

INTRODUCTION TO CORPORATE
FINANCE

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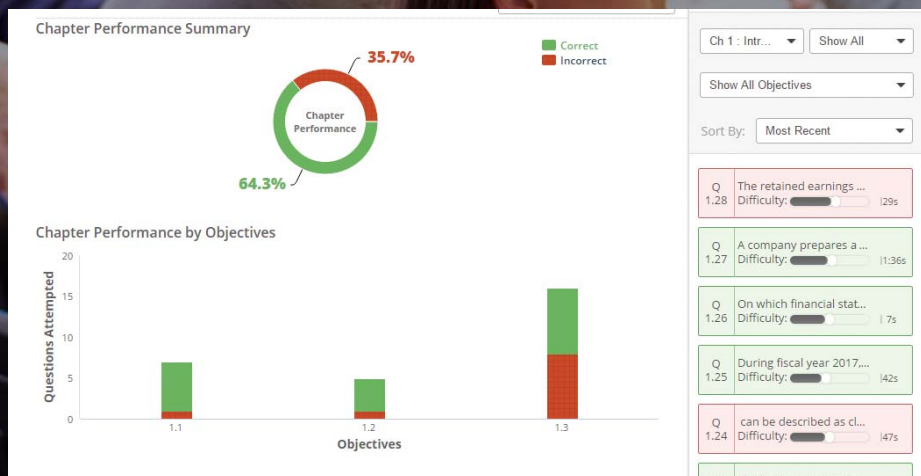


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INTRODUCTION TO
**CORPORATE
FINANCE**

MANAGING CANADIAN FIRMS
IN A GLOBAL ENVIRONMENT

Fourth Edition

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Library and Archives Canada Cataloguing in Publication

Booth, Laurence D., author

Introduction to corporate finance: managing Canadian firms in a global environment/Laurence Booth (University of Toronto), W. Sean Cleary (Queen's University), Ian Rakita (Concordia University). — Fourth edition.

Includes bibliographical references and index.

Issued in print and electronic formats.

ISBN 978-1-119-17128-7(hardback).—ISBN 978-1-119-25397-6

(binder ready version).—ISBN 978-1-119-25221-4(pdf)

1. Corporations—Finance—Textbooks. 2. Business enterprises—Finance—Textbooks.

I. Cleary, W. Sean (William Sean), 1962-, author II. Rakita, Ian, 1953-, author III. Title. IV. Title: Corporate finance.

HG4026.B65 2016 658.15 C2016-900015-X

C2016-900016-8

Production Credits

Vice President and Director, Market Solutions: Veronica Visentin

Executive Editor: Darren Lalonde

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Cover and Interior Design: Joanna Vieira

Typesetting: SPi Global

Printing and Binding: RR Donnelley

Cover Photos: world map, sorendls/Getty Images; American currency, YamabikaY/Shutterstock; pound notes, londondeposit/

Depositphotos; euro notes, Wara1982/Shutterstock; Australian currency, David Franklin/Getty Images; Japanese yen,

Torsakarin/Depositphotos; Canadian currency, Joanna Vieira

Printed and bound in the United States of America.

1 2 3 4 5 RRD 20 19 18 17 16

90 Eglinton Avenue East, Suite 300

Toronto, Ontario, M4P 2Y3 Canada

Visit our website at: www.wiley.com.

PREFACE

In designing a textbook, we have tried to answer the basic question: What do we want students to learn? In this respect, we are very much aware that the target audience for this textbook is made up of bright students who seek careers in business management predominantly in Canada. This has dictated both what we have covered in the textbook and how we have tried to cover it.

A finance textbook designed for business students of necessity means that it should take a managerial focus. In this respect, it is important to note that finance is built on three “legs”: accounting, law, and economics.

Accounting is the language of business, and financial analysts must be able to understand a firm’s financial statements. This is a prerequisite to understanding anything in finance. In fact, for most non-financial companies, the terms “finance” and “accounting” are interchangeable. This is reflected in chapters 3 and 4 of the textbook, where we review the basic features of financial statements and financial analysis. We do this by studying a real Canadian company, Canadian Pacific Railway Limited (CP), and using its financial statements throughout the textbook both to illustrate and develop basic financial concepts. We chose the financial statements of CP because its statements are relatively uncomplicated and easy for beginning students to understand.

However, if you go back 50 years, you will discover that introductory finance textbooks were heavily based on **corporate** and **securities laws**. This is because financial securities are contracts and the terms of these contracts are partly determined by statute, while the ability to sell them to the general public and trade them in a market is determined by securities laws. Understanding the basics of the legal system is critical for understanding how finance works in practice. Here it is important to understand that there are differences between the United States and Canada that flow from differences in their legal systems. Coercive tender offers, for example, occur in the United States but not in Canada, while bought deal underwritings are common in Canada, but not in the United States.

Behind most corporate and securities law, there has been an action that has enriched one person at someone else’s expense. While economists politely refer to these actions as “wealth transfers,” more commonly they are referred to as “fraud.” The legal system is simply the entrenchment of society’s ethical or value system. For this reason, the text includes a series of ethical issues for analysis and discussion. If accounting provides the data, and the legal system provides the constraints on what can be done, **economics** provides most of the principles on how to get things done. Understanding the workings of the economy—where we are in the business cycle, industry market structure, and the response of competitors—is all critical to understanding how financial markets behave and how firms manage their finances. However, this is not a financial economics textbook. We are not proving the existence of equilibrium, but rather we are providing a framework to solve real problems. In this, we develop and use relevant accounting, legal, and economic skills that are used to solve financial problems faced by Canadians every day.

NEW TO THIS EDITION

In the fourth edition of *Introduction to Corporate Finance* we welcome a new author. The addition of a new author brings a new and fresh perspective and further enhances this already great Canadian-developed text. *Introduction to Corporate Finance*, Fourth Edition, has been fully revised and updated to present the most current and relevant data and coverage of topics in the world of finance. As well, the fourth edition has been revised to be even more user friendly and engaging. Content has been restructured with additional subheadings in some chapters and the merger of some sections in others—all with the goal of further aiding comprehension and retention.

We continue to discuss the aftermath of the financial market “crash” of 2008-9, as it is still uppermost in the minds of investors and regulators. This is reflected, for example, in the continuing

weakness in Europe and Japan and the weakness in commodity prices that has affected Western Canada and the value of the Canadian dollar. These events have also caused both academics and professionals to re-evaluate many strongly held beliefs about the efficiency of financial markets, the functioning of the banking system, and the role of regulation. Canada was spared the enormous damage suffered in the United States, Europe, and the UK—a testament to the fundamental strength of the Canadian economy and financial system—but there are still lessons to be learned.

