

OXFORD FINANCE SERIES

BIOGRAPHY

**Guido Caldarelli**

Guido Caldarelli was born 8 April 1967, received a degree in Physics in 1992 in Rome, received his PhD in Condensed Matter in 1996 in SISSA/ISAS Trieste, postdoc in Manchester, Cambridge (TCM Group) and visiting professor in Ecole Normale Supérieure Paris and Barcelona. He has published more than 70 papers and two books, and has also been the coordinator of the European Project COSIN ([www.cosinproject.org](http://www.cosinproject.org)). He is currently Primo Ricercatore in Centre SMC INFM-CNR in the Dep. of Physics University "La Sapienza".



**Scale-Free Networks**

*Complex Webs in Nature and Technology*

**Guido Caldarelli**, University of Rome 'Sapienza', Italy

'The book is written in an easy style and should be readable by undergraduates in physics, theoretical physics, mathematics, and computer science and engineering.'

Peter Richmond, Trinity College, Dublin

'This is a very important and timely book... I would recommend this book to anyone hoping to learn the key concepts of complex networks science.'

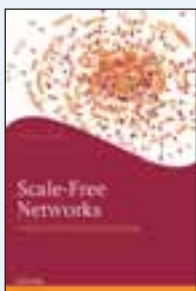
Mark Buchanan, Science Writer, Cambridge, UK

A variety of different social, natural and technological systems can be described by the same mathematical framework. This holds from the Internet to food webs and to boards of company directors. In all these situations a graph of the elements of the system and their interconnections displays a universal feature. There are only few elements with many connections, and many elements with few connections. This book presents the experimental evidence of these Scale-free networks and provides students and researchers with a corpus of theoretical results and algorithms to analyse and understand these features. The content of this book and the exposition makes it a clear textbook for beginners, and a reference book for the experts

May 2007 | 328 pages

978-0-19-921151-7, HARDBACK

£49.95/\$98.50



**Random Processes in Physics and Finance**

**Melvin Lax, Wei Cai, and Min Xu**, all at City University of New York, USA

'Random Processes in Physics and Finance is a great book on classical aspects of random processes in physics.'

Rosario Nunzio Mantegna, Nature Physics, Vol 3

Melvin Lax was a member of the US National Academy of Sciences, and widely known for his contributions in the field of random processes in physics. This book uniquely presents Lax's theoretical treatment of random processes, including applications to laser and semiconductor physics, light propagation in scattering media, and investment decisions.

2006 | 344 pages

978-0-19-856776-9, HARDBACK

£49.95/\$98.50

**Financial Market Complexity**

**Neil F. Johnson**, Oxford University; also co-Director of Oxford Centre for Computational Finance at Oxford University, **Paul Jefferies**, OXAM Asset Management Company, and **Pak Ming Hui**, Chinese University of Hong Kong

'Overall, the book is distinguished by its lively and inspiring representation method. In combination with the wide spectrum of topics covered, these characteristics make this book a recommendable textbook.'

German Physics Society Journal

This book takes a fresh look at understanding how financial markets behave. Using recent ideas from the highly-topical science of complexity and complex systems, the book provides the basis for a unified theoretical description of how today's markets really work. Since financial markets are an excellent example of a complex system, the book also doubles as a science textbook.

2003 | 264 pages

978-0-19-852665-0, HARDBACK

£39.95/\$59.50

**The Mathematical Theory of Minority Games**

*Statistical Mechanics of Interacting Agents*

**A.C.C. Coolen**, King's College, London

Aimed at researchers and students in physics, mathematics and economics, as well as financial practitioners, this text describes the mathematical theory of Minority Games from a statistical mechanics viewpoint. It provides a detailed and explicit introduction to the advanced mathematical analysis of these models, describes the potential and restrictions of physical methods in solving agent based market models, and outlines how different mathematical approaches are related.

2005 | 344 pages

978-0-19-852080-1, HARDBACK

£62.00/\$124.50

**Asset Pricing in Discrete Time**

*A Complete Markets Approach*

**Ser-Huang Poon** and **Richard Stapleton**, both at University of Manchester

This book covers the pricing of assets, derivatives, and bonds in a discrete time, complete markets framework. It relies heavily on the existence, in a complete market, of a pricing kernel. It is primarily aimed at advanced Masters and PhD students in finance. Topics covered include CAPM, non-marketable background risks, European style contingent claims as in Black-Scholes and in cases where risk neutral valuation relationship does not exist, multi-period asset pricing under rational expectations, forward and futures contracts on assets and derivatives, and bond pricing under stochastic interest rates. All the proofs, including a discrete time proof of the Libor market model, are shown explicitly.

