Sixteenth Edition

Foundations of Financial Management

Block
Hirt
Danielsen

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Education

Foundations of **Financial Management**

SIXTEENTH EDITION

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FOUNDATIONS OF FINANCIAL MANAGEMENT, SIXTEENTH EDITION
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This book is printed on acid-free paper.

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

ISBN 978-1-25-927716-0
MHID 1-25-927716-X

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Design: *Debra Kubiak*
Cover Image: *Karol Wójcik /EyeEm/Getty Images*
Typeface: *10.5/13 Times Roman*
Compositor: *SPi Global*
Printer: *R. R. Donnelley*

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Library of Congress Cataloging-in-Publication Data

Block, Stanley B., author.
Foundations of financial management / Stanley B. Block, Geoffrey A. Hirt, Bartley R. Danielsen.—Sixteenth edition.
pages cm
ISBN 978-1-259-27716-0 (alk. paper)
1. Corporations—Finance. I. Hirt, Geoffrey A., author. II. Danielsen, Bartley R., author. III. Title.
HG4026.B589 2017
658.15—dc23

2015025324

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Preface

Thirty-nine years have passed since we began writing the first edition of this text, and many things have changed during that time.

First of all, the field of finance has become much more analytical, with the emphasis on decision-oriented approaches to problems rather than the old, descriptive approach. We have increased the use of analytical approaches to financial problems in virtually every chapter of the book. But we also have stayed with our basic mission of making sure students are able to follow us in our discussions throughout the text. While the 16th edition is considerably more sophisticated than the initial edition, it is still extremely "reader friendly." As the analytical skills demanded of students have increased, so has the authors' care in presenting the material.

Using computers and calculators has become considerably more important over the last quarter century, and this is also reflected in the 16th edition where we have added Excel tables and calculator keystroke solutions within key chapters. We offer Web Exercises at the end of every chapter, URL citations throughout the text, a library of course materials for students and faculty, computerized testing software and PowerPoint® for the faculty, Connect, an online assignment and assessment solution, and LearnSmart with SmartBook, a truly innovative adaptive study tool and eBook.

Throughout the past 39 years, this text has been a leader in bringing the real world into the classroom, and this has never been more apparent than in the 16th edition. Each chapter opens with a real-world vignette and the Finance in Action boxes (found in virtually every chapter) describe real-world activities and decisions made by actual businesses. We are also up-to-date on the latest tax and financial reporting legislation.

The international world of finance has become much more important over the last 39 years, and the text has expanded its international coverage tenfold since the first edition. Where there is an international application for a financial issue, you are very likely to find it in this text.

Furthermore, the 16th edition gives substantial coverage to the recession and liquidity crisis that has engulfed the U.S. and world economies in the latter part of the 2000–2009 decade (and into the current decade). Special attention is given to the banking sector and the critical need for funding that almost all businesses face. The issue of increased regulation is also covered.

However, there is one thing that has not changed over the last 39 years—we still write the entire book and all of the problems ourselves! We believe

our devotion of time, energy, and commitment over these years is the reason for our reputation for having produced a high-quality and successful text—edition after edition.

Reinforcing Prerequisite Knowledge

Employers of business graduates report that the most successful analysts, planners, and executives are both effective and confident in their financial skills. We concur. One of the best ways to increase your facility in finance is to integrate your knowledge from prerequisite courses. Therefore, the text is designed to build on your basic knowledge from courses in accounting and economics. By applying tools learned in these courses, you can develop a conceptual and analytical understanding of financial management.

We realize, however, that for some students time has passed since you have completed your accounting courses. Therefore, we have included Chapter 2, a thorough review of accounting principles, finance terminology, and financial statements. With a working knowledge of Chapter 2, you will have a more complete understanding of the impact of business decisions on financial statements. Furthermore, as you are about to begin your career you will be much better prepared when called upon to apply financial concepts.

Content Improvements

In general, tables and figures with real-world numbers have been updated or replaced, and the discussions concerning those tables and figures have been rewritten accordingly. Additionally, we have integrated Excel examples and spreadsheet tables throughout the capital budgeting chapters (Chapters 9 through 12 and Chapter 16). The financial forecasting tables in Chapter 4 have also been updated to mirror the references and style used in Excel spreadsheets.

Chapter-by-Chapter Changes

Chapter 1 Coverage of behavioral finance has been added to the section on "Modern Issues in Finance." A discussion of the latest cases against hedge funds has been included in the discussion of insider trading.

Chapter 2 All of the tables have been updated. The discussion of how depreciation, taxes, and cash flows are linked has been clarified. A new Finance in Action box describes corporate "tax inversions" with an explanation of the tax reduction and cash flow enhancing effects that are enjoyed by companies headquartered outside the United States.

Chapter 3 The introduction has been updated with information on Colgate-Palmolive vs. Procter and Gamble. American Eagle Outfitters has been replaced with Abercrombie & Fitch in the DuPont model and in the comparison to Walmart. The Apple and IBM comparisons have been updated, and Dell Computer has been eliminated from the comparison.

Chapter 4 The financial forecasting Excel material has been updated using color-coded conventions that have become standard in many financial settings using

Excel. A new Finance in Action box has been added to describe the interaction of Tesla's marketing and financial forecasting activities. A second Finance in Action box has been written to emphasize the importance of forecasting in entrepreneurs' development of their business plans.

Chapter 5 The introductory airline example has been updated. The Finance in Action box on Japanese companies has been deleted, and the Intel Corporation Finance in Action box on leverage has been revised.

Chapter 6 The McGraw-Hill example illustrating seasonal sales and inventory has been replaced with a new example using Briggs & Stratton. Macy's has replaced Limited Brands in the comparison against Target using seasonal sales and earnings per share. Figures 6-9, 10, 11, and all of the data and discussion about yield curves, interest rates, working capital, and current ratios have been updated.

