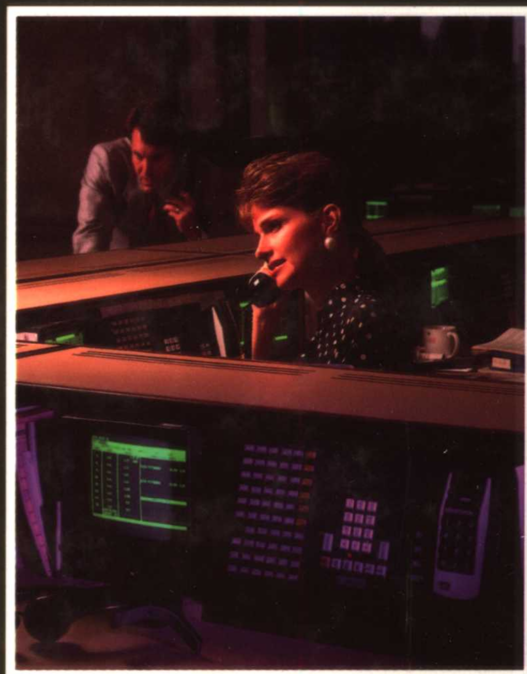
FUNDAMENTALS OF CORPORATE FINANCE

Richard A. Brealey, Stewart C. Myers, and Alan J. Marcus



FUNDAMENTALS OF CORPORATE FINANCE

Richard A. Brealey

LONDON BUSINESS SCHOOL

Stewart C. Myers

SLOAN SCHOOL OF MANAGEMENT

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Alan J. Marcus

WALLACE E. CARROLL SCHOOL OF MANAGEMENT

BOSTON COLLEGE

McGRAW-HILL, INC.

NEW YORK ST. LOUIS SAN FRANCISCO AUCKLAND BOGOTÁ CARACAS

LISBON LONDON MADRID MEXICO CITY MILAN MONTREAL NEW DELHI

SAN JUAN SINGAPORE SIDNEY TOKYO TORONTO

FUNDAMENTALS OF CORPORATE FINANCE

Copyright © 1995 by McGraw-Hill, Inc. All rights reserved. Printed in the United States of America. Except as permitted under the United States Copyright Act of 1976, no part of this publication may be reproduced or distributed in any form or by any means, or stored in a data base or retrieval system, without the prior written permission of the publisher.

This book is printed on acid-free paper.

5 6 7 8 9 0 VNH VNH 9 0 9 8 7

ISBN 0-07-007461-5

This book was set in Times Roman by Better Graphics, Inc.
The editors were Kenneth A. MacLeod and Elaine Rosenberg;
the designer was Hermann Strohbach;
the production supervisor was Richard A. Ausburn.
Von Hoffmann Press, Inc., was printer and binder.

Cover Photo: © Ron Chapple, 1991. FPG.

Library of Congress Cataloging-in-Publication Data

Brealey, Richard A.
Fundamentals of corporate finance / Richard A. Brealey, Stewart C. Myers, Alan J. Marcus.
p. cm. - (McGraw-Hill series in finance)
Includes index.
ISBN 0-07-007461-5
1. Corporations—Finance. I. Myers, Stewart C. II. Marcus, Alan J. III. Title. IV. Series.
HG4026.B6668 1995
658.15—dc20 94-30048

INTERNATIONAL EDITION

Copyright 1995. Exclusive rights by McGraw-Hill, Inc. for manufacture and export. This book cannot be re-exported from the country to which it is consigned by McGraw-Hill. The International Edition is not available in North America.

When ordering this title, use ISBN 0-07-113853-6.

About the Authors

RICHARD A. BREALEY

London Business School, Tokai Bank Professor of Finance. Past President of European Finance Association and Director of the American Finance Association. Current research interests include portfolio theory and international finance. Member of editorial board of *Journal of Applied Corporate Finance*. Other books include *Introduction to Risk and Return from Common Stocks*. Formerly with Sun Life Assurance Company of Canada and Keystone Custodian Funds of Boston.

STEWART C. MYERS

Gordon Y. Billard Professor of Finance at the Massachusetts Institute of Technology's Sloan School of Management. Director of MIT's International Financial Services Research Center. He is past President and Director of the American Finance Association and co-author of the leading graduate-level textbook on corporate finance. His research is primarily concerned with the valuation of real and financial assets, corporate financial policy, and financial aspects of government regulation of business. He is currently a Research Associate of the National Bureau of Economic Research and is active as a financial consultant.

