Econometric Modelling of Stock Market Intraday Activity

Over the past 25 years, applied econometrics has undergone tremendous changes, with active developments in fields of research such as time series, labor econometrics, financial econometrics and simulation based methods. Time series analysis has been an active field of research since the seminal work by Box and Jenkins (1976), who introduced a general framework in which time series can be analyzed. In the world of financial econometrics and the application of time series techniques, the ARCH model of Engle (1982) has shifted the focus from the modelling of the process in itself to the
modelling of the volatility of the process. In less than 15 years, it has become one of the most successful fields of applied econometric research with hundreds of published papers. As an alternative to the ARCH modelling of the volatility, Taylor (1986) introduced the stochastic volatility model, whose features are quite similar to the ARCH specification but which involves an unobserved or latent component for the volatility. While being more difficult to estimate than usual GARCH models, stochastic volatility models have found numerous applications in the modelling of volatility and more particularly in the econometric part of option pricing formulas. Although modelling volatility is one of the best known examples of applied financial econometrics, other topics (factor models, present value relationships, term structure models) were also successfully tackled.

The Econometrics of Financial Markets-John Y. Campbell 2012-06-28 The past twenty years have seen an extraordinary growth in the use of quantitative methods in financial markets. Finance professionals now routinely use sophisticated statistical techniques in portfolio management, proprietary trading, risk management, financial consulting, and securities regulation. This graduate-level textbook is intended for PhD students, advanced MBA students, and industry professionals interested in the econometrics of financial modeling. The book covers the entire spectrum of empirical finance, including: the predictability of asset returns, tests of the Random Walk Hypothesis, the microstructure of securities markets, event analysis, the Capital Asset Pricing Model and the Arbitrage Pricing Theory, the term structure of interest rates, dynamic models of economic equilibrium, and nonlinear financial models such as ARCH, neural networks, statistical fractals, and chaos theory. Each chapter develops statistical techniques within the context of a particular financial application. This exciting new text contains a unique and accessible combination of theory and
practice, bringing state-of-the-art statistical techniques to the forefront of financial applications. Each chapter also includes a discussion of recent empirical evidence, for example, the rejection of the Random Walk Hypothesis, as well as problems designed to help readers incorporate what they have read into their own applications.

An Econometric Model of the Stock Market-Samuel Spencer Stewrat (Jr.) 1970

Financial Econometrics and Empirical Market Microstructure-Anil K. Bera 2014-11-18 In the era of Big Data our society is given the unique opportunity to understand the inner dynamics and behavior of complex socio-economic systems. Advances in the availability of very large databases, in capabilities for massive data mining, as well as progress in complex systems theory, multi-agent simulation and computational social science open the possibility of modeling phenomena never before successfully achieved. This contributed volume from the Perm Winter School address the problems of the mechanisms and statistics of the socio-economics system evolution with a focus on financial markets powered by the high-frequency data analysis.

Financial Econometrics-Oliver Linton 2019-01-31 Presents an up-to-date treatment of the models and methodologies of financial econometrics by one of the world's leading financial econometricians.

Empirical Finance-Sardar M. N. Islam 2012-12-06 This book makes two key contributions to empirical finance. First it provides a comprehensive analysis of the Thai stock market. Second it presents an excellent exposition of how modern econometric techniques can be utilised to understand a market. The increasing globalisation of the world's financial markets has made our understanding of the risk-return relationship in a broader range of markets critical. This is particularly so in emerging markets where market depth and liquidity are major issues. One such emerging market is Thailand. The Thai capital market is of particular interest given that it was the market in which the...
Asian financial crises commenced. As such an understanding of the Thai capital market via study of the pre and post-crisis periods enables one to shed light on one of the major financial markets events of recent times. This book provides a quantitative analysis of the Thai capital market using some very useful and recent econometric techniques. The book provides an overview of the Thai stock market in chapter 2. Descriptive statistics and time series models (moving average, exponential smoothing, ARIMA) are presented in chapter 3 followed by market efficiency tests based on autocorrelations in chapter 4. A richer set of models is then considered in chapters 5 through 8. Chapter 5 finds a cointegrating relationship between macroeconomic factors and stock returns.

The Econometric Modelling of Financial Time Series-Terence C. Mills 2008-03-20 Terence Mills' best-selling graduate textbook provides detailed coverage of research techniques and findings relating to the empirical analysis of financial markets. In its previous editions it has become required reading for many graduate courses on the econometrics of financial modelling. This third edition, co-authored with Raphael Markellos, contains a wealth of material reflecting the developments of the last decade. Particular attention is paid to the wide range of nonlinear models that are used to analyse financial data observed at high frequencies and to the long memory characteristics found in financial time series. The central material on unit root processes and the modelling of trends and structural breaks has been substantially expanded into a chapter of its own. There is also an extended discussion of the treatment of volatility, accompanied by a new chapter on nonlinearity and its testing.

