

Robert A. Meyers (Ed.)

# **Complex Systems in Finance and Econometrics**

With 282 Figures and 54 Tables

Volume 1

 Springer

# Table of Contents

<b>Agent Based Computational Economics</b>	
<i>Moshe Levy</i> . . . . .	1
<b>Agent Based Modeling and Neoclassical Economics: A Critical Perspective</b>	
<i>Scott Moss</i> . . . . .	22
<b>Agent Based Models in Economics and Complexity</b>	
<i>Mauro Gallegati, Matteo G. Richiardi</i> . . . . .	30
<b>Bayesian Methods in Non-linear Time Series</b>	
<i>Oleg Korenok</i> . . . . .	54
<b>Business Policy and Strategy, System Dynamics Applications to</b>	
<i>James M. Lyneis</i> . . . . .	69
<b>Corporate and Municipal Bond Market Microstructure in the U.S.</b>	
<i>Michael S. Piwowar</i> . . . . .	93
<b>Delay and Disruption in Complex Projects</b>	
<i>Susan Howick, Fran Ackermann, Colin Eden, Terry Williams</i> . . . . .	116
<b>Diffusion of Innovations, System Dynamics Analysis of the</b>	
<i>Peter M. Milling, Frank H. Maier</i> . . . . .	136
<b>Dynamics of Income Distribution in a Market Economy: Possibilities for Poverty Alleviation</b>	
<i>Khalid Saeed</i> . . . . .	163
<b>Econometrics: Models of Regime Changes</b>	
<i>Jeremy Piger</i> . . . . .	190
<b>Econometrics: Non-linear Cointegration</b>	
<i>Juan-Carlos Escanciano, Alvaro Escribano</i> . . . . .	203
<b>Econometrics: Panel Data Methods</b>	
<i>Jeffrey M. Wooldridge</i> . . . . .	215
<b>Econophysics, Observational</b>	
<i>Bertrand M. Roehner</i> . . . . .	238
<b>Econophysics, Statistical Mechanics Approach to</b>	
<i>Victor M. Yakovenko</i> . . . . .	247
<b>Extreme Events in Socio-economic and Political Complex Systems, Predictability of</b>	
<i>Vladimir Keilis-Borok, Alexandre Soloviev, Allan Lichtman</i> . . . . .	273
<b>Finance and Econometrics, Introduction to</b>	
<i>Bruce Mizrach</i> . . . . .	290
<b>Finance, Agent Based Modeling in</b>	
<i>Sebastiano Manzan</i> . . . . .	293
<b>Financial Economics, Fat-Tailed Distributions</b>	
<i>Markus Haas, Christian Pigorsch</i> . . . . .	308

<b>Financial Economics, Non-linear Time Series in</b> <i>Terence C. Mills, Raphael N. Markellos.</i>	340
<b>Financial Economics, Return Predictability and Market Efficiency</b> <i>Stijn van Nieuwerburgh, Ralph S. J. Koijen.</i>	353
<b>Financial Economics, The Cross-Section of Stock Returns and the Fama-French Three Factor Model</b> <i>Ralitsa Petkova.</i>	361
<b>Financial Economics, Time Variation in the Market Return</b> <i>Mark J. Kamstra, Lisa A. Kramer.</i>	375
<b>Financial Forecasting, Non-linear Time Series in</b> <i>Gloria Gonzalez-Rivera, Tae-Hwy Lee.</i>	394
<b>Financial Forecasting, Sensitive Dependence</b> <i>Mototsugu Shintani.</i>	424
<b>Fractals and Economics</b> <i>Misako Takayasu, Hideki Takayasu.</i>	444
<b>GARCH Modeling</b> <i>Christian M. Hafner.</i>	464
<b>Group Model Building</b> <i>Etienne A. J. A. Rouwette, Jac A. M. Vennix.</i>	484
<b>Health Care in the United Kingdom and Europe, System Dynamics Applications to</b> <i>Eric Wolstenholme.</i>	497
<b>Health Care in the United States, System Dynamics Applications to</b> <i>Gary Hirsch, Jack Homer.</i>	513
<b>Macroeconomics, Non-linear Time Series in</b> <i>James Morley.</i>	525
<b>Market Games and Clubs</b> <i>Myrna Wooders.</i>	549
<b>Market Microstructure</b> <i>Clara Vega, Christian S. Miller.</i>	567
<b>Market Microstructure, Foreign Exchange</b> <i>Carol Osier.</i>	580
<b>Microeconometrics</b> <i>Pravin K. Trivedi.</i>	615
<b>Nonparametric Tests for Independence</b> <i>CeesDiks.</i>	636
<b>Public Policy, System Dynamics Applications to</b> <i>David F. Andersen, Eliot Rich, Roderick MacDonald.</i>	655
<b>Scenario-Driven Planning with System Dynamics</b> <i>Nicholas C. Georgantzas.</i>	671
<b>Stochastic Volatility</b> <i>Torben G. Andersen, Luca Benzoni.</i>	694
<b>System Dynamics and Its Contribution to Economics and Economic Modeling</b> <i>Michael J. Radzicki.</i>	727
<b>System Dynamics and Organizational Learning</b> <i>KambizMaani.</i>	738
<b>System Dynamics in the Evolution of the Systems Approach</b> <i>Markus Schwaninger.</i>	753