ALAN J. MARCUS

Professor of Finance at Boston College's Wallace E. Carroll School of Management: His main research interests are in asset valuation, particularly in futures and options markets. Other books include *Investments*. Formerly with the Financial Research department at the Federal Home Loan Mortgage Corporation (Freddie Mac).

Preface

This book is about corporate finance. It focuses on how companies raise capital and how they invest it.

Financial management is important, interesting, and challenging. 't is important because today's capital investment decisions may determine the businesses the firm is in 10, 20, or more years ahead. A firm's success or failure depends in large part on its financial decisions and planning.

Finance is interesting for several reasons. The financial community is international and fast moving, with some colorful heroes and (unfortunately) a sprinkling of unpleasant villains. Financial decisions often involve huge sums of money. For example, large investments or acquisitions may involve billions of dollars.

Finance is challenging. Financial decisions are rarely cut and dried, and the financial markets in which companies operate are changing rapidly. Good managers can cope with routine problems; the best managers can also respond to change. It is also why you need more than rules of thumb to be a truly successful manager. You need to know *why* companies and financial markets behave as they do and when common practice may not be the best practice. Once you have a consistent framework for making financial decisions, complex problems become more manageable.

This book seeks to provide that framework. It is not an encyclopedia of finance. It focuses instead on setting out the basic *principles* of financial management and applying them to the main decisions faced by the financial manager. It explains why value maximization provides a coherent framework for making financial decisions, and it looks at how companies can make investment and financing decisions that add value. It also describes the main features of financial markets and the various securities that companies may issue.

Since this text is intended for use in a first course in corporate finance, we assume little in the way of background knowledge. While most users will have had an introductory accounting course, we review the concepts from accounting that are important to the financial manager in Chapter 2.

Fundamentals and Principles of Corporate Finance

This book is derived in part from its sister text *Principles of Corporate Finance*. The spirit of the two books is similar. Both apply modern finance—that is, finance organized by the principle of value maximization—to give students a working ability to make complex and interesting financial decisions. However, there are also substantial differences between the two books.

Fundamentals is geared more toward the financial novice. We envision the typical reader as an undergraduate with little or no business experience, and

试读结束：需要全本请在线购买： www.ertongbook.com

therefore we simplify the discussion along several dimensions. First, we provide a much more detailed discussion of the principles and mechanics of the time value of money. This material underlies almost all of the rest of the text, and we spend two lengthy chapters providing extensive practice with this key concept. Since most readers will be more familiar with their own financial affairs than with the big leagues of finance, we motivate our discussion of the time value of money by looking first at some personal financial decisions.

Second, we use numerical examples in this text to a greater degree than in *Principles*. Each chapter presents several detailed numerical examples to help the reader become familiar and comfortable with the material.

Third, we have streamlined the treatment of most topics. Whereas *Principles* has 36 chapters, *Fundamentals* has only 26. The relative brevity of *Fundamentals* necessitates a broader-brush coverage of some topics, but we feel that this is an advantage for a beginning audience.

Principles is known for its relaxed and informal writing style, and we continue this tradition in *Fundamentals*. In addition, we use as little mathematical notation as possible. Even when we present an equation, we usually write it using words rather than mathematical notation. This approach has two advantages. First, it is less intimidating. Second, it focuses attention on the underlying concept rather than the formula.

In-Text Study Aids

To aid learning, each chapter contains the following features:

1. *Goals of the chapter.* The introduction to each chapter sets out the aims of the chapter and what it will enable the reader to do.
2. *Self test questions.* Throughout the chapter, we intersperse questions on the immediately preceding material. These questions do not simply require the student to regurgitate facts; they are designed to test understanding. We have placed these questions in the body of the chapter because we believe that it is useful to pause occasionally for reflection before moving on to new material. The solutions to these problems appear at the end of each chapter.
3. *Examples.* Each chapter contains several numbered examples which give the reader an opportunity to see how general principles may be applied to concrete problems.
4. *Chapter summary.* The conclusion of each chapter consists of a numbered summary of the major points. These summaries provide a further opportunity for readers to test their understanding, and they are useful when reviewing the material.
5. *End-of-chapter problems.* We believe in learning by doing. The more than 400 end-of-chapter problems provide plenty of opportunity for practice. The solutions to these problems may be found in the *Instructor's Manual* which accompanies the text.

