
BOOK REVIEWS



Mark Kritzman, Senior Editor

FINANCIAL MODELING OF THE EQUITY MARKET: FROM CAPM TO COINTEGRATION

*By Frank J. Fabozzi, Sergio M. Facardi and Peter N. Kolm
(Reviewed by Cel Kulasekaran)*

Frank Fabozzi teams up with an academic and practitioner to write this comprehensive book on equity modeling. *Financial Modeling of the Equity Market* is a well-organized text giving a complete overview of definitions, notation, and sufficient formal descriptions of the mathematical tools common in asset management today. The book is intended as a reference for quantitative practitioners and students of mathematical finance.

The book is divided into four parts. Part One introduces the reader to the foundations of modern portfolio theory, optimization methods, transaction

costs, and portfolio construction with higher moments. These are presented in a one-period mean-variance and utility-maximizing framework. While most of these foundational topics are covered across a wide variety of textbooks, not many include sufficiently lengthy discussion on transaction costs and issues with non-normal instruments.

Financial Modeling of the Equity Market also does an excellent job of revising this common set of introductory topics in modern portfolio theory with up-to-date developments in practice. For example, this book includes a discussion on optimal rebalancing strategy using dynamic programming,¹ a subject recently broached by Walter Sun and his team at MIT.

Part Two addresses robust methodologies for factor models and pricing theory including the

basics of random walks, equilibrium theory, and arbitrage pricing. Shrinkage estimators and Bayesian approaches to incorporate estimation errors in the portfolio allocation process are also discussed very well.

The second half of the book deals with more difficult technical concepts of financial econometrics and applied mathematics. Part Three carefully describes predictive models and tools for dynamic factor analysis (multi-period) including topics on regime-shifts and cointegration. Part Four discusses current methods for estimating dynamic pricing models and concludes with a chapter on model risk and its mitigation. Mathematical details on solutions to difference equations, regressions, correlations, and copulas are provided in the appendices to satisfy the more thorough reader. Although the second half of the book addresses

common concepts in dynamic asset pricing, specialized texts on this subject may better fulfill requirements of the experienced practitioner.

By presenting the broad survey of topics in a clear and accessible manner, the authors cater to both the initiate and experienced. They keep their definitions and descriptions of

formal mathematical concepts relatively brief, which at times may frustrate the sophisticated practitioner. They do not skimp, however, on citing relevant references for further investigation.

In conclusion, the book is enjoyable and comprehensive, but familiar practitioners would benefit from further discussions of model implementation and

empirical examples. For managers and students who want a complete inside look into the tools employed in quantitative asset management today, this should be your weekend reading.

Note

- ¹ See Chapter 4, §Rebalancing In The Mean-Variance Optimization Framework.