

Designing an outline for a new climate mitigation modeling framework – Science-Po workshop November 21

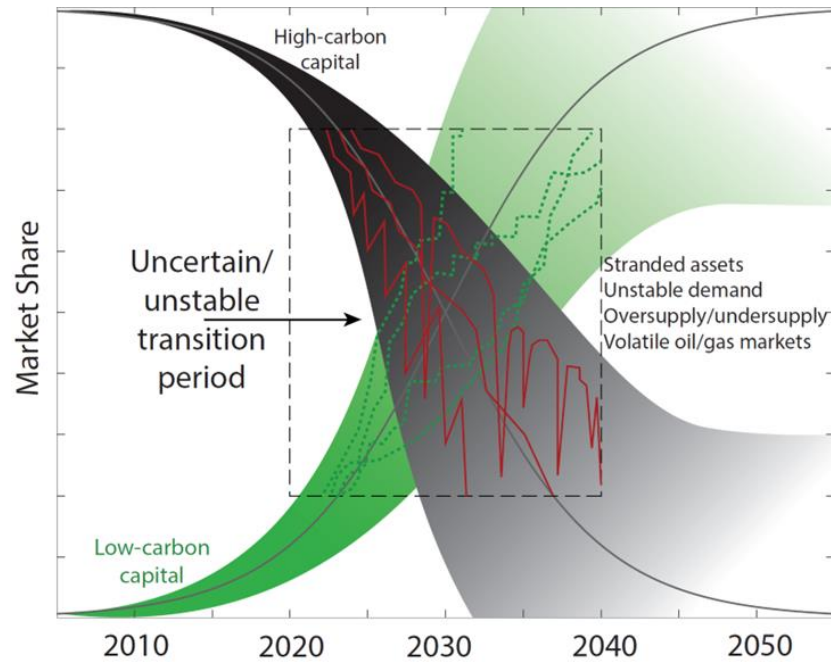
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The cross-border risks of a global economy in mid-transition – Espagne et al. (2023)



Mid-transition will be unstable Mercure et al. (2021)

- Energy production: typically either $S > D$ or $D > S$
 - ▶ Financial Times: "Fears of a spike in energy prices spread through the sector (March 2023)"
 - ▶ vs. US oil price below zero for the first time in history (April 2020)
- Coordination problem for senescent industries (Espagne and Magacho, 2022)
- The prospect of stranded assets could affect countries' positions on climate action, energy security and geopolitics

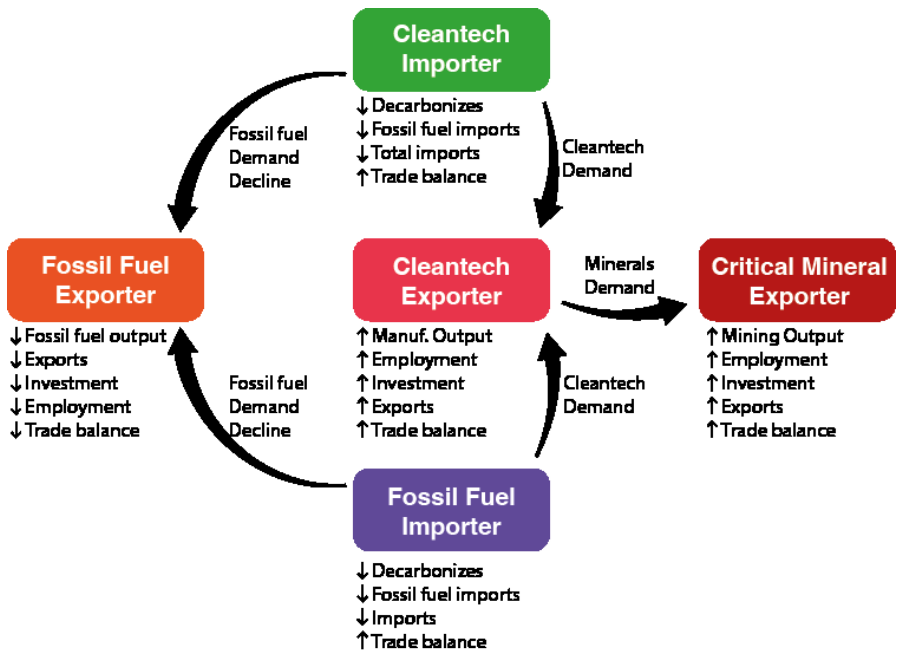
Mid-transition entails specific socio-technical constraints

