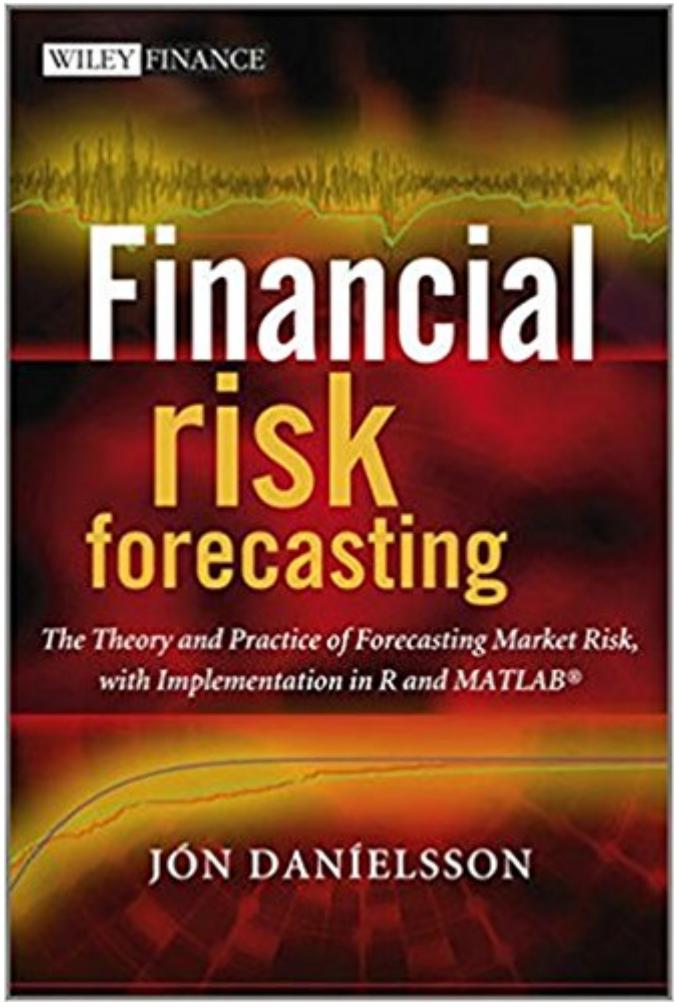
Financial Risk Forecasting: The Theory And Practice Of Forecasting Market Risk With Implementation In R And Matlab



Synopsis

Financial Risk Forecasting is a complete introduction to practical quantitative risk management, with a focus on market risk. Derived from the authors teaching notes and years spent training practitioners in risk management techniques, it brings together the three key disciplines of finance, statistics and modeling (programming), to provide a thorough grounding in risk management techniques. Written by renowned risk expert Jon Danielsson, the book begins with an introduction to financial markets and market prices, volatility clusters, fat tails and nonlinear dependence. It then goes on to present volatility forecasting with both univatiate and multivatiate methods, discussing the various methods used by industry, with a special focus on the GARCH family of models. The evaluation of the quality of forecasts is discussed in detail. Next, the main concepts in risk and models to forecast risk are discussed, especially volatility, value-at-risk and expected shortfall. The focus is both on risk in basic assets such as stocks and foreign exchange, but also calculations of risk in bonds and options, with analytical methods such as delta-normal VaR and duration-normal VaR and Monte Carlo simulation. The book then moves on to the evaluation of risk models with methods like backtesting, followed by a discussion on stress testing. The book concludes by focussing on the forecasting of risk in very large and uncommon events with extreme value theory and considering the underlying assumptions behind almost every risk model in practical use Ã¢â ¬â œ that risk is exogenous Ã¢â ¬â œ and what happens when those assumptions are violated. Every method presented brings together theoretical discussion and derivation of key equations and a discussion of issues in practical implementation. Each method is implemented in both MATLAB and R, two of the most commonly used mathematical programming languages for risk forecasting with which the reader can implement the models illustrated in the book. The book includes four appendices. The first introduces basic concepts in statistics and financial time series referred to throughout the book. The second and third introduce R and MATLAB, providing a discussion of the basic implementation of the software packages. And the final looks at the concept of maximum likelihood, especially issues in implementation and testing. The book is accompanied by a website - www.financialriskforecasting.com Ã¢â ¬â œ which features downloadable code as used in the book.