Chapter 7 Figure 7-4 and the discussion of SWIFT have been revised. A new quote from the Federal Reserve Board of Governors has been added. Table 7-1 has been updated.

Chapter 8 The discussion of General Electric's GEC (General Electric Capital) has been updated. Figures 8-1 and 8-2, as well as Table 8-1 have been revised with new data. The Finance in Action box on Internet lending with lending club's initial public offering has been updated.

Chapter 9 A new section has been added at the beginning of the financial calculator material describing how to clear the calculator and set the decimal point. The time value of money presentation has been reworked to include more integrated calculator keystrokes, and a new Finance in Action box has been added to discuss present value in relation to the payment options offered to Powerball winners. New interactive digital illustrations have been added to clarify the graphical time value of money relationships.

Chapter 10 The tables have been updated, and the calculator discussion in Appendix 10-B has been significantly enhanced.

Chapter 11 The cost of capital material has been revised to illustrate debt costs with calculator keystrokes, the Excel "rate" function, and Excel's Goal Seek tool. All of the tables have been updated.

Chapter 12 The Finance in Action box on real options has been moved to Chapter 13.

Chapter 13 All of the tables have been updated. Table 13-4, Table 13-5, and Figure 13-8 have been converted to Excel formats. A Finance in Action box discussing real options has been added to the chapter.

Chapter 14 The entire introduction to the chapter has been revised, and the chapter has been updated to reduce the emphasis on the financial crisis. The discussion of the merger (purchase) of the New York Stock Exchange (NYSE) by the Intercontinental Exchange (ICE) has been updated. Additional information on the BATS Exchange has been added. Figure 14-4 has been eliminated, and the other tables and figures have been updated. The Finance in Action box on Bernie Ebbers has been replaced with a new box on dark pools.

Chapter 15 The introduction has been updated to include the IPO by Alibaba and more emphasis on global investment banking. The chapter was heavily revised with new tables and additional discussion of each table. The Finance in Action box on Warren Buffet and Goldman Sachs has been updated.

Chapter 16 All tables and real-world examples have been updated. Material linking the time series of Walmart's leverage levels and times-interest earned ratios to changes in long-term interest rates over the last two decades has been added. Calculator keystrokes have been incorporated throughout the chapter, and IRR calculations are shown using the financial calculator. A Finance in Action box has been added discussing Alibaba's IPO and six-tranche bond offering.

Chapter 17 The introductory example of Ceradyne has been replaced with an example using Tower Jazz, including some global features with plants in Japan. Table 17-1 and the Finance in Action box on Hewlett Packard have been updated. Coverage of global depository receipts has been added to the section on ADRs. Table 17-3 has been replaced with new data and an updated discussion.

Chapter 18 The Finance in Action box on Bill Gates has been replaced with a box on Dividend Aristocrats. New Figure 18-2 and Table 18-8 have been added. Tax rate taxes have been modified for 2014, and a discussion about the impact of the Affordable Care Act on dividends for those singles making over $200,000 and those filing jointly making over $250,000 has been added.

Chapter 19 New tables and discussions have been added to cover pricing patterns for convertible bonds, characteristics of convertible bonds, successful convertible bonds and preferred stocks not yet called, and warrant prices.

Chapter 20 The introduction includes an update on Berkshire Hathaway and information on mergers in the airlines and pharmaceutical companies. A new table and discussion have been added to cover the largest acquisitions ever. Information on tax inversions and hostile merger takeover activities have also been added.

Chapter 21 International financial management tables and charts have been updated with current data, and hedging examples using forward and futures contracts have been updated. A new Finance in Action box on how Coca-Cola manages currency risk has been added.

Successful improvements from the previous editions that we have built on in the 16th edition include:

Functional Integration We have taken care to include examples that are not just applicable to finance students, but also to marketing, management, and accounting majors.

Small Business Since over two-thirds of the jobs created in the U.S. economy are from small businesses, we have continued to note when specific financial techniques are performed differently by large and small businesses.

Comprehensive International Coverage We have updated and expanded coverage on international companies and events throughout the text.

Contemporary Coverage The 16th edition continues to provide updated real-world examples, using companies easily recognizable by students to illustrate financial concepts presented in the text.

Chapter Features

Integration of Learning Objectives to Discussion Questions and Problems

The Learning Objectives (LO) presented at the beginning of each chapter serve as a quick introduction to the material students will learn and should understand fully before moving to the next chapter. Every discussion question and problem at the end of each chapter refers back to the learning objective to which it applies. This allows instructors to easily emphasize the Learning Objective(s) as they choose.

3

Financial Analysis

LEARNING OBJECTIVES

LO 3-1 Ratio analysis provides a meaningful comparison of a company to its industry.

LO 3-2 Ratios can be used to measure profitability, asset utilization, liquidity, and debt utilization.

LO 3-3 The Du Pont system of analysis identifies the true sources of return on assets and return to stockholders.

LO 3-4 Trend analysis shows company performance over time.

LO 3-5 Reported income must be further evaluated to identify sources of distortion.

DISCUSSION QUESTIONS

1. If we divide users of ratios into short-term lenders, long-term lenders, and stockholders, which ratios would each group be *most* interested in, and for what reasons? *(LO3-2)*
2. Explain how the Du Pont system of analysis breaks down return on assets. Also explain how it breaks down return on stockholders' equity. *(LO3-3)*
3. If the accounts receivable turnover ratio is decreasing, what will be happening to the average collection period? *(LO3-2)*
4. What advantage does the fixed charge coverage ratio offer over simply using times interest earned? *(LO3-2)*

Revised! Chapter Opening Vignettes

We bring in current events (such as business-to-business online ventures and competition among air carriers) as chapter openers to illustrate the material to be learned in the upcoming chapter.

If you're in the market for dental products, look no further than Colgate-Palmolive. The firm has it all: every type of toothpaste you can imagine (tartar control, cavity protection, whitening enhancement), as well as every shape and size of toothbrush. While you're getting ready for the day, also consider its soaps, shampoos, and deodorants (Speed Stick, Lady Speed Stick, etc.).

