13th Edition

CHARLES P. JONES | GERALD JENSEN

Investments

Analysis and Management

Wiley Binder Version

WILEY

THIRTEENTH EDITION

INVESTMENTS

Analysis and Management

Charles P. Jones, Ph.D., CFA
Gerald R. Jensen, Ph.D., CFA

WILEY

VICE PRESIDENT & DIRECTOR	George Hoffman
SENIOR DIRECTOR	Don Fowley
ACQUISITIONS EDITOR	Emily McGee
ASSOCIATE DEVELOPMENT EDITOR	Courtney Luzzi
ASSISTANT DEVELOPMENT EDITOR	Rebecca Costantini
ASSISTANT	Elisa Wong
SPONSORING EDITOR	Mary O'Sullivan
PROJECT SPECIALIST	Nichole Urban
PROJECT ASSISTANT	Anna Melhorn
ASSISTANT MARKETING MANAGER	Puja Katariwala
SENIOR CONTENT SPECIALIST	Nicole Repasky
PRODUCTION EDITOR	Abidha Sulaiman
COVER PHOTO CREDIT	©Photodisc/Shutterstock

This book was set in 10/12 pt in Berkeley by SPi Global, Chennai and printed and bound by Courier Kendallville, Inc.

This book is printed on acid free paper. ∞

Founded in 1807, John Wiley & Sons, Inc. has been a valued source of knowledge and understanding for more than 200 years, helping people around the world meet their needs and fulfill their aspirations. Our company is built on a foundation of principles that include responsibility to the communities we serve and where we live and work. In 2008, we launched a Corporate Citizenship Initiative, a global effort to address the environmental, social, economic, and ethical challenges we face in our business. Among the issues we are addressing are carbon impact, paper specifications and procurement, ethical conduct within our business and among our vendors, and community and charitable support. For more information, please visit our website: www.wiley.com/go/citizenship.

Copyright © 2016, 2013, 2010, 2007 John Wiley & Sons, Inc. All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, scanning or otherwise, except as permitted under Sections 107 or 108 of the 1976 United States Copyright Act, without either the prior written permission of the Publisher, or authorization through payment of the appropriate per-copy fee to the Copyright Clearance Center, Inc. 222 Rosewood Drive, Danvers, MA 01923, website www.copyright.com. Requests to the Publisher for permission should be addressed to the Permissions Department, John Wiley & Sons, Inc., 111 River Street, Hoboken, NJ 07030-5774, (201)748-6011, fax (201)748-6008, website http://www.wiley.com/go/permissions.

Evaluation copies are provided to qualified academics and professionals for review purposes only, for use in their courses during the next academic year. These copies are licensed and may not be sold or transferred to a third party. Upon completion of the review period, please return the evaluation copy to Wiley. Return instructions and a free of charge return mailing label are available at www.wiley.com/go/returnlabel. If you have chosen to adopt this textbook for use in your course, please accept this book as your complimentary desk copy. Outside of the United States, please contact your local sales representative.

ISBN: 978-1-118-97558-9 (loose-leaf)
ISBN: 978-1-118-97559-6 (EVALC)

Library of Congress Cataloging-in-Publication Data

Names: Jones, Charles P. | Jensen, Gerald R.
Title: Investments: analysis and management / Charles P. Jones, Gerald R. Jensen.
Description: 13th Edition. | Hoboken: Wiley, 2016. | Revised edition of the author's
Investments, 2013.
Identifiers: LCCN 2015039629 (print) | LCCN 2015040673 (ebook) |
ISBN 978-1-118-97558-9 (loose-leaf) | ISBN 978-1-119-17516-2 (pdf) |
ISBN 978-0-111-917512-4 (epub)
Subjects: LCSH: Investments. | Investment analysis. | BISAC: BUSINESS & ECONOMICS / Investments & Securities.
Classification: LCC HG4521 .J663 2016 (print) | LCC HG4521 (ebook) | DDC 332.6—dc23
LC record available at http://lccn.loc.gov/2015039629

Printing identification and country of origin will either be included on this page and/or the end of the book.
In addition, if the ISBN on this page and the back cover do not match, the ISBN on the back cover should be considered the correct ISBN.

Printed in the United States of America

10 9 8 7 6 5 4 3 2 1

To Kay and Kathryn
For making every year special and to Georgie,
Who continues to be there during working hours (CJ)

To my family, and especially my wife Penny, my daughter Alyssa, and
my son Tyler, who have provided invaluable support over the years (GJ)

Brief Contents

PART ONE BACKGROUND

Chapter 1 Understanding Investments, *1*
Chapter 2 Investment Alternatives, *22*
Chapter 3 Indirect Investing, *54*
Chapter 4 Securities Markets and Market Indexes, *87*
Chapter 5 How Securities are Traded, *111*

PART TWO PORTFOLIO AND CAPITAL MARKET THEORY

Chapter 6 The Returns and Risks from Investing, *135*
Chapter 7 Portfolio Theory, *169*
Chapter 8 Portfolio Selection and Asset Allocation, *197*
Chapter 9 Capital Market Theory and Asset Pricing Models, *222*

PART THREE COMMON STOCKS: ANALYSIS, VALUATION, AND MANAGEMENT

Chapter 10 Common Stock Valuation, *254*
Chapter 11 Common Stocks: Analysis and Strategy, *289*
Chapter 12 Market Efficiency, *311*

PART FOUR SECURITY ANALYSIS

Chapter 13 Economy/Market Analysis, *339*
Chapter 14 Sector/Industry Analysis, *362*
Chapter 15 Company Analysis, *378*
Chapter 16 Technical Analysis, *412*

PART FIVE FIXED-INCOME SECURITIES: ANALYSIS, VALUATION, AND MANAGEMENT

Chapter 17 Bond Yields and Prices, *434*
Chapter 18 Bonds: Analysis and Strategy, *463*

PART SIX DERIVATIVE SECURITIES

Chapter 19 Options, *490*
Chapter 20 Futures Contracts, *525*

PART SEVEN INVESTMENT MANAGEMENT

Chapter 21 Managing Your Financial Assets, *551*
Chapter 22 Evaluation of Investment Performance, *574*

Glossary, *603*

Index, *611*

Contents

PART ONE BACKGROUND

1 Understanding Investments, 1
An Overall Perspective on Investing, *1*
Establishing a Framework for Investing, *3*
Some Definitions, **3**
A Perspective on Investing, *3*
Why Do We Invest?, **3**
Take a Portfolio Perspective, **4**
The Importance of Studying Investments, *4*
The Personal Aspects, **4**
Investments As a Profession, **6**
Understanding the Investment Decision Process, *8*
The Basis of Investment Decisions—Return and Risk, **8**
Checking Your Understanding, *12*
Structuring the Decision Process, *12*
Important Considerations in the Investment Decision-Making Process, *13*
The Great Unknown, **13**
A Global Perspective, **14**
The Importance of the Internet, **15**
Individual Investors versus Institutional Investors, **16**
Ethics in Investing, **17**
Checking Your Understanding, *18*
Organizing the Text, *18*
Summary, *19*
Questions, *19*
Spreadsheet Exercises, *20*
Checking Your Understanding, *20*

2 Investment Alternatives, 22
Organizing Financial Assets, *22*
Direct Investing, **23**
A Global Perspective, *24*
Nonmarketable Financial Assets, *25*
Money Market Securities, *26*
The Treasury Bill, **26**
Money Market Rates, **27**
Checking Your Understanding, *28*
Capital Market Securities, *28*
Fixed-Income Securities, *28*
Bonds, **28**
Types of Bonds, **31**
Government Agency Securities, **33**
Returns on Fixed-Income Securities, **40**
Checking Your Understanding, *40*
Equity Securities, *40*
Preferred Stock, **40**
Common Stock, **41**
Investing Globally in Equities, **45**
Checking Your Understanding, *46*
Private Equity, **46**
Derivative Securities, *47*
Options, **47**
Futures Contracts, **48**
A Final Note, *49*
Summary, *49*
Questions, *50*
Problems, *51*
Spreadsheet Exercises, *51*
Checking Your Understanding, *53*

3 Indirect Investing, 54
Investing Indirectly, *55*
What Is an Investment Company?, *56*
How Important are Investment Companies to Investors?, **56**
Three Major Types of Investment Companies, *57*
Closed-End Investment Companies, **57**
Exchange-Traded Funds (ETFs), **58**
ETFs Versus ETNs, **59**
Mutual Funds (Open-End Investment Companies), **60**
Checking Your Understanding, *63*
Types of Mutual Funds, *63*
Money Market Funds, **64**
Equity Funds, Bond Funds, and Hybrid Funds, **65**
Checking Your Understanding, *69*
Net Asset Value per Share, *69*
The Details of Indirect Investing, *69*
Closed-End Funds, **70**
Mutual Funds, **70**

