# Real Estate Finance and Investments

2024 Release

William B. Brueggeman, PhD

Professor Emeritus Edwin L. Cox School of Business Southern Methodist University

#### Jeffrey D. Fisher, PhD

Professor Emeritus of Real Estate Kelley School of Business Indiana University President, Homer Hoyt Institute

#### Stephanie R. Yates

Professor and Chairperson Department of Accounting and Finance Collat School of Business University of Alabama, Birmingham





#### REAL ESTATE FINANCE & INVESTMENTS, 2024 RELEASE

Published by McGraw Hill LLC, 1325 Avenue of the Americas, New York, NY 10019. Copyright ©2024 by McGraw Hill LLC. All rights reserved. Printed in the United States of America. Previous editions ©2022, ©2019, and ©2016. 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 LLC, 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 LWI 29 28 27 26 25 24

ISBN 978-1-265-06484-6 (bound edition) MHID 1-265-06484-9 (bound edition) ISBN 978-1-266-20276-6 (loose leaf edition) MHID 1-266-20276-5 (loose leaf edition)

Portfolio Manager: Sarah Hutchings Product Developer: Kristina Dehlin Marketing Manager: Sarah Hurley Content Project Managers: Renee Colbert, Keri Johnson Manufacturing Project Manager: Nancy Flaggman Senior Content Licensing Specialist: Beth Cray Cover Image: Chris Hepburn/E+/Getty Images Compositor: Straive

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

Names: Brueggeman, William B., author. | Fisher, Jeffrey D., author.
Title: Real estate finance & investments / William Brueggeman, PhD, Professor Emeritus, Edwin L. Cox School of Business, Southern Methodist University, Jeffrey Fisher, PhD, Professor Emeritus of Real Estate, Indiana University, President, Homer Hoyt Institute, Visiting Professor, Johns Hopkins University, Stephanie Yates.
Other titles: Real estate finance and investments
Description: 2024 Release. | Dubuque, IA: McGraw Hill, [2024]
Identifiers: LCCN 2023038984 | ISBN 9781265064846 (hardcover)
Subjects: LCSH: Mortgage loans—United States. | Real property—United States—Finance.
Classification: LCC HG2040.5.U5 B78 2024 | DDC 332.7/2—dc23/eg/20230817 LC record available at https://lccn.loc.gov/2023038984

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 LLC, and McGraw Hill LLC does not guarantee the accuracy of the information presented at these sites.

# Preface

#### Introduction to Real Estate Finance and Investments

This book prepares readers to understand the risks and rewards associated with financing and investing in both residential and commercial real estate. Concepts and techniques included in the chapters and problem sets are used in many careers related to real estate. These include investing, development financing, appraising, consulting, managing real estate portfolios, leasing, managing property, analyzing site locations, corporate real estate, and managing real estate investment funds. This material is also relevant to individuals who want to better understand real estate when making their own personal investment and financing decisions.

Real estate markets are impacted by many local, national, and international economic and demographic trends coupled with new technology that impact different sectors of these markets. It is more important than ever to be able to evaluate how these trends will impact the risk and return for lenders and investors. This requires an understanding of the legal issues that can impact the rights of lenders and investors, the characteristics of the various vehicles for lending and investing in real estate, the economic benefits of loans and investments, and how local economies may affect the investment performance of properties as well as the goals of lenders and investors. Managers of real estate funds need to understand how the risk of the fund may be changing and how current economic events might impact the future performance of the fund and the need to change allocations across property types and geographic areas.

This book is designed to help both students and other readers understand these many factors so that they can perform the necessary analysis and make informed real estate finance and investment decisions. As the book's title suggests, we discuss both real estate finance and real estate investments. These topics are interrelated. For example, an investor who purchases a property is making an investment. This investment is typically financed with a mortgage loan. Thus, the investor needs to understand both how to analyze the investment and how to assess the impact that financing the investment will have on its risk and return.

Similarly, the lender, by providing capital for the investor to purchase the property, is also making an investment in the sense that he or she expects to earn a rate of return on funds that have been loaned. Therefore, the lender also needs to understand the risk and return of making that loan. In fact, one of the risks associated with making loans secured by real estate is that, if a borrower defaults, the lender may take ownership of the property. This means that the lender also should evaluate the property using many of the same techniques as the investor purchasing the property.

#### **Organization of the Book**

From the above discussion, it should be clear that many factors have an impact on the risk and return associated with property investments and the mortgages used to finance them. This is true whether the investment is in a personal residence or in a large incomeproducing investment such as an office building.

Part I begins with a discussion of the legal concepts that are important in the study of real estate finance and investments. Although a real estate investor or lender may rely heavily on an attorney in a real estate transaction, it is important to know enough to be able to ask the right questions. We focus only on those legal issues that relate to real estate investment and financing decisions. iii **Part II** begins with a discussion of the time value of money concepts important for analyzing real estate investments and mortgages. These concepts are important because real estate is a long-term investment and is financed with loans that are repaid over time. This leads to a discussion of the primary ways that mortgage loans are structured: fixed-rate and adjustable-rate mortgage loans.

