Course theme: Quantitative Finance

Guest lecturer: RNDr. Ing. Peter Molnár, Ph.D. (University of Stavanger, Norway)

Course aim: Obtaining a broad knowledge about: simple and multiple linear regression, Capital Asset Pricing model, Fama-French 3-factor model, distribution of stock returns, modelling volatility and correlation, utilization of dummy (indicator) variables: seasonality and other applications, principal component analysis, copula, quantile regression: Value at Risk model

Teaching form: Lecture and seminar

COURSE CONTENT:

Part 1: ASSET PRICING MODELS
1) Brief introduction to financial assets and how securities are traded
2) Return, risk, and the risk-return tradeoff
3) Capital asset pricing model, systematic versus idiosyncratic risk
4) Fama-French 3-factor model
5) Carhart 4-factor model
4) Brief introduction to other multifactor models

Part 2: VOLATILITY MODELLING
1) Distribution of stock returns
2) Autocorrelation in returns, and autocorrelation in squared returns
3) GARCH volatility models
4) Highest and lowest price of the day and how it improves volatility models
5) Realized volatility

Part 3: BRIEF INTRODUCTION TO RISK MANAGEMENT
1) Value at Risk
2) Quantile regression and its application in Value at Risk

Part 4: INTERESTING TOPICS AND DATA SOURCES (FOR EXAMPLE FOR A MASTER THESIS IN FINANCE)
1) Realized volatility (introduced previously)
2) Economic policy uncertainty
3) Google trends
4) Cryptocurrencies

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PROFESSIONAL CAREER:
• since 2016 University of Stavanger, Stavanger, Norway (Associate Professor)
• in 2011–2016 Norwegian University of Science and Technology, Trondheim, Norway (Postdoc)
• in 2006–2011 Norwegian School of Economics, Bergen, Norway (research scholar)

RESEARCH INTERESTS:
Economics and finance in general, volatility, risk management, corporate finance, behavioral finance, energy markets, energy economics, commodities, cryptocurrencies

MAJOR PUBLICATIONS: