Climate risk, climate scenarios and the role of financial actors’ expectations

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Is climate finance enough to unleash climate action?

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Economic theory arguments suggest that:

- Sustainable finance regulation very much needed but cannot replace economic policies.
- Transition requires bundle of economic policies (energy, fiscal, labour, R&D)
- Finance key enabling role. Yet, **adequate** climate risk assessment by financial actors is key to get correct signal
- Why? Underestimation of risk leads to: too little or no action, thus underinvestment and finally higher risk (self-defeating prophecy)

Why scenarios are key for climate risk assessment?

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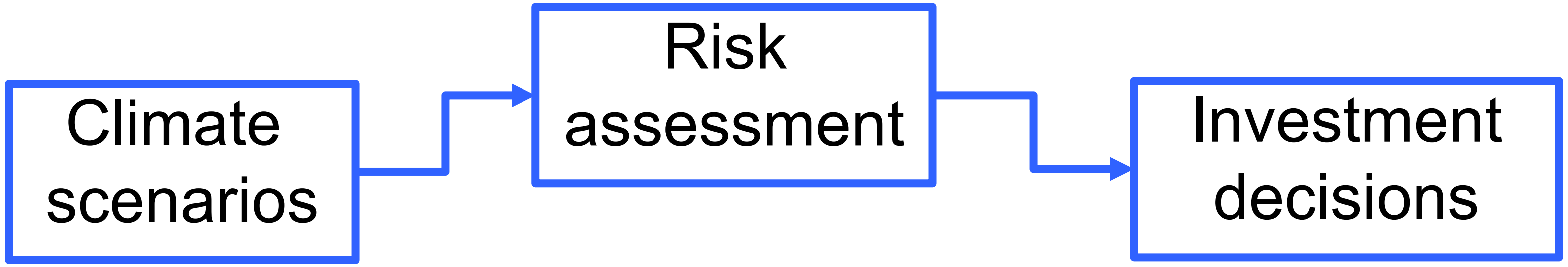

Financial actors worldwide use NGFS scenarios as basis of risk assessment (since 2021)

Usual focus: scenarios inform risk assessment, which in turn inform investment decisions of financial actors.

- *Battiston ea. 2021 Science;*
- *Battiston & Monasterolo 2024, INSPIRE Sust. Central Banking Toolbox.*

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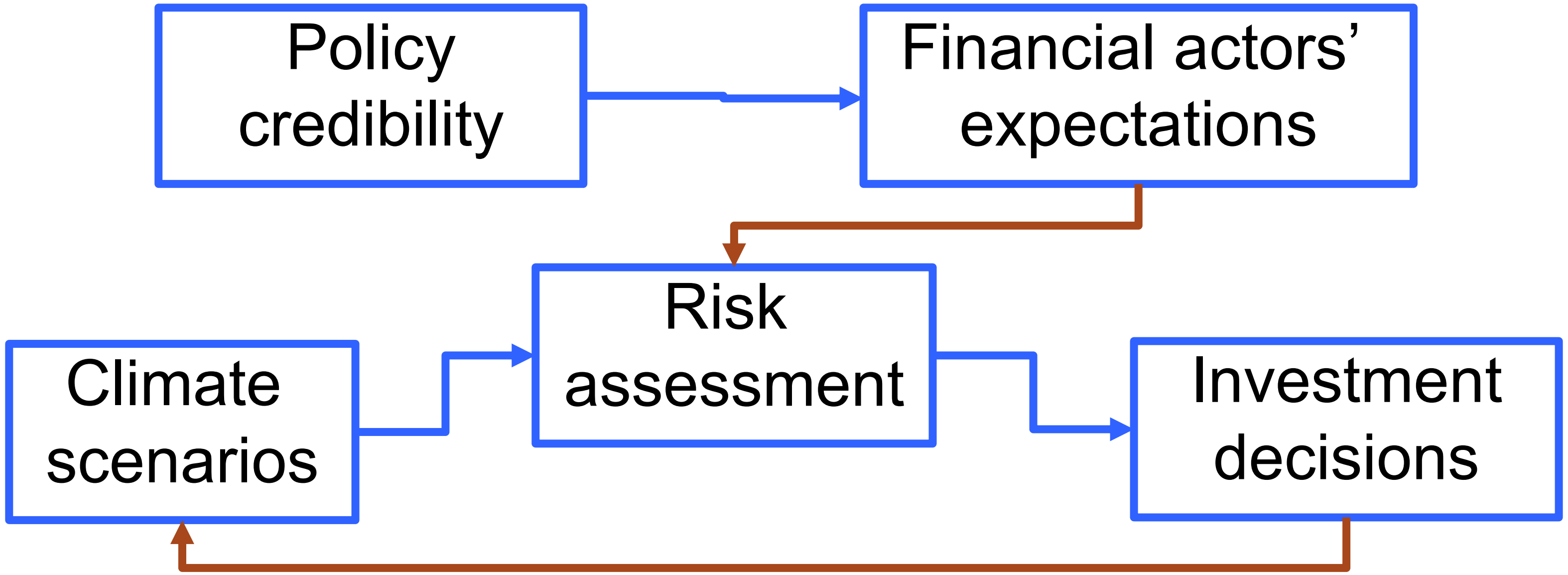

Circularity, or "endogeneity" of climate risks can lead to gaps btw climate finance investments actually carried out and those assumed to be carried out in the scenario used in the climate stress-test.