(Grubert and Hastings-Simon 2022)

- Zero-carbon systems and fossil fuel systems coexist..... and impose constraints on each other
- Neither can provide all energy services on its own
- The overall system is not optimised for the socio-technical characteristics of either infrastructure.

What type of coordination mechanisms ensure a smooth mid-transition period?

A dynamics on a razor's edge between self-reinforcement and negative feedback loops



The energy transition as a self-reinforcing process, where deployment reduces costs, making deployment easier.

- [Way et al. \(2022\)](#)
- [Mercure et al. \(2021\)](#)
- [Nijse et al. \(2023\)](#)

The energy transition, creating potential bottlenecks in the supply chain and constraints on critical minerals

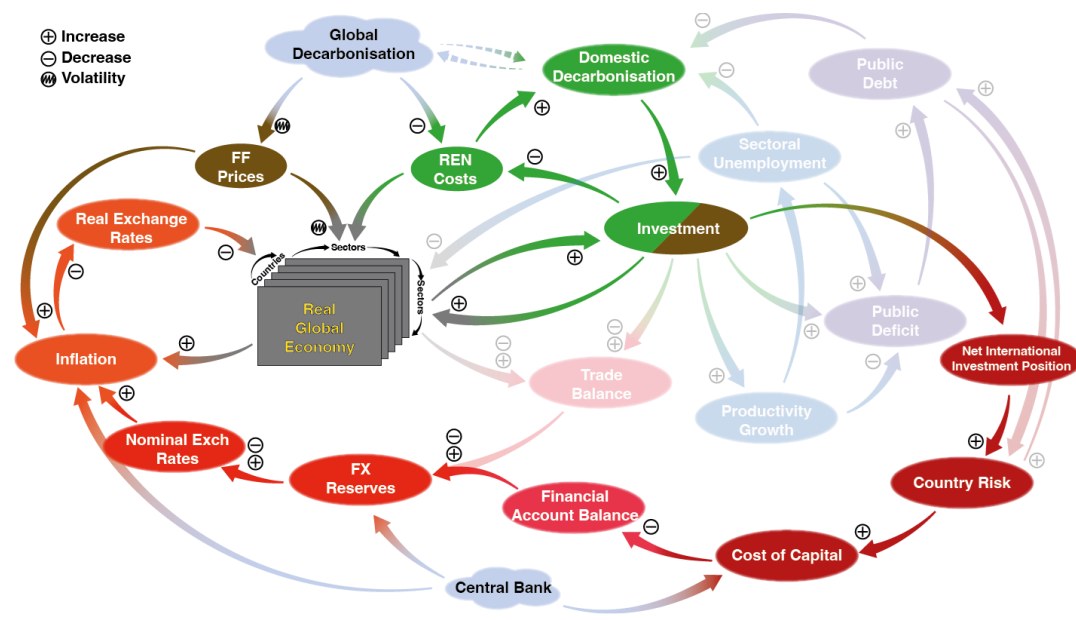
- [Boer et al. \(2021\)](#)
- [Miller et al. \(2023\)](#)
- [Lapeyronie et Espagne \(2023\)](#)

Interventions in the green financial sector make it possible to increase green investment while having unforeseen effects on macroeconomic and financial stability.

- [Monasterolo et al. \(2022\)](#)
- [Donnelly et al. \(2023\)](#)

The increase in financing costs for EMDEs, amplified by monetary tightening in the AEs in response to inflation, could slow investment in renewable energies and favour fossil fuels.

- [Prasad et al. \(2022\)](#)
- [Ameli et al. et al. \(2021\)](#)
- [Osborn \(2022\)](#)



External, fiscal and social exposure can amplify the mid-transition instability particularly in EMDEs context – Magacho et al. (2023)