We have expanded our discussion of behavioural (neo-Keynesian) finance in our discussion of market efficiency, as academics and professionals continue to question the central ideas of market efficiency. In an effort to streamline this edition, we have reduced the number of *Finance in the News* features and added more recent ones to reflect current thinking in the field of finance and to help students put the material and topics being discussed into context. Also new to this edition is our series of “Corner Suite” videos featuring interviews with leading professionals and experts in the field of finance. We believe it is important to put the textbook’s content into context of what is done in practice in the real world of finance, and these videos help students to do just that. As well, we have created a series of “Office Hour” videos that walk students step-by-step through the solution of selected problems. Both the “Corner Suite” and “Office Hour” videos are available in WileyPLUS with ORION. We have also added case problems in selected chapters, which are intended to test students’ understanding of multiple concepts in a chapter.

ORGANIZATION OF THE TEXTBOOK

There are underlying financial principles that every student of finance needs to know. This text develops these principles first, and then applies them to business finance. However, some instructors may prefer to cover the material in a different manner. To add flexibility, we have designed the material into “parts.” Parts 1 and 2 are traditional. We start with an overview of the financial system and business finance, before reviewing basic financial statements and financial analysis. In parts 3 to 5, we deviate from the traditional structure by developing a general understanding of discounted cash flow models, modern portfolio theory, and options and futures. In our view, this is necessary to avoid undue duplication when discussing capital budgeting, corporate financing, and cost of capital. In particular, a general introduction to options and futures is useful for discussing real options in capital budgeting, as well as hybrid securities in corporate financing.

In Part 6, we then apply these ideas to the acquisition of long-lived assets (capital budgeting), in Part 7 to corporate financing, in Part 8 to financial policy, and in Part 9 to working capital management. Furthermore, topics relating to international issues and ethics are integrated throughout the text. In this way, none of the topics are “add ons,” pushed to the end of the textbook, to be rarely covered.

For those instructors who prefer a more traditional structure, the textbook is flexible enough that Part 6 on capital budgeting may easily be moved forward to follow Part 3 and the discussion of discounted cash flow models. The discussion of modern portfolio theory and Part 4 may then be developed in conjunction with risk analysis in capital budgeting. However, the disadvantage of this structure would be that Part 5, on futures and options, would be relegated to a special topic when in reality it is too important to be left to the end of the course.

ORIENTATION

Many textbooks used in Canada are U.S. textbooks adapted for a Canadian market. In contrast, this text has been written from the ground up based on Canadian content and applications

(such as the examples using Canadian Pacific Railway Limited, our featured company). Issues such as the day count, how to quote interest rates, takeover rules, and securities law continue to be different between Canada and the United States. Canadians working for Canadian firms are expected to know what happens in Canada, as well as what happens in the United States.

However, Canadian content includes more than just describing different rules; it must also relate to current practice. We include news articles in the *Finance in the News* features to bring to life the finance issues and topics covered in the textbook. Relating basic issues to Canadian examples makes the material more relevant to students. For example, it is more relevant to understand the specific issues facing Canadian pension plans and investors, than those faced by U.S. or international investors, even though many of the general issues are the same.

On the other hand, in today's global business environment, what happens around the world impacts Canadians. Therefore, it is important to consider how global factors influence the Canadian environment, and hence the decisions made by Canadian managers and investors. In fact, global influences are so great in Canada that all Canadian financial managers have to be aware of these issues. We address this by integrating international issues on a topic-by-topic basis, as they arise, rather than in a separate chapter where they are just "lumped together." In this way, awareness of international issues develops naturally.

Finally, finance is a how-to subject. Students learn how to do things in a finance course; for example, how to evaluate securities, how to manage short-term cash, how to evaluate a plant expansion, and how to build a portfolio. In helping students develop these skills, this textbook has an extensive set of examples and problems worked out to show how to solve these problems using a financial calculator. Great care has been taken in an effort to specify calculator keystrokes that solve the textbook's examples in a simple, straightforward manner. This approach is particularly important in the foundational Part 3, which deals with discounted cash flow valuation. This section develops the basics in a cumulative manner, thus permitting the analysis of complex financial securities, while building students' confidence in their ability to solve real problems.

We believe that this textbook will stimulate students to understand finance, as well as to apply it. We believe that after working through this textbook, students will be able to solve basic financial problems, have the basic skills necessary to do more advanced work in finance, and go on to add value to the firms for whom they will eventually work. We hope this textbook will lead students to greater understanding of finance and that they will then share our enthusiasm for finance. These are our reasons for writing this textbook. We know that these are high standards for a finance textbook; if you feel we have not met these objectives, we welcome your feedback.

PEDAGOGICAL FEATURES

Learning Objectives: These are listed at the start of each chapter and then integrated throughout the chapter to reinforce key concepts and help guide students' learning.

Running Glossary: Key terms are highlighted throughout each chapter and defined in the text margin.

Concept Review Questions: At the end of each major section, questions are provided to help students check their understanding before moving on.

Examples: All examples in the text are numbered and labelled for easy reference, and include fully worked-out solutions. Keystrokes for the TI BA II Plus financial calculator are included for each relevant example.

Chapter Summary: Each chapter concludes with a summary of the key concepts covered in that chapter, as well as a summary of the learning objectives.

Equations Summary: Equations are numbered, titled, and listed with page references at the end of each chapter.

Questions and Practice Problems: These are provided at the end of each chapter and allow students to practise and enhance their understanding and learning. Questions and practice problems are identified according to the relevant chapter learning objective and practice problems are organized by level of difficulty.

WileyPLUS with ORION

WileyPLUS is an innovative, research-based on-line environment for effective teaching and learning. WileyPLUS builds students' confidence because it takes the guesswork out of studying by providing students with a clear roadmap: what to do, how to do it, and if they did it right. Students will take more initiative so you'll have a greater impact on their achievement in the classroom and beyond.

Among its many features, this on-line learning interface allows students to study and practise using the digital textbook, quizzes, and algorithmic exercises. The immediate feedback helps students understand where they need to focus their study efforts. We have standardized the chart of accounts to reduce complexity and to facilitate on-line practice.

Based on cognitive science, WileyPLUS with ORION is a personalized adaptive learning experience that gives students the practice they need to build proficiency on topics while using their study time more effectively. The adaptive engine is powered by hundreds of unique questions per chapter, giving students endless opportunities for practice throughout the course. ORION is available with this text.

