

CORPORATE FINANCE

THIRD EDITION

BERK DeMARZO

CORPORATE FINANCE

THIRD EDITION

JONATHAN BERK

STANFORD UNIVERSITY

PETER DEMARZO

STANFORD UNIVERSITY

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To Rebecca, Natasha, and Hannah, for the love and for being there —J. B.

To Kai, Pono, Koa, and Kai, for all the love and laughter —P. D.

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Cover Photo: Nikreates/Alamy

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Gillian Hall, The Aardvark Group
Composition and Artwork: Laserwords
Printer/Binder: R.R. Donnelley/Jefferson City
Cover Printer: Lehigh Phoenix
Text Font: Adobe Garamond

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Library of Congress Cataloging-in-Publication Data

Berk, Jonathan B., 1962–
Corporate finance / Jonathan Berk, Peter DeMarzo.—3rd ed.
p. cm.
Includes index.
ISBN 978-0-13-299247-3
1. Corporations—Finance. I. DeMarzo, Peter M. II. Title.
HG4026.B46 2014
658.15—dc22

10 9 8 7 6 5 4 3 2 1

PEARSON

www.pearsonhighered.com

ISBN 13: 978-0-13-299247-3

ISBN 10: 0-132-99247-7

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Bridging Theory and Practice

GLOBAL FINANCIAL CRISIS European Sovereign Debt Yields: A Puzzle

Before the EMU created the euro as a single European currency, the yields of sovereign debt issued by European countries varied widely. These variations primarily reflected differences in inflation expectations and currency risk (see Figure 6.6). However, after the monetary union was put in place at the end of 1998, the yields all essentially converged to the yield on German government bonds. Investors seemed to conclude that there was little distinction between the debt of the European countries in the union—they seemed to feel that all countries in the union were essentially exposed to the same default, inflation and currency risk and thus equally “safe.”

Presumably, investors believed that an outright default was unthinkable. They apparently believed that member

countries would be fiscally responsible and manage their debt obligations to avoid default at all costs. But as illustrated by Figure 6.6, once the 2008 financial crisis revealed the folly of this assumption, debt yields once again diverged as investors acknowledged the likelihood that some countries (particularly Portugal and Ireland) might be unable to repay their debt and would be forced to default.

In retrospect, rather than bringing fiscal responsibility, the monetary union allowed the weaker member countries to borrow at dramatically lower rates. In response, these countries reacted by increasing their borrowing—and at least in Greece’s case, borrowed to the point that default became inevitable.

Focus on the Financial Crisis and Sovereign Debt Crisis

Global Financial Crisis boxes reflect the reality of the recent financial crisis and ongoing sovereign debt crisis, noting lessons learned. 23 boxes across the book illustrate and analyze key details.

The Law of One Price as the Unifying Valuation Framework

The Law of One Price framework reflects the modern idea that the absence of arbitrage is the unifying concept of valuation. This critical insight is introduced in Chapter 3, revisited in each part opener, and integrated throughout the text—motivating all major concepts and connecting theory to practice.

Study Aids with a Practical Focus

To be successful, students need to master the core concepts and learn to identify and solve problems that today’s practitioners face.

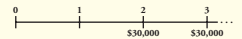
Common Mistakes boxes alert students to frequently made mistakes stemming from misunderstanding core concepts and calculations—in the classroom and in the field.

COMMON MISTAKE Discounting One Too Many Times

The perpetuity formula assumes that the first payment occurs at the end of the first period (at date 1). Sometimes perpetuities have cash flows that start later in the future. In this case, we can adapt the perpetuity formula to compute the present value, but we need to do so carefully to avoid a common mistake.

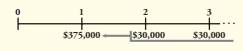
To illustrate, consider the MBA graduation party described in Example 4.7. Rather than starting immediately, suppose that the first party will be held two years from today (for the current entering class). How would this delay change the amount of the donation required?

Now the timeline looks like this:



We need to determine the present value of these cash flows, as it tells us the amount of money in the bank needed today to finance the future parties. We cannot apply the perpetuity formula directly, however, because these cash flows are not exactly a perpetuity as we defined it. Specifically, the cash flow in the first period is “missing.” But consider the situation on date 1—at that point, the first party is one period

away and then the cash flows are periodic. From the perspective of date 1, this is a perpetuity, and we can apply the formula. From the preceding calculation, we know we need \$375,000 on date 1 to have enough to start the parties on date 2. We rewrite the timeline as follows:



Our goal can now be restated more simply: How much do we need to invest today to have \$375,000 in one year? This is a simple present value calculation:

$$PV = \$375,000 / 1.08 = \$347,222 \text{ today}$$

A common mistake is to discount the \$375,000 twice because the first party is in two periods. Remember—the present value formula for the perpetuity already discounts the cash flows to one period prior to the first cash flow. Keep in mind that this common mistake may be made with perpetuities, annuities, and all of the other special cases discussed in this section. All of these formulas discount the cash flows to one period prior to the first cash flow.

Kevin M. Warsh, a lecturer at Stanford’s Graduate School of Business and a distinguished visiting fellow at the Hoover Institution, was a Federal Reserve governor from 2006 to 2011, serving as chief liaison to the financial markets.

QUESTION: What are the main policy instruments used by central banks to control the economy?

ANSWER: The Federal Reserve (Fed) deploys several policy tools to achieve its goals of price stability, maximum sustainable employment, and financial stability. Lowering the federal funds short-term interest rate, the primary policy instrument, stimulates the economy. Raising the federal funds rate generally slows the economy. Buying and selling short-term U.S. Treasury securities through open market operations is standard practice. Prior to the 2007–2009 financial crisis, the Fed’s balance sheet ranged from \$700–\$900 billion. But when the Fed was unable to lower interest rates further because rates were so close to zero already, it resorted to large-scale, longer-term open market operations to increase liquidity in the financial system in the hopes of stimulating the economy further, thus growing its balance sheet significantly. With open market operations, the Fed’s announcements of its intent to buy or sell assets indicates its desired degree of future policy accommodation, often prompting markets to react and moving interest rates immediately. The Fed’s Lender-of-

INTERVIEW WITH Kevin M. Warsh



clarity and confidence in the financial whirlwind of each other. One effective, innovative tool, the Term Auction Facility (TAF), stimulated the economy by providing cheap and readily available term funding to banks, large and small, on the front lines of the economy, thus encouraging them to extend credit to businesses and consumers. After reducing the policy rate to near zero to help revive the economy, the Fed instituted two Quantitative Easing (QE) programs—special purchases of government and agency securities—to increase money supply, promote lending, and according to some proponents, increase prices of riskier assets.

The Fed also addressed the global financial crisis by establishing temporary central bank liquidity swap lines with the European Central Bank and other major central banks. Using this facility, a foreign central bank is able to obtain dollar funding for its customers by swapping Euros for dollars or another currency and agreeing to reverse the swap at a later date. The Fed does not take exchange rate risk, but it is subject to the credit risk of its central bank counterpart.

QUESTION: What tools is the European Central Bank (ECB) using to address the sovereign debt crisis? How does its approach compare to the Fed’s approach to the 2007–2009 financial crisis?

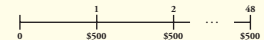
EXAMPLE 4.14 Evaluating an Annuity with Monthly Cash Flows

Problem

You are about to purchase a new car and have two options to pay for it. You can pay \$20,000 in cash immediately, or you can get a loan that requires you to pay \$500 each month for the next 48 months (four years). If the monthly interest rate you earn on your cash is 0.5%, which option should you take?

Solution

Let’s start by writing down the timeline of the loan payments:



The timeline shows that the loan is a 48-period annuity. Using the annuity formula the present value is

$$PV(\text{48-period annuity of } \$500) = \$500 \times \frac{1}{0.005} \left(1 - \frac{1}{1.005^{48}} \right) = \$21,290$$

Alternatively, we may use the annuity spreadsheet to solve the problem:

	NPER	RATE	PV	PMT	FV	Excel Formula
(Given)	48	0.50%		500	0	
Solve for PV			(21,290)			=PV(0.005,48,500,0)

Thus, taking the loan is equivalent to paying \$21,290 today, which is costlier than paying cash. You should pay cash for the car.

Worked Examples accompany every important concept using a step-by-step procedure that guides students through the solution process. Clear labels make them easy to find for help with homework and studying.

Applications that Reflect Real Practice

Corporate Finance features actual companies and leaders in the field.

Interviews with notable practitioners—seven new for this edition—highlight leaders in the field and address the effects of the financial crisis.

General Interest boxes highlight timely material from financial publications that shed light on business problems and real-company practices.

Teaching Students to Think Finance

With a consistency in presentation and an innovative set of learning aids, *Corporate Finance* simultaneously meets the needs of both future financial managers and non-financial managers. This textbook truly shows every student how to “think finance.”

Simplified Presentation of Mathematics

One of the hardest parts of learning finance is mastering the jargon, math, and non-standardized notation. *Corporate Finance* systematically uses:

Notation Boxes: Each chapter opens by defining the variables and acronyms used in the chapter as a ‘legend’ for students’ reference.

Timelines: Introduced in Chapter 4, timelines are emphasized as the important first step in solving *every* problem that involves cash flows.

Numbered and Labeled Equations: The first time a full equation is given in notation form it is numbered. Key equations are titled and revisited in the summary and in end papers.

Using Excel Boxes: Provide hands-on instruction of Excel techniques and include screenshots to serve as a guide for students.

Spreadsheet Tables: Select tables are available as Excel files, enabling students to change inputs and manipulate the underlying calculations.

USING EXCEL Excel's IRR Function

Excel also has a built-in function, IRR, that will calculate the IRR of a stream of cash flows. Excel's IRR function has the format, IRR (values, guess), where “values” is the range containing the cash flows, and “guess” is an optional starting guess where Excel begins its search for an IRR. See the example below:

	A	B	C	D	E
1	Period	0	1	2	3
2	Cash Flow C_t	(1,000.0)	300.0	400.0	500.0
3	IRR	8.9% =IRR(B2:E2)			

There are three things to note about the IRR function. First, the values given to the IRR function should include all of the cash flows of the project, including the one at date 0. In this sense, the IRR and NPV functions in Excel are inconsistent. Second, like the NPV function, the IRR ignores the period associated with any blank cells. Finally, as we will discuss in Chapter 7, in some settings the IRR function may fail to find a solution, or may give a different answer, depending on the initial guess.

