AKTUARVEREINIGUNG ÖSTERREICHS

TECHNISCHE UNIVERSITÄT WIEN
FORSCHUNGSGRUPPE FÜR FINANZ- UND VERSICHERUNGSMATHEMATIK

ÖSTERREICHISCHE GESELLSCHAFT FÜR VERSICHERUNGSFACHWISSEN

UNIVERSITÄT WIEN
FAKULTÄT FÜR MATHEMATIK

# Einladung zur Vortragsreihe aus Finanz- und Versicherungsmathematik

## Prof. Dr. Eckhard Platen

UTS Business School, University of Technology Sydney,Australia

## The Affine Nature of Aggregate Wealth Dynamics

The presentation derives a parsimonious two-component affine diffusion model for a world stock index to capture the dynamics of aggregate wealth. The observable state variables of the model are the normalized index and the inverse of the stochastic market activity, both modelled as square root processes. The square root process in market activity time for the normalized aggregate wealth emerges from the affine nature of aggregate wealth dynamics, which will be derived under basic assumptions and does not contain any parameters that have to be estimated. The proposed model employs only three well interpretable structural parameters, which determine the market activity dynamics, and three initial parameters. It is driven by the continuous, nondiversifiable uncertainty of the market and no other source of uncertainty. The model, to be valid over long time periods, needs to be formulated in a general financial modelling framework beyond the classical no-arbitrage paradigm. It reproduces a list of major stylized empirical facts, including Student-t distributed log-returns and typical volatility properties. Robust methods for fitting and simulating this model are demonstrated. The model can be applied in various areas where long term real world index dynamics are relevant, including actuarial studies, as well as, derivative pricing and hedging. (Joint work with Renata Rendek.)

**Zur Person:** Professor Eckhard Platen joined University of Technology Sydney (UTS) in 1997. He was a joint appointment between the School of Finance and Economics and the School of Mathematical Sciences to the newly created Chair in Quantitative Finance.

Prior to this appointment he was the Founding Head of the Centre for Financial Mathematics at the Institute of Advanced Studies at the Australian National University in Canberra. He completed a PhD in Mathematics at the Technical University in Dresden in 1975 and obtained in 1985 his Dr.sc. from the Academy of Sciences in Berlin, where he headed the Sector of Stochastics at the Weierstrass Institute.

He is the co-author of three successful books on Numerical Methods for Stochastic Differential Equations and his innovative Benchmark Approach, published by Springer Verlag, and he has authored more than 140 research papers in quantitative finance and applicable mathematics. He has also held more than 50 visiting appointments at leading institutions world wide.

He serves on the Editorial Boards of six journals including Mathematical Finance as Associate Editor, Asia Pacific Financial Markets as Advisor and Quantitative Finance and previously Finance and Stochastics. He is initiator and co-organizer of the annual Quantitative Methods in Finance conference series and the National Symposia on Financial Mathematics.

**Termin:** Donnerstag, **25. Juli 2013**, 16:30 Uhr (pünktlich)
**Ort:** **Technische Universität Wien**
1040 Wien, Wiedner Hauptstraße 8–10
Freihaus, Turm B (gelber Bereich), 2. Stock,
Freihaus Hörsaal 3
**Webseite:** **http://www.fam.tuwien.ac.at/vr/**

Für Aktuare zählt der Besuch des Vortrages als Weiterbildung (ein CPD-Punkt). Für eine entsprechende Bestätigung melden Sie sich bitte vorab per E-Mail mit Namen und Postanschrift im Sekretariat bei Frau Sandra Trenovatz (sandra@fam.tuwien.ac.at) an.

Mag. Christoph Krischanitz
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