Wiley Custom Select

Wiley Custom Select offers your students a cost-efficient alternative to traditional texts. In a simple three-step process, create a solution containing the content you want, in the sequence you want, delivered in the way you want. Visit <http://customselect.wiley.com> to learn more about Wiley Custom Select.

RESOURCES

A full suite of resources are available in WileyPLUS with ORION. As well, some resources are available on the textbook's companion website, www.wiley.com/go/boothcanada.

For Instructors

Solutions Manual: The solutions manual includes complete solutions to all end-of-chapter questions and practice problems in the textbook, as well as answers to the concept review questions. Excel[®] solutions templates are also available for relevant problems in each chapter.

Test Bank: The test bank includes a rich selection of multiple choice, short answer, and practice problems, with full solutions. These are coded by difficulty and knowledge level, with references to the relevant sections in the text. The test bank is available as Word files and as a computerized test bank, in an easy-to-use test-generating program.

PowerPoint[®] Presentations: A full series of PowerPoint[®] slides have been prepared for each chapter and includes key points from each chapter and worked-out demonstration problems where applicable.

For Students

WileyPLUS with ORION provides students with a variety of interactive and media-rich study and learning tools, including:

Corner Suite Videos: These videos feature the text's authors' interviews with prominent leading professionals, providing insight into the world of finance and connecting theory to the real world.

Office Hour Videos: These videos feature the authors providing guided, step-by-step instructions for solving sample problems from the textbook.

Author Video Tutorials: A series of 10- to 15-minute videos by the textbook's authors that cover the key concepts and core material of a corporate finance course. The authors walk students through examples to help them master core concepts, and use current and relevant financial news to illustrate and apply key topics.

Practice Quizzes: Self-study practice questions, with immediate feedback, for every chapter of the textbook to help students gauge their understanding as they prepare for class or a test.

Mini-Cases with Excel[®]: Enhanced problems that test students' conceptual and applied knowledge using real-life scenarios, such as saving for retirement. These cases test students' understanding over multiple concepts in a chapter or across multiple chapters, and are solved using Excel[®].

Prerequisite Course Reviews: Brief concept reviews with exercises and problems, which allow students to refresh their knowledge of basic topics in algebra, statistics, financial accounting, and microeconomics.

Financial Calculator Keystrokes: These are included for all relevant worked-out examples.

HALLMARK FEATURES OF THIS TEXTBOOK

Because students are motivated to learn finance if they are shown how it is relevant to their world, each chapter of *Introduction to Corporate Finance* is written with engaging real-world examples and a wealth of detail. The following features are included to further enhance this presentation.

22-2 FINANCE IN THE NEWS Canada Banks' Long History of Steady Dividends

SOME OF THE LARGEST banks in the world had collapsed and central banks were still in the midst of a costly bail out of financial institutions.

The directors of the Bank of Montreal were carefully balancing the pressure to pay out a dividend to shareholders and the need to contain the effects of an international financial crisis.

The year was 1929, and as stock markets recovered from the failure of six English banks caught out by bad bets on Latin American credit markets, bank directors decided to proceed with a dividend payment to shareholders.

The move established a tradition that has endured for 180 years and was reaffirmed on Tuesday as Canada's oldest bank maintained its dividend at 70 cents.

There was no sign that BMO's management had given any serious consideration to cutting the dividend ahead of Tuesday's annual general meeting.

But Bill Downe, chief executive, took time out to reassure shareholders, saying dividends were of perennial importance to retail investors.

"Shareholders of Canadian banks place a high value on consistency," he said, noting BMO had "extended its unmitigated record of continuous dividend payment."

The executive acknowledged the payout ratio had climbed to a relatively high level above 50% of net income when the bank was accumulating excess capital three years ago, and that since then the credit crisis had crimped income.



BMO Financial Group president and CEO William Downe addresses the audience at the bank's 2009 annual shareholder meeting.

Finance in the News: Each chapter includes at least one article or item from the financial press that is integrated into the main discussion of the chapter to help students draw the connection between theory and application, and to highlight the relevance of the topic being discussed.

5 | Time Value of Money

LEARNING OBJECTIVES

- 5.1 Explain the importance of the time value of money and how it is related to an investor's opportunity cost.
- 5.2 Define simple interest and explain how it works.
- 5.3 Define compound interest and explain how it works.
- 5.4 Differentiate between an ordinary annuity and an annuity due, and explain how special constant payment problems can be solved in annuities and, in special cases, as perpetuities.
- 5.5 Estimate the present value of growing perpetuities and annuities.
- 5.6 Differentiate between quoted rates and effective rates, and explain how quoted rates can be converted to effective rates.
- 5.7 Apply annuity formulas to value loans and mortgages, and set up an amortization schedule.
- 5.8 Solve a basic retirement problem.

Part 1 was an introduction to the study of finance. In Part 2 we examined the importance of company financial statements. Now, in Part 3, we discuss the valuation process as it applies to financial securities. This valuation process relies heavily on discounting expected future cash flows, one of the tools discussed in this chapter. Mastery of the tools presented in this chapter is necessary for understanding finance.

This chapter will introduce you to everyday problems, such as taking out a loan, setting up a series of payments, and valuing them. The ideas in this chapter are important for all types of financial problems: determining the payments on a weekly versus a monthly mortgage, buying versus leasing a new car, appropriately valuing a bond or stock, determining whether a company should expand production or abandon a product line, and deciding how much a company should be willing to pay for another company. Although each situation involves unique circumstances that will be covered in subsequent chapters, the basic framework used to evaluate them is the same and relies on material covered in this chapter. It cannot be stated too strongly that grasping the concepts presented in this chapter will be critical to the understanding of security valuation and to making better corporate investment decisions.

Chapter Opener: These introduce students to the main focus of the chapter through an interesting and relevant discussion, showing its real-world application.

Lessons to Be Learned: These illustrate an important concept in the chapter, and how that basic tenet of finance was either ignored and thus fuelled the financial crisis, or was adhered to and helped to mitigate the effects of the crisis.

LESSONS TO BE LEARNED

There are silver linings in all thunderstorms. There is no question that the financial crisis caused all sorts of financing problems for many aggressive firms that financed heavily with debt. However, to refloat the economy and prevent excessive damage, the Bank of Canada and the Federal Reserve in the United States dramatically dropped interest rates. As a result, prime at 2.85 percent (June 2015) is about the lowest it has been for decades. When we consider that the interest is tax deductible at just over 1.5 percent, we see that the cost is less than the Bank of Canada's target inflation rate of 2 percent. Essentially the real after-tax cost of debt is zero or very close to it.