TABLE 8.1
SPREADSHEET HomeNet's Incremental Earnings Forecast

	Year	0	1	2	3	4	5
Incremental Earnings Forecast (\$000s)							
1	Sales	—	26,000	26,000	26,000	26,000	—
2	Cost of Goods Sold	—	(11,000)	(11,000)	(11,000)	(11,000)	—
3	Gross Profit	—	15,000	15,000	15,000	15,000	—
4	Selling, General, and Administrative	—	(2,800)	(2,800)	(2,800)	(2,800)	—
5	Research and Development	(15,000)	—	—	—	—	—
6	Depreciation	—	(1,500)	(1,500)	(1,500)	(1,500)	(1,500)
7	EBIT	(15,000)	10,700	10,700	10,700	10,700	(1,500)
8	Income Tax at 40%	—	6,000	(4,280)	(4,280)	(4,280)	600
9	Unlevered Net Income	(9,000)	6,420	6,420	6,420	6,420	(900)

Practice Finance to Learn Finance

Working problems is the proven way to cement and demonstrate an understanding of finance.

Concept Check questions at the end of each section enable students to test their understanding and target areas in which they need further review.

End-of-chapter problems written personally by Jonathan Berk and Peter DeMarzo offer instructors the opportunity to assign first-rate materials to students for homework and practice with the confidence that the problems are consistent with chapter content. Both the problems and solutions, which were also written by the authors, have been class-tested and accuracy-checked to ensure quality.

Data Cases present in-depth scenarios in a business setting with questions designed to guide students’ analysis. Many questions involve the use of Internet resources and Excel techniques.

Data Case Few IPOs have garnered as much attention as social media giant Facebook's public offering on May 18, 2012. It was the biggest IPO in Internet history, easily topping Google's initial public offering eight years earlier. Let's take a closer look at the IPO itself, as well as the payoffs to some of Facebook's early investors.

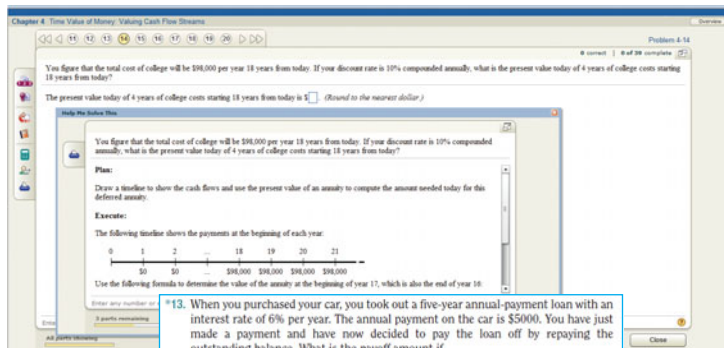
- Begin by navigating to the SEC EDGAR Web site, which provides access to company filings: <http://www.sec.gov/edgar.shtml>. Choose “Search for Company Filings” and pick search by company name. Enter “Facebook” and then search for its IPO prospectus, which was filed on the date of the IPO and is listed as filing “424B4” (this acronym derives from the rule number requiring the firm to file a prospectus, Rule 424(b)(4)). From the prospectus, calculate the following information:
 - The underwriting spread in percentage terms. How does this spread compare to a typical IPO?
 - The fraction of the offering that comprised primary shares and the fraction that comprised secondary shares.
 - The size, in number of shares, of the greenshoe provision. What percent of the deal did the greenshoe provision represent?
- Next, navigate to Google Finance and search for “Facebook.” Determine the closing price of the stock on the day of the IPO (use the “Historical prices” link). What was the first day return? How does this return compare to the typical IPO?
- Using the data provided by Google Finance, calculate the performance of Facebook in the three-month post-IPO period. That is, calculate the annualized return an investor would have received if he had invested in Facebook at the closing price on the IPO day and sold the stock three months later. What was the return for a one-year holding period?

MyFinanceLab

Because practice with homework problems is crucial to learning finance, *Corporate Finance* is available with MyFinanceLab, a fully integrated homework and tutorial system. MyFinanceLab revolutionizes homework and practice with material written and developed by Jonathan Berk and Peter DeMarzo.

Online Assessment Using End-of-Chapter Problems

The seamless integration among the textbook, assessment materials, and online resources sets a new standard in corporate finance education.

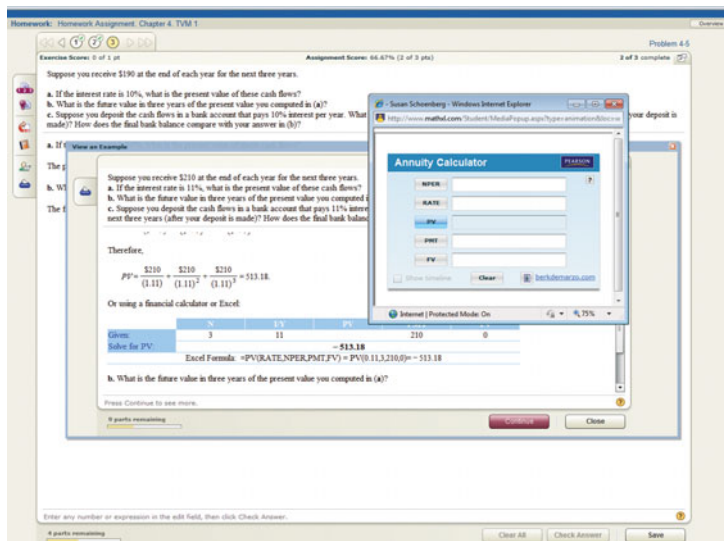


- **End-of-chapter problems**—every single one—appear online. The values in the problems are algorithmically generated, giving students many opportunities for practice and mastery. Problems can be assigned by professors and completed online by students.
- **Helpful tutorial tools**, along with the same pedagogical aids from the text, support students as they study. Links to the eText direct students right to the material they most need to review.

