

## **From crisis to resilience: A novel approach to Climate-Related Financial Risk**

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The project CLIREFI (*From crisis to resilience: A Novel Approach to CLimate-RElated FInancial Risk*) aims to develop an innovative theoretical and empirical framework that evaluates the relationship between climate change and cyber risk and their collective impact on the financial and corporate sectors. Climate risk includes physical risks related to the material impacts of climate change (such as floods, fires, and cyclones) and transition risks associated with adaptation to a low-carbon and more sustainable economy. These risks can affect the soundness of financial and economic systems. For example, transition risks related to climate change, such as the move to more sustainable practices and new technologies, can impact data security. This transition, driven by sustainability efforts, may create vulnerabilities in data systems.

From a financial-economic perspective, transition risk is relevant because a disorderly transition to a low-carbon economy could rapidly devalue carbon-intensive assets. This could generate severe financial troubles for firms and countries. For this purpose, the project will explore the interconnections between physical, transition, and financial risks. We will analyze how climate risk can propagate to affect financial markets and the economy. The development of the multilayer networks model will play a crucial role in predicting physical and transition risks and their potential impact on the financial system. These models are designed to investigate the spillover effect between different layers (in our case, climate and financial variables). A key innovation of the project is the utilization of the *Shock Simulation Procedure* (SSS). The endogenous and exogenous shocks will be simulated within the network to observe their effects on interlayer connections and overall network stability. The propagation of shock effects (e.g., climate shock or cyber-attacks) will be analyzed through the multilayer network, measuring how they spread and affect different economic and financial sectors over time.

Overall, our climate risk framework, by simulating different transition scenarios defined by the Network of Central Banks and Supervisors for Greening the Financial System (too little, too late, hothouse world, disorderly, and orderly transition), will be able to capture the dynamics of financial risk conditional on climate risk and thus spillover effects. The project is driven by a deep-seated ambition to investigate the relationship between financial risk (such as cyber risk) and climate-related risk factors. Its overarching goal is to identify the nexus between these risks and their potential to influence financial crises and corporate risks.