1. Record Nr. UNINA9910462581603321

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Titolo: Dynamic models for volatility and heavy tails : with applications to financial and economic time series / / Andrew C. Harvey [[electronic resource]]

Pubbl/distr/stampa: Cambridge : , : Cambridge University Press, , 2013

ISBN:
1-107-32712-1
1-107-33688-0
1-107-33356-3
1-107-33522-1
1-139-54093-9

Descrizione fisica: 1 online resource (xviii, 261 pages) : digital, PDF file(s)

Collana: Econometric Society monographs ; ; 52

Disciplina: 330.01/5195

Soggetti:
Econometrics
Finance - Mathematical models
Time-series analysis

Lingua di pubblicazione: Inglese

Formato: Materiale a stampa

Livello bibliografico: Monografia

Note generali: Title from publisher's bibliographic system (viewed on 05 Oct 2015).

Nota di bibliografia: Includes bibliographical references (p. 247-254) and indexes.

Nota di contenuto: Contents; Preface; Acronyms and Abbreviations; 1 Introduction; 1.1 Unobserved Components and Filters; 1.2 Independence, White Noise and Martingale Differences; 1.2.1 The Law of Iterated Expectations and Optimal Predictions; 1.2.2 Definitions and Properties; 1.3 Volatility; 1.3.1 Stochastic Volatility; 1.3.2 Generalized Autoregressive Conditional Heteroscedasticity; 1.3.3 Exponential GARCH; 1.3.4 Variance, Scale and Outliers; 1.3.5 Location/Scale Models; 1.4 Dynamic Conditional Score Models; 1.5 Distributions and Quantiles; 1.6 Plan of Book; 2 Statistical Distributions and Asymptotic Theory
2.1 Distributions2.1.1 Student's t Distribution; 2.1.2 General Error Distribution; 2.1.3 Beta Distribution; 2.1.4 Gamma Distribution; 2.2 Maximum Likelihood; 2.2.1 Student's t Distribution; 2.2.2 General Error Distribution; 2.2.3 Gamma Distribution; 2.2.4 Consistency and Asymptotic Normality*; 2.3 Maximum Likelihood Estimation; 2.3.1 An Information Matrix Lemma; 2.3.2 Information Matrix for the First-Order Model; 2.3.3 Information Matrix with the 0=x""010E Parameterization*;

Sommario/riassunto

The volatility of financial returns changes over time and, for the last thirty years, Generalized Autoregressive Conditional Heteroscedasticity (GARCH) models have provided the principal means of analyzing, modeling and monitoring such changes. Taking into account that financial returns typically exhibit heavy tails - that is, extreme values can occur from time to time - Andrew Harvey's new book shows how a small but radical change in the way GARCH models are formulated leads to a resolution of many of the theoretical problems inherent in the statistical theory. The approach can also be applied to other aspects of volatility. The more general class of Dynamic Conditional Score models extends to robust modeling of outliers in the levels of time series and to the treatment of time-varying relationships. The statistical theory draws on basic principles of maximum likelihood estimation and, by doing so, leads to an elegant and unified treatment of nonlinear time-series modeling.