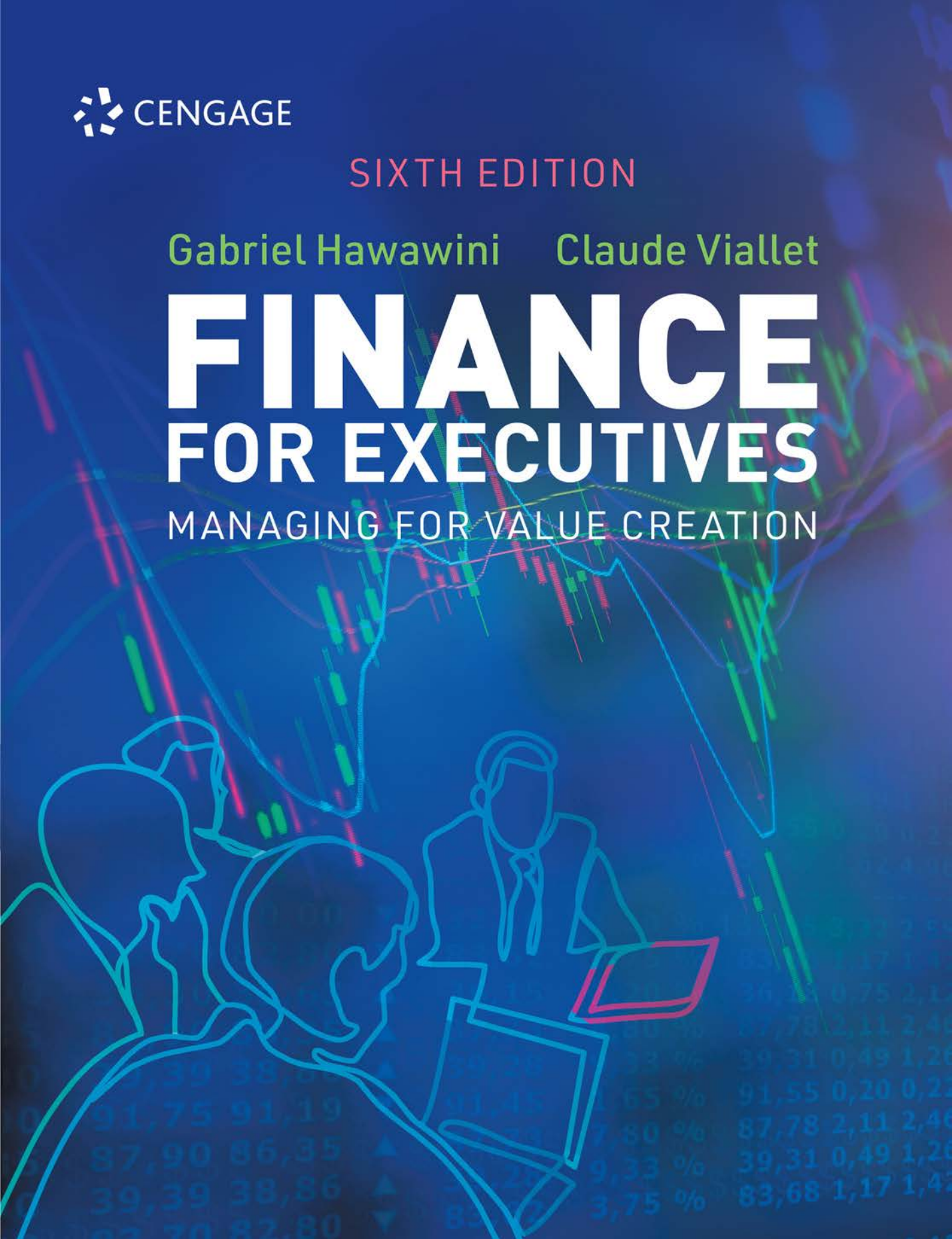
CENGAGE

SIXTH EDITION

Gabriel Hawawini Claude Viallet

FINANCE FOR EXECUTIVES

MANAGING FOR VALUE CREATION



Some Notations

ADF	Annuity discount factor
APR	Annual percentage rate
APV	Adjusted present value
β_U	Levered beta (also called equity or market beta)
β_L	Unlevered beta (also called asset beta)
C	Call price
CAPM	Capital asset pricing model
CAPEX	Capital expenditures
CF	Cash flow
CFE	Cash flow to equity holders
CML	Capital market line
CP	Coupon payment (of a bond)
$\mathbf{Cov}(R_i, R_j)$	Covariance between asset i and asset j returns
D	Debt value
DCF	Discounted cash flow
Δ	Option's delta or hedge ratio
DDM	Dividend discount model
DF	Discount factor
DPS	Dividend per share
E	Equity value
EAT	Earnings after tax
EBIT	Earnings before interest and tax
EBITDA	Earnings before interest, tax, depreciation and amortization
EIL	Efficient investment line
EPS	Earnings per share
$\mathbf{E}(R_i)$	Expected return of asset i
EV	Enterprise value
EVA®	Economic value added
F	Face value of a bond
FCF	Free cash flow
IPO	Initial public offering
ITS	Interest tax shield
k_D	Cost of debt
k_E	Cost of equity
LBO	Leverage buyout
MVA	Market value added
MVR	Market value at risk
NOPAT	Net operating profit after tax
NOPLAT	Net operating profit less adjusted tax
NPV	Net present value
P	Price of a bond, a stock, or a put option
PBR	Price-to-book ratio
PI	Profitability index
PER	Price earnings ratio
PPP	Purchasing power parity
PV	Present value
ρ_{ij}	Correlation coefficient between asset i and asset j returns
R_F	Risk-free rate
R_M	Return on the market portfolio
ROCE	Return on capital employed
ROE	Return on equity
ROIC	Return on invested capital
SGR	Self-sustainable growth rate
σ_i	Standard deviation of asset i returns (volatility)
σ_i^2	Variance of asset i returns (variability)
σ_{ij}	Covariance between asset i and asset j returns
SML	Security market line
T	Time in years
T_C	Corporate tax rate
TV	Terminal value
V_E	Value of the firm's equity (same as E)
V_L	Value of the firm with debt (levered value)
V_U	Value of the firm without debt (unlevered value)
$\mathbf{Var}\ (R_i)$	Variance of asset i returns (same as σ_i^2)
WCR	Working capital requirement
WACC	Weighted average cost of capital
X	Exercise or strike price of an option
y	Yield to maturity (of a bond)