**Part III** considers residential housing as an investment and covers mortgage loan underwriting for residential properties. This is relevant for individuals making personal financial decisions, such as whether to own or rent a home, as well as for lenders who are evaluating both the loan and borrower.

**Part IV** covers many topics related to analyzing income property investments. We provide in-depth examples that include apartments, office buildings, shopping centers, and warehouses. Many concepts also may be extended to other property types. These topics include understanding leases, demonstrating how properties are appraised, how to analyze the potential returns and risks of an investment, and how taxes impact investment returns. We also consider how to evaluate whether a property should be sold or renovated. Finally, we look at how corporations, although not in the real estate business per se, must make real estate decisions as part of their business. This could include whether to own or lease the property that must be used in their operations, as well as other issues.

While the first four parts of this book focus on investing or financing existing properties, **Part V** discusses how to analyze projects proposed for development. Such development could range from land acquisition and construction of many types of income-producing property to acquisition of land to be subdivided and improved for corporate office parks or for sale to builders of residential communities. This section also includes how projects are financed during the development period. Construction and development financing is very different from the way existing, occupied properties are financed.

Part VI discusses various alternative real estate financing and investment vehicles. We begin with joint ventures and show how different parties with specific areas of expertise may join together to make a real estate investment. We use, as an example, someone with development expertise who needs equity capital for a project. A joint venture is created with an investor who has capital to invest but doesn't have the expertise to undertake the development. We then provide a financial analysis for the investment including capital contributions from, and distributions to, partners during property acquisition, operation, and its eventual sale. In this section, we also discuss how both residential and commercial mortgage loan pools are created. We then consider how mortgage-backed securities are structured, issued against such pools, and traded in the secondary market for such securities. This also includes a discussion of the risks that these investments pose. Part VI also includes a discussion of real estate investment trusts (REITs). These public companies invest in real estate and allow investors to own a diversified portfolio of real estate by purchasing shares of stock in the company. We point out the advantages and disadvantages of investing in REITs compared to investing in real estate in the private equity market.

Finally, in **Part VII**, we discuss how to evaluate real estate in a multi-asset portfolio that includes other investments such as stocks and bonds. This includes understanding the diversification benefits of including real estate in a portfolio as well as ways to diversify within the real estate portfolio and the pros and cons of international investment. This is followed by a chapter on real estate investment funds that are created for high-net-worth individuals, endowments, and pension funds. We discuss different fund strategies and structures and how to calculate the returns for a fund and analyze the risk and performance of the funds relative to various industry benchmarks.

#### Wide Audience

From the above discussion, it is clear that this book covers many topics. Depending on the purpose of a particular course, all or a selection of topics may be covered. If desired, the course also may emphasize either an investor's or a lender's perspective. Alternatively, some courses may emphasize various industry segments such as housing and residential real estate, commercial real estate, construction and development, mortgage-backed securities, corporate real estate, or investment funds. In other words, this book is designed to allow flexibility for instructors and students to cover a comprehensive range of topics or to emphasize only those topics that are the focal point of a specific subject.

#### Changes to the 2024 Release

In addition to the usual updating and fine tuning of chapters throughout the text, a major addition to this release has been adding learning objectives to each chapter. The end-of-chapter questions and problems are cross-referenced to the learning objectives. This should help readers know what the key concepts and calculations are that they should understand in each chapter. This also helps instructors to prioritize the learning objectives that they want to emphasize for their students.

We also included a discussion of the use of security token offerings (STOs) that allow fractional ownership of a property or portfolio with ownership recorded on a blockchain. While it is too early to know how prevalent this ownership structure will become, it is important for readers to have a basic understanding of how it works. Finally, we added a new section in Chapter 23 that discusses debt funds.

#### Excel Spreadsheets and RealNex Software

This book is rigorous yet practical and blends theory with applications to real-world problems. These problems are illustrated and solved by using a blend of financial calculators, Excel spreadsheets, and specialized software designed to analyze real estate income property. Excel spreadsheets, provided on the book's website at **www.mhhe.com/bfy2024**, are an aid for students to understand many of the exhibits displayed in chapters throughout the text. By modifying these exhibits, students also may solve many end-of-chapter problems without having to design new spreadsheets. The book's website also contains additional helpful materials for students and instructors. Using a password-protected instructor log-in, instructors can find a solutions manual, test bank, and PowerPoint presentations.

Students can also register online to get free access to a cloud-based real estate valuation program called RealNex. We chose this program because it is very easy and convenient to use by anyone with an Internet connection (including iPads and other mobile devices). RealNex is used in several chapters to supplement the use of Excel spreadsheets when doing investment analysis and solving valuation problems. Once students (or professors) register, they will also have access to data files that replicate examples in the book. Students can register at the following website: http://info.realnex.com/edu

A Note on Rounding Readers should note that they may get slightly different answers when solving some of the examples in the book or the homework problems due to how they rounded numbers when doing the calculations. For example, a loan payment might be calculated as part of a solution and then rounded to two decimal places before using the payment to calculate the loan balance. The answer to the loan balance will differ from the answer that would be obtained if the loan payment had not been rounded before calculating the loan balance. For example, they used a financial calculator or Excel to calculate the loan payment and then used that result (with all its decimal places) to get the loan balance. These differences are normal.