2005 | 160 pages

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**Minority Games** *Interacting Agents in Financial Markets*

**Damien Challet**, University of Oxford, UK, **Matteo Marsili**, ICTP, Trieste, Italy, and **Yi-Cheng Zhang**, University of Fribourg, Switzerland

The Minority Game, invented in the late 1990s, makes it possible to understand stock market fluctuations in terms of information ecology between traders. With a minimal set of ingredients and drastic assumptions, this model reproduces market ecology among different types of traders. Its emphasis is on speculative trading and information flow.

2004 | 360 pages

978-0-19-856640-3, HARDBACK

£52.50/\$99.50

**Readings in Credit Scoring** *Foundations, Developments, and Aims*

**Lyn C. Thomas**, School of Management, University of Southampton, **David B. Edelman**, Direct Line Financial Services, and **Jonathan Crook**, School of Management, University of Edinburgh

A collection of papers, accompanied by extensive discussion and commentary, by leading workers in credit scoring, this text focuses on recent developments and advances in this important area.

2004 | 338 pages

978-0-19-852797-8, HARDBACK

£62.00/\$115.00

## The Credit Scoring Toolkit

*Theory and Practice for Retail Credit Risk Management and Decision Automation*

**Raymond Anderson**, Standard Bank Group, Johannesburg

The *Credit Scoring Toolkit* provides an all-encompassing view of the use of statistical models to assess retail credit risk and provide automated decisions.

In eight modules, the book provides frameworks for both theory and practice. It first explores the economic justification and history of Credit Scoring, risk linkages and decision science, statistical and mathematical tools, the assessment of business enterprises, and regulatory issues ranging from data privacy to Basel II. It then provides a practical how-to-guide for scorecard development, including data collection, scorecard implementation, and use within the credit risk management cycle.

Including numerous real-life examples and an extensive glossary and bibliography, the text assumes little prior knowledge making it an indispensable desktop reference for graduate students in statistics, business, economics and finance, MBA students, credit risk and financial practitioners.

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March 2004 | 296 pages

978-0-19-927126-9, HARDBACK £37.00/\$89.50

## Credit Risk Management

*Basic Concepts*

**Bart Baesens**, Faculty of ETEW, Katholieke Universiteit Leuven, Belgium, **Tony van Gestel**, Faculty of ETEW, Katholieke Universiteit Leuven, Belgium, and **Lyn Thomas**, School of Management, University of Southampton

*Credit Risk Management: Basic Concepts* is the first book of a series of three which will cover all aspects, steps, and issues that should be considered in credit risk management, including the Basel II accord, which all major banks must comply with in 2008.

This first book lays the foundations of CRM, defining the basic risk concepts and providing an overview of a risk modelling process. It provides a thorough introduction to financial risk management, an area of increasing importance with the recent Basel II developments and the increasing profitability competition.

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FORTHCOMING DECEMBER 2008

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**M.J. Shai Haran**, Technion-Israel Institute of Technology, Haifa, Israel

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2001 | 254 pages

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**Kjeld Laursen**, Department of Mathematics, University of Copenhagen, Denmark, and **Michael Neumann**, Department of Mathematics, Mississippi State University, USA

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978-0-19-852381-9, HARDBACK £128.00/\$307.50

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**L. J. Mason** and **N. M. J. Woodhouse**, both at Mathematical Institute, Oxford

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Proceedings of the Edinburgh Mathematical Society 1998, 41

London Mathematical Society Monographs No. 15

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**Yvonne Choquet-Bruhat**, Université Pierre et Marie Curie

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**Charles Boyer** and **Krzysztof Galicki**, both at University of New Mexico

This book is an extensive monograph on Sasakian manifolds, focusing on the intricate relationship between Kähler and Sasakian geometries. The subject is introduced by discussion of several background topics, including the theory of Riemannian foliations, compact complex and Kähler orbifolds, and the existence and obstruction theory of Kähler-Einstein metrics on complex compact orbifolds.

October 2007 | 614 pages

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### The Theory of Infinite Soluble Groups

**John C. Lennox**, Research Fellow, Green College and Visiting Fellow, the Mathematical Institute, Oxford University, and **Derek J. S. Robinson**, Professor of Mathematics, University of Illinois, Urbana, Illinois, USA

Aimed at research students and academic algebraists and group theorists, the central concept in this book is that of a soluble group—a group which is built up from abelian groups by repeatedly forming group extensions. This monograph covers all the major areas including finitely generated soluble groups, soluble groups of finite rank, modules over group rings, algorithmic problems, applications of cohomology, finitely presented groups, whilst remaining fairly strictly within the boundaries of soluble group theory.

2004 | 458 pages

978-0-19-850728-4, HARDBACK £91.00/\$218.50

### Operator Algebras and Their Modules

*An Operator Space Approach*

**David P. Blecher**, Department of Mathematics, University of Houston, and **Christian Le Merdy**, Laboratoire de Mathématiques, Université de Besançon

An invaluable reference tool.

London Mathematical Society Monographs No. 30

2004 | 398 pages

978-0-19-852659-9, HARDBACK £103.00/\$184.50