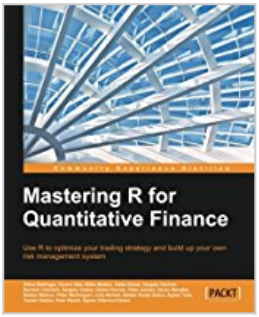

Mastering R for Quantitative Finance

By Edina Berlinger, Ferenc Illes, Milan Badics, Adam Banai, Gergely Daroczi

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Use R to optimize your trading strategy and build up your own risk management system

About This Book

- Learn to manipulate, visualize, and analyze a wide range of financial data with the help of built-in functions and programming in R
- Understand the concepts of financial engineering and create trading strategies for complex financial instruments
- Explore R for asset and liability management and capital adequacy modeling

Who This Book Is For

This book is intended for those who want to learn how to use R's capabilities to build models in quantitative finance at a more advanced level. If you wish to perfectly take up the rhythm of the chapters, you need to be at an intermediate level in quantitative finance and you also need to have a reasonable knowledge of R.

What You Will Learn

- Analyze high frequency financial data
- Build, calibrate, test, and implement theoretical models such as cointegration, VAR, GARCH, APT, Black-Scholes, Margrabe, logoptimal portfolios, core-periphery, and contagion
- Solve practical, real-world financial problems in R related to big data, discrete hedging, transaction costs, and more.
- Discover simulation techniques and apply them to situations where analytical formulas are not available
- Create a winning arbitrage, speculation, or hedging strategy customized to your risk preferences
- Understand relationships between market factors and their impact on your portfolio
- Assess the trade-off between accuracy and the cost of your trading strategy

In Detail

R is a powerful open source functional programming language that provides high level graphics and interfaces to other languages. Its strength lies in data analysis, graphics, visualization, and data manipulation. R is becoming a widely used modeling tool in science, engineering, and business.

The book is organized as a step-by-step practical guide to using R. Starting with time series analysis, you will also learn how to forecast the volume for VWAP Trading. Among other topics, the book covers FX derivatives, interest rate derivatives, and optimal hedging. The last chapters provide an overview on liquidity risk management, risk measures, and more.

The book pragmatically introduces both the quantitative finance concepts and their modeling in R, enabling you to build a tailor-made trading system on your own. By the end of the book, you will be well versed with various financial techniques using R and will be able to place good bets while making financial decisions.

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Editorial Review

About the Author

Edina Berlinger

Edina Berlinger has a PhD in economics from the Corvinus University of Budapest. She is an associate professor, teaching corporate finance, investments, and financial risk management. She is the head of the Finance department of the university, and is also the chair of the finance subcommittee of the Hungarian Academy of Sciences. Her expertise covers loan systems, risk management, and more recently, network analysis. She has led several research projects in student loan design, liquidity management, heterogeneous agent models, and systemic risk.

Ferenc Illes

Ferenc Illes has an MSc degree in mathematics from Eotvos Lorand University. A few years after graduation, he started studying actuarial and financial mathematics, and he is about to pursue his PhD from Corvinus University of Budapest. In recent years, he has worked in the banking industry. Currently, he is developing statistical models with R. His interest lies in large networks and computational complexity.

Milan Badics

Milan Badics has a master's degree in finance from the Corvinus University of Budapest. Now, he is a PhD student and a member of the PADS PhD scholarship program. He teaches financial econometrics, and his main research topics are time series forecasting with data-mining methods, financial signal processing, and numerical sensitivity analysis on interest rate models. He won the competition of the X. Kochmeister-prize organized by the Hungarian Stock Exchange in May 2014.

Adam Banai

Adam Banai has received his MSc degree in investment analysis and risk management from Corvinus University of Budapest. He joined the Financial Stability department of the Magyar Nemzeti Bank (MNB, the central bank of Hungary) in 2008. Since 2013, he is the head of the Applied Research and Stress Testing department at the Financial System Analysis Directorate (MNB). He is also a PhD student at the Corvinus University of Budapest since 2011. His main research fields are solvency stress-testing, funding liquidity risk, and systemic risk.

Gergely Daroczi

Gergely Daroczi is an enthusiast R package developer and founder/CTO of an R-based web application at Rapporter. He is also a PhD candidate in sociology and is currently working as the lead R developer at CARD.com in Los Angeles. Besides teaching statistics and doing data analysis projects for several years, he has around 10 years of experience with the R programming environment. Gergely is the coauthor of Introduction to R for Quantitative Finance, and is currently working on another Packt book, Mastering Data Analysis with R, apart from a number of journal articles on social science and reporting topics. He contributed to the book by reviewing and formatting the R source code.

Users Review

From reader reviews:

James Gabriel:

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