For those of you who decide to stay home and clean your apartment or dorm room, Colgate-Palmolive will provide you with Ajax, Fab, and a long list of other cleaning products.

All this is somewhat interesting, but why mention these subjects in a finance text? Well, Colgate-Palmolive has had some interesting profit numbers over the last three years. Its profit margin in 2014 was 13.5 percent, and its return on assets was 31.5 percent. While these numbers are higher than those of the average company, the 2014 number that blows analysts away is its return on stockholders' equity of 167.8 percent (the norm is

Expanded! Finance in Action Boxes

These boxed readings highlight specific topics of interest that relate to four main areas: managerial decisions, global situations, technology issues, and ethics. The inclusion of ethics is relevant given the many recent corporate scandals and the resulting governance issues. Web addresses are included in applicable boxes for easy access to more information on that topic or company.

Tesla's Sales Forecasts: Where Marketing and Finance Come Together

Finance in ACTION

Managerial

All the financial analysis in the world can prove useless if a firm does not have a meaningful sales projection. To the extent that the firm has an incorrect sales projection, an inappropriate amount of inventory will be accumulated, projections of accounts receivable and accounts payable will be wrong, and profits and cash flow will be off target. Although a corporate treasurer may understand all the variables influencing income statements, balance sheets, cash budgets, and so on, she is out of luck if the sales projection is wrong.

plunged, and projections produced by Tesla's marketing group began to look too rosy.

A Morgan Stanley auto analyst estimated that Tesla would sell 40 percent fewer cars than had previously been forecast. Although sales projections had previously been for 500,000 cars by 2020, new projections were for only 300,000. With plummeting oil prices, Tesla's stock fell over 30 percent.

Over the last two decades, the marketing profession has developed many sophisticated techniques for analyzing and projecting future sales, but it is important for financial manag-

Excel, Calculator Solutions, and Formulas

In Chapters 9, 10, and 12, the authors have included new discussions on how the examples are solved using Excel, financial calculators, and formulas. Newly formatted spreadsheet tables and screen captures detail the step-by-step method to solve the examples. The financial calculator keystrokes in the margins give instructors and students additional flexibility. The material can be presented using traditional methods without loss of clarity because the margin content supplements the prior content, which has been retained. The book and solutions manual provide Excel, calculator, and formula explanations for these very important calculations.

$$FV_A = \$1,000\left[\frac{(1+0.10)^4-1}{0.10}\right] = \$4,641$$

Because this problem involves an annuity rather than a single payment, when solving with a financial calculator, the value that we enter for the **PMT** key is −\$1,000. Now we enter a zero for the **PV** key. As we computed earlier using the future value of an annuity equation, we find that when the interest rate is 10%, the future value of a 4-year, \$1,000 annuity is \$4,641.

Excel's **FV** function can also produce the future value of an annuity stream. The **FV** function assumes that each payment is at the end of a period as shown in the previous timeline. The annuity amount is entered as the **pmt** argument. The function in cell D1 references the arguments in cells B1 to B4. The function in cell D5 uses numbers instead of cell references. In both cases, the values produced by the **FV** function are identical to the calculator solution.

FINANCIAL CALCULATOR

FV of Annuity

Enter	*Function*
4	N
10	I/Y
−1000	PMT
0	PV
Function	*Solution*
CPT	
FV	4,641.00

	A	B	C	D	E	F
1	rate	10.00%		=FV(B1,B2,B3,B4)		
2	nper	4.00		**FV**(rate, nper, pmt, [pv], [type])		
3	pmt	−1000		\$4,641.00		
4	pv	0				
5				=+FV(0.1,4,−1000,0)		
6				**FV**(rate, nper, pmt, [pv], [type])		
7				\$4,641.00		

Pulling It Together with Color

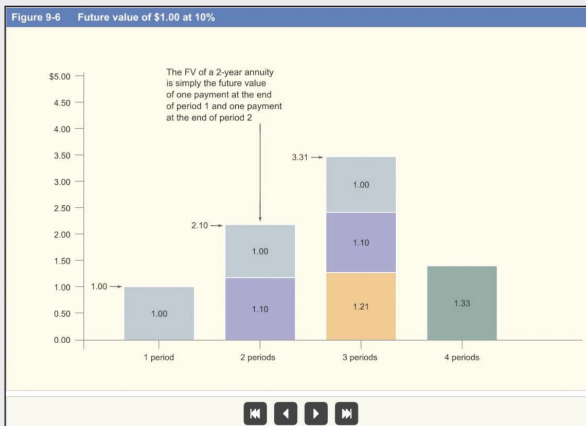
Throughout the 16th edition, the authors make color an integral part of the presentation of finance concepts. Color is applied consistently across illustrations, text, and examples in order to enhance the learning experience. We hope that the color in this edition assists your understanding and retention of the concepts discussed.

Table 5-3 Volume-cost-profit analysis: Conservative firm

Units Sold	Total Variable Costs	Fixed Costs	Total Costs	Total Revenue	Operating Income (Loss)
0	\$ 0	\$12,000	\$ 12,000	\$ 0	\$(12,000)
20,000	32,000	12,000	44,000	40,000	(4,000)
30,000	48,000	12,000	60,000	60,000	0
40,000	64,000	12,000	76,000	80,000	4,000
60,000	96,000	12,000	108,000	120,000	12,000
80,000	128,000	12,000	140,000	160,000	20,000
100,000	160,000	12,000	172,000	200,000	28,000

New! Digital Illustrations of Time Value of Money (Chapter 9)

The concept of the "time value of money" is one of the most difficult topics in any financial management course for professors to communicate to students. We think we have created a visual method for teaching future value and present value of money that will help you understand the concept simply and quickly. The 16th edition includes new interactive digital illustrations of four key figures in the text that visually relate future values and present values. We hope you agree that this visual presentation helps those students who are less comfortable with the math.



