Essays on Monte Carlo Methods for State Space Models

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This dissertation studies the state space approach to time series analysis as a flexible framework for modelling time-varying parameters in economics and finance. It presents new Monte Carlo methods which can solve complex statistical and computational problems that arise in the analysis of nonlinear non-Gaussian state space models. A variety of applications in high-dimensional settings complement the methodological exposition. The dissertation also develops new econometric models that contribute to the understanding of the dynamic nature of economic risks.

Marcel Scharth has received bachelor and master degrees in economics from the Pontifical Catholic University of Rio de Janeiro. He graduated from the Tinbergen Institute MPhil program in 2009 and conducted his PhD research at the VU University Amsterdam. He is currently a postdoctoral fellow at the Australian School of Business, University of New South Wales.

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