



Faculty of Business Administration

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Neuroeconomics

“Risk Patterns and Correlated Brain Activities”

Professor Wolfgang Karl Härdle

*Director of the Ladislaus von Bortkiewicz Chair of Statistics
Department of Economics and Business Administration
Humboldt-University Berlin*

Abstract

Many decisions people make can be described as decisions under risk. Understanding which part of our brain is activated during risky decisions and whether there is a significant reaction to specific stimuli in the hemodynamic response (neural processes underlying investment decisions) are important goals in decision neuroscience. Functional magnetic resonance imaging (fMRI) is a noninvasive technique of recording brain signals on spatial area in every particular time period. Here we used a novel investment decision task that uses streams of (past) returns as stimuli to the exercised subjects and obtain a series of three-dimensional images of the blood-oxygen-level-dependent (BOLD) fMRI signals. The challenge here is to get a grip on the dynamic behavior of this high-dimensional fMRI time series, by a factor approach resulting in a low dimensional representation. We considered the dynamic semiparametric factor model (DSFM) given in Park et al. (2009). DSFM helps identify the corresponding brain's activation areas. Additionally we classify the risk attitudes of different subjects based on the recovered low-dimensional time series, which performed quite well compared to the classic risky decision making model (risk-return model) which is based on the subjects' answers directly.

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Venue: J318

ALL ARE WELCOME!

A Short Biography of Professor Wolfgang Karl Härdle

Professor Wolfgang Karl Härdle is Director of the Ladislaus von Bortkiewicz Chair of Statistics at the Department of Economics and Business Administration at the Humboldt-University Berlin since 1992. He is Coordinator of the 'Collaborative Research Center 649: Economic Risk'. His research interests are smoothing methods, discrete choice models, statistical modelling of financial markets and computer-aided statistics. His most recent work is dealing with the modelling of implied volatilities and the statistical analysis of financial risk. He has published in numerous prestigious journals, including Journal of the American Statistical Association, Annals of Statistics, Econometric Theory and Journal of Econometrics. He is on the 'Highly cited Scientist' list of the Institute for Scientific Information since 2003.