End-of-Chapter Features

Review of Formulas

At the end of every chapter that includes formulas, we provide a list for easy reviewing purposes.

REVIEW OF FORMULAS

1. K_d (cost of debt) $= Y(1 - T)$ (11-1)
   Y is yield
   T is corporate tax rate
2. K_p (cost of preferred stock) $= \frac{D_p}{P_p - F}$ (11-2)
   D_p is the annual dividend on preferred stock
   P_p is the price of preferred stock
   F is flotation, or selling, cost

Practice Problems and Solutions

Two practice problems are featured at the end of each chapter. They review concepts illustrated within the chapter and enable the student to determine whether the material has been understood prior to completion of the problem sets. Detailed solutions to the practice problems are found immediately following each problem.

PRACTICE PROBLEMS AND SOLUTIONS

1. *a.* You invest $12,000 today at 9 percent per year. How much will you have after 15 years?
   b. What is the current value of $100,000 after 10 years if the discount rate is 12 percent?
   c. You invest $2,000 a year for 20 years at 11 percent. How much will you have after 20 years?

Future value
Present value
(LO2&3)

Labeled Discussion Questions and Problems

The material in the text is supported by over 250 questions and 475 problems in this edition, to reinforce and test your understanding of each chapter. Care has been taken to make the questions and problems consistent with the chapter material, and each problem is labeled with its topic, learning objective, and level of difficulty to facilitate that link. Every problem and solution has been written by the authors, and all of the quantitative problems are assignable in Connect.

PROBLEMS

connect | FINANCE Selected problems are available with Connect. Please see the preface for more information.

Basic Problems

1. Shock Electronics sells portable heaters for $35 per unit, and the variable cost to produce them is $22. Mr. Amps estimates that the fixed costs are $97,500.
   a. Compute the break-even point in units.
   b. Fill in the table (in dollars) to illustrate the break-even point has been achieved.

Break-even analysis
(LO5-2)

Sales	______
− Fixed costs	______
− Total variable costs	______
Net profit (loss)	______

Comprehensive Problems

Several chapters have comprehensive problems that integrate and require the application of several financial concepts into one problem. Additional comprehensive problems are included in the Instructor's Manual for select chapters.

COMPREHENSIVE PROBLEM

Medical Research Corporation is expanding its research and production capacity to introduce a new line of products. Current plans call for the expenditure of $100 million on four projects of equal size ($25 million each), but different returns. Project A is in blood clotting proteins and has an expected return of 18 percent. Project B relates to a hepatitis vaccine and carries a potential return of 14 percent. Project C, dealing with a cardiovascular compound, is expected to earn 11.8 percent, and Project D, an investment in orthopedic implants, is expected to show a 10.9 percent return.

The firm has $15 million in retained earnings. After a capital structure with $15 million in retained earnings is reached (in which retained earnings represent 60 percent of the financing), all additional equity financing must come in the form of new common stock.

Medical Research Corporation
(Marginal cost of capital and investment returns)
(LO11-5)

Web Exercises

Each chapter includes at least one Web exercise to help pull more relevant real-world material into the classroom. The exercises ask students to go to a specific website of a company and make a complete analysis similar to that demonstrated in the chapter. These exercises provide a strong link between learning chapter concepts and applying them to the actual decision-making process.

WEB EXERCISE

1. IBM was mentioned in the chapter as having an uneven performance. Let's check this out. Go to its website, www.ibm.com, and follow the steps below. Under "Information for" at the bottom of the page, select "Investors." Select "Financial Snapshot" on the next page.
2. Click on "Stock Chart." How has IBM's stock been doing recently?
3. Click on "Financial Snapshot." Assuming IBM's historical price-earnings ratio is 18, how does it currently stand?
4. Assuming its annual dividend yield is 2.5 percent, how does it currently stand?

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

Simple Assignment Management

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

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

Smart Grading

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

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

Instructor Library

The *Connect* Instructor Library is your repository for additional resources to improve student engagement in and out of class. You can select and use any asset that enhances your lecture. This library contains information about the book and the authors, as well as all of the instructor supplements for this text, including:

- **Instructor's Manual** Revised by author Geoff Hirt, the manual helps instructors integrate the graphs, tables, perspectives, and problems into a lecture format. Each chapter opens with a brief overview and a review of key chapter concepts. The chapter is then outlined in an annotated format to be used as an in-class reference guide by the instructor.
- **Solutions Manual** Updated by author Bart Danielsen, the manual includes detailed solutions to all of the questions and problems, set in a larger type font to facilitate their reproduction in the classroom. Calculator, Excel, and formula solutions are included for all relevant problems.
- **Test Bank** This question bank includes over 1,500 multiple-choice and true/false questions, with revisions and updates made by Katie Landgraf, University of Hawaii. Updates to the questions correspond to the revisions in the 16th edition. Also included are short answer questions and matching quizzes. The test bank is assignable in Connect and EZ Test Online and available as Word files.
- **PowerPoint Presentations** These slides, updated by Leslie Rush, University of Hawaii, contain lecture outlines and selected exhibits from the book in a four-color, electronic format that you can customize for your own lectures.

Student Study Materials

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

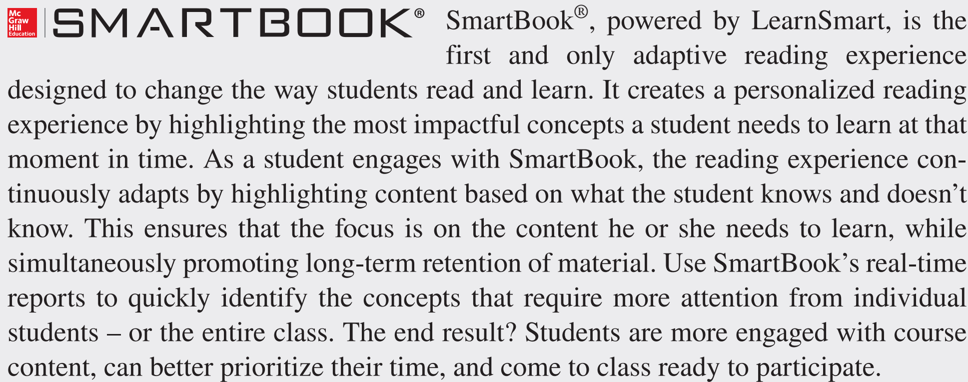
- Offers students quick access to lectures, course materials, eBooks, and more.
- Provides instant practice material and study questions, easily accessible on the go.

