

## **George Pennacchi: Theory of Asset Pricing** **Pearson Addison Wesley, 2007**

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*Theory of Asset Pricing* by George Pennacchi of the University of Illinois at Urbana–Champaign is a 450-page book designed to be used as a stand-alone text for a one-semester first course in theoretical asset pricing at Ph.D. level. This is an ambitious goal, requiring the author to cover a broad range of material in a comprehensive way without simply creating a reference book, and to present the material with reasonable formal rigor without getting caught up in technicalities.

The book is divided into five main parts, all of which are subdivided into different chapters. Part I consists of the first four chapters and covers single-period asset pricing. Chapter 1 provides a general introduction to utility theory and links this theory to portfolio choice decisions. Chapters 2 and 3 employ the concepts introduced in the first chapter to obtain the most important results from mean-variance analysis and derive the CAPM and linear factor models. In Chapter 4, consumption-saving decisions are incorporated into the framework developed in the first three chapters. Part II of the book extends the results from the first part to multi-period decisions on consumption and portfolio choice. Chapters 5 and 6 present a discrete-time multi-period model for individual decisions and a multi-period market equilibrium model, respectively. In Part III, the focus shifts from portfolio choice to the pricing of contingent claims, with Chapters 7 and 8 providing a basic introduction to derivative pricing and continuous-time mathematics. Chapter 9 makes use of the dynamic hedging framework to derive the famous Black–Scholes results. Chapter 10 covers the relations between arbitrage, martingale measures, and pricing kernels, while in (the somewhat brief) Chapter 11, some extensions of stochastic processes to incorporate jumps are shown. Part IV of the book enters the world of continuous-time asset pricing. The first two chapters of this part are logical extensions of the earlier chapters and present

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continuous-time models for consumption and portfolio choice (Chapter 12) and equilibrium asset returns (Chapter 13). Chapter 14 extends the previous modes of analysis by incorporating time-inseparable utility functions. Finally, Part V of the book treats some additional topics in asset pricing, such as behavioral finance (Chapter 15), asymmetric information (Chapter 16), models of the term structure of interest rates (Chapter 17), and models of default risk (Chapter 18).

The book fully meets its goal of being a user-friendly stand-alone text for an introductory asset-pricing course at Ph.D. level. First, the author does an exemplary job of presenting the topics in a coherent and readable manner without any conceptual jumps or gaps. Moreover, the fact that important topics reoccur as increasingly complex models are introduced to deal with them is very helpful. Within each chapter, there are plenty of references to other chapters or parts of the book, which help the reader keep the big picture in mind when working through the book. The end-of-chapter summaries further enhance understanding by not only repeating key arguments of each chapter, but also by placing each chapter within the main framework of asset pricing in general.

Second, all the mathematics required for being able to grasp the concepts of the book is explained in detail and the assumed background is stated clearly. Such a mathematically self-contained text is ideal for students. Third, thought-provoking assistance for solving the end-of-chapter exercises solutions is available from the publisher's homepage and although obtaining it is a somewhat convoluted process, the material consists of more than simply hints and provides enough insight for each exercise to be solved. Finally, the book does a fine job of incorporating up-to-date research in a very motivating fashion, encouraging the reader to delve deeper into the treated topics.

In conclusion, I can say that *Theory of Asset Pricing* is an excellent and valuable resource for beginning Ph.D. students in finance or for advanced undergraduate students interested in theoretical asset pricing. On the back cover of the book, it is boldly advertised as being the "ideal resource for the first course in asset pricing," a statement with which I can fully agree.