

BODIE | KANE | MARCUS

Essentials of
Tenth Edition Investments

Mc
Graw
Hill
Education

Essentials *of* Investments

The McGraw-Hill/Irwin Series in Finance, Insurance, and Real Estate

Stephen A. Ross
Franco Modigliani Professor of Finance
and Economics
Sloan School of Management
Massachusetts Institute of Technology
Consulting Editor

FINANCIAL MANAGEMENT

Block, Hirt, and Danielsen
Foundations of Financial Management
Sixteenth Edition

Brealey, Myers, and Allen
Principles of Corporate Finance
Twelfth Edition

Brealey, Myers, and Allen
**Principles of Corporate Finance,
Concise**
Second Edition

Brealey, Myers, and Marcus
Fundamentals of Corporate Finance
Eighth Edition

Brooks
FinGame Online 5.0

Bruner
**Case Studies in Finance: Managing
for Corporate Value Creation**
Sixth Edition

Cornett, Adair, and Nofsinger
Finance: Applications and Theory
Third Edition

Cornett, Adair, and Nofsinger
M: Finance
Third Edition

DeMello
Cases in Finance
Second Edition

Grinblatt (editor)
**Stephen A. Ross, Mentor: Influence
through Generations**

Grinblatt and Titman
**Financial Markets and Corporate
Strategy**
Second Edition

Higgins
Analysis for Financial Management
Eleventh Edition

Ross, Westerfield, Jaffe, and Jordan
Corporate Finance
Eleventh Edition

Ross, Westerfield, Jaffe, and Jordan
**Corporate Finance: Core Principles
and Applications**
Fourth Edition

Ross, Westerfield, and Jordan
Essentials of Corporate Finance
Ninth Edition

Ross, Westerfield, and Jordan
Fundamentals of Corporate Finance
Eleventh Edition

Shefrin
**Behavioral Corporate Finance:
Decisions That Create Value**

INVESTMENTS

Bodie, Kane, and Marcus
Essentials of Investments
Tenth Edition

Bodie, Kane, and Marcus
Investments
Tenth Edition

Hirt and Block
**Fundamentals of Investment
Management**
Tenth Edition

Jordan and Miller
**Fundamentals of Investments:
Valuation and Management**
Seventh Edition

Stewart, Piros, and Heisler
**Running Money: Professional
Portfolio Management**

Sundaram and Das
Derivatives: Principles and Practice
Second Edition

FINANCIAL INSTITUTIONS AND MARKETS

Rose and Hudgins
**Bank Management and Financial
Services**
Ninth Edition

Rose and Marquis
Financial Institutions and Markets
Eleventh Edition

Saunders and Cornett
**Financial Institutions Management:
A Risk Management Approach**
Eighth Edition

Saunders and Cornett
Financial Markets and Institutions
Sixth Edition

INTERNATIONAL FINANCE

Eun and Resnick
International Financial Management
Seventh Edition

REAL ESTATE

Brueggeman and Fisher
Real Estate Finance and Investments
Fifteenth Edition

Ling and Archer
**Real Estate Principles: A Value
Approach**
Fourth Edition

FINANCIAL PLANNING AND INSURANCE

Allen, Melone, Rosenbloom, and
Mahoney
**Retirement Plans: 401(k)s, IRAs,
and Other Deferred Compensation
Approaches**
Eleventh Edition

Altfest
Personal Financial Planning
Second Edition

Kapoor, Dlabay, and Hughes
**Focus on Personal Finance:
An Active Approach to Help You
Develop Successful Financial Skills**
Fifth Edition

Kapoor, Dlabay, and Hughes
Personal Finance
Eleventh Edition

Walker and Walker
**Personal Finance: Building Your
Future**
Second Edition

Essentials *of* Investments

Tenth Edition

ZVI BODIE

Boston University

ALEX KANE

University of California, San Diego

ALAN J. MARCUS

Boston College





To our wives and eight wonderful daughters

ESSENTIALS OF INVESTMENTS, TENTH EDITION

Published by McGraw-Hill Education, 2 Penn Plaza, New York, NY 10121. Copyright © 2017 by McGraw-Hill Education. All rights reserved. Printed in the United States of America. Previous editions © 2013, 2010, 2008, and 2007. No part of this publication may be reproduced or distributed in any form or by any means, or stored in a database or retrieval system, without the prior written consent of McGraw-Hill Education, including, but not limited to, in any network or other electronic storage or transmission, or broadcast for distance learning.

Some ancillaries, including electronic and print components, may not be available to customers outside the United States.

This book is printed on acid-free paper.

1 2 3 4 5 6 7 8 9 0 DOW/DOW 1 0 9 8 7 6

ISBN 978-0-07-783542-2

MHID 0-07-783542-5

Senior Vice President, Products & Markets: *Kurt L. Strand*
Vice President, General Manager, Products & Markets: *Marty Lange*
Vice President, Content Design & Delivery: *Kimberly Meriwether David*
Managing Director: *James Heine*
Brand Manager: *Chuck Synovec*
Director, Product Development: *Rose Koos*
Director of Digital Content Development: *Douglas Ruby*
Product Developer: *Noelle Bathurst*
Marketing Manager: *Melissa Caughlin*
Digital Product Analyst: *Kevin Shanahan*
Director, Content Design & Delivery: *Linda Avenarius*
Program Manager: *Mark Christianson*
Content Project Managers: *Kathryn D. Wright, Kristin Bradley, and Karen Jozefowicz*
Buyer: *Jennifer Pickel*
Design: *Matt Diamond*
Content Licensing Specialists: *John Leland and Beth Thole*
Cover Image: *Paul Taylor/Getty Images*
Compositor: *SPi Global*
Printer: *R. R. Donnelley*

All credits appearing on page or at the end of the book are considered to be an extension of the copyright page.

Library of Congress Cataloging-in-Publication Data

Bodie, Zvi, author.

Essentials of investments / Zvi Bodie, Alex Kane, Alan J. Marcus. — Tenth edition.
pages cm

ISBN 978-0-07-783542-2 (alk. paper)

1. Investments. I. Kane, Alex, author. II. Marcus, Alan J., author. III. Title.

HG4521.B563 2017

332.6—dc23

2015034046

The Internet addresses listed in the text were accurate at the time of publication. The inclusion of a website does not indicate an endorsement by the authors or McGraw-Hill Education, and McGraw-Hill Education does not guarantee the accuracy of the information presented at these sites.

About the Authors

Zvi Bodie

Boston University

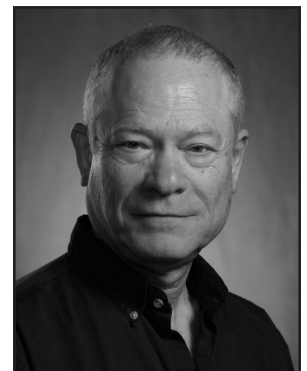
Zvi Bodie is Professor of Finance and Economics at Boston University School of Management. He holds a PhD from the Massachusetts Institute of Technology and has served on the finance faculty at Harvard Business School and MIT's Sloan School of Management. Professor Bodie has published widely on pension finance and investment strategy in leading professional journals. His books include *Foundations of Pension Finance*, *Pensions in the U.S. Economy*, *Issues in Pension Economics*, and *Financial Aspects of the U.S. Pension System*. Professor Bodie is a member of the Pension Research Council of the Wharton School, University of Pennsylvania. His latest book is *Worry-Free Investing: A Safe Approach to Achieving Your Lifetime Financial Goals*.



Alex Kane

University of California, San Diego

Alex Kane is Professor of Finance and Economics at the Graduate School of International Relations and Pacific Studies at the University of California, San Diego. He holds a PhD from the Stern School of Business of New York University and has been Visiting Professor at the Faculty of Economics, University of Tokyo; Graduate School of Business, Harvard; Kennedy School of Government, Harvard; and Research Associate, National Bureau of Economic Research. An author of many articles in finance and management journals, Professor Kane's research is mainly in corporate finance, portfolio management, and capital markets.



Alan J. Marcus

Boston College

Alan Marcus is the Mario J. Gabelli Professor of Finance in the Carroll School of Management at Boston College. He received his PhD from MIT, has been a Visiting Professor at MIT's Sloan School of Management and Athens Laboratory of Business Administration, and has served as a Research Fellow at the National Bureau of Economic Research, where he participated in both the Pension Economics and the Financial Markets and Monetary Economics Groups. Professor Marcus also spent two years at the Federal Home Loan Mortgage Corporation (Freddie Mac), where he helped to develop mortgage pricing and credit risk models. Professor Marcus has published widely in the fields of capital markets and portfolio theory. He currently serves on the Research Foundation Advisory Board of the CFA Institute.



Brief Contents

Part ONE

ELEMENTS OF INVESTMENTS 1

- 1** Investments: Background and Issues 2
- 2** Asset Classes and Financial Instruments 26
- 3** Securities Markets 54
- 4** Mutual Funds and Other Investment Companies 84

Part TWO

PORTFOLIO THEORY 109

- 5** Risk and Return: Past and Prologue 110
- 6** Efficient Diversification 147
- 7** Capital Asset Pricing and Arbitrage Pricing Theory 192
- 8** The Efficient Market Hypothesis 232
- 9** Behavioral Finance and Technical Analysis 264

Part THREE

DEBT SECURITIES 289

- 10** Bond Prices and Yields 290
- 11** Managing Bond Portfolios 334

Part FOUR

SECURITY ANALYSIS 369

- 12** Macroeconomic and Industry Analysis 370
- 13** Equity Valuation 402
- 14** Financial Statement Analysis 443

Part FIVE

DERIVATIVE MARKETS 483

- 15** Options Markets 484
- 16** Option Valuation 519
- 17** Futures Markets and Risk Management 557

Part SIX

ACTIVE INVESTMENT MANAGEMENT 591

- 18** Portfolio Performance Evaluation 592
- 19** Globalization and International Investing 625
- 20** Hedge Funds 661
- 21** Taxes, Inflation, and Investment Strategy 684
- 22** Investors and the Investment Process 706

Appendixes

- A** References 728
- B** References to CFA Questions 734

Index I-1

Part ONE

ELEMENTS OF INVESTMENTS 1

1 Investments: Background and Issues 2

- 1.1 Real Assets Versus Financial Assets 3
- 1.2 Financial Assets 5
- 1.3 Financial Markets and the Economy 6
 - The Informational Role of Financial Markets* 6
 - Consumption Timing* 6
 - Allocation of Risk* 7
 - Separation of Ownership and Management* 7
 - Corporate Governance and Corporate Ethics* 8
- 1.4 The Investment Process 9
- 1.5 Markets Are Competitive 10
 - The Risk-Return Trade-Off* 10
 - Efficient Markets* 11
- 1.6 The Players 11
 - Financial Intermediaries* 12
 - Investment Bankers* 14
 - Venture Capital and Private Equity* 15
- 1.7 The Financial Crisis of 2008 15
 - Antecedents of the Crisis* 15
 - Changes in Housing Finance* 17
 - Mortgage Derivatives* 19
 - Credit Default Swaps* 19
 - The Rise of Systemic Risk* 20
 - The Shoe Drops* 20
 - The Dodd-Frank Reform Act* 21
- 1.8 Outline of the Text 22

End of Chapter Material 22–25

2 Asset Classes and Financial Instruments 26

- 2.1 The Money Market 27
 - Treasury Bills* 27
 - Certificates of Deposit* 28
 - Commercial Paper* 28
 - Bankers' Acceptances* 29

- Eurodollars* 29
- Repos and Reverses* 29
- Brokers' Calls* 29
- Federal Funds* 29
- The LIBOR Market* 30
- Yields on Money Market Instruments* 30