Diagnostic and Adaptive Learning of Concepts: LearnSmart and SmartBook

LEARNSMART®

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

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



SmartBook®, powered by LearnSmart, is the first and only adaptive reading experience designed to change the way students read and learn. It creates a personalized reading experience by highlighting the most impactful concepts a student needs to learn at that moment in time. As a student engages with SmartBook, the reading experience continuously adapts by highlighting content based on what the student knows and doesn't know. This ensures that the focus is on the content he or she needs to learn, while simultaneously promoting long-term retention of material. Use SmartBook's real-time reports to quickly identify the concepts that require more attention from individual students – or the entire class. The end result? Students are more engaged with course content, can better prioritize their time, and come to class ready to participate.

Student Progress Tracking

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

- View scored work immediately and track individual or group performance with assignment and grade reports.
- Access an instant view of student or class performance relative to learning objectives.
- Collect data and generate reports required by many accreditation organizations, such as AACSB.

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

Acknowledgments

We are extremely grateful to the following instructors for their valuable reviews on previous editions:

Alan Adams
Ahmed Al Asfour
Dwight C. Anderson
Eric Anderson
Andreas Andrikopoulos
Antonio Apap
Kavous Ardalan
John Backman
Charles Barngrover
Larry Barraza
Brian T. Belt
James Benedum
Omar Benkato
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Emily Zeitz
Terry Zivney
Linda Wiechowski
Matt Wirgau
Charles Zellerbach
Miranda Zhang

We would like to give special thanks to John Plamondon for his excellent data gathering using DePaul's Bloomberg terminals and his construction of figures and tables in many of the chapters. Marisa Evans, David Golder, Henry Stilley, Chelsea Tate, Katherine Boliek, Chase Crone, Cameron Monahan, Munroe Danielsen, and Ashley Smith have been invaluable in assisting with text, solutions, and Connect content. We would also like to thank Noelle Bathurst, senior product developer; Chuck Synovec, executive brand manager; Harvey Yep, content project manager; Melissa Caughlin, senior marketing manager; Kevin Shanahan, digital product analyst; Doug Ruby, director of digital content; Kristin Bradley, assessment project manager; Debra Kubiak, lead designer; and the entire team at McGraw-Hill for its feedback, support, and enduring commitment to excellence.

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PART ONE

Introduction

CHAPTER 1
The Goals and Activities of Financial Management

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1

The Goals and Activities of Financial Management

LEARNING OBJECTIVES

LO 1-1 The field of finance integrates concepts from economics, accounting, and a number of other areas.

LO 1-2 A firm can have many different forms of organization.

LO 1-3 The relationship of risk to return is a central focus of finance.

LO 1-4 The primary goal of financial managers is to maximize the wealth of the shareholders.

LO 1-5 Financial managers attempt to achieve wealth maximization through daily activities such as credit and inventory management and through longer-term decisions related to raising funds.

LO 1-6 The financial turmoil that roiled the markets between 2001 and 2012 resulted in more regulatory oversight of the financial markets.

3M is one of those companies that is more adept than others at creating products, marketing those products, and being financially astute. 3M is the world leader in optical films, industrial and office tapes, and nonwoven fabrics. Consumers may recognize 3M as the maker of Post-it notes, Scotch tape, and sponges, in addition to thousands of other diverse products such as overhead projectors and roofing granules. The company has always been known for its ability to create new products and markets, and, at times, as much as 35 percent of its sales have been generated from products developed in the previous five years. To accomplish these goals, 3M's research and development has to be financed, the design and production functions funded, and the products marketed and sold worldwide. This process involves all the functions of business.

Did you ever stop to think about the importance of the finance function for a $32 billion multinational company like 3M where 64 percent of sales are international? Someone has to manage the international cash flow, bank relationships, payroll, purchases of plant and equipment, and acquisition of capital. Financial decisions must be made concerning the feasibility and profitability of the continuous stream of new products developed through 3M's very creative research and development efforts. The financial manager needs to keep his or her pulse on interest rates, exchange rates, and the tone of the money and capital markets.

To have a competitive multinational company, the financial manager must manage 3M's global affairs and react quickly to changes in financial markets and exchange rate fluctuations. The board of directors and chief executive officer rely on the financial division to provide a precious resource—capital—and to manage it efficiently and profitably. If you would like to do some research on 3M, you can access its home page at www.3m.com. If you would like to understand more about how companies make financial decisions, keep reading.

The Field of Finance

The field of finance is closely related to economics and accounting, and financial managers need to understand the relationships between these fields. Economics provides a structure for decision making in such areas as risk analysis, pricing theory through supply and demand relationships, comparative return analysis, and many other important areas. Economics also provides the broad picture of the economic environment in which corporations must continually make decisions. A financial manager must understand the institutional structure of the Federal Reserve System, the commercial banking system, and the interrelationships between the various sectors of the economy. Economic variables, such as gross domestic product, industrial production, disposable income, unemployment, inflation, interest rates, and taxes (to name a few), must fit into the financial manager's decision model and be applied correctly. These terms will be presented throughout the text and integrated into the financial process.