Organization of the Text and Possible Alternatives

In the course of writing this book, we have spoken with many instructors. We recognize that there are several effective ways to organize a course in corporate finance. For this reason, we have designed the text to be extremely modular, so that the topics may be introduced in different sequences. Here we will describe our

rationale for the text's organization and present some feasible alternative strategies for using the book.

Part One is an introduction. Chapter 1 lays out the issues that are addressed in the rest of the text. It discusses business organization, the goals of the firm, agency and ethical issues, and the role of the financial manager. Chapter 2 reviews the accounting principles necessary for the financial manager. It describes the major financial statements and stresses the distinctions between cash flows and profits and between market and book values.

Part Two, on Value, explains the time value of money. We apply this concept to show how securities are valued and how to make capital investment decisions. We believe that it is useful to discuss principles of valuation *before* plunging into detailed financial statement analysis or issues of financial planning. Nevertheless, we recognize that many instructors will prefer to move directly from Chapter 2 to Chapter 17, Financial Statement Analysis, because this order provides a gentler transition from the typical prerequisite accounting course. There is no reason that one cannot use the text in this order: Part Six (Financial Planning) can easily follow Part One.

When we discuss project appraisal in Part Two, we frequently stress that the opportunity cost of capital for a project depends on project risk. But we do not discuss how to measure risk or how return and risk are linked until **Part Three**. This ordering can also easily be modified. The chapters on risk and return can be introduced before, after, or midway through the material on project valuation (for example, immediately following the chapters on the time value of money).

Part Three includes Chapter 11 on the cost of capital and weighted average cost of capital. We believe that the discussion of the distinction between equity risk and project risk follows naturally from the introduction to the cost of equity in Chapter 10. We review and develop the weighted average cost of capital more fully in the later chapter on debt policy.

Whereas Parts Two (Value) and Three (Risk) focus on the asset side of the firm's balance sheet, Parts Four and Five focus on the liability side. **Part Four** presents an overview of corporate financing, discusses the features of a wide variety of debt and equity instruments, and describes how firms issue securities. This part starts with a chapter on market efficiency. Few other introductory texts offer a full chapter on this topic. We believe that this is a mistake. Without a solid understanding of market efficiency, it is difficult to think through the issues that arise when firms issue securities or when they make capital structure and dividend decisions.

Part Five covers debt and dividend policy. We use the MM propositions to identify the issues that should *not* matter in these decisions, then examine the real-world complications that do influence optimal policy.

As we noted above, **Part Six** covers financial planning. We start with financial statement analysis, then move on to long-term and short-term planning models. We emphasize in each chapter both the uses and the limitations of these plans.

Part Seven discusses the management of short-term assets and liabilities. We cover working capital management, including inventory and cash management, as well as credit and receivable policies. An attractive and unusual feature of our coverage is the integrated treatment of cash and inventory management. We emphasize the essential similarity between the two tasks. This enables us both to

highlight the general principles involved and to cover the material more succinctly and with far less repetition than most other texts. We like to discuss working capital after the student is familiar with the basics of valuation and corporate financing, but we recognize that many instructors prefer to reverse our order, and there should be no difficulty in taking Part Seven out of sequence.

Part Eight covers several important but somewhat more advanced topics—mergers and acquisitions; international finance; options; and risk management. This is not the first time that we have visited some of these issues. For example, we introduce the idea of options in Chapter 8 when we show how companies build flexibility into capital projects and again in Chapter 13 when we describe warrants, convertible bonds, and other financing options. However, Chapter 24 generalizes this material and explains at a fairly elementary level how options are valued. International finance also is not confined to Chapter 23. Throughout the book we have taken examples from different countries and financial systems. However, there are some specific problems that arise when a corporation is confronted by different currencies, and we tackle these problems in Chapter 23.

Part Nine contains a concluding chapter, in which we review our list of the most important ideas covered in the text. We also introduce some interesting questions that either were unanswered in this text or are still puzzles to the finance profession. Thus, the last chapter is an introduction to future finance courses as well as a conclusion to this one.

Supplements

The text is accompanied by a full ancillary program with items designed to complement your teaching efforts and your students' learning process. If you would like information and costs on the supplemental materials, please contact your local McGraw-Hill representative.