Some Useful Formulas

1. **Discount factor (Chapter 2, equation 2.3)**
   Value of $1 to be received at time T, discounted to the present at the rate k

$$DF_{T,k} = \frac{\$1}{(1+k)^T} = \left(\frac{\$1}{1+k}\right)^T = \$1 \times (1+k)^{-T}$$

2. **Present value (Chapter 2)**
   Value today of a T-year cash-flow stream discounted at rate k

$$PV = [CF_1 \times DF_{1,k}] + \ldots [CF_t \times DF_{t,k}] + \ldots + [CF_T \times DF_{T,k}]$$

3. **Present value of a perpetuity (Chapter 2, equation 2.6)**
   The present value of an infinite stream of identical cash flows discounted at rate k

$$PV = \frac{CF}{k}$$

4. **Present value of a constant growing perpetuity (Chapter 2, equation 2.9)**
   Present value, at rate k, of a perpetuity growing at the constant rate g where the cash flow at the end of the first year is CF_1

$$PV = \frac{CF_1}{k-g} \text{ with } k > g$$

5. **Present value of an annuity (Chapter 2, equation 2.11)**
   Present value of a T-year annuity at a rate k with a cash flow CF

$$PV = CF \times ADF_{T,k} \text{ with}$$

$$ADF_{T,k} = \frac{1}{k}\left[1 - \frac{1}{(1+k)^T}\right]$$

6. **Sharpe ratio of asset i (Chapter 3, equation 3.8)**

$$\text{Sharpe ratio of asset i} = \frac{E(R_i) - R_F}{\sigma_i}$$

7. **Beta coefficient of stock i (Chapter 3, equation 3.11)**

$$\beta_i = \frac{Cov(R_i, R_M)}{Var(R_M)} = \frac{\rho_{iM}\sigma_i\sigma_M}{\sigma_M^2} = \rho_{iM}\left(\frac{\sigma_i}{\sigma_M}\right)$$

8. **Capital asset pricing model (Chapter 3, equation 3.13a, Chapter 10, equation 10.11a and Chapter 12, equation 12.10)**

$$E(R_i) = R_F + [E(R_M) - R_F]\beta_i$$

9. **Invested capital (Chapter 4, equation 4.5)**

$$\text{Invested capital} = \text{Cash} + \text{Working capital requirement} + \text{Net fixed assets}$$

10. **Capital employed (Chapter 4, equation 4.6)**

$$\text{Capital employed} = \text{Short-term debt} + \text{Long-term debt} + \text{Owners' equity}$$

Some Useful Formulas

11. **Working capital requirement (Chapter 4, equation 4.7)**

$$\begin{aligned}\text{WCR} = &[\text{Accounts receivable} + \text{Inventories} + \text{Prepaid expenses}]\\ &-[\text{Accounts payable} + \text{Net accruals}]\end{aligned}$$

12. **Earnings before interest, tax, depreciation, and amortization (Chapter 4, equation 4.10)**

$$\text{EBITDA} = \text{EBIT} + \text{Depreciation expense} + \text{Amortization expense}$$

13. **Free cash flow (Chapter 4, equation 4.15)**

$$\begin{aligned}\text{FCF} = &\text{EBIT}(1 - T_c) + \text{Depreciation expense}\\ &- \Delta\text{WCR} - \text{Capital expenditures (net of disposals)}\end{aligned}$$

14. **Return on equity (Chapter 6, equation 6.1)**

$$\text{ROE} = \frac{\text{Earnings after tax}}{\text{Owners' equity}}$$

15. **Return on invested capital before tax (Chapter 6, equation 6.4)**

$$\text{ROIC}_{\text{BT}} = \frac{\text{EBIT}}{\text{Invested capital}} = \frac{\text{EBIT}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Invested capital}}$$

16. **The structure of a firm's return on equity (Chapter 6, equation 6.9)**

$$\text{ROE} = \frac{\text{EBIT}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Invested capital}} \times \frac{\text{EBT}}{\text{EBIT}} \times \frac{\text{Invested capital}}{\text{Owners' equity}} \times \frac{\text{EAT}}{\text{EBT}}$$

17. **Self-sustainable growth rate (Chapter 6, equation 6.12)**

$$\text{SGR} = \text{Profit retention rate} \times \text{Return on equity}$$

18. **Net present value (Chapter 7)**

$$\begin{aligned}\text{NPV}(k,T) &= -\text{CF}_0 + \frac{\text{CF}_1}{(1+k)^1} + \frac{\text{CF}_2}{(1+k)^2} + \ldots + \frac{\text{CF}_t}{(1+k)^t} + \ldots + \frac{\text{CF}_T}{(1+k)^T}\\ &= -\text{CF}_0 + \sum_{t=1}^{T} \frac{\text{CF}_t}{(1+k)^t}\end{aligned}$$

19. **Bond price (Chapter 10, equation 10.2)**

$$P = \frac{\text{CP}_1}{(1+y)} + \frac{\text{CP}_2}{(1+y)^2} + \ldots + \frac{\text{CP}_T + F}{(1+y)^T}$$

20. **Share price (Chapter 10, equation 10.9)**

$$P = \frac{\text{DPS}_1}{(1+k_E)} + \frac{\text{DPS}_2}{(1+k_E)^2} + \ldots + \frac{\text{DPS}_t}{(1+k_E)^t} + \ldots$$

21. **Constant dividend growth model (Chapter 10, equation 10.10)**

$$P = \frac{\text{DPS}_1}{k_E - g}$$

22. **Enterprise value and Equity value (Chapter 10, equation 10.13)**

$$\text{Enterprise Value (EV)} = \text{Equity Value} + \text{Debt} - \text{Cash and other financial assets}$$

$$\text{Equity Value } (V_E) = \text{Enterprise Value (EV)} + \text{Cash} - \text{Debt}$$

