

# How central banks address climate and transition risks

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Central bank management of climate risks is associated with climate politics, as opposed to a country's economic exposure to transition risk, including stranded asset and clean energy investment risk. Central banks are not entirely autonomous actors that correct for the lack of national decarbonization policy—they rather complement existing national policies that aim to shift the economy from fossil fuels to clean energy.

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## The policy problem

Decarbonization and climate change entail risks for the global economy. Fossil fuel investments face stranded asset risks, that is, lost profits due to early retirement, as the global economy decarbonizes. Stranded asset risks threaten financial stability. Similarly, exposure to climate hazards contributes to financial instability. Clean energy investments, meanwhile, come with technology and market risks that—left unmitigated—result in lower climate mitigation. Over the last decade, central banks have taken on a role in examining and managing transition and physical climate risks. Yet the response from central banks has not been uniform: some have adopted measures of varying type and stringency; others have not taken any actions.

## The findings

We find limited evidence that economic risks related to climate and energy are associated with central bank behaviour. While physical risks are associated with central bank actions to some extent, stranded asset risks and clean energy investment risks are not. Instead, central bank actions to manage risks are significantly and positively associated with domestic climate politics, including climate policy stringency and public concern with climate change. Our results thus suggest a risk mitigation gap between the magnitude of transition risks and central bank actions, and that central banks may not be entirely autonomous risk managers but responsive to political demands, reinforcing, instead of correcting for, lagging decarbonization policy. Our analysis is exploratory. Future research needs to move beyond cross-sectional to time series analysis, investigate the

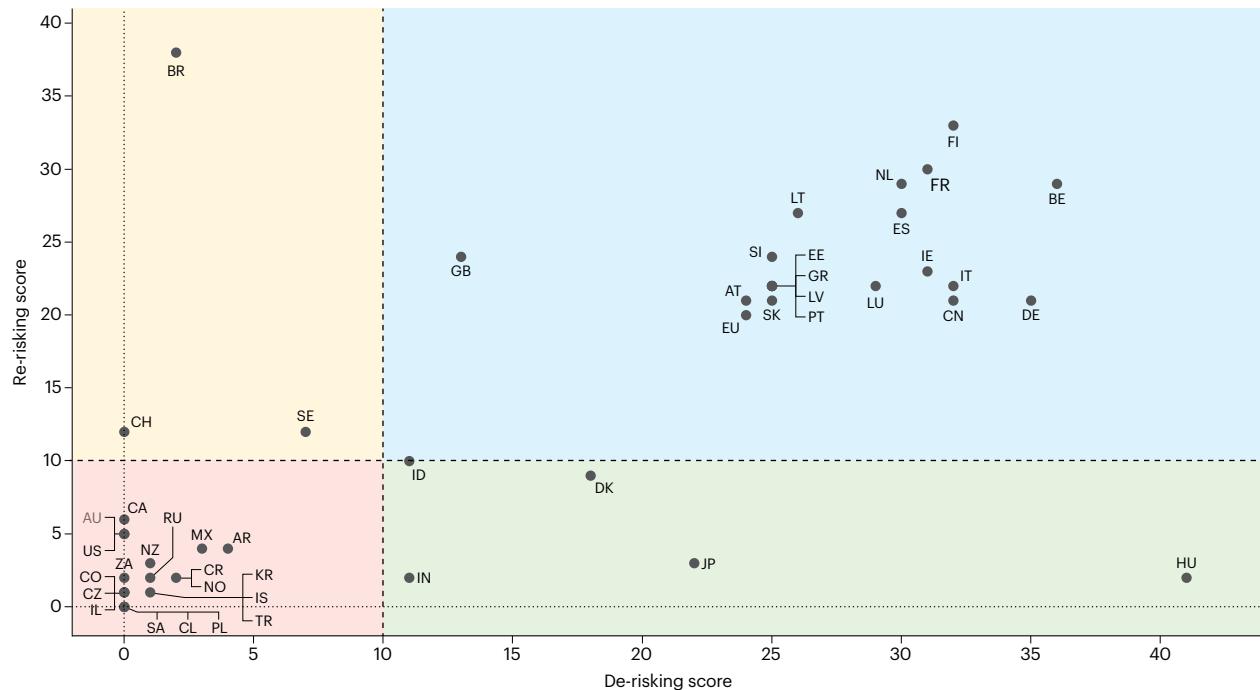
underlying mechanisms, and study the broader regulatory system for climate risk, including financial supervisors and private sector institutions.

