Corporate Finance

BERK DEMARZO STANGELAND FOURTH CANADIAN EDITION

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FOURTH CANADIAN EDITION

Pearson

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Interior Designer: Anthony Leung
Cover Designer: Anthony Leung
Cover Image: Andres Garcia Martin/Shutterstock

Pearson Canada Inc., 26 Prince Andrew Place, North York, Ontario M3C 2H4.

9780134632285, 9780134843391

10 9 8 7 6 5 4 3 2 1

Library and Archives Canada Cataloguing in Publication

Berk, Jonathan B., 1962-, author
Corporate finance / Jonathan Berk, Stanford University, Peter DeMarzo, Stanford University, David Stangeland, University of Manitoba.—Fourth Canadian edition.

Includes index.
Issued in print and electronic formats.
ISBN 978-0-13-305529-0 (softcover).—ISBN 978-0-13-488819-4 (PDF)

1. Corporations—Finance—Textbooks. 2. Textbooks. I. DeMarzo, Peter M., author II. Stangeland, David, 1964-, author III. Title.

HG4026.B48 2018 658.15 C2018-900499-1
C2018-900500-9

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Dedication

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

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

To Hayden, my parents, my family and friends for all the love, support, encouragement, and motivation. — D. S.

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Preface

Approach

The first Canadian edition of this text was written just as the financial crisis of 2008–2009 was unfolding. That financial crisis, and the continuing crises that followed, reinforced the need to understand finance to ensure that good financial decisions are made. As we said in the first edition, understanding finance is important and is the purpose of this book:

In our over 50 years of combined teaching experience, we have found that leaving out core material deemed "too hard" actually makes the subject matter less accessible. 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. Therefore, our primary motivation for writing this book was to equip students with a solid grounding in the core financial concepts and tools needed to make good decisions.

There is little doubt that one of the most important contributing factors to the 2008–2009 financial crisis was that many practitioners who should have known better did not understand, or chose to ignore, the core concepts that underlie finance in general (and the pedagogy in this book in particular), leading them to make many very bad decisions.

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 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. We introduce the Law of One Price concept as the basis for net present value and the time value of money in Chapter 3, *Arbitrage and Financial Decision Making*. 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 and connect theory to practice.

Canadian Content and Context

A Canadian text should reflect Canadian realities, and show how they fit into the bigger picture. The Canadian tax system, for example, differs significantly from that of the United States regarding dividends, capital gains, capital cost allowance, leasing, and foreign subsidiary income and its taxation in the parent company. We use the relevant Canadian tax code to make the examples more realistic to students and to give them exposure to how Canadian taxation works. There are many institutional and market differences between Canada and the United States. We have incorporated information on both countries' institutions and markets and often include comparisons with other countries. We feel it is important that students understand Canada's relative position on a number of issues related to markets, the financial crisis, corporate governance, and corporate finance. To this end, we have selected Canadian examples, when appropriate, for use in the text. Many of the companies we use as examples are familiar to Canadian students—they are companies that have had interesting successes or failures. We feel that, in addition to learning corporate finance, students should have familiarity with Canadian business and its rich history.

What's New

We have updated all text discussions and figures, tables, and facts to accurately reflect developments in the field in the last three years. Given the success of the first three editions, we focused substantive changes on areas where there was clear evidence that such change would be beneficial. Specific highlights include the following:

- Chapter 1, *The Corporation*, has several enhancements including enriched discussion of stakeholder satisfaction, corporate social responsibility and how these connect to the goal of shareholder wealth maximization. Two of the four new end-of-chapter problems relate to this discussion. One of these problems sets up a hypothetical principal–agent problem that encourages unstructured and critical thinking. This question is revisited in Chapter 7, where we look at the informational effects and stock price implications as the problem unfolds. Further enhancements to this chapter include stock trading, competition, new trading venues, and the existence of dark pools. Two of our four new end-of-chapter problems address limit and market orders and the tradeoffs between the two. Some professors like to dig into the details of taxation as it relates to different business forms and investor accounts, so we added a new online appendix that addresses types of payouts of the different business forms and the type of investor account into which the payout flows. This appendix is quite detailed and reflects the latest Canada Revenue Agency rules.
- In Chapter 2, *Introduction to Financial Statement Analysis*, we reorganized the chapter extensively to improve its flow. Now all financial statement analysis appears together in a more coherent section following the introduction of the different financial statements. This allows professors who would like to concentrate on the statements the ability to do so, and it also allows the financial statement analysis to be driven by the purpose of the analysis rather than done on a statement-by-statement basis.
- In Part 2, *Tools* (Chapters 3, 4, and 5), we updated data and discussions and added new end-of-chapter problems. In Chapter 3 we added some research evidence on arbitrage and the speed of adjustment of prices. In Chapter 4, we made explicit the concept of an **annuity due** and added the term **compound annual growth rate (CAGR)**.
- The coverage of capital budgeting had two major enhancements. In Chapter 8, *Investment Decision Rules*, there is improved coverage of profitability index, not only indicating when it is useful, but also what its shortcomings can be. In Chapter 9, at the end, we tie together the discussions of expected outcomes, potential outcomes analyzed using sensitivity and scenario analysis, and actual outcomes by referencing the real-world case of BlackBerry, its BlackBerry 10 product line, and the end result of this project.
- Part 4, *Risk and Return*, has many updates including new Excel Boxes, a new Nobel Prize Box, new end-of-chapter problems and new Data Cases. We have added more discussion of the market portfolio and the problem of using a stock index as a proxy (particularly in Canada). Chapter 12 has enhanced discussion about beta estimation