Modeling-Stan Hurn 2020-02
"An introduction to the field of financial econometrics, focusing on providing an introduction for undergraduate and postgraduate students whose math skills may not be at the most advanced level, but who need this material to pursue careers in research and the financial industry"--

Empirical Market Microstructure-Joel Hasbrouck 2007-01-04 The interactions that occur in securities markets are among the fastest, most information intensive, and most highly strategic of all economic phenomena. This book is about the institutions that have evolved to handle our trading needs, the economic forces that guide our strategies, and statistical methods of using and interpreting the vast amount of information that these markets produce. The book includes numerous exercises.

Bayesian Inference in Dynamic Econometric Models-Luc Bauwens 2000-01-06 This book contains an up-to-date coverage of the last twenty years advances in Bayesian inference in econometrics, with an emphasis on dynamic models. It shows how to treat Bayesian inference in non linear models, by integrating the useful developments of numerical integration techniques based on simulations (such as Markov Chain Monte Carlo methods), and the long available analytical results of Bayesian inference for linear regression models. It thus covers a broad range of rather recent models for economic time series, such as non linear models, autoregressive conditional heteroskedastic regressions, and cointegrated vector autoregressive models. It contains also an extensive chapter on unit root inference from the Bayesian viewpoint. Several examples illustrate the methods.

Financial Econometrics-Christian Gourieroux 2018-06-05 Financial econometrics is a great success story in economics. Econometrics uses data and statistical inference methods, together with structural and descriptive modeling, to address rigorous economic problems. Its development within the world of finance is quite recent and has been
paralleled by a fast expansion of financial markets and an increasing variety and complexity of financial products. This has fueled the demand for people with advanced econometrics skills. For professionals and advanced graduate students pursuing greater expertise in econometric modeling, this is a superb guide to the field's frontier. With the goal of providing information that is absolutely up-to-date--essential in today's rapidly evolving financial environment--Gourieroux and Jasiak focus on methods related to foregoing research and those modeling techniques that seem relevant to future advances. They present a balanced synthesis of financial theory and statistical methodology. Recognizing that any model is necessarily a simplified image of reality and that econometric methods must be adapted and applied on a case-by-case basis, the authors employ a wide variety of data sampled at frequencies ranging from intraday to monthly. These data comprise time series representing both the European and North American markets for stocks, bonds, and foreign currencies. Practitioners are encouraged to keep a critical eye and are armed with graphical diagnostics to eradicate misspecification errors. This authoritative, state-of-the-art reference text is ideal for upper-level graduate students, researchers, and professionals seeking to update their skills and gain greater facility in using econometric models. All will benefit from the emphasis on practical aspects of financial modeling and statistical inference. Doctoral candidates will appreciate the inclusion of detailed mathematical derivations of the deeper results as well as the more advanced problems concerning high-frequency data and risk control. By establishing a link between practical questions and the answers provided by financial and statistical theory, the book also addresses the needs of applied researchers employed by financial institutions.

The Econometrics of Panel Data-László Mátyás
2013-12-01 The aim of this...
volume is to provide a general overview of the econometrics of panel data, both from a theoretical and from an applied viewpoint. Since the pioneering papers by Edwin Kuh (1959), Yair Mundlak (1961), Irving Hoch (1962), and Pietro Balestra and Marc Nerlove (1966), the pooling of cross sections and time series data has become an increasingly popular way of quantifying economic relationships. Each series provides information lacking in the other, so a combination of both leads to more accurate and reliable results than would be achievable by one type of series alone. Over the last 30 years much work has been done: investigation of the properties of the applied estimators and test statistics, analysis of dynamic models and the effects of eventual measurement errors, etc. These are just some of the problems addressed by this work. In addition, some specific difficulties associated with the use of panel data, such as attrition, heterogeneity, selectivity bias, pseudo panels etc., have also been explored. The first objective of this book, which takes up Parts I and II, is to give as complete and up-to-date a presentation of these theoretical developments as possible. Part I is concerned with classical linear models and their extensions; Part II deals with nonlinear models and related issues: logit and probit models, latent variable models, duration and count data models, incomplete panels and selectivity bias, point processes, and simulation techniques.

The Econometric Modelling of Financial Time Series-Terence C Mills 1999-08-26 Provides detailed coverage of the models currently being used in the empirical analysis of financial markets. Copyright © Libri GmbH. All rights reserved.