- 2.2 The Bond Market 32
 - Treasury Notes and Bonds* 32
 - Inflation-Protected Treasury Bonds* 33
 - Federal Agency Debt* 33
 - International Bonds* 33
 - Municipal Bonds* 34
 - Corporate Bonds* 36
 - Mortgages and Mortgage-Backed Securities* 36
- 2.3 Equity Securities 38
 - Common Stock as Ownership Shares* 38
 - Characteristics of Common Stock* 39
 - Stock Market Listings* 39
 - Preferred Stock* 40
 - Depositary Receipts* 40
- 2.4 Stock and Bond Market Indexes 40
 - Stock Market Indexes* 40
 - Dow Jones Averages* 40
 - Standard & Poor's Indexes* 42
 - Other U.S. Market Value Indexes* 44
 - Equally Weighted Indexes* 44
 - Foreign and International Stock Market Indexes* 45
 - Bond Market Indicators* 45
- 2.5 Derivative Markets 46
 - Options* 46
 - Futures Contracts* 47

End of Chapter Material 48–53

3 Securities Markets 54

- 3.1 How Firms Issue Securities 55
 - Privately Held Firms* 55
 - Publicly Traded Companies* 56
 - Shelf Registration* 56
 - Initial Public Offerings* 57

3.2	How Securities are Traded	57	5.1	Rates of Return	111
	<i>Types of Markets</i>	58		<i>Measuring Investment Returns over Multiple Periods</i>	111
	<i>Types of Orders</i>	59		<i>Conventions for Annualizing Rates of Return</i>	113
	<i>Trading Mechanisms</i>	61	5.2	Inflation and the Real Rate of Interest	114
3.3	The Rise of Electronic Trading	62		<i>The Equilibrium Nominal Rate of Interest</i>	115
3.4	U.S. Markets	64	5.3	Risk and Risk Premiums	116
	<i>NASDAQ</i>	64		<i>Scenario Analysis and Probability Distributions</i>	116
	<i>The New York Stock Exchange</i>	65		<i>The Normal Distribution</i>	118
	<i>ECNs</i>	65		<i>Normality over Time</i>	120
3.5	New Trading Strategies	65		<i>Deviation from Normality and Value at Risk</i>	121
	<i>Algorithmic Trading</i>	66		<i>Using Time Series of Return</i>	122
	<i>High-Frequency Trading</i>	66		<i>Risk Premiums and Risk Aversion</i>	123
	<i>Dark Pools</i>	67		<i>The Sharpe Ratio</i>	125
	<i>Bond Trading</i>	68	5.4	The Historical Record	125
3.6	Globalization of Stock Markets	68		<i>History of U.S. Interest Rates, Inflation, and Real Interest Rates</i>	125
3.7	Trading Costs	69		<i>World and U.S. Risky Stock and Bond Portfolios</i>	127
3.8	Buying on Margin	70	5.5	Asset Allocation across Risky and Risk-Free Portfolios	133
3.9	Short Sales	72		<i>The Risk-Free Asset</i>	133
3.10	Regulation of Securities Markets	75		<i>Portfolio Expected Return and Risk</i>	134
	<i>Self-Regulation</i>	76		<i>The Capital Allocation Line</i>	135
	<i>The Sarbanes-Oxley Act</i>	77		<i>Risk Aversion and Capital Allocation</i>	136
	<i>Insider Trading</i>	78	5.6	Passive Strategies and the Capital Market Line	137
				<i>Historical Evidence on the Capital Market Line</i>	137
	End of Chapter Material	78–83		<i>Costs and Benefits of Passive Investing</i>	138
				End of Chapter Material	139–146
4	Mutual Funds and Other Investment Companies	84	6	Efficient Diversification	147
4.1	Investment Companies	85	6.1	Diversification and Portfolio Risk	148
4.2	Types of Investment Companies	85	6.2	Asset Allocation with Two Risky Assets	149
	<i>Unit Investment Trusts</i>	86		<i>Covariance and Correlation</i>	150
	<i>Managed Investment Companies</i>	86		<i>Using Historical Data</i>	153
	<i>Other Investment Organizations</i>	87		<i>The Three Rules of Two-Risky-Assets Portfolios</i>	154
4.3	Mutual Funds	88		<i>The Risk-Return Trade-Off with Two-Risky-Assets Portfolios</i>	155
	<i>Investment Policies</i>	88		<i>The Mean-Variance Criterion</i>	157
	<i>How Funds Are Sold</i>	90	6.3	The Optimal Risky Portfolio with a Risk-Free Asset	159
4.4	Costs of Investing in Mutual Funds	91	6.4	Efficient Diversification with Many Risky Assets	163
	<i>Fee Structures</i>	91		<i>The Efficient Frontier of Risky Assets</i>	163
	<i>Fees and Mutual Fund Returns</i>	93		<i>Choosing the Optimal Risky Portfolio</i>	165
4.5	Taxation of Mutual Fund Income	94		<i>The Preferred Complete Portfolio and a Separation Property</i>	165
4.6	Exchange-Traded Funds	95		<i>Constructing the Optimal Risky Portfolio: An Illustration</i>	166
4.7	Mutual Fund Investment Performance: a First Look	98			
4.8	Information on Mutual Funds	101			
	End of Chapter Material	103–108			
Part TWO					
PORTFOLIO THEORY 109					
5	Risk and Return: Past and Prologue	110			

- 6.5 A Single-Index Stock Market 168
 - Statistical and Graphical Representation of the Single-Index Model* 170
 - Diversification in a Single-Index Security Market* 172
 - Using Security Analysis with the Index Model* 174
 - 6.6 Risk of Long-Term Investments 176
 - Risk and Return with Alternative Long-Term Investments* 176
 - Why the Unending Confusion?* 179
- End of Chapter Material** 179–191

7 Capital Asset Pricing and Arbitrage Pricing Theory 192

- 7.1 The Capital Asset Pricing Model 193
 - The Model: Assumptions and Implications* 193
 - Why All Investors Would Hold the Market Portfolio* 194
 - The Passive Strategy Is Efficient* 195
 - The Risk Premium of the Market Portfolio* 196
 - Expected Returns on Individual Securities* 197
 - The Security Market Line* 198
 - Applications of the CAPM* 199
 - 7.2 The CAPM and Index Models 200
 - The Index Model, Realized Returns, and the Mean–Beta Equation* 201
 - Estimating the Index Model* 201
 - Predicting Betas* 208
 - 7.3 The CAPM and the Real World 208
 - 7.4 Multifactor Models and the CAPM 210
 - The Fama-French Three-Factor Model* 211
 - Multifactor Models and the Validity of the CAPM* 214
 - 7.5 Arbitrage Pricing Theory 214
 - Well-Diversified Portfolios and the APT* 215
 - The APT and the CAPM* 218
 - Multifactor Generalization of the APT and CAPM* 218
- End of Chapter Material** 220–231

8 The Efficient Market Hypothesis 232

- 8.1 Random Walks and the Efficient Market Hypothesis 233
 - Competition as the Source of Efficiency* 235
 - Versions of the Efficient Market Hypothesis* 236
- 8.2 Implications of the EMH 237
 - Technical Analysis* 237
 - Fundamental Analysis* 238
 - Active versus Passive Portfolio Management* 239

- The Role of Portfolio Management in an Efficient Market* 240
 - Resource Allocation* 240
 - 8.3 Are Markets Efficient? 241
 - The Issues* 241
 - Weak-Form Tests: Patterns in Stock Returns* 243
 - Predictors of Broad Market Returns* 244
 - Semistrong Tests: Market Anomalies* 244
 - Strong-Form Tests: Inside Information* 249
 - Interpreting the Anomalies* 249
 - 8.4 Mutual Fund and Analyst Performance 252
 - Stock Market Analysts* 252
 - Mutual Fund Managers* 252
 - So, Are Markets Efficient?* 256
- End of Chapter Material** 256–263

9 Behavioral Finance and Technical Analysis 264

- 9.1 The Behavioral Critique 265
 - Information Processing* 266
 - Behavioral Biases* 267
 - Limits to Arbitrage* 269
 - Limits to Arbitrage and the Law of One Price* 270
 - Bubbles and Behavioral Economics* 272
 - Evaluating the Behavioral Critique* 273
 - 9.2 Technical Analysis and Behavioral Finance 274
 - Trends and Corrections* 274
 - Sentiment Indicators* 279
 - A Warning* 280
- End of Chapter Material** 281–288

Part THREE

DEBT SECURITIES 289

10 Bond Prices and Yields 290

- 10.1 Bond Characteristics 291
 - Treasury Bonds and Notes* 291
 - Corporate Bonds* 293
 - Preferred Stock* 294
 - Other Domestic Issuers* 295
 - International Bonds* 295
 - Innovation in the Bond Market* 295
- 10.2 Bond Pricing 297
 - Bond Pricing between Coupon Dates* 300
 - Bond Pricing in Excel* 301

- 10.3 Bond Yields 302
Yield to Maturity 302
Yield to Call 304
Realized Compound Return versus Yield to Maturity 306
- 10.4 Bond Prices over Time 308
Yield to Maturity versus Holding-Period Return 309
Zero-Coupon Bonds and Treasury STRIPS 310
After-Tax Returns 310
- 10.5 Default Risk and Bond Pricing 312
Junk Bonds 312
Determinants of Bond Safety 312
Bond Indentures 314
Yield to Maturity and Default Risk 315
Credit Default Swaps 317
- 10.6 The Yield Curve 319
The Expectations Theory 319
The Liquidity Preference Theory 322
A Synthesis 323
- End of Chapter Material** 324–333
- 11 Managing Bond Portfolios 334**
- 11.1 Interest Rate Risk 335
Interest Rate Sensitivity 335
Duration 337
What Determines Duration? 341
- 11.2 Passive Bond Management 343
Immunization 343
Cash Flow Matching and Dedication 349
- 11.3 Convexity 350
Why Do Investors Like Convexity? 352
- 11.4 Active Bond Management 354
Sources of Potential Profit 354
Horizon Analysis 355
An Example of a Fixed-Income Investment Strategy 355
- End of Chapter Material** 356–368
- Part FOUR**
- SECURITY ANALYSIS 369**
-
- 12 Macroeconomic and Industry Analysis 370**
- 12.1 The Global Economy 371
- 12.2 The Domestic Macroeconomy 373
Gross Domestic Product 374
Employment 374
Inflation 374
Interest Rates 374
Budget Deficit 374
Sentiment 374
- 12.3 Interest Rates 375
- 12.4 Demand and Supply Shocks 376
- 12.5 Federal Government Policy 377
Fiscal Policy 377
Monetary Policy 377
Supply-Side Policies 378
- 12.6 Business Cycles 379
The Business Cycle 379
Economic Indicators 381
Other Indicators 384
- 12.7 Industry Analysis 384
Defining an Industry 385
Sensitivity to the Business Cycle 387
Sector Rotation 388
Industry Life Cycles 389
Industry Structure and Performance 392
- End of Chapter Material** 393–401
- 13 Equity Valuation 402**
- 13.1 Valuation by Comparables 403
Limitations of Book Value 404
- 13.2 Intrinsic Value Versus Market Price 404
- 13.3 Dividend Discount Models 406
The Constant-Growth DDM 407
Stock Prices and Investment Opportunities 409
Life Cycles and Multistage Growth Models 412
Multistage Growth Models 416
- 13.4 Price–Earnings Ratios 417
The Price–Earnings Ratio and Growth Opportunities 417
P/E Ratios and Stock Risk 421
Pitfalls in P/E Analysis 421
Combining P/E Analysis and the DDM 424
Other Comparative Valuation Ratios 424
- 13.5 Free Cash Flow Valuation Approaches 425
Comparing the Valuation Models 428
The Problem with DCF Models 429
- 13.6 The Aggregate Stock Market 429
- End of Chapter Material** 431–442