Investing in Index Mutual Funds Versus ETFs, 74
Weighting Methods for Index Funds, 74
Checking Your Understanding, 75
Investment Company Performance, 75
Measures of Fund Performance, 75
Morningstar Ratings, 77
Benchmarks, 78
Fund Performance and Expenses, 78
Some Conclusions about Fund Performance, 78
Investing Internationally through Investment Companies, 80
Fund Categories for International Investing, 80
The Future of Indirect Investing, 81
Fund Supermarkets, 81
Hedge Funds, 81
Summary, 82
Questions, 83
Computational Problems, 84
Spreadsheet Exercises, 84
Checking Your Understanding, 86

4 Securities Markets and Market Indexes 87
The Importance of Financial Markets, 87
The Primary Markets, 88
Initial Public Offerings (IPOs), 88
The Investment Banker, 89
A Global Perspective, 91
Checking Your Understanding, 92
The Secondary Markets, 92
U.S. Securities Markets for the Trading of Equities, 92
The New York Stock Exchange, 93
The NASDAQ Stock Market, 94
NYSE Versus NASDAQ, 95
The OTC (Over-the-Counter) Market, 95
BATS, 95
Electronic Communication Networks (ECNs), 96
Foreign Markets, 97
Checking Your Understanding, 97
Stock Market Indexes, 97
The Dow Jones Averages, 98
Standard & Poor's Stock Price Indexes, 100
Understanding a Capitalization-Weighted Index, 100
NASDAQ Indexes, 101
Other Indexes, 102
Using the Correct Domestic Stock Indexes, 102
Foreign Stock Market Indicators, 103
Checking Your Understanding, 104
Bond Markets, 104
Individual Investors and Bond Trading, 105
Derivatives Markets, 105
The Globalization of Markets, 105
Summary, 105
Questions, 106
Problems, 107
Computational Problems, 108
Spreadsheet Exercises, 108
Checking Your Understanding, 110

5 How Securities are Traded, 111
Introduction, 111
Brokerage Transactions, 112
Brokerage Firms, 112
Brokerage Accounts, 114
How Orders Work, 115
Trading on Today's Exchanges, 115
Orders in the NASDAQ Stock Market, 116
Modern-Day Trading, 116
Types of Orders, 117
Clearing Procedures, 118
Checking Your Understanding, 119
Investor Protection in the Securities Markets, 119
Government Regulation, 119
Self-Regulation, 121
Other Investor Protections, 122
Checking Your Understanding, 123
Margin, 123
How Margin Accounts can be Used, 124
Margin Requirements and Obligations, 124
Margin Requirements on Other Securities, 126
Some Misconceptions about Margin, 126
Short Sales, 126
Selling Short as an Investor, 129
Checking Your Understanding, 131
Summary, 131
Questions, 132
Problems, 132
Computational Problems, 133
Spreadsheet Exercises, 133
Checking Your Understanding, 134

PART TWO PORTFOLIO AND CAPITAL MARKET THEORY

6 The Returns and Risks from Investing, 135
An Overview, 136
Return, 136
The Two Components of Asset Returns, 136
Measuring Returns, 138
Total Return, 138
Cumulative Wealth Index, 141

A Global Perspective, *142*
International Returns and Currency Risk, **142**
Checking Your Understanding, *145*
Summary Statistics for Returns, *145*
Arithmetic Mean, **145**
Geometric Mean, **145**
Arithmetic Mean versus Geometric Mean, **147**
Inflation-Adjusted Returns, **148**
Checking Your Understanding, *149*
Risk, *149*
Sources of Risk, **150**
Measuring Risk, *151*
Variance and Standard Deviation, **152**
Risk Premiums, **154**
Checking Your Understanding, *154*
Realized Returns and Risks from Investing, *155*
Total Returns and Standard Deviations for the Major Financial Assets, **155**
Cumulative Wealth Indexes, **156**
Understanding Cumulative Wealth as Investors, **158**
Compounding and Discounting, *159*
Summary, *159*
Questions, *160*
Demonstration Problems, *161*
Problems, *164*
Computational Problems, *165*
Spreadsheet Exercises, *166*
Checking Your Understanding, *167*

7 Portfolio Theory, 169
Dealing with Uncertainty, *169*
Using Probabilities, **170**
Probability Distributions, **170**
Calculating Expected Return for a Security, **172**
Calculating Risk for a Security, **173**
Checking Your Understanding, *174*
Introduction to Modern Portfolio Theory, *174*
Portfolio Return and Risk, *175*
Portfolio Expected Return, **175**
Portfolio Risk, **177**
Analyzing Portfolio Risk, *177*
Risk Reduction—The Insurance Principle, **177**
Diversification, **178**
Checking Your Understanding, *179*
The Components of Portfolio Risk, *179*
Covariance, **179**
The Correlation Coefficient, **180**
Checking Your Understanding, *184*
Calculating Portfolio Risk, *184*
The Two-Security Case, **184**
The n-Security Case, **187**
Checking Your Understanding, *187*
Obtaining the Data, *188*
Simplifying the Markowitz Calculations, **188**
Summary, *189*
Questions, *190*
Problems, *192*
Computational Problems, *193*
Spreadsheet Exercises, *194*
Checking Your Understanding, *196*

8 Portfolio Selection and Asset Allocation, 197
Building a Portfolio Using Markowitz Principles, *197*
Identify Optimal Risk–Return Combinations, **198**
The Attainable Set of Portfolios, **198**
Selecting an Optimal Portfolio of Risky Assets, **200**
The Global Perspective—International Diversification, *201*
Some Important Conclusions about the Markowitz Model, *202*
Checking Your Understanding, *202*
Selecting Optimal Asset Classes—The Asset Allocation Decision, *203*
Asset Allocation and Diversification, **204**
Some Major Asset Classes, **204**
Combining Asset Classes, **207**
Asset Allocation and the Individual Investor, *209*
Life-Cycle Analysis, **212**
Other Approaches, **212**
Checking Your Understanding, *213*
The Impact of Diversification on Risk, *213*
Systematic and Nonsystematic Risk, **214**
How Many Securities are Needed to Fully Diversify?, **215**
The Implications of Reducing Risk by Holding Portfolios, *216*
Summary, *216*
Questions, *217*
Problems, *218*
Spreadsheet Exercises, *218*
Checking Your Understanding, *221*

9 Capital Market Theory and Asset Pricing Models, 222

Capital Market Theory, *223*
Capital Market Theory Assumptions, **223**
Introduction of the Risk-Free Asset, **224**
Risk-Free Borrowing and Lending, **225**
Checking Your Understanding, *227*
The Capital Market Line, *227*
Defining The Capital Market Line, **227**
The Separation Theorem, **227**
Understanding the CML, **229**
The Equation for the CML, **229**
Important Points about the CML **230**
Checking Your Understanding, *230*
Systematic Risk and Beta, *231*
Above- and Below-Average Beta Stocks, **232**
In Summary, What is Beta?, **232**
Estimating Beta, **233**
The Capital Asset Pricing Model (CAPM), *236*
Checking Your Understanding, *239*
Implementing the CAPM, **240**
Tests of CAPM, **240**
Arbitrage Pricing Theory, *241*
The Law of One Price, **242**
Assumptions of APT, **242**
Factor Models, **242**
Understanding the APT Model, **243**
Identifying the Factors, **244**
Using APT in Investment Decisions, **245**
Checking Your Understanding, *245*
Other Prominent Factor Models, *245*
Some Conclusions about Asset Pricing, *247*
Summary, *247*
Questions, *248*
Demonstration Problems, *249*
Problems, *250*
Computational Problems, *251*
Spreadsheet Exercises, *252*
Checking Your Understanding, *253*

