

Industrial Engineering and Systems Management Conference 2013

Special Session on Quantitative Finance

Finance has generated these last decades a huge number of mathematical models in order to price new financial instruments and develop hedging and investment strategies. Interactions between theory and practice have been very successful in this domain; mathematical finance has become a specific area of mathematics using in particular complex aspects of the theory of stochastic processes for very practical problems. At the same time, this extensive theoretical framework has inspired and permitted the development of a lot of new products on the markets in the context of the so called “financial engineering”.

An important aspect in this field has been the importance of numerical methods (Monte Carlo, Fourier transform,..) in order to obtain explicit results. Another important area has been the applications of the deterministic and stochastic optimal control to the determination of financial strategies.

The aim of this special session is to present various aspects of quantitative finance, from theoretical papers on stochastic processes applied to finance to more applied problems of finance using a quantitative point of view.

The topics include, but are not limited to :

- pricing of complex derivatives
- structure of interest rates
- LEVY processes applied to finance
- incomplete markets
- numerical methods in finance
- Asset and Liability Management (ALM)
- risk measures and risk management
- optimal investment strategies and optimal control
- financial engineering

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