Atlantis Studies in Computational Finance and Financial Engineering
Series Editor: Argimiro Arratia

Argimiro Arratia

Computational Finance

An Introductory Course with R

Atlantis Press

1st edition

2014, X, 301 p. 41 illus., 26 illus. in color.

Printed book
Hardcover

Printed book
Hardcover
ISBN 978-94-6239-069-0
£ 53,99 | CHF 80,08 | 59,99 € |
65,99 € (A) | 64,19 € (D)
Available

Discount group
Standard (0)

Product category
Graduate/advanced undergraduate textbook

Series
Atlantis Studies in Computational Finance
and Financial Engineering

Computer Science : Simulation and Modeling

Arratia, Argimiro

Computational Finance

An Introductory Course with R

- Teaches how to use the statistical tools and methods available in the free software R, for processing and analyzing real financial data
- Numerous step-by-step examples of programming in R will teach the reader how to build forecasting models of price and volatility (e.g. ARMA, GARCH, machine learning models such as neural networks and support vector machines); clustering of financial time series; do all type of option valuation with Monte Carlo simulations; construct technical analysis indicators, fundamental analysis of business, and portfolio management
- Provides an easy-to-read review of the basic principles of finance, and an introduction to the basic tools of professional investors (Technical and Fundament

The book covers a wide range of topics, yet essential, in Computational Finance (CF), understood as a mix of Finance, Computational Statistics, and Mathematics of Finance. In that regard it is unique in its kind, for it touches upon the basic principles of all three main components of CF, with hands-on examples for programming models in R. Thus, the first chapter gives an introduction to the Principles of Corporate Finance: the markets of stock and options, valuation and economic theory, framed within Computation and Information Theory (e. g. the famous Efficient Market Hypothesis is stated in terms of computational complexity, a new perspective). Chapters 2 and 3 give the necessary tools of Statistics for analyzing financial time series, it also goes in depth into the concepts of correlation, causality and clustering. Chapters 4 and 5 review the most important discrete and continuous models for financial time series. Each model is provided with an example program in R. Chapter 6 covers the essentials of Technical Analysis (TA) and Fundamental Analysis. This chapter is suitable for people outside academics and into the world of financial investments, as a primer in the methods of charting and analysis of value for stocks, as it is done in the financial industry. Moreover, a mathematical foundation to the seemly ad-hoc methods of TA is given, and this is new in a presentation of TA.

Order online at springer.com/booksellers

Part of **SPRINGER NATURE**