PART THREE COMMON STOCKS: ANALYSIS, VALUATION, AND MANAGEMENT

10 Common Stock Valuation, 254

Overview, *255*
Discounted Cash Flow Models, *256*
Two Broad DCF Approaches, **257**
The Dividend Discount Model, *258*
Applying the DDM, **258**
The DDM Equation, **259**
Implementing the DDM, **259**
Estimating Future Dividends, **259**
Checking Your Understanding, *260*
Growth Rate Cases for the DDM, *260*
The Zero-Growth Rate Model, **260**
The Constant-Growth Rate Model, **261**
How k and g Affect Value, **262**
The Multiple-Growth Rate Model, **264**
Dividends, Dividends—What about Capital Gains?, **268**
The Dividend Discount Model in Practice, **269**
Checking Your Understanding, *269*
Other Discounted Cash Flow Approaches, *269*
Free Cash Flow to Equity, **270**
Free Cash Flow to the Firm, **270**
Intrinsic Value and Market Price, **271**
Checking Your Understanding, *272*
The Multiplier Approach, *272*
Earnings Multiplier (P/E Ratio), **272**
Other Multipliers, *273*
Price to Book (P/B), **274**
Price to Sales (P/S), **274**
Price to Cash Flow (P/CF), **274**
Enterprise Value To EBITDA (EV/EBITDA), **274**
Relative Valuation Metrics, *275*
Price/Earnings (P/E) Ratio, **275**
Price/Book (P/B) Ratio, **276**
Price/Sales (P/S) Ratio, **276**
Price/Cash Flow (P/CF) Ratio, **277**
Enterprise Value/EBITDA (EV/EBITDA) Ratio, **277**
Economic Value Added Analysis, **277**
Which Approach To Use?, *278*
Bursting the Bubble on New Economy Stocks—A Lesson in Valuation, *279*
Checking Your Understanding, *280*
Some Final Thoughts on Valuation, *280*
Summary, *280*
Questions, *281*
Demonstration Problems, *282*
Problems, *284*
Computational Problems, *286*
Spreadsheet Exercises, *287*
Checking Your Understanding, *288*

11 Common Stocks: Analysis and Strategy, 289

A Global Perspective, *289*
The Impact of the Overall Market on Stocks, *290*
Building Stock Portfolios, *291*
Checking Your Understanding, *292*
The Passive Strategy, *292*
Buy-and-Hold Strategy, **293**
Index Funds, **293**

Checking Your Understanding, *296*
The Active Strategy, *296*
Security Selection, **297**
Rotation Strategies, **302**
Market Timing, **304**
Checking Your Understanding, *306*
Rational Markets and Active Strategies, *306*
A Simple Strategy: The Coffeehouse Portfolio, *306*
Summary, *307*
Questions, *307*
Problems, *308*
Computational Problems, *308*
Spreadsheet Exercises, *308*
Checking Your Understanding, *309*

12 Market Efficiency, 311

Overview, *311*
The Concept of an Efficient Market, *312*
What Is an Efficient Market?, **312**
Why the U.S. Stock Market Can Be Expected to Be Efficient, **313**
The International Perspective, **314**
Forms of Market Efficiency, **315**
Checking Your Understanding, *317*
How to Test for Market Efficiency, *317*
Weak-Form Tests, **318**
Semistrong-Form Tests, **319**
Strong-Form Evidence, **321**
Checking Your Understanding, *322*
Market Anomalies, *322*
Earnings Announcements, **322**
Low Price Multiples, **324**
The Size Effect, **325**
The January Effect, **325**
Past Stock Return Performance, **326**
The Value Line Ranking System, **327**
Other Anomalies, **328**
Data Mining, **328**
Checking Your Understanding, *329*
Behavioral Finance, *329*
Efficient Markets versus Behavioral Finance, **331**
Behavioral Finance Implications for Investors, **331**
Behavioral Finance Today, **332**
Checking Your Understanding, *332*
Some Conclusions about Market Efficiency, *332*
Summary, *335*
Questions, *336*
Problems, *337*
Checking Your Understanding, *337*

PART FOUR SECURITY ANALYSIS

13 Economy/Market Analysis, 339

Introduction, *339*
Taking a Global Perspective, *340*
Assessing the Economy, *340*
The Business Cycle, **341**
Forecasts of the Economy, **344**
Checking Your Understanding, *347*
The Stock Market and the Economy, *347*
The Economy and Stock Market Booms, **348**
Economic Slowdowns and Bear Markets, **348**
Checking Your Understanding, *349*
Understanding the Stock Market, *349*
A Model of Aggregate Stock Prices, **349**
Checking Your Understanding, *352*
Making Market Forecasts, *352*
Focus on the Important Variables, **352**
Checking Your Understanding, *355*
Using the Business Cycle to Make Market Forecasts, **355**
The E/P Ratio and the Treasury Bond Yield, **356**
Summary, *358*
Questions, *359*
Problems, *360*
Computational Problems, *360*
Spreadsheet Exercises, *360*
Checking Your Understanding, *361*

14 Sector/Industry Analysis, 362

Introduction, *363*
What Is an Industry?, *363*
Classifying Industries, **364**
The NAICS Classification System, **364**
Other Industry Classifications, **364**
The Importance of Sector/Industry Analysis, *365*
Why Sector/Industry Analysis Is Important over the Long Run, **365**
Checking Your Understanding, *366*
Sector Performance over Shorter Periods, **367**
How One Industry can Have a Major Impact on Investors: The Telecom Industry, **368**
Cross-Sectional Volatility Has Increased, **368**
Analyzing Sectors/Industries, *369*
The Industry Life Cycle, **369**
Checking Your Understanding, *371*
Qualitative Aspects of Industry Analysis, **371**
Using Sector/Industry Analysis as an Investor, *372*
Assess the Business Cycle, **372**
Review Investment Advisory Services about Industries, **374**

Sector Rotation, 374
Evaluating Future Industry Prospects, 374
Summary, 376
Questions, 376
Checking Your Understanding, 377

15 Company Analysis, 378

Fundamental Analysis, 378
The Accounting Aspects of Earnings, 379
The Financial Statements, 379
Checking Your Understanding, 386
The Problems with EPS, 386
Reported Earnings, 386
Has the Situation Improved?, 387
Checking Your Understanding, 390
Using the Financial Statements to Analyze a Company's FCF, ROE, and EPS, 390
Analyzing Free Cash Flow (FCF), 390
Analyzing Return on Assets (ROA), 391
Analyzing Return on Equity (ROE), 392
The Accounting Determinants of EPS, 393
Estimating the Internal (Sustainable) Growth Rate, 393
Checking Your Understanding, 395
Earnings Estimates, 395
A Forecast of EPS, 395
The Accuracy of Earnings Forecasts, 395
Earnings Surprises, 396
Earnings Guidance, 397
The Earnings Game, 397
Useful Information for Investors about Earnings Estimates, 398
Alternatives to Earnings, 399
The Multiplier, 399
The P/E Ratio, 399
Determinants of the P/E Ratio, 400
Determinants of the P/B Ratio, 400
Determinants of the P/S Ratio, 401
Why Price Multiples Vary among Companies, 401
The PEG Ratio, 402
Fundamental Security Analysis in Practice, 402
Summary, 405
Questions, 406
Problems, 406
Computational Problems, 407
Spreadsheet Exercises, 409
Checking Your Understanding, 411

16 Technical Analysis, 412

Introduction, 412
What Is Technical Analysis?, 413
A Framework for Technical Analysis, 415
Checking Your Understanding, 416
Stock Price and Volume Techniques, 416
The Dow Theory, 416
Charts of Price Patterns, 418
Checking Your Understanding, 422
Moving Averages, 423
Relative Strength, 424
Using the Computer for Technical Analysis, 425
Technical Indicators, 425
Breadth Indicators, 425
Sentiment Indicators, 426
Testing Technical Analysis Strategies, 428
The Ebb and Flow of Technical Analysis, 430
Some Conclusions about Technical Analysis, 430
Summary, 432
Questions, 432
Computational Problems, 433
Checking Your Understanding, 433

PART FIVE FIXED-INCOME SECURITIES: ANALYSIS, VALUATION, AND MANAGEMENT

17 Bond Yields and Prices, 434

Introduction, 434
Bond Yields and Interest Rates, 435
The Basic Components of Interest Rates, 435
The Term Structure of Interest Rates, 437
Risk Premiums (Yield Spreads), 440
Measuring Bond Yields, 442
Current Yield, 442
Yield to Maturity, 443
Yield to First Call, 445
Realized Compound Yield, 446
Checking Your Understanding, 448
Checking Your Understanding, 450
Bond Prices, 451
The Valuation Principle, 451
Bond Valuation, 451
Bond Price Changes, 453
Bond Price Changes over Time, 453
Bond Price Changes As a Result of Interest Rate Changes, 454
Checking Your Understanding, 457
Summary, 457
Questions, 457
Problems, 459
Computational Problems, 460
Spreadsheet Exercises, 461
Checking Your Understanding, 462