## The study

We provide a comprehensive, systematic study of central bank management of climate risks. We introduce an original dataset on climate risk management actions by central banks across 47 OECD and G20 countries and develop a classification system to identify actions that re-risk brown investments and de-risk green investments (Fig. 1). Re-risking refers to embedding transition risks and physical climate risks into financial risk management practices to ensure financial stability, whereas de-risking means reducing the risk of clean energy investments, that is, the technology, market, and policy risks of new clean energy technologies, to facilitate decarbonization. We use a simple linear regression model to test whether re-risking and de-risking scores are associated with economic risk factors (the size of the oil and gas sector and the financial sector as well as exposure to climate hazards) or political factors (climate policy stringency and public concern with climate change).

## Recommendations for policy

- Central banks vary substantially in the extent to which they re-risk stranded asset and physical climate risks and de-risk clean energy investments.
- Central bank actions on climate risks are positively associated with their country's climate policy stringency and public concern with climate change and less with its underlying economic risks.
- Despite their autonomy, central banks do not substitute for the lack of national climate policy but complement existing national policies promoting the clean energy transition.
- The political nature of central bank actions to manage transition and physical risks raises concerns about unmanaged risks in the global economy, specifically stranded asset risks.
- A central bank climate index could increase transparency of the risk mitigation gap; international institutions governing central banks could set standards for climate and transition risk management.



**Fig. 1 | Re-risking and de-risking scores by country.** This graph plots each country's calculated re-risking and de-risking scores. Re-risking refers to central bank actions that manage stranded asset risks and physical climate risks, while de-risking refers to actions targeting clean energy investment risks. Scores higher than 10 indicate that the country engages in substantial activity in that policy group, while scores 10 or lower indicate marginal efforts. The two-digit ISO country codes indicate country names. There is substantial variation in the extent to which countries re-risk and de-risk. The blue quadrant shows countries with high

re-risking and de-risking scores. These are mostly member states of the European Central Bank, the UK, and China. The red quadrant includes countries with relatively less activity in both re-risking and de-risking scores, such as the United States, South Korea, Costa Rica, South Africa, and Russia. Countries in the yellow quadrant engage in more re-risking than de-risking (Brazil, Switzerland, Sweden). Last, countries in the green quadrant engage primarily in de-risking (Hungary, Denmark, Japan, India, Indonesia). Figure adapted from Shears, E. et al. *Nat. Energy* <https://doi.org/10.1038/s41560-025-01724-w> (2025); Springer Nature Ltd.

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## Further reading

1. DiLeo, M., Rudebusch, G. D. & van't Klooster, J. *Why the Fed and ECB Parted Ways on Climate Change: The Politics of Divergence in the Global Central Banking Community* Hutchins Center Working Paper #88 (Brookings Institution, 2023).

**This working paper explores the divergence in climate-related norms between the Federal Reserve and the European Central Bank, shedding light on the interplay between domestic political pressures and international dynamics in shaping central bank policies.**

2. Thiemann, M., Büttner, T. & Kessler, O. Beyond market neutrality? Central banks and the problem of climate change. *Finance Soc.* **9**, 14–34 (2023).

**This study details how central banks have shifted their discourse and practices on climate change over time.**

3. Svatzman, R., Bolton, P., Despres, M., Pereira Da Silva, L. A. & Samama, F. Central banks, financial stability and policy coordination in the age of climate uncertainty: a three-layered analytical and operational framework. *Clim. Policy* **21**, 563–580 (2021).

**This article presents a framework for central banks to address the systemic financial risks posed by climate change, emphasizing the need for new risk models and integrated policy coordination.**

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## Competing interests

The authors declare no competing interests.