Empirical Finance-Sardar M. N. Islam 2012-12-06 This book makes two key contributions to empirical finance. First it provides a comprehensive analysis of the Thai stock market. Second it presents an excellent exposition of how modern econometric techniques can be utilised to understand a market. The increasing globalisation of the world's financial markets has made
understanding of the risk-return relationship in a broader range of markets critical. This is particularly so in emerging markets where market depth and liquidity are major issues. One such emerging market is Thailand. The Thai capital market is of particular interest given that it was the market in which the Asian financial crises commenced. As such an understanding of the Thai capital market via study of the pre and post-crisis periods enables one to shed light on one of the major financial markets events of recent times. This book provides a quantitative analysis of the Thai capital market using some very useful and recent econometric techniques. The book provides an overview of the Thai stock market in chapter 2. Descriptive statistics and time series models (moving average, exponential smoothing, ARIMA) are presented in chapter 3 followed by market efficiency tests based on autocorrelations in chapter 4. A richer set of models is then considered in chapters 5 through 8. Chapter 5 finds a cointegrating relationship between macroeconomic factors and stock returns.

An Econometric Model of the Market-Samuel Spencer Stewart 1970
A Nonlinear Time Series Workshop-Douglas M. Patterson 2000
The analysis of what might be called "dynamic nonlinearity" in time series has its roots in the pioneering work of Brillinger (1965) - who first pointed out how the bispectrum and higher order polyspectra could, in principle, be used to test for nonlinear serial dependence - and in Subba Rao and Gabr (1980) and Hinich (1982) who each showed how Brillinger's insight could be translated into a statistical test. Hinich's test, because it takes advantage of the large sample statistical properties of the bispectral estimates became the first usable statistical test for nonlinear serial dependence. We are forever grateful to Mel Hinich for getting us involved at that time in this fascinating and fruitful endeavor. With help from Mel (sometimes as a mentor, sometimes as a collaborator) we developed and applied this bispectral...
test in the ensuing period. The first application of the test was to daily stock returns {Hinich and Patterson (1982, 1985)} yielding the important discovery of substantial nonlinear serial dependence in returns, over and above the weak linear serial dependence that had been previously observed. The original manuscript met with resistance from finance journals, no doubt because finance academics were reluctant to recognize the importance of distinguishing between serial correlation and nonlinear serial dependence. In Ashley, Patterson and Hinich (1986) we examined the power and size of the test in finite samples.

Financial Econometric Modeling of Risk in Commodity Markets-Jeongseok Song 2004 Econometric Modelling of World Shipping-M. Beenstock 1993-09-30 Econometric Modelling of World Shipping describes an economic model that may be used to forecast world shipping markets. A unique feature of the model is that it relates to both sectors of world shipping, the dry cargo sector and the tanker sector. This is the first time that a model of this type has been published. This book also breaks new ground in explaining the behaviour of vessel prices, both new and secondhand.

Econometrics of Financial High-Frequency Data-Nikolaus Hautsch 2011-10-12 The availability of financial data recorded on high-frequency level has inspired a research area which over the last decade emerged to a major area in econometrics and statistics. The growing popularity of high-frequency econometrics is driven by technological progress in trading systems and an increasing importance of intraday trading, liquidity risk, optimal order placement as well as high-frequency volatility. This book provides a state-of-the-art overview on the major approaches in high-frequency econometrics, including univariate and multivariate autoregressive conditional mean approaches for different types of high-frequency variables, intensity-based approaches for financial point processes and dynamic factor models. It discusses implementation
details, provides insights into properties of high-frequency data as well as institutional settings and presents applications to volatility and liquidity estimation, order book modelling and market microstructure analysis.

Security Markets-Darrell Duffie 1988-07-28 This is an introduction to the theory of security markets, dealing principally with the allocational role and valuation of financial securities in a competitive setting.

