



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.

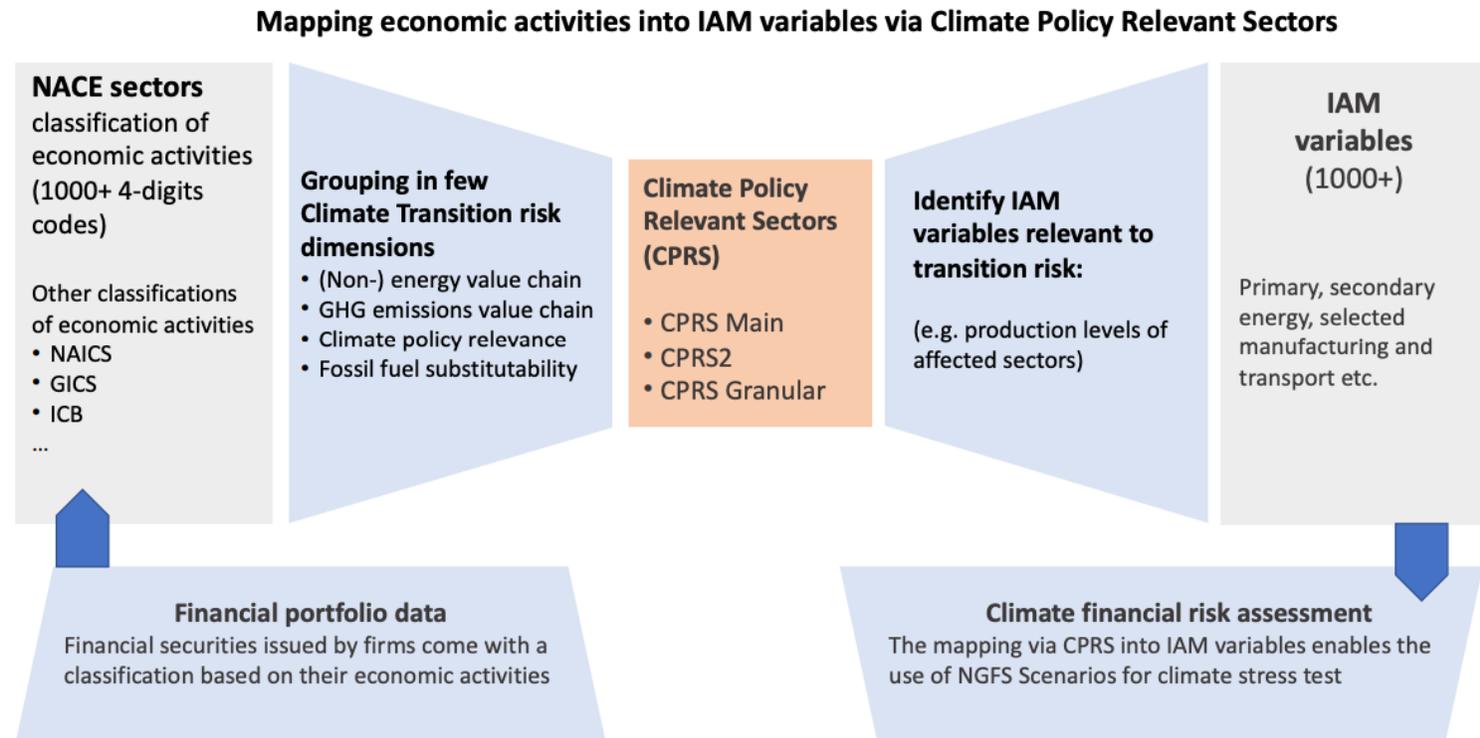


Fig: Rational for mapping the NACE codes into IAM variables through CPRS, from left to right. Source: [Battiston et al 2022](#)



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?