#### Supplements

Several ancillary materials are available for instructor use. These include

- Solutions Manual—developed by Jeffrey Fisher, William Brueggeman, and Stephanie Yates.
- Test Bank—developed by Stephanie Yates and Matt Haertzen
- PowerPoint slides—developed by Stephanie Yates

#### Acknowledgments

Throughout the process of development, we have benefited from the comments and constructive criticism provided by the instructors and colleagues listed below. We offer our sincere appreciation to these individuals for their helpful reviews and invaluable feedback over the years.

A special thanks to Matthew Haertzen, CFA, CFP at the University of Arizona for his diligent review of this edition of the text to help improve the wording and check the accuracy of numerical examples and solutions to end-of-chapter problems.

**Tiago Teles de Abreu** Catolica Lisbon **Edward Baryla** East Tennessee State University **Roy T. Black** Emory University **Thomas P. Boehm** University of Tennessee-Knoxville **Thomas Bothem** University of Illinois at Chicago Wally Boudry Southern Methodist University **Grace Wong Bucchianeri** Wharton School, University of Pennsylvania **Brad Case FNMA Christopher Cain** College of Charleston **Ping Cheng** Florida Atlantic University Joe D'Alessandro NCREIF

**Ron Donohue** Homer Hoyt Institute Shannon Donovan Bridgewater State University **Michael Fratantoni** Mortgage Bankers Association **Eric Fruits** Portland State University **Deborah W. Gregory Bentley University** Matthew Haertzen The University of Arizona **Mike Harris** Halstatt Real Estate Partners **Barry Hersh** NYU-SCPS Real Estate Institute **Andres Jaurequi** California State University, Fresno Joshua Kahr Columbia University Youguo Liang Abu Dhabi Investment Authority

Adam McCurdy Loyola University Chicago W. Keith Munsell Boston University Alejandro Rojas Middle Tennessee State University Michael Schonberger Rutgers University-New Brunswick Jay Shanken and Kimberly Moon Emory University Rui ShiL&B Realty AdvisorsRobert SingerLindenwood UniversityCarlos SlawsonLouisiana State UniversityJan StrockisSanta Clara UniversityMatthew WalkerEastern Carolina University

William B. Brueggeman Jeffrey D. Fisher Stephanie R. Yates



### A complete course platform

Connect enables you to build deeper connections with your students through cohesive digital content and tools, creating engaging learning experiences. We are committed to providing you with the right resources and tools to support all your students along their personal learning journeys. 65% Less Time Grading



Laptop: Getty Images; Woman/dog: George Doyle/Getty Image

### Every learner is unique

In Connect, instructors can assign an adaptive reading experience with SmartBook<sup>®</sup> 2.0. Rooted in advanced learning science principles, SmartBook 2.0 delivers each student a personalized experience, focusing students on their learning gaps, ensuring that the time they spend studying is time well spent. **mheducation.com/highered/connect/smartbook** 

### Study anytime, anywhere

Encourage your students to download the free ReadAnywhere® app so they can access their online eBook, SmartBook® 2.0, or Adaptive Learning Assignments when it's convenient, even when they're offline. And since the app automatically syncs with their Connect account, all of their work is available every time they open it. Find out more at **mheducation.com/readanywhere**  "I really liked this app—it made it easy to study when you don't have your textbook in front of you."

Jordan Cunningham, a student at *Eastern Washington University* 

### Effective tools for efficient studying

Connect is designed to help students be more productive with simple, flexible, intuitive tools that maximize study time and meet students' individual learning needs. Get learning that works for everyone with Connect.



### **Education for all**

McGraw Hill works directly with Accessibility Services departments and faculty to meet the learning needs of all students. Please contact your Accessibility Services Office, and ask them to email **accessibility@mheducation.com**, or visit **mheducation.com**/about/accessibility for more information.

# Affordable solutions, added value

Make technology work for you with LMS integration for single sign-on access, mobile access to the digital textbook, and reports to quickly show you how each of your students is doing. And with our Inclusive Access program, you can provide all these tools at the lowest available market price to your students. Ask your McGraw Hill representative for more information.

# Solutions for your challenges

A product isn't a solution. Real solutions are affordable, reliable, and come with training and ongoing support when you need it and how you want it. Visit **supportateverystep.com** for videos and resources both you and your students can use throughout the term.



## Updated and relevant content

Our new Evergreen delivery model provides the most current and relevant content for your course, hassle-free. Content, tools, and technology updates are delivered directly to your existing McGraw Hill Connect<sup>®</sup> course. Engage students and freshen up assignments with up-to-date coverage of select topics and assessments, all without having to switch editions or build a new course.