Book Information

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Customer Reviews

"More than ever risk managers in financial institutions have to assess the risk of financial products and portfolios in a rigorous way. With his new book, Professor Danielsson has risen to the task and produced a great book that combines his expertise with years of teaching market risk at LSE and other major universities. With perfect timing, this book achieves two objectives the academic and scientific community had to face: on the one hand it addresses the latest analytical techniques in the exact computation of risk measures, their use and their limitations, and on the other hand it considers the issue of risk pricing during a crisis. A real accomplishment and a must read for both risk professionals and students in the quantitative finance track." Xavier Freixas, Universitat Pompeu Fabra "I believe that this book covers the spectrum of quantitative techniques that any student of risk management should cover. The book moves gradually from traditional risk measures to downside risk measures and their application in stress testing. Advanced estimation of volatility models and use of extreme value theory are not eschewed and are the way to go for scenario analysis. A great added value of the book is the programs for all routines both in R and MATLABÃ Â®. The book ventures into the barren area of endogeneity of risk drivers. If I have to make a prediction, I would venture that this will keep scientists and markets busy for years to come. In short, a highly recommended book for any student of modern risk management techniques and their uses." Professor Casper de Vries, Chair of Monetary Economics, Departments of Economics and Business, School of Economics, Erasmus University Rotterdam "This is an outstanding book on empirical finance. I wholeheartedly recommend it." Professor Oliver B. Linton, Professor of Econometrics, London School of Economics "Financial Risk Forecasting is a tour de force. It is one of those rare works which successfully combine accessibility with academic rigour; it is copiously and most informatively illustrated. The addition of computer code, in commonly-used programming languages, for the implementation of concepts and techniques demonstrates a profound understanding of practical issues. With risk-based regulation now dominating the financial

landscape post-crisis, this book is a timely and authoritative resource for both students and practising financial analysts, of whatever stripe. It will join that select group of works on my bookshelf that have become dog-eared from repeated use over the years." Con Keating, Market Structure Commission, European Federation of Financial Analysts' Societies

Financial Risk Forecasting is a complete introduction to practical quantitative risk management, with a focus on market risk. Derived from the author's teaching notes and years spent training practitioners in risk management techniques, it brings together the three key disciplines of finance, statistics and modeling (programming), to provide a thorough grounding in risk management techniques. Written by renowned risk expert JÃƒÂ n DanÃƒÂ- elsson, the book begins with an introduction to financial markets and market prices, volatility clusters, fat tails and nonlinear dependence. It then goes on to present volatility forecasting with both univatiate and multivatiate methods, discussing the various methods used by industry, with a special focus on the GARCH family of models. The evaluation of the quality of forecasts is discussed in detail. Next, the main concepts in risk and models to forecast risk are discussed, especially volatility, value-at-risk and expected shortfall. The focus is both on risk in basic assets such as stocks and foreign exchange, but also calculations of risk in bonds and options, with analytical methods such as delta-normal VaR and duration-normal VaR and Monte Carlo simulation. The book then moves on to the evaluation of risk models with methods like backtesting, followed by a discussion on stress testing. The book concludes by focusing on the forecasting of risk in very large and uncommon events with extreme value theory and considering the underlying assumptions behind almost every risk model in practical use - that risk is exogenous - and what happens when those assumptions are violated. Every method presented brings together theoretical discussion and derivation of key equations and a discussion of issues in practical implementation. Each method is implemented in both MATLABÃ Â® and R, two of the most commonly used mathematical programming languages for risk forecasting with which the reader can implement the models illustrated in the book. The book includes four appendices. The first introduces basic concepts in statistics and financial time series referred to throughout the book. The second and third introduce R and MATLABÃ Â®, providing a discussion of the basic implementation of the software packages. And the final looks at the concept of maximum likelihood, especially issues in implementation and testing. The book is accompanied by a website - www.financialriskforecasting.com - which features downloadable code as used in the book.

I am satisfied with this purchase. I don’t think it is a one stop shop for everything you would want to know but the approach and exposition are solid and I would recommend this text.

There is nothing new in the topics discussed in this book and you can get a fuller and better treatment of those topics in many other textbooks. The promise of this book is that it would provide code for implementing various models. Don’t get me wrong, it does give R and MATLAB code for a decent amount of the material. However, these are mostly the basic models, such as GARCH(1,1), VaR, and Expected Shortfall.However, where this book falls short is in providing code for more complex models (and these don’t even have to be the real advanced models), in which any discussion related to programming is absent. For example, the book has a brief section on copulas with no code or any reference to programming issues or tips. If I wanted to read about copulas I would have chosen a different book, because the brief discussion of the subject matter doesn’t cover the important points. What I wanted to see is R and MATLAB code or, at the very least, some programming discussion on the implementation of the code. For example, are there R or MATLAB packages, what assumptions are commonly used for hard to estimate variables, etc.

The book is ok but each theme is treated with superficiality. With a title like that, you expect a certain type of content. The number of pages (250) are too few in order to treat properly this kind of topics. Moreover, even if the author provide an errata corrige the number of errors are embarrassing. Note also that the codes of chapter 3 "multivariate volatility models" doesn’t work anymore probably due to MATLAB update.I recommend this product only for an introduction.