23. **Equity (levered) beta (Chapter 12, equation 12.6)**

$$\beta_{\text{equity}} = \beta_{\text{asset}}\left[1 + \frac{\text{Debt}}{\text{Equity}}\right]$$

24. **Weighted average cost of capital (Chapter 12, equation 12.12)**

$$\text{WACC} = k_D(1 - T_C)\frac{D}{E + D} + k_E\frac{E}{E + D}$$

25. **Interest tax shield (Chapter 13, equation 13.3)**

$$\text{ITS} = T_C \times k_D \times D$$

26. **Market value of a levered firm (Chapter 13, equation 13.4)**

$$V_L = V_U + PV_{ITS}$$

27. **Market value at risk (Chapter 15, equation 15.1)**

$$\text{MVR} = [\text{Reduction in the firm's value if the risk will occur}] \times [\text{Probability that the risk will occur}]$$

28. **Put-call parity relationship (Chapter 16, equation 16.5)**

$$P_0 = C_0 + Xe^{-R_F T} - S_0$$

29. **Black-Scholes option pricing formula (Chapter 16, equation 16.6 and 16.7)**

$$C_0(\text{call option}) = S_0N(d_1) - Xe^{-R_F T}N(d_2)$$
$$P_0(\text{put option}) = Xe^{-R_F T}[1 - N(d_2)] - S_0[1 - N(d_2)]$$

30. **Market value added (Chapter 18, equation 18.1)**

$$\text{Market value added (MVA)} = \text{Market value of capital} - \text{Capital employed}$$

31. **Return on invested capital (Chapter 18)**

$$\text{ROIC} = \frac{\text{NOPAT}}{\text{Invested capital}} = \frac{\text{EBIT}(1 - T_C)}{\text{Invested capital}}$$

32. **Economic value added (Chapter 18, equation 18.6)**

$$\text{EVA} = [\text{Return spread}] \times \text{Invested capital} = [\text{ROIC} - \text{WACC}] \times \text{Invested capital}$$

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INSEAD

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Australia • Brazil • Mexico • Singapore • United Kingdom • United States

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To our spouses, children and grandchildren, with love and gratitude.

GH and CV, 2018

This edition of Finance for Executives is dedicated to the memory of Claude Viallet, my friend, colleague and co-author.

Gabriel Hawawini, 2019

Brief Contents

Contents

Preface

Finance is an essential and exciting area of management that many executives want to learn or explore in more depth. Most finance textbooks, however, are either too advanced or too simplistic for many nonfinancial managers. Our challenge was to write an introductory text that is specifically addressed to executives, and that is both practical and rigorous.

The target audience includes executives directly and indirectly involved with financial matters and financial management, which is just about every executive. Over the past few years, several thousand managers around the world have used most of the material in this book. The text works well in executive-development programs – including executive masters of business administration (EMBA) programs – and corporate finance courses for an undergraduate or MBA audience either as a core text, where a more practical and applied emphasis is desired, or as a companion to a theoretical text to translate theory into practice.

Finance for Executives has a number of important features:

- **The book is based on the principle that managers should manage their firm's resources with the objective of increasing their firm's value.**

Managers must make decisions that are expected to raise their firm's market value. This fundamental principle underlies our approach to management. This book is designed to improve managers' ability to make decisions that create value, including decisions to restructure existing operations, launch new products, buy new assets, acquire other companies, and finance the firm's investments.

- **The book fills the gap between introductory accounting and finance manuals for nonfinancial managers and advanced texts in corporate finance.**

Finance for Executives is based on modern finance principles. It emphasizes rigorous analysis but avoids formulas that have no direct application to decision making. Whenever a formula is used in the text, the logic behind it is explained and numerical examples are provided. Mathematical derivations of the formulas are given in the appendices that follow the chapter in which they first appear. Recognizing that executives often approach financial problems from a financial accounting perspective, we begin with a solid review of the financial accounting system. We then show how this framework can be extended and used to make sound financial decisions that enhance the firm's value.

- **The chapters are self-contained.**

Each chapter can be read without prior reading of the others. When knowledge of a previous chapter would enhance comprehension of a specific section, we direct the

reader to that previously-developed material. Further advice on this score is provided in the section titled "How to Read This Book."

- **The book can be read in its entirety or used as a reference.**

The book can be used as a quick reference whenever readers need to brush up on a specific topic or close a gap in their financial management knowledge. A comprehensive glossary and the index at the end of the book help the reader determine which chapters deal with the desired issue or topic. Most financial terms are explained when first introduced in the text; they appear in boldface type and are defined in the glossary.

- **Data from the same companies are used throughout the book to illustrate diagnostic techniques and valuation methods.**

We focus on the same set of firms to illustrate most of the topics covered in this book. This approach provides a common thread that reinforces understanding.

- **Spreadsheet solutions and formulas are included in the text.**

Recognizing that spreadsheets have become part of most executives' tool kit, the text shows the spreadsheet solutions to all the examples, cases, and self-test questions, when applicable. Formulas used in the spreadsheets are shown at the bottom of the tables for an immediate understanding of the solutions and for reproduction of the spreadsheets for personal use.

- **Each chapter is followed by self-test and review questions.**

The self-test questions that appear at the end of each chapter allow the readers to assess their knowledge of the subject. Most of the questions require the use of a financial calculator or a spreadsheet. Detailed, step-by-step solutions to the self-test questions can be found at the end of the book.

The review questions, which follow the self-test questions at the end of each chapter, provide the readers with the opportunity to challenge their knowledge of the subject and give the instructors relevant material to test the student's grasp of the concepts and techniques presented in the chapter. Solutions to review questions are available online only to instructors.