Who are the beneficiaries of this? Clearly, the firms that would otherwise have gone bankrupt benefit, but conservative firms like CP could also, if they wanted, take advantage of these very low interest rates to increase their capital expenditures or make acquisitions. Rather than simply surviving, they could expand, since they have the financial flexibility to take on more debt. This is the wish of the Government of Canada, which is keeping interest rates artificially low in order to stimulate investment and get Canada working so that the unemployment rate comes down.

19-1 ETHICS AND CORPORATE GOVERNANCE Ontario Teachers Pension Plan Halts Lending of Shares to Short Sellers

THE ONTARIO TEACHERS PENSION PLAN has taken the rare step of halting the lending of shares to short sellers and plans to set up a new internal lending operation, arguing it wants to maintain tighter control over its voting rights as an investor.

Teachers senior vice-president Brian Gibson said the pension plan halted its lending late last year after two companies in which it held stakes called for shareholder voting on closely contested matters, but Teachers couldn't vote shares that had been borrowed by short sellers.

Mr. Gibson said Teachers had standard arrangements with its securities custodian to allow it to recall shares when necessary, but found the system didn't work well, and the shares could not be retrieved in time for votes.

When shares are lent by an investor for short selling, the voting rights transfer to the borrower. The situation has led some major U.S. companies to criticize the power of hedge funds to sway corporate votes using shares they have only borrowed and do not actually own.

It's not clear that any Canadian votes have been decided by hedge funds using borrowed shares. Mr. Gibson wouldn't identify the cases Teachers encountered, but said that in the end, the missing votes were not needed to increasingly urging institutional investors to get more closely involved in voting their shares and make more in-house decisions about how to vote on key issues.

David Beatty, managing director of the Canadian Coalition for Good Governance, which represents institutional investors, said institutional investors have a fiduciary responsibility to their beneficiaries to ensure the priority is to manage their voting.


In the United States, proposals have been floated to toughen rules on voting borrowed shares, or to require companies to announce the issues that will be up for a vote at a future shareholder meeting when they set the record date for voting. That would allow institutions to see if there are important issues on the ballot and recall their shares before the record date passes.

There has been little public debate of the issue in Canada, where activity has been confined to the internal steps taken by institutional shareholders to control their votes.

Peter Chapman, executive director of the Vancouver-based Shareholder Association for Research and Education, says some investors try to control

Ethics and Corporate Governance: Found in various parts of the text, this feature discusses how issues of ethics and corporate governance affect corporations today. These features include questions to help launch in-class analysis and discussion.

EXAMPLE 6-1 Input the following variables:

Solution Using a Financial Calculator  $-60 \rightarrow \text{PMT} \quad 10 \rightarrow \text{N} \quad -1,000 \rightarrow \text{FV} \quad 7\% \rightarrow \text{I/Y} \quad \text{CPT} \quad \text{PV} = \929.76

As in Chapter 5, with the calculator solution we have to be careful with the signs. The calculator program assumes that there is an outflow (negative value) for an investment and then a payoff (positive value). A negative PV result ($-\$929.76$) would be obtained if both PMT and FV were set as positive.

Financial Calculator Keystrokes: All relevant demonstration problems include actual keystrokes for the TI BA II Plus calculator.

ABOUT THE AUTHORS



Laurence Booth, DBA, MBA, MA (Indiana University); BS (London School of Economics), is Professor of Finance and holds the CIT chair in structured finance at the Rotman School of Management, University of Toronto. His major research interests are in corporate finance and the behaviour of regulated industries. He has published over 70 articles in numerous journals including *Journal of Finance* and *Journal of Financial and Quantitative Analysis*, has co-authored a textbook on international business and two on corporate finance, and is on the editorial board of several academic journals.

At the University of Toronto since 1978, Professor Booth has taught graduate courses in business finance, international financial management, corporate financing, mergers and acquisitions, financial management, financial markets, applied asset management, and financial theory, as well as many short executive courses. He has been the primary doctoral supervisor for 16 students at the University of Toronto. His advice is frequently sought by the media, and he has appeared as an expert financial witness in both civil cases and before various regulatory tribunals in Canada.



Sean Cleary, CFA, is the BMO Professor of Finance at the Smith School of Business, Queen's University. Dr. Cleary holds a PhD in finance from the University of Toronto, an MBA, is a Chartered Financial Analyst (CFA) charterholder, and is a former board member of both the Atlantic Canada and Toronto CFA societies. He has also completed the Professional Financial Planning Course (PFPC), the Canadian Securities Course (CSC), and the Investment Funds Institute of Canada (IFIC) Mutual Fund Course.

Dr. Cleary has taught numerous university finance courses as well as courses and seminars in many programs designed to prepare students to write exams for all three levels of the CFA program and the CSC. He is the Canadian author of the first three editions of *Investments: Analysis and Management* and the co-author of the sixth edition of *Finance in a Canadian Setting*, both published by John Wiley & Sons Canada, Ltd. He is also the author of the first four editions of *The Canadian Securities Exam Fast Track Study Guide*, also published by Wiley.

Dr. Cleary has published numerous research articles in various journals, including *Journal of Finance*, *Journal of Financial and Quantitative Analysis*, *Financial Management*, *Journal of Banking and Finance*, and *Journal of Financial Research* among others. He has received several major research grants from the Social Sciences and Humanities Research Council of Canada (SSHRC). He currently serves as Associate Editor (Finance) at *Canadian Journal of Administrative Sciences* and Associate Editor for *European Journal of Finance*.

Dr. Cleary frequently appears in the media on television, on the radio, and in newspapers.



Ian Rakita, CFA, started teaching in the Department of Finance at Concordia University's John Molson School of Business in 1993 after extensive industry experience. He received his Bachelor of Science degree from McGill University, where he majored in mathematics, and his MBA from Concordia University. He earned his PhD from Concordia in 2000. During 1997–1998 he taught at Wilfrid Laurier University in Waterloo, Ontario, where he received a commendation for teaching excellence. Dr. Rakita teaches courses at the undergraduate and graduate level in corporate finance, fixed income securities, and derivatives.

He has also taught courses in operations research and business statistics. His research interests are in the microstructure of new and secondary equity offerings as well as the efficiency of Canadian capital markets.