# **Brief Contents**

#### PART ONE

# **Overview of Real Estate Finance and Investments**

- 1 Real Estate Investment: Basic Legal Concepts 1
- 2 Real Estate Financing: Notes and Mortgages 16

#### PART TWO

#### **Mortgage Loans**

- **3** Mortgage Loan Foundations: The Time Value of Money 42
- 4 Fixed Interest Rate Mortgage Loans 78
- 5 Adjustable and Floating Rate Mortgage Loans 122
- 6 Mortgages: Additional Concepts, Analysis, and Applications 148

#### PART THREE

#### **Residential Housing**

- 7 Single-Family Housing: Pricing, Investment, and Tax Considerations 183
- 8 Underwriting and Financing Residential Properties 220

#### PART FOUR

#### **Income-Producing Properties**

- **9** Income-Producing Properties: Leases, Rents, and the Market for Space 250
- **10** Valuation of Income Properties: Appraisal and the Market for Capital 292
- 11 Investment Analysis and Taxation of Income Properties 343
- **12** Financial Leverage and Financing Alternatives 395

- **13** Risk Analysis 431
- 14 Disposition and Renovation of Income Properties 465
- **15** Financing Corporate Real Estate 501

#### PART FIVE

#### **Financing Real Estate Development**

- **16** Financing Project Development 527
- 17 Financing Land Development Projects 561

#### PART SIX

#### Alternative Real Estate Financing and Investment Vehicles

- 18 Structuring Real Estate Investments: Organizational Forms and Joint Ventures 591
- **19** The Secondary Mortgage Market: Pass-Through Securities 633
- **20** The Secondary Mortgage Market: CMOs, CDOs, CLOs, and Derivative Securities 660
- 21 Real Estate Investment Trusts (REITs) 702

#### PART SEVEN

#### **Portfolio Analysis and Real Estate Funds**

- **22** Real Estate Investment Performance and Portfolio Considerations 736
- 23 Real Estate Funds: Structure, Performance, Benchmarking, Risk and Attribution Analysis 767

#### INDEX 813

# Table of Contents

#### PART ONE OVERVIEW OF REAL ESTATE FINANCE AND INVESTMENTS

#### Chapter 1 Real Estate Investment: Basic Legal Concepts 1

Property Rights and Estates 2
Definition of Estate 4
Two General Classifications of Estates 4
Examples of Freehold Estates 5
Estates Not Yet in Possession (Future Estates) 5
Examples of Leasehold Estates 6
Interests, Encumbrances, and Easements 7
Assurance of Title 7
The Meaning of Title 9
Deeds 9
Methods of Title Assurance 10
Abstract and Opinion Method 11
The Title Insurance Method 12
Recording Acts 13
Limitations on Private Property Rights 14

#### Chapter 2 Real Estate Financing: Notes and Mortgages 16

Notes 16 The Mortgage Instrument 18 Definition of a Mortgage 18 Relationship of Note to Mortgage 19 Interests That Can Be Mortgaged 19 Minimum Mortgage Requirements 19 Important Mortgage Covenants 20 Assumption of Mortgage 23 Acquiring Title "Subject to" a Mortgage 23 Property Covered by a Mortgage 24 Junior Mortgages 24 Recording of Mortgages 24 Other Financing Sources 25 Seller Financing 25 Land Contracts 25 Default 26 What Constitutes Default? 26 Alternatives to Foreclosure: Workouts 27 Restructuring the Mortgage Loan 27

Transfer of Mortgage to a New Owner 29 Voluntary Conveyance 29 Friendly Foreclosure 30 Prepackaged Bankruptcy 30 Short Sale 31 Foreclosure 31 Judicial Foreclosure 31 Redemption 32 Sales of Property 32 Effect of Foreclosure on Junior Lienors 35 Deficiency Judgment 35 Taxes in Default 36 Bankruptcy 37 Chapter 7 Liquidation 37 Chapter 11 38 Chapter 13 39

#### PART TWO MORTGAGE LOANS

#### Chapter 3 Mortgage Loan Foundations: The Time Value of Money 42

Compound Interest 43 Compound or Future Value 43 Calculating Compound Interest Factors 47 Using Financial Functions: Calculators and Spreadsheets 49 Present Value 52 A Graphic Illustration of Present Value 52 Expanding the Use of Calculators for Finding Present Values 54 Compound or Future Value of an Annuity 56 Use of Compound Interest Factors for Annuities 58 Present Value of an Annuity 60 Use of the Present Value of an Annuity Factors 61 Accumulation of a Future Sum 64 Determining Yields, or Internal Rates of Return, on Investments 65 Investments with Single Receipts 65 Yields on Investment Annuities 68 Equivalent Nominal Annual Rate (ENAR): Extensions 70 Solving for Annual Yields with Partial Periods: An Extension 72

#### Chapter 4 Fixed Interest Rate Mortgage Loans 78

Determinants of Mortgage Interest Rates: A Brief Overview 79 The Real Rate of Interest: Underlying Considerations 79 Interest Rates and Inflation Expectations 80 Interest Rates and Risk 80 A Summary of Factors Important in Mortgage Loan Pricing 82 Understanding Fixed Interest Rate Mortgage (FRM) Loan Terms 82 Calculating Payments and Loan Balances-Fixed Interest Rate Loans 84 The Importance of Accrued Interest and Loan Payments 84 Loan Amortization Patterns 84 Fully Amortizing, Constant Payment Mortgage (CPM) Loans 85 Partially Amortizing, Constant Payment Mortgage (CPM) Loans 89 Zero Amortizing, or Interest-Only-Constant Payment Mortgage (CPM) Loans 90 Negative Amortizing, Constant Payment Mortgage (CPM) Loans 91 Summary and Comparisons: Fixed Interest Rate, Constant Payment Mortgage (CPM) Loans with Various Amortization Patterns 92 Determining Loan Balances 94 Finding Loan Balances-Other Amortization Patterns 95 Loan Closing Costs and Effective Borrowing Costs 96 Loan Fees and Early Repayment: Fully Amortizing Loans 99 Charging Fees to Achieve Yield, or When "Pricing" FRMs 103 Financing Loan Fees and Other Closing Costs 104 Other FRM Loan Patterns—Declining Payments and Constant Amortization Rates 104 Amortization Schedules and Callable Loans 105 "Reverse Mortgages" 106 Appendix 113 Inflation, Mortgage Pricing, and Payment Structuring 113