and includes a new example related to this discussion. Chapter 13 has updated coverage to reflect recent developments in asset pricing and behavioural finance, and section 13.8 on methods used in practice is substantially revised.

- Part 5, *Options*, has many new end-of-chapter problems across the three chapters and Chapter 16, *Real Options*, has an improved integrative example that flows through the chapter.
- Chapter 19, *Financial Distress, Managerial Incentives, and Information*, includes new discussion on the leverage ratchet effect as an agency cost of leverage and relates this to why firms may choose to go bankrupt rather than reduce the use of leverage in their capital structure.
- In Chapter 23, *The Mechanics of Raising Equity Capital*, new material is added on angel investing and crowd funding, including references to regulatory changes in Canada and the United States.
- Chapter 31, *International Corporate Finance*, includes updated and more detailed information on Canadian tax law with respect to foreign income and contrasts the Canadian and U.S. tax laws, which differ from each other significantly.

Part-by-Part Overview

Parts 1 and 2 lay the foundation for our study of corporate finance. Chapter 1 introduces the corporation and other business forms. We examine the roles of the financial manager and financial markets, as well as conflicts surrounding ownership and control of corporations. Chapter 2 reviews basic corporate accounting principles and financial statements. It now includes a number of additional ratios and the DuPont identity.

Part 2 presents the basic tools that are the cornerstones of corporate finance. As we have already pointed out, Chapter 3 introduces the Law of One Price and net present value as the basis of the unifying framework that will guide the student through the course. A brief introduction to risk is included so students begin to understand how risk affects asset pricing. An appendix is available online for instructors who want to get into the mathematics of replicating portfolios or want to introduce primitive securities for valuing other securities. Chapter 4 introduces the time value of money and describes methods for estimating the timing of cash flows and computing the net present value of various types of cash flow patterns. An online appendix on using a financial calculator has been provided for this chapter. Chapter 5, *Interest Rates*, provides an extensive overview of issues that arise in estimating the appropriate discount rate.

Part 3 opens with bond valuation in Chapter 6 and is an excellent way to show a direct application of the time value and interest rate material from Chapters 4 and 5. The appendix to Chapter 6 introduces forward rates and theories of the term structure of interest rates. Chapter 7 includes stock valuation and material on market efficiency. It is another good application of the time value material from Chapter 4 and the market efficiency section reinforces the separation principles from Chapter 3. Chapter 8 begins the coverage on capital budgeting and we present and critique alternatives to net present value for evaluating projects. We explain the basics of valuation for capital projects in Chapter 9 and provide a clear and systematic presentation of the difference between earnings and free cash flow and give a solid introduction to Canadian tax effects from capital cost allowance (CCA).

The flexible structure of Part 4 allows professors to tailor coverage of risk and return to their needs—be it for a theory- or practice-heavy approach. Chapter 10, *Capital Markets and the Pricing of Risk*, provides the keys to understanding risk and return. The chapter also explains the distinction between diversifiable and systematic risk. After this comprehensive yet succinct treatment, professors may choose to continue to the theory coverage, now centralized in Chapter 11, *Optimal Portfolio Choice and the Capital Asset Pricing Model*, which presents the CAPM and examines the details of mean–variance portfolio optimization. Alternatively, professors can proceed directly to Chapter 12, *Estimating the Cost of Capital*, which presents a practical discussion of the cost of capital. Chapter 13 examines the role of behavioural finance and ties investor behaviour to the topic of market efficiency and alternative models of risk and return. Some professors may want to supplement the market efficiency material in Chapter 7 with sections 13.1 to 13.6.

Part 5 focuses on the role of options in investing and financing decisions. Chapter 14 introduces financial options, their payoffs and profits, and put–call parity. Chapter 15 presents commonly used techniques for pricing options. Chapter 16 highlights the role of real options in capital budgeting and features a section on ordering multi-stage investments.

Part 6 addresses how a firm should raise the funds it needs to undertake its investments and the firm's resulting capital structure. We focus on examining how the choice of capital structure affects the value of the firm in the perfect world in Chapter 17, and with frictions such as taxes and agency issues in Chapters 18 and 19. Chapter 19 features coverage of the asset substitution problem and debt overhang and relates these items to options concepts covered Chapter 14. We focus on payout policy in Chapter 20.

