The macroprudential challenge of climate change

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What the paper does

• The report documents progress in the measurement and modelling of climate risks to EU financial stability, and discusses potential policy response

• Main take home messages:
  • A disorderly transition (carbon price) can trigger **systemic financial risk**
  • Interdependent hazards (water stress, heat stress and wildfires) can amplify physical climate risk -> **multiform and compound risks**
  • **Default cascades across firms** (not only to fossil but high carbon activities whose business is connected to fossil fuel firms) and banks
  • Financial market dynamics can amplify losses: **abrupt repricing of assets** could trigger corporate defaults and credit losses for bank
  • Role for **prudential policies to mitigate such risks**
Getting granular and forward-looking on transition risk exposures: CPRS Granular

• How to identify firms and investors’ transition risk exposure dynamically across NGFS climate scenarios, going beyond GHG emissions?
  • NACE – CPRS – IAM mapping: A tool to support climate risk analysis of financial portfolio using NGFS scenarios.
  • Climate Policy Relevant Sectors (CPRS) Granular that enable also to map NACE codes into IAM variables used in NGFS scenarios.
  • CPRS Granular: 100+ categories enabling to discriminate low and high carbon beyond the granularity of NACE codes.

Fig: Rational for mapping the NACE codes into IAM variables through CPRS, from left to right. Source: Battiston et al. 2022
Why results matter for fiscal policies

• **Strong message to EU policy makers** in the current geopolitical context of high energy commodity prices and supply-driven inflation:
  
  • Early and credible introduction of climate fiscal policies (..what about a EU-wide carbon tax/) crucial to prevent systemic financial risk
  
  • High fossil fuels prices: good or bad for the low-carbon transition?
    • Good create major incentives to foster economic decarbonization and build resilience to stranded assets
    • Bad: energy policy incoherence builds up new risk for stranded assets in banks’ balance sheets (support to new fossil fuels investments in EU 27 eg regassification)
Why results matter for financial policy

• **Strong message to financial regulators and supervisors** in the transition:
  • Role of macro and microprudential policy complementarity to smooth adjustments in agents’ balance sheets

• How to macroprudential policy design? Some examples
  • **Lending limits to high risk activities**, either via the introduction of upper/lower ceiling floors and large exposure limits:
    • metrics and measurement challenges (e.g. ESG, Scope3 concerns and scandals)
  • **Revision of minimum capital requirements** to allow banks to withstand scenarios
  • Introduction of **policies that increase the cost of capital** for high climate-risk firms (e.g. a dirty penalizing factor)
  • Use of **systemic risk buffers** to address climate systemic risks i.e., supervisors can apply a buffer on assets from sectors most exposed to climate risks or to

• Side question: what about risk transfer from regulated to unregulated markets?
A theory of change for green finance initiatives in the transition


- Under which conditions and to what extent Green financial policies, regulations, and instruments (GFSI), could enable green investments and decarbonization, while avoiding unintended effects on econ and financial stability?

- Focus on green macropru, green monetary policies, green public co-funding:
  - Analysis of transmission channels through which they affect availability and cost of capital for high- and low-carbon goods, investments, output, and GHG emissions
  - For each GFSI: identification of entry point in the economy, direct, indirect impacts

- We identify criteria for applicability and conditions to maximize impact.
Theory of change (ToC): building blocks

Building blocks of the ToC from bottom to top, structured into challenges, opportunities, enabling conditions, outcomes, and expected impact.

**GLOBAL CLIMATE MITIGATION**
- GHG emissions reduction
- Economic competitiveness
- Financial stability
- Social cohesion

**IMPACTS**
- Higher cost of capital (high-carbon investments)
- Lower cost of capital (low-carbon investments)
- Higher liquidity for low-carbon investments
- De-risking (low-carbon investments)
- Larger capital flows (low-carbon investments)

**OUTCOMES**
- Climate financial risk disclosure
- Climate financial risk assessment
  - Green Taxonomy
  - Climate Policy Relevant Sectors (transition risk stranded assets)
  - Risk adjustment (high/low-carbon activities)
  - Balance sheet
  - Climate stress test

**ENABLING CONDITIONS**
- Green Financial Sector Interventions
  - Brown Penalizing Factor
  - Green Supporting Factor
  - Green Portfolio Rewards
  - Green Collateral Framework
  - Green Quantitative Easing
  - Public funding and cofunding

**OPPORTUNITIES**
- Carbon intensive economies
- Low attractiveness of low-carbon investments (cost of capital)
- Low liquidity
- Limited development of capital markets

**CHALLENGES**
Example: macropru - dirty penalizing factor (DPF)

The figure shows the transmission channels through which the DPF affects the banking sector and the real economy, via higher risk weights assigned to high-carbon activities.

References


• ECB/ESRB (2022). The macroprudential challenge of climate change. July 2022, ECB/ESRB Project Team on climate risk monitoring