Foreword
by Thomas Lux

The availability of modern computational resources has opened up completely new avenues for scientific research. In almost all traditional fields, a new branch of computationally oriented research has been initiated and has quickly become an accepted specialization besides traditional theoretical and empirical areas. In contrast to its sisters like Computational Physics, Computational Chemistry and Computational Statistics (to name just a few), Computational Economics had a somewhat harder early childhood, but is now also starting to flourish. Indeed, in economics, simulation-based research could pave the way towards explaining time-honored phenomena like the invisible hand governing a market or economic system with its distributed activity of independent individuals. Reconstructing economic systems in the computational laboratory enables one to study and understand the emergence of phenomena that only exist at the level of the aggregate and can often not be even imagined by investigation of its constituent parts. The financial crisis has highlighted how important it is to study interactions on a system-wide level and how misleading a paradigm based on a reductionist view can be: What appeared as efficiency increasing innovations in a traditional micro-based analysis in fact turned out to undermine stability at the systemic level. The crisis, thus, provides us with a vivid illustration of the relevance of P.W. Andersen’s phrase that more is different.

The present volume makes an important contribution to advance the scope of computational simulation-based approaches in economics and finance. It collects a broad range of fascinating applications in which computational methods allow researchers to revisit known problems from a new perspective, or even allow tackling a certain complex setting for the first time. B. Alexandrova-Kabadjova, S. Martinez-Jaramillo, A. Garcia-Almanza, and E. Tsang have done a great service to the community in editing this volume which deserves a broad dissemination among scholars in economics and finance.

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