

# Nature-related financial risks

## Challenges for and results from applied research

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# Science for policy

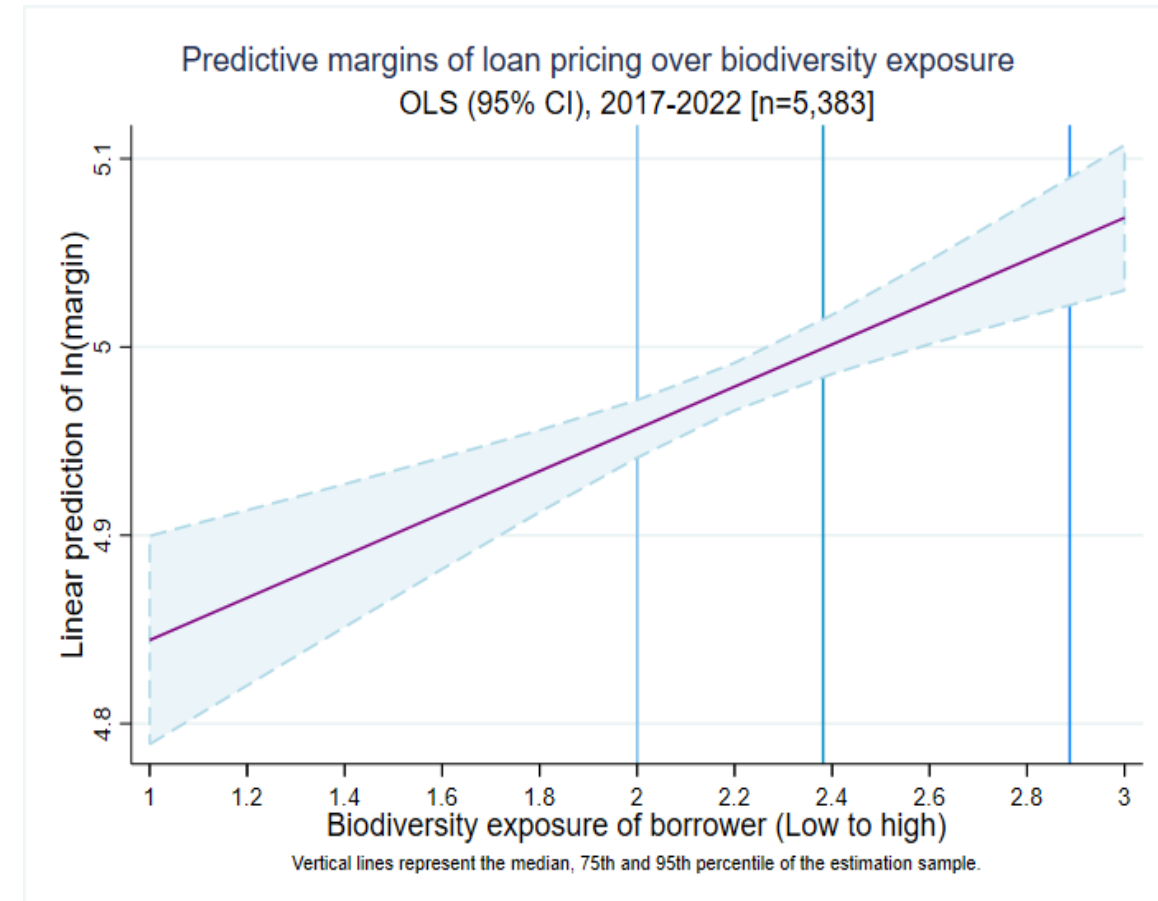
***Highly complex topic*** which **need to be understood and made transparent to inform policy** and to **provide forward guidance to the financial sector**

- Need to *continue the policy discussion* on one of the biggest threats to humanity – hence, to the financial system
- *Bold statements* are needed, but they may backfire
- Need to be aware of *trade-offs* and communicate *model limitations*

# Loan pricing and biodiversity exposure: Nature-related risk spillovers to the financial sector

*Becker, Di Girolamo & Rho, 2023, JRC Working Papers in Economics and Finance, 2023/11*

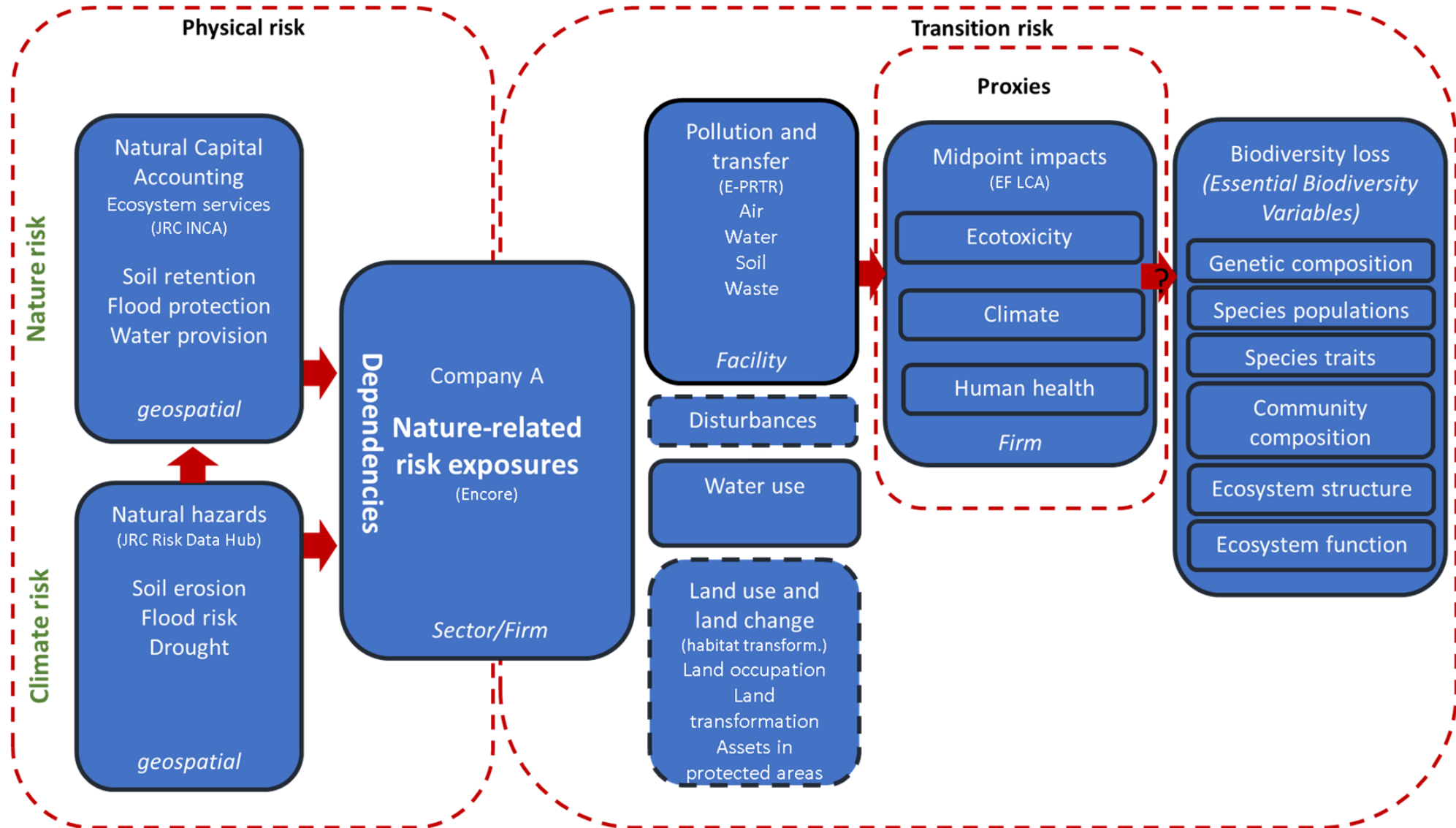
- The exposure to biodiversity loss and ecosystem degradation of borrowers explains loan prices
  - ✓ The greater the score of the borrower, the higher the loan pricing
  - ✓ Lenders are starting to factor in nature related risks when making lending decisions
- Controls like borrower and lender region as well as in-/extra EU transactions matter
  - The European financial sector is responsive to the efforts of regulators on nature-related risks



# Challenges for financial modelling

1. **Multidisciplinary expertise, on top of economic and financial modelling:**
  - on various kinds of *natural hazards*, *weather phenomena*, *soil*, *water*, and *ecosystem services*
  - on assessing *ecosystem and biodiversity pressures* stemming from pollution from *production* or *products* over their *life cycle*
2. **Combining data on nature with firm-level data**
  - Is ecosystem service *consumption* constrained to *local provision*?
  - How to assess the *dependency* of a firm on nature?
  - How to measure *impacts* on nature at firm level?
3. **Climate analysis improved our analytical skills, but nature-related risks partly require new approaches**