14 Financial Statement Analysis 443

- 14.1 The Major Financial Statements 444
 - The Income Statement* 444
 - The Balance Sheet* 445
 - The Statement of Cash Flows* 445
- 14.2 Measuring Firm Performance 448
- 14.3 Profitability Measures 448
 - Return on Assets* 449
 - Return on Capital* 449
 - Return on Equity* 449
 - Financial Leverage and ROE* 449
 - Economic Value Added* 451
- 14.4 Ratio Analysis 452
 - Decomposition of ROE* 452
 - Turnover and Asset Utilization* 454
 - Liquidity Ratios* 457
 - Market Price Ratios* 458
 - Choosing a Benchmark* 459
- 14.5 An Illustration of Financial Statement Analysis 460
- 14.6 Comparability Problems 463
 - Inventory Valuation* 464
 - Depreciation* 464
 - Inflation and Interest Expense* 465
 - Fair Value Accounting* 465
 - Quality of Earnings and Accounting Practices* 466
 - International Accounting Conventions* 468
- 14.7 Value Investing: The Graham Technique 469
 - End of Chapter Material** 470–482

Part FIVE**DERIVATIVE MARKETS 483****15 Options Markets 484**

- 15.1 The Option Contract 485
 - Options Trading* 486
 - American and European Options* 487
 - The Option Clearing Corporation* 488
 - Other Listed Options* 488
- 15.2 Values of Options at Expiration 489
 - Call Options* 489
 - Put Options* 490
 - Options versus Stock Investments* 492
 - Option Strategies* 494
- 15.3 Optionlike Securities 502
 - Callable Bonds* 502
 - Convertible Securities* 503
 - Warrants* 505
 - Collateralized Loans* 506
 - Leveraged Equity and Risky Debt* 506

- 15.4 Exotic Options 507
 - Asian Options* 508
 - Currency-Translated Options* 508
 - Digital Options* 508
 - End of Chapter Material** 508–518

16 Option Valuation 519

- 16.1 Option Valuation: Introduction 520
 - Intrinsic and Time Values* 520
 - Determinants of Option Values* 520
- 16.2 Binomial Option Pricing 522
 - Two-State Option Pricing* 522
 - Generalizing the Two-State Approach* 525
 - Making the Valuation Model Practical* 526
- 16.3 Black-Scholes Option Valuation 529
 - The Black-Scholes Formula* 530
 - The Put-Call Parity Relationship* 536
 - Put Option Valuation* 539
- 16.4 Using the Black-Scholes Formula 539
 - Hedge Ratios and the Black-Scholes Formula* 539
 - Portfolio Insurance* 541
 - Option Pricing and the Crisis of 2008–2009* 544
- 16.5 Empirical Evidence 545
 - End of Chapter Material** 546–556

17 Futures Markets and Risk Management 557

- 17.1 The Futures Contract 558
 - The Basics of Futures Contracts* 558
 - Existing Contracts* 561
- 17.2 Trading Mechanics 563
 - The Clearinghouse and Open Interest* 563
 - Marking to Market and the Margin Account* 565
 - Cash versus Actual Delivery* 567
 - Regulations* 567
 - Taxation* 567
- 17.3 Futures Market Strategies 568
 - Hedging and Speculation* 568
 - Basis Risk and Hedging* 570
- 17.4 Futures Prices 571
 - Spot-Futures Parity* 571
 - Spreads* 575
- 17.5 Financial Futures 576
 - Stock-Index Futures* 576
 - Creating Synthetic Stock Positions* 577
 - Index Arbitrage* 577
 - Foreign Exchange Futures* 578
 - Interest Rate Futures* 578

- 17.6 Swaps 581
Swaps and Balance Sheet Restructuring 582
The Swap Dealer 582
End of Chapter Material 583–590

Part SIX

ACTIVE INVESTMENT MANAGEMENT 591

18 Portfolio Performance Evaluation 592

- 18.1 Risk-Adjusted Returns 593
Investment Clients, Service Providers, and Objectives of Performance Evaluation 593
Comparison Groups 593
Basic Performance-Evaluation Statistics 594
Performance Evaluation of Entire-Wealth Portfolios Using the Sharpe Ratio and M-Square 595
Performance Evaluation of Fund of Funds Using the Treynor Measure 597
Performance Evaluation of a Portfolio Added to the Benchmark Using the Information Ratio 598
The Relation of Alpha to Performance Measures 598
Performance Evaluation with a Multi-Index Model 600
- 18.2 Style Analysis 601
- 18.3 Morningstar's Risk-Adjusted Rating 603
- 18.4 Risk Adjustments with Changing Portfolio Composition 605
Performance Manipulation 606
- 18.5 Performance Attribution Procedures 606
Asset Allocation Decisions 608
Sector and Security Selection Decisions 609
Summing Up Component Contributions 610
- 18.6 Market Timing 612
Valuing Market Timing as an Option 613
The Value of Imperfect Forecasting 614
Measurement of Market-Timing Performance 615
End of Chapter Material 616–624

19 Globalization and International Investing 625

- 19.1 Global Markets for Equities 626
Developed Countries 626
Emerging Markets 626

Market Capitalization and GDP 629

Home-Country Bias 630

- 19.2 Risk Factors in International Investing 630
Exchange Rate Risk 630
Imperfect Exchange Rate Risk Hedging 635
Political Risk 635
- 19.3 International Investing: Risk, Return, and Benefits from Diversification 639
Risk and Return: Summary Statistics 639
Are Investments in Emerging Markets Riskier? 642
Are Average Returns Higher in Emerging Markets? 644
Is Exchange Rate Risk Important in International Portfolios? 645
Benefits from International Diversification 647
Misleading Representation of Diversification Benefits 649
Realistic Benefits from International Diversification 649
Are Benefits from International Diversification Preserved in Bear Markets? 650
Active Management and International Diversification 651
- 19.4 International Investing and Performance Attribution 653
Constructing a Benchmark Portfolio of Foreign Assets 653
Performance Attribution 653

End of Chapter Material 656–660

20 Hedge Funds 661

- 20.1 Hedge Funds Versus Mutual Funds 662
- 20.2 Hedge Fund Strategies 663
Directional and Nondirectional Strategies 663
Statistical Arbitrage 665
- 20.3 Portable Alpha 665
An Example of a Pure Play 666
- 20.4 Style Analysis for Hedge Funds 668
- 20.5 Performance Measurement for Hedge Funds 669
Liquidity and Hedge Fund Performance 670
Hedge Fund Performance and Survivorship Bias 672
Hedge Fund Performance and Changing Factor Loadings 673
Tail Events and Hedge Fund Performance 674
- 20.6 Fee Structure in Hedge Funds 676

End of Chapter Material 679–683

21 Taxes, Inflation, and Investment Strategy 684	22 Investors and the Investment Process 706
21.1 Saving for the Long Run 685	22.1 The Investment Management Process 707
<i>A Hypothetical Household</i> 685	22.2 Investor Objectives 709
<i>The Retirement Annuity</i> 685	<i>Individual Investors</i> 709
21.2 Accounting for Inflation 686	<i>Professional Investors</i> 710
<i>A Real Savings Plan</i> 686	<i>Life Insurance Companies</i> 712
<i>An Alternative Savings Plan</i> 688	<i>Non-Life-Insurance Companies</i> 713
21.3 Accounting for Taxes 689	<i>Banks</i> 713
21.4 The Economics of Tax Shelters 690	<i>Endowment Funds</i> 713
<i>A Benchmark Tax Shelter</i> 691	22.3 Investor Constraints 714
<i>The Effect of the Progressive Nature of the Tax Code</i> 692	<i>Liquidity</i> 714
21.5 A Menu of Tax Shelters 694	<i>Investment Horizon</i> 715
<i>Defined Benefit Plans</i> 694	<i>Regulations</i> 715
<i>Employee Defined Contribution Plans</i> 694	<i>Tax Considerations</i> 715
<i>Individual Retirement Accounts</i> 695	<i>Unique Needs</i> 715
<i>Roth Accounts with the Progressive Tax Code</i> 695	22.4 Investment Policies 717
<i>Risky Investments and Capital Gains as Tax Shelters</i> 697	<i>Top-Down Policies for Institutional Investors</i> 718
<i>Sheltered versus Unsheltered Savings</i> 697	<i>Active versus Passive Policies</i> 719
21.6 Social Security 699	22.5 Monitoring and Revising Investment Portfolios 721
21.7 Large Purchases 700	End of Chapter Material 721–727
21.8 Home Ownership: The Rent-Versus-Buy Decision 701	
21.9 Uncertain Longevity and Other Contingencies 701	Appendixes
21.10 Matrimony, Bequest, and Intergenerational Transfers 702	A References 728
End of Chapter Material 703–705	B References to CFA Questions 734
	Index I-1

A Note from the Authors . . .

The past three decades witnessed rapid and profound change in the investment industry as well as a financial crisis of historic magnitude. The vast expansion of financial markets during this period was due in part to innovations in securitization and credit enhancement that gave birth to new trading strategies. These strategies were in turn made feasible by developments in communication and information technology, as well as by advances in the theory of investments.

Yet the crisis was also rooted in the cracks of these developments. Many of the innovations in security design facilitated high leverage and an exaggerated notion of the efficacy of risk transfer strategies. This engendered complacency about risk that was coupled with relaxation of regulation as well as reduced transparency that masked the precarious condition of many big players in the system.

Of necessity, our text has evolved along with financial markets. We devote considerable attention to recent breathtaking changes in market structure and trading technology. At the same time, however, many basic *principles* of investments remain important. We continue to organize the book around one basic theme—that security markets are nearly efficient, meaning that you should expect to find few obvious bargains in these markets. Given what we know about securities, their prices usually appropriately reflect their risk and return attributes; free lunches are few and far apart in markets as competitive as these. This starting point remains a powerful approach to security valuation. While the degree of market efficiency is and will always be a matter of debate, this first principle of valuation, specifically that in the absence of private information prices are the best guide to value, is still valid. Greater emphasis on risk analysis is the lesson woven into the text.

This text also places greater emphasis on *asset allocation* than most other books. We prefer this emphasis for two important reasons. First, it corresponds to the procedure that most individuals actually follow when building an investment portfolio. Typically, you start with all of your money in a bank account, only then

considering how much to invest in something riskier that might offer a higher expected return. The logical step at this point is to consider other risky asset classes, such as stock, bonds, or real estate. This is an asset allocation decision. Second, in most cases the asset allocation choice is far more important than specific security-selection decisions in determining overall investment performance. Asset allocation is the primary determinant of the risk-return profile of the investment portfolio, and so it deserves primary attention in a study of investment policy.

Our book also focuses on investment analysis, which allows us to present the practical applications of investment theory and to convey insights of practical value. We provide a systematic collection of Excel spreadsheets that give you tools to explore concepts more deeply. These spreadsheets are available as part of the Connect resources for this text and provide a taste of the sophisticated analytic tools available to professional investors.

In our efforts to link theory to practice, we also have attempted to make our approach consistent with that of the CFA Institute. The Institute administers an education and certification program to candidates seeking designation as a Chartered Financial Analyst (CFA). The CFA curriculum represents the consensus of a committee of distinguished scholars and practitioners regarding the core of knowledge required by the investment professional. We continue to include questions from previous CFA exams in our end-of-chapter problems as well as CFA-style questions derived from the Kaplan-Schweser CFA preparation courses.

This text will introduce you to the major issues of concern to all investors. It can give you the skills to conduct a sophisticated assessment of current issues and debates covered by both the popular media and more specialized finance journals. Whether you plan to become an investment professional or simply a sophisticated individual investor, you will find these skills essential.

Zvi Bodie
Alex Kane
Alan J. Marcus

Organization of the Tenth Edition

Essentials of Investments, Tenth Edition, is intended as a textbook on investment analysis most applicable for a student's first course in investments. The chapters are written in a modular format to give instructors the flexibility to either omit certain chapters or rearrange their order. The highlights in the margins describe updates and important features in this edition.

This part lays out the general framework for the investment process in a nontechnical manner. We discuss the major players in the financial markets and provide an overview of security types and trading mechanisms. These chapters make it possible for instructors to assign term projects analyzing securities early in the course.