Acknowledgments

We are indebted to many colleagues for insightful comments on earlier drafts of this work and to those who participated in our focus group. Their suggestions have greatly enhanced our final product. Among those who gave us the benefit of their time and advice are:

Dwight Anderson, Louisiana Tech University
John Ballantine, Babson College
Gordon Bonner, University of Delaware
Ted Chadwick, Boston University
Charles Cox, Brigham Young University
Richard DeMong, University of Virginia
David Durst, University of Akron
Donald Escarraz, University of North Dakota
Ahmad Etebari, University of Rhode Island
James Fortson, University of Georgia
Sam Ghanty, University of Wisconsin, Green Bay
David Goldenberg, Rensselaer Polytechnic University
Simon Hakim, Temple University
John Harris, Clemson University
Kathleen Hevert, Babson College
William Keating, Bentley College
Surendra Mansinghka, San Francisco State University

Lalatendu Misra, University of Texas, San Antonio
Al Ntoko, SUNY, Oswego
Coleen Pantalone, Northeastern University
John Settle, Portland State University
Sidharth Sinha, University of Massachusetts
Luc A. Soenen, California Polytechnic State University
Neal Stoughton, University of California, Irvine
Tim Sullivan, Bentley College
Joseph Sulock, University of North Carolina, Asheville
R. Bruce Swenson, Adelphi University
Emery Trahan, Northeastern University
Alan Weatherford, California Polytechnic State University
Gary R. Wells, Idaho State University
Thomas Zorn, University of Nebraska-Lincoln
J. Kenton Zumwalt, Colorado State University

This list is almost surely incomplete. We owe much to our colleagues at the London Business School, MIT's Sloan School of Management, and Boston College's Wallace E. Carroll School of Management. Their teaching experience and ideas have benefited us immensely.

We also wish to acknowledge the support of the editorial office at McGraw-Hill, Inc. We are grateful to our development team: Ken A. MacLeod, Judy Howarth, Editing Supervisor Elaine Rosenberg, Production Manager Richard A. Ausburn, and designer Hermann Strohbach. We owe special thanks to our developmental editor, Becky Kohn, who read and criticized early drafts of the manuscript with great insight and intelligence.

Finally, we cannot overstate the thanks due to our wives, Diana, Maureen, and Sheryl, who struggled with us throughout this project.

Richard A. Brealey
Steward C. Myers
Alan J. Marcus

Contents in Brief

	Preface	xxv
PART ONE	**INTRODUCTION**	1
Chapter 1	The Firm and the Financial Manager	3
Chapter 2	Accounting and Finance	25
PART TWO	**VALUE**	45
Chapter 3	The Time Value of Money	47
Chapter 4	More Time Value: Bonds and Inflation	77
Chapter 5	How Common Stocks Are Valued	105
Chapter 6	Investment Criteria	135
Chapter 7	Discounted Cash-Flow Analysis	163
Chapter 8	Project Analysis	191
PART THREE	**RISK**	215
Chapter 9	Introduction to Risk, Return, and the Opportunity Cost of Capital	217
Chapter 10	Risk, Return, and Capital Budgeting	247
Chapter 11	The Cost of Capital	273
PART FOUR	**FINANCING**	297
Chapter 12	Corporate Financing and the Lessons of Market Efficiency	299
Chapter 13	An Overview of Corporate Financing	321
Chapter 14	How Corporations Issue Securities	349
PART FIVE	**DIVIDENDS AND CAPITAL STRUCTURE**	377
Chapter 15	Debt Policy	379
Chapter 16	Dividend Policy	411
PART SIX	**FINANCIAL PLANNING**	435
Chapter 17	Financial Statement Analysis	437
Chapter 18	Financial Planning	465
Chapter 19	Working Capital Management and Short-Term Planning	487

PART SEVEN SHORT-TERM FINANCIAL DECISIONS 513

Chapter 20 Cash and Inventory Management 514
Chapter 21 Credit Management and Bankruptcy 540

PART EIGHT SPECIAL TOPICS 563

Chapter 22 Mergers, Acquisitions, and Corporate Control 564
Chapter 23 International Financial Management 592
Chapter 24 Options 622
Chapter 25 Risk Management 648

PART NINE CONCLUSION 661

Chapter 26 What We Do and Do Not Know about Finance 662

Appendix: Present Value Tables 672

Index I-1

试读结束：需要全本请在线购买： www.ertongbook.com

Contents

Preface xxv

PART ONE INTRODUCTION 1

Chapter 1 The Firm and the Financial Manager 3

1.1 Organizing a Business 5
Sole Proprietorships / Partnerships / Corporations

1.2 The Role of the Financial Manager 7
The Capital Budgeting Decision / The Financing Decision / Understanding Financial Markets

1.3 Financial Markets 10

1.4 Goals of the Corporation 11
Shareholders Want Managers to Maximize Market Value / Ethics and Management Objectives / Do Managers Really Maximize Firm Value?