13. When you purchased your car, you took out a five-year annual-payment loan with an interest rate of 6% per year. The annual payment on the car is \$5000. You have just made a payment and have now decided to pay the loan off by repaying the outstanding balance. What is the payoff amount if
 - a. you have owned the car for one year (so there are four years left on the loan)?
 - b. you have owned the car for four years (so there is one year left on the loan)?
14. You figure that the total cost of college will be \$100,000 per year 18 years from today. If your discount rate is 8% compounded annually, what is the present value today of 4 years of college costs starting 18 years from today?
15. Assume that Social Security promises you \$40,000 per year starting when you retire 45 years from today (the first \$40,000 will come 45 years from now). If your discount rate is 7%, compounded annually, and you plan to live for 15 years after retiring (so that you will get a total of 16 payments including the first one), what is the value today of Social Security's promise? (See MyFinanceLab for the data in Excel Format.)

Additional Resources in MyFinanceLab

- **Video clips** profile high-profile firms such as Boeing, Cisco, Delta, and Intel through interviews and analysis. The videos focus on core topical areas, including capital budgeting, mergers and acquisitions, and risk and return.
- **Interactive animations**, which enable students to manipulate inputs, cover topics such as bonds, stock valuation, NPV, IRR, financial statement modeling, and more.
- **Finance in the News** provides weekly postings of a relevant and current article from a newspaper or journal article with discussion questions that are assignable in MyFinanceLab.
- **Live news and video feeds** from *The Financial Times* and ABC News provide real-term news updates.

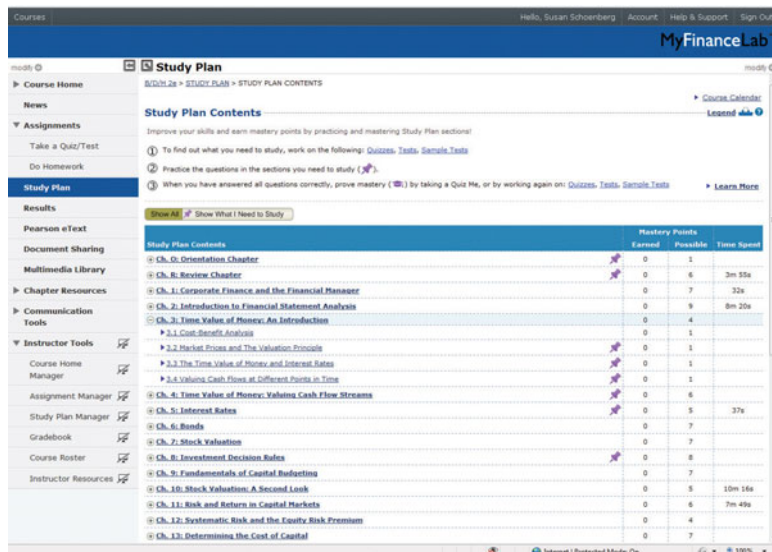


To learn more about MyFinanceLab, contact your local Pearson representative (www.pearsoneducation.com/replocator) or visit www.myfinancelab.com.

Hands-On Practice, Hands-Off Grading

Hands-On, Targeted Practice

Students can take pre-built Practice Tests for each chapter, and their test results will generate an individualized Study Plan. With the Study Plan, students learn to focus their energies on the topics they need to be successful in class, on exams, and, ultimately, in their careers.



The screenshot shows the MyFinanceLab Study Plan interface. The main content area displays a table of study plan contents. The table has columns for 'Earned', 'Possible', and 'Time Spent'. The rows list various chapters and sections, such as 'Ch. 0: Orientation Chapter', 'Ch. 1: Corporate Finance and the Financial Manager', and 'Ch. 3: Time Value of Money: An Introduction'. The 'Earned' column shows the number of points earned, 'Possible' shows the total points available, and 'Time Spent' shows the time taken to complete the section.

Study Plan Contents	Earned	Possible	Time Spent
Ch. 0: Orientation Chapter	0	1	
Ch. 0: Review Chapter	0	6	3m 35s
Ch. 1: Corporate Finance and the Financial Manager	0	7	32s
Ch. 2: Introduction to Financial Statement Analysis	0	9	8m 20s
Ch. 3: Time Value of Money: An Introduction	0	4	
3.1 Cost-Benefit Analysis	0	1	
3.2 Market Prices and The Valuation Principle	0	1	
3.3 The Time Value of Money and Interest Rates	0	1	
3.4 Valuing Cash Flows at Different Points in Time	0	1	
Ch. 4: Time Value of Money: Valuing Cash Flow Streams	0	6	
Ch. 5: Interest Rates	0	5	37s
Ch. 6: Bonds	0	7	
Ch. 7: Stock Valuation	0	7	
Ch. 8: Investment Decision Rules	0	8	
Ch. 9: Fundamentals of Capital Budgeting	0	7	
Ch. 10: Stock Valuation: A Second Look	0	5	10m 16s
Ch. 11: Risk and Return in Capital Markets	0	6	7m 49s
Ch. 12: Systematic Risk and the Equity Risk Premium	0	4	
Ch. 13: Determining the Cost of Capital	0	7	

Powerful Instructor Tools

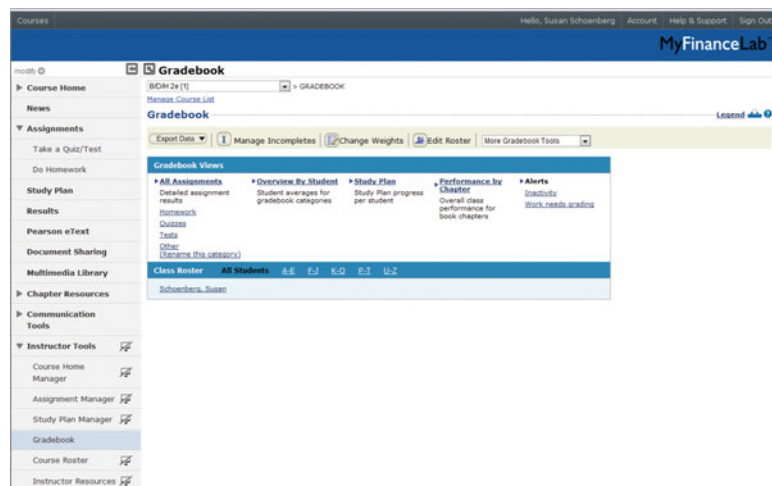
MyFinanceLab provides flexible tools that enable instructors to easily customize the online course materials to suit their needs.

■ Easy-to-Use Homework Manager.

Instructors can easily create and assign tests, quizzes, or graded homework assignments. In addition to pre-built MyFinanceLab questions, the Test Bank is also available so that instructors have ample material with which to create assignments.

■ Flexible Gradebook. MyFinanceLab saves time by automatically grading students' work and tracking results in an online Gradebook.

■ Downloadable Classroom Resources. Instructors also have access to online versions of each instructor supplement, including the Instructor's Manual, Solutions Manual, PowerPoint Lecture Notes, and Test Bank.



The screenshot shows the MyFinanceLab Gradebook interface. The main content area displays a table of assignments. The table has columns for 'All Assignments', 'Describe by Student', 'Study Plan', 'Performance by Chapter', and 'Alerts'. The rows list various assignments, such as 'Detailed assignment', 'Student averages for gradebook categories', 'Study Plan progress per student', 'Overall class performance for book chapters', and 'Work needs grading'. Below the table, there is a 'Class Roster' section with a list of students and their names.

Gradebook Views	Describe by Student	Study Plan	Performance by Chapter	Alerts		
All Assignments	Detailed assignment	Student averages for gradebook categories	Study Plan progress per student	Overall class performance for book chapters		
Results	Homework	Quizzes	Tests	Other (Examine this category)		
Class Roster	All Students	A-E	F-J	K-O	P-T	U-Z
Schoenberg, Susan						

To learn more about MyFinanceLab, contact your local Pearson representative (www.pearsoneducation.com/relocator) or visit www.myfinancelab.com.

About the Authors

Jonathan Berk is the A.P. Giannini Professor of Finance at the Graduate School of Business, Stanford University and is a Research Associate at the National Bureau of Economic Research. Before coming to Stanford, he was the Sylvan Coleman Professor of Finance at Haas School of Business at the University of California, Berkeley. Prior to earning his Ph.D., he worked as an Associate at Goldman Sachs (where his education in finance really began).

Professor Berk's research interests in finance include corporate valuation, capital structure, mutual funds, asset pricing, experimental economics, and labor economics. His work has won a number of research awards including the TIAA-CREF Paul A. Samuelson Award, the Smith Breeden Prize, Best Paper of the Year in *The Review of Financial Studies*, and the FAME Research Prize. His paper, "A Critique of Size-Related Anomalies," was selected as one of the two best papers ever published in *The Review of Financial Studies*. In recognition of his influence on the practice of finance he has received the Bernstein-Fabozzi/Jacobs Levy Award, the Graham and Dodd Award of Excellence, and the Roger F. Murray Prize.

He served as an Associate Editor of the *Journal of Finance* for eight years, is currently a Director of the American Finance Association, an Academic Director of the Financial Management Association, and is a member of the advisory board of the *Journal of Portfolio Management*.

Born in Johannesburg, South Africa, Professor Berk is married, with two daughters, and is an avid skier and biker.



Peter DeMarzo and Jonathan Berk

Peter DeMarzo is the Mizuho Financial Group Professor of Finance and Senior Associate Dean for Academic Affairs at the Stanford Graduate School of Business. He is also a Research Associate at the National Bureau of Economic Research. He currently teaches MBA and Ph.D. courses in Corporate Finance and Financial Modeling. In addition to his experience at the

Stanford Graduate School of Business, Professor DeMarzo has taught at the Haas School of Business and the Kellogg Graduate School of Management, and he was a National Fellow at the Hoover Institution.

Professor DeMarzo received the Sloan Teaching Excellence Award at Stanford in 2004 and 2006, and the Earl F. Cheit Outstanding Teaching Award at U.C. Berkeley in 1998. Professor DeMarzo has served as an Associate Editor for *The Review of Financial Studies*, *Financial Management*, and the *B.E. Journals in Economic Analysis and Policy*, as well as a Director of the American Finance Association. He has served as Vice President and President of the Western Finance Association. Professor DeMarzo's research is in the area of corporate finance, asset securitization, and contracting, as well as market structure and regulation. His recent work has examined issues of the optimal design of contracts and securities, the regulation of insider trading and broker-dealers, and the influence of information asymmetries on corporate investment. He has received numerous awards including the Western Finance Association Corporate Finance Award and the Barclays Global Investors/Michael Brennan best-paper award from *The Review of Financial Studies*.

Professor DeMarzo was born in Whitestone, New York, and is married with three boys. He and his family enjoy hiking, biking, and skiing.

Preface

WE WERE MOTIVATED TO WRITE THIS TEXTBOOK BY A CENTRAL insight: The core concepts in finance are simple and intuitive. What makes the subject challenging is that it is often difficult for a novice to distinguish between these core ideas and other intuitively appealing approaches that, if used in financial decision making, will lead to incorrect decisions. De-emphasizing the core concepts that underlie finance strips students of the essential intellectual tools they need to differentiate between good and bad decision making.

We present corporate finance as an application of a set of simple, powerful ideas. At the heart is the principal of the absence of arbitrage opportunities, or Law of One Price—*in life, you don't get something for nothing*. This simple concept is a powerful and important tool in financial decision making. By relying on it, and the other core principles in this book, financial decision makers can avoid the bad decisions brought to light by the recent financial crisis. We use the Law of One Price as a compass; it keeps financial decision makers on the right track and is the backbone of the entire book.

New to This Edition

We have updated all text discussions and figures, tables and facts to accurately reflect developments in the field in the last four years. Specific highlights include the following:

- The 2007–2009 financial crisis and European sovereign debt crisis provide a valuable pedagogical illustration of what can go wrong when practitioners ignore the core concepts that underlie financial decision making. We integrate this important lesson into the book in a series of contextual Global Financial Crisis boxes. These boxes—23 in total across the book—bring the relevance of the crises home to students by illustrating and analyzing key details about the financial crisis and sovereign debt dynamics.
- New centralized coverage of financial ratios in Chapter 2 in a specific section provides students with the tools to analyze financial statements.
- The reorganized flow of topics in Chapters 5 and 6—Chapter 6, “Valuing Bonds,” now appears after Chapter 5, “Interest Rates”—provides an immediate application of time value of money concepts.
- Seven new practitioner interviews incorporate timely perspectives from leaders in the field related to the recent financial crisis and ongoing European sovereign debt crisis.
- New Using Excel boxes provide hands-on instruction of how to use Excel to solve financial problems and include screenshots to serve as a guide for students.
- We added 45 new problems and refined many others, once again personally writing and solving each one. In addition, every single problem is available in MyFinanceLab, the groundbreaking homework and tutorial system that accompanies the book.

The Law of One Price as the Unifying Principle of Valuation

This book presents corporate finance as an application of a small set of simple core ideas. Modern finance theory and practice is grounded in the idea of the absence of arbitrage—or the Law of One Price—as the unifying concept in valuation. We introduce the Law of One Price concept as the basis for NPV and the time value of money in Chapter 3, *Financial*

Decision Making and the Law of One Price. In the opening of each part and as pertinent throughout the remaining chapters, we relate major concepts to the Law of One Price, creating a framework to ground the student reader and connect theory to practice.

Table of Contents Overview

Corporate Finance offers coverage of the major topical areas for introductory-level MBA students as well as the depth required in a reference textbook for upper-division courses. Most professors customize their classes by selecting a subset of chapters reflecting the subject matter they consider most important. We designed this book from the outset with this need for flexibility in mind. Parts 2 through 6 are the core chapters in the book. We envision that most MBA programs will cover this material—yet even within these core chapters instructors can pick and choose.

Single quarter course: Cover Chapters 3–15; if time allows, or students are previously familiar with the time value of money, add on Chapters 16–19.

Semester-long course: Incorporate options and Part 10, *Special Topics*, chapters as desired.

Single mini-semester: Assign Chapters 3–10, 14, and 15 if time allows.

Chapter	Highlights and Changes
1 The Corporation	Introduces the corporation and its governance; updated to include Dodd-Frank Act
2 Introduction to Financial Statement Analysis	Introduces key financial statements; coverage of financial ratios has been centralized to prepare students to analyze financial statements holistically
3 Financial Decision Making and the Law of One Price	Introduces the Law of One Price and net present value as the basis of the book's unifying framework
4 The Time Value of Money	Introduces the mechanics of discounting; new examples with non-annual interest rates provide time value of money applications in a personal loan context; new Using Excel boxes familiarize students with spreadsheet functionality
5 Interest Rates	Discusses key determinants of interest rates and their relation to the cost of capital; new interview with Kevin Warsh, former <i>Federal Reserve governor</i> ; new Common Mistake box on states' underfunded pensions
6 Valuing Bonds	Analyzes bond prices and yields, addresses the risk level of fixed-debt securities as illustrated by the sovereign debt crisis, overviews European debt problems, and examines whether Treasuries are risk-free securities; new interview with Carmen M. Reinhart, John F. Kennedy School of Government, Harvard University
7 Investment Decision Rules	Introduces the NPV rule as the "golden rule" against which we evaluate other investment decision rules; new appendix on using Excel Data Tables
8 Fundamentals of Capital Budgeting	Provides a clear focus on the distinction between earnings and free cash flow, and shows how to build a financial model to assess the NPV of an investment decision; new Using Excel boxes demonstrate best-practices and sensitivity analysis
9 Valuing Stocks	Provides a unifying treatment of projects within the firm and the valuation of the firm as a whole; new interview with Douglas Kehring, Oracle Corporation
10 Capital Markets and the Pricing of Risk	Establishes the intuition for understanding risk and return, explains the distinction between diversifiable and systematic risk, and introduces beta and the CAPM; new analysis of historical holding period returns for alternative asset classes
11 Optimal Portfolio Choice and the Capital Asset Pricing Model	Presents the CAPM and develops the details of mean-variance portfolio optimization; new interview with John Powers, Stanford Management Company

