extreme climate-related physical events and higher probability of compound events increases the cost of insurance
- Two objectives: preserve coverage and minimise contingent liabilities
- Shared solutions (private sector, public sector, investors) as a way forward:
  - Layering of interventions (public-private partnerships)
  - Diversification of risks
  - Climate-related financing clauses
- Incentive-compatible schemes as the key challenge of shared solutions
LOSSES ARE HIGH BUT ONLY A FRACTION IS COVERED THROUGH PRIVATE INSURANCE

**Total losses 1980 to 2022 (EU-27)**

<table>
<thead>
<tr>
<th>Event Type</th>
<th>EUR bn</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrological events</td>
<td></td>
</tr>
<tr>
<td>Meteorological events</td>
<td></td>
</tr>
<tr>
<td>Climatological heatwave events</td>
<td></td>
</tr>
<tr>
<td>Climatological - other</td>
<td></td>
</tr>
</tbody>
</table>

**Insured losses 1980 – 2022 (EU-27) by type of event (as % of total insured losses)**

- Meteorological events: 53%
- Climatological heatwave events: 10%
- Hydrological events: 32%
- Climatological - other: 5%

**Source:** European Environment Agency

*Meteorological events: storms, landslides, subsidence, hydrological events: floods, climatological events: heat waves, cold waves, droughts, forest fires*
COMPOUND CLIMATE (AND NON-CLIMATE) EVENTS

Source: NCA 5 report, available here. The timeline shows temporally compounding events in 2020–2021 on the West and East Coasts and their cascading impacts on communities and ecosystems.
ECONOMIC CONSEQUENCES

- EXCESSIVE PRICING
  or
  WITHDRAWAL OF COVERAGE

- INEFFECTIVE ALLOCATION OF RESOURCES
  COSTS OF RELOCATIONS

- GOVERNMENT INTERVENTION

- CREDIT RATIONING
  (E.G. REDUCTION IN COLLATERAL’S VALUES)
WHY AND HOW SHOULD THE PUBLIC SECTOR CARE ABOUT INSURING AGAINST CLIMATE RISK?

ADAPTATION AND MITIGATION:
- Provide efficient incentives to adapt and reduce emissions
- Invest in public goods (R&D, Infrastructures)

ENABLE A PRIVATE SECTOR SOLUTION:
- Risk sharing / backstop
- Improve coverage

INEQUALITY:
- Extend coverage to less resilient sectors
- Targeted support

GOVERNMENT INTERVENTION

FISCAL RISKS
- Quantify and control contingent liabilities
IMPACT ON DEBT SUSTAINABILITY

Historical losses and protection gap for floods
(x-axis: average yearly losses (1980-2021), percentages of 2021 GDP; y-axis: protection gap score; bubble size: government debt, percentages of 2021 GDP)

Historical losses and protection gap for wildfires
(x-axis: average yearly losses (1980-2021), percentages of 2021 GDP; y-axis: protection gap score; bubble size: government debt, percentages of 2021 GDP)

Source: ECB and EIOPA (2023), chart 5, available here
DISASTER RISK AND SOVEREIGN SPREADS IN THE EA

- Government bond issuances in the EA preceded by a large climate disaster tend to see larger spreads-at-issuance
  - Even after accounting for other factors that drive primary market outcomes

- Evidence still surrounded by uncertainty but...

- ...in the future the impact could be further amplified by insurance gaps and possible limited fiscal space
RISK SHARING – AN INTERPLAY BETWEEN DIFFERENT STAKEHOLDERS

**Highest layer:** Public backstop could cover this layer / EU/EA-level backstop

**Reinsurers:** cover risk from and up to a certain level. The may themselves *(retro)cede* some of the risk or issue insurance linked securities on the capital markets

**Primary insurers:** insure the *first risk layer* and cede risk above a certain limit

**Insured pay the first layer of costs (deductibles - risk-based pricing):** Increase risk awareness and possibly fosters risk adaptation

---

![Diagram](image)

- **Exhaustion point reinsurance**
- **Attachment point reinsurance**
- **Policyholder pays first x€**

Public backstop coverage / EU/EA level ideal

- Retained by primary insurer
- Reinsured layer
- Deductibles
PUBLIC-PRIVATE PARTNERSHIPS

- Caisse Centrale de Réassurance (CCR) in France
- Consorcio de Compensación de Seguros (CCS) in Spain
- Flood Re in the United Kingdom
- National Flood Insurance Program (NFIP) in the United States
CLIMATE-RELATED DEBT CLAUSES: AN OPTION FOR CRISIS TIMES?

NPV-neutral debt service suspension in case of extreme events (CDB, WB)
Suitable for low-income and small countries: an option for crisis times?

Source: Lazard and Caribbean Development Bank
CONTACT

Giovanni Callegari
g.callegari@esm.Europa.eu

European Stability Mechanism
6a Circuit de la Foire Internationale
L-1347
Luxembourg

Follow the ESM on Twitter:
@ESM_Press

This presentation must not be reproduced, redistributed or passed on to any other person or published, in whole or in part, for any purpose without the prior written consent of the European Stability Mechanism
BACKGROUND SLIDES
RISK SHARING CAN BE PART OF THE SOLUTION

• All affected parties contribute to the loss sharing
  □ (Corporate) Policyholders: liable for the first x€
  □ Primary and reinsurers: cover the risk up to, say 1 in 200-year event level
  □ Public loan-based backstop covers losses beyond (but up to a predefined limit)

• Public backstop
  □ Fiscally neutral in the medium term: loans paid back within a pre-defined period, 10 years say.
  □ Partial funding of backstop through insurance linked securities (cat bonds) possible
  □ Partial ex-ante funding possible

Illustrative loss exceedance curve to identify probable maximum loss (PML)