18 Bonds: Analysis and Strategy, 463
Why Buy Bonds?, 463
Buying Foreign Bonds, 466
Important Considerations in Managing a Bond Portfolio, 467
Understanding the Bond Market, 467
Global Factors and the U.S. Bond Markets, 467
Checking Your Understanding, 468
Bond Strategies and Techniques, 468
Passive Management Strategies, 468
Buy and Hold, 469
Indexing, 470
Active Management Strategies, 471
Forecasting Changes in Interest Rates, 471
Yield Spread Analysis, 472
Identifying Mispricing among Bonds, 473
New Tools for Individual Investors, 474
Managing Price Volatility, 474
Duration, 475
Checking Your Understanding, 482
Managing Price Volatility, 482
Immunization, 482
Summary, 485
Questions, 486
Problems, 487
Computational Problems, 488
Spreadsheet Exercises, 488
Checking Your Understanding, 489

PART SIX DERIVATIVE SECURITIES

19 Options, 490
Why Have Derivative Securities?, 491
Why Options Markets?, 491
Introduction to Options, 491
Long-Term Options, 492
Weeklys^{SM} Options, 492
Understanding Options, 493
Options Terminology, 493
Checking Your Understanding, 493
How Options Work, 494
The Mechanics of Trading, 495
Checking Your Understanding, 497
Payoffs and Profits from Basic Option Positions, 497
Calls, 497
Puts, 499
Some Basic Options Strategies, 502
Covered Calls, 502
Protective Puts, 503
Portfolio Insurance, 504
Checking Your Understanding, 505
Option Valuation, 505
A General Framework, 505
Intrinsic Values and Time Values, 506
Boundaries on Option Prices, 508
The Black–Scholes Model, 510
Put Option Valuation, 513
Summarizing the Factors Affecting Options Prices, 513
Hedge Ratios, 513
Using the Black–Scholes Model, 514
Checking Your Understanding, 514
An Investor's Perspective on Puts and Calls, 514
What Puts and Calls Mean to Investors, 514
The Evolutionary Use of Options, 515
Stock Index Options, 516
The Basics of Stock Index Options, 516
Strategies with Stock Index Options, 517
The Popularity of Stock Index Options, 519
Summary, 519
Questions, 520
Problems, 520
Computational Problems, 522
Spreadsheet Exercises, 523
Checking Your Understanding, 523

20 Futures Contracts, 525
An Overview of Futures Markets, 525
Why Futures Markets?, 525
What Is Traded in the Futures Markets?, 527
The Structure of Futures Markets, 527
U.S. Futures Exchanges, 527
Foreign Futures Markets, 529
The Clearinghouse, 529
Checking Your Understanding, 530
The Mechanics of Trading, 530
Futures Contracts, 530
Basic Procedures, 531
Margin, 532
Checking Your Understanding, 534
Using Futures Contracts, 534
Hedgers, 534
How to Hedge with Futures, 535
Speculators, 536
Calculating Rate of Return on Futures Contracts, 537
Checking Your Understanding, 537
Financial Futures, 537
Foreign Currency Futures, 538
Interest Rate Futures, 539
Stock-Index Futures, 541
Single Stock Futures, 546
Summary, 547
Questions, 548

Problems, *549*
Computational Problems, *549*
Checking Your Understanding, *550*

PART SEVEN INVESTMENT MANAGEMENT

21 Managing Your Financial Assets, 551
A Perspective on Investing in Financial Assets, *551*
Managing Your Financial Assets, *552*
Individual Investors Vary Widely, 553
Checking Your Understanding, *553*
Formulate an Appropriate Investment Strategy, *553*
Investor Objectives, *554*
Assessing Your Risk Tolerance, 555
Establishing Your Return Expectations, 555
Checking Your Understanding, *557*
What Issues Do Investors Face in Their Financial Planning?, *557*
Liquidity Needs, 557
Time Horizon, 557
Tax Considerations, 558
Regulations, 559
Unique Individual Circumstances, 559
Investor Expectations as a Part of Financial Planning, *559*
Rate of Return Assumptions, 559
Checking Your Understanding, *562*
Implementing Investing Strategies, *562*
Asset Allocation, 562
Portfolio Optimization, 564
Basic Investment Management Strategies, *564*
Financial Planning on an Ongoing Basis, *565*
Tax-Advantaged Investing, 566
Monitoring Market Conditions, 566
Checking Your Understanding, *567*
Rebalancing a Portfolio of Financial Assets, *567*
Determining the Success of Your Financial Planning, *567*
Summary, *568*
Questions, *568*
Spreadsheet Exercises, *571*
Checking Your Understanding, *572*

22 Evaluation of Investment Performance, 574
A Framework for Evaluating and Assessing Portfolio Performance, *575*
Performance Measurement Issues, *575*
Three Questions to Answer in Measuring Portfolio Performance, 576
Return Calculations, 578
Risk Considerations, 580
Checking Your Understanding, *581*
Performance Benchmarks and Performance Universes, 581
Performance Universes, 581
Performance Benchmarks, 582
A Straightforward Approach to Performance Evaluation, 582
Risk-Adjusted Measures of Performance, *583*
The Sharpe Ratio, 583
Treynor's Reward to Volatility, 585
Checking Your Understanding, *586*
Jensen's Alpha, 586
Information Ratio, 588
M2, 589
Sortino Ratio, 590
Checking Your Understanding, *591*
Style Analysis and Performance Attribution, *591*
Style Analysis, 591
Performance Attribution, 593
Money Managers and Performance Presentations, *593*
Checking Your Understanding, *594*
An Overview on Performance Evaluation, *594*
Summary, *595*
Questions, *595*
Problems, *597*
Computational Problems, *599*
Spreadsheet Exercises, *601*
Checking Your Understanding, *602*

Glossary, 603

Index, 611

Preface

This book is designed to provide a good understanding of the field of investments while stimulating interest in the subject. This understanding is valuable because each of us must make various investment decisions during our lifetimes—definitely as individuals, and possibly in our chosen careers. If we try to avoid making these decisions, they will likely be made for us, often to our detriment.

Our goal in this text is to help readers gain an appreciation for what is involved when it comes to investing, and what it takes to make good investment decisions. The text will prepare the reader to recognize and deal with the many investment problems and controversies that exist.

The book is designed as a guide to investments for individuals wanting to learn; the presented material is neither too basic nor too advanced. Descriptive material is thoroughly covered; however, equally important, the analytics of investments are presented throughout the discussion to help students reason out investment issues, and thus, be better prepared when making real-world investment decisions. Terminology and trading mechanisms may change, but learning to carefully analyze and evaluate investment opportunities will pay off under any circumstances.

The book is written for the first course in investments, generally taught at the junior/senior level. Standard prerequisites include basic accounting, economics, and financial management. A course in statistics is very useful but not absolutely essential. We have sought to minimize formulas and to simplify difficult material, consistent with a presentation of the subject that takes into account current ideas and practices. Relevant, state-of-the-art material has been simplified and structured specifically for the benefit of the beginning student. The emphasis in this text is on readability—making investments material readily accessible, as well as interesting and entertaining, so that the reader who has modest prerequisites can follow the entire discussion and hopefully be motivated to delve further into the subject.

Organization of the Text

The text is divided into seven parts for organizational purposes—beginning with background material and followed by risk and return and basic portfolio theory. Subsequent parts present an analysis of different types of securities, which is separated into four parts. Finally, the text ends with the final part discussing overall investment management issues.

Part 1 provides the necessary background for students before they encounter the specifics of security analysis and portfolio management. The goal of this introductory set of chapters is to acquaint beginners with an overview of what investing is all about. After a general discussion of the subject in Chapter 1, the next four chapters describe the securities available when investing directly, investing indirectly (investment companies), the markets in which securities are traded, and the mechanics of securities trading.

Part 2 presents a discussion of returns and risk, along with the basics of portfolio theory and capital market theory. Chapter 6 contains a careful analysis of the important concepts of risk and return that dominate any discussion of investments. Chapter 7 contains a complete

discussion of expected return and risk for both individual securities and portfolios. The primary emphasis is on the essentials of Markowitz portfolio theory. Chapter 8 completes portfolio theory and then covers asset allocation, one of the most important aspects of portfolio management. Beta and the CAPM are introduced in Chapter 9 so these important concepts can be used throughout the remainder of the course. This illustrates one of the primary characteristics of this text—introducing material only at the point it is needed and only in the detail needed by beginning students. We believe this improves the flow of the material greatly and keeps students from becoming mired in needless, and often tedious, details.

Part 3 examines the analysis, valuation, and management of stocks, a logical starting point in learning how to value securities. Chapters 10 and 11 present the methods used in valuing common stocks, while Chapter 11 discusses alternative strategies for investing in common stock. Chapter 12 explains the efficient market hypothesis and provides some insights into the controversy surrounding this topic.

