

■ TC-16

Tuesday, 13:00-14:30

Room RB 204

Portfolio Optimisation and Optimal Investment I

Stream: Financial Modelling & Risk Management (c)

Contributed session

Chair: *Vladimir Mlynarovic*, Institute of economics, Comenius University, Odbojarov 10/A, 820 05, Bratislava, vladimir.mlynarovic@fses.uniba.sk

1 - Mean-Absolute Deviation Portfolio Optimization Problem

Anton Abdulbasah Kamil, School of Distance Education, Universiti Sains Malaysia, Universiti Sains Malaysia, 11800, Penang, Penang, anton@usm.my

One of the problems of finance is the optimal selection of stocks. Mean absolute deviation was proposed as a risk measure to replace the original risk measure, variance. Taking the downside risk as the risk leads to different optimal portfolio. The effect of using only downside risk on optimal portfolio is analyzed by taking the mean absolute negative deviation as the risk measure. This method is applied to the optimal selection of stocks listed in Bursa Malaysia and the return of the optimal portfolio is compared to the classical Markowitz model and mean absolute deviation model.

2 - An application of some algorithms for special classes of stochastic and financial models

Miruan Beldiman, Operations Research, Institute for Mathematical Statistics and Applied Mathematics, Romanian Academy, 13 Septembrie Str., No.13., 050711, Bucharest, miruna.m@gmail.com, *Anton Batatorescu*

Relatively to some stochastic and financial models with multiple criteria we consider a trust region algorithm and a hybrid heuristic approach.

3 - Dynamic model for portfolio optimization

Cristinca Fulga, Mathematics, Academy of Economic Studies, Piata Romana 6, sector 1, 010174, Bucharest, Romania, fulga@csie.ase.ro

A dynamic portfolio management problem over a finite horizon with transaction costs is considered. Our approach is based on a multi-period planning allowing for altering the composition of the portfolio in every time period. The uncertain future returns of the individual assets are modeled as a set of different scenarios jointly with their realization probabilities. To solve the resulting optimization problem we use a stochastic programming technique, in particular a scenario decomposition approach.

4 - Optimization in Technical Analysis

Vladimir Mlynarovic, Institute of economics, Comenius University, Odbojarov 10/A, 820 05, Bratislava, vladimir.mlynarovic@fses.uniba.sk

The paper presents a decision support system in MS Excel environment that applies several economic indicators to describe trends, identify divergences and optimize buy-sell signals. Optimization is realized from a viewpoint of a pension fund investment with a starting endowment and a possibility invest additional money in following time periods. System looks for such durations of time periods for individual indicators that generate for a selected historical period buy - sell signals with maximal current value of the investments.

■ TC-17

Tuesday, 13:00-14:30

Room RB 205

Business Process Management

Stream: Energy Markets and Sustainable Modelling

Invited session

Chair: *Jiri Beranovsky*, Bubenska 6, 17000, Prague, jiri.beranovsky@ekowatt.cz

1 - Design of Electronic Waste Takeback and Recycling System in China

Kejing Zhang, Economics, IIP, Hertzstrasse 16 Geb. 06.33, 76187, Karlsruhe, Germany, Germany, kejingzhang@yahoo.com

This paper seeks to design a financially viable and environmentally sound e-waste takeback and recycling system. Based on the analysis of the state of the art and challenges of the e-waste recycling industry in China, recommendations regarding the improvement of the system are made. An integrated evaluation model is developed for the e-waste recycling national pilot program. This model provides simultaneous assessment of the environmental, social and economic impact of recycling scenarios. The economic impact can be derived from an optimization model for the reverse logistics network.

2 - The Iberian Electricity Market Agents Decisions Concerning CO2 Prices in Kyoto and Post-Kyoto Periods

Rita Sousa, Power Systems Unit, Institute of Engineering and Computer Systems of Porto, INESC Porto - Campus da FEUP, Rua Dr. Roberto Frias, 378, 4200-465, Porto, Portugal, rmsousa@inescporto.pt, *Fernando Oliveira*, *Jorge Pereira*

In this paper it is analysed the impact of expected CO2 prices for Kyoto and Post-Kyoto periods on Mibels agents decisions. The generation scheduling changes when comparing an oligopoly to perfect competition in pre and post integration and CO2 pricing situations. The focussed aspects include clearing prices, the value of the different technologies, and how both countries are likely to be affected. We develop a Cournot game to model Portugal, Spain and MIBEL in a complex and detailed agent-based model, taking into account technical constraints such as ramp rates and startup and shutdown costs.

3 - Complex analysis of renewable energy sources (RES) for electricity production

Jiri Beranovsky, Bubenska 6, 17000, Prague, jiri.beranovsky@ekowatt.cz, *Petr Kalcev*

Complex analysis of the RES and cogeneration (CHP) including fuel cells consists two steps system analysis. The first is the managerial methods as the PEST and SWOT analysis, there are the variants evaluated by the qualitative words methods. Next part is based on the MC evaluation by different methods of complex analysis. The combination of these processes makes complex overview of this issue and large flexibility and applicability. The main contribution of this access is in the system effectiveness used for the evaluation and dividing of the subsidiaries and programs of the EU.

■ TC-18

Tuesday, 13:00-14:30

Room RB 206

Energy and Environment III

Stream: Energy & Environment (c)

Contributed session

Chair: *Cristina Corchero*, Estadística i Investigació Operativa, Universitat Politècnica de Catalunya, c/Jordi Girona 1-3, Campus nord, Ed. C5, dspt 224, 08034, Barcelona, cristina.corchero@upc.edu

1 - Models for short term scheduling of hydro-thermal resources

Filomena Petronio, Department of Mathematics, University of Bergamo, via dei Caniana, 2, 24129, Bergamo, f.petronio@libero.it, *Elisabetta Allevi*, *Mario Innorta*, *Maria Teresa Vespucci*

Two models for the short-term scheduling of hydro-thermal resources are developed: the Price Taker power producer model determines the optimal scheduling on the basis of price forecasts; in the Price Maker model a detailed representation of the aggregated hourly bid curves is used, so as to take into account price discontinuities as quantity varies. Both models contain also a detailed representation of the thermal system. They are used to analyze the optimal scheduling of different producers in the Italian electric energy market on the basis of a set of realistic data.