

Contents

Preface	xiii
About the Editors	xxiii
Contributing Authors	xxv
CHAPTER 1	
An Introduction to Quantitative Equity Investing	1
<i>Paul Bukowski</i>	
Equity Investing	1
Fundamental vs. Quantitative Investor	2
The Quantitative Stock Selection Model	7
The Overall Quantitative Investment Process	9
Research	9
Portfolio Construction	18
Monitoring	21
Current Trends	22
Key Points	23
Questions	24
CHAPTER 2	
Equity Analysis Using Traditional and Value-Based Metrics	25
<i>James L. Grant and Frank J. Fabozzi</i>	
Overview of Traditional Metrics	25
Price Multiples	32
Fundamental Stock Return	36
Traditional Caveats	38
Overview of Value-Based Metrics	39
Key Points	58
Appendix: Case Study	60
Questions	69

CHAPTER 3		
A Franchise Factor Approach to Modeling P/E Orbits		71
<i>Stanley Kogelman and Martin L. Leibowitz</i>		
Background		72
Historical Data Observations		75
Formulation of the Basic Model		81
P/E Myopia: The Fallacy of a Stable P/E		85
Two-Phase P/E Orbits		91
Franchise Valuation under Q-Type Competition		96
Franchise Labor		97
Key Points		101
Questions		102
CHAPTER 4		
Relative Valuation Methods for Equity Analysis		105
<i>Glen A. Larsen Jr., Frank J. Fabozzi, and Chris Gowlland</i>		
Basic Principles of Relative Valuation		106
Hypothetical Example		115
Key Points		123
Questions		124
CHAPTER 5		
Valuation over the Cycle and the Distribution of Returns		125
<i>Anders Ersbak Bang Nielsen and Peter C. Oppenheimer</i>		
The Link Between Earnings and Returns		126
The Phases Can Be Interpreted in Relationship to the Economy		132
Asset Class Performance Varies across the Phases		137
Incorporating Cyclicalities into Valuations		139
Appendix: Dates and Returns of the Phases		142
Key Points		146
Questions		146
CHAPTER 6		
An Architecture for Equity Portfolio Management		147
<i>Bruce I. Jacobs and Kenneth N. Levy</i>		
Architectural Building Blocks		148
Traditional Active Management		151
Passive Management		156
Engineered Management		157

Expanding Opportunities	160
The Risk-Return Continuum	163
The Ultimate Objective	167
Key Points	168
Questions	169

CHAPTER 7

Equity Analysis in a Complex Market 171

Bruce I. Jacobs and Kenneth N. Levy

An Integrated Approach to a Segmented Market	172
Disentangling	176
Constructing, Trading, and Evaluating Portfolios	184
Profiting from Complexity	186
Key Points	187
Questions	188

CHAPTER 8

Survey Studies of the Use of Quantitative Equity Management 189

Frank J. Fabozzi, Sergio M. Focardi, and Caroline L. Jonas

2003 Intertek European Study	189
2006 Intertek Study	197
2007 Intertek Study	205
Challenges for Quantitative Equity Investing	224
Modeling After the 2007–2009 Global Financial Crisis	226
Key Points	228
Questions	229

CHAPTER 9

Implementable Quantitative Equity Research 231

Frank J. Fabozzi, Sergio M. Focardi, and K. C. Ma

The Rise of Econophysics	233
A General Framework	235
Select a Sample Free from Survivorship Bias	238
Select a Methodology to Estimate the Model	239
Risk Control	246
Key Points	248
Questions	249