MAJOR CHANGES IN THE SIXTH EDITION

As was the case with the previous editions of *Finance for Executives*, we have incorporated in the sixth edition recommendations received from our colleagues at INSEAD and other schools and from a large number of students and executives who have attended courses and seminars in which the book was assigned. Here are the major changes from the last edition:

- We have written an entirely new chapter (Chapter 16) entitled Understanding Forward, Futures, and Options and Their Contribution to Corporate Finance.
- We have moved the presentation on currency risk from Chapter 15 (Managing Corporate Risk) to Chapter 17 (Making International Business Decisions).
- We use a new set of international companies from the pharmaceutical industry, GlaxoSmithKline and Sanofi, to illustrate how to perform a financial analysis using the concepts and techniques presented in Chapters 4 through 6.

- We have updated all chapters with the latest available financial information.
- We have introduced spreadsheets throughout the chapters to illustrate the valuation of bonds, stocks, and companies.
- We have prepared a new set of professionally designed PowerPoint slides to accompany the book.

WHAT IS IN THIS BOOK?

Although the book consists of self-contained chapters, those chapters follow a logical sequence built around the idea of value creation. The overall structure of the book is summarized in a diagram on the following page that illustrates the value-based business model. Managers must raise cash (the right side) to finance investments (the left side) that are expected to increase the firm's value and the wealth of its owners.

Part I, Financial Concepts and Techniques, begins with a chapter that surveys the principles and tools executives need to know to manage for value creation. Chapter 2 presents the concept of time value of money and reviews the mechanics of calculating present values for different streams of cash flows. Chapter 3 explains the relationship between the risk of a financial asset and its expected return, and examines the implications for financial investment management and the valuation of financial assets.

Part II, Assessing Business Performance, reviews the techniques that executives should use to assess a firm's financial health, evaluate and plan its future development, and make decisions that enhance its chances of survival and success. The chapters in this part examine in detail a number of financial diagnostics and managerial tools that were introduced in Chapter 1. Chapter 4 explains and illustrates how balance sheets, income statements, and statements of cash flows are constructed and interpreted. As an application, the appendix includes the financial statements of GlaxoSmithKline, an international pharmaceutical company. Chapter 5 shows how to evaluate a firm's operational efficiency and its liquidity position. Chapter 6 identifies the factors that drive a firm's profitability, analyzes the extent of its exposure to business and financial risks, and evaluates its capacity to finance its activities and achieve sustainable growth. The financial analysis tools presented in these chapters are applied to GlaxoSmithKline, whose financial statements are presented in Chapter 4. The analyses appear in the appendices to Chapters 5 and 6, including a comparative analysis of GlaxoSmithKline and one of its major competitors, Sanofi.

Part III, Making Investment Decisions, demonstrates how managers should make investment decisions that maximize the firm's value. Chapter 7 examines the net present value (NPV) rule in detail and shows how to apply this rule to make value-creating investment decisions. Chapter 8 reviews a number of alternative approaches to the NPV rule, including the internal rate of return (IRR) and the payback period rules, and compares them with the NPV rule. Chapter 9 shows how to identify and estimate the cash flows generated by an investment proposal and assess the proposal's capacity to create value.

Part IV, Making Financing Decisions, explains how managers should make financing decisions that maximize value. Chapter 10 shows how to value bonds and common stocks. Chapter 11 explains how firms raise fresh capital from financial markets policy and share buybacks. Chapter 12 shows how to estimate the cost of capital for a particu-

WHAT IS IN THIS BOOK?

PART I: FINANCIAL CONCEPTS AND TECHNIQUES

Chapter 1:
What does managing for value creation mean?

Chapter 2:
How to convert a stream of future cash flows into their present value.

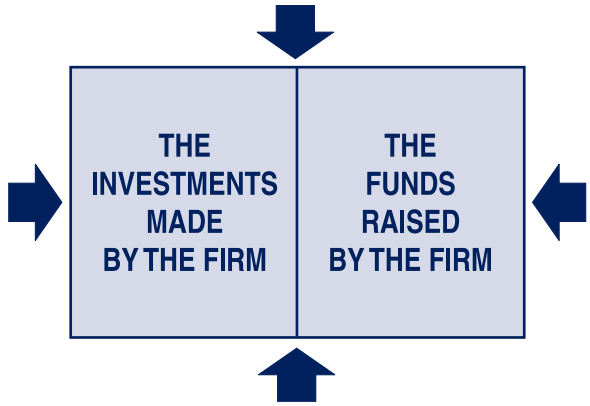
Chapter 3:
What is the relationship between the risk of a financial asset and its expected return, and what are the implications for financial and investment management and the valuation of financial assets?

PART II: ASSESSING BUSINESS PERFORMANCE

Chapters 4 to 6:
How to interpret financial information to assess performance (Chapter 4), and how do financial structure and operational efficiency affect a firm's liquidity (Chapter 5), profitability, risk, and capacity to grow (Chapter 6)?

PART III: MAKING INVESTMENT DECISIONS

Chapters 7 to 9:
How should firms evaluate investment proposals and select value-creating projects?



PART IV: MAKING FINANCING DECISIONS

Chapter 10:
How to value the securities that firms issue to raise funds?

Chapter 11:
How do firms raise the funds needed to finance their investments and return cash to shareholders?

Chapter 12:
What is the cost of the funds the firm raises?

Chapter 13:
What is the best mix of owners' funds and borrowed funds?

PART V: MAKING BUSINESS DECISIONS

Chapter 14:
How is a firm valued?

Chapter 15:
How risky is the firm?

Chapter 16:
How to use forward, futures and option contracts to control risk.

Chapter 17:
How do international activities affect the firm's value?

Chapter 18:
Is the firm using its resources efficiently to create value?

lar project as well as an entire firm. Chapter 13 explains how a firm should make value-creating financing decisions by designing a capital structure (the mix of owners' funds and borrowed funds) that maximizes its market value and minimizes its cost of capital.

Part V, Making Business Decisions, concludes with five chapters on making value-creating business decisions. Chapter 14 reviews various models and techniques used to value firms in the context of an acquisition. Chapter 15 provides a comprehensive framework to identify, measure, and manage the risks a firm faces. Chapter 16 shows how forward, futures, and option contracts can be used to control risk. Chapter 17 looks at financial management and value creation in an international environment where currency and country risks must be taken into account. Chapter 18 summarizes the analytical framework underlying the process of value creation and examines some of the related empirical evidence.

