

Connectedness Among Green Financial Markets, Carbon Market, and Exchange Rate Market: A Global Perspective

Abstract

The present study comprehensively probes the volatility and return spillover dynamics among green finance, carbon, and exchange rate markets using daily drawn data from October 14, 2014 to July 30, 2024. The aim is to analyze the evolving connectedness between the said markets through these three distinct analytical approaches: the TVP-VAR model to assess return spillovers, the DCC-GARCH method to inspect volatility spillovers, and the Wavelet Coherence approach to explore time-varying correlation in the time-frequency realm. The study outcomes indicate that the connectivity amid these markets varies with time, with more robust connections observed during periods of market volatility. Green stocks emerged as the primary “shock transmitters” during the China-US trade war. In contrast, green bonds, carbon futures, and exchange rate markets primarily received shocks during this period. However, these dynamics reversed while the world faced the COVID-19 pandemic, when green stock markets became “shock receivers.” At the same time, green bonds, carbon futures, and exchange rate markets played a more active role in transmitting risks. The results also highlighted that such sustainable bonds function as “a safe haven” against exchange rate volatility, and that carbon futures provide short-term hedging benefits against exchange rate risks. Furthermore, combining green stocks and bonds in a portfolio enhances diversification and resilience to economic shocks. These findings are particularly relevant to policymakers and investors seeking to understand the risks associated with these market indices from a global perspective.