#### Chapter 5

# Adjustable and Floating Rate Mortgage Loans 122

The Price Level Adjusted Mortgage (PLAM) 124 PLAM: Payment Mechanics 124 ARMs and Floating Rate Loans: An Overview 126 Variations: ARM and Floating Rate Loans 129 Risk Premiums, Interest Rate Risk, and Default Risk 133 Expected Yield Relationships and Interest Rate Risk 135 More Complex Features 136 ARM Payment Mechanics 138

#### Chapter 6 Mortgages: Additional Concepts, Analysis, and Applications 148

Incremental Borrowing Cost 148 Early Repayment 150 Origination Fees 151 Incremental Borrowing Cost versus a Second Mortgage 152 Relationship between the Incremental Cost and the Loan-to-Value Ratio 153 Differences in Maturities 155 Loan Refinancing 156 Early Repayment: Loan Refinancing 157 Effective Cost of Refinancing 159 Borrowing the Refinancing Costs 159 Other Considerations 159 Early Loan Repayment: Lender Inducements 161 Market Value of a Loan 163 Effective Cost of Two or More Loans 164 Second Mortgages and Shorter Maturities 165 Effect of Below-Market Financing on Property Prices 168 Assuming a Lower Loan Balance 169 Cash Equivalency 170 Cash Equivalency: Smaller Loan Balance 171 Cash Equivalency: Concluding Comments 171 Wraparound Loans 172 Buydown Loans 174 Appendix 178 After-Tax Effective Interest Rate 178

#### PART THREE RESIDENTIAL HOUSING

#### Chapter 7 Single-Family Housing: Pricing, Investment, and Tax Considerations 183

Overview 183 Factors That Influence Housing as an Investment 184 *House Prices 184 Income and Employment 185* 

Interest Rates 185 Renting versus Owning 186 Analyzing Expected House Prices 191 Unrealized Annual Rates of Appreciation on Equity 192 Regional Economic Influences on Property Values 193 Analogy with the Law of Comparative Advantage 193 Identifying Regional Economic "Drivers" or Base Industries 193 Economic Base Analysis—Location Quotients 195 Housing Supply 196 Submarkets: Neighborhoods/Municipalities 197 Capitalization Effects: Price Premiums 197 Pricing Property in Specific Submarkets/Locations 199 Three Approaches to Estimating Value 200 The Sales Comparison Approach 200 Investing in "Distressed Properties" 207 Financial Framework for Analyzing Distressed Properties 208 Acquisition Phase 209 Holding Period Phase 212 Disposition Phase—Exit Strategies 216

#### Chapter 8 Underwriting and Financing Residential Properties 220

Underwriting Default Risk 220 Classification of Mortgage Loans 221 Conventional Mortgage Loans 222 Insured Conventional Mortgage Loans 222 FHA-Insured Mortgage Loans 224 VA-Guaranteed Mortgage Loans 225 The Underwriting Process 225 Borrower Income 226 Verification of Borrower Assets 227 Assessment of Credit History 228 Estimated Housing Expense 228 Other Obligations 228 Compensating Factors 228 The Underwriting Process Illustrated 230 Underwriting Standards-Conventional and Insured Conventional Mortgages 231 Underwriting Standards—FHA-Insured Mortgages 233 Underwriting Standards-VA-Guaranteed Mortgages 233 Underwriting and Loan Amounts—A Summary 235 The Closing Process 236 Fees and Expenses 237 Prorations, Escrow Costs, and Payments to Third Parties 237 Statutory Costs 240

Requirements under the Real Estate Settlement and Procedures Act (RESPA) 240 Settlement Costs Illustrated 242 Federal Truth-in-Lending (FTL) Requirements 243 Truth-in-Lending Sample Disclosure 244 Establishing the APR under Federal Truth-in-Lending Requirements 245 ARMs and Truth-in-Lending Disclosure 246