In Part 7, we return to the capital budgeting decision with the complexities of the real world. Chapter 21 introduces 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. We present these traditionally difficult but important ideas by emphasizing the underlying assumptions and core principles behind them, moving through progressively more complex ideas. This organization allows professors to delve as deeply into these techniques as is appropriate for their needs. Chapter 22 presents a capstone case for the first six parts of the book that applies the techniques developed up to this point to build a valuation model for a firm, Ideko Corp., using Excel.

In Part 8, we explain the institutional details associated with alternative long-term financing sources. Chapter 23 describes the process a company goes through when it raises equity capital. In Chapter 24, we review how firms can use the debt markets to raise capital and the role of asset-backed securities, collateralized debt obligations, and mortgage-backed securities in the financial crisis of 2008–2009. Chapter 25 introduces leasing as an alternative and in the lease analysis treats the CCA tax shields in a manner consistent with their presentation in Chapter 9.

In Part 9, we turn to the details of running the financial side of a corporation on a day-to-day basis. In Chapter 26, we discuss how firms manage their working capital. In Chapter 27, we explain how firms manage their short-term cash needs.

Part 10 addresses special topics. Chapter 28 discusses mergers and acquisitions, and Chapter 29 provides an overview of corporate governance. In Chapter 30, we consider corporations' use of insurance and financial derivatives to manage risk. We compare and contrast the different risk management techniques and present several new examples on practical risk management. Chapter 31 introduces the issues a firm faces when making a foreign investment and addresses the valuation of foreign projects and the tax effects on the Canadian parent company.

Customize Your Approach

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-level 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 what they wish to cover. Some possible approaches include:

- Single-quarter course: Cover Chapters 1 and 3–12. If time allows, or if students are previously familiar with the time value of money, add Chapters 17–19.
- Semester-long course: Incorporate chapters from Part 5, *Options*, and Part 10, *Special Topics*, as desired.
- Single mini-semester: Assign Chapters 1, 3–10, 17, and 18 if time allows.

Features

Teaching Students to Think Finance

With consistent presentation and an innovative set of learning aids, *Corporate Finance,* Fourth Canadian Edition, simultaneously meets the needs of future managers in both financial and non-financial roles. This textbook truly shows every student how to "think finance."

Bridging Theory and Practice

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.

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

- **Worked Examples** accompany every important concept using a step-by-step procedure that illustrates both the Problem and its Solution. Clear labels make them easy to find for help with homework or studying.
- **Common Mistake boxes** alert students to frequently made mistakes stemming from misunderstanding core concepts and calculations, as well as mistakes made in practice.
- **Financial Crisis boxes** reflect the reality of recent financial crises and the ongoing sovereign debt crisis, noting lessons learned.

Applications That Reflect Real Practice

Corporate Finance, Fourth Canadian Edition, features actual companies and leaders in the field.

- **Interviews** with notable practitioners 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.

Simplified Presentation of Mathematics

One of the hardest parts of learning finance is mastering the jargon, math, and nonstandardized notation. *Corporate Finance,* Fourth Canadian Edition, systematically uses:

- **Notation Boxes:** Each chapter begins with a Notation box that defines the variables and the acronyms used in the chapter and serves as 'legend' for students' reference.
- **Numbered and Labelled 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:** When appropriate, hands-on instruction for Excel techniques are provided, including screenshots to help guide students.
- **Spreadsheet Tables:** Select tables are available on Pearson MyLab Finance as Excel files, enabling students to change inputs and manipulate the underlying calculations.

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, Peter DeMarzo, and David Stangeland** offer instructors the opportunity to assign first-rate materials to students for homework and practice with the confidence that the problems are consistent with the chapter content. Both the problems and solutions, which were also written by the authors, have been class-tested and accuracy checked to ensure quality. Selected end-of-chapter problems are also accompanied by Excel spreadsheets with different icons indicating what the spreadsheets are for, and where they can be found:

Indicates that the problem is accompanied by an Excel Solution, which is found in the Instructor's Solutions Manual.

PROJECT

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Acknowledgements

Now that we have explained what is in this book, we can turn to thanking the people that made it happen. As any textbook writer will tell you, you cannot write a textbook of this scope without a substantial amount of help. First and foremost, we thank Anne Williams, Vice President of Editorial, Higher Education at Pearson Canada, whose vision of a high-quality corporate finance text for the Canadian market continues to inspire our writing. Keara Emmett and Emily Dill's knowledge, experience, leadership, and patience kept the various aspects of the project moving along smoothly. Toni Chahley needs special thanks for her hard work, encouragement, and understanding in her role as senior developmental editor—she is a true pleasure to work with. Her focus on getting the chapters written and moved through the developmental process was amazing. We also thank Kim Blakey, as project manager, and Suzanne Simpson Millar as production editor who managed the production stages of the book with skill. Laura Neves provided excellent copy editing, and we thank her for making the chapters more readable and grammatical. Therese Trainor, the technical checker, also gets our thanks for her keen eye to detail and the ability to catch and correct any error before the final printing. We are also thankful to Nicole Mellow for her skillful oversight of the Pearson MyLab Finance project—a formidable undertaking in its own right. Of course, we also thank Leigh-Anne Graham and Spencer Snell for leading the successful marketing of the text in the Canadian market. Finally, we would like to thank our MyLab Finance content developmental author, Therese Trainor.

