SOE 15: Financial Markets and Risk Management I

Time: Wednesday 16:00–18:00 Location: H44

SOE 15.1 Wed 16:00 H44

Default risk in insurance and reinsurance companies. Finding efficient regulation guidelines — •Christoph Hamer and Ralf Engelshove — Fabrik, Dürener Straße 295, 50935 Köln

Recent issues and discussion on financial markets and supervision show a need for smart regulation on market members. Our approach focuses mainly on the relations between insurances and reinsurances, especially on the correlation of defaults on the probability of further default risks and its implications on regulation. Driven by the bilateral dependencies and external ratings we deduce rules to optimise markets security in terms of cascading effects due to dependencies on network topologies.

SOE 15.2 Wed 16:30 H44

Some considerations on portfolios built by agents with insufficient information — Uli Spreitzer[1] and •Vladimir Reznik[2] — [1]Bonus Pensionskassen AG, Traungasse 14-16, 1030 Vienna, Austria — [2]Watson Wyatt Heissmann GmbH, Abraham-Lincoln-Str. 22, 65189 Wiesbaden, Germany

In the well known CAPM model [1] and the standard optimization the portfolio is optimized with some optimization process, e.g. rate of return minus volatility. How good this can be done, depends on how well informed agents on these assets are. Assuming a market of two agents, who assume wrong assumptions of the assets - nevertheless both agents together are in accordance with the market - we investigate the portfolios, being built from these wrong assumptions. Assuming, that the two agents represent a market, we investigate this wrong portfolio of the market compared to a portfolio, which is built (according to CAPM and) using correct assumptions on the assets. We will investigate these portfolios in dependence from, how wrong assumptions of this agents are. We will expand the results for two utility functions, one using a coherent and one a non coherent measure of risk. Some examples for pension funds of year 2008 and 2009 will ge given, also. [1] Sharpe, W.F.: Capital Asset Prices: A Theory of Market Equilibrium under conditions of risk. The Journal of finance. Vol. 19. p. 425ff, 1964

SOE 15.3 Wed 17:00 H44

Some considerations on dependency of measures of risk on frequency and granularity and consequences for pension funds — •Uli Spreitzer[1] and Vladimir Reznik[2] — [1]Bonus Pensionskassen AG, Traungasse 14-16, 1030 Vienna, Austria — [2]Watson Wyatt Heissmann GmbH, Abraham-Lincoln-Str. 22, 65189 Wiesbaden, Germany

Beside the well known discussion on what is the most reasonable measure of risk (e.g. not VaR, Artzner [1]) most pensions funds (or Pensionskasse in Austria) must face the problem that: their investment horizont isn't infinite, they must reinvest with a certain granularity, they have cash flow with a certain granularity, and they must publish results for performance and risk at certain points in time to compete against other competitioners and to inform customers and financial authorities, also. The frequency of all these processes is different and often scaling of measures of risk according to Brown movement is used. Considering coherent and non coherent measures of risk and optimization processes using these measures of risk, we show, how frequency dependence can be estimated much better. Using these results, we will show, how pension fund investment processes, which must consider events with at least two different granularities (investment and payment) can be optimized. [1] P. Artzner, F. Delbaen, J.M. Eber, and D. Heath. Coherent measures of risk. Mathematical Finance, 9: 203ff,1999.

SOE 15.4 Wed 17:30 H44

Macro- Econophysics: The first and second law of banking — •Jürgen Mimkes — Physics Department, Paderborn University

The first law of economics states that profits come from capital and labor. The second law confirms the existence of a production function. Both laws may be interpreted as bank rules:

1. a) The Stokes integral of the exact differential of capital is zero, capital cannot create capital. Capital can only be redistributed. b) Winning strategies of banks correspond to strategies of roulette, like doubling the stake after losing. Probability may force the player to pay his complete stock for doubling. The time for bankruptcy depends on the relation of stake and stock. In the financial world this time was 80 years, between 1929 and 2009. c) Profits can only come from long term investment in production e.g. at the stock market. d) Proper laws and tax policies will change the situation at banks and stock markets.

2. a) The production function of econophysics (entropy) is a measure of portfolio security. b) The product of returns and security is determined by the profit of the companies in the portfolio. Banks prefer the term risk, the inverse of security: high returns, high risk.