# Nature-risk assessment toolkit

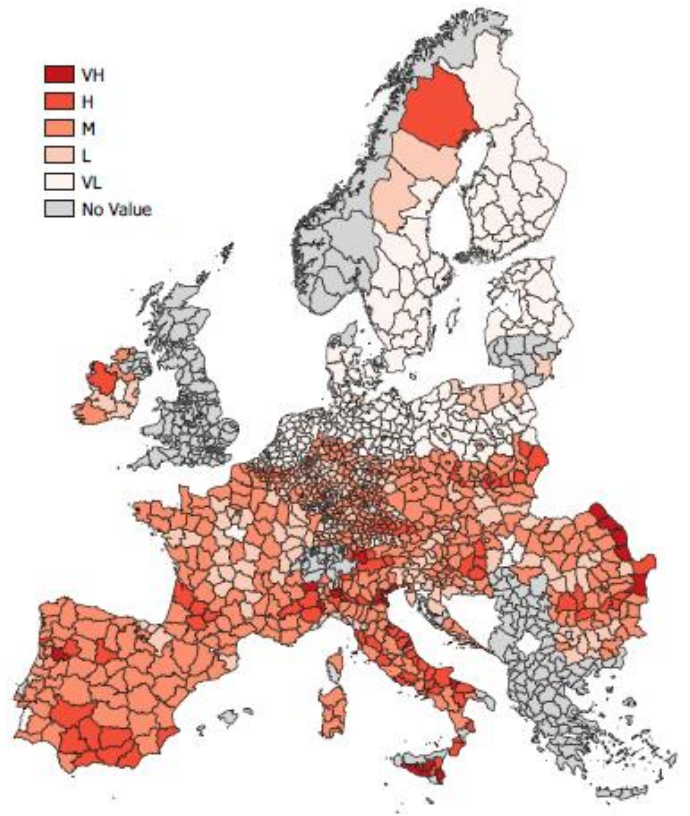


# European SMEs' exposure to ecosystem dependencies

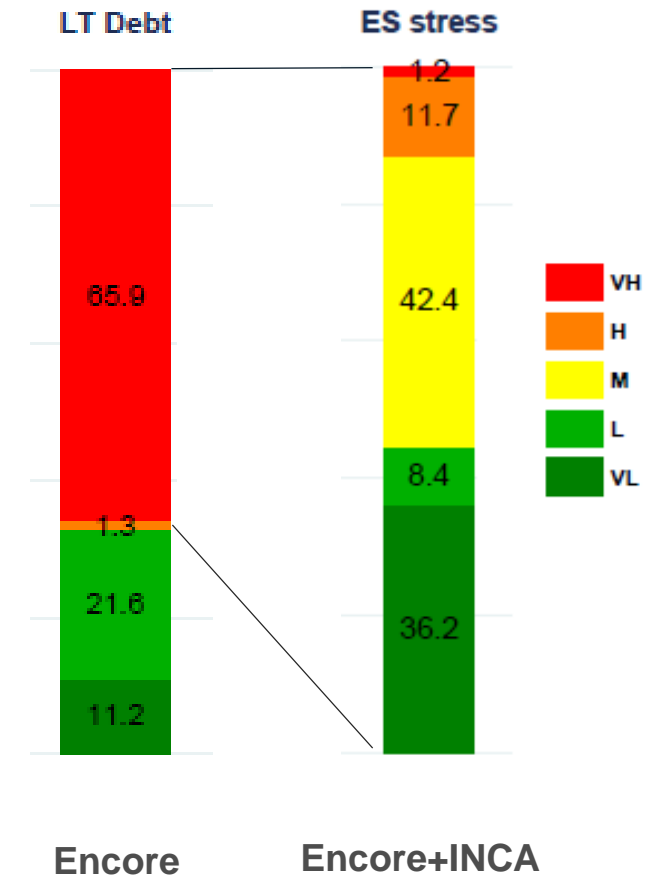
(Fatica, Grammatikopoulou, Hirschbuehl, La Notte & Pisani, 2024, Sustainability 16(11)).

- 8-67% of debt is exposed to ecosystem degradation, but:
- only 3-21% is also exposed to ecosystem provisioning shortages
- 9-48% is also exposed to natural hazards

**Ecosystem provisioning shortage  
(soil retention)**



**Exposure to soil erosion**



# Thank you



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