Includes sections on securitization, the roots of the financial crisis, and the fallout from the crisis.

Extensive coverage of the rise of electronic markets, algorithmic and high-speed trading, and changes in market structure.

Greater coverage of innovations in exchange-traded funds.

This part contains the core of modern portfolio theory. For courses emphasizing security analysis, this part may be skipped without loss of continuity.

All data are updated and available on the web through the Connect resources. The data are used in new treatments of risk management and tail risk.

Introduces simple in-chapter spreadsheets that can be used to compute investment opportunity sets and the index model.

Introduces single-factor as well as multifactor models.

Updated with more coverage of anomalies over time.

Contains extensive treatment of behavioral finance and provides an introduction to technical analysis.

Part ONE

ELEMENTS OF INVESTMENTS 1

- 1 Investments: Background and Issues 2
- 2 Asset Classes and Financial Instruments 26
- 3 Securities Markets 54
- 4 Mutual Funds and Other Investment Companies 84

Part TWO

PORTFOLIO THEORY 109

- 5 Risk and Return: Past and Prologue 110
- 6 Efficient Diversification 147
- 7 Capital Asset Pricing and Arbitrage Pricing Theory 192
- 8 The Efficient Market Hypothesis 232
- 9 Behavioral Finance and Technical Analysis 264

Part THREE

DEBT SECURITIES 289

10 Bond Prices and Yields 290

11 Managing Bond Portfolios 334

This is the first of three parts on security valuation.

Includes material on sovereign credit default swaps.

Contains spreadsheet material on duration and convexity.

This part is presented in a “top-down” manner, starting with the broad macroeconomic environment before moving to more specific analysis.

Part FOUR

SECURITY ANALYSIS 369

12 Macroeconomic and Industry Analysis 370

13 Equity Valuation 402

14 Financial Statement Analysis 443

Discusses how international political developments such as the euro crisis can have major impacts on economic prospects.

Contains free cash flow equity valuation models as well as a discussion of the pitfalls of discounted cash flow models.

Includes a top-down rationale for how ratio analysis can be organized to guide one’s analysis of firm performance.

Part FIVE

DERIVATIVE MARKETS 483

15 Options Markets 484

16 Option Valuation 519

17 Futures Markets and Risk Management 557

This part highlights how these markets have become crucial and integral to the financial universe and are major sources of innovation.

Offers thorough introduction to option payoffs, strategies, and securities with embedded options.

Extensive introduction to risk-neutral valuation methods and their implementation in the binomial option-pricing model.

Part SIX

ACTIVE INVESTMENT MANAGEMENT 591

18 Portfolio Performance Evaluation 592

19 Globalization and International Investing 625

20 Hedge Funds 661

21 Taxes, Inflation, and Investment Strategy 684

22 Investors and the Investment Process 706

This part unifies material on active management and is ideal for a closing-semester unit on applying theory to actual portfolio management.

Rigorous development of performance evaluation methods.

Provides evidence on international correlation and the benefits of diversification.

Updated assessment of hedge fund performance and the exposure of hedge funds to “black swans.”

Employs extensive spreadsheet analysis of the interaction of taxes and inflation on long-term financial strategies.

Modeled after the CFA Institute curriculum, also includes guidelines on “How to Become a Chartered Financial Analyst.”

Pedagogical Features

Learning Objectives

Each chapter begins with a summary of the chapter learning objectives, providing students with an overview of the concepts they should understand after reading the chapter. The end-of-chapter problems and CFA questions are tagged with the corresponding learning objective.

Learning Objectives

- LO 3-1 Describe how firms issue securities to the public.
- LO 3-2 Identify various types of orders investors can submit to their brokers.
- LO 3-3 Describe trading practices in dealer markets, specialist-directed stock exchanges, and electronic communication networks.
- LO 3-4 Compare the mechanics and investment implications of buying on margin and short-selling.

Chapter Overview

Each chapter begins with a brief narrative to explain the concepts that will be covered in more depth. Relevant websites related to chapter material can be found in Connect. These sites make it easy for students to research topics further and retrieve financial data and information.

You learned in Chapter 1 that the process of building an investment portfolio usually begins by deciding how much money to allocate to broad classes of assets, such as safe money market securities or bank accounts, longer-term bonds, stocks, or even asset classes such as real estate or precious metals. This process is called *asset allocation*. Within each class the investor then selects specific assets from a more detailed menu. This is called *security selection*.

short-term, marketable, liquid, low-risk debt securities. Money market instruments sometimes are called *cash equivalents*, or just *cash* for short. Capital markets, in contrast, include longer-term and riskier securities. Securities in the capital market are much more diverse than those found within the money market. For this reason, we will subdivide the capital market into three segments: longer-term debt markets, equity markets, and derivative markets in which options and futures trade.

Key Terms in the Margin

Key terms are indicated in color and defined in the margin the first time the term is used. A full list of key terms is included in the end-of-chapter materials.

Publicly Traded Companies

initial public offering (IPO)
First public sale of stock by a formerly private company.

When a private firm decides that it wishes to raise capital from a wide range of investors, it may decide to *go public*. This means that it will sell its securities to the general public and allow those investors to freely trade those shares in established securities markets. The first issue of shares to the general public is called the firm's **initial public offering (IPO)**. Later, the firm may go back to the public and issue additional shares. A *seasoned equity offering* is the sale of additional shares in firms that already are publicly traded. For example, a sale by Apple of new shares of stock would be considered a seasoned new issue.

Numbered Equations

Key equations are called out in the text and identified by equation numbers. These key formulas are listed at the end of each chapter. Equations that are frequently used are also featured on the text's end sheets for convenient reference.

One way of comparing bonds is to determine the interest rate on taxable bonds that would be necessary to provide an after-tax return equal to that of municipals. To derive this value, we set after-tax yields equal and solve for the *equivalent taxable yield* of the tax-exempt bond. This is the rate a taxable bond would need to offer in order to match the after-tax yield on the tax-free municipal.

$$r(1 - t) = r_m \quad (2.1)$$

or

$$r = \frac{r_m}{1 - t} \quad (2.2)$$

Thus, the equivalent taxable yield is simply the tax-free rate divided by $1 - t$. Table 2.2 presents equivalent taxable yields for several municipal yields and tax rates.

On the MARKET FRONT

THE LIBOR SCANDALS

LIBOR was designed initially as a survey of interbank lending rates but soon became a key determinant of short-term interest rates with far-reaching significance. Around \$350 trillion of derivative contracts have payoffs tied to it, and several trillion dollars of loans and bonds with floating interest rates linked to LIBOR are currently outstanding. LIBOR is quoted for loans in several currencies, such as the dollar, yen, euro, and U.K. pound, and for maturities ranging from a day to a year, although three months is the most common.

However, LIBOR is not a rate at which actual transactions occur; instead, it is just a survey of "estimated" borrowing rates, and this has made it vulnerable to manipulation. Several large banks are asked to report the rate at which they believe they can borrow in the interbank market. Outliers are trimmed from the sample of responses, and LIBOR is calculated as the average of the mid-range estimates.

Over time, several problems surfaced. First, it appeared that many banks understated the rates at which they claimed they could borrow in an effort to make themselves look financially stronger. Other surveys that asked for estimates of the rates at which other banks could borrow resulted in higher values. Moreover, LIBOR did not seem to reflect current market conditions. A majority of LIBOR submissions were unchanged from day to day even when other interest rates fluctuated, and LIBOR

spreads showed surprisingly low correlation with other measures of credit risk such as spreads on credit default swaps. Even worse, once the market came under scrutiny, it emerged that participating banks were colluding to manipulate their LIBOR submissions to enhance profits on their derivatives trades. Traders used emails and instant messages to tell each other whether they wanted to see higher or lower submissions. Members of this informal cartel essentially set up a "favor bank" to help each other move the survey average up or down depending on their trading positions.

To date, around \$4 billion in fines have been paid: UBS paid \$1.52 billion, Rabobank \$1.07 billion, Royal Bank of Scotland \$612 million, Barclays \$454 million, and Lloyds \$370 million. Other banks remain under investigation. But government fines may be only the tip of the iceberg. Private lawsuits are also possible, as anyone trading a LIBOR derivative against these banks or anyone who participated in a loan with an interest rate tied to LIBOR can claim to have been harmed.

Several reforms have been suggested and some have been implemented. The British Bankers Association, which until recently ran the LIBOR survey, yielded responsibility for LIBOR to British regulators. LIBOR quotes in less active currencies and maturities, where collusion is easier, have been eliminated. More substantive proposals would replace the survey rate with one based on actual, verifiable transactions—that is, real loans among banks.

CONCEPT CHECK

2.5

Reconsider companies XYZ and ABC from Concept Check Question 2.4. Calculate the percentage change in the market value-weighted index. Compare that to the rate of return of a portfolio that holds \$500 of ABC stock for every \$100 of XYZ stock (i.e., an index portfolio).

EXAMPLE 2.4

Value-Weighted Indexes

To illustrate how value-weighted indexes are computed, look again at Table 2.3. The final value of all outstanding stock in our two-stock universe is \$690 million. The initial value was \$600 million. Therefore, if the initial level of a market value-weighted index of stocks ABC and XYZ were set equal to an arbitrarily chosen starting value such as 100, the index value at year-end would be $100 \times (690/600) = 115$. The increase in the index would reflect the 15% return earned on a portfolio consisting of those two stocks held in proportion to outstanding market values.

Unlike the price-weighted index, the value-weighted index gives more weight to ABC. Whereas the price-weighted index fell because it was dominated by higher-price XYZ, the value-weighted index rose because it gave more weight to ABC, the stock with the higher total market value.

Note also from Tables 2.3 and 2.4 that market value-weighted indexes are unaffected by stock splits. The total market value of the outstanding XYZ stock increases from \$100 million to \$110 million regardless of the stock split, thereby rendering the split irrelevant to the performance of the index.

On the Market Front Boxes

Current articles from financial publications such as *The Wall Street Journal* are featured as boxed readings. Each box is referred to within the narrative of the text, and its real-world relevance to the chapter material is clearly defined.

Concept Checks

These self-test questions in the body of the chapter enable students to determine whether the preceding material has been understood and then reinforce understanding before students read further. Detailed Solutions to the Concept Checks are found at the end of each chapter.

Numbered Examples

Numbered and titled examples are integrated in each chapter. Using the worked-out solutions to these examples as models, students can learn how to solve specific problems step-by-step as well as gain insight into general principles by seeing how they are applied to answer concrete questions.

Excel Integration

Excel Applications

Since many courses now require students to perform analyses in spreadsheet format, Excel has been integrated throughout the book. It is used in examples as well as in this chapter feature which shows students how to create and manipulate spreadsheets to solve specific problems. This feature starts with an example presented in the chapter, briefly discusses how a spreadsheet can be valuable for investigating the topic, shows a sample spreadsheet, and asks students to apply the data to answer questions. These applications also direct the student to the web to work with an interactive version of the spreadsheet. The spreadsheet files are available for download in Connect; available spreadsheets are denoted by an icon. As extra guidance, the spreadsheets include a comment feature that documents both inputs and outputs. Solutions for these exercises are located on the password-protected instructor site only, so instructors can assign these exercises either for homework or just for practice.

Excel application spreadsheets are available for the following:

Chapter 3: Buying on Margin; Short Sales

Chapter 7: Estimating the Index Model

Chapter 11: Immunization; Convexity

Chapter 15: Options, Stock, and Lending; Straddles and Spreads

Chapter 17: Parity and Spreads

Chapter 18: Performance Measures; Performance Attribution

Chapter 19: International Portfolios

Spreadsheet exhibit templates are also available for the following:

Chapter 5: Spreadsheet 5.1

Chapter 6: Spreadsheets 6.1–6.6

Chapter 10: Spreadsheets 10.1 & 10.2

Chapter 11: Spreadsheets 11.1 & 11.2

Chapter 13: Spreadsheets 13.1 & 13.2

Chapter 16: Spreadsheet 16.1

Chapter 21: Spreadsheets 21.1–21.10

EXCEL
Buying on Margin

APPLICATIONS

This spreadsheet is available in Connect

The Excel spreadsheet model below makes it easy to analyze the impacts of different margin levels and the volatility of stock prices. It also allows you to compare return on investment for a margin trade with a trade using no borrowed funds.