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 are 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 fourth edition text is built upon the shoulders of the first three, 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.

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. Inspiration is one thing; actually undertaking the task is another. His book, *A History of the Theory of Investments: My Annotated Bibliography*, was indispensable—it provided the only available reference of the history of finance. As will be obvious to any reader, we have used it 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. The passing of Rick last year was a loss we will feel forever. 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, Dirk Jenter, 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.

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Contributors

The original U.S. editions of this text involved the contributions of over 200 manuscript reviewers, class testers, and focus group participants. We strived to incorporate every contributor's input and are truly grateful for the time each individual took to provide comments and suggestions. Their work helped to prepare the strong foundation on which the Canadian editions are built.

We also owe a great debt of thanks to the discerning and conscientious reviewers of the manuscript, whose names are listed below.

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Lobna Bouslimi, *Concordia University*
Tom Cottrell, *University of Calgary*
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David Stangeland

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Dr. Stangeland served on the National Board of Directors of CMA Canada and he chaired CMA Canada's Pension Committee. He was a member of the Board of Trustees for the University of Manitoba Pension Plans and is a member of the Pension Committees for the University of Manitoba. He is a member of the Investment Committees for the University of Manitoba Pension Plans and for the Teachers Retirement Allowance Fund. He also served on the Independent Review Committees for two mutual fund companies. Professor Stangeland is a two-time recipient of the CMA Canada Academic Merit Award for Teaching and Research, a four-time winner of the University of Manitoba Teaching Services Award, and a recipient of the Associates Award for Research.

Professor Stangeland was born and raised in Edmonton, Alberta, where he learned to appreciate the outdoors including running, cycling, hiking, and skiing and, in the winter, travelling to warmer climates. His current destination of choice is Puerto Vallarta where he enjoys spending time at his condo there.

PART 1

Introduction

CHAPTER 1

The Corporation

CHAPTER 2

Introduction to Financial Statement Analysis

WHY STUDY CORPORATE FINANCE? No matter what your role in a corporation, an understanding of why and how financial decisions are made is essential. The focus of this book is how to make optimal corporate financial decisions. In this part of the book we lay the foundation for our study of corporate finance. We begin, in Chapter 1, by introducing the corporation and related business forms.

We then examine the role of financial managers and outside investors in decision making for the firm. To make optimal decisions, a decision maker needs information. As a result, in Chapter 2 we review an important source of information for corporate decision making—the firm's accounting statements.

CHAPTER

1

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The Corporation

Corporations have existed in Canada since before Canada was a nation. One of the oldest and most recognized corporations in Canada is the Hudson's Bay Company (HBC). HBC was given its charter in 1670 and still continues in operation today. In 1970, the head office of HBC moved from London, England, to Winnipeg; it now resides in Toronto. Ownership and control of the HBC has changed over the years too; originally it was domiciled in England, then in Canada, and currently is in the United States.

Corporations are arguably the most important business organizations in Canada and around the world because of their dominance in terms of products produced, revenues and profits generated, and people employed. The corporate form is not static, though; it evolves over time. The financial and broader economic crisis that began in 2007 transformed the financial landscape and brought down multinationals such as AIG and multiple banks around the world. As governments seek to prevent a similar crisis in the future, new regulations will shape corporations and the environments in which they operate. There has never been a more exciting time to study corporate finance.

This book is about how corporations make financial decisions. Canadian corporate law has evolved from British Common Law and brought in aspects of U.S. corporate law. The purpose of this chapter is to introduce the corporation, as well as explain alternative business organizational forms common in Canada. A key factor in the success of corporations is the ability to easily trade ownership shares, and so we will also explain the role of stock markets in facilitating trading among investors in a corporation and the implications this has for the ownership and control of corporations.

1.1 The Three Types of Firms

We begin our study of corporate finance by introducing the three major types of firms: sole proprietorships, partnerships, and corporations. We explain each organizational form in turn, but our primary focus is on the most important form—the corporation. In addition to describing what a corporation is, we also provide an overview of why corporations are so successful.

Sole Proprietorships

A **sole proprietorship** is a business owned and run by one person. Sole proprietorships are usually very small with few, if any, employees. Although they are the most common type of business unit in the economy, sole proprietorships are relatively small in terms of revenues and profits produced and people employed. Sole proprietorships share the following key characteristics:

1. Sole proprietorships are straightforward to set up. Because of this advantage, many new businesses use this organizational form.
2. The principal limitation of a sole proprietorship is that there is no separation between the firm and the owner; the firm can have only one owner and business income is taxed at the personal level. If there are other investors, they cannot hold an ownership stake in the firm; this limits the ability of the owner to raise money for the business.
3. The owner of a sole proprietorship has unlimited personal liability for any of the firm's debts. That is, if the firm defaults on any debt payment, the lender can (and will) require the owner to repay the loan from personal assets. An owner who cannot afford to repay the loan must declare personal bankruptcy.
4. The life of a sole proprietorship is limited to the life of the owner. It is also difficult to transfer ownership of a sole proprietorship.