Dr. Rakita has published articles in *Journal of Banking and Finance*, *Multinational Finance Journal*, *The Engineering Economist*, *Canadian Investment Review*, and *Journal of the Operational Research Society*. He is the only two-time winner of the Gold Prize for outstanding paper awarded in an annual contest sponsored by the Montreal Society of Financial Analysts, where he has also served on the board of directors. Dr. Rakita completed the requirements for the Chartered Financial Analyst designation in 2001. He is currently the Director of the MBA program at Concordia University's Goodman Institute of Investment Management. This specialized MBA program links the requirements of the CFA curriculum with the academic requirements of a traditional MBA degree.

ACKNOWLEDGEMENTS

A large-scale textbook project such as this one is not the work of single authors; rather it is the combined effort of many people whom we wish to acknowledge. We thank the following reviewers who took the time to read and evaluate the draft manuscripts for various editions:

Ashraf Al Zaman, St. Mary's University

Ben Amoako-Adu, Wilfrid Laurier University

Yunbi An, University of Windsor

Ata Assaf, University of Windsor

Reena Atanasiadis, Concordia University

Mohamed Ayadi, Brock University

Larry Bauer, Memorial University of Newfoundland

Ernest Biktimirov, Brock University

David Birkett, University of Guelph

Edward Blinder, Ryerson University

Trevor W. Chamberlain, McMaster University

Chris Duff, Royal Roads University

Alex Faseruk, Memorial University of Newfoundland

Bill Fletcher, Saint Mary's University

Louis Florence, University of Toronto

Merlyn Foo, Athabasca University

Cameron Gall, Mount Royal University

Myron Gordon, University of Lethbridge

Larbi Hammami, McGill University

Ken Hartviksen, Lakehead University

Margery Heuser, Okanagan College

Robert Ironside, University of Lethbridge

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Mike McIntyre, Carleton University

Lukasz Pomorski, University of Toronto

Lynnette Purda, Queen's University

Ian Rakita, Concordia University

William Rentz, University of Ottawa

Michael W. Reynolds, Carleton University

Wilf Roesler, University of Lethbridge

Raina Rudko, MacEwan University

Shahbaz Sheikh, University of Western Ontario

David A. Stangeland, University of Manitoba

Vijay Vishwakarma, St. Francis Xavier University

Thomas Walker, Concordia University

Eric Wang, Athabasca University

Sherry Wang, Lakehead University

Jun Yang, Acadia University

We thank the team at John Wiley & Sons Canada, Ltd., who, as always, provided us with unparalleled support on so many levels. Special thanks to Veronica Visentin, Vice President and Director, Market Solutions; Darren Lalonde, Executive Editor; Anita Osborne, Senior Marketing Manager; Deanna Durnford, Supplements Coordinator; and especially Gail Brown, Developmental Editor, for her capable and tireless efforts. We also thank Audrey McClellan, Ross Meacher, and Lana Okerlund for their invaluable editorial and proofreading contributions. The permissions assistance of Mary Rose MacLachlan of MRM Associates is also greatly appreciated.

We also thank the following for all their contributions to the textbook's end-of-chapter questions and problems and ancillaries: Paul Wefers Bettink (Carleton University), Craig Geoffrey (University of Waterloo), Larbi Hammami (McGill University), Loretta Hung (Concordia University), Brian Lane (University of Saskatchewan), Anthony Mayadunne (University of Ontario Institute of Technology), Sorin Rizeanu (University of Victoria), Julie Slater (Concordia University), and Otto Yung (University of Toronto). A special thank you to Brian Lane for his contributions of the end-of-chapter Excel[®] cases, which are a welcome addition to the textbook.

We are also particularly grateful to the individuals who were interviewed for the textbook's Corner Suite Videos, and we thank them for their invaluable insight into the world of finance. They include: Howard J. Atkinson, President, Horizons ETFs Management (Canada) Inc.; David Beatty, Conway Director, Clarkson Centre for Business Ethics & Board Effectiveness, Rotman School of Management, University of Toronto; Dean Colling, First Vice-President, Portfolio Manager, CIBC

Wood Gundy, The Colling Group; John Hull, Maple Financial Professor of Derivatives and Risk Management, Joseph L. Rotman School of Management, University of Toronto; Richard W. Nesbitt; Robert Nicholson, Managing Director, Global Investment Banking, RBC Capital Markets; Marlene K. Puffer, Partner, Alignvest Investment Management; Vlad Volodarski, CFO and CIO Chartwell Retirement Residences; and others not named.

From Laurence Booth: My thanks to all my former students—you are the reason that faculty write books; your questions and challenges motivate us to do better. My thanks also to my wife Shiva, my family, and all those special people (you know who you are) who provided support when it was needed.

From Sean Cleary: Thanks to my colleagues and my students (past and present) for their inspiration. Special thanks to my wife Grace, my children (Jason, Brennan, Brigid, Siobhan, Rose), and my parents (Bill and Beryl) for all of their support.

From Ian Rakita: Without students, universities and colleges could not hope to survive. We should never fail to emphasize this point in writing textbooks that we believe will help impart some additional knowledge in a world that is being increasingly overwhelmed by enormous amounts of new information. Sincere thanks go out to my dearest Lurdes for her love and devotion and to my children Shawn and Robyn for their ongoing support and for providing the motivation that inspired me to complete this project.

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Part 1

CHAPTER 1 An Introduction to Finance

CHAPTER 2 Business (Corporate) Finance

THE FINANCIAL ENVIRONMENT

What is business finance? In these opening chapters, we examine the big picture in terms of the Canadian financial system, including the major players in the system, the major securities issued, and the types of problems solved. We also discuss how Canadian markets are linked to international markets and show how recent financial crises in the United States, and more recently in the Eurozone, caused huge problems for Canadian businesses in terms of financing and led to their currently being cautious in both their spending and financing. The important lesson here is that corporate finance is affected by shocks elsewhere in the financial system. We then discuss the different ways a business can be organized and financed, and the impact of government policy. Finally, the role of management in diverse firms is explored, with a discussion of key careers available to finance majors.

1 | An Introduction to Finance

LEARNING OBJECTIVES

- 1.1 Define finance and explain what is involved in the study of finance.
- 1.2 List the major financial and real assets held by Canadians.
- 1.3 Explain how money is transferred from lenders to borrowers and the role played by market and financial intermediaries.
- 1.4 Identify the basic types of financial instruments that are available and explain how they are traded.
- 1.5 Explain the importance of the global financial system and how Canada is impacted by global events.

