The Hong Kong University of Science and Technology

Seminar on Business Data Science

Department of ISOM

Measuring Carbon Risk Dynamics
by
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Date: 27 February 2026 (Friday)
Time: 11:00am – 12:00nn
Venue: Room 4047 (LSK Business Building)

Abstract

Competing asset-pricing theories offer divergent views on carbon risk: risk-based models predict higher returns for carbon-intensive firms, whereas preference-based models imply outperformance of low-carbon assets due to investor reallocation. We develop a Carbon Risk Dynamic Indicator (CARDI) to capture systemic, time-varying carbon risk by predicting relative tail-event measures between high-and low-carbon firms. Our framework shows that rising CARDI strengthens green-asset demand and weakens the traditional high-risk-high-return pattern. Using Chinese daily market data from 2014-2025, we show that CARDI forecasts a time-varying low-carbon premium, providing a tractable tool for incorporating climate-related financial risks into asset-pricing and investment decisions.

Bio

Wolfgang Karl Härdle's research focus is on multivariate methods in finance, as well as on methods for dimension reduction and computer-based statistics. Härdle is founder of the BRC Blockchain Research Center. He invented the Q2 ecosystem - Quantlet and Quantinar - to promote and improve academic exchange, visibility and the quality of research. He managed the Collaborative Research Center CRC649 „Economic Risk" (2005-2016) that researched multiple forms of risks in a global context. He directed the Sino German Research Training Group IRTG1792 "High Dimensional Non Stationary Time Series" (2013-2023). WK Härdle is known for paradigm-shifting research directions. He develops new research technologies in the field of machine learning, explainable AI. He is Yushan Fellow (2019+) 玉山學者 in Taiwan and invented CRIX the CRypto currency IndeX. He is affiliated as Senior Advisor with many Asian universities and editor in chief of „Digital Finance" He has created IDA, the Institute for Digital Assets, Bucharest University of Economic Sciences, Romania theIDA.net. He is directing the blockchain working group of the MSCA „DIGITAL". He is board member of the AIFM royalton-partners.com Luxembourg and Huawei Distinguished Visiting Professor at University of Edinburgh. His Google Scholar is the highest in Humboldt-Universität zu Berlin with an H-Index of 94. According to research.com https://research.com/u/wolfgang-karl-hardle he is a leader in mathematic, economics and finance. An interview at Fudan university, Shanghai, China summarises his work: https://mp.weixin.qq.com/s/WMb69a_HJDXhsEFByzOoaw

All interested are welcome!

For details, please contact ISOM Department.