

Pozvánka

Katedra matematiky

Fakulty aplikovaných věd Západočeské univerzity v Plzni

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From constant to stochastic volatility: a journey through financial modelling

přednáší

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Fifty years ago, a pricing equation and its solution called the Black-Scholes-Merton formula revolutionized finance, leading to rapid growth of markets and stimulating quantitatively oriented minds. Their Nobel Prize-winning model undoubtedly revolutionized derivatives pricing and risk management. Their elegant framework not only reshaped the financial landscape but also inspired generations of both academics and practitioners. However, through time, its simplicity became a liability -- and yet its legacy persists.

Nowadays, their original modelling assumptions are deemed simplistic and new, more complex models emerged that are better equipped to reproduce the real market data properties. These models typically allow more general movements of the underlying asset price than does the Black-Scholes-Merton dynamics. Traders can now choose to work with models that have stochastic (random) volatility, ones with 'rough' volatility or those involving jumps in asset-price movements, to name just a few.

In this talk, we briefly introduce important volatility modelling tasks such as Monte Carlo simulations, solving pricing partial integro-differential equations, calibration of the models to real market data, robustness and sensitivity analyses. The results of the author and his co-authors obtained in these areas within the last decade will be briefly summarized and commented.

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on-line <https://www.fav.zcu.cz/stream>