HOW TO USE THIS BOOK

Depending on your background and your needs, you may want to use this book in different ways. Below are a few guidelines. Also, refer to the exhibit on the next page for suggested sequences of chapters to cover depending on the type of program taken.

- If you are unfamiliar with financial management and financial accounting, you may want to begin by reading Chapter 1. It provides an overview of these subjects and will help you understand the fundamental objective of modern corporate finance and the logical relationships among the various issues and topics that make up that field. Although reading the first chapter will facilitate the understanding of those that follow it, it is not necessary to read it to comprehend the rest of the book – the chapters are self-contained.
- If you are not familiar with the basic concept of discounting and the calculation of present values, you should read Chapter 2. The chapter also shows you how to perform present value calculations with a financial calculator and spreadsheets. If you skip Chapter 2, you will find a review of these concepts in Chapter 7.
- If you wish to familiarize yourself with the concept of portfolio diversification and financial investment management you should read Chapter 3, but you do not need to read that chapter to understand any of the other chapters in the book.
- If you are not familiar with financial statements, it would be helpful, but not essential, to read Chapter 4 before you continue with the chapters in Part II. The chapter explains how to read a balance sheet, an income statement, and a statement of cash flows, and how to restructure these statements to interpret the information they provide.
- If you are unfamiliar with the functioning of financial markets, you should read the first five sections of Chapter 11 before you continue with the rest of Part IV. These sections provide an overview of the structure, organization, and role of financial markets.
- Last, if you have a basic knowledge of accounting and finance, you can go directly to the chapter dealing with the issue you wish to explore. Because the chapters are self-contained, you will not have to review the preceding chapters to fully understand your chosen chapter.

RECOMMENDED CHAPTERS ACCORDING TO TYPE OF PROGRAM

Chapter/Topic	Executive Education		MBA Program	
	1st course	2nd course	1st course	2nd course
1. Overview	✓		✓	
2. The time value of money	✓		✓	
3. Risk, return, and portfolio analysis			✓	
4. Financial statements analysis	✓		✓	
5. Operational efficiency and liquidity management	✓		✓	
6. Profitability and risk management	✓		✓	
7. Capital budgeting: NPV	✓		✓	
8. Capital budgeting: IRR & other methods	✓		✓	
9. Capital budgeting: Cash flow analysis	✓		✓	
10. Bond valuation		✓	✓	
10. Common stock valuation		✓	✓	
11. Financial markets and raising capital		✓	✓	
11. Dividend policy and share buybacks		✓		✓
12. Estimation of the cost of capital		✓		✓
13. Designing a capital structure		✓		✓
14. Valuing and acquiring a business		✓		✓
15. Corporate risk management		✓		✓
16. Forward, futures, and option contracts		✓		✓
17. International capital budgeting		✓		✓
18. Managing for value creation		✓		✓

About the Authors

Gabriel Hawawini (Ph.D., New York University) is emeritus professor of finance at INSEAD where he served as dean and held the Henry Grunfeld Chair in Investment Banking. He taught finance at New York University, Baruch College, Columbia University, and the Wharton School of the University of Pennsylvania where he received the Helen Kardon Moss Anvil Award for Excellence in Teaching.

Professor Hawawini is the author of 12 books and more than 70 research papers on financial markets and corporate finance. He teaches value-based management seminars around the world and sits on the board of several companies.

Claude Viallet (Ph.D., Northwestern University) was emeritus professor of finance at INSEAD. He was visiting professor of finance at Kellogg School of Management, Northwestern University. Before joining INSEAD, he worked as a project manager at a major oil company and as chief financial officer of a service company in Paris.

Professor Viallet was president of the European Finance Association and published widely in leading academic and professional journals. He also organized, directed, and taught management-development programs in Europe, the United States, Asia, and Latin America and provided consulting services to companies around the world.

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A number of colleagues and friends have been most generous with the time they spent reading parts of the manuscript for the previous editions and providing specific comments and suggestions. We also have received many useful comments from students and executives to whom the book was assigned.

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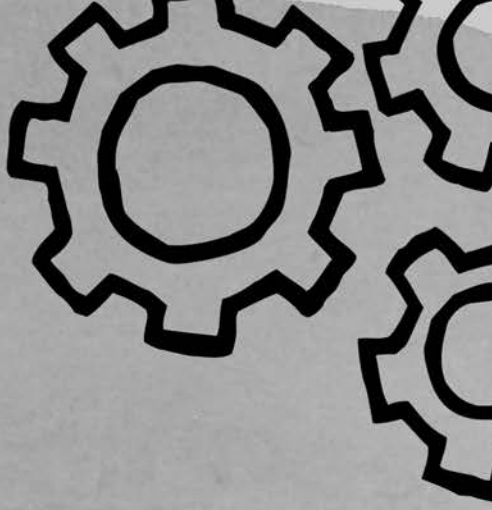

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Financial Management and Value Creation: An Overview

CHAPTER 1

An executive cannot be an effective manager without a clear understanding of the principles and practices of modern finance. The good news is that these principles and practices can be communicated simply, without sacrificing thoroughness or rigor. Indeed, you will discover that most of the concepts and methods underlying modern corporate finance are based on business common sense. But translating business common sense into an effective management system can be a real challenge. It requires, in addition to a solid understanding of fundamental principles, the determination and the discipline to manage a business according to the precepts of modern finance. Consider, for example, one of financial management's most useful guiding principles:

> **Managers should manage their firm's resources with the objective of increasing the firm's value.**

This may seem to be an obvious statement. But you probably know a number of companies that are not managed to their full potential value. You may even know well-intentioned managers who are value destroyers. Their misguided actions, or lack of actions, actually reduce the value of their firms.