For most businesses, the disadvantages of a sole proprietorship outweigh the advantages. As soon as the firm reaches the point at which it can borrow without the owner agreeing to be personally liable, the owner typically converts the business into a form that limits the owner's liability.

Partnerships

A **partnership** is similar to a sole proprietorship but it has more than one owner. Key features of a partnership are as follows:

1. Income is taxed at the personal level. The income is split among partners according to their ownership in the partnership.
2. *All* partners have unlimited personal liability. This applies to the firm's debt. That is, a lender can require *any* partner to repay *all* the firm's outstanding debts. Similarly, the unlimited liability applies in a legal judgment against the partnership; each partner is fully liable. Thus, partners must be chosen carefully, as any single partner's actions can affect the exposure of all the partners.
3. The partnership ends on the death or withdrawal of any single partner. However, partners can avoid liquidation if the partnership agreement provides for alternatives such as a buyout of a deceased or withdrawn partner.

Some old and established businesses remain partnerships or sole proprietorships. Often these firms are the types of businesses in which the owners' personal reputations are the basis for the businesses. For example, law firms and accounting firms are often organized as partnerships. For such enterprises, the partners' personal liability increases the confidence of the firm's clients that the partners will strive to maintain their reputation.

A **limited partnership** is a partnership with two kinds of owners, general partners and limited partners. There must be at least one general partner. General partners have the same rights and privileges as partners in a (general) partnership—they are personally liable for the firm's debt obligations. Limited partners, however, have **limited liability**—that is, their liability is limited to their investment. Their private property cannot be seized to pay off the firm's outstanding debts. Furthermore, the death or withdrawal of a limited partner does not dissolve the partnership, and a limited partner's interest is transferable. However, a limited partner has no management authority and cannot legally be involved in the managerial decision making for the business.

Private equity funds and venture capital funds are two examples of industries dominated by limited partnerships. In these firms, a few general partners contribute some of their own capital and raise additional capital from outside investors who are limited partners. The general partners control how all the capital is invested. Most often they will actively participate in running the businesses in which they choose to invest. The outside investors play no active role in running the partnership; their concern is with how their investments are performing.

In Canada a special type of partnership called a **limited liability partnership (LLP)** can be used in the legal and accounting professions. The LLP is similar to a general partnership in that the partners can be active in the management of the firm and they do have a degree of unlimited liability. The limitation on a partner's liability takes effect only in cases related to actions of negligence of other partners or those supervised by other partners. In all other respects, including a particular partner's own negligence or the negligence of those supervised by the particular partner, that partner has unlimited personal liability. In addition, the assets of the business are potentially at risk of seizure due to the actions of anyone within the partnership. Thus, while a partner's personal assets are protected from the negligent actions of other partners, the investment into the overall partnership may be lost.

Corporations

The distinguishing feature of a **corporation** is that it is a legally defined, artificial being (a judicial person or legal entity), separate from its owners. As such, it has many of the legal powers that people have. It can enter into contracts, acquire assets, incur obligations, and it receives similar protection against the seizure of its property as received by an individual. Because a corporation is a legal entity separate and distinct from its owners, it is solely responsible for its own obligations. Consequently, the owners of a corporation (its **shareholders**) have limited liability; they are not liable for any obligations the corporation enters into. Similarly, the corporation is not liable for any personal obligations of its owners.

Formation of a Corporation. In most provinces corporations are defined under the provincial Business Corporations Act or the Canada Business Corporations Act. Corporations must be legally formed, which means that the **articles of incorporation** must be filed with the relevant registrar of corporations. The articles of incorporation, sometimes referred to as the corporate charter, are like a corporate constitution that sets out the terms of the corporation's ownership and existence. Setting up a corporation is therefore considerably more costly than setting up a sole proprietorship. Most firms hire lawyers to create the formal articles of incorporation and a set of bylaws.