1.5 Who Is the Financial Manager? 16

1.6 Topics Covered in This Book 17
Snippets of History

1.7 Summary 20

Key Terms 21

Problems 21

Solutions to Self-Test Questions 22

Chapter 2 Accounting and Finance 25

2.1 The Balance Sheet 26
Book Values and Market Values

2.2 The Income Statement 31
Profits versus Cash Flow

2.3 The Statement of Cash Flows 34

2.4 Accounting for Differences 36

2.5 Taxes 37
Corporate Tax/Personal Tax

2.6 Summary 39

Key Terms 40

Suggested Readings 40

Problems 40

Solutions to Self-Test Questions 42

PART TWO VALUE 45

Chapter 3 The Time Value of Money 47

3.1 Future Values and Compound Interest 49

3.2 Annually Compounded Interest Rates versus Annual Percentage Rates 53

3.3 Present Values 54
Finding the Interest Rate

3.4 Multiple Cash Payments 59
Perpetuities / How to Value Annuities

3.5 Net Present Value: A First Look 67
Net Present Value / A Comment on Risk and Present Value / Present Value by Another Name . . .

3.6 Summary 70

Key Terms 70

Suggested Readings 71

Problems 71

Solutions to Self-Test Questions 74

Chapter 4 More Time Value: Bonds and Inflation 77

4.1 Bond Prices and Yields 78
Bond Pricing / The Yield to Maturity / Interest Rate Risk / Reading the Financial Pages / The Term Structure of Interest Rates / Defaults / Bond Ratings

4.2 Inflation and the Time Value of Money 89
Real versus Nominal Cash Flows / Inflation and Interest Rates / What Fluctuates: Real or Nominal Rates? / Valuing Real Cash Payments / Providing for Retirement / Real or Nominal?

4.3 Summary 98

Key Terms 99

Suggested Readings 99

Problems 99

Solutions to Self-Test Questions 101

Chapter 5 How Common Stocks Are Valued 105

5.1 Stocks and the Stock Market 107
How Stock Exchanges Work / Reading the Stock Market Listings

5.2 Book Values, Liquidation Values, and Market Values 109

5.3 Valuing Common Stocks 113
Today's Price and Tomorrow's Price / The Dividend Discount Model

5.4 Simplifying the Dividend Discount Model 118
The Dividend Discount Model with No Growth / The Constant-Growth Dividend Discount Model / Estimating Expected Rates of Return / What If Short-Term Growth Rates Don't Fit the Model? / Valuing a Business

5.5 Growth Stocks and Income Stocks 125
The Price Earnings Ratio / What Do Earnings Mean?

5.6 Summary 127

Key Terms 128

Suggested Readings 128

Problems 128

Solutions to Self-Test Questions 131

Chapter 6 Investment Criteria 135

6.1 Net Present Value 137
A Review of the Basics / Valuing Long-Lived Projects

6.2 The Rate of Return Rule 141
A Closer Look at the Rate of Return Rule / Calculating the Rate of Return for Long-Lived Projects / A Word of Caution / Pitfalls of the Rate of Return Rule

6.3 Capital Rationing 149
Soft Rationing / Hard Rationing / Pitfalls of the Profitability Index

6.4 Other Investment Criteria 151
Payback / Book Rate of Return

6.5 Summary 154

Key Terms 155

Suggested Readings 155

Problems 155

Solutions to Self-Test Questions 159

Chapter 7 Discounted Cash-Flow Analysis 163

7.1 Discount Cash Flows, Not Profits 164

7.2 Discount *Incremental* Cash Flows 167
Include All Incidental Effects / Forget Sunk Costs / Include Opportunity Costs / Remember Working Capital / Beward of Allocated Overhead Costs

7.3 Discount Nominal Cash Flows by the Nominal Cost of Capital 170

7.4 Separate Investment and Financing Decisions 171

7.5 Example: Blooper Industries 172
Calculating Blooper's Project Cash Flows / Calculating the NPV of Blooper's Project / Further Notes and Wrinkles Arising from Blooper's Project

