



The econometrics of Financial Markets

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Book Reviews

The Econometrics of Financial Markets. By JOHN Y. CAMPBELL, ANDREW W. LO, and A. CRAIG MACKINLAY. Princeton: Princeton University Press, 1997. Pp. xvii–611.

As a teacher of a Ph.D.-level empirical finance course and an advanced MBA-level course in quantitative investments, my usual strategy has been to assign a long list of readings and distribute a loosely knit set of lecture notes. The arrival of *The Econometrics of Financial Markets* has changed the course portfolio. The students now have a cogent guide to the vast literature that we characterize as empirical finance.

The primary strength of this book is its ability to provide a detailed road map of empirical finance. It is important to realize that this book is best used as a guide. The student of empirical finance must still read the underlying literature on each of the topics. The book is not a substitute for reading this literature; however, it puts the literature in context, connects complex strands of thoughts, and provides a comprehensive bibliography for the student of empirical finance.

The second strength of the book is its organization. The authors begin with a study of individual security returns. They next consider the institutional structures that might influence asset return behavior. Then they examine how information is compounded in prices. Next, they present economic models that explain the relative behavior of asset returns (asset pricing models). Finally, the authors link the financial models with a number of economic models. The last part of the text covers a number of important topics that often have Ph.D. courses on their own: derivatives pricing, fixed income dynamics, and nonlinearities in financial data.

Let me comment in more detail on the sequence of learning. It makes sense to begin the journey at the place where we also end: the notion of market efficiency. Aside from setting out basic definitions, that is where this book begins. Many of the research initiatives in empirical finance are framed in the context of market efficiency. It is important to introduce this concept up front, which is exactly what the authors do.

It also makes sense to begin the book with the examination of individual asset returns. The first target is the Random Walk Hypothesis. The authors start with the most basic but perhaps most intriguing concept in finance—the predictability of asset returns. They provide a lucid description of the various versions of the random walk hypothesis and plenty of empirical examples. Both short- and long-term returns are examined.

The book then moves to market microstructure. Although there has been active research on microstructure for a long time, it is only within the last ten years that microstructure has emerged as a full-fledged subdiscipline in

finance. This emergence can be partly explained by the advent of transactions level datasets and computers fast enough to handle the considerable data processing requirements. The text provides insight on both the nonsynchronous trading problem and the bid–ask spread. The final part of the chapter goes through considerable detail on how to econometrically model transactions level data.

The initial chapters of the text deal with individual securities on their own—from the behavior of individual returns to the impact of microstructure on returns—and finish by examining how information affects asset returns. The classic vehicle for this is the event study. The authors provide a rigorous analysis of the different models that can be used in event study analysis and an examination of the relative statistical power of such methods.

They then turn to the relative behavior of expected returns of assets by examining cross-sectional asset pricing models, beginning with the Capital Asset Pricing Model (CAPM). Efficient set mathematics are introduced and a rigorous statistical framework is presented for estimating and testing the CAPM (including analysis of both size and power of tests). The chapter ends with a discussion of the cross-sectional regression test that is popular today in implementations of asset pricing models.

Although it is historically important to clearly understand the CAPM, most current asset pricing tests focus on multifactor models. This book provides the theoretical foundation as well as an econometric discussion of both the factor analytic/principal component and the macroeconomic/prespecified approaches. As opposed to simply telling us how to fit a multifactor model, the authors emphasize interpretation of the model fit.

The next two chapters deal with two important approaches that help clarify both the time-series of expected asset returns and their cross-sectional behavior. The first approach is the present value model and the log-linear implementation of that model. This model was initially used to argue that stock prices were too volatile to be consistent with forecasts of future dividends. The model also has been used to understand the long-term predictability of asset returns. Additionally, the model provides a paradigm to help characterize the components of each security's or portfolio's risk.

The authors end this part of the book with a discussion of stochastic discount factor models. Some of the most important advances in financial econometrics over the past ten years have been made in this area. The theme that runs throughout the chapter is the equity premium puzzle: Why is the premium on equity so high? The book examines different versions of the stochastic discount factor model ranging from volatility bounds to power utility to more general utility formulations. At each instance, the authors revisit the equity premium puzzle. This approach is consistent with the authors' emphasis on interpretation rather than implementation.

The three final chapters of the book deal with derivatives pricing, term structure models, and nonlinearities in financial data. As I mentioned earlier, it is not unusual to have Ph.D. courses devoted to each of these chapters. These chapters are expertly crafted; in a way, they provide a perspective

of what is to come in other courses and books. The chapter on nonlinearities was especially interesting to me because it previews some of the current research initiatives being pursued to understand returns behavior.

Returning to the strengths of the book, the third strength is the attention paid to historical detail. There were many details that I was not aware of—for example, that the first event study of stock splits was published in 1933 that the characterization of weak form, semistrong form, and strong-form efficiency is due to Harry Roberts in 1967. The abundance of such historical details make the book more than just a guide to econometric methods in finance.

The fourth strength of the book is its original empirical work. Rather than simply reproducing tables from published articles, the authors have created their own set of empirical work that is presented throughout the book. This extra credibility makes this work an original research contribution as well as a textbook.

The final strength of the book is the remarkable fact that, as a group, the authors have made distinguished contributions to each of the areas covered in the book. For example, who are the names you think of on topics like: the random walk hypothesis, multinomial probit for transactions data, statistical analysis of event studies, tests of the CAPM, datasnooping, present value models and long-term returns, the information in the term structure, adjustments of derivatives pricing models to allow for predictability in returns, and nonparametric estimation? These authors are not just writing about a literature they have read—they have contributed to and in some cases defined the literature. It is obvious that they have thought deeply about the research problems.

What about the weaknesses? Well this section is really short. I must admit that I was a reviewer for Princeton University Press. The final product is outstanding; however, there are a number of typos. I advise the reader to get the list of known typos from any of the authors. This problem will shortly be resolved in a second printing of the book. Interestingly, I also understand that Princeton University Press printed enough for a three year supply—so they thought! The text is selling well both to students and to practitioners of finance.

The best thing about this book is that it is not just a book about econometrics—it is about economics and sound research methodologies. In the book's final paragraph, the authors make the case for "an a priori framework or specification for the model before confronting the data." This is one of the most important pieces of advice for researchers. Too often I see research where it is obvious that the data have been tortured and then some story has been told that is consistent with "results." It is much better to specify an economic model and then go to the data. This allows us to interpret the data in the context of a model. Without a model, it is difficult to say anything.

With these thoughts, we return to the beginning of the book where the notion of market efficiency is defined. This is the classic example of where an economic model is critical. Without a model of equilibrium prices, we cannot make

statements about deviation from “true” prices because it is the model that provides the definition of “true.” To make things more challenging, we are never sure what the right model is.

You can guess that I highly recommend this text. I use it in both my Ph.D. course and my advanced MBA elective. I have also noticed that many practitioners of quantitative finance already have a copy. It is a large positive net present value investment.

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Institutional Shareholders and Corporate Governance. By GEOFF P. STAPLEDON. Oxford, U.K.: Oxford University Press, 1996. Pp. xxxii + 376.

Comparative corporate governance, especially the difference between *outsider systems* of corporate governance as practiced in the market-dominated economies of the United States and the United Kingdom and *insider systems* as practiced in the bank-dominated economies of Germany and Japan, has received a lot of attention (see John and Senbet (1997) and Shleifer and Vishny (1997)). Institutional investors in the United States and in the United Kingdom have the incentive to monitor firms in which they hold shares, thereby subjecting management to some of the same forces as their German and Japanese counterparts. The tremendous growth in institutional shareholding over the last decade and the increasing role of institutions as relational investors and firm monitors is therefore an important issue (see Chidambaran and John (1997)). This book contributes to the literature in comparative corporate governance by examining in detail the role of institutional investors in the United Kingdom and in Australia.

The book achieves two purposes. Firstly, it is an authoritative description of institutional shareholding in the United Kingdom and Australia. A wealth of institutional detail is presented, including features of the legal environment in which institutions operate. Indeed, the list of references to legal statutes that affect institutional shareholders runs to seven pages. Secondly, the author presents a fairly exhaustive list of the factors that either help or hinder institutions in monitoring. Ways in which the efficiency of institutional monitoring can be improved are evaluated and specific recommendations are made for changes in the legal system in the United Kingdom and in Australia.

The book is divided into four parts. Part I is the introduction and lays the framework of the corporate governance system in publicly traded companies. It also chronicles the growth and nature of institutional ownership in the United Kingdom and in Australia.

Part II explores the extent of institutional shareholdings in the U.K., the areas in which institutions get involved, and the manner in which they participate in the corporate governance process in the U.K. Attention is paid to