CHAPTER 10		
	Tracking Error and Common Stock Portfolio Management	251
	<i>Raman Vardharaj, Frank J. Fabozzi, and Frank J. Jones</i>	
	Definition of Tracking Error	251
	Components of Tracking Error	254
	Forward-Looking vs. Backward-Looking Tracking Error	255
	Information Ratio	256
	Determinants of Tracking Error	257
	Marginal Contribution to Tracking Error	261
	Key Points	262
	Questions	263
CHAPTER 11		
	Factor-Based Equity Portfolio Construction and Analysis	265
	<i>Petter N. Kolm, Joseph A. Cerniglia, and Frank J. Fabozzi</i>	
	Factor-Based Trading	266
	Developing Factor-Based Trading Strategies	269
	Risk to Trading Strategies	271
	Desirable Properties of Factors	273
	Sources for Factors	273
	Building Factors from Company Characteristics	274
	Working with Data	275
	Analysis of Factor Data	283
	Key Points	287
	Questions	289
CHAPTER 12		
	Cross-Sectional Factor-Based Models and Trading Strategies	291
	<i>Joseph A. Cerniglia, Petter N. Kolm, and Frank J. Fabozzi</i>	
	Cross-Sectional Methods for Evaluation of Factor Premiums	292
	Factor Models	300
	Performance Evaluation of Factors	310
	Model Construction Methodologies for a Factor-based Trading Strategy	317
	Backtesting	328
	Backtesting Our Factor Trading Strategy	330
	Key Points	331
	Appendix: The Compustat Point-in-Time, IBES Consensus Databases and Factor Definitions	333
	Questions	337

CHAPTER 13		
	Multifactor Equity Risk Models and Their Applications	339
	<i>Anthony Lazanas, António Baldaque da Silva, Arne D. Staal, and Cenk Ural</i>	
	Motivation	340
	Equity Risk Factor Models	342
	Applications of Equity Risk Models	350
	Key Points	370
	Questions	371
CHAPTER 14		
	Dynamic Factor Approaches to Equity Portfolio Management	373
	<i>Dorsey D. Farr</i>	
	Methods of Active Management	376
	Modeling	385
	Implementation	392
	Key Points	395
	Questions	395
CHAPTER 15		
	A Factor Competition Approach to Stock Selection	397
	<i>Joseph Mezrich and Junbo Feng</i>	
	The Problem	397
	The Solution	403
	Which Factors Get Picked?	407
	Does the Alpha Repair Process Work?	408
	Key Points	411
	Questions	412
CHAPTER 16		
	Avoiding Unintended Country Bets in Global Equity Portfolios	413
	<i>Michele Aghassi, Cliff Asness, Oktay Kurbanov, and Lars N. Nielsen</i>	
	Country Membership and Individual Stock Returns	414
	Ways to Build Active Global Portfolios	416
	Studying the Naive Portfolio	419
	Empirical Results	420
	Why Does the Naive Stock Selection	
	Portfolio Make Country Noise Bets?	422
	Key Points	423
	Questions	424

CHAPTER 17**Modeling Market Impact Costs****425*****Petter N. Kolm and Frank J. Fabozzi***

Market Impact Costs	426
Liquidity and Transaction Costs	427
Market Impact Measurements and Empirical Findings	430
Forecasting and Modeling Market Impact	433
Key Points	439
Questions	440

CHAPTER 18**Equity Portfolio Selection in Practice****441*****Dessislava A. Pachamano and Frank J. Fabozzi***

Portfolio Constraints Commonly Used in Practice	442
Benchmark Exposure and Tracking Error Minimization	450
Incorporating Transaction Costs	454
Incorporating Taxes	460
Multi-Account Optimization	465
Robust Parameter Estimation	469
Portfolio Resampling	471
Robust Portfolio Optimization	474
Key Points	480
Questions	481

CHAPTER 19**Portfolio Construction and Extreme Risk****483*****Jennifer Bender, Jyh-Huei Lee, and Dan Stefek***

Measures of Extreme Loss	484
Constraining Shortfall	485
Performance	485
Imposing Benchmark Neutrality	487
Analysis	489
Key Points	493
Appendix: Constructing Out-of-Sample Shortfall Betas	494
Questions	495

CHAPTER 20**Working with High-Frequency Data****497*****Irene Aldridge***

What is High-Frequency Data?	497
------------------------------	-----

How is High-Frequency Data Recorded?	499
Properties of High-Frequency Data	500
High-Frequency Data are Voluminous	501
High-Frequency Data are Subject to Bid-Ask Bounce	503
High-Frequency Data are Irregularly Spaced in Time	509
Equity Correlations Decay at High Frequencies	517
Key Points	519
Questions	520
CHAPTER 21	
Statistical Arbitrage	521
<i>Brian J. Jacobsen</i>	
Pairs Trading	523
General Models	532
Key Points	534
Questions	534
About the Website	535
Index	537