	A	B	C	D	E	F	G	H
1								
2								
3			Action or Formula for Column B	Ending St Price	Return on Investment		Ending St Price	Return with No Margin
4	Initial Equity Investment	\$10,000.00	Enter data		-42.00%			-19.00%
5	Amount Borrowed	\$10,000.00	(B4/B10)–B4	\$20.00	-122.00%	\$20.00		-59.00%
6	Initial Stock Price	\$50.00	Enter data	25.00	-102.00%	25.00		-49.00%
7	Shares Purchased	400	(B4/B10)/B6	30.00	-82.00%	30.00		-39.00%
8	Ending Stock Price	\$40.00	Enter data	35.00	-62.00%	35.00		-29.00%
9	Cash Dividends During Hold Per.	\$0.50	Enter data	40.00	-42.00%	40.00		-19.00%
10	Initial Margin Percentage	50.00%	Enter data	45.00	-22.00%	45.00		-9.00%
11	Maintenance Margin Percentage	30.00%	Enter data	50.00	-2.00%	50.00		1.00%
12				55.00	18.00%		55.00	11.00%
13	Rate on Margin Loan	8.00%	Enter data	60.00	38.00%		60.00	21.00%
14	Holding Period in Months	6	Enter data	65.00	58.00%		65.00	31.00%
15				70.00	78.00%		70.00	41.00%
16	Return on Investment			75.00	98.00%		75.00	51.00%
17	Capital Gain on Stock	-\$4,000.00	B7*(B8–B6)	80.00	118.00%		80.00	61.00%
18	Dividends	\$200.00	B7*B9					
19	Interest on Margin Loan	\$400.00	B5*(B14/12)*B13					
20	Net Income	-\$4,200.00	B17+B18–B19					
21	Initial Investment	\$10,000.00	B4					
22	Return on Investment	-42.00%	B20/B21					

LEGEND:


Enter data

Value calculated

Excel Questions

- Suppose you buy 100 shares of stock initially selling for \$50, borrowing 25% of the necessary funds from your broker; that is, the initial margin on your purchase is 25%. You pay an interest rate of 8% on margin loans.
 - How much of your own money do you invest? How much do you borrow from your broker?
 - What will be your rate of return for the following stock prices at the end of a one-year holding period? (i) \$40, (ii) \$50, (iii) \$60.


End-of-Chapter Features

 Select problems are available in McGraw-Hill's Connect. Please see the Supplements section of the book's frontmatter for more information.

PROBLEM SETS


1. In forming a portfolio of two risky assets, what must be true of the correlation coefficient between their returns if there are to be gains from diversification? Explain. (LO 6-1)
2. When adding a risky asset to a portfolio of many risky assets, which property of the

15. You can find a spreadsheet containing the historic returns presented in Table 5.2 in Connect. (Look for the Chapter 5 material.) Copy the data for the last 20 years into a new spreadsheet. Analyze the risk-return trade-off that would have characterized portfolios constructed from large stocks and long-term Treasury bonds over the last 20 years. What was the average rate of return and standard deviation of each asset? What was the correlation coefficient of their annual returns? What would have been the average return and standard deviation of portfolios with differing weights in the two assets?


 Templates and spreadsheets are available in Connect

Problem Sets

We strongly believe that practice in solving problems is a critical part of learning investments, so we provide a good variety. We have arranged questions by level of difficulty.

 10. A market order has: (LO 3-2)


- a. Price uncertainty but not execution uncertainty.
- b. Both price uncertainty and execution uncertainty.
- c. Execution uncertainty but not price uncertainty.

 11. Where would an illiquid security in a developing country *most likely* trade? (LO 3-3)

- a. Broker markets.
- b. Electronic crossing networks.
- c. Electronic limit-order markets.

Excel Problems


Select end-of-chapter questions require the use of Excel. These problems are denoted with an icon. Templates and spreadsheets are available in Connect.

 **CFA Problems**

1. The following multiple-choice problems are based on questions that appeared in past CFA examinations.
 - a. A bond with a call feature: (LO 10-4)
 - (1) Is attractive because the immediate receipt of principal plus premium produces a high return.
 - (2) Is more apt to be called when interest rates are high because the interest saving will be greater.
 - (3) Will usually have a higher yield to maturity than a similar noncallable bond.
 - (4) None of the above.

Kaplan-Schweser Problems

Each chapter contains select CFA-style questions derived from the Kaplan-Schweser CFA preparation courses. These questions are tagged with an icon for easy reference.

 **WEB master**

1. Go to finance.yahoo.com, and enter the ticker symbol DIS (for Walt Disney Co.) in the *Look Up* box. Now click on *SEC Filings* and look for the link to Disney's most recent annual report (its 10-K). Financial tables are available from the *Summary* link, and Disney's full annual report may be obtained from the *EDGAR* link. Locate the company's Consolidated Balance Sheets and answer these questions:
 - a. How much preferred stock is Disney authorized to issue? How much has been issued?
 - b. How much common stock is Disney authorized to issue? How many shares are currently outstanding?
 - c. Search for the term "Financing Activities." What is the total amount of borrowing listed for Disney? How much of this is medium-term notes?
 - d. What other types of debt does Disney have outstanding?

CFA Problems

We provide several questions from past CFA exams in applicable chapters. These questions represent the kinds of questions that professionals in the field believe are relevant to the practicing money manager. Appendix B, at the back of the book, lists each CFA question and the level and year of the CFA Exam it was included in, for easy reference when studying for the exam.

Web Master Exercises

These exercises are a great way to allow students to test their skills on the Internet. Each exercise consists of an activity related to practical problems and real-world scenarios.

Supplements

MCGRAW-HILL CONNECT

Less Managing. More Teaching. Greater Learning.

McGraw-Hill *Connect* is an online assignment and assessment solution that connects students with the tools and resources they'll need to achieve success.

McGraw-Hill *Connect* helps prepare students for their future by enabling faster learning, more efficient studying, and higher retention of knowledge.

McGraw-Hill Connect Features

Connect offers a number of powerful tools and features to make managing assignments easier, so faculty can spend more time teaching. With *Connect*, students can engage with their coursework anytime and anywhere, making the learning process more accessible and efficient. *Connect* offers you the features described below.

Simple Assignment Management

With *Connect*, creating assignments is easier than ever, so you can spend more time teaching and less time managing. The assignment management function enables you to:

- Create and deliver assignments easily with selectable end-of-chapter questions and test bank items.
- Streamline lesson planning, student progress reporting, and assignment grading to make classroom management more efficient than ever.
- Go paperless with the eBook and online submission and grading of student assignments.

Smart Grading

When it comes to studying, time is precious. *Connect* helps students learn more efficiently by providing feedback and practice material when they need it, where they need it. When it comes to teaching, your time also is precious. The grading function enables you to:

- Have assignments scored automatically, giving students immediate feedback on their work and side-by-side comparisons with correct answers.
- Access and review each response; manually change grades or leave comments for students to review.
- Reinforce classroom concepts with practice tests and instant quizzes.

Instructor Library

The *Connect* Instructor Library is your repository for additional resources to improve student engagement in and out of class. You can select and use any asset that enhances your lecture.

This library contains information about the book and the authors, as well as all of the instructor supplements for this text, including:

- **Instructor's Manual** Revised by Nicholas Racculia, St. Vincent College, this instructional tool provides an integrated learning approach revised for this edition. Each chapter includes a Chapter Overview, Learning Objectives, and Presentation of Material that outlines and organizes the material around the PowerPoint Presentation.
- **Solutions Manual** The Solutions Manual, carefully revised by the authors with assistance from Marc-Anthony Isaacs, contains solutions to all basic, intermediate, and challenge problems found at the end of each chapter.
- **Test Bank** Prepared by Lynn Leary-Myers, University of Utah, and Matthew Will, University of Indianapolis, the Test Bank contains more than 1,200 questions and includes over 300 new questions. Each question is ranked by level of difficulty (easy, medium, hard) and tagged with the learning objective, the topic, AACSB, and Bloom's Taxonomy, which allows greater flexibility in creating a test. The Test Bank is assignable within *Connect* and available as a Word file or within EZ Test Online.
- **PowerPoint Presentations** These presentation slides, developed by Nicholas Racculia, contain figures and tables from the text, key points, and summaries in a visually stimulating collection of slides. These slides follow the order of the chapters, but if you have PowerPoint software, you may customize the program to fit your lecture.

Diagnostic and Adaptive Learning of Concepts: LearnSmart and SmartBook



LEARNSMART® Students want to make the best use of their study time. The LearnSmart adaptive self-study technology within *Connect* provides students with a seamless combination of practice, assessment, and remediation for every concept in the textbook. LearnSmart's intelligent software adapts to every student response and automatically delivers concepts that advance students' understanding while reducing time devoted to the concepts already mastered. The result for every student is the fastest path to mastery of the chapter concepts. LearnSmart:

- Applies an intelligent concept engine to identify the relationships between concepts and to serve new concepts to each student only when he or she is ready.
- Adapts automatically to each student, so students spend less time on the topics they understand and practice more those they have yet to master.
- Provides continual reinforcement and remediation, but gives only as much guidance as students need.
- Integrates diagnostics as part of the learning experience.
- Enables you to assess which concepts students have efficiently learned on their own, thus freeing class time for more applications and discussion.



SMARTBOOK® SmartBook®, powered by LearnSmart, is the first and only adaptive reading experience designed to change the way students read and learn. It creates a personalized reading experience by highlighting the most impactful concepts a student needs to learn at that moment in time. As a student engages with SmartBook, the reading experience continuously adapts by highlighting content based on what the student knows and doesn't know. This ensures that the focus is on the content he or she needs to learn, while simultaneously promoting

long-term retention of material. Use SmartBook's real-time reports to quickly identify the concepts that require more attention from individual students—or the entire class. The end result? Students are more engaged with course content, can better prioritize their time, and come to class ready to participate.

Student Study Center

The *Connect* Student Study Center is the place for students to access additional resources. The Student Study Center:

- Offers students quick access to lectures, course materials, eBooks, and more.
- Provides instant practice material and study questions, easily accessible with LearnSmart and SmartBook.
- Gives students access to the Excel templates and files that accompany the text.

Student Progress Tracking

Connect keeps instructors informed about how each student, section, and class is performing, allowing for more productive use of lecture and office hours. The progress-tracking function enables you to:

- View scored work immediately and track individual or group performance with assignment and grade reports.
- Access an instant view of student or class performance relative to learning objectives.

Lecture Capture through Tegrity Campus

For an additional charge, Lecture Capture offers new ways for students to focus on the in-class discussion, knowing they can revisit important topics later. This can be delivered through *Connect* or separately. See below for more details.

For more information about *Connect*, go to connect.mheducation.com or contact your local McGraw-Hill sales representative.

TEGRITY CAMPUS: LECTURES 24/7

Tegrity Campus is a service that makes class time available 24/7 by automatically capturing every lecture in a searchable format for students to review when they study and complete assignments. With a simple one-click start-and-stop process, you capture all computer screens and corresponding audio. Students can replay any part of any class with easy-to-use browser-based viewing on a PC or Mac.

Educators know that the more students can see, hear, and experience class resources, the better they learn. In fact, studies prove it. With Tegrity Campus, students quickly recall key moments by using Tegrity Campus's unique search feature. This search helps students efficiently find what they need, when they need it, across an entire semester of class recordings. Help turn all your students' study time into learning moments immediately supported by your lecture.