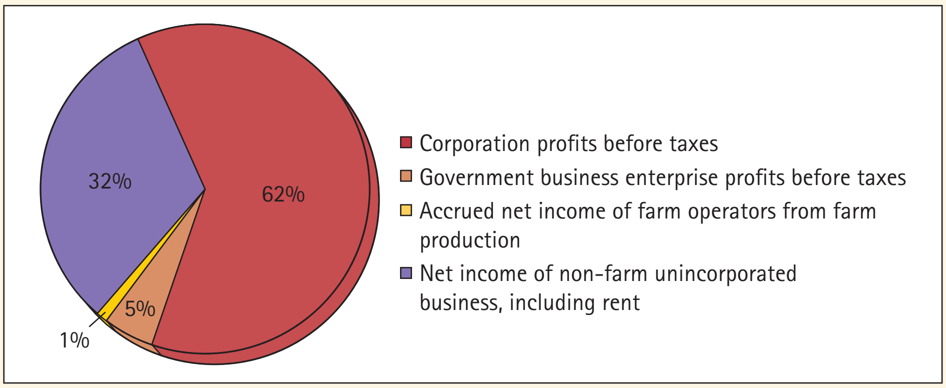
Ownership of a Corporation. There is no limit on the number of owners a corporation can have. Because most corporations have many owners, each owner owns only a fraction of the corporation. The entire ownership stake of a corporation is divided into shares known as **stock**. The collection of all the outstanding shares of a corporation is known as the **equity** of the corporation. An owner of a share of stock in the corporation is known as a shareholder, **stockholder**, or **equity holder** and is entitled to **dividend payments**; that is, payments made at the discretion of the corporation's Board of Directors to the equity holders. Shareholders usually receive voting rights and dividend rights that are proportional to the amount of stock they own. For example, a shareholder who owns 30% of the firm's shares will be entitled to 30% of the votes at an annual meeting and 30% of the total dividend payment. In Canada, many corporations have a dominant shareholder (controlling in excess of 25% of the equity); in the United States, more corporations are considered widely held (with the largest shareholder holding less than 5% of the equity). About 19% of Canadian corporations listed on the Toronto Stock Exchange (TSX) have multiple classes of stock such that some classes may have more voting rights than others, even though they have the same rights to dividends.

A unique feature of a corporation is that there is no limitation on who can own its stock. That is, an owner of a corporation need not have any special expertise or qualification. This feature allows free trade in the shares of the corporation and provides one of the most important advantages of organizing a firm as a corporation rather than a sole proprietorship or partnership. Corporations can raise substantial amounts of capital because they can sell ownership shares to anonymous outside investors.

The availability of outside funding has enabled corporations to dominate the economy compared to other enterprises (see Figure 1.1). Let's take the world's largest corporation ranked by sales in the 2016 *Fortune Global 500* survey, Walmart (Wal-Mart Stores, Inc.), headquartered in Bentonville, Arkansas. For the fiscal year ended January 31, 2016, Walmart's annual report indicated revenue was about $482 billion. The total value of the company (the wealth in the company the owners collectively owned) was over $210 billion.

FIGURE 1.1

Sources of Profit Generation in Canada for 2011



Although there are many more unincorporated businesses in Canada than there are corporations, non-corporate private enterprises (including all proprietorships and partnerships) account for only 33% of profit generation whereas corporations account for 62% of profit generation in the Canadian economy. The remaining 5% of profit generation is from government business enterprises including crown corporations.

Source: Statistics Canada, CANSIM Table 3800016. Adapted from Statistics Canada.

Note: After 2011, data for statistics in this figure were no longer collected. This does not constitute an endorsement by Statistics Canada of this product.

It employed about 2.3 million people. Let's put these numbers into perspective. According to the World Bank, a country with $482 billion gross domestic product (GDP) in 2015 would rank just behind Sweden as the 23rd richest country (out of more than 200).[1] Sweden has about 9.8 million people, more than 4 times as many people as employees at Walmart.[2] Indeed, if the number of employees were used as the "population" of Walmart, it would rank as the 142nd largest country, just behind Namibia, which had a GDP of about $11.5 billion in 2015.

Tax Implications for Corporate Entities

An important difference between the types of organizational forms is the way they are taxed. Because a corporation is a separate legal entity, a corporation's profits are subject to taxation separate from its owners' tax obligations. In effect, shareholders of a corporation pay taxes twice. First, the corporation pays tax on its profits, and then when the remaining profits are distributed to the shareholders, the shareholders pay their own personal income tax on this income. This system is sometimes referred to as *double taxation*.

EXAMPLE 1.1

Taxation of Corporate Earnings

Problem

You are a shareholder in a corporation. Some of your shares are held inside your tax-free savings account (TFSA) so any earnings there are not taxed; any income from shares held outside your TFSA is taxable. The corporation earns $5 per share before taxes. After it has paid taxes, it will distribute the rest of its earnings to you as a dividend. The corporate tax rate is 25% and your tax rate on dividend income outside your TFSA is 26%.[3] How much of the earnings remains after all taxes are paid (calculate this twice—for the shares in the TFSA and for the shares outside of the TFSA)?

Solution

First, the corporation pays taxes. It earned $5 per share, but must pay $0.25 \times \$5 = \$1.25$ per share to the government in corporate taxes. That leaves $3.75 to distribute. However, for the shares outside your TFSA you must pay $0.26 \times \$3.75 = 97.5$ cents in income taxes, leaving $\$3.75 - \$0.975 = \$2.775$ per share after all taxes are paid. As a shareholder owning shares outside your TFSA, you end up with only $2.775 of the original $5 in earnings; the remaining $\$1.25 + \$0.975 = \$2.225$ is paid as taxes. Thus, your total effective tax rate on the corporation's earnings is $2.225 / 5 = 44.5\%$ if your shares are held outside your TFSA. The shares you hold within your TFSA are not subject to taxes on the dividends paid; thus, there is only the corporate tax of 25% and your TFSA keeps the full $3.75 dividend.

