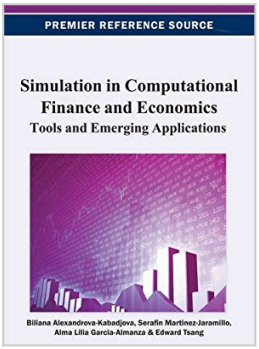

Simulation in Computational Finance and Economics: Tools and Emerging Applications

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Simulation in Computational Finance and Economics: Tools and Emerging Applications From Alexandrova kabadjova Biliana EDT

Simulation has become a tool difficult to substitute in many scientific areas like manufacturing, medicine, telecommunications, games, etc. Finance is one of such areas where simulation is a commonly used tool; for example, we can find Monte Carlo simulation in many financial applications like market risk analysis, portfolio optimization, credit risk related applications, etc.

Simulation in Computational Finance and Economics: Tools and Emerging Applications presents a thorough collection of works, covering several rich and highly productive areas of research including Risk Management, Agent-Based Simulation, and Payment Methods and Systems, topics that have found new motivations after the strong recession experienced in the last few years. Despite the fact that simulation is widely accepted as a prominent tool, dealing with a simulation-based project requires specific management abilities of the researchers. Economic researchers will find an excellent reference to introduce them to the computational simulation models. The works presented in this book can be used as an inspiration for economic researchers interested in creating their own computational models in their respective fields.

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Editorial Review

Review

Computer scientists at the Bank of Mexico hope to promote computational simulation techniques as fundamental tools for modeling financial and economic problems by motivating young researchers to develop their own simulation-based methods to study various problems. The opening section of the collection analyzes the complex economic dynamics of payment systems and introduces agent-based modeling as a powerful simulation method for understanding participants' behavior in payment systems. Banking risk management is addressed in the second part, and examples of agent-based models in action are presented in the final section. Topics of the 18 papers include liquidity management in large value payment systems, measuring and charging for banks' systemic interconnectedness, a multi-agent financial network model of U.S. collateralized debt obligations, optimal patent design, and predicting volatile consumer markets. --Annotation ©2012 Book News Inc. Portland, OR

About the Author

Biliana Alexandrova-Kabadjova obtained her Ph.D. and Master degree in Computational Finance from the Centre for Computational Finance and Economic Agents and the Department of Computer Science in the University of Essex, UK (2007, 2003). She works in the Mexican Central Bank as a payment analyst. Nowadays she is permanent member of the Mexican System of Researchers and she is a Visiting Fellow for the University of Essex. Her main contribution has been built the most advanced model (in terms of complexity and realism) of the payment card market. She has developed a framework under which one can learn regulatory strategies and individual agent can learn business strategies. She has published several refereed journal papers, book chapters and conference papers. She currently is co-editing a book and her main research interests are in retail payments, large value payment systems and in agent-based computational economics.

Serafin Martinez-Jaramillo is a senior financial researcher at the financial stability general directorate of Banco de México. He currently works on Financial Stability, Systemic Risk and Financial Networks at Banco de México but he also works on bankruptcy prediction using evolutionary computation techniques. He previously developed an agent based-financial market to study the link between agent behavior and the stylized facts in the financial market prices. Serafin has published several book chapters, encyclopedia entries and papers in high impact international journals. Serafin holds an MSc in Computer Science and a PhD in Computational Finance from the University of Essex where he is currently a visiting fellow. He belongs to the Mexican National Researchers System from 2009.

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Edward Tsang has a first degree in Business Administration (Major in Finance) and a PhD in Computer Science. He has broad interest in applied artificial intelligence, in particularly computational finance,

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