Accounting is sometimes said to be the language of finance because it provides financial data through income statements, balance sheets, and the statement of cash flows. The financial manager must know how to interpret and use these statements in allocating the firm's financial resources to generate the best return possible in the long run. Finance links economic theory with the numbers of accounting, and all corporate managers—whether in production, sales, research, marketing, management, or long-run strategic planning—must know what it means to assess the financial performance of the firm.

Many students approaching the field of finance for the first time might wonder what career opportunities exist. For those who develop the necessary skills and training, jobs include corporate financial officer, banker, stockbroker, financial analyst, portfolio manager, investment banker, financial consultant, or personal financial planner. As we progress through the text, you will become increasingly familiar with the important role of the various participants in the financial decision-making process. A financial manager addresses such varied issues as decisions on plant location, the raising of capital, or simply how to get the highest return on *x* million dollars between 5 o'clock this afternoon and 8 o'clock tomorrow morning.

Evolution of the Field of Finance

Like any discipline, the field of finance has developed and changed over time. At the turn of the century, finance emerged as a field separate from economics when large industrial corporations in oil, steel, chemicals, and railroads were created by early industrialists such as Rockefeller, Carnegie, Du Pont, and Vanderbilt. In these early days, a student of finance would spend time learning about the financial instruments that were essential to mergers and acquisitions. By the 1930s, the country was in its worst depression ever, and financial practice revolved around such topics as the preservation of capital, maintenance of liquidity, reorganization of financially troubled corporations, and the bankruptcy process. By the mid-1950s finance moved away from its descriptive and definitional nature and became more analytical. One of the major advances was the decision-oriented process of allocating **financial capital**

(money) for the purchase of **real capital** (long-term plant and equipment). The enthusiasm for more detailed analysis spread to other decision-making areas of the firm—such as cash and inventory management, capital structure theory, and dividend policy. The emphasis also shifted from that of the outsider looking in at the firm, to that of the financial manager making tough day-to-day decisions that would affect the firm's performance.

Modern Issues in Finance

Modern financial management has focused on risk-return relationships and the maximization of return for a given level of risk. The award of the 1990 Nobel prize in economics to Professors Harry Markowitz and William Sharpe for their contributions to the financial theories of risk-return and portfolio management demonstrates the importance of these concepts. In addition, Professor Merton Miller received the Nobel prize in economics for his work in the area of **capital structure theory** (the study of the relative importance of debt and equity). These three scholars were the first professors of finance to win Nobel prizes in economics, and their work has been very influential in the field of finance over the last 50 years. Since then, others have followed.

Finance continues to become more analytical and mathematical. New financial products with a focus on hedging are being widely used by financial managers to reduce some of the risk caused by changing interest rates and foreign currency exchange rates. As a counterbalance to more quantitative analysis, the psychology of financial decision making, called behavioral finance, has become more widely taught in the classroom. Amos Tversky and Daniel Kahneman were pioneers in the psychology of cognitive bias in the handling of risk. The risk-return trade-off decision is an important concept in finance and economics. Tversky died in 1996, but Kahneman received the Nobel prize in economics in 2002 for his work with Tversky.

While increasing prices, or **inflation**, have always been a key variable in financial decisions, it was not very important from the 1930s to about 1965 when it averaged about 1 percent per year. However, after 1965 the annual rate of price increases began to accelerate and became quite significant in the 1970s when inflation reached double-digit levels during several years. Inflation remained relatively high until 1982 when the U.S. economy entered a phase of **disinflation** (a slowing down of price increases). The effects of inflation and disinflation on financial forecasting, the required rates of return for capital budgeting decisions, and the cost of capital are quite significant to financial managers and have become more important in their decision making.

Risk Management and a Review of the Financial Crisis

The impact of the financial crisis that started in 2008 lingered into 2013 and early 2014, but by the end of 2014 the U.S. economy was growing at close to 2.5 percent real GDP. This crisis resulted in government intervention to save the banking system, followed by legislation (and new regulations) to reduce banks' willingness to take on too much risk. In this brief introduction, we want to emphasize risk management issues. Risk management will have a strong focus over the next decade as the result of the financial crisis that began with the housing bubble in the early part of the new

millennium. The unwillingness to enforce risk management controls at most financial institutions allowed the extension of credit to borrowers who had high-risk profiles and, in too many cases, no chance of paying back their loans. In addition to the poor credit screening of borrowers, quantitative financial engineers created portfolios of mortgage-backed securities that included many of these risky loans. The rating agencies gave these products high credit ratings (AAA), so investors, including sophisticated institutional investors, thought the assets were safe. As the economy went into a recession and borrowers stopped making their loan payments, these mortgage-backed securities fell dramatically in value, and many financial institutions had huge losses on their balance sheets, which they were forced to write off with mark-to-market accounting standards. In some cases, the write-offs reduced bank capital to precarious levels or even below the minimum required level, forcing the banks to raise more capital.

To make matters more complicated, new unregulated products called **credit default swaps (CDS)** were created as insurance against borrowers defaulting on their loans. These credit default swaps were backed by some of the same financial institutions that lacked enough capital to support the insurance that they guaranteed. Liquidity dried up, markets stopped working, and eventually the government stepped into the breach by forcing mergers and infusing capital into the financial institutions.

By fall 2008, Bear Stearns, the fifth-largest investment bank, was forced to merge with JPMorgan Chase, a strong bank. By September 15, 2009, Lehman Brothers, the fourth-largest investment bank, declared bankruptcy, and even Merrill Lynch had to be saved by merging with Bank of America. The Federal Deposit Insurance Corporation seized Washington Mutual on September 25, and again JPMorgan Chase was called on to take over the operations of the biggest bank failure in U.S. history. As the markets continued to disintegrate, the Federal Reserve provided $540 billion to help money market funds meet their redemptions. The crisis continued into 2009, and by February Congress agreed on a $789 billion stimulus package to help keep the economy afloat. Both Chrysler (in April) and General Motors (in June) filed for bankruptcy, and by September 2009, with the help of the Federal Reserve, money and capital markets became more stable and began to function properly.