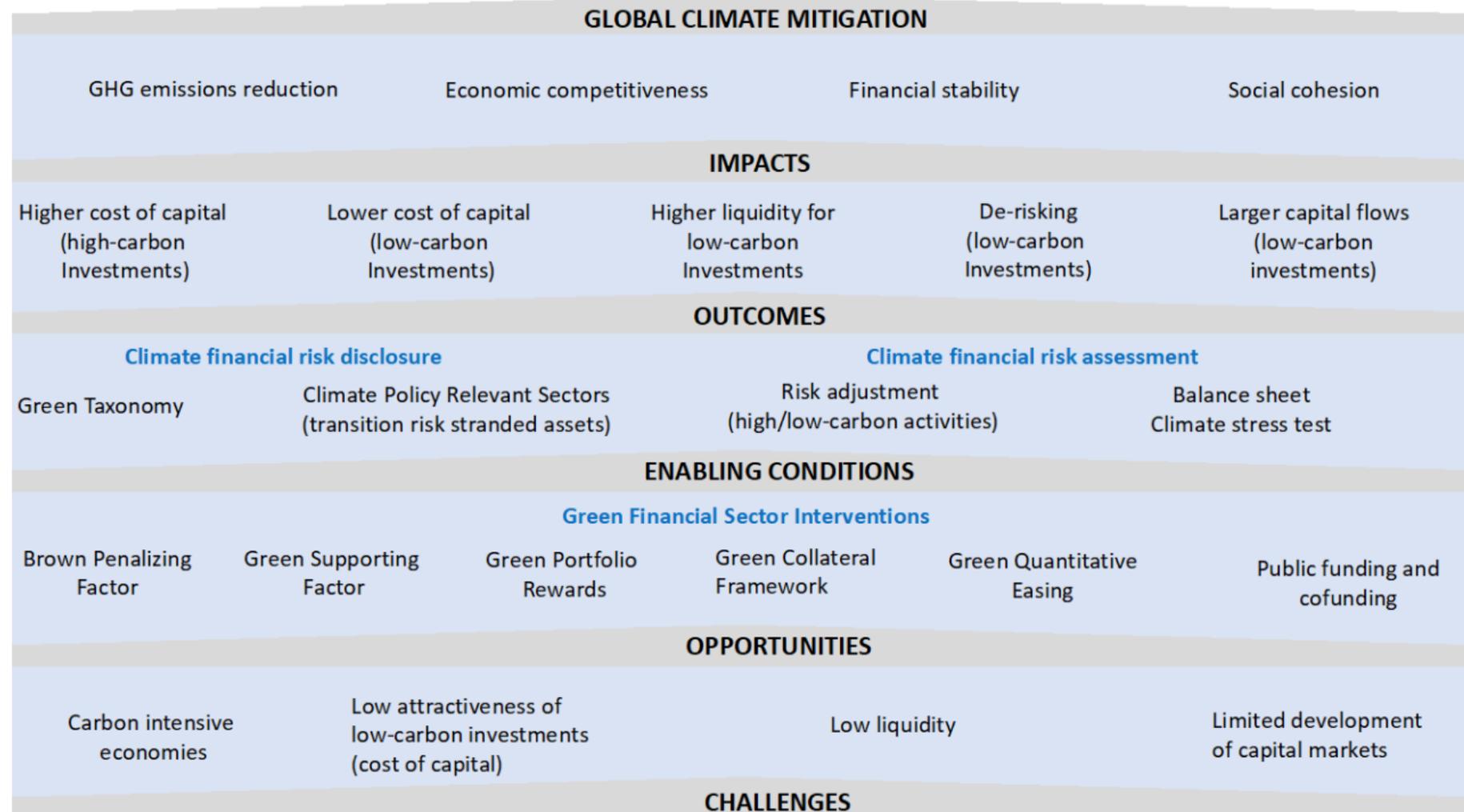


A theory of change for green finance initiatives in the transition

- Insights from the new World Bank report “The Role of Green Financial Sector Initiatives in the Low-Carbon Transition : A Theory of Change”
- 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



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.

Fig. Macro-financial transmission channels of the 'Dirty Penalizing Factor'. The **purple box** indicates the policy. Up-facing arrows: positive trend. Downfacing arrows: negative trend.

Brown arrows: policy impacts on high-carbon firms.