Market Risk Analysis, Practical Financial Econometrics-Carol Alexander 2008-04-30 Written by leading market risk academic, Professor Carol Alexander, Practical Financial Econometrics forms part two of the Market Risk Analysis four volume set. It introduces the econometric techniques that are commonly applied to finance with a critical and selective exposition, emphasising the areas of econometrics, such as GARCH, cointegration and copulas that are required for resolving problems in market risk analysis. The book covers material for a one-semester graduate course in applied financial econometrics in a very pedagogical fashion as each time a concept is introduced an empirical example is given, and whenever possible this is illustrated with an Excel spreadsheet. All together, the Market Risk Analysis four volume set illustrates virtually every concept or formula with a practical, numerical example or a longer, empirical case study. Across all four volumes there are approximately 300 numerical and empirical examples, 400 graphs and figures and 30 case studies many of which are contained in interactive Excel spreadsheets available from the the accompanying CD-ROM . Empirical examples and case studies specific to this volume include: Factor analysis with orthogonal regressions and using principal component factors; Estimation of symmetric and asymmetric, normal and Student t GARCH and E-GARCH parameters; Normal, Student t, Gumbel, Clayton, normal mixture copula densities, and simulations from these copulas with application to VaR and portfolio optimization;
Principal component analysis of yield curves with applications to portfolio immunization and asset/liability management; Simulation of normal mixture and Markov switching GARCH returns; Cointegration based index tracking and pairs trading, with error correction and impulse response modelling; Markov switching regression models (Eviews code); GARCH term structure forecasting with volatility targeting; Non-linear quantile regressions with applications to hedging.

Algorithmic Trading-Ernie Chan 2013-05-28 Praise for Algorithmic Trading
"Algorithmic Trading is an insightful book on quantitative trading written by a seasoned practitioner. What sets this book apart from many others in the space is the emphasis on real examples as opposed to just theory. Concepts are not only described, they are brought to life with actual trading strategies, which give the reader insight into how and why each strategy was developed, how it was implemented, and even how it was coded. This book is a valuable resource for anyone looking to create their own systematic trading strategies and those involved in manager selection, where the knowledge contained in this book will lead to a more informed and nuanced conversation with managers."
—DAREN SMITH, CFA, CAIA, FSA, President and Chief Investment Officer, University of Toronto Asset Management

"Using an excellent selection of mean reversion and momentum strategies, Ernie explains the rationale behind each one, shows how to test it, how to improve it, and discusses implementation issues. His book is a careful, detailed exposition of the scientific method applied to strategy development. For serious retail traders, I know of no other book that provides this range of examples and level of detail. His discussions of how regime changes affect strategies, and of risk management, are invaluable bonuses." —Roger Hunter, Mathematician and Algorithmic Trader

Handbook of Financial Econometrics—Yacine Aït-Sahalia 2009-10-19 This collection of original articles—8 years in the making—shines a bright light on recent advances in financial econometrics. From a survey of mathematical and statistical tools for understanding nonlinear Markov processes to an exploration of the time-series evolution of the risk-return tradeoff for stock market investment, noted scholars Yacine Aït-Sahalia and Lars Peter Hansen benchmark the current state of knowledge while contributors build a framework for its growth. Whether in the presence of statistical uncertainty or the proven advantages and limitations of value at risk models, readers will discover that they can set few constraints on the value of this long-awaited volume. Presents a broad survey of current research—from local characterizations of the Markov process dynamics to financial market trading activity Contributors include Nobel Laureate Robert Engle and leading econometricians Offers a clarity of method and explanation unavailable in other financial econometrics collections

Financial Econometrics—Svetlozar T. Rachev 2007-03-22 A comprehensive guide to financial econometrics Financial econometrics is a quest for models that describe financial time series such as prices, returns, interest rates, and exchange rates. In Financial Econometrics, readers will be introduced to this growing discipline and the concepts and theories associated with it, including background material on probability theory and statistics. The experienced author team uses real-world data where possible and brings in the results of published research provided by investment banking firms and journals. Financial Econometrics clearly explains the techniques presented and provides illustrative examples for the topics discussed.

Svetlozar T. Rachev, PhD (Karlsruhe, Germany) is currently Chair-Professor at the University of Karlsruhe. Stefan Mittnik, PhD (Munich, Germany) is Professor of Financial Econometrics at the
From 1976 to the beginning of the millennium—covering the quarter-century life span of this book and its predecessor—something remarkable has happened to market response research: it has become practice. Academics who teach in professional fields, like we do, dream of such things. Imagine the satisfaction of knowing that your work has been incorporated into the decision-making routine of brand managers, that category management relies on techniques you developed, that marketing management believes in something you struggled to establish in their minds. It’s not just us that we are talking about. This pride must be shared by all of the researchers who pioneered the simple concept that the determinants of sales could be found if someone just looked for them. Of course, economists had always studied demand. But the project of extending demand analysis would fall to marketing researchers, now called marketing scientists for good reason, who saw that in reality the marketing mix was more than price; it was advertising, sales force effort, distribution, promotion, and every other decision variable that potentially affected sales. The bibliography of this book supports the notion that the academic research in marketing led the way. The journey was difficult, sometimes halting, but ultimately market response research advanced and then insinuated itself into the fabric of modern management. Applied econometrics and macroeconometric modelling in Nigeria-Adeola F. Adenikinju 2009 Financial Markets and the
Real Economy-John Howland Cochrane 2005 Financial Markets and the Real Economy reviews the current academic literature on the macroeconomics of finance. The American economic review- 1979