This crisis created the longest recession since the Great Depression and forced financial institutions to pay more attention to their risk controls. Money became tight and hard to find unless a borrower had a very high credit rating. Chief executives who had previously ignored the warnings of their risk management teams now gave risk managers more control over financial transactions that might cause a repeat of the calamity.

The Dodd–Frank Act

In response to the financial crisis, Congress passed the **Dodd–Frank Act**, officially known as the Wall Street Reform and Consumer Protection Act of 2010. The act purports to promote financial stability by improving accountability and transparency in the overall financial system, protecting taxpayers by improving the stability of large, diversified financial institutions, and protecting consumers from abusive practices in the financial services industry. Dodd–Frank is the first major financial regulatory change in the United State since the Great Depression.

Dodd–Frank has many different sections, and rather than listing each section by title, we provide an overview of the law and its areas of impact. The act created the Financial Stability Oversight Council and the Office of Financial Research within the Treasury Department. These offices are intended to identify systematic risks, reduce moral hazard, and maintain the stability of the U.S. financial system. The law provides for the orderly liquidation or bankruptcy of non-bank financial companies, including broker-dealers and insurance companies. It also consolidates different regulators into fewer federal entities so that it is more difficult for financial firms to pick the least burdensome regulator. Hedge funds and other investment advisors are now required to register with the Security Exchange Commission.

Dodd–Frank also established the Federal Insurance Office within the Treasury Department to oversee the insurance industry and streamline state-based insurance regulation. The act contains the controversial Volcker Rule, which limits the amount of speculative investing a regulated and federally insured depository institution can engage in. This limits large financial institutions from having proprietary, in-house hedge funds and private equity investments. Because much of the financial crisis was blamed on derivative securities, especially credit default swaps, the law requires that over-the-counter derivatives such as credit default swaps be cleared through formal exchanges and regulated either by the SEC or CFTC (Commodity Futures Trading Commission).

A large part of Dodd–Frank deals with consumer protection and the powers of the newly created Bureau of Consumer Financial Protection. The oversight given to the Bureau of Consumer Financial Protection allows it to dictate the fees that banks charge and the types of products they offer. This power in the hands of a regulator has been widely criticized in the banking community as an attack on free markets.

Several issues have arisen since the act was signed into law. While Dodd–Frank outlines several broad goals and assigns regulatory responsibility, the actual rulemaking and implementation have been largely left to the different agencies charged with enforcement. The actual agency-level rulemaking has been delayed as the different regulators attempt to design regulations that conform to the letter of the law. Further, there is a large gray area in the actual activities that are treated as distinct by Dodd–Frank. For instance, the limits on proprietary trading by federally insured financial institutions, also known as the Volcker Rule, assumes that there is a clear distinction between market-making activities and proprietary trading when this is not always the case. New laws often have unintended consequences and are amended or fine-tuned many years later. Many banks and financial institutions have complained that the Volcker Rule has reduced market liquidity to the point that some securities don't have enough buyers and sellers to create prices. The new Republican Congress of 2015 has promised to fix some of the unintended consequences, but time will tell if they are able to pass legislation removing some of the rules handcuffing financial institutions.

The Impact of Information Technology

The Internet has been around for a long time, but only in the 1990s did it start to be applied to commercial ventures as companies tried to get a return on their previous technology investments.

The rapid development of computer technology, both software and hardware, turned the Internet into a dynamic force in the economy and has affected the way business

is conducted. The rapid expansion of the Internet has allowed the creation of many new business models and companies such as Amazon.com, eBay, Facebook, Netflix, Twitter, and Google. It has also enabled the acceleration of e-commerce solutions for "old economy" companies. These e-commerce solutions include different ways to reach customers—the business to consumer model (B2C)—and more efficient ways to interact with suppliers—the business to business model (B2B).

Ralph S. Larsen, former chairman and CEO of Johnson & Johnson said in 1999, "The Internet is going to turn the way we do business upside down—and for the better. From the most straightforward administrative functions, to operations, to marketing and sales, to supply chain relationships, to finance, to research and development, to customer relationships—no part of our business will remain untouched by this technological revolution."[1] So far he has been right.

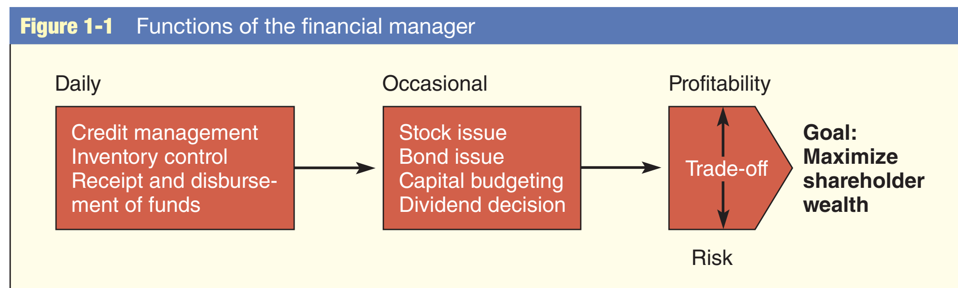
For a financial manager, e-commerce impacts financial management because it affects the pattern and speed with which cash flows through the firm. In the Internet's business to business model (B2B), orders can be placed, inventory managed, and bids to supply product can be accepted, all online. The B2B model can help companies lower the cost of managing inventory, accounts receivable, and cash. Where applicable we have included examples throughout the book to highlight the impact of e-commerce and the Internet on the finance function.

Activities of Financial Management

Having examined the field of finance and some of its more recent developments, let us turn our attention to the activities financial managers must perform. It is the responsibility of financial management to allocate funds to current and fixed assets, to obtain the best mix of financing alternatives, and to develop an appropriate dividend policy within the context of the firm's objectives. These functions are performed on a day-to-day basis as well as through infrequent use of the capital markets to acquire new funds. The daily activities of financial management include credit management, inventory control, and the receipt and disbursement of funds. Less routine functions encompass the sale of stocks and bonds and the establishment of capital budgeting and dividend plans.

