Abstract

This study quantifies financial risk from the degradation of six key ecosystem services using asset-level data, spatial vulnerability assessments, and systemic risk modeling, with a specific focus on Global Systemically Important Banks (G-SIBs). Our results show that manufacturing and services sectors bear the highest nature-related financial risks, while agriculture dominates in Soil Quality and Pollination. Monte Carlo-based stress testing highlights systemic contagion effects, particularly in Climate Regulation, Flood and Storm Protection, and Surface Water, where second-round global losses significantly amplify initial shocks. Importantly, our analysis reveals that several of these ecosystem services carry substantial global systemic risk—their degradation can propagate financial distress across borders, impacting institutions and markets far beyond the regions where the ecological damage occurs. These findings underscore the need for financial institutions and regulators to recognize the global interconnectedness of nature-related risks and to integrate these risks into risk management and regulatory frameworks to safeguard financial stability worldwide.

Note:

We refer to “second-round global losses” to describe the cascading financial effects that occur when the initial direct impacts of ecosystem service degradation (e.g., asset devaluation or operational disruption) ripple through the financial system. These second-round effects include credit tightening, asset fire sales, liquidity shortages, and network contagion, especially among highly interconnected institutions like G-SIBs.