7.6 Project Interactions 179
Investment Timing / Long- versus Short-Lived Equipment / Replacing an Old Machine

7.7 Summary 184

Key Terms 184

Suggested Readings 185

Problems 185

Answers to Self-Test Questions 187

Chapter 8 Project Analysis 191

8.1 Capital Budgeting in Large Corporations 193
Stage 1: The Capital Budget / Stage 2: Project Authorizations / Problems and Some Solutions

8.2 Some "What-If" Questions 196
Sensitivity Analysis / Scenario Analysis / Break-Even Analysis / Accounting Break-Even Analysis / NPV Break-Even Analysis / Operating Leverage

8.3 Flexibility in Capital Budgeting 206
Decision Trees / The Option to Expand / Abandonment Options / Flexible Production Facilities / Investment Timing Options

8.4 Summary 210

Key Terms 210

Suggested Readings 210

Problems 211

Solutions to Self-Test Questions 213

PART THREE RISK 215

Chapter 9 Introduction to Risk, Return, and the Opportunity Cost of Capital 217

9.1 Rates of Return: A Review 218

9.2 Seventy Years of Capital Market History 219
Market Indexes / The Historical Record / Using Historical Evidence to Estimate Today's Cost of Capital

9.3 Measuring Portfolio Risk 225
Variance and Standard Deviation / Measuring the Variation in Stock Returns

9.4 Risk and Diversification 230
Diversification / Asset versus Portfolio Risk / Market Risk versus Unique Risk

9.5 Thinking About Risk 237
Message 1: Some Risks Look Big and Dangerous but Really Are Diversifiable / Message 2: Market Risks Are Macro Risks / Message 3: Risk Can Be Measured

9.6 Summary 239

Key Terms 240

Suggested Readings 240

Problems 240

Solutions to Self-Test Questions 243

Chapter 10 Risk, Return, and Capital Budgeting 247

10.1 Measuring Market Risk 248
Measuring Beta / Betas for Microsoft and Boston Edison / Portfolio Betas

10.2 Risk and Return 254
Why the CAPM Works / The Security Market Line / Using the CAPM to Estimate Expected Returns

10.3 Capital Budgeting and Project Risk 262
Company versus Project Risk / Determinants of Project Risk / Don't Add Fudge Factors to Discount Rates

10.4 Summary 264

Key Terms 264

Suggested Readings 264

Problems 265

Solutions to Self-Test Questions 269

Chapter 11 The Cost of Capital 273

11.1 The Cost of Capital 274

11.2 The Company Cost of Capital and the Weighted-Average Cost of Capital 276
Calculating Company Cost of Capital as a Weighted Average / Three Steps in Calculating Cost of Capital / Market versus Book Weights / Taxes and the Weighted-Average Cost of Capital / Wrapping Up Geothermal / Checking Our Logic

11.3 Measuring Capital Structure 283

11.4 Calculating Required Rates of Return 284
The Expected Return on Bonds / The Expected Return on Common Stock / The Expected Return on Preferred Stock

11.5 Calculating the Weighted-Average Cost of Capital 286
Real Oil Company WACCs

11.6 Interpreting the Weighted-Average Cost of Capital 287
When You Can and Can't Use WACC / Some Mistakes People Make Using the WACC / How Changing Capital Structure Affects Expected Returns / How Changing Capital Structure Affects Beta / What Happens When the Corporate Tax Rate Is Not Zero

11.7 Summary 291

Key Terms 292

Problems 292

Solutions to Self-Test Questions 294

PART FOUR FINANCING 297

Chapter 12 Corporate Financing and the Lessons of Market Efficiency 299

12.1 Differences between Investment and Financing Decisions 301

12.2 What Is an Efficient Market? 302
A Startling Discovery: Price Changes Are Random / Three Forms of the Efficient-Market Theory / What Market Efficiency Does and Does Not Imply / No Theory Is Perfect / The Crash of 1987

12.3 Lessons of Market Efficiency 311
Markets Have No Memory / There Are No Financial Illusions / There Are No Free Lunches on Wall Street

12.4 Summary 314

Key Terms 315

Suggested Readings 315

Problems 315

Solutions to Self-Test Questions 317

Chapter 13 An Overview of Corporate Financing 321

13.1 Common Stock 323
Book Value versus Market Value / Stockholders' Rights / Voting Procedures / Classes of Stock / Dividends

13.2 Preferred Stock 326

13.3 Corporate Debt 327
Debt Comes in Many Forms / An Example: The Terms of Mobil's Bond Issue / Innovation in the Debt Market

试读结束：需要全本请在线购买： www.ertongbook.com