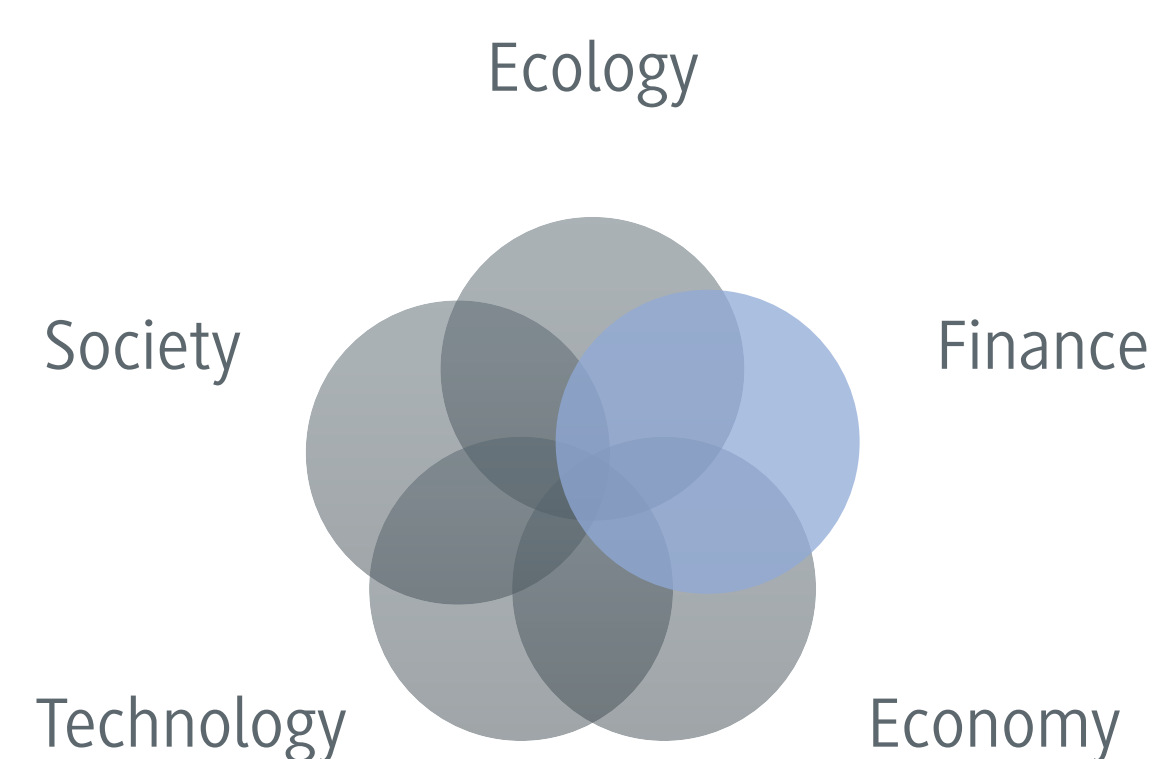


Emerging Risks and Finance

– Trends in ecology, economy, society, technology, and their interaction with the financial system