As indicated in Figure 1-1, all these functions are carried out while balancing the profitability and risk components of the firm.

Figure 1-1 Functions of the financial manager



[1]Johnson & Johnson *1999 Annual Report*, p. 4.

Finance in ACTION

Managerial

The Endangered Public Company

An article in *The Economist* describes the decline of the public company in the United States. It states that the number of public companies in the United States has fallen 38 percent since 1997 and 48 percent in Britain. In addition, the number of initial public offerings (IPOs) in America declined from an average of 311 per year in the 1980–2000 period to 99 per year in the 2001–2011 period, with only 81 in 2011.

The Economist points out that Mark Zuckerberg of Facebook didn't really want to take his firm public, but because of U.S. law, his hand was forced in a sense. If a U.S. company has more than 500 shareholders, it is required to publish quarterly financial reports just as if it were a publicly listed company. So while Zuckerberg took Facebook public, he structured the company so that he kept most of the voting rights. This is not unusual with family-owned companies. The Ford family has managed to maintain control of Ford Motor Company with a 40 percent controlling vote.

The burdens of regulation have grown heavier for public companies since the collapse of Enron in 2001 and the fraud perpetrated by Bernie Ebbers at WorldCom. Corporate executives complain that it is impossible to focus on the long term when institutional investors and shareholders seem to value short-term results. The result is that privately held companies are making a comeback. Companies like ToysRUs, J. Crew, and even McGraw-Hill Education, the publisher of this text, are privately held.

Other types of business organizations have arisen. For example, one-third of America's tax reporting businesses now classify themselves as partnerships. These partnerships can come in various forms such as limited liability limited partnerships (LLLPs), publicly traded partnerships (PTPs), real estate investment trusts (REITs), and private partnerships such as those of most private equity partnerships that own whole companies that are not publicly traded.

In emerging market foreign countries, state-owned enterprises (SOEs) are quite common as these countries emerge from controlled economies to more open economies. For example, SOEs make up 80 percent of China's companies, 62 percent of Russia's companies, and 38 percent of Brazil's companies. State-owned enterprises are politically protected and often are central to a country's economy. One such example is Gazprom in Russia, the biggest natural gas company.

The question for the future is will these new forms of businesses continue to multiply while publicly held companies continue to decline, or is this just a reaction to the financial crisis and the slow growth period of 2000 to 2012.

Source: "The Endangered Public Company: The Big Engine That Couldn't," *The Economist,* May 19, 2012, pp. 27–30.

The appropriate risk-return trade-off must be determined to maximize the market value of the firm for its shareholders. The risk-return decision will influence not only the operational side of the business (capital versus labor or Product A versus Product B) but also the financing mix (stocks versus bonds versus retained earnings).

Forms of Organization

The finance function may be carried out within a number of different forms of organizations. Of primary interest are the sole proprietorship, the partnership, and the corporation.

Sole Proprietorship The **sole proprietorship** form of organization represents single-person ownership and offers the advantages of simplicity of decision making and low organizational and operating costs. Most small businesses with 1 to 10 employees are sole proprietorships. The major drawback of the sole proprietorship is that there is

unlimited liability to the owner. In settlement of the firm's debts, the owner can lose not only the capital that has been invested in the business, but also personal assets. This drawback can be serious, and you should realize that few lenders are willing to advance funds to a small business without a personal liability commitment.

The profits or losses of a sole proprietorship are taxed as though they belong to the individual owner. Thus if a sole proprietorship makes $50,000, the owner will claim the profits on his or her tax return. (In the corporate form of organization, the corporation pays a tax on profits, and then the owners of the corporation pay a tax on any distributed profits.) Approximately 72 percent of the 30 million business firms in this country are organized as sole proprietorships, and these produce approximately 4.2 percent of the total revenue and 10.0 percent of the total profits of the U.S. economy.

Partnership The second form of organization is the **partnership**, which is similar to a sole proprietorship except there are two or more owners. Multiple ownership makes it possible to raise more capital and to share ownership responsibilities. Most partnerships are formed through an agreement between the participants, known as the **articles of partnership**, which specifies the ownership interest, the methods for distributing profits, and the means for withdrawing from the partnership. For taxing purposes, partnership profits or losses are allocated directly to the partners, and there is no double taxation as there is in the corporate form.

Like the sole proprietorship, the partnership arrangement carries unlimited liability for the owners. While the partnership offers the advantage of *sharing* possible losses, it presents the problem of owners with unequal wealth having to absorb losses. If three people form a partnership with a $10,000 contribution each and the business loses $100,000, one wealthy partner may have to bear a disproportionate share of the losses if the other two partners do not have sufficient personal assets.

To circumvent this shared unlimited liability feature, a special form of partnership, called a **limited liability partnership**, can be utilized. Under this arrangement, one or more partners are designated general partners and have unlimited liability for the debts of the firm; other partners are designated limited partners and are liable only for their initial contribution. The limited partners are normally prohibited from being active in the management of the firm. You may have heard of limited partnerships in real estate syndications in which a number of limited partners are doctors, lawyers, and CPAs and there is one general partner who is a real estate professional. Not all financial institutions will extend funds to a limited partnership.

Corporation In terms of revenue and profits produced, the corporation is by far the most important type of economic unit. While only 20 percent of U.S. business firms are corporations, 83 percent of sales and 70 percent of profits can be attributed to the corporate form of organization. The **corporation** is unique—it is a legal entity unto itself. Thus the corporation may sue or be sued, engage in contracts, and acquire property. A corporation is formed through **articles of incorporation**, which specify the rights and limitations of the entity.

A corporation is owned by shareholders who enjoy the privilege of limited liability, meaning their liability exposure is generally no greater than their initial