1MT555 INTERNATIONAL WEEK: QUANTITATIVE RISK MANAGEMENT

Course theme: Quantitative risk management – estimation of risk measures and backtesting

Guest lecturer: Marcin Fałdziński Ph.D. (Nicolaus Copernicus University in Torun, Poland)

Course aim: Obtaining both theoretical and practical knowledge of quantitative risk management.

Teaching form: Lecture and seminar

COURSE CONTENT:

1. Measures of Market Risk
    a. Market risk measurement
    b. Value-at-Risk (VaR) – definition and its properties
    c. Coherent risks measures
    d. Regulatory uses of market risk
2. Estimating Market Risk Measures
    a. Estimation of Value-at-Risk
        i. historical simulation
        ii. parametric approaches (i.e. volatility models, extreme value theory)
        iii. non-parametric approaches
        iv. other types
    b. Estimating the standard errors of risk measure estimators
    c. Estimation of Expected Shortfall (ES)
3. Backtesting Market Risk Models
    a. Backtesting based on the frequency tests
    b. Backtesting based on tests of distribution equality
    c. Comparing alternative models
    d. Backtesting Expected Shortfall
4. Model Risk
    a. Models and model risk
    b. Sources of model risk
    c. Managing model risk

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PROFESSIONAL CAREER:

since 2010 Nicolaus Copernicus University in Torun, Poland (Associate Professor)

RESEARCH INTERESTS:

volatility models, quantitative risk management, extreme value theory in finance, time series analysis, forecasting

MAJOR PUBLICATIONS:

1. Fiszeder Piotr, Fałdziński Marcin, Molnár Peter: Range-based DCC models for covariance and value-at-risk forecasting, Journal of Empirical Finance, Vol. 54, 2019, 58-76
2. Fiszeder Piotr, Fałdziński Marcin: Improving forecasts with the co-range dynamic conditional correlation model, Journal of Economic Dynamics & Control, Vol. 108, 2019, Art. no. 103736, 1-16
3. Fałdziński Marcin: Backtesting value-at-risk for multiple risk levels : a lexicographic ordering approach, in: Mathematical methods in economics 2017 : proceedings of the 35th International Conference, 13th-15th September 2017, Hradec Králové, Czech Republic / [ed. Pavel Pražák], Hradec Králové : University of Hradec Králové, 2017, 155-160,
4. Boehlke Jerzy, Fałdziński Marcin, Gałecki Maciej, Osińska Magdalena: Economic growth in Ireland in 1980-2014: a threshold cointegration approach, Argumenta Oeconomica, nr 2 (41), 2018, 157-188
5. Fałdziński Marcin, Extreme value theory in financial econometrics (in polish), 2014, 1-162