Often, the first finance course business students take is a business finance course. Yet business finance cannot be taught in isolation. It is simply one part of finance, which includes personal or household finance, government finance, and international finance. Recent financial crises have confirmed unequivocally that all parts of the financial system are interrelated. Financial crises in the United States and the Eurozone have forced governments to raise debt and lower interest rates to stimulate their economies. This borrowing has left governments struggling to refinance their own debts, while low interest rates have led consumers to borrow at a rapid pace. As a result, total global debt (which includes government, household, and business debt) totalled US\$199 trillion by the second quarter of 2014—up from \$142 trillion in 2007, and \$87 trillion in 2000—while the global debt-to-GDP ratio increased to 286 percent.¹ Canada's total debt at the time stood at US\$221 billion, or 221 percent of GDP. Obviously, in such an environment, business finance is more heavily affected by household, government, and international finance than ever before.

¹Milner, Brian, "A World Awash in Public Debt: The \$58-Trillion Problem." *The Globe and Mail Report on Business*, May 14, 2015, B1, B7.

Learning Objective 1.1

Define finance and explain what is involved in the study of finance.

finance the study of how and under what terms savings (money) are allocated between lenders and borrowers

1.1 FINANCE DEFINED

So what is finance? In its broadest terms, **finance** is the study of how and under what terms savings (money) are allocated between lenders and borrowers. Here, the terms “lenders” and “borrowers” are also used in their broadest sense—as people and institutions that either have excess money to invest or need money for some reason. However, the key term in the definition is “allocated,” and you may recognize the similarity between finance and economics, which studies how scarce resources are allocated in an economy. In many ways, finance is closely related to economics. However, finance is distinct from economics in that finance is not just about how resources are allocated; it also examines under what terms and through what channels the allocations are made.

Whenever funds are transferred, a financial contract comes into existence. These contracts are called financial securities. As we will discuss in depth in later chapters, exchanging funds (money) for pieces of paper (securities) opens up an enormous number of opportunities for fraud. As a result, the study of finance requires a basic understanding of securities and corporate law and the institutions that facilitate and monitor this exchange of funds. This may seem dull, but it can be dramatic. For example, on December 11, 2008, Bernard Madoff was arrested for securities fraud in the United States, and on March 12, 2009, he pleaded guilty to defrauding his clients of an unbelievable \$65 billion.

In this chapter, we will briefly review the structure of the Canadian financial system, considering how it links to the rest of the world and who the major agents are. Our objective is to help you understand the place of business finance in the financial system and how it is buffeted by events occurring elsewhere in “the markets.”

Learning Objective 1.2

List the major financial and real assets held by Canadians.

1.2 REAL VERSUS FINANCIAL ASSETS

Canada's Balance Sheet

We begin by looking at Canada's balance sheet, which is simply a snapshot of what is owned (assets) and what is owed (liabilities) at a particular time. The difference between the value of what is owned and what is owed is “net worth” or equity—as, for example, the equity someone has in a house. We can estimate balance sheets for individuals and for institutions (both businesses and governments). In Chapter 3, we will discuss the role of assets and liabilities in financial statements.

Table 1-1 aggregates the 2011 market value of the assets and liabilities of the three major domestic groups in our economy: (1) individuals, referred to as the household sector by Statistics Canada (StatsCan), (2) businesses, and (3) government. The Canadian assets and liabilities that are held by non-resident individuals, businesses, and governments compose the balance sheet of the non-resident sector, which we generally “net” out to determine what the country owes to or is owed by non-residents.

Table 1-1 shows that, at the end of 2011, Canadians had total real assets with a market value of \$6,852 billion. Canada had net foreign liabilities of \$236 billion—that is, we owed more to non-residents than we owned as foreign assets. This means the country had a net worth of \$6,616 billion or almost \$200,000 for every Canadian. Previously Canada owned more foreign assets than we owed. This has changed over the past few years due to the financial crisis, as non-residents have bought Canadian securities as a “safe haven” in response to serious concerns about the financial stability of southern European countries from Greece to Portugal. This is why Canada's balance sheet is very simple—as of the end of 2011, we had \$6,852 billion in assets with a small net liability to non-residents. Within Canada we had lots of debts, but these were simply to other Canadians. When we add everything up, these debts to ourselves net out to zero because one person's debt is another person's asset, as we will discuss shortly.

TABLE 1-1 Canada's Balance Sheet (\$billion), 2011

Residential structures	1,908
Non-residential structures	1,687
Machinery and equipment	474
Consumer durables	441
Inventories	242
Land	2,100
Net foreign liabilities	236
Net worth or equity	6,616

Source: Data from Statistics Canada, "Table 35." In *National Balance Sheet Accounts, 2011*. Ottawa: Minister of Industry, 2012 (Catalogue No. 13-022-X).

Real Assets

The balance sheet shows all real assets according to six major classifications. The assets included under these headings are **real assets**, representing the tangible things that compose personal and business assets. Personal assets are the value of houses (residential structures), the land the houses are on, the major appliances in the houses (televisions, washing machines, etc.), and cars. Major appliances and cars are referred to as consumer durables because they last many years. For businesses, the major assets are office buildings, factories, mines, and so on (non-residential structures); the machinery and equipment in those structures; the land they are on; and the stock or inventories of things waiting to be used or sold.²

We have introduced Canada's national balance sheet because finance is essentially the management of an entity's balance sheet. This management involves the real asset side and the liability side of the balance sheet. When we look at business finance, we will discuss how firms arrive at the decision to build a new factory, increase the level of their inventory holdings, and make strategic asset acquisition decisions, such as buying another firm (mergers and acquisitions). These are all examples of asset acquisitions, which we will generically refer to as capital expenditure (capex) decisions. On the liability side are ways to finance these expenditures, which we will refer to as corporate financing decisions. However, these same decisions are made by individuals when deciding to buy a house or a new car, and by the government, because all entities have a balance sheet.

However, there is a danger in looking only at Canada's balance sheet because it focuses attention on things that we can measure. In a recent United Nations report directed by Sir Partha Dasgupta at Cambridge University in England, researchers calculated a more inclusive definition of wealth by including both human capital—based on the skills and education of the citizens of a country—and its natural capital, based on its land, forests, fossil fuels, and minerals. In contrast, StatsCan estimates only a part of this value. The results of this report, as summarized by *The Economist*, suggest that Canada came out as the third-wealthiest country studied, after the United States and Japan, with total wealth of \$331,919 per person in 2008. You are wealthier than you think.

Financial Assets

Although the national balance sheet presented in Table 1-1 is useful for understanding wealth and the different types of real assets, it removes most of the things that are of interest to students of finance. This is because it nets out all the debts we Canadians owe to other Canadians,

real assets the tangible things that compose personal and business assets

²These assets also include some owned by the different levels of government in Canada.

financial assets a claim that one individual or institution has on another

which is almost all of our debts! To understand these **financial assets** and how the financial system works, we need to disaggregate the data—that is, look at it in greater detail. This is what StatsCan does when it prepares the National Balance Sheet Accounts (NBSA).