<b>System Dynamics Modeling: Validation for Quality Assurance</b>	
<i>Markus Schwaninger, Stefan Groesser.</i>	. 767
<b>System Dynamics Models of Environment, Energy and Climate Change</b>	
<i>Andrew Ford.</i>	. 782
<b>System Dynamics Models, Optimization of</b>	
<i>Brian Dangerfield.</i>	. 802
<b>System Dynamics Philosophical Background and Underpinnings</b>	
<i>Camilo Olaya.</i>	. 812
<b>System Dynamics, Analytical Methods for Structural Dominance, Analysis in</b>	
<i>Christian Erik Kampmann, Rogelio Oliva.</i>	. 833
<b>System Dynamics, Introduction to</b>	
<i>Brian Dangerfield.</i>	. 853
<b>System Dynamics, The Basic Elements of</b>	
<i>George P. Richardson.</i>	. 856
<b>Treasury Market, Microstructure of the U.S.</b>	
<i>Bruce Mizrach, Christopher J. Neely.</i>	. 863
<b>List of Glossary Terms.</b>	. 877
<b>Index.</b>	. 883

Robert A. Meyers (Ed.)

# **Complex Systems in Finance and Econometrics**

With 282 Figures and 54 Tables

Volume 2

 Springer

# Table of Contents

<b>Agent Based Computational Economics</b>	
<i>Moshe Levy.</i>	1
<b>Agent Based Modeling and Neoclassical Economics: A Critical Perspective</b>	
<i>Scott Moss.</i>	22
<b>Agent Based Models in Economics and Complexity</b>	
<i>Mauro Gallegati, Matteo G. Richiardi.</i>	30
<b>Bayesian Methods in Non-linear Time Series</b>	
<i>Oleg Korenok.</i>	54
<b>Business Policy and Strategy, System Dynamics Applications to</b>	
<i>James M. Lyneis.</i>	69
<b>Corporate and Municipal Bond Market Microstructure in the U.S.</b>	
<i>Michael S. Piwowar.</i>	93
<b>Delay and Disruption in Complex Projects</b>	
<i>Susan Howick, Fran Ackermann, Colin Eden, Terry Williams.</i>	116
<b>Diffusion of Innovations, System Dynamics Analysis of the</b>	
<i>Peter M. Milling, Frank H. Maier.</i>	136
<b>Dynamics of Income Distribution in a Market Economy: Possibilities for Poverty Alleviation</b>	
<i>Khalid Saeed.</i>	163
<b>Econometrics: Models of Regime Changes</b>	
<i>Jeremy Piger.</i>	190
<b>Econometrics: Non-linear Cointegration</b>	
<i>Juan-Carlos Escanciano, Alvaro Escribano.</i>	203
<b>Econometrics: Panel Data Methods</b>	
<i>Jeffrey M. Wooldridge.</i>	215
<b>Econophysics, Observational</b>	
<i>Bertrand M. Roehner.</i>	238
<b>Econophysics, Statistical Mechanics Approach to</b>	
<i>Victor M. Yakovenko.</i>	247
<b>Extreme Events in Socio-economic and Political Complex Systems, Predictability of</b>	
<i>Vladimir Keilis-Borok, Alexandre Soloviev, Allan Lichtman.</i>	273
<b>Finance and Econometrics, Introduction to</b>	
<i>Bruce Mizrach.</i>	290
<b>Finance, Agent Based Modeling in</b>	
<i>Sebastiano Manzan.</i>	293
<b>Financial Economics, Fat-Tailed Distributions</b>	
<i>Markus Haas, Christian Pigorsch.</i>	308