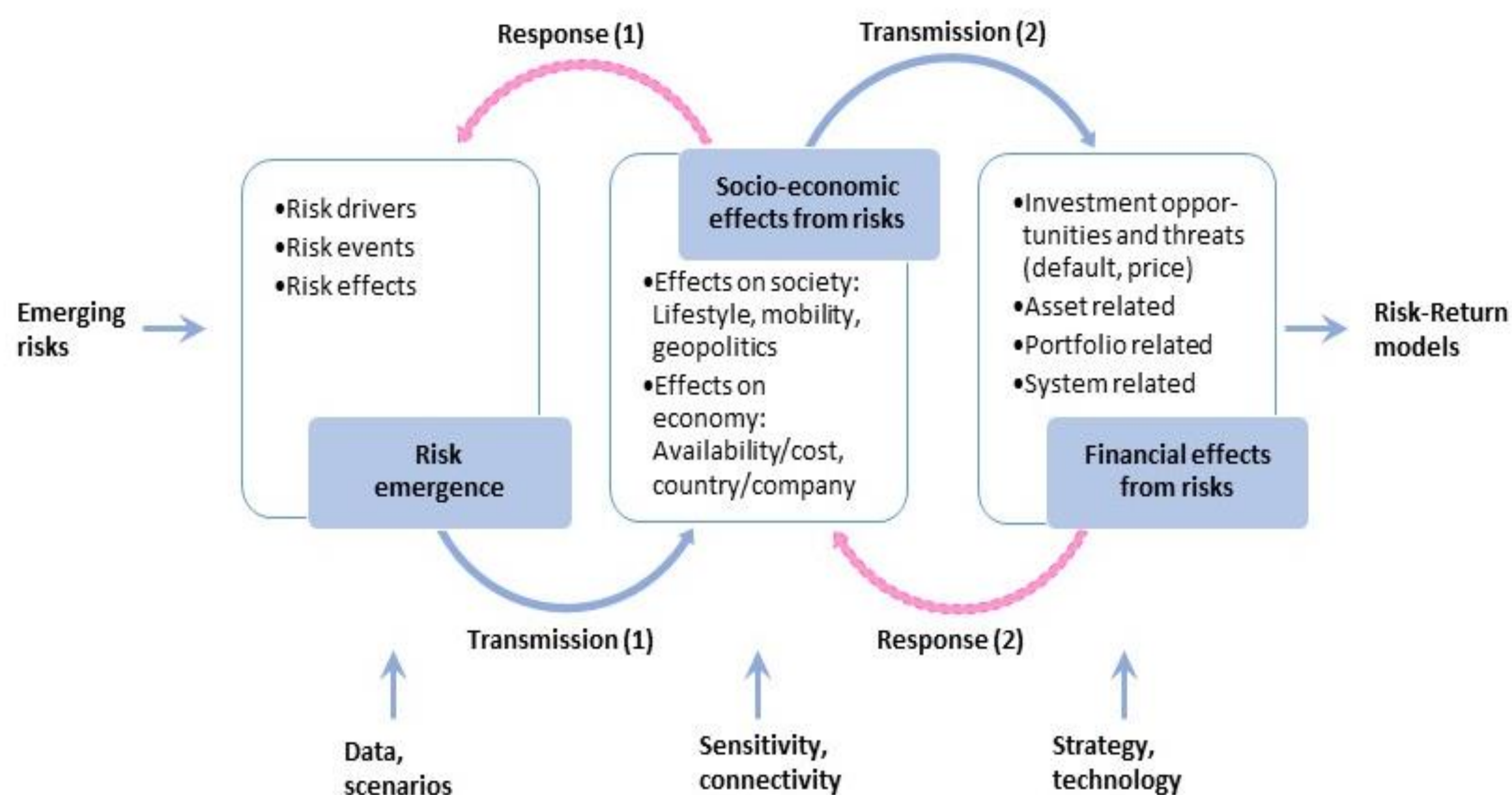
Prof. Dr. Dieter Gramlich

Emerging risks and finance – Integrated perspective



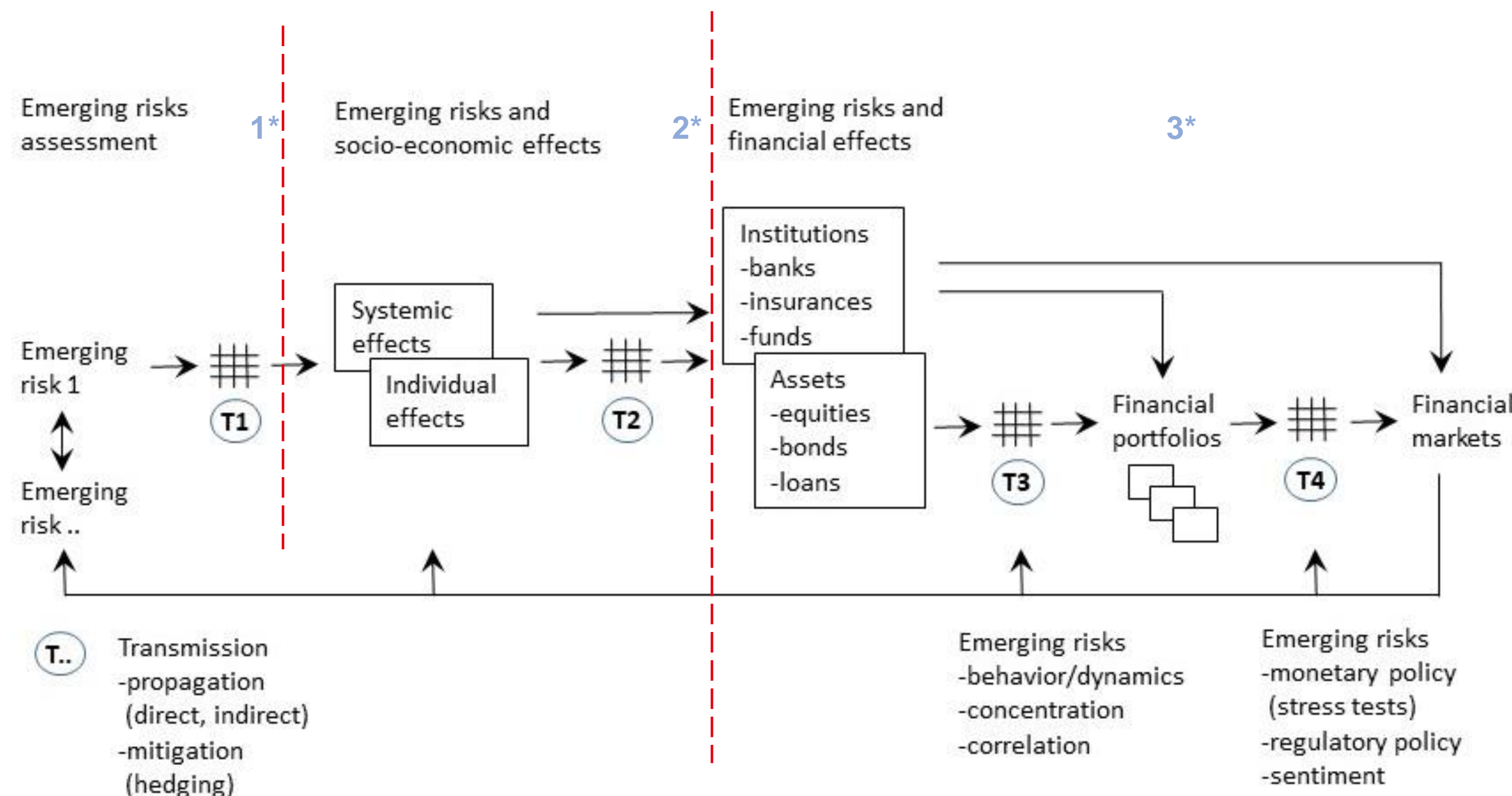
Graph 1: Ecology, economy, society, technology, and finance are connected systems. The research takes account of the inter-relationship of these systems and provides a holistic perspective.