How do you manage for value creation? This book should help you find the answer. Our main objective is to present and explain the methods and tools that will help you determine whether the firm's current investments are creating value and, if they are not, what remedial actions should be taken to improve operations. We also show you how to determine whether a business proposal – such as the decision to buy a piece of equipment, launch a new product, acquire another firm, or restructure existing operations – has the potential to raise the firm's value. Finally, we show you that managing with the goal of raising the firm's value provides the basis for an integrated financial management system that helps you not only evaluate actual business performance and make sound business decisions, but also design effective management compensation packages – compensation packages that align the interests of the firm's managers with those of the firm's owners.

This introductory chapter reviews some of the most challenging issues and questions raised by modern corporate finance and gives a general but comprehensive

overview. Although the topics surveyed here are examined later in detail, many of the important terms and concepts are introduced and defined in this introduction with a clear indication of the relevant chapters you need to consult to get a complete presentation of each topic. After reading this chapter, you should have a broad and clear understanding of the following:

- The meaning of managing a business for value creation
- How to measure the value that may be created by a business proposal, such as an investment project, a change in the firm's financial structure, a business acquisition, or the decision to invest in a foreign country
- The significance of the firm's cost of capital and how it is measured
- Why some firms pay out cash dividends to their shareholders and buy back their own shares in the open market
- The function of financial markets as a source of corporate funds and the role they play in the value-creation process
- A firm's business cycle and how it determines the firm's capacity to grow
- The basic structure and the logic behind a firm's balance sheet, income statement, and cash-flow statement
- What is risk and how to define it, and how it affects the firm's cost of capital
- How to measure a firm's profitability
- How to determine if a firm is creating value

THE KEY QUESTION: WILL YOUR DECISION CREATE VALUE?

Suppose you have identified a need in the marketplace for a new product. You believe the product can be manufactured cheaply and rapidly. You are even confident it can be sold for a tidy profit. Should you go ahead? Before you make this decision, you should check the project's *long-term financial viability*. How will your firm finance the project? Where will the money come from? Will the project be sufficiently profitable to cover the cost of the funds required to finance it? More to the point, will the firm be more valuable with the project than without it? You should answer these questions before making a final decision.

The proposed venture will be financed by the firm's owners, its **shareholders** (you may be one of them), and by those who lend money to the firm, the **debt holders** (a bank, for example). Cash contributed by shareholders is called **equity capital**; cash contributed by lenders is **debt capital**. As with any other resource, capital is not free. It has a cost. Let's assume that the firm's annual **cost of capital** is 12 percent of the total amount of **capital employed**, the sum of equity and debt capital. The firm's owners will find the venture attractive only if its *operating profitability exceeds* 12 percent, that is, only if its profitability *before financing* the venture is higher than the cost of capital of 12 percent. Why? Because a project whose operating profitability *exceeds* its cost of capital should generate *more* cash than is required to pay for the cost of capital. It is that excess cash that makes the firm more valuable. (We will explain this in more detail throughout the book.) In other words, before deciding to go ahead with a business proposal, you should ask yourself the Key Question:

Will the proposal create value?

If, in light of existing information and proper analysis, you can confidently answer "yes", then go ahead with the project. Otherwise, you should abandon it.

The Key Question applies not only to a business proposal but also to current operations. If some existing **assets** are destroying rather than creating value, you should take immediate corrective actions. If these actions fail to improve performance, you should seriously consider selling those assets.

The Importance of Managing for Value Creation

We realize, of course, that the Key Question is much easier asked than answered. The next section describes how to apply the **fundamental finance principle** to help you answer the Key Question. Before introducing that principle, we want to explain why management's paramount objective should be the creation of value for the firm's owners. This objective makes business common sense if you think about a firm whose recent management decisions *reduced* the firm's value. What would happen in this case? The firm may be unable to attract the equity capital it needs to fund its activities. And without equity capital, no firm can survive.

You may rightly ask whether we are forgetting the contributions of employees, customers and suppliers. No firm can succeed without them. Great companies have not only satisfied owners, but also loyal customers, motivated employees, and reliable suppliers. The point, of course, is not to neglect customers, squeeze suppliers, or ignore the interest of employees for the benefit of owners: more value for shareholders does not mean less value for employees, customers, or suppliers. On the contrary, firms managed with a focus on creating value for their owners are among those that have built durable and valuable relationships with their customers, employees, and suppliers. They know that dealing successfully with employees, customers, and suppliers is an important element in achieving their ultimate objective of creating value for their owners.

Indeed, evidence supports the fact that firms that take care of their customers and employees also deliver value to their owners. Consider the results of an annual survey that asked executives, outside directors, and financial analysts to rate the ten largest companies in their industry according to the following criteria: (1) quality of management; (2) quality of products or services; (3) ability to attract, develop, and keep talented people; (4) company's value as a long-term investment; (5) use of corporate assets; (6) financial soundness; (7) capacity to innovate; and (8) community and environmental responsibilities.[1] The companies with the *highest* scores across all industries significantly outperformed the Standard & Poor's market index (an average of 500 companies) during the ten-year period that preceded the ranking. What was the stock market performance of the companies with the *lowest* scores? They were value destroyers. They delivered a *negative* return to their shareholders during the ten-year period that preceded the ranking. An analysis based on only the three criteria that relate to the way companies treat their customers (the second criterion), their employees (the third criterion), and their community (the last criterion) showed similar results.[2]

These results clearly indicate that the *ability of firms to create value for their shareholders is related to the way they treat their customers, employees, and community*. But you should not conclude that the guaranteed recipe for value creation consists of delighting customers, establishing durable relations with suppliers, and motivating employees. Some firms that deal successfully with their customers, employees, and suppliers are unable to translate this goodwill into a higher firm value.

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[1] See *fortune.com/worlds-most-admired-companies*.

[2] See Edmans (2011) and (2012). For international evidence, see Edmans, Li, and Zhang (2014).

What should the firm's managers do in this case? They must revise the firm's current business strategy because their shareholders will eventually question the relevance of a strategy that does not allow the firm to produce a satisfactory return on the equity capital they have invested in it. Dissatisfied shareholders, particularly those holding a significant portion of the firm's equity capital, may try to force the firm's management to change course or may try to oust the existing management team. Or, they may simply withdraw their support by selling their holdings to others who might force changes.