To learn more about Tegrity, watch a 2-minute Flash demo at <http://tegritycampus.mhhe.com>.

Assurance of Learning Ready

Many educational institutions today are focused on the notion of *assurance of learning*, an important element of many accreditation standards. *Essentials of Investments*, Tenth Edition, is designed specifically to support your assurance-of-learning initiatives with a simple, yet powerful, solution.

Each chapter in the book begins with a list of numbered learning objectives, which also appear in the end-of-chapter problems. Every Test Bank question for *Essentials of Investments* maps to a specific chapter learning objective in the textbook. Each Test Bank question also identifies the topic area, level of difficulty, Bloom's Taxonomy level, and AACSB skill area. You can use our Test Bank software,

EZ Test Online, or *Connect* to easily search for learning objectives that directly relate to the learning objectives for your course. You can then use the reporting features of *EZ Test* to aggregate student results in similar fashion, making the collection and presentation of assurance-of-learning data simple and easy.

AACSB Statement

McGraw-Hill/Irwin is a proud corporate member of AACSB International. Understanding the importance and value of AACSB accreditation, *Essentials of Investments*, Tenth Edition, recognizes the curricula guidelines detailed in the AACSB standards for business accreditation by connecting selected questions in the Test Bank to the general knowledge and skill guidelines in the AACSB standards.

The statements contained in *Essentials of Investments*, Tenth Edition, are provided only as a guide for the users of this textbook. The AACSB leaves content coverage and assessment within the purview of individual schools, the mission of the school, and the faculty. While *Essentials of Investments*, Tenth Edition, and the teaching package make no claim of any specific AACSB qualification or evaluation, we have labeled selected questions according to the six general knowledge and skills areas.

McGraw-Hill Customer Care Contact Information

At McGraw-Hill, we understand that getting the most from new technology can be challenging. That's why our services don't stop after you purchase our products. You can e-mail our Product Specialists 24 hours a day to get product-training online. Or you can search our knowledge bank of Frequently Asked Questions on our support website. For Customer Support, call **800-331-5094** or visit www.mhhe.com/support. One of our Technical Support Analysts will be able to assist you in a timely fashion.

Acknowledgments

We received help from many people as we prepared this book. An insightful group of reviewers commented on this and previous editions of this text. Their comments and suggestions improved the exposition of the material considerably. These reviewers all deserve special thanks for their contributions.

Anna Agapova *Florida Atlantic University, Boca Raton*
Sandro C. Andrade *University of Miami*
Bala Arshanapalli *Indiana University Northwest*
Rasha Ashraf *Georgia State University*
Anand Bhattacharya *Arizona State University, Tempe*
Randall S. Billingsley *Virginia Polytechnic Institute and State University*
Howard Bohnen *St. Cloud State University*
Paul Bolster *Northeastern University*
Lyle Bowlin *University of Northern Iowa*
Brian Boyer *Brigham Young University*
Nicole Boyson *Northeastern University*
Ben Branch *University of Massachusetts, Amherst*
Thor W. Bruce *University of Miami*
Timothy Burch *University of Miami, Coral Gables*
Alyce R. Campbell *University of Oregon*
Mark Castelino *Rutgers University*
Greg Chaudoin *Loyola University*
Ji Chen *University of Colorado, Denver*
Joseph Chen *University of California, Davis*
Mustafa Chowdhury *Louisiana State University*
Ron Christner *Loyola University, New Orleans*
Shane Corwin *University of Notre Dame*
Brent Dalrymple *University of Central Florida*
Praveen Das *University of Louisiana, Lafayette*
Diane Del Guercio *University of Oregon*
David C. Distad *University of California at Berkeley*
Gary R. Dokes *University of San Diego*
James Dow *California State University, Northridge*
Robert Dubil *University of Utah, Salt Lake City*
John Earl *University of Richmond*
Jeff Edwards *Portland Community College*
Peter D. Ekman *Kansas State University*
John Elder *Colorado State University*
Richard Elliott *University of Utah, Salt Lake City*
James Falter *Franklin University*

Philip Fanara *Howard University*
Joseph Farinella *University of North Carolina, Wilmington*
Greg Feigel *University of Texas, Arlington*
James F. Feller *Middle Tennessee State University*
James Forjan *York College*
Beverly Frickel *University of Nebraska, Kearney*
Ken Froewiss *New York University*
Phillip Ghazanfari *California State University, Pomona*
Eric Girard *Siena College*
Richard A. Grayson *University of Georgia*
Richard D. Gritta *University of Portland*
Anthony Yanxiang Gu *SUNY Geneseo*
Deborah Gunthorpe *University of Tennessee*
Weiyu Guo *University of Nebraska, Omaha*
Pamela Hall *Western Washington University*
Thomas Hamilton *St. Mary's University*
Bing Han *University of Texas, Austin*
Yvette Harman *Miami University of Ohio*
Gay Hatfield *University of Mississippi*
Larry C. Holland *Oklahoma State University*
Harris Hordon *New Jersey City University*
Stephen Huffman *University of Wisconsin, Oshkosh*
Ron E. Hutchins *Eastern Michigan University*
David Ikenberry *University of Illinois, Urbana-Champaign*
A. Can (John) Inci *Florida State University*
Victoria Javine *University of Southern Alabama*
Nancy Jay *Mercer University*
Richard Johnson *Colorado State University*
Douglas Kahl *University of Akron*
Richard J. Kish *Lehigh University*
Tom Krueger *University of Wisconsin, La Crosse*
Donald Kummer *University of Missouri, St. Louis*
Merouane Lakehal-Ayat *St. John Fisher College*
Reinhold P. Lamb *University of North Florida*
Angeline Lavin *University of South Dakota*
Hongbok Lee *Western Illinois University*
Kartono Liano *Mississippi State University*
Jim Locke *Northern Virginia Community College*
John Loughlin *St. Louis University*
David Louton *Bryant College*
David Loy *Illinois State University*
Christian Lundblad *Indiana University*

- Robert A. Lutz *University of Utah*
 Laurian Casson Lytle *University of Wisconsin, Whitewater*
 Leo Mahoney *Bryant College*
 Herman Manakyan *Salisbury State University*
 Steven V. Mann *University of South Carolina*
 Jeffrey A. Manzi *Ohio University*
 James Marchand *Westminster College*
 Robert J. Martel *Bentley College*
 Linda J. Martin *Arizona State University*
 Stanley A. Martin *University of Colorado, Boulder*
 Thomas Mertens *New York University*
 Edward Miller *University of New Orleans*
 Michael Milligan *California State University, Fullerton*
 Rosemary Minyard *Pfeiffer University*
 Walter Morales *Louisiana State University*
 Mbodja Mougoue *Wayne State University*
 Shabnam Mousavi *Georgia State University*
 Majed Muhtaseb *California State Polytechnic University*
 Deborah Murphy *University of Tennessee, Knoxville*
 Mike Murray *Winona State University*
 C. R. Narayanaswamy *Georgia Institute of Technology*
 Walt Nelson *Missouri State University*
 Karyn Neuhauser *SUNY, Plattsburgh*
 Mike Nugent *SUNY Stonybrook*
 Raj Padmaraj *Bowling Green University*
 Elisabeta Pana *Illinois Wesleyan University*
 John C. Park *Frostburg State University*
 Percy Poon *University of Nevada, Las Vegas*
 Robert B. Porter *University of Florida*
 Dev Prasad *University of Massachusetts, Lowell*
 Rose Prasad *Central Michigan University*
 Elias A. Raad *Ithaca College*
 Murli Rajan *University of Scranton*
 Kumoli Ramakrishnan *University of South Dakota*
 Rathin Rathinasamy *Ball State University*
 Craig Rennie *University of Arkansas*
 Cecilia Ricci *Montclair University*
 Craig Ruff *Georgia State University*
 Tom Sanders *University of Miami*
 Jeff Sandri *University of Colorado, Boulder*
 David Schirm *John Carroll University*
 Chi Sheh *University of Houston*
 Ravi Shukla *Syracuse University*
 Allen B. Snively, Jr. *Indiana University*
 Andrew Spieler *Hofstra University*
 Kim Staking *Colorado State University*
 Edwin Stuart *Southeastern Oklahoma State University*
 George S. Swales *Southwest Missouri State University*
 Paul Swanson *University of Cincinnati*
 Bruce Swensen *Adelphi University*
 Glenn Tanner *University of Hawaii*
 John L. Teall *Pace University*
 Anne Macy Terry *West Texas A&M University*
 Donald J. Thompson *Georgia State University*
 Steven Thorley *Brigham Young University*
 James Tipton *Baylor University*
 Steven Todd *DePaul University*
 Michael Toyne *Northeastern State University*
 William Trainor *Western Kentucky University*
 Andrey Ukhov *Indiana University, Bloomington*
 Cevdet Uruk *University of Memphis*
 Joseph Vu *DePaul University*
 Jessica Wachter *New York University*
 Joe Walker *University of Alabama at Birmingham*
 Richard Warr *North Carolina State University*
 William Welch *Florida International University*
 Russel Wermers *University of Maryland*
 Andrew L. Whitaker *North Central College*
 Howard Whitney *Franklin University*
 Alayna Williamson *University of Utah, Salt Lake City*
 Michael E. Williams *University of Texas at Austin*
 Michael Willoughby *University of California, San Diego*
 Tony Wingle *University of North Carolina*
 Annie Wong *Western Connecticut State University*
 David Wright *University of Wisconsin, Parkside*
 Richard H. Yanow *North Adams State College*
 Tarek Zaher *Indiana State University*
 Allan Zebedee *San Diego State University*
 Zhong-guo Zhou *California State University, Northridge*
 Thomas J. Zwirlein *University of Colorado, Colorado Springs*

For granting us permission to include many of their examination questions in the text, we are grateful to the CFA Institute.

A special thanks goes to the talented experts who help us develop and review the instructor materials and online content in Connect and LearnSmart, including Vincent Muscolino, Anna Kovalenko, James Forjan, Hyuna Park, John Farlin, Marc-Anthony Isaacs, Nicholas Racculia, and Dongmei Li.

Much credit is also due to the development and production team of McGraw-Hill Education: Noelle Bathurst, Senior Product Developer; Chuck Synovec, Executive Brand Manager; Kathryn Wright, Core Project Manager; Kristin Bradley, Assessment Project Manager; Melissa Caughlin, Senior Marketing Manager; Dave O'Donnell, Marketing Specialist; and Matt Diamond, Designer.

Finally, once again, our most important debts are to Judy, Hava, and Sheryl for their unflagging support.

Zvi Bodie
Alex Kane
Alan J. Marcus

Elements of Investments

PART

1

Even a cursory glance at *The Wall Street Journal* reveals a bewildering collection of securities, markets, and financial institutions. But although it may appear so, the financial environment is not chaotic: There is rhyme and reason behind the vast array of financial instruments and the markets in which they trade.

These introductory chapters provide a bird's-eye view of the investing environment. We will give you a tour of the major types of markets in which securities trade, the trading process, and the major players in these arenas. You will see that both markets and securities have evolved to meet the changing and complex needs of different participants in the financial system.

Markets innovate and compete with each other for traders' business just as vigorously as competitors in other industries. The competition between NASDAQ, the New York Stock Exchange (NYSE), and several other electronic and non-U.S. exchanges is fierce and public.

Trading practices can mean big money to investors. The explosive growth of online electronic trading has saved them many millions of dollars in trading costs. On the other hand, some worry that lightning-fast electronic trading has put the stability of security markets at risk. All agree, however, that these advances will continue to change the face of the investments industry, and Wall Street firms are scrambling to formulate strategies that respond to these changes.

These chapters will give you a good foundation with which to understand the basic types of securities and financial markets as well as how trading in those markets is conducted.