Part 4 is devoted to security analysis, providing an overview of the various aspects involved in selecting a common stock portfolio. It covers fundamental analysis, the heart of security analysis, as well as technical analysis. Because of its scope and complexity, three chapters (Chapters 13, 14, and 15) are required to adequately cover the fundamental approach. The sequencing of these chapters—market, industry, and company—reflects the widely held belief that the top-down approach to fundamental analysis is superior, although the bottom-up approach is also discussed. Chapter 16 discusses technical analysis, a well-known technique for analyzing stocks, which goes back many years. It is not unusual for beginners to have heard of one or more technical analysis tools.

Part 5 is devoted to bonds. Chapter 17 covers the basics of bond pricing and yields. It includes such topics as the term structure of interest rates and yield spreads. All important calculations regarding bond prices and yields are carefully explained and illustrated. Other issues include bond price changes in response to interest rate changes. Chapter 18 focuses on the management of bonds and covers topics such as duration and immunization. As always, the emphasis is on the basics—the important topics that students need to know to understand the world of fixed income investing.

Part 6 discusses derivative securities. Chapter 19 analyzes options (puts and calls), an investment alternative that has become increasingly popular over the years. Stock index options are also covered. Chapter 20 is devoted to financial futures, an important topic for investors when it comes to hedging their positions and reducing the risk of investing.

Finally, Part 7 concludes the text with a discussion of portfolio management and the issue of evaluating portfolio performance. Chapter 21 is structured around an individual investor's approach to financial planning and managing a portfolio. Chapter 22 is a logical conclusion to the entire book because all investors are keenly interested in how well their investments have performed. Mutual funds are used as examples of how to apply these portfolio performance measures and how to interpret the results.

The 13th edition contains exactly the same set of chapters, in the same order, as the 12th edition. Therefore, the transition to this new edition should be painless.

Special Features

The text offers several important features.

1. The sequence of chapters has been carefully structured and streamlined in each edition, reflecting considerable experimentation over the years and a continuing search for the most effective organizational structure. We believe that this arrangement is very satisfactory for students in a beginning investment course. However, those who prefer a different

order—such as covering portfolio theory and capital market theory later in the course—can do so with no loss of continuity.

2. We have diligently sought to ensure that the text length is reasonably manageable in the standard undergraduate investment course. Although it requires a very tight schedule, the entire text could be covered in a typical three-hour course. However, many instructors choose to omit chapters, depending on preferences and constraints; doing so will cause no problems in terms of teaching a satisfactory investment course. For example, the chapters on fundamental analysis and technical analysis (Part 4) could be omitted, because the valuation and management of common stocks is fully covered in Part 3. Alternatively, the chapters on options and futures could be omitted if necessary. Another alternative is assigning some chapters, or parts of chapters, to be read by students with little or no class discussion (e.g., Part 4).
3. The pedagogy is specifically designed for the student's benefit.
   - Each chapter begins with a set of specific learning objectives, which will aid the reader in determining what is to be accomplished in a particular chapter.
   - Each chapter contains key words in boldface, carefully defined as marginal definitions; they also are included in the glossary. Other important words are italicized.
   - Each chapter contains a detailed summary of bulleted points for quick and precise reading.
   - Each chapter contains an extensive set of numbered examples, designed to clearly illustrate important concepts.
   - Most chapters contain a designated feature called "Concepts in Action" which illustrates the use of one or more of the important items in that chapter.
   - Throughout the text, as appropriate, "Investments Intuition" sections are set off from the regular text for easy identification. These discussions are designed to help the reader quickly grasp the intuitive logic of, and therefore better understand, particular investing issues.
   - Each chapter has a set of questions titled "Checking Your Understanding" spaced throughout the chapter, as appropriate. These questions, with answers at the end of chapters, give students a chance to see if they understand critical issues as they progress through the text.
   - Throughout the text, as appropriate, "Some Practical Advice" is given in a clearly designated format.
   - Each chapter contains an extensive set of questions keyed specifically to the chapter material and designed to thoroughly review the concepts in each chapter.
   - Many chapters have a separate set of problems designed to illustrate the quantitative material in the chapters. Some of these problems can be solved in the normal manner, and some are best solved with available software. Included as part of some problem sets are demonstration problems that show the reader how to solve the most important types of problems.
   - Where appropriate, chapters have spreadsheet exercises and computational problems which are more complex.
   - Many chapters contain multiple questions and problems that are based on the chartered financial analyst (CFA) curriculum. This allows students to see that the concepts and problem-solving processes they are studying in class are exactly the same as those tested on professional examinations for people in the money-management business.
   - A few boxed inserts continue to be included in the text. These inserts provide timely and interesting material from the popular press, enabling the student to see the real-world side of issues and concepts discussed in the text.

Changes to the 13th Edition

The 13th edition has been thoroughly updated using the latest information and numbers available. Most of the data are through year-end 2014 and some extend into 2015.

Important features in the 13th edition include the following:

- Pedagogy has been enhanced. For example, some chapters have lead-in questions or problems to illustrate an important issue that will be discussed in that chapter. In other chapters, this may be done later in the chapter.
- Features such as "Concepts in Action" and "Investments Intuition" have been updated to illustrate important issues with interesting, real-world, current examples.
- Part 1 contains the latest information available on newer concepts such as exchange-traded funds (ETFs), private equity companies, and electronic communications networks (ECNs) and the most current information on important trends such as discount/Internet brokers. Also included are items such as BATS, algorithmic trading, and high-frequency trading. The section on market indexes has been expanded and improved.
- The regulations discussed in Chapter 5 have been updated to include major securities regulation such as the Sarbanes–Oxley Act and the Dodd–Frank Wall Street Reform and Consumer Protection Act of 2010.
- Chapter 6 is continually being improved to facilitate the understanding of important calculations like the geometric mean. These calculations are important in finance, and in general, the more examples available to students, the better.
- Chapter 9 contains an added discussion regarding the merits of alternative measures of the risk-free rate (RF). The discussion notes that the T-bond rate has become the more prominently used measure in practice, particularly since the T-bill rate has maintained a value of approximately zero for an extended period of time.
- The risk and return material in Chapters 7, 8, and 9 has been reordered and condensed to remove redundancies and improve the flow of the material.
- Chapter 10, on the valuation of common stocks, places somewhat less emphasis on the dividend discount model and more on relative valuation techniques and other discounted cash flow approaches. The calculation of free cash flow to equity and free cash flow to the firm is expanded and more clearly explained. The use of relative value models is expanded, better explained, and more clearly illustrated. The discussion now includes price-to-cash flow and enterprise value-to-EBITDA.
- The sector and industry data in Chapter 14 have been updated and expanded using the return data from the Kenneth R. French database. Chapter 15 has been expanded to include formulas that use the statement of cash flows to derive free cash flow to equity (FCFE) and free cash flow to the firm (FCFF). The chapter also has added justifiable price-to-book and justifiable price-to-sales formulas with accompanying explanations.
- Some of the material in Chapters 17 and 18 has been reoriented to improve the flow.
- Chapter 17 contains the discussion of the term structure of interest rates and yield spreads as well as discussion of bond yields and prices. Concepts such as duration and immunization are in Chapter 18.
- A discussion of effective duration has been added in Chapter 18.
- Chapter 21 has been reoriented to stress the importance for investors of having an investment policy statement (IPS) and the components of an IPS are more clearly explained. The chapter also now includes a discussion of the three basic investment management strategies: buy-and-hold, constant mix, and constant proportion portfolio insurance.

- Chapter 22 has more discussion of time- and money-weighted returns. In addition, the information ratio and Sortino ratio have been added to the list of performance measures.

Supplements

The 13th edition includes a complete set of supplements for instructors and students. Resources can be found on the book's companion site: www.wiley.com/college/jones.

- **Instructor's manual.** For each chapter, chapter objectives, lecture notes, a listing of tables and figures, and additional material relevant to the particular chapter are included. Answers to all questions and problems in the text are provided. The instructor's manual was carefully prepared by the authors.
- **Test bank.** The test bank includes numerous multiple-choice and true–false questions for each chapter as well as short discussion questions and problems. These are carefully checked; most have also been class-tested. The test bank is also available in a computerized format.
- **PowerPoint files.** PowerPoint presentation materials are available. A presentation file for each chapter includes outline material as well as all figures and tables from the text.
- **List of equations.** A comprehensive list of all equations found in the text is available.
- **Excel templates.** This online collection of Excel templates allows students to complete select end-of-chapter questions and problems identified by a spreadsheet icon in the textbook. Solution files are available to instructors.
- **Student practice quizzes.** Student practice quizzes are provided for each chapter and contain at least 10–15 multiple choice questions. With instant feedback, questions of varying difficulty help students evaluate individual progress through a chapter.