Whether shareholders will be successful in getting management to change its strategy, or even be replaced, depends on a number of factors, including the institutional and legal frameworks that govern the relationship between management and shareholders, and the structure and organization of the country's equity markets in which the firm's shares are listed and traded. We simply suggest that *no firm can afford to have delighted customers, motivated employees, and devoted suppliers for too long if it does not also have satisfied shareholders*.

When asked in whose interest corporations are run, Mr. Jack Welch, the former chief executive officer of General Electric, replied, "A proper balance between shareholders, employees, and communities is what we all try to achieve. But it is a tough balancing act because, in the end, if you don't satisfy shareholders, you don't have the flexibility to do the things you have to do to take care of employees or communities. In our society, whether we like it or not, we have to satisfy shareholders."[3]

The Saturn Story

In the early 1980s, General Motors (GM), then the world's largest vehicle manufacturer, faced strong competition from foreign producers of small, efficient, reliable, and inexpensive cars. In response to this challenge, in 1985, GM set up a separate company to build an entirely new car, the Saturn. The car was designed, produced, and sold according to the best practices available at the time. Workers were highly motivated, car dealers could not keep up with demand, and customers were extremely satisfied with their cars. According to these criteria, Saturn was an undeniable success story.

The first car rolled off the assembly line in 1990. The project, however, never delivered the rise in the value of GM's shares that management had hoped would occur.[4] Why?

According to knowledgeable consultants, the $6 billion spent developing, manufacturing, and marketing the Saturn line of models was already so high that for GM to earn an acceptable return for its shareholders it would have had "to operate existing facilities at full capacity forever, earn more than double standard profit margins, and keep 40 percent of the dealers' sticker price as net cash flow."[5]

In 2009 GM stopped producing its line of Saturn cars, and in 2010 it discontinued the Saturn brand after acknowledging that it had lost about $20 billion on the project.[6]

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[3] *Fortune*, May 29, 1995, p. 75.

[4] *Fortune*, December 13, 2004, "GM's Saturn Problem," pp. 119–127.

[5] McTaggart, Kontes, and Mankins (1994), p. 16.

[6] See the *New York Times*, October 1, 2009, "GM to Close Saturn After Deal Fails," and "Saturn Corporation" in Wikipedia.org.

Our question is: how long should a firm fund a project that delights its customers, pleases its distributors, and satisfies its employees, but fails to deliver value to its shareholders? Obviously, not very long if it wishes to survive. So what can we conclude about the ultimate purpose of a business enterprise? Is it exclusively about shareholder wealth creation, or is it about a "**stakeholders' approach**" that tries to balance the interests of all the parties associated with the firm (its customers, employees, suppliers, and owners)? We believe that this is a false debate. The focus should be on making decisions that raise the value of the firm, *and in doing so, the firm ultimately creates value for its stakeholders and society as a whole*.[7]

THE FUNDAMENTAL FINANCE PRINCIPLE

Recall the Key Question you should ask before making a business decision: will the decision create value? The Key Question can be answered with the help of the fundamental finance principle:

> **A business proposal – such as a new investment, the acquisition of another company, or a restructuring plan – will create value only if the present value of the future stream of net cash benefits the proposal is expected to generate exceeds the initial cash outlay required to carry out the proposal.**

The **present value** of the future stream of expected net cash benefits is the amount of dollars that makes the firm's owners *indifferent* to whether they receive that sum today or get the expected future cash-flow stream. For example, if the firm's owners are indifferent to whether they receive a **cash dividend** of $100,000 today or get an expected cash dividend of $110,000 next year, then $100,000 is the present value of $110,000 expected next year. (See Chapter 2 for a review of how present values are calculated.)

Measuring Value Creation with Net Present Value

The difference between a proposal's present value and the initial cash outlay required to implement the proposal is the proposal's **net present value** or **NPV**:

Net present value = −Initial cash outlay + Present value of future net cash benefits

For example, if a firm's owners are indifferent between $100,000 today and $110,000 in one year, then a project that requires $105,000 today to buy a machine that is expected to generate a net cash flow of $110,000 next year, has a *negative* NPV of $5,000 because next year's cash flow is worth $100,000 today, which is $5,000 less than the initial cash outlay:

$$\text{NPV} = -\$105{,}000 + \$100{,}000 = -\$5{,}000$$

If the project is undertaken, it would reduce the value of the firm by $5,000.

We can use the NPV concept to restate the fundamental finance principle more succinctly:

> **A business proposal creates value if its NPV is positive and destroys value if its NPV is negative.**

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[7] For a discussion on whether creating value for owners also creates value for all the firm's stakeholders, see John Martin, William Petty, and James Wallace (2009).

The proposal's NPV goes to the investors who *own* the project – in other words, to the shareholders of the firm that undertakes the project. This means that the shareholders should be able to sell their equity stake in the company that announced the project for *more* than they could sell it for if the project were not undertaken, and the difference should be equal to the project's NPV.

The firm's ability to identify the project, and the market expectation that the firm will carry out the project successfully, create an immediate increase in the firm's value and in the wealth of its owners. More precisely, if the shares of the firm are listed and traded on a stock exchange, the market value of the firm (the share price multiplied by the number of shares outstanding) should rise by an amount equal to the project's NPV on the day the project is announced, assuming the announcement is *unanticipated*, and the market agrees with the firm's analysis of the project's profitability. We return to this point later in the chapter when we examine the role played by financial markets in the process of value creation.