The basic idea behind the NBSA is to collect financial data on the major agents in the financial system and then track the borrowing and lending between these agents. For example, StatsCan collects data on all persons and unincorporated businesses in Canada and groups them into the household sector.³ This is because individuals as a group tend to lend to the other major agents in the system, thereby creating financial assets. However, within the household sector, what one person lends to another is offset by what that person owes. In this way, a positive financial asset is offset by a negative financial asset or a financial liability, so the numbers are the net real assets and the net financial assets of Canadian households. Figure 1-1 provides the overall breakdown of both the real and the net financial assets in Canada as of the end of 2011.

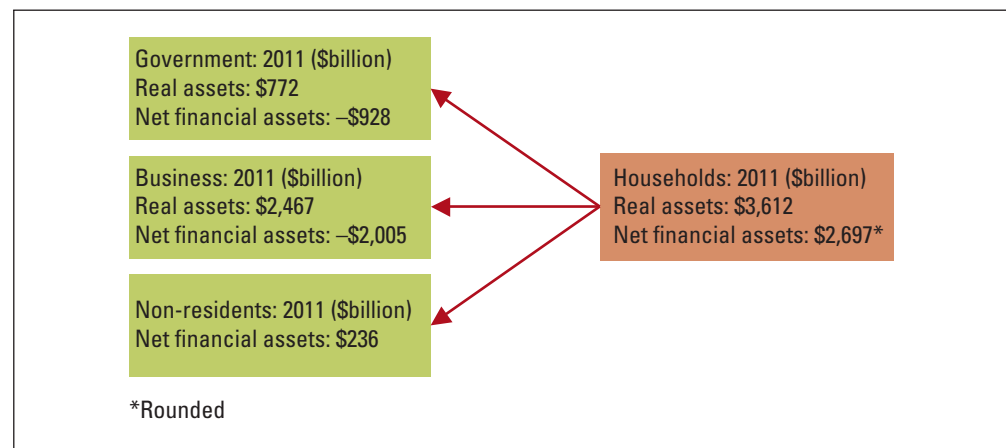


FIGURE 1-1 *Borrowing and Lending: The Big Picture, 2011*
Source: Data from Statistics Canada, *National Balance Sheet Accounts, 2011*. Ottawa: Minister of Industry, 2012 (Catalogue No. 13-022-X).

Figure 1-1 shows who owns and owes what in the Canadian economy. If we start with Canadian households and add up all the real (tangible) assets, such as homes and cars, in aggregate, Canadian households owned real assets with a market value of \$3,612 billion at the end of 2011. In addition to these real assets, Canadian households owned net financial assets issued by the government, corporations, and non-residents with a market value of \$2,697 billion. So, in aggregate, if we add the two together, Canadian households had total net assets with a 2011 market value of \$6,309 billion, which is slightly smaller than Canada's total net assets of \$6,616 billion, as shown in Table 1-1.

In 2011, all layers of Canadian government, in aggregate, had real assets worth \$772 billion. The bulk of these assets are government office buildings and the machinery and equipment in them, but \$166 billion represents the market value of government-owned land. That's the good news. The bad news is that all layers of government, in aggregate, had net financial assets of *negative* \$928 billion—that is, a net financial liability of \$928 billion, which is the market value of all government debt outstanding. Similarly, Canadian corporations and government Crown corporations had real assets with a market value of \$2,467 billion in 2011, representing the factories, mines, office buildings, and so on, needed to produce the goods and services that we buy. The market value of the net financial assets issued by the business sector to finance those real assets, or what we call corporate financing, was -\$2,005 billion. Notice that if we add up the value of real assets owned by the three domestic sectors, we end up with a

³We will discuss business organization in Chapter 2, but unincorporated businesses are basically individuals operating a business that, for tax purposes, is indistinguishable from themselves.

total market value of real assets of \$6,851 billion. However, when we add up the total net financial assets of these three sectors, we end up with financial assets of $-\$236$ billion, which equals exactly the net financial assets owed by Canadians to non-residents. Therefore, the value of the net assets owned by Canadian residents, or our net worth, is the sum of these two or \$6,615 billion, which but for rounding errors would equal the \$6,616 billion in Table 1-1. Also, notice in Figure 1-1 that the net financial assets figure for the household sector equals *positive* \$2,697 billion, while the total net financial assets of the combined government and business sectors equals *negative* \$2,933 billion. Again, the difference reflects the net foreign liability of \$236 billion. Overall, the NBSA data indicate that, as Canadians, we are in pretty good shape except for a relatively minor liability to non-residents, which in fact has fluctuated between positive and negative through the first four editions of this book and currently reflects Canada's "safe harbour" position as one of the few AAA-rated countries left in the world.

Although Figure 1-1 shows the flow of savings from households to governments and business, with some money flowing in from non-residents, it does not show the flows within each sector. However, it does highlight the importance of the four major areas of finance: personal finance, government finance, corporate finance, and international finance. Although the main focus of this text is corporate finance, it is important to realize that all these sectors are part of the financial system and are affected by the same types of phenomena; a shock in the government or international sectors can quickly work through the system to affect personal and corporate finance and vice versa. Later in this chapter, we will discuss briefly how a shock starting in the U.S. mortgage market in 2008 triggered the biggest financial crisis of the past 75 years and led directly to the sovereign debt crisis that we are still living with. These shocks from outside the business sector have caused myriad problems in corporate financing. Partly because of this shock, but also due to the fact that it is the primary source of savings, the household sector will be discussed first.

Households

Table 1-2 provides a comprehensive listing of the 2011 assets and liabilities of Canadian households.

TABLE 1-2 Assets and Liabilities of Households, 2011

Assets	\$Billion	Liabilities	\$Billion
Houses	1,693	Consumer credit	452
Consumer durables	476	Loans	140
Land	1,443	Mortgages	1,027
Real Assets	3,612	Total Liabilities	1,619
Deposits	1,045		
Debt	100		
Pensions and insurance	1,565		
Shares	1,450		
Foreign and other	156		
Financial Assets	4,316		
Total Assets	7,928		

Source: Data from Statistics Canada, *National Balance Sheet Accounts, 2011*. Ottawa: Minister of Industry, 2012 (Catalogue No. 13-022-X).