Acknowledgments

A number of individuals have contributed to this project. We are particularly indebted to the late Jack W. Wilson, who offered many useful comments and provided material for some of the tables, graphs, problems, and figures.

A text does not achieve multiple editions unless it meets the needs of a large number of instructors who find it a useful teaching aid. Earlier editions of this text benefited substantially from the reviews of numerous instructors whose suggestions for improvements are found throughout the text. We owe a debt of gratitude to colleagues who offered valuable feedback that greatly enhanced the quality of the text. It would be impossible to list all who have provided feedback over the years on previous text editions. A few individuals that offered assistance on recent editions include Robert R. Johnson, American College of Financial Services, Jay T. Brandi,, University of Louisville; Laura Seery Cole, University of Tennessee, Knoxville; William P. Dukes, Texas Tech University; Rodrigo Hernandez, Radford University; Nancy Jay, Mercer University; Iqbal Mansur, Widener University; Kerri D. McMillan, Clemson University; and Tanja Steigner, Emporia State University.

We would also like to thank the current editorial staff at Wiley for all of their work in getting the 13th edition of the text prepared in such a proficient and professional manner. The task of preparing a new edition is laborious, but the process was made much easier due to the efforts of the Wiley staff. The contributions of previous editors and staff at Wiley were instrumental in creating the first edition of the text and ensuring that subsequent editions maintained the same high quality as that first product.

Finally, we wish to thank our families who put up with all of the inconveniences that are associated with writing a book. Without their support, it would have been impossible for the book to reach the incredible achievement of a 13th edition. The support and love of our families made the difficult task of producing this edition worthwhile and bearable.

Charles P. Jones
North Carolina State University
Gerald R. Jensen
Creighton University

chapter 1

Understanding Investments

Suppose you are fortunate enough to receive an inheritance of $1 million from a relative. She specifies that you must invest this money intelligently in financial assets within the next six months, and not spend it on consumption, and that you must be answerable to a trustee who has the final say if you fail to make reasonable decisions. You now face an enviable task—building a portfolio of stocks, bonds, and so forth—and you quickly realize that not only do you not know all the answers, you do not even know some of the questions.

Having had a finance course in college, you learned about return and risk, but now you must really understand what these terms mean. You have heard some people talk about making a "killing in the market," but common sense tells you it cannot be all that easy. Like the prospective investor asked the broker when the latter was showing him the yachts belonging to other brokers, "Where are the customers' yachts?" Also, you have on several occasions read about fraudulent investment schemes leaving people broke, but wiser. And so you realize you have your work cut out for you. You need to identify the important issues, ask the right questions, and learn the basics about successful investing.

You can, in fact, construct and manage your portfolio, as the following chapters show. With a little tenacity, you can be on your way to an intelligent investing program because basic knowledge can go a long way. Let's get started.

Chapter 1 provides the foundation for the study of investments by analyzing what it is all about. The critically important tradeoff between expected return and risk is explained, and the major issues that every investor must deal with in making investment decisions are analyzed. An organizational structure for the entire text is provided.

AFTER READING THIS CHAPTER YOU WILL BE ABLE TO:

- Understand why return and risk are the two critical components of all investing decisions.
- Appreciate the scope of investment decisions and the operating environment in which they are made.
- Follow the organization of the investment decision process as we progress through the text.

An Overall Perspective on Investing

- In less than two years, from its peak in March 2000, the S&P 500 Index, a measure of large stocks, subsequently lost about 50 percent of its value, while the NASDAQ Stock Market lost about 75 percent of its value. In less than two years during 2000–2002,

investors lost $5 trillion, or 30 percent of their wealth in stocks. In 2008–2009, stock market volatility was even greater. In only two months in 2011, $3 trillion in stock market wealth disappeared in the United States and $8 trillion globally. With volatility like this, should most investors avoid stocks, particularly for their retirement plans?

- Following the financial crisis of 2008, interest rates on U.S. Treasury securities dropped to record lows, in some cases close to zero. In early 2012, Germany sold six-month Treasury securities with a negative yield. Why would investors continue to invest in these debt securities, sometimes stampeding to invest in them?
- Almost everyone says stocks have always outperformed Treasury bonds over long periods of time, such as 30 years. Is this an accurate statement?
- Many company employees with self-directed retirement plans have none of their funds invested in stocks. Is this smart?
- About two-thirds of all affluent Americans use financial advisers, a percentage that has been increasing. Will you need one?
- For a recent 10-year period, only 24 percent of professionally managed stock portfolios were able to outperform the overall stock market. Why?
- How can futures contracts, with a reputation for being extremely risky, be used to reduce an investor's risk?
- What is the historical average annual rate of return on common stocks and bonds? What can an investor reasonably expect to earn from stocks in the future?

The objective of this text is to help you understand the investments field so that you can intelligently answer questions such as the preceding and make sound investment decisions that will enhance your economic welfare and standard of living. It also provides an introduction for those considering careers in this rewarding field. To accomplish this objective, key concepts are presented along with many real-world examples to provide an appreciation of both the theory and practice of investments.

Both descriptive and quantitative materials on investing are readily available. In fact, one of the problems today is information overload with investment material. Some investment material is very enlightening; much of it is entertaining, but debatable because of the many controversies in investments; and some of it is worthless. This text seeks to cover what is particularly useful and relevant for today's investment climate. It offers some ideas about what you can reasonably expect to accomplish with your added knowledge, and therefore what you can realistically expect to achieve as an investor in today's investment world. Many investors have unrealistic expectations, and this will ultimately lead to disappointments in investment results—or, worse, the loss of all of their funds in a fraud or scam.

Just Say NO! Prepare yourself to say NO! Learning how to avoid the many pitfalls awaiting you as an investor—in particular, investing scams and frauds—by clearly understanding what you can reasonably expect from investing your money may be the single most important benefit to be derived from this text. For example, would you entrust your money to someone offering 36 percent annual return on riskless Treasury securities? Some 600 investors did, and lost some $10 million to a former Sunday school teacher.

In February 2009, the Securities and Exchange Commission (SEC) filed a complaint alleging that R. Allen Stanford and James Davis operated a massive Ponzi scheme, misappropriating billions of dollars of investors' money. According to the complaint, the $8 billion fraud involved certificates of deposit promising overly high rates of return. The size of this alleged fraud pales in comparison to the Madoff scandal reported in December 2008, involving a very large Ponzi scheme. According to a criminal complaint, Bernard Madoff admitted that his investment advisor business was a fraud and had been insolvent for years. Supposedly, returns were being paid to certain investors out of the principal received from other investors.

The lasting legacy of the Madoff scandal is that many investors are now focused on safety (return of capital) instead of portfolio growth (return on capital).

Intelligent investors quickly learn to say no, thereby avoiding many of the pitfalls that await investors daily. At the very least, you must be prepared to carefully investigate the investment alternatives that are available to you.

✓ Remember, there are many financial scams and frauds awaiting the unwary. However, you can easily learn to avoid them.

Establishing a Framework for Investing

SOME DEFINITIONS

The term *investing* can cover a wide range of activities. It often refers to investing money in certificates of deposit, bonds, common stocks, or mutual funds. More knowledgeable investors would include other "paper" assets, such as warrants, puts and calls, futures contracts, and convertible securities, as well as tangible assets, such as gold, real estate, and collectibles. Investing encompasses very conservative positions as well as aggressive speculation. Whether your perspective is that of a college graduate starting out in the workplace or that of a senior citizen concerned with finances after retirement, investing decisions are critically important to most people and contribute substantially to an individual's quality of life.

Investment The commitment of funds to one or more assets that will be held over some future period

Investments The study of the investment process

An **investment** can be defined as the commitment of funds to one or more assets that will be held over some future time period. **Investments** is concerned with the management of an investor's wealth, which is the sum of current income and the present value of all future income. (This is why present value and compound interest concepts have an important role in the investment process.) Although the field of investments encompasses many aspects, it can be thought of in terms of two primary functions: analysis and management—hence the title of this text.

Financial Assets Paper documents evidencing a claim on some issuer

Marketable Securities Financial assets that are easily and inexpensively traded in organized markets

Financial Assets and Marketable Securities In this text, the term investments refers in general to financial assets and in particular to marketable securities. **Financial assets** are paper (or electronic) claims on some issuer, such as the federal government or a corporation, whereas real assets are tangible, physical assets such as gold, silver, diamonds, art, and real estate. **Marketable securities** are financial assets that are easily and inexpensively tradable in organized markets. Technically, the word investments includes both financial and real assets and both marketable and nonmarketable assets. Because of the vast scope of investment opportunities available to investors, our primary emphasis is on marketable securities; however, the basic principles and techniques discussed in this text are applicable to real assets.