Chapters in This Part

- 1 **Investments: Background and Issues**
- 2 **Asset Classes and Financial Instruments**
- 3 **Securities Markets**
- 4 **Mutual Funds and Other Investment Companies**

Investments: Background and Issues

Learning Objectives

- LO 1-1 Define an investment.
- LO 1-2 Distinguish between real assets and financial assets.
- LO 1-3 Explain the economic functions of financial markets and how various securities are related to the governance of the corporation.
- LO 1-4 Describe the major steps in the construction of an investment portfolio.
- LO 1-5 Identify different types of financial markets and the major participants in each of those markets.
- LO 1-6 Explain the causes and consequences of the financial crisis of 2008.

investment

Commitment of current resources in the expectation of deriving greater resources in the future.

An **investment** is the *current* commitment of money or other resources in the expectation of reaping *future* benefits. For example, an individual might purchase shares of stock anticipating that the future proceeds from the shares will justify both the time that her money is tied up as well as the risk of the investment. The time you will spend studying this text (not to mention its cost) also is an investment. You are forgoing either current leisure or the income you could be earning at a job in the expectation that your future career will be sufficiently enhanced to justify this commitment of time and effort. While these two investments differ in many ways, they share one key attribute that is central to all investments: You sacrifice something

of value now, expecting to benefit from that sacrifice later.

This text can help you become an informed practitioner of investments. We will focus on investments in securities such as stocks, bonds, or options and futures contracts, but much of what we discuss will be useful in the analysis of any type of investment. The text will provide you with background in the organization of various securities markets, will survey the valuation and risk management principles useful in particular markets, such as those for bonds or stocks, and will introduce you to the principles of portfolio construction.

Broadly speaking, this chapter addresses three topics that will provide a useful perspective for the material that is to come later. First,

before delving into the topic of “investments,” we consider the role of financial assets in the economy. We discuss the relationship between securities and the “real” assets that actually produce goods and services for consumers, and we consider why financial assets are important to the functioning of a developed economy. Given this background, we then take a first look at the types of decisions that confront investors as they assemble a portfolio of assets. These investment decisions are made in an environment where higher returns usually can be obtained only at the price of greater risk and in which it is rare to find assets that are so mispriced as to be obvious bargains. These themes—the risk-return trade-off and the efficient pricing of financial assets—are central to the investment process,

so it is worth pausing for a brief discussion of their implications as we begin the text. These implications will be fleshed out in much greater detail in later chapters.

We provide an overview of the organization of security markets as well as the various players that participate in those markets. Together, these introductions should give you a feel for who the major participants are in the securities markets as well as the setting in which they act. Finally, we discuss the financial crisis that began playing out in 2007 and peaked in 2008. The crisis dramatically illustrated the connections between the financial system and the “real” side of the economy. We look at the origins of the crisis and the lessons that may be drawn about systemic risk. We close the chapter with an overview of the remainder of the text.

1.1 REAL ASSETS VERSUS FINANCIAL ASSETS

The material wealth of a society is ultimately determined by the productive capacity of its economy, that is, the goods and services its members can create. This capacity is a function of the **real assets** of the economy: the land, buildings, equipment, and knowledge that can be used to produce goods and services.

In contrast to such real assets are **financial assets** such as stocks and bonds. Such securities are no more than sheets of paper or, more likely, computer entries and do not directly contribute to the productive capacity of the economy. Instead, these assets are the means by which individuals in well-developed economies hold their claims on real assets. Financial assets are claims to the income generated by real assets (or claims on income from the government). If we cannot own our own auto plant (a real asset), we can still buy shares in Honda or Toyota (financial assets) and, thereby, share in the income derived from the production of automobiles.

While real assets generate net income to the economy, financial assets simply define the allocation of income or wealth among investors. Individuals can choose between consuming their wealth today or investing for the future. If they choose to invest, they may place their wealth in financial assets by purchasing various securities. When investors buy these securities from companies, the firms use the money so raised to pay for real assets, such as plant, equipment, technology, or inventory. So investors’ returns on securities ultimately come from the income produced by the real assets that were financed by the issuance of those securities.

The distinction between real and financial assets is apparent when we compare the balance sheet of U.S. households, shown in Table 1.1, with the composition of national wealth in the United States, shown in Table 1.2. Household wealth includes financial assets such as bank accounts, corporate stock, or bonds. However, debt securities, which are financial assets of the households that hold them, are *liabilities* of the issuers of those securities. For example, a bond that you treat as an asset because it gives you a claim on interest income and repayment of principal from Toyota is a liability of Toyota, which is obligated to make these payments to

real assets

Assets used to produce goods and services.

financial assets

Claims on real assets or the income generated by them.

TABLE 1.1 Balance sheet of U.S. households

Assets	\$ Billion	% Total	Liabilities and Net Worth	\$ Billion	% Total
Real assets					
Real estate	\$22,820	23.9%	Mortgages	\$ 9,551	10.0%
Consumer durables	5,041	5.3	Consumer credit	3,104	3.2
Other	468	0.5	Bank and other loans	493	0.5
<i>Total real assets</i>	<u>\$28,330</u>	<u>29.6%</u>	Security credit	352	0.4
			Other	<u>286</u>	<u>0.3</u>
			<i>Total liabilities</i>	<u>\$13,785</u>	<u>14.4%</u>
Financial assets					
Deposits	\$ 9,783	10.2%			
Life insurance reserves	1,257	1.3			
Pension reserves	19,766	20.7			
Corporate equity	13,502	14.1			
Equity in noncorp. business	8,869	9.3			
Mutual fund shares	7,059	7.4			
Debt securities	5,263	5.5			
Other	<u>1,720</u>	<u>1.8</u>			
<i>Total financial assets</i>	<u>\$67,219</u>	<u>70.4%</u>	<i>Net worth</i>	<u>81,764</u>	<u>85.6</u>
<i>Total</i>	<u>\$95,549</u>	<u>100.0%</u>		<u>\$95,549</u>	<u>100.0%</u>

Note: Column sums may differ from total because of rounding error.

Source: *Flow of Funds Accounts of the United States*, Board of Governors of the Federal Reserve System, June 2014.

TABLE 1.2 Domestic net worth

Assets	\$ Billion
Commercial real estate	\$20,092
Residential real estate	22,820
Equipment & intellectual property	7,404
Inventories	2,514
Consumer durables	<u>5,041</u>
<i>Total</i>	<u>\$57,873</u>

Note: Column sums may differ from total because of rounding error.

Source: *Flow of Funds Accounts of the United States*, Board of Governors of the Federal Reserve System, June 2014.

you. Your asset is Toyota's liability. Therefore, when we aggregate over all balance sheets, these claims cancel out, leaving only real assets as the net wealth of the economy. National wealth consists of structures, equipment, inventories of goods, and land.¹

¹You might wonder why real assets held by households in Table 1.1 amount to \$28,330 billion, while total real assets in the domestic economy (Table 1.2) are far larger, at \$57,873 billion. A big part of the difference reflects the fact that real assets held by firms, for example, property, plant, and equipment, are included as *financial* assets of the household sector, specifically through the value of corporate equity and other stock market investments. Similarly, Table 1.2 includes assets of noncorporate businesses. Finally, there are some differences in valuation methods. For example, equity and stock investments in Table 1.1 are measured by market value, whereas plant and equipment in Table 1.2 are valued at replacement cost.

We will focus almost exclusively on financial assets. But you shouldn't lose sight of the fact that the successes or failures of the financial assets we choose to purchase ultimately depend on the performance of the underlying real assets.

Are the following assets real or financial?

- a. Patents b. Lease obligations c. Customer goodwill
d. A college education e. A \$5 bill

CONCEPT
check

1.1

1.2 FINANCIAL ASSETS

It is common to distinguish among three broad types of financial assets: debt, equity, and derivatives. **Fixed-income** or **debt securities** promise either a fixed stream of income or a stream of income that is determined according to a specified formula. For example, a corporate bond typically would promise that the bondholder will receive a fixed amount of interest each year. Other so-called floating-rate bonds promise payments that depend on current interest rates. For example, a bond may pay an interest rate that is fixed at two percentage points above the rate paid on U.S. Treasury bills. Unless the borrower is declared bankrupt, the payments on these securities are either fixed or determined by formula. For this reason, the investment performance of debt securities typically is least closely tied to the financial condition of the issuer.

Nevertheless, debt securities come in a tremendous variety of maturities and payment provisions. At one extreme, the *money market* refers to fixed-income securities that are short term, highly marketable, and generally of very low risk. Examples of money market securities are U.S. Treasury bills or bank certificates of deposit (CDs). In contrast, the fixed-income *capital market* includes long-term securities such as Treasury bonds, as well as bonds issued by federal agencies, state and local municipalities, and corporations. These bonds range from very safe in terms of default risk (for example, Treasury securities) to relatively risky (for example, high-yield or “junk” bonds). They also are designed with extremely diverse provisions regarding payments provided to the investor and protection against the bankruptcy of the issuer. We will take a first look at these securities in Chapter 2 and undertake a more detailed analysis of the fixed-income market in Part Three.

Unlike debt securities, common stock, or **equity**, in a firm represents an ownership share in the corporation. Equityholders are not promised any particular payment. They receive any dividends the firm may pay and have prorated ownership in the real assets of the firm. If the firm is successful, the value of equity will increase; if not, it will decrease. The performance of equity investments, therefore, is tied directly to the success of the firm and its real assets. For this reason, equity investments tend to be riskier than investments in debt securities. Equity markets and equity valuation are the topics of Part Four.

Finally, **derivative securities** such as options and futures contracts provide payoffs that are determined by the prices of *other* assets such as bond or stock prices. For example, a call option on a share of Intel stock might turn out to be worthless if Intel's share price remains below a threshold or “exercise” price such as \$35 a share, but it can be quite valuable if the stock price rises above that level.² Derivative securities are so named because their values derive from the prices of other assets. For example, the value of the call option will depend on the price of Intel stock. Other important derivative securities are futures and swap contracts. We will treat these in Part Five.

Derivatives have become an integral part of the investment environment. One use of derivatives, perhaps the primary use, is to hedge risks or transfer them to other parties. This is done

fixed-income (debt) securities

Pay a specified cash flow over a specific period.

equity

An ownership share in a corporation.

derivative securities

Securities providing payoffs that depend on the values of other assets.

²A call option is the right to buy a share of stock at a given exercise price on or before the option's expiration date. If the market price of Intel remains below \$35 a share, the right to buy for \$35 will turn out to be valueless. If the share price rises above \$35 before the option expires, however, the option can be exercised to obtain the share for only \$35.

successfully every day, and the use of these securities for risk management is so commonplace that the multitrillion-dollar market in derivative assets is routinely taken for granted. Derivatives also can be used to take highly speculative positions, however. Every so often, one of these positions blows up, resulting in well-publicized losses of hundreds of millions of dollars. While these losses attract considerable attention, they do not negate the potential use of such securities as risk management tools. Derivatives will continue to play an important role in portfolio construction and the financial system. We will return to this topic later in the text.

Investors and corporations regularly encounter other financial markets as well. Firms engaged in international trade regularly transfer money back and forth between dollars and other currencies. Well more than a trillion dollars of currency is traded each day in the market for foreign exchange, primarily through a network of the largest international banks.

Investors also might invest directly in some real assets. For example, dozens of commodities are traded on exchanges such as the New York Mercantile Exchange or the Chicago Board of Trade. You can buy or sell corn, wheat, natural gas, gold, silver, and so on.

Commodity and derivative markets allow firms to adjust their exposure to various business risks. For example, a construction firm may lock in the price of copper by buying copper futures contracts, thus eliminating the risk of a sudden jump in the price of its raw materials. Wherever there is uncertainty, investors may be interested in trading, either to speculate or to lay off their risks, and a market may arise to meet that demand.