ONLY CASH MATTERS

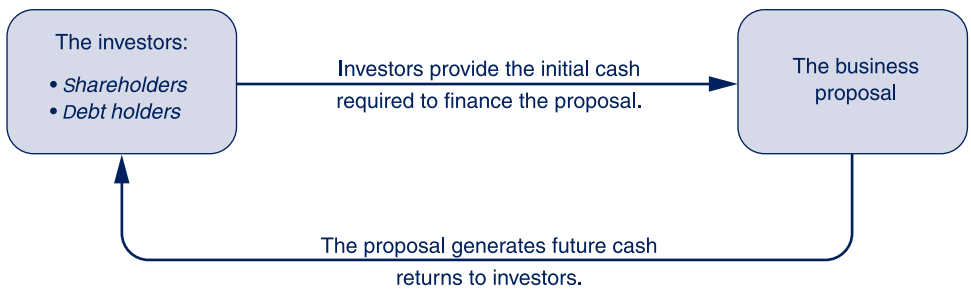
The fundamental finance principle requires that the initial investment needed to undertake a proposal, as well as the stream of net future benefits it is expected to generate, be measured in cash. As Exhibit 1.1 shows, the investors who are financing the proposal – the firm's shareholders and debt holders – have invested *cash* in the firm and thus are interested only in *cash* returns. Note that the cash benefits of a project must not be confused with the increase in the firm's net profit expected from the project because profits are accounting measures of benefits, not of cash returns.

Chapter 4 identifies the differences between a firm's cash flows, its revenues, its expenses, and its net profit, and Chapter 9 shows how to estimate the cash flows that are relevant to an investment decision.

DISCOUNT RATES

Consider an investment proposal that requires shareholders to invest $100,000 today in order to generate an expected $110,000 of cash at the end of the year. Suppose that the present value of the $110,000 is $100,000. Recall that the present value is the value that makes the firm's owners indifferent to whether they receive $100,000

EXHIBIT 1.1 ONLY CASH MATTERS TO INVESTORS.



today or receive the expected $110,000 in one year. This is the same as saying that the firm's owners expect to receive a return of 10 percent from the project because $100,000 invested at 10 percent will yield $110,000 in one year. The 10 percent is called the **discount rate**: it is the rate at which the future cash flow must be *discounted* to find its present value. In other words, $100,000 is the *discounted value* at 10 percent of $110,000 to be received in one year.

If we want to estimate the NPV of a proposal, we must first discount its future cash-flow stream to find its present value and then deduct from that present value the initial cash outlay required to carry out the proposal. Chapter 2 examines the **discounting** mechanism in detail and explains how to calculate present values and how to estimate a project's NPV when the project has an expected cash-flow stream that is longer than one year.

In our example, we know the discount rate (10 percent) because we already know the expected future cash flow ($110,000) and its present value ($100,000). However, this is not usually the case. In general, a proposal's future cash flow must be estimated, and the discount rate must be determined. But what discount rate should be used? *A proposal's appropriate discount rate is the cost of financing the proposal.*

In the example, the return expected from the project must be at least 10 percent to induce shareholders to invest in the project. In other words, because 10 percent is the rate of return required by shareholders to fund the project, it is also the project's **cost of equity** capital. It represents the cost of using shareholders' cash to finance the investment proposal.

A Proposal's Cost of Capital

In the previous example, the project was funded only with equity capital. Firms, however, typically finance their investment proposals with a combination of equity capital and debt capital, and both shareholders and debt holders require a return from their contribution to the financing of the proposal. When a project is funded with both equity and debt capital, the cost of capital is no longer equal to just the cost of equity. It is the weighted average of the project's cost of equity and its **after-tax cost of debt**,[8] where the weights are the proportions of equity and debt financing in the total capital used to fund the project.

To illustrate, suppose a project will be financed 50 percent with equity and 50 percent with debt. Also, assume the project has an estimated after-tax cost of debt of 4 percent and a cost of equity of 12 percent. Then, the project's **weighted average cost of capital** or **WACC** is equal to 8 percent:

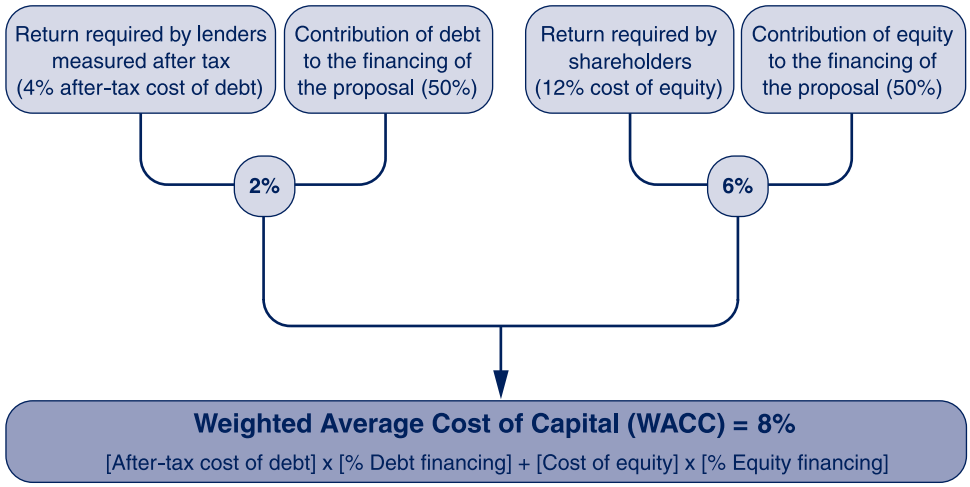
$$\begin{aligned}\text{Project cost of capital (WACC)} &= (4\% \times 50\%) + (12\% \times 50\%)\\ &= 2\% + 6\%\\ &= 8\%\end{aligned}$$

In other words, the contribution of debt financing to the project's cost of capital is 2 percent (50 percent of 4 percent) and that of equity financing is 6 percent (50 percent of 12 percent) as shown in Exhibit 1.2.

If the proportions of equity and debt financing are modified, the WACC will be affected, not only because the financing proportions have changed but also because the **cost of debt** and the cost of equity change when the financing proportions are

[8] We explain in Chapter 12 why the cost of debt must be taken after tax.

EXHIBIT 1.2 THE COST OF FINANCING A BUSINESS PROPOSAL IS ITS WEIGHTED AVERAGE COST OF CAPITAL.



altered. Chapter 12 shows how to estimate a project's cost of debt as well as its cost of equity and WACC. Chapter 13 demonstrates how the WACC is affected when the financing proportions change.

APPLYING THE FUNDAMENTAL FINANCE PRINCIPLE

The fundamental finance principle has widespread applications in major areas of corporate decision-making. In this book, we