Financial actors worldwide use NGFS scenarios as basis of risk assessment (since 2021)

Yet, be aware: scenarios are constructed without taking into account how reactions of financial actors to the scenarios may impact, positively or negatively, on the realisation of this or that scenario.

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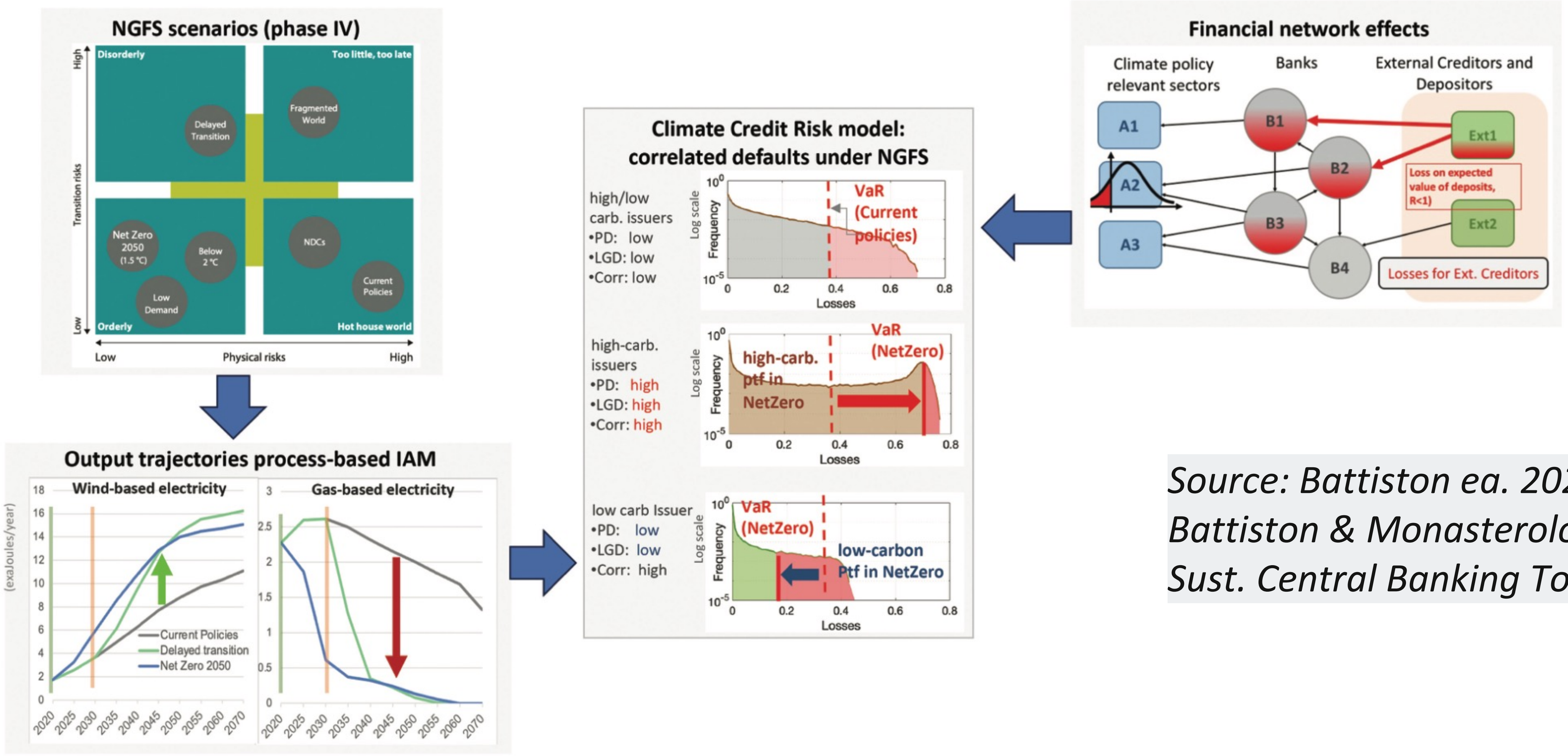
Why scenarios are key for climate risk assessment?

Figure 1. Methodological framework of a science-based climate stress-test for transition risk



Source: Battiston ea. 2021 Science; Battiston & Monasterolo 2024, INSPIRE Sust. Central Banking Toolbox.