1.3 FINANCIAL MARKETS AND THE ECONOMY

We stated earlier that real assets determine the wealth of an economy, while financial assets merely represent claims on real assets. Nevertheless, financial assets and the markets in which they trade play several crucial roles in developed economies. Financial assets allow us to make the most of the economy's real assets.

The Informational Role of Financial Markets

Stock prices reflect investors' collective assessment of a firm's current performance and future prospects. When the market is more optimistic about the firm, its share price will rise. That higher price makes it easier for the firm to raise capital and therefore encourages investment. In this manner, stock prices play a major role in the allocation of capital in market economies, directing capital to the firms and applications with the greatest perceived potential.

Do capital markets actually channel resources to the most efficient use? At times, they appear to fail miserably. Companies or whole industries can be "hot" for a period of time (think about the dot-com bubble that peaked in 2000), attract a large flow of investor capital, and then fail after only a few years. The process seems highly wasteful.

But we need to be careful about our standard of efficiency. No one knows with certainty which ventures will succeed and which will fail. It is therefore unreasonable to expect that markets will never make mistakes. The stock market encourages allocation of capital to those firms that appear *at the time* to have the best prospects. Many smart, well-trained, and well-paid professionals analyze the prospects of firms whose shares trade on the stock market. Stock prices reflect their collective judgment.

You may well be skeptical about resource allocation through markets. But if you are, then take a moment to think about the alternatives. Would a central planner make fewer mistakes? Would you prefer that Congress make these decisions? To paraphrase Winston Churchill's comment about democracy, markets may be the worst way to allocate capital except for all the others that have been tried.

Consumption Timing

Some individuals in an economy are earning more than they currently wish to spend. Others, for example, retirees, spend more than they currently earn. How can you shift your purchasing power from high-earnings periods to low-earnings periods of life? One way is to "store" your

wealth in financial assets. In high-earnings periods, you can invest your savings in financial assets such as stocks and bonds. In low-earnings periods, you can sell these assets to provide funds for your consumption needs. By so doing, you can “shift” your consumption over the course of your lifetime, thereby allocating your consumption to periods that provide the greatest satisfaction. Thus, financial markets allow individuals to separate decisions concerning current consumption from constraints that otherwise would be imposed by current earnings.

Allocation of Risk

Virtually all real assets involve some risk. When Toyota builds its auto plants, for example, it cannot know for sure what cash flows those plants will generate. Financial markets and the diverse financial instruments traded in those markets allow investors with the greatest taste for risk to bear that risk, while other, less risk-tolerant individuals can, to a greater extent, stay on the sidelines. For example, if Toyota raises the funds to build its auto plant by selling both stocks and bonds to the public, the more optimistic or risk-tolerant investors can buy shares of stock in Toyota, while the more conservative ones can buy Toyota bonds. Because the bonds promise to provide a fixed payment, the stockholders bear most of the business risk but reap potentially higher rewards. Thus, capital markets allow the risk that is inherent to all investments to be borne by the investors most willing to bear that risk.

This allocation of risk also benefits the firms that need to raise capital to finance their investments. When investors are able to select security types with the risk-return characteristics that best suit their preferences, each security can be sold for the best possible price. This facilitates the process of building the economy’s stock of real assets.

Separation of Ownership and Management

Many businesses are owned and managed by the same individual. This simple organization is well suited to small businesses and, in fact, was the most common form of business organization before the Industrial Revolution. Today, however, with global markets and large-scale production, the size and capital requirements of firms have skyrocketed. For example, in 2013 General Electric listed on its balance sheet almost \$70 billion of property, plant, and equipment, and total assets in excess of \$650 billion. Corporations of such size simply cannot exist as owner-operated firms. GE actually has over 500,000 stockholders with an ownership stake in the firm proportional to their holdings of shares.

Such a large group of individuals obviously cannot actively participate in the day-to-day management of the firm. Instead, they elect a board of directors that in turn hires and supervises the management of the firm. This structure means that the owners and managers of the firm are different parties. This gives the firm a stability that the owner-managed firm cannot achieve. For example, if some stockholders decide they no longer wish to hold shares in the firm, they can sell their shares to other investors, with no impact on the management of the firm. Thus, financial assets and the ability to buy and sell those assets in the financial markets allow for easy separation of ownership and management.

How can all of the disparate owners of the firm, ranging from large pension funds holding hundreds of thousands of shares to small investors who may hold only a single share, agree on the objectives of the firm? Again, the financial markets provide some guidance. All may agree that the firm’s management should pursue strategies that enhance the value of their shares. Such policies will make all shareholders wealthier and allow them all to better pursue their personal goals, whatever those goals might be.

Do managers really attempt to maximize firm value? It is easy to see how they might be tempted to engage in activities not in the best interest of shareholders. For example, they might engage in empire building or avoid risky projects to protect their own jobs or over-consume luxuries such as corporate jets, reasoning that the cost of such perquisites is largely borne by the shareholders. These potential conflicts of interest are called **agency problems** because managers, who are hired as agents of the shareholders, may pursue their own interests instead.

agency problems

Conflicts of interest between managers and stockholders.

Several mechanisms have evolved to mitigate potential agency problems. First, compensation plans tie the income of managers to the success of the firm. A major part of the total compensation of top executives is typically in the form of shares or stock options, which means that the managers will not do well unless the stock price increases, benefiting shareholders. (Of course, we've learned that overuse of options can create its own agency problem. Options can create an incentive for managers to manipulate information to prop up a stock price temporarily, giving them a chance to cash out before the price returns to a level reflective of the firm's true prospects. More on this shortly.) Second, while boards of directors have sometimes been portrayed as defenders of top management, they can, and in recent years increasingly have, forced out management teams that are underperforming. Third, outsiders such as security analysts and large institutional investors such as mutual funds or pension funds monitor the firm closely and make the life of poor performers at the least uncomfortable. Such large investors today hold about half of the stock in publicly listed firms in the United States.

Finally, bad performers are subject to the threat of takeover. If the board of directors is lax in monitoring management, unhappy shareholders in principle can elect a different board. They can do this by launching a *proxy contest* in which they seek to obtain enough proxies (i.e., rights to vote the shares of other shareholders) to take control of the firm and vote in another board. However, this threat is usually minimal. Shareholders who attempt such a fight have to use their own funds, while management can defend itself using corporate coffers. Most proxy fights fail. The real takeover threat is from other firms. If one firm observes another underperforming, it can acquire the underperforming business and replace management with its own team. The stock price should rise to reflect the prospects of improved performance, which provides incentive for firms to engage in such takeover activity.

EXAMPLE 1.1

Carl Icahn's Proxy Fight with Yahoo!

In February 2008, Microsoft offered to buy Yahoo! by paying its current shareholders \$31 for each of their shares, a considerable premium to its closing price of \$19.18 on the day before the offer. Yahoo!'s management rejected that offer and a better one at \$33 a share; Yahoo!'s CEO Jerry Yang held out for \$37 per share, a price that Yahoo! had not reached in over two years. Billionaire investor Carl Icahn was outraged, arguing that management was protecting its own position at the expense of shareholder value. Icahn notified Yahoo! that he had been asked to "lead a proxy fight to attempt to remove the current board and to establish a new board which would attempt to negotiate a successful merger with Microsoft."³ To that end, he had purchased approximately 59 million shares of Yahoo! and formed a 10-person slate to stand for election against the current board. Despite this challenge, Yahoo!'s management held firm in its refusal of Microsoft's offer, and with the support of the board, Yang managed to fend off both Microsoft and Icahn. In July, Icahn agreed to end the proxy fight in return for three seats on the board to be held by his allies. But the 11-person board was still dominated by current Yahoo! management. Yahoo!'s share price, which had risen to \$29 a share during the Microsoft negotiations, fell back to around \$21 a share. Given the difficulty that a well-known billionaire faced in defeating a determined management, it is no wonder that proxy contests are rare. Historically, about three of four proxy fights go down to defeat.

Corporate Governance and Corporate Ethics

We've argued that securities markets can play an important role in facilitating the deployment of capital resources to their most productive uses. But market signals will help to allocate capital efficiently only if investors are acting on accurate information. We say that markets need to be *transparent* for investors to make informed decisions. If firms can mislead the public about their prospects, then much can go wrong.

Despite the many mechanisms to align incentives of shareholders and managers, the three years from 2000 through 2002 were filled with a seemingly unending series of scandals that collectively signaled a crisis in corporate governance and ethics. For example, the

³Open letter from Carl Icahn to Board of Directors of Yahoo!, May 15, 2008, published in press release from ICAHN CAPITAL LP.

telecom firm WorldCom overstated its profits by at least \$3.8 billion by improperly classifying expenses as investments. When the true picture emerged, it resulted in the largest bankruptcy in U.S. history, at least until Lehman Brothers smashed that record in 2008. The next-largest U.S. bankruptcy was Enron, which used its now notorious “special purpose entities” to move debt off its own books and similarly present a misleading picture of its financial status. Unfortunately, these firms had plenty of company. Other firms such as Rite Aid, HealthSouth, Global Crossing, and Qwest Communications also manipulated and misstated their accounts to the tune of billions of dollars. And the scandals were hardly limited to the U.S. Parmalat, the Italian dairy firm, claimed to have a \$4.8 billion bank account that turned out not to exist. These episodes suggest that agency and incentive problems are far from solved.

Other scandals of that period included systematically misleading and overly optimistic research reports put out by stock market analysts (their favorable analysis was traded for the promise of future investment banking business, and analysts were commonly compensated not for their accuracy or insight but for their role in garnering investment banking business for their firms) and allocations of initial public offerings to corporate executives as a quid pro quo for personal favors or the promise to direct future business back to the manager of the IPO.

What about the auditors who were supposed to be the watchdogs of the firms? Here too, incentives were skewed. Recent changes in business practice made the consulting businesses of these firms more lucrative than the auditing function. For example, Enron’s (now defunct) auditor Arthur Andersen earned more money consulting for Enron than auditing it; given its incentive to protect its consulting profits, it should not be surprising that it, and other auditors, were overly lenient in their auditing work.

In 2002, in response to the spate of ethics scandals, Congress passed the Sarbanes-Oxley Act to tighten the rules of corporate governance. For example, the act requires corporations to have more independent directors, that is, more directors who are not themselves managers (or affiliated with managers). The act also requires each CFO to personally vouch for the corporation’s accounting statements, creates an oversight board to oversee the auditing of public companies, and prohibits auditors from providing various other services to clients.

Ultimately, a firm’s reputation for integrity is key to building long-term relationships with its customers and is therefore one of its most valuable assets. Indeed, the motto of the London Stock Exchange is “My word is my bond.” Every so often firms forget this lesson, but in the end, investments in reputation are in fact good business practice.

1.4 THE INVESTMENT PROCESS

An investor’s *portfolio* is simply his collection of investment assets. Once the portfolio is established, it is updated or “rebalanced” by selling existing securities and using the proceeds to buy new securities, by investing additional funds to increase the overall size of the portfolio, or by selling securities to decrease the size of the portfolio.

Investment assets can be categorized into broad asset classes, such as stocks, bonds, real estate, commodities, and so on. Investors make two types of decisions in constructing their portfolios. The **asset allocation** decision is the choice among these broad asset classes, while the **security selection** decision is the choice of which particular securities to hold *within* each asset class.

“Top-down” portfolio construction starts with asset allocation. For example, an individual who currently holds all of his money in a bank account would first decide what proportion of the overall portfolio ought to be moved into stocks, bonds, and so on. In this way, the broad features of the portfolio are established. For example, while the average annual return on the common stock of large firms since 1926 has been about 11.5% per year, the average return on U.S. Treasury bills has been less than 4%. On the other hand, stocks are far riskier, with annual returns (as measured by the Standard & Poor’s 500 Index) that have ranged as low as –46% and as high as 55%. In contrast, T-bill returns are effectively risk-free: You know what

asset allocation

Allocation of an investment portfolio across broad asset classes.

security selection

Choice of specific securities within each asset class.