Statistical Models and Methods for Financial Markets-Tze Leung Lai 2008-09-08 The idea of writing this book arose in 2000 when the first author was assigned to teach the required course STATS 240 (Statistical Methods in Finance) in the new M. S. program in nancial mathematics at Stanford, which is an interdisciplinary program that aims to provide a master’s-level education in applied mathematics, statistics, computing, nance, and economics. Students in the program had di erent backgrounds in statistics. Some had only taken a basic course in statistical inference, while others had taken a broad spectrum of M. S. - and Ph. D. -level statistics courses. On the other hand, all of them had already taken required core courses in investment theory and derivative pricing, and STATS 240 was supposed to link the theory and pricing formulas to real-world data and pricing or investment strategies. Besides students in the program, the course also attracted many students from other departments in the university, further increasing the heterogeneity of students, as many of them had a strong background in mathematical and statistical modeling from the mathematical, physical, and engineering sciences but no previous experience in nance. To address the diversity in background but common strong interest in the subject and in a potential career as a “quant” in the nancial industry, the course material was carefully chosen to provide basic statistical methods of importance to nancial analysis and decision making. The course material evolved over the years, especially after the second author helped as the head TA during the years 2004 and 2005.

Analyzing the Stock Market-H. Russell Fogler 1973
Modelling Stock Market Volatility - Peter H. Rossi
1996-11-19 This essay collection focuses on the relationship between continuous time models and Autoregressive Conditionally Heteroskedastic (ARCH) models and applications. For the first time, Modelling Stock Market Volatility provides new insights about the links between these two models and new work on practical estimation methods for continuous time models. Featuring the pioneering scholarship of Daniel Nelson, the text presents research about the discrete time model, continuous time limits and optimal filtering of ARCH models, and the specification and estimation of continuous time processes. This work will lead to a rapid growth in their empirical application as they are increasingly subjected to routine specification testing. Provides for the first time new insights on the links between continuous time and ARCH models
Collects seminal scholarship by some of the most renowned researchers in finance and econometrics
Captures complex arguments underlying the approximation and proper statistical modelling of continuous time volatility dynamics
Factor Analysis of a Model of Stock Market Returns Using Simulation-based Estimation Techniques - Diana Zhumabekova
2001 Structural Changes and their Econometric Modeling - Vladik Kreinovich
2018-11-24 This book focuses on structural changes and economic modeling. It presents papers describing how to model structural changes, as well as those introducing improvements to the existing before-structural-changes models, making it easier to later on combine these models with techniques describing structural changes. The book also includes related theoretical developments and practical applications of the resulting techniques to economic problems. Most traditional mathematical models of economic processes describe how the corresponding quantities change with time. However, in addition to such relatively smooth numerical changes, economical phenomena often undergo more drastic structural change. Describing
such structural changes is not easy, but it is vital if we want to have a more adequate description of economic phenomena – and thus, more accurate and more reliable predictions and a better understanding on how best to influence the economic situation.

Economic Review- 1983
Conquering the Divide-James B. Cornehlsen 2011-01-01
Many writers focus on economy time series, but James B. Cornehlsen and Michael J. Carr are the first to outline a comprehensive, rigorously tested, easy to understand model. Sneak Peek In Conquering The Divide, the authors provide documentation of their model’s validity. Using statistical verification, Cornehlsen and Carr don’t dumb down the economy; they lay out its signals and indicators. Here, they offer a plan for risk assessment that shows you how to maximize returns, forecast inflation, and get out before big declines.

Dynamic Models for Volatility and Heavy Tails-Andrew C. Harvey 2013-04-22 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.

Market Risk and Financial Markets Modeling-Didier Sornette 2012-02-03 The current financial crisis has
revealed serious flaws in models, measures and, potentially, theories, that failed to provide forward-looking expectations for upcoming losses originated from market risks. The Proceedings of the Perm Winter School 2011 propose insights on many key issues and advances in financial markets modeling and risk measurement aiming to bridge the gap. The key addressed topics include: hierarchical and ultrametric models of financial crashes, dynamic hedging, arbitrage free modeling the term structure of interest rates, agent based modeling of order flow, asset pricing in a fractional market, hedge funds performance and many more. 

Alternative Econometric Models for Detecting the Effects of Accounting Policy Decisions-Joel Edward Thompson 1982