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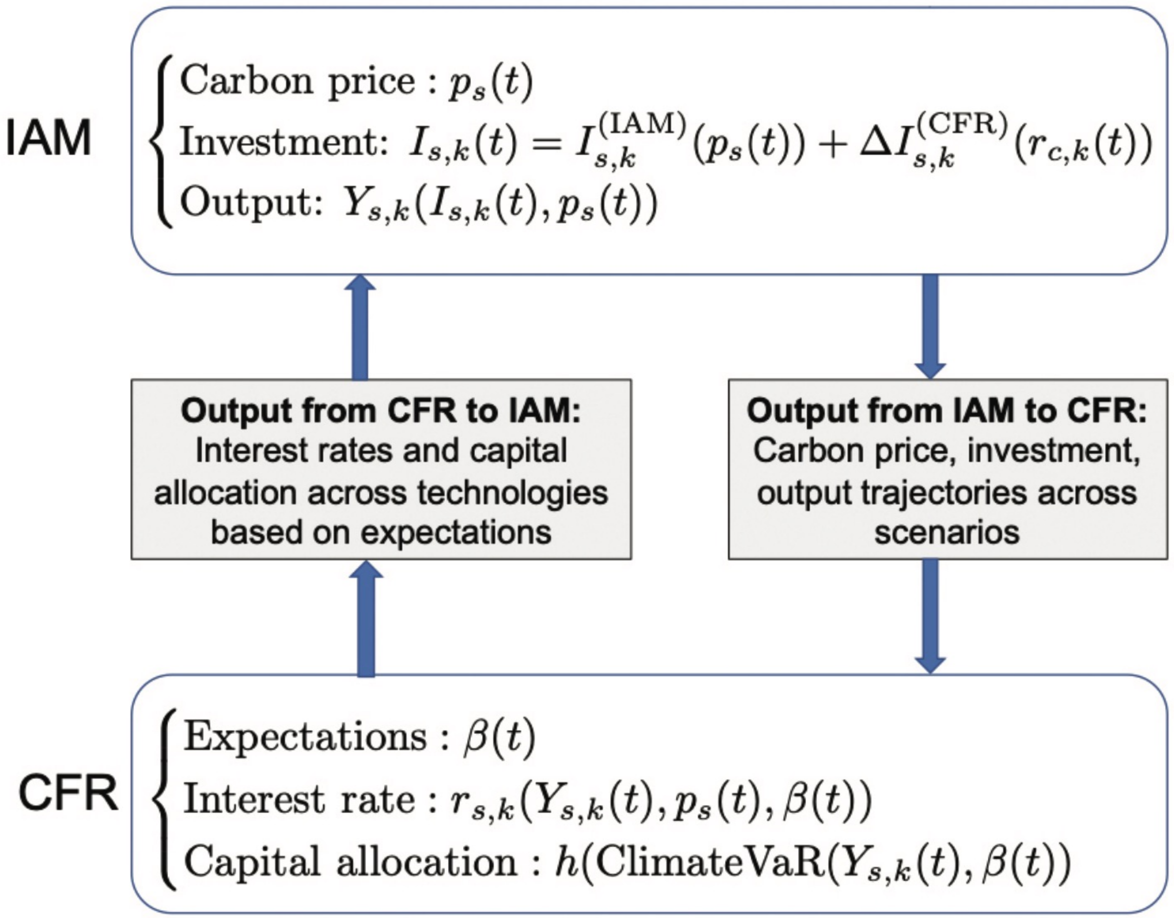
Why scenarios are key for climate risk assessment?

Figure 2. The process-based IAM–Climate Financial Risk (CFR) model framework



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NGFS Short-term scenarios

Planned scenarios

In line with Net Zero 2050

Highway to Paris
Implementation of an ambitious mitigation pathway

Green Bubble
Glut of green private investment

Sudden Wake-Up Call
Sudden change in public opinion and accelerated transition

Not In line with Net Zero 2050

Low-policy ambition and disaster
Severe acute physical disasters and higher risk premia

Diverging Realities
Severe natural disasters in EMDEs and LICs, lack of external financing. Disruptions of transition-critical supply chains

NGFS
Central Banks and Supervisors Network for Greening the Financial System

Targeted Applications

1. Climate Stress Testing
2. Macroeconomic Impact Assessment

- Research consortium supports the NGFS to develop a new generation of short-term scenarios.
- Team leaders: Antoine Mandel (Paris I, Climafin), Irene Monasterolo (UU, WU), Stefano Battiston (UNIVE, UZH), Bas van Ruijven (IIASA), Leonidas Paroussos (E3Modelling)

Wrap up

- Sustainable finance regulation very much needed but cannot replace economic policies.
- Yet, **adequate** climate risk assessment by financial actors is key to get correct signal
- Need to take into account how financial actors expectations impact on feasibility of scenario (possible self-defeating prophecies)
- First concrete step to address this issue: upcoming NGFS short-term scenarios

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