<b>Financial Economics, Non-linear Time Series in</b>	
<i>Terence C. Mills, Raphael N. Markellos</i>	340
<b>Financial Economics, Return Predictability and Market Efficiency</b>	
<i>Stijn van Nieuwerburgh, Ralph S. J. Koijen</i>	353
<b>Financial Economics, The Cross-Section of Stock Returns and the Fama-French Three Factor Model</b>	
<i>Ralitsa Petkova</i>	361
<b>Financial Economics, Time Variation in the Market Return</b>	
<i>Mark J. Kamstra, Lisa A. Kramer</i>	375
<b>Financial Forecasting, Non-linear Time Series in</b>	
<i>Gloria Gonzalez-Rivera, Tae-Hwy Lee</i>	394
<b>Financial Forecasting, Sensitive Dependence</b>	
<i>Mototsugu Shintani</i>	424
<b>Fractals and Economics</b>	
<i>Misako Takayasu, Hideki Takayasu</i>	444
<b>GARCH Modeling</b>	
<i>Christian M. Hafner</i>	464
<b>Group Model Building</b>	
<i>Etienne A. J. A. Rouwette, Jac A. M. Vennix</i>	484
<b>Health Care in the United Kingdom and Europe, System Dynamics Applications to</b>	
<i>Eric Wolstenholme</i>	497
<b>Health Care in the United States, System Dynamics Applications to</b>	
<i>Gary Hirsch, Jack Homer</i>	513
<b>Macroeconomics, Non-linear Time Series in</b>	
<i>James Morley</i>	525
<b>Market Games and Clubs</b>	
<i>Myrna Wooders</i>	549
<b>Market Microstructure</b>	
<i>Clara Vega, Christian S. Miller</i>	567
<b>Market Microstructure, Foreign Exchange</b>	
<i>Carol Osier</i>	580
<b>Microeconometrics</b>	
<i>PravinK. Trivedi</i>	615
<b>Nonparametric Tests for Independence</b>	
<i>CeesDiks</i>	636
<b>Public Policy, System Dynamics Applications to</b>	
<i>David F. Andersen, Eliot Rich, Roderick MacDonald</i>	655
<b>Scenario-Driven Planning with System Dynamics</b>	
<i>Nicholas C. Georgantzas</i>	671
<b>Stochastic Volatility</b>	
<i>Torben G. Andersen, Ltica Benzoni</i>	694
<b>System Dynamics and Its Contribution to Economics and Economic Modeling</b>	
<i>Michael J. Radzicki</i>	727
<b>System Dynamics and Organizational Learning</b>	
<i>Kambiz Maani</i>	738
<b>System Dynamics in the Evolution of the Systems Approach</b>	
<i>Markus Schwaninger</i>	753

**System Dynamics Modeling: Validation for Quality Assurance**  
*Markus Schwaninger, Stefan Groesser* . . . . . 767

**System Dynamics Models of Environment, Energy and Climate Change**  
*Andrew Ford* . . . . . 782

**System Dynamics Models, Optimization of**  
*Brian Dangerfield* . . . . . 802

**System Dynamics Philosophical Background and Underpinnings**  
*Camilo Olaya* . . . . . 812

**System Dynamics, Analytical Methods for Structural Dominance, Analysis in**  
*Christian Erik Kampmann, Rogelio Oliva* . . . . . 833

**System Dynamics, Introduction to**  
*Brian Dangerfield* . . . . . 853

**System Dynamics, The Basic Elements of**  
*George P. Richardson* . . . . . 856

**Treasury Market, Microstructure of the U.S.**  
*Bruce Mizrach, Christopher J. Neely* . . . . . 863

**List of Glossary Terms** . . . . . 877

**Index** . . . . . 883