#### PART FOUR INCOME-PRODUCING PROPERTIES

#### Chapter 9 Income-Producing Properties: Leases, Rents, and the Market for Space 250

Property Types 251 Supply and Demand Analysis 253 Local Market Studies of Supply and Demand 255 Location and User-Tenants 256 The Business of Real Estate 258 The "Market" for Income-Producing Real Estate 259 Income Potential—Real Estate Assets 260 Vacancy 261 Underwriting Tenants 262 General Contents of Leases 262 Leases and Rental Income 266 Leases and Responsibility for Expenses (Recoveries) 266 Comparing Leases: Effective Rent 269 Other Financial Considerations 271 Developing Statements of Operating Cash Flow 273 Case Example: Office Properties 274 Rent Premiums and Discounts for Office Space 274 Pro Forma Statement of Cash Flow—Office Properties 277 Case Example: Industrial and Warehouse Properties 278 Pro Forma Statement of Cash Flow—Industrial/ Warehouse Properties 279 Case Example: Retail Properties 280 The Retail Leasing Environment 280 CAM Charges—Recoveries 282 Pro Forma Statement of Cash Flow—Retail Properties 283 Case Example: Apartment Properties 285

#### Chapter 10 Valuation of Income Properties: Appraisal and the Market for Capital 292

Valuation Fundamentals 293 Appraisal Process and Approaches to Valuation 293 Sales Comparison Approach 294 Income Approach 297 Capitalization Rates 298 Capitalization Rates—A Note of Caution 301 Discounted Cash Flow Techniques 302 Land Values: Highest and Best Use Analysis 310 Volatility in Land Prices 310 "Highest and Best Use" Analysis—Vacant Site 311 "Highest and Best Use" Analysis—Improved property 312 Mortgage-Equity Capitalization 312 Reconciliation: Sales Comparison and Income Capitalization Approaches 315 Exploring the Relationships between Changing Market Conditions, Cap Rates, and Property Values 315 A Closing Note on Cap Rates and Market Conditions 318 A Word of Caution-Simultaneous Effects of Real Market Forces and Interest Rates on Property Values 320 Leases: Valuation of a Leased Fee Estate 320 Cost Approach 321 Valuation Case Study—Oakwood Apartments 325 RealNex Solution 328 Appendix 336 RealNex Inputs and Output for Apartment Analysis 336

#### Chapter 11

#### Investment Analysis and Taxation of Income Properties 343

Motivations for Investing 344 Real Estate Market Characteristics and Investment Strategies 344 The Real Estate Cycle 345 Investment Strategies 346 Market Analysis 350 Supply of Space 352 Market Rents 354 Forecasting Supply, Demand, Market Rents, and Occupancy 355 Making Investments: Projecting Cash Flows 357 Office Building Example 357 Base Rent 358 Market Rent 358 Expense Stops 358 Net Operating Income 360 Expected Outlays for Replacements and Capital Improvements 361 Estimated Sale Price 361 Introduction to Investment Analysis 363 Internal Rate of Return (IRR) 363

Net Present Value 364 Partitioning the IRR 364 Introduction to Debt Financing 365 Measures of Investment Performance Using Ratios 366 Before-Tax Cash Flow from Sale 367 Summary of Investment Analysis Calculations 368 Taxation of Income-Producing Real Estate 369 Taxable Income from Operation of Real Estate 370 Depreciation Allowances 370 Loan Points 372 Tax Liability and After-Tax Cash Flow 372 Taxable Income from Disposal of Depreciable Real Property 373 After-Tax Investment Analysis 373 After-Tax Cash Flow from Operations 373 After-Tax Cash Flow from Sale 375 After-Tax IRR 376 Effective Tax Rate 376 A Note about Passive Losses 377 Special Exceptions to PAL Rules 378 Appendix A 382 Approaches to Metro Area Market Forecasting: 382 Appendix B 388 RealNex Office Example 388

#### Chapter 12 Financial Leverage and Financing Alternatives 395

Introduction to Financial Leverage 396 Conditions for Positive Leverage—Before Tax 398 Conditions for Positive Leverage—After Tax 400 Break-Even Interest Rate 402 Risk and Leverage 405 Underwriting Loans on Income Properties 406 Market Study and Appraisal 406 Borrower Financials 407 The Loan-to-Value Ratio 407 The Debt Coverage Ratio 407 Other Loan Terms and Mortgage Covenants 409 Alternatives to Fixed Rate Loan Structures 410 Participation Loans 411 Lender Motivations 412 Investor Motivations 412 Participation Example 412 Sale-Leaseback of the Land 416 Effective Cost of the Sale-Leaseback 418 Interest-Only Loans 419 Accrual Loans 420 Structuring the Payment for a Target Debt Coverage Ratio 421

Convertible Mortgages 423 Lender's Yield on Convertible Mortgages 423 Comparison of Financing Alternatives 425 Other Financing Alternatives 427

#### Chapter 13 Risk Analysis 431

Comparing Investment Returns 431 Types of Risk 433 Due Diligence in Real Estate Investment Risk Analysis 434 Sensitivity Analysis 437 Retail Case Study—Westgate Shopping Center 442 Westgate Shopping Center Scenario Analysis 444 Lease Rollover Risk 446 Market Leasing Assumptions with Renewal Probabilities 446 Market Rent 448 Months Vacant 448 Leasing Commissions 448 Tenant Improvements 449 Industrial Case Study-Worthington Distribution Center 449 Risk and Leverage 451 Monte Carlo Simulation 454 Example 456 Extensions of Monte Carlo Simulation 457 Participation Example 457 A "Real Options" Approach to Investment Decisions 459 Traditional Approach to Land Valuation 460 Real Option Approach to Land Valuation 460 Real Options Extensions and Strategy 461