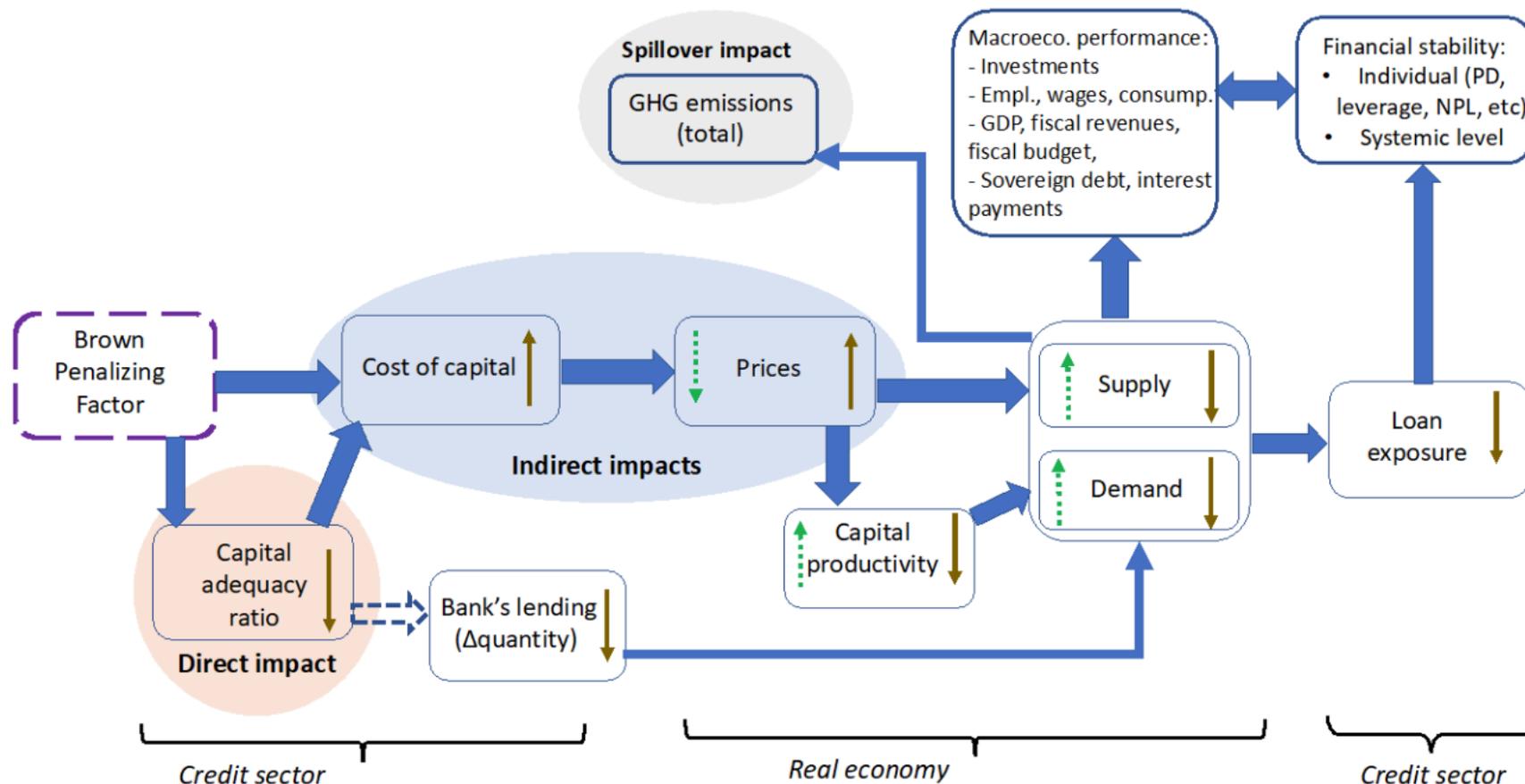
Pink area: direct impacts.

Blue area: indirect impacts.

Grey area: spillover impacts.

Dotted arrows: potential effects on the low-carbon sector.

Source: Monasterolo et al 2022





References

- Battiston, S., Monasterolo, I., van Ruijven, B. and K., Volker (2022). The NACE – CPRS – IAM mapping: A tool to support climate risk analysis of financial portfolio using NGFS scenarios. Available at <https://www.finexus.uzh.ch/en/projects/CPRS.html>
- ECB/ESRB (2022). The macroprudential challenge of climate change. July 2022, ECB/ESRB Project Team on climate risk monitoring
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