Even when we limit our discussion primarily to financial assets, it is difficult to keep up with the proliferation of new products. Two such assets that did not exist a few years ago are the many new exchange traded funds (ETFs) and direct access notes (corporate bonds designed for the average investor), both of which are discussed in a later chapter.

A Perspective on Investing

WHY DO WE INVEST?

We invest to make money! Although everyone would agree with this statement, we need to be more precise. (After all, this is a college textbook and anyone helping to pay for your education expects more.) We invest to improve our welfare, which for our purposes can be defined as monetary wealth, both current and future. We assume that investors are

interested only in the monetary benefits to be obtained from investing, as opposed to such factors as the psychic income to be derived from impressing one's friends with demonstrated financial prowess.

Funds to be invested come from assets already owned, borrowed money, and savings or foregone consumption. By foregoing consumption today and investing the savings, investors expect to enhance their future consumption possibilities by increasing their wealth. Do not underestimate the amount of money many individuals can accumulate. A 2013 survey found that nearly 10 million U.S. households had a net worth of more than $1 million (excluding their primary residence). That represented a 43 percent increase from 2008 alone and amounted to nearly 8 percent of all U.S. households. Much of this success was attributed to ownership of stocks and bonds. Of course, things can quickly change. For example, Americans' net worth declined a record 18 percent in 2008, largely as a result of the decline in the stock market.

Investors also seek to manage their wealth effectively, obtaining the most from it while protecting it from inflation, taxes, and other factors. To accomplish both objectives, people invest.

TAKE A PORTFOLIO PERSPECTIVE

This text assumes that investors have established their overall financial plan and are now interested in managing and enhancing their wealth by investing in an optimal combination of financial assets. The idea of an "optimal combination" is important because our wealth, which we hold in the form of various assets, should be evaluated and managed as a unified whole. Wealth should be evaluated and managed within the context of a **portfolio**, which consists of all of the assets held by an investor. For example, if you own four stocks and three mutual funds, that is your portfolio. If your parents own 23 stocks, some municipal bonds, and some CDs, that is their portfolio of financial assets.

Portfolio The assets held by an investor considered as a unit

The Importance of Studying Investments

THE PERSONAL ASPECTS

It is important to remember that all individuals have wealth of some kind; if nothing else, this wealth may consist of the current and future value of their services in the marketplace (often referred to as human capital). Most individuals must make investment decisions sometime in their lives. For example, many employees today must decide the appropriate combination of stocks, bonds, and other assets to hold in their retirement accounts. And many people try to build wealth during their working years by investing.

Retirement Decisions The lack of retirement savings is a looming crisis of epic proportions. According to a study by the Employee Benefits Research Institute (EBRI), 43 percent of Baby Boomers and Generation Xers are at risk of running out of money in retirement. Among the poorest 25 percent, EBRI estimates that 83 percent are at risk of falling short.

A major revolution in personal finance is to provide employees with self-directed retirement plans (defined contribution plans rather than defined benefit plans). Whereas traditional defined-benefit retirement plans guarantee retirees an amount of money each month, the new emphasis on self-directed retirement plans means that you will have to choose among stock funds, bond funds, guaranteed investment contracts, and other alternatives. How much you have available for retirement depends upon how much you save each month as well as the performance of the investments you select.

✓ In 1979, more than 40 percent of workers in the private sector were active participants in defined benefit pension plans in which the employer took primary responsibility for directing retirement dollars. By 2013, that number had fallen to only 18 percent, thus,

putting much more reliance on defined contribution plans, which put the onus on the employee. The ultimate success of these plans is dependent upon the choices made by the employee.

Your choices are many, and your success—or lack thereof—will directly affect your quality of life in retirement and may dictate whether you are even able to retire. Therefore, while employees in the past typically did not have to concern themselves much with investing decisions relative to their company's retirement plan, employees now must do so. This is a very important personal reason for studying the subject of investments!

A good example of this revolution in retirement programs is a 401(k) plan offered by many employers, whereby employees contribute a percentage of salary to a tax-deferred plan, and the employer often matches part of the contribution. Tens of millions of American workers contribute to 401(k) plans. At the end of 2012, these and similar other tax-advantaged plans held approximately $5.1 trillion in assets. The bulk of 401(k) assets are invested in stocks; therefore, it is important to know something about stocks.[1]

To illustrate the critical importance of making good investment decisions, consider yet another self-directed retirement vehicle, the Individual Retirement Account (IRA). IRAs are an important method that Americans use to provide for their retirement. IRA assets totaled approximately $5.4 trillion by year-end 2012, which was roughly 28 percent of the total U.S. retirement market.

The annual maximum IRA contribution was $5,500 in 2014 ($6,500 for those age 50 and above). IRA funds can be invested in a wide range of assets, from the very safe to the quite speculative. IRA owners are allowed to have self-directed brokerage accounts, which offer a wide array of investment opportunities. Since these funds may be invested for as long as 40 or more years, good investment decisions are critical, as shown in Example 1-1.

Example 1-1

Consider the amount of retirement wealth that can be accumulated by one individual contributing $5,000 annually to a tax-sheltered account if returns are compounded annually. Over many years of investing, the differences in results that investors realize, owing solely to the investment returns earned, can be staggering. Note that in the case of a $5,000 annual contribution for 40 years, the payoff at a compound earnings rate of 15 percent is almost $9 million. In contrast, at an earnings rate of 10 percent the payoff is $2.21 million, which is a great outcome but significantly less than almost $9 million. Similarly, if a 10 percent rate of return can be obtained instead of a 5 percent rate of return, over a period of 40 years the difference approaches a fourfold multiple. Clearly, good investment decisions, which lead to higher returns can make a tremendous difference in the wealth that you accumulate. None other than Albert Einstein is rumored to have said "compound interest is the most powerful force in the universe."[2]

		Final Dollar Wealth if Funds Are Compounded at		
Amount Invested per Year	**Number of Years**	**5%**	**10%**	**15%**
$5000	20	165,330	286,375	512,218
$5000	30	332,194	822,470	2,173,726
$5000	40	603,999	2,212,963	8,895,452

[1] The maximum 401(k) contribution for 2012 was $16,500.

[2] Whether he said it or not is irrelevant. It is still a good motto to live by.

Building Wealth Over Your Lifetime Beyond the retirement issue, the study of investments is more important than ever in the 21st century. After being net sellers of stocks for many years, individual investors swarmed into the financial markets, either by force (becoming part of a self-directed retirement plan) or by choice (seeking higher returns than those available from financial institutions). In the late 1990s, individuals increased their direct ownership of stocks, reversing the earlier trend. In 2012, approximately 54 million households in the United States owned mutual funds that invested in stocks.

Individual investor interest in the stock market is best expressed by the power of mutual funds (explained in Chapter 3), a favorite investment vehicle of small investors. Mutual funds are a driving force in the stock market. With so much individual investor money flowing into mutual funds, and with individual investors owning a large percentage of all stocks outstanding, the study of investments is as important as ever, or more so.

In the final analysis, we study investments in the hope of creating wealth and earning better returns in relation to the risk we assume when we invest. A careful study of investment analysis and portfolio management principles can provide a sound framework for both managing and increasing wealth. Furthermore, a sound study of this subject matter will allow you to obtain maximum value from the many articles on investing that appear daily in newspapers and on the internet, which in turn will increase your chances of reaching your financial goals. Popular press articles cover many important topics, such as the following examples:

1. Financial assets available to investors
2. Should a mutual fund investor use a financial advisor?
3. Compounding effects and terminal wealth
4. Realized returns versus expected returns
5. How to compare taxable bonds to municipal (tax-exempt) bonds
6. Index funds and ETFs
7. How diversification works to reduce risk
8. The asset allocation decision
9. Active versus passive investing

All of these issues are covered in the text, and learning about them will make you a much more informed investor.

INVESTMENTS AS A PROFESSION

In addition to the above-mentioned reasons for the importance of studying investments, the world of investments offers several rewarding careers, both professionally and financially. A study of investments is an essential part of becoming a professional in this field.

Investment Bankers and Traders Investment bankers, who arrange the sale of new securities as well as assist in mergers and acquisitions, enjoyed phenomenal financial rewards in the booming 1980s and 1990s. Given the turmoil of 2000–2002, investment banking business dropped off sharply, and by mid-2002 was the slowest part of Wall Street's business. In 2008, the financial crisis saw the demise of Bear Stearns and Lehman Brothers, and the merger of Merrill Lynch with Bank of America. Furthermore, signaling the end of an era on Wall Street, Goldman Sachs and Morgan Stanley, the last two major investment banks at the time, became bank holding companies in order to stay in business.