In aggregate, the household sector looks much as we would expect from our own experiences. The major real assets are houses, worth \$1,693 billion; consumer durables, such as washing machines and cars (plus some other miscellaneous assets), worth \$476 billion; and the land on which our houses are built, worth \$1,443 billion.⁴ Our major financial assets are money on deposit, mainly with the banks, worth \$1,045 billion; debt securities, worth \$100 billion; the value of pension and insurance assets, worth \$1,565 billion; and the market value of the shares in corporations, worth \$1,450 billion.

Offsetting these financial assets are \$452 billion in consumer credit (mainly credit-card debt), \$140 billion in loans (mainly bank loans), and \$1,027 billion in mortgage debt taken out to buy our houses. So, in aggregate, Canadian households have \$1,619 billion in financial liabilities to offset against the \$4,316 billion in financial assets. This leaves net financial assets of \$2,697 billion, which is the number reported in Figure 1-1. However, the household sector's liabilities are all different forms of debt, which can be netted out against the debt-like financial assets—namely, deposits at banks and loans. What is left constitutes the two major financial assets of the household sector: the market value of investments in shares and the market value of investments in insurance and pensions.

It's one thing to tell people that, on average, each Canadian has almost \$200,000 in wealth, but many of them will respond, "I don't have that!" So who does have all that money? Understanding wealth distribution within a country is a complex issue. However, a good starting point is to consider how borrowing and lending changes throughout the life cycle of individuals as they get older. The key decisions most people make are saving to buy a house and saving for retirement. The basic problem in retirement planning is determining how to finance our non-working or retirement years, when we will be consuming but not earning. The basic problem when we want a house is figuring out how to save to buy it and then pay down the mortgage so we are mortgage free as we age and begin to think about retirement.

When considering these problems, think about the financial assets and liabilities in Table 1-2. We can expect, for example, to observe significant differences between people in the household sector, with younger individuals borrowing to buy houses and consumer durables and having a net negative financial asset position (i.e., they are in debt). Conversely, as they age, they pay down their mortgage and build up their financial assets, so older, higher-income individuals tend to save and be wealthier. Thus, within the household sector, we see older individuals lending and younger ones borrowing. However, by aggregating across everyone within the household sector, this dynamic is lost.

Table 1-2 shows that a large part of household wealth consists of life insurance and pension claims, with the latter being promises made by a government or private company to pay money to individuals after they retire. But just how good are these promises? If the promises are made by a private company, its ability to fulfill them can be severely compromised if its own future is in doubt; as a result, pensions can be a major issue in salary and benefit negotiations.

We can also look at the mortgage market, for reasons that will become clear later in this chapter. In 2011, mortgage debt was \$1,027 billion, and the value of the housing stock was \$1,693 billion. So, on average, mortgages were worth 61 percent of the value of a house. However, some people were mortgage free, whereas many others had only recently taken out a mortgage and were heavily indebted. Therefore, a shock to the financial system, such as a recession and job loss or a collapse in house prices, can have a huge impact on the mortgage market and, through it, the whole financial system. So the key questions are: How does money flow from those who have it to those who want it? Who are the agents in the financial system? What are the types of securities issued?

⁴Some minor accounts from unincorporated businesses have been consolidated with household assets and liabilities.

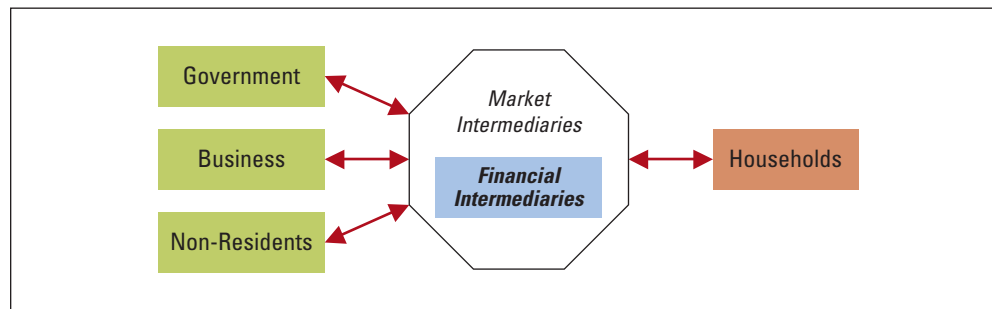
1. What is finance?
2. Distinguish between real and financial assets.
3. Which sector or sectors of the economy are net providers of financing and which are the net users of financing?

CONCEPT REVIEW QUESTIONS

1.3 THE FINANCIAL SYSTEM

Overview

Figure 1-2 provides an overview of the financial system of any economy, be it Canada, the United States, or the global economy. In Canada, as we have discussed, the household sector is the primary provider of funds to business and government. The basic financial flow is “intermediated” through the financial system, which comprises (1) **financial intermediaries** that transform the nature of the securities they issue and invest in, and (2) **market intermediaries** that simply make the markets work better. The whole package of institutions is the Canadian financial system. We discuss the various facets of this system in the following sections.



Learning Objective 1.3

Explain how money is transferred from lenders to borrowers and the role played by market and financial intermediaries.

financial intermediaries entities that invest funds on behalf of others and change the nature of the transactions

market intermediaries entities that facilitate the working of markets and help provide direct intermediation but do not change the nature of the transaction; also called brokers

FIGURE 1-2 The Financial System

Channels of Intermediation

Figure 1-3 demonstrates that the financial system transfers money from those with a surplus (lenders) to those who need it (borrowers). This transfer occurs through **intermediation**, which is the process of bringing these parties together. If we think about how this intermediation can occur, one obvious way is for individuals to borrow directly from friends, relatives, and acquaintances. Another is to borrow from a specialized financial institution, such as the Royal Bank of Canada (RBC Financial Group). These are two extremes in terms of the transfer of money from lenders to borrowers. In the first case, borrowers obtain funds *directly* from individuals; in the second, they borrow *indirectly* from individuals who have first loaned their savings to (deposited them into) a financial institution, which in turn lends to the ultimate borrowers.

These two patterns of intermediation are illustrated in Figure 1-3, with the three basic channels represented. In the first channel is *direct* intermediation, where the lender provides money directly to the ultimate borrower without any help from a specialist. This is a non-market transaction because the exchange is negotiated directly between the borrower and lender. An example would be a relative lending money to buy a car or helping to finance a degree program. The second channel also represents direct intermediation between the lender and borrower, but in this case some help is needed, either because no one individual can lend the full amount needed or because the borrower is not aware of the available lenders. As a result, the borrower needs help to find suitable lenders, which is what market intermediaries do. A market intermediary is simply an entity that facilitates the working of markets and helps the direct intermediation process.

intermediation the transfer of funds from lenders to borrowers