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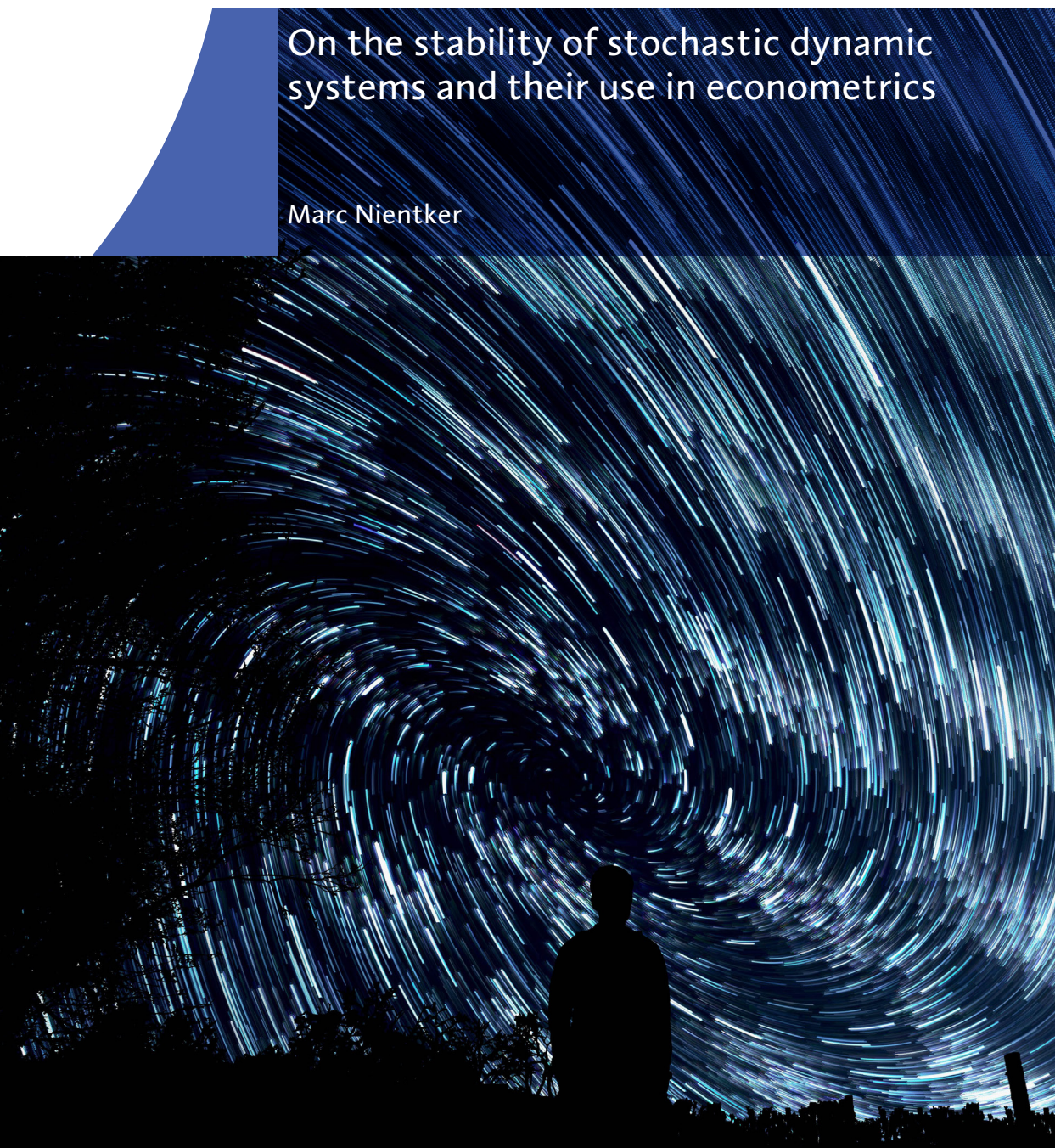
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# On the stability of stochastic dynamic systems and their use in econometrics

Marc Nientker





This dissertation studies stochastic dynamic systems and their stability properties such as stationarity, ergodicity and mixing. It introduces various new theoretical results that can be used to obtain these properties for large classes of systems that were previously inaccessible. Such a model is then introduced and studied to describe time series data containing explosive bubble behaviour, including an empirical study on the Bitcoin/US dollar exchange rate. Stability is also studied for a collection of macro economic stochastic equilibrium models in terms of approximating solution methods. Requiring stability in such a setting gives motivation to a new solution method denoted transformed perturbation, which is demonstrated to perform very well relative to existing local approximation methods.