1. World Bank, "Gross Domestic Product 2015," *World Development Indicators database,* last modified April 28, 2017, http://databank.worldbank.org/data/download/GDP.pdf.

2. World Bank, "Population 2015," *World Development Indicators database,* last modified April 28, 2017, http://databank.worldbank.org/data/download/POP.pdf.

3. Your tax on dividend income from a Canadian corporation is determined by Canada Revenue Agency's requirement to gross up the dividend amount by 38%, apply your tax rate to the grossed up amount, and then receive a dividend tax credit of about 25% (depending on the province of the taxpayer) of the actual dividend. For taxpayers in the highest tax bracket in the 2016 tax year, this resulted in combined federal and provincial tax rates on dividends that ranged from 24.81% in Yukon to 41.58% in Nova Scotia (www.ey.com/ca/en/home).

In most countries, there is some relief from double taxation. Thirty-five countries make up the Organization for Economic Co-operation and Development (OECD), and of these countries, only Ireland and Slovenia offer no relief from double taxation. In Canada, the dividend tax credit gives some relief by effectively giving a lower tax rate on dividend income than on other sources of income. In the 2016 tax year, for most provinces, dividend income was taxed at a rate about 31% less than ordinary income; for example, in Ontario the effective personal tax rates (combined provincial and federal) were 39.34% for dividends and 53.53% for regular income for individuals in the top tax bracket. A few countries, including Australia, Estonia, Finland, Mexico, New Zealand, and Norway, offer complete relief by effectively not taxing dividend income.

While the corporate organizational structure is subject to double taxation, Canada Revenue Agency allowed an exemption from double taxation for certain **flow through entities** where all income produced by the business flowed to the investors and virtually no earnings were retained within the business. These entities are called **income trusts** and come in three forms. A **business income trust** holds all the debt and equity securities of a corporation (the underlying business) in trust for the trust's owners, called the **unit holders**. An **energy trust** either holds resource properties directly or holds all the debt and equity securities of a resource corporation within the trust. A **real estate investment trust (REIT)** either holds real estate properties directly or holds all the debt and equity securities of a corporation that owns real estate properties. For income trusts formed before November 2006, there was no tax at the business level until 2011. REITs continue to have no tax at the business level beyond 2011 but the other forms of income trusts are now taxed. In the online appendix for this chapter we show detailed calculations for taxation of different forms of income at the business and personal levels.

EXAMPLE 1.2 Taxation of Income Trusts

Problem

Rework Example 1.1, assuming the corporation in that example was actually a real estate investment trust (REIT) and flowed through all earnings to trust unit owners. We will assume you hold some of the trust units within your TFSA, so they are not subject to personal taxes. For the trust units held outside your TFSA, suppose you pay tax at a rate of 46%.

Solution

In this case, there is no corporate tax. If the business earned \$5 per unit, then the \$5 is paid out to the trust unit holders. For your units held within your TFSA, there is no personal tax. Thus there is no tax whatsoever in the year the business income is generated—giving the government 0% of the business earnings. For your units held outside your TFSA, there will be personal tax of $0.46 \times \$5 = \$2.30$. The net tax collected by the government is the 46% collected from you.

On October 31, 2006, the government changed the taxation of business and energy trusts so they would be taxable at the business level (beginning in 2011). Its concern was that many of these trust units were held within non-taxable registered retirement savings plans (RRSPs) or pension funds or by foreign investors, and thus much of the tax that would normally be collected from corporate earnings was being lost by the government. Since that time, many of these income trusts have been converting back to the standard corporate form because of the loss of their special non-taxable status.

CONCEPT CHECK

1. What are the advantages and disadvantages of organizing a business as a corporation?
2. What is a limited liability partnership (LLP)? How does it differ from a limited partnership?
3. What is an income trust? Which type of trust still gets preferential tax treatment after 2011?

1.2 Ownership Versus Control of Corporations

Unlike the owner of a sole proprietorship, who has direct control of the firm, it is often not feasible for the owners of a corporation to have direct control of the firm because there are many owners of a corporation, each of whom can freely trade their stock. That is, in a corporation, direct control and ownership are often separate. Rather than the owners, the *board of directors* and *chief executive officer* possess direct control of the corporation. In this section, we explain how the responsibilities for the corporation are divided between these two entities and how together they shape and execute the goals of the firm.

The Corporate Management Team

The shareholders of a corporation exercise their control by electing a **board of directors**, a group of people that has the ultimate decision-making authority in the corporation. In most corporations, each share of stock gives a shareholder one vote in the election of each position on the board of directors, so investors with more shares have more influence. When one or two shareholders own a very large proportion of the outstanding stock, these shareholders might either be on the board of directors themselves or they may have the right to appoint a number of directors.