Emerging risks and finance – Transmission and expansion



Graph 2: Physical aspects of emerging risks (temperature increase, extreme weather, cyber-attacks, man-made catastrophes, ...) affect the socio-economic system that in turn has an impact on the financial system, which then has a rippling effect on socio-economic factors, feeding back to the physical dimension. The overall system is interacting with feedforward and feedback effects.

Emerging risks and finance – Framework for financial modeling



Graph 3: This figure provides a more refined basis for the modeling of the connectivity and interaction of emerging risks from a financial perspective. The modeling comprises different steps of transmission (T1 – T4), where emerging risks occur first at the geophysical and technological level and propagate then to the socio-economic level, namely to communities and companies. Because the financial sector has stakes (bonds, loans, shares, derivatives) in these impacted stakeholders, emerging risks further propagate to financial assets and portfolios, and affect financial institutions and markets. Their actions and reactions then affect the financial system as a whole and have subsequent feedbacks on the socio-economic system as well as on ecology and technology.

Research Questions

- (1) How do emerging risks affect financial assets, portfolios, institutions, and how does the financial system feed back on emerging risks? (emerging-risks-finance interaction)
- (2) How can financial institutions and financial investors adequately assess and respond to emerging risks? (emerging risks financial management)

Cooperation Partner



Publications

- » Ecological, Societal, and Technological Risks and the Financial Sector, London 2020 (Palgrave Macmillan, Palgrave Studies in Sustainable Business in Association with Future Earth) (Editor, with Thomas Walker, Mohammad Bitar, Pedram Fardnia)
- 1* » The Case for a Plastic Tax: A Review of its Benefits and Disadvantages within a Circular Economy, in: Wasieleski, David/ Weber, James (Ed.); Business and Society 360 (BAS 360) Vol. 4 – Sustainability, Bingley 2020 (Emerald), pp. 185 – 211 (with Thomas Walker, Adele Dumont-Bergeron)
- » Corporate sustainability and risk, in: JBE – Journal of Business Economics (ZfB – Zeitschrift für Betriebswirtschaft), Vol. 83 (2013), No. 6, pp. 631 – 664 (with Nicole Finster)
- 2* » Water Risk and Its Impact on the Financial Markets and Society, London 2021 (Palgrave Macmillan, Palgrave Studies in Sustainable Business in Association with Future Earth) (Editor, with Thomas Walker, Kalima Vico, Adele Dumont-Bergeron)
- » Sustainability, Financial Markets and Systemic Risk, in: Hawley, James/Hoepner, Andreas/Johnson, Keith/Sandberg, Joakim/Waitzer, Edward (Ed.): Handbook of Institutional Investment and Fiduciary Duty, Cambridge 2014 (Cambridge University Press), pp. 222 – 238
- » Sustainability Stress Testing the Financial System, in: Walker, Thomas/Kibsey, Stefanie D./Crichton, Rohan (Ed.); Designing a Sustainable Financial System: Development Goals and Socio-Ecological Responsibility, London et al. 2018 (Palgrave Macmillan), pp. 173 – 197
- 3* » The impact of natural disasters on the performance and solvency of US banks. International Journal of Managerial Finance (2023, forthcoming). <https://doi.org/10.1108/IJMF-08-2020-0406> (with Thomas Walker, Yixin Xu, Yunfei Zhao)
- » After the storm: Natural disasters and bank solvency. International Journal of Central Banking (2023, forthcoming) (with Mohammad Bitar, Thomas Walker, Yunfei Zhao)

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