R has always been my favorite language to forecast financial risk in my research and consulting. But, I have been reluctant to use it in my lectures on financial risk. It is certainly not the absence of appropriate R packages that refrained me. On the contrary, there is a large number of excellent R packages to forecast financial risk, for example, actuar, fPortfolio, QRMlib, VaR and PerformanceAnalytics, reviewed by Bernhard Pfaff at the 2010 R/Finance conference.However, teaching the practice of forecasting financial risk in R, is more than showing the students how to read data in R and obtain "a number" by applying the function to their time series. It requires students to understand the statistical properties of financial time series, build models that accommodate the statistical features of the data, test the validity of their risk model and interpret the risk forecasts.The book "Financial Risk Forecasting" by Jon Danielsson will be a very useful reference manual for my course. Let me illustrate this for the learning objective of calculating

portfolio expected shortfall using dynamic conditional covariance estimates. Appendix B gives a hands-on introduction to inputting time series in R, work with vectors and matrices, and apply and write functions in R. There is even some attention given to efficient programming by avoiding loops when possible. Chapter 1 presents the statistical techniques used for analyzing prices and returns in financial markets, in particular the tools needed to illustrate the stylized facts of skewness, fat-tails, time-varying volatility and non-linear dependence between multiple return series. Once the properties of the time series have been understood, the models that accommodate the features of the data are introduced. Chapters 2 and 3 give a detailed overview on the specification and applications of univariate (normal and student t GARCH, APARCH) and multivariate GARCH models (in particular, the DCC model) and how to implement these in R. Chapter 4 then derives the formulas of Value-at-Risk and Expected Shortfall, for single assets and portfolios. Chapter 8 shows clearly how to backtest risk models using among others Bernouilli coverage tests.There are many more interesting topics in the books. Chapters 6-7 focus on the estimation of risk of investing in bonds and options, with analytical methods such as delta-normal VaR and duration-normal VaR but also by simulation. Chapter 8 describes the implementation of stress tests. Some of the stress scenarios correspond to very large and uncommon events, requiring extreme value theory (EVT), which is discussed in Chapter 9. The book concludes with a warning that most risk models assume that financial risk is exogenous, but most financial crises have endogenous risk at their heart, where the behavior of financial agents amplifies the risk. Chapter 10 gives an intuitive explanation of endogenous risk and describes endogenous risk models. Finally, the book is supported by a clearly organized website ([...]) that allows discussions and code downloads.I find the book pleasant to read. It presents theoretical material in an intuitive way, while still deriving key equations and discussing the issues in practical implementation with many illustrations, both in the form of numerical examples and figures.In summary, "Forecasting Financial Risk" strikes an excellent balance between the theory and practice of financial risk forecasting. It combines the programming, financial and statistical aspects of forecasting financial risk in an accessible way. As the book moves gradually from financial time series analysis to modeling and forecasting risk in R, I would recommend it for teaching a computational finance oriented class on risk management. Also for experienced risk professionals, the book should be useful, as it covers the latest advances in forecasting risk.

Financial Risk Forecasting: The Theory and Practice of Forecasting Market Risk with Implementation in R and Matlab Signals and Systems using MATLAB, Second Edition (Signals and

Systems Using MATLAB w/ Online Testing) Image Processing with MATLAB: Applications in Medicine and Biology (MATLAB Examples) Accelerating MATLAB Performance: 1001 tips to speed up MATLAB programs Forecasting, Time Series, and Regression (with CD-ROM) (Forecasting, Time Series, & Regression) Mastering Elliott Wave: Presenting the Neely Method: The First Scientific, Objective Approach to Market Forecasting with the Elliott Wave Theory (version 2) Model Risk in Financial Markets:From Financial Engineering to Risk Management Investing for Beginners: An Introduction to the Stock Market, Stock Market Investing for Beginners, An Introduction to the Forex Market, Options Trading Kalman Filtering: Theory and Practice with MATLAB (Wiley - IEEE) Governance of Global Financial Markets: The Law, the Economics, the Politics (International Corporate Law and Financial Market Regulation) Financial Shelter: Avoid the Storm of Market Risk, Lawsuits, and Taxes Emerging Market Bank Lending and Credit Risk Control: Evolving Strategies to Mitigate Credit Risk, Optimize Lending Portfolios, and Check Delinquent Loans Blockchain: The History, Mechanics, Technical Implementation And Powerful Uses of Blockchain Technology (blockchain guide, smart contracts, financial technology, blockchain programming) Enterprise Risk Management - Straight to the Point: An Implementation Guide Function by Function (Viewpoints on ERM) Enterprise Risk Management - Straight to the Point: An Implementation Guide Function by Function (Viewpoints on ERM Book 1) FINTECH: Simple and Easy Guide to Financial Technology(Fin Tech, Fintech Bitcoin, financial technology fintech, Fintech Innovation, Fintech Gold, Financial services technology,equity crowdfunding) How to Have Outrageous Financial Abundance In No Time::Biblical Principles For Immediate And Overwhelming Financial Success: Wealth Creation,Personal Finance, Budgeting, Make Money,Financial Freedom Market Research in Practice: An Introduction to Gaining Greater Market Insight Credit Risk Management: Basic Concepts: Financial Risk Components, Rating Analysis, Models, Economic and Regulatory Capital Forensic Assessment of Violence Risk: A Guide for Risk Assessment and Risk Management