Security Analysts Market professionals whose job it is to study, evaluate, and recommend stocks to individual and institutional investors

Security Analysts and Portfolio Managers A range of financial institutions, including mutual funds, brokerage firms, and investment bankers as well as banks and insurance companies, need the services of **security analysts** (also called investment analysts). Security

analysts are routinely separated into buy-side and sell-side analysts. Sell-side analysts issue recommendations such as "strong buy" that are published and made available to many investors, while buy-side analysts prepare research solely to benefit the firm for whom the research was prepared.

Brokerage houses employ sell-side analysts to support their registered representatives who in turn serve the public—for example, preparing the research reports provided to customers. Investment bankers employ buy-side analysts to assist in the sale of new securities and in the valuation of firms as possible merger or acquisition candidates. Other firms that employ buy-side analysts include banks and insurance companies who own portfolios of securities that must be evaluated in order to be managed, and mutual funds that need analysts to evaluate securities for possible purchase or sale.

Financial firms need portfolio managers to manage the portfolios of securities handled by these organizations. Portfolio managers are responsible for making the actual portfolio buy and sell decisions—what to buy and sell, when to buy and sell, and so forth. Portfolio performance is calculated for these managers, and their jobs depend on their performance measured relative to other managed portfolios and to market averages.

Stockbrokers and Financial Advisers What about the registered representatives (stockbrokers) employed in cities across the country? A few superbrokers earn more than $1 million per year. Of course, the average broker earns much less, but still the compensation can be quite rewarding. More will be said about brokers in Chapter 5.

The employment and pay for the various job types associated with Wall Street tend to be cyclical. While the late 1990s were great years for investors and investment firms and employees, the market declines of 2000–2002 brought a new reality, as did the financial crisis of 2008. Given the tremendous turmoil in the financial markets in 2008, we have entered a new era of banking, financial institutions, and trading practices, and the exact structure will take time to unfold.

Finally, the number of financial advisers continues to grow. This area has employment opportunities for people interested in the investments field. The Bureau of Labor Statistics expects this job category to grow by 27 percent from 2012 to 2022—much faster than the average for all occupations. As the U.S. population ages and life expectancies increase, the demand for financial planning services should increase. Over 60 percent of affluent Americans with a net worth between $100,000 and $1 million now use a financial advisor. For a $1 million portfolio, a typical financial adviser will charge $10,000 a year. Some charge by the hour, with the hourly rate in the $115 to $300 range.

Standard credentials do not exist for financial advisers. Internet advisers who manage $100 million or more must register with the Securities and Exchange Commission as a Registered Investment Advisor (RIA). Those managing less than $100 million must register with the state securities agency in the state where they have their principal place of business.[3] According to the Bureau of Labor Statistics, the average financial adviser earned approximately $90,000 per year in 2012, primarily from commissions for selling products and from managing clients' assets for a percentage of the assets under management (AUM).

Exhibit 1-1 lists three designations that financial advisers and planners may hold and indicates how they are compensated. Those interested in this field as a career should seriously consider obtaining one (or more) of these professional designations.

Chartered Financial Analyst (CFA) A professional designation for people in the investments field

The CFA Designation Individuals interested in careers in the investments field, as opposed to financial planning, should consider earning the **Chartered Financial Analyst (CFA)** designation. This is a highly respected, global professional designation for people in the investments area. It serves as an indication that areas of knowledge relevant to investing have been studied and that

[3] In order to sell securities, financial planners and advisers may need to pass what are called Series 66 and Series 7 exams.

high ethical and professional standards have been recognized and accepted. Throughout this text, we present questions and problems that are based on the CFA curriculum.

EXHIBIT 1-1

Professional Designations Held by Financial Advisers and Planners

- Certified Financial Planner (CFP), awarded by the Certified Financial Planning Board of Standards, an industry group, requires course work and an examination on financial planning. Holders of the CFP must have three years' experience and adhere to a code of ethics.
- Chartered Financial Consultant (ChFC) requires a comprehensive examination and often involves those with an insurance background.
- Personal Financial Specialist (PFS), awarded by the American Institute of Certified Public Accountants to CPAs only, requires experience in personal financial planning and a comprehensive examination.

Financial advisers are compensated by four methods:

- Fee-based—may involve a comprehensive financial plan, or specific issues.
- Commission-based—plan and recommendations are provided at no charge, with compensation derived from commissions earned from products sold to implement the plan.
- Fee-and-commission-based—commissions are often greater than the fees.
- Salaried—banks, credit unions, and so forth often offer planning services by salaried financial planners.

Understanding the Investment Decision Process

An organized view of the investment process involves analyzing the basic nature of investment decisions and organizing the activities in the decision process.

Common stocks have produced, on average, significantly larger returns than savings accounts or bonds. Therefore, should not all investors invest heavily in common stocks and realize these larger returns? The answer to this question is "To pursue higher returns, investors must assume larger risks, which is not always prudent." Underlying all investment decisions is the tradeoff between risk and expected return.

Investments Intuition

The stock market suffered sharp declines during 2000–2002 because of the collapse of technology stocks. In fact, at the time of the writing of this book, 15 years later, the technology—heavy NASDAQ stock index still had not reached the level that it had before the Dot com crash. However, if investors had bought Apple and Amazon during that time, they would have done extremely well over the next decade. Why didn't more investors buy these stocks? The reason is that at the time the risk was thought to be too great, not only for these stocks, but for stocks in general. And therein lies the story of investing. There are great opportunities, but there are also large risks.

THE BASIS OF INVESTMENT DECISIONS—RETURN AND RISK

Return Why invest? Stated in the simplest terms, investors wish to earn a return on their money. Cash has an opportunity cost: By holding cash, you forego the opportunity to earn a return on that cash. Furthermore, in an inflationary environment, the purchasing power of cash diminishes, with high rates of inflation (such as occurred in the early 1980s) bringing a relatively rapid decline in purchasing power.

Investments Intuition

Investors buy, hold, and sell financial assets to earn returns on them. Within the spectrum of financial assets, why do some people buy common stocks instead of safely depositing their money in an insured savings account or a U.S. savings bond, which provides a guaranteed minimum return? The answer is that they are trying to earn returns larger than those available from safer (and lower-yielding) assets. They know they are taking a greater risk of losing some of their money by buying common stocks, but they expect to earn a greater return.

Expected Return The ex ante return expected by investors over some future holding period

Realized Return Actual return on an investment for some previous period of time

Expected Return versus Realized Return In investments, it is critical to distinguish between an **expected return** (the anticipated return for some future period) and a **realized return** (the actual return over some past period). Investors invest for the future—for the returns they expect to earn—but when the investing period is over, they are left with their realized returns. What investors actually earn from their holdings may turn out to be more or less than what they expected to earn when they initiated the investment. This point is the essence of the investments process: Investors should always consider the risk involved in investing.

Properly stated, investors seek to maximize their returns from investing, subject to the risk they are willing to incur. Therefore, we must consider the other side of the coin from return, which is risk.

Risk Investors would like their returns to be as large as possible; however, this objective is subject to constraints, primarily risk.[4] The stock market enjoyed the five greatest consecutive years of returns in its history during 1995–1999, with total returns each year in excess of 21 percent on a broad cross section of common stocks. Nevertheless, several professionally managed funds performed poorly relative to the market, and some managed to lose money in one or more of those years. Furthermore, during the next five years 2000–2004, the stock market actually declined. As this example shows, the investment decision must always be considered in terms of both risk and return. The two are inseparable.

Concepts in Action

Returns and Risk

Investors enjoyed the best five consecutive years in stock market history over the period 1995–1999. They thought they were truly in the golden age of money making, and in fact, they were. This great performance came to an end with negative returns experienced in 2000, 2001, and 2002. Such is the nature of stock market returns and risk!

Or consider an individual company and its risk to investors. In early 2000, Cisco, the Internet products company, had a market cap of $550 billion and was the world's most valuable company. In the prior five years, Cisco's stock price climbed 35-fold to over $80/share, and its revenues advanced by 40 percent per year. Then, the Internet crash occurred. From 2000 to 2002, Cisco's stock price declined by 90 percent, reaching a low of less than $10/share. By 2003 Cisco's net income had recovered to $3.6 billion, which exceeded its income during the tech bubble. Cisco's stock price, however, had recovered to only $22; such is the nature of stock risk!

[4] Although risk is the most important constraint on investors, other restrictions clearly exist. Taxes and transaction costs are often viewed as constraints. Some institutional investors may face legal constraints on the types of securities they can purchase or the amount they can hold.