Chapter	Highlights and Changes
12 Estimating the Cost of Capital	Demonstrates the practical details of estimate the cost of capital for equity, debt, or a project, and introduces asset betas, and the unlevered and weighted-average cost of capital; new interview with Michael Latham, BlackRock Asset Management International Inc.
13 Investor Behavior and Capital Market Efficiency	Examines the role of behavioral finance and ties investor behavior to the topic of market efficiency and alternative models of risk and return; expanded discussion of fund manager performance
14 Capital Structure in a Perfect Market	Presents Modigliani and Miller's results and introduces the market value balance sheet; new Global Financial Crisis box, "Bank Capital Regulation and the ROE Fallacy"
15 Debt and Taxes	Analyzes the tax benefits of leverage, including the debt tax shield and the after-tax WACC
16 Financial Distress, Managerial Incentives, and Information	Examines the role of asymmetric information and introduces the debt overhang and leverage ratchet effect; new interview with John Lipsky, former First Deputy Managing Director of the International Monetary Fund (IMF)
17 Payout Policy	Considers alternative payout policies including dividends and share repurchases; analyzes the role of market imperfections in determining the firm's payout policy
18 Capital Budgeting and Valuation with Leverage	Develops in depth the three main methods for capital budgeting with leverage and market imperfections: the weighted average cost of capital (WACC) method, the adjusted present value (APV) method, and the flow-to-equity (FTE) method
19 Valuation and Financial Modeling: A Case Study	Builds a financial model for a leveraged acquisition; revised discussion of balance sheet and statement of cash flows includes stockholders' equity equation and new Using Excel box, "Auditing Your Financial Model"
20 Financial Options	Introduces the concept of a financial options, how they are used and exercised; demonstrates how corporate securities may be interpreted using options
21 Option Valuation	Develops the binomial, Black-Scholes, and risk-neutral pricing methods for option pricing; new interview with Nobel Prize winner Myron Scholes
22 Real Options	Analyzes real options using decision tree and Black-Scholes methods, and considers the optimal staging of investment; new discussion of investment options and firm risk
23 Raising Equity Capital	Overview of the stages of equity financing, from venture capital to IPO to seasoned equity offerings; new Data Case on Facebook IPO
24 Debt Financing	Overview of debt financing, including a discussion of asset-backed securities and their role in the financial crisis
25 Leasing	Introduces leasing as an alternative form of levered financing; new section on how leases can be used to mitigate debt overhang
26 Working Capital Management	Introduces the Cash Conversion Cycle and methods for managing working capital
27 Short-Term Financial Planning	Develops methods for forecasting and managing short-term cash needs
28 Mergers and Acquisitions	Considers motives and methods for mergers and acquisitions, including leveraged buyouts
29 Corporate Governance	Evaluates direct monitoring, compensation policies, and regulation as methods to manage agency conflicts within the firm; addresses impact of Dodd-Frank Act
30 Risk Management	Analyzes the methods and motives for the use of insurance, commodity futures, currency forwards and options, and interest rate swaps to hedge risk
31 International Corporate Finance	Analyzes the valuation of projects with foreign currency cash flows with integrated or segregated capital markets

A Complete Instructor and Student Support Package

MyFinanceLab

A critical component of the text, MyFinanceLab will give all students the practice and tutorial help they need to succeed. For more details, see pages xxi–xxii.

Instructor’s Resource Center

This password-protected site, accessible at www.pearsonhighered.com/irc, hosts all of the instructor resources that follow. Instructors should click on the “IRC Help Center” link for easy-to-follow instructions on getting access or may contact their sales representative for further information.

Solutions Manual

- Prepared by Jonathan Berk and Peter DeMarzo.
- Provides detailed, accuracy-verified, class-tested solutions to every chapter problem.
- See the Instructor’s Resource Center for spreadsheet solutions to select chapter problems and Data Cases.

Instructor’s Manual

- Written by Janet Payne and William Chittenden of Texas State University.
- Corresponding to each chapter, provides: chapter overview and outline correlated to the PowerPoint Lecture Notes; learning objectives; guide to fresh worked examples in the PowerPoint Lecture Notes; and listing of chapter problems with accompanying Excel spreadsheets.

Test Item File

- Revised by Janet Payne and William Chittenden of Texas State University.
- Provides a wide selection of multiple-choice, short answer, and essay questions qualified by difficulty level and skill type and correlated to chapter topics. Numerical-based problems include step-by-step solutions.
- Available as Computerized Test Bank in TestGen.

PowerPoint Lecture Presentation

- Also authored by Janet Payne and William Chittenden of Texas State University.
- Offers outlines of each chapter with graphs, tables, key terms, and concepts from each chapter.
- Worked examples provide detailed, step-by-step solutions in the same format as the boxes from the text and correlated to parallel specific textbook examples.

Study Guide

- Written by Mark Simonson, Arizona State University.
- Provides the learning tools students need to cement their understanding of key concepts, including chapter synopses, review of select concepts and terms, and 5–10 questions per chapter as a self-test.

- Worked examples with step-by-step solutions guide students through the thought process for arriving at each solution, instilling in them the essential intuition.
- Available for download at MyFinanceLab.

Videos

- Profile well-known firms such as Boeing and Intel through interview and analysis.
- Focus on core topical areas such as capital budgeting and risk and return.
- Available in MyFinanceLab.

