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Perceived Geopolitical Risk versus Oil Shocks: Connectedness in the European Carbon-Energy-Financial System

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Extended Abstract

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Abstract Summary

This paper studies how shocks spread across the European carbon, energy, and financial system, with a particular focus on the EU carbon market. It asks a simple but important question: are market spillovers driven more by geopolitical risk or by real oil-market shocks? and at what times do either of these factors affect the market the most.

The study is motivated by recent geopolitical tensions, including the ongoing U.S.–Iran conflict, which have increased uncertainty in global energy markets and raised concerns about how stress in one market can transmit to others. While earlier research has examined connectedness among geopolitical risk, fossil-fuel markets, and carbon-related assets, less attention has been given to directly comparing geopolitical risk and oil shocks as competing sources of systemic stress within a unified European framework.

To address this, the paper applies the Diebold–Yilmaz connectedness framework, using rolling estimates to measure how total, directional, and net spillovers evolve over time. The empirical system includes the EU carbon market, Brent crude oil, natural gas, a European equity market index, and geopolitical risk. This setup makes it possible to trace how shocks move across markets and whether the main driver of spillovers changes during calm periods and crisis periods.

The paper is expected to show that connectedness increases during episodes of geopolitical and energy-market stress, and that the relative importance of geopolitical risk and oil shocks is likely to vary over time. In particular, oil shocks may dominate during acute crisis episodes, while geopolitical risk may exert a broader and more persistent influence through uncertainty channels. By distinguishing these two sources of systemic stress, the study aims to improve understanding of risk transmission in the European carbon-energy-financial system. The findings are expected to offer useful insights for hedging, portfolio allocation, risk management, and climate-finance policy.

Presenting Author Biography

Chiedozie Augustine Ike-Offiah is a doctoral researcher at the University of Vaasa and RMIT University. His research interests include carbon markets, energy finance, systemic risk, and time-varying connectedness in financial markets