#### Chapter 14

#### Disposition and Renovation of Income Properties 465

Disposition Decisions 466

A Decision Rule for Property Disposition 466

IRR for Holding versus Sale of the Property 467
Return to a New Investor 470

Marginal Rate of Return 472

Refinancing as an Alternative to Disposition 474

Incremental Cost of Refinancing 475
Leveraged Return from Refinancing and Holding an
Additional Five Years 476
Refinancing at a Lower Interest Rate 478

Other Disposition Considerations—Portfolio
Balancing 478
Tax-Deferral Strategies upon Disposition 479

Installment Sales 480 Tax-Deferred Exchanges 484 Renovation as an Alternative to Disposition 492 Renovation and Refinancing 494 Rehabilitation Investment Tax Credits 496 Low-Income Housing 497

#### Chapter 15 Financing Corporate Real Estate 501

Lease-versus-Own Analysis 502 Leasing versus Owning—An Example 503 Cash Flow from Leasing 503 Cash Flow from Owning 504 Cash Flow from Owning versus Leasing 504 Return from Owning versus Leasing 507 Importance of the Residual Value of Real Estate 507 The Investor's Perspective 509 A Note on Project Financing 509 Factors Affecting Own-versus-Lease Decisions 511 Impact on Lessee Financial Reporting 514 Impact of Lease on Income Statement and Balance Sheet 515 The Role of Real Estate in Corporate Restructuring 518 Sale–Leaseback 519 Refinancing 522 Investing in Real Estate for Diversification 522 Appendix 525 Real Estate Asset Pricing and Capital Budgeting Analysis: A Synthesis 525

#### PART FIVE FINANCING REAL ESTATE DEVELOPMENT

#### Chapter 16 Financing Project Development 527

Overview: The Planning and Permitting Process527The Development of Income-Producing Property528Market Risks and Project Feasibility532Project Risks533Project Development Financing—An Overview535Lender Requirements in Financing Project536Development536Interest Rates and Fees541Project Development Illustrated542Project Description and Project Costs542Market Data and Tenant Mix546Pro Forma Construction Costs and Cash FlowProjections548

Feasibility, Profitability, and Risk—Additional Issues 551 Profitability Before and After Taxes 551 Sensitivity Analysis, Risk, and Feasibility Analysis 555

#### Chapter 17 Financing Land Development Projects 561

Characterization of the Land Development Business 562 The Land Development Process—An Overview 563 Acquisition of Land—Use of the Option Contract 563 Financing and Development 567 Lender Requirements in Financing Land Development 569 Detailed Cost Breakdowns 569 General Contracts and Subcontracts 571 Residential Land Development Illustrated 572 Market Conditions and Site Plan 573 Estimating Development Cost and Interest Carry 575 Estimating Release Prices per Parcel Sold 583 Loan Request and Repayment Schedule 583 Project Feasibility and Profitability 584 Project IRR and Net Present Value 587 Entrepreneurial Profits 587 Sensitivity Analysis 588

#### PART SIX ALTERNATIVE REAL ESTATE FINANCING AND INVESTMENT VEHICLES

#### Chapter 18 Structuring Real Estate Investments: Organizational Forms and Joint Ventures 591

Sole Proprietorships 592 Partnerships 592 Limited Liability Companies 594 Corporations 595 Joint Ventures 597 Organizational Forms 597 Profit Sharing 597 Initial Capital Contributions 598 Sharing Cash Flow from Operations 598 Sharing of Cash Flow from Sale 599 Summary of Cash Flows Distributed in Each Operating Year 601 Cash Flow from Sale 602 IRR to Each Joint Venture Party 602 Variation on the Preferred IRR-"The Lookback IRR" 603 Syndications 604 Use of the Limited Partnership in Private and Public Syndicates 605 Private Syndication Problem Illustrated 606 Financial Considerations—Partnership Agreement 607 **Operating Projections** 608 Statement of Before-Tax Cash Flow (BTCF) 609 Calculation of Net Income or Loss 609 Calculation of Capital Gain from Sale 610 Capital Accounts 610 Distribution of Cash from Sale of Asset 611 Calculation of After-Tax Cash Flow and ATIRR on Equity 612 Partnership Allocations and Substantial Economic Effect 614 Capital Accounts and Gain Charge-Backs 615 Use of the Limited Partnership in Private and Public Syndicates 617 Use of Corporate General Partners 618 Private versus Public Syndicates 618 Accredited Investors—Regulation D 619 Regulation of Syndicates 623 Investment Objectives and Policies 623 Promoters' and Managers' Compensation 624 Investor Suitability Standards 625 Federal and State Securities Authorities 625 Security Token Offerings 626

#### Chapter 19 The Secondary Mortgage Market: Pass-Through Securities 633

Evolution of the Secondary Mortgage Market 634 Early Buyers of Mortgage Loans 634 The Secondary Market 635 FNMA's Changing Role 635 The Government National Mortgage Association 636 Mortgage-Backed Securities and the GNMA Payment Guarantee 636 The Federal Home Loan Mortgage Corporation 637 Operation of the Secondary Mortgage Market 638 Direct Sale Programs 638 The Development of Mortgage-Related Security Pools 639 Mortgage-Backed Bonds 639 Pricing Mortgage-Backed Bonds 641 Subsequent Prices 642 Mortgage Pass-Through Securities 644 Important Characteristics of Mortgage Pools 645

Mortgage Pass-Through Securities: A General Approach to Pricing 648 Mortgage Pass-Through Payment Mechanics Illustrated 650 Prepayment Patterns and Security Prices 653 Prepayment Assumptions 653 The Effects of Prepayment Illustrated 656

Security Prices and Expected Yields 656 Market Interest Rates and Price Behavior on Mortgage Pass-Throughs 657 A Note on MBBs and MPTs 658

#### Chapter 20

#### The Secondary Mortgage Market: CMOs, CDOs, CLOs, and Derivative Securities 660

Mortgage Pay-Through Bonds (MPTBs) 661 Collateralized Mortgage Obligations 662 CMOs Illustrated 663 CMO Mechanics 665 CMOs: Pricing and Expected Maturities 670 CMO Price Behavior and Prepayment Rates 673 CMO Tranche Variations 675 Subprime Mortgage-Backed Securities 676 Derivatives Illustrated 676 IO and PO Strips 679 Convexity 682 Residential Mortgage-Related Securities: A Summary 683 Residential Mortgage-Related Securities: Some Closing Observations 685 **Commercial Mortgage-Backed Securities** (CMBSs) 685 Rating Commercial Mortgage-Backed Securities 689 Collateralized Debt Obligations (CDOs) 691 Collateralized Loan Obligations (CLOs) 692 Mortgage-Related Securities and REMICs 694 REMICs: Other Considerations 696 Appendix 699 Duration-An Additional Consideration in Yield Measurement 699

#### Chapter 21 Real Estate Investment Trusts (REITs) 702

Legal Requirements 703 Tax Treatment 706 Violation Penalties and Status Termination 706 Taxable REIT Subsidiaries 707 Types of REITs 707 Equity REITs 708 The Investment Appeal of Equity REITs 709 Public Nonlisted REITs 711 Importance of FFO (Funds from Operations) 714 REIT Expansion and Growth 715 Important Issues in Accounting and Financial Disclosure: Equity REITs 720 Tenant Improvements and Free Rents: Effects on FFO 720 Leasing Commissions and Related Costs 721 Use of Straight-Line Rents 721 FFO and Income from Managing Other Properties 722 Types of Mortgage Debt and Other Obligations 722 Existence of Ground Leases 723 Lease Renewal Options and REIT Rent Growth 723 Occupancy Numbers: Leased Space or Occupied Space? 724 Retail REITs and Sales per Square Foot 724 Additional Costs of Being a Public Company 724 The Investment Appeal of Mortgage REITs 725 Financial Analysis of an Equity REIT Illustrated 727 Valuing REITs as Investments 730 Valuation of Midwestern America Property Trust 730

#### PART SEVEN PORTFOLIO ANALYSIS AND REAL ESTATE FUNDS

#### Chapter 22 Real Estate Investment Performance and Portfolio Considerations 736

The Four Quadrants of Real Estate Investment 737 Sources of Data Used for Real Estate Performance Measurement 738 REIT Data: Security Prices 738 Hybrid and Mortgage REITs 738 NCREIF Property and Fund Indices 739 Data Sources for Other Investments 740 Computing Holding Period Return 740 Comparing Investment Returns 743 Risk-Adjusted Returns: Basic Elements 743 Elements of Portfolio Theory 745 Calculating Portfolio Returns 746 Portfolio Risk 746 Risk and Return for Portfolios with Different Weights 750 Importance of Correlation 752 Three Asset Class Portfolios 752

Multi-Asset Portfolios 754 Systematic versus Unsystematic Risk 755 Adding REITs to the Portfolio 756 Global Diversification 757 Use of Derivatives to Hedge Portfolio Risk 757 Beta and the Capital Asset Pricing Model (CAPM) 758 Beta as a Measure of Systematic Risk 759 Calculating Beta for a Portfolio 760 Alpha 761 Sharpe Ratio 761 Downside Risk Measures 762 Downside Beta 763

#### Chapter 23

#### Real Estate Funds: Structure, Performance, Benchmarking, Risk and Attribution Analysis 767

Investor Goals and Objectives 768 General Explanation of Possible Provisions in Fund Offerings 769 Reporting Fund Performance 779 Measuring and Reporting Investment Returns 780 Summary of Major Activity during Quarter 780 Calculating Returns 782 Calculating Returns at the Property Level 785 Returns: Before and After Fees 785 Comparing Returns: Fund Level versus Property Level 786 Calculating Historical Returns 786 Time-Weighted Returns 787 Investor's Return versus Fund Return 790 Choosing IRR versus TWR for Performance Measurement 792 Target Returns and Benchmarks 793 Investment Multiple 794 Attribution Analysis 794 Attribution Analysis Mathematics 797 Interpreting Sector Allocation 798 Risk Measures 800 Fund Risk Measures 800 Jensen's Alpha 804 Risk-Adjusted Attribution Analysis 805 Debt Funds 806

#### INDEX 813