The board of directors makes rules on how the corporation should be run (including how the top managers in the corporation are compensated), sets policy, and monitors the performance of the company. The board of directors delegates most decisions that involve day-to-day running of the corporation to its management, headed by the **chief executive officer (CEO)**. The CEO is charged with running the corporation by instituting the rules and policies set by the board of directors. The size of the rest of the management team varies from corporation to corporation. The separation of powers within corporations between the board of directors and CEO is not always distinct. In fact, it is not uncommon for the CEO also to be the chairman of the board of directors. The most senior financial manager is the **chief financial officer (CFO)**, who usually reports directly to the CEO. Figure 1.2 presents part of a typical organizational chart for a corporation, highlighting the key positions a financial manager may take.

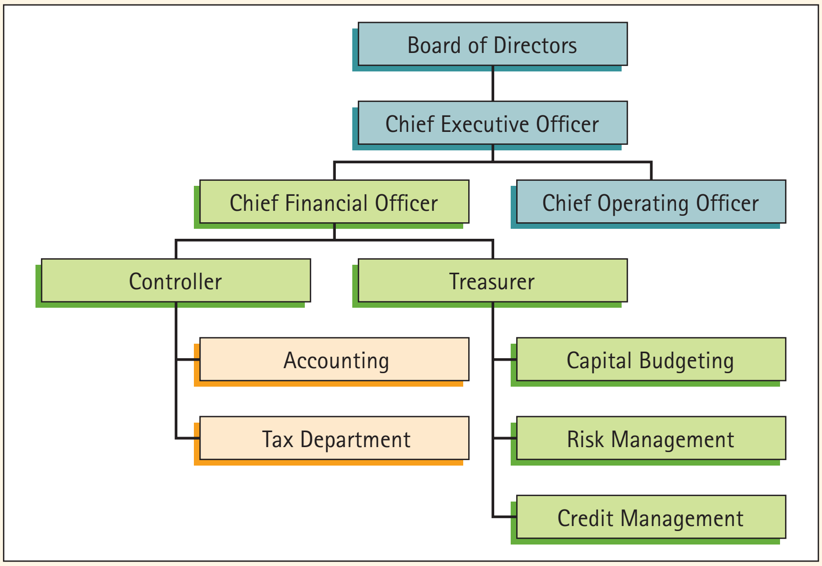
The Financial Manager

Within the corporation, financial managers are responsible for three main tasks: making investment decisions, making financing decisions, and managing the firm's cash flows.

Investment Decisions. The financial manager's most important job is to make the firm's investment decisions. The financial manager must weigh the costs and benefits of each investment or project and decide which of them qualify as good uses of the money shareholders have invested in the firm. These investment decisions fundamentally shape what the firm does and whether it will add value for its owners. In this book, we will develop all the tools necessary to make these investment decisions.

Financing Decisions. Once the financial manager has decided which investments to make, he or she also decides how to pay for them. Large investments may require the

FIGURE 1.2



Organizational Chart of a Typical Corporation
The board of directors, representing the shareholders, controls the corporation and hires the Chief Executive Officer, who is then responsible for running the corporation. The Chief Financial Officer oversees the financial operations of the firm, with the Controller managing both tax and accounting functions, and the Treasurer being responsible for capital budgeting, risk management, and credit management activities.

corporation to raise additional money. The financial manager must decide whether to raise more money from new and existing owners by selling more shares of stock (equity) or to borrow the money instead (debt). In this book, we will discuss the characteristics of each source of money and how to decide which one to use in the context of the corporation's overall mix of debt and equity.

Cash Management. The financial manager must ensure that the firm has enough cash on hand to meet its obligations from day to day. This job, also commonly known as managing working capital, may seem straightforward, but in a young or growing company, it can mean the difference between success and failure. Even companies with great products require significant amounts of money to develop and bring those products to market. Consider the costs to Apple of launching the iPhone, which included developing the technology and creating a massive marketing campaign, or the costs to Boeing of producing the 787—the firm spent billions of dollars before the first 787 left the ground. A company typically burns through a significant amount of cash before the sales of the product generate income. The financial manager's job is to make sure that access to cash does not hinder the firm's success.

Ownership and Control of Corporations

In theory, the goal of a firm should be determined by the firm's owners. A sole proprietorship has a single owner who runs the firm, so the goals of a sole proprietorship are the same as the owner's goals. But in organizational forms with multiple owners, the appropriate goal of the firm—and thus its managers—is not as clear.

Many corporations have thousands of owners (shareholders). Each owner is likely to have different interests and priorities. Whose interests and priorities determine the goals of the firm? Later in the book, we examine this question in more detail. However, you might be surprised to learn that the interests of shareholders are aligned for many, if not most, important decisions. For example, if the decision is whether to develop a new product that