Acknowledgments

Looking back, it is hard to believe that this book is in its third edition. We are heartened by its success and impact on the profession through shaping future practitioners. As any textbook writer will tell you, achieving this level of success requires a substantial amount of help. First and foremost we thank Donna Battista, whose leadership, talent, and market savvy are imprinted on all aspects of the project and are central to its success; Denise Clinton, a friend and a leader in fact not just in name, whose experience and knowledge are indispensable; Rebecca Ferris-Carusio, for her unparalleled expertise in managing the complex writing, reviewing, and editing processes and patience in keeping us on track—it is impossible to imagine writing the book without her; Jami Minard, for spearheading marketing efforts; Katie Rowland, for her energy and fresh perspective as our new editor; and Miguel Leonarte, for his central role on MyFinanceLab. We were blessed to be approached by the best publisher in the business and we are both truly thankful for the indispensable help provided by these and other professionals, including Emily Biberger, Dottie Dennis, Nancy Freihofer, Gillian Hall, Melissa Honig, Carol Melville, and Elissa Senra-Sargent.

Updating a textbook like ours requires a lot of painstaking work, and there are many who have provided insights and input along the way. We would especially like to call out Jared Stanfield for his important contributions and suggestions throughout. We also thank Rebecca Greenberg and Robert James for their tireless efforts to make sure this edition remained as error-free as the past editions have been. We're also appreciative of Marlene Bellamy's work conducting the lively interviews that provide a critically important perspective, and to the interviewees who graciously provided their time and insights.

Of course, this third edition text is built upon the shoulders of the first two, and we have many to thank for helping us make those early versions a reality. We remain forever grateful for Jennifer Koski's critical insights, belief in this project, and tireless effort, all of which were critical to the first edition. Many of the later, non-core chapters required specific detailed knowledge. Nigel Barradale, Reid Click, Jarrad Harford, and Marianne Plunkert ensured that this knowledge was effectively communicated. Joseph Vu and Vance P. Lesseig contributed their talents to the Concept Check questions and Data Cases, respectively.

Creating a truly error-free text is a challenge we could not have lived up to without our team of expert error checkers; we owe particular thanks to Siddharth Bellur, Robert James, Anand Goel, Ian Drummond Gow, Janet Payne, and Jared Stanfield. Thomas Gilbert and Miguel Palacios tirelessly worked examples and problems in the first edition, while providing numerous insights along the way.

A corporate finance textbook is the product of the talents and hard work of many talented colleagues. We are especially gratified with the work of those who updated the impressive array of print supplements to accompany the book: Mark Simonson, for the Study Guide; Janet Payne and William Chittenden, for the Instructor's Manual, Test Item File, and PowerPoint.

As a colleague of both of us, Mark Rubinstein inspired us with his passion to get the history of finance right by correctly attributing the important ideas to the people who first enunciated them. We have used his book, *A History of the Theory of Investments: My Annotated Bibliography*, extensively in this text and we, as well as the profession as a whole, owe him a debt of gratitude for taking the time to write it all down.

We could not have written this text if we were not once ourselves students of finance. As any student knows, the key to success is having a great teacher. In our case we are lucky to have been taught and advised by the people who helped create modern finance: Ken Arrow, Darrell Duffie, Mordecai Kurz, Stephen Ross, and Richard Roll. It was from them that we learned the importance of the core principles of finance, including the Law of One Price, on which this book is based. The learning process does not end at graduation and like most people we have had especially influential colleagues and mentors from which we learned a great deal during our careers and we would like to recognize them explicitly here: Mike Fishman, Richard Green, Vasant Naik, Art Raviv, Mark Rubinstein, Joe Williams, and Jeff Zwiebel. We continue to learn from all of our colleagues and we are grateful to all of them. Finally, we would like to thank those with whom we have taught finance classes over the years: Anat Admati, Ming Huang, Robert Korajczyk, Paul Pfleiderer, Sergio Rebelo, Richard Stanton, and Raman Uppal. Their ideas and teaching strategies have without a doubt influenced our own sense of pedagogy and found their way into this text.

Finally, and most importantly, we owe our biggest debt of gratitude to our spouses, Rebecca Schwartz and Kauai Chun DeMarzo. Little did we (or they) know how much this project would impact our lives, and without their continued love and support—and especially their patience and understanding—this text could not have been completed. We owe a special thanks to Kauai DeMarzo, for her inspiration and support at the start of this project, and for her willingness to be our in-house editor, contributor, advisor, and overall sounding-board throughout each stage of its development.

*Jonathan Berk
Peter DeMarzo*

Contributors

We are truly thankful to have had so many manuscript reviewers, class testers, and focus group participants. We list all of these contributors below, but Gordon Bodnar, James Conover, Anand Goel, James Linck, Evgeny Lyandres, Marianne Plunkert, Mark Simonson, and Andy Terry went so far beyond the call of duty that we would like to single them out.

We are very grateful for all comments—both informal and in written evaluations—from Second Edition users. We carefully weighed each reviewer suggestion as we sought to streamline the narrative to improve clarity and add relevant new material. The book has benefited enormously for this input.

Reviewers

Ashok B. Abbott, *West Virginia University*
 Michael Adams, *Jacksonville University*
 Ilan Adler, *University of California, Berkeley*
 Ibrahim Affaneh, *Indiana University of Pennsylvania*
 Kevin Ahlgrim, *Illinois State University*
 Andres Almazan, *University of Texas, Austin*
 Confidence Amadi, *Florida A&M University*
 Christopher Anderson, *University of Kansas*

Tom Arnold, *University of Richmond*
 Nigel Barradale, *Copenhagen Business School*
 Peter Basciano, *Augusta State University*
 Thomas Bates, *University of Arizona*
 Paul Bayes, *East Tennessee State University*
 Omar Benkato, *Ball State University*
 Gordon Bodnar, *Johns Hopkins University*
 Waldo Born, *Eastern Illinois University*