GARY KOOP

ANALYSIS OF FINANCIAL DATA

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Preface

This book aims to teach financial econometrics to students whose primary interest is not in econometrics. These are the students who simply want to apply financial econometric techniques sensibly in the context of real-world empirical problems. This book is aimed largely at undergraduates, for whom it can serve either as a stand-alone course in applied data analysis or as an accessible alternative to standard statistical or econometric textbooks. However, students in graduate economics and MBA programs requiring a crash-course in the basics of practical financial econometrics will also benefit from the simplicity of the book and its intuitive bent.

This book grew out of a previous book I wrote called *Analysis of Economic Data*. When writing my previous book I attempted to hold to the following principles:

1. It must cover most of the tools and models used in modern econometric research (e.g. correlation, regression and extensions for time series methods).
2. It must be largely non-mathematical, relying on verbal and graphical intuition.
3. It must contain extensive use of real data examples and involve students in hands-on computer work.
4. It must be short. After all, students in most degree programs must master a wide range of material. Students rarely have the time or the inclination to study statistics in depth.

In *Analysis of Financial Data* I have attempted to follow these principles as well but change the material so that it is of more interest for a financial audience. It aims to teach students reasonably sophisticated statistical tools, using simple non-mathematical intuition and practical examples. Its unifying themes are the related concepts of regression and correlation. These simple concepts are relatively easy to motivate using verbal and graphical intuition and underlie many of the sophisticated models (e.g. vector autoregressions and models of financial volatility such as ARCH

and GARCH) and techniques (e.g. cointegration and unit root tests) in financial research today. If a student understands the concepts of correlation and regression well, then she can understand and apply the techniques used in advanced financial econometrics and statistics.

This book has been designed for use in conjunction with a computer. I am convinced that practical hands-on computer experience, supplemented by formal lectures, is the best way for students to learn practical data analysis skills. Extensive problem sets are accompanied by different data sets in order to encourage students to work as much as possible with real-world data. Every theoretical point in the book is illustrated with practical financial examples that the student can replicate and extend using the computer. It is my strong belief that every hour a student spends in front of the computer is worth several hours spent in a lecture.

This book has been designed to be accessible to a variety of students, and thus, contains minimal mathematical content. Aside from some supplementary material in appendices, it assumes no mathematics beyond the pre-university level. For students unfamiliar with these basics (e.g. the equation of a straight line, the summation operator, logarithms), appendices at the end of chapters provide sufficient background.

I would like to thank my students and colleagues at the Universities of Edinburgh, Glasgow and Leicester for their comments and reactions to the lectures that formed the foundation of this book. Many reviewers also offered numerous helpful comments. Most of these were anonymous, but Ian Marsh, Denise Young, Craig Heinicke, Kai Li and Hiroyuki Kawakatsu offered numerous invaluable suggestions that were incorporated in the book. I am grateful, in particular, to Steve Hardman at John Wiley for the enthusiasm and expert editorial advice he gave throughout this project. I would also like to express my deepest gratitude to my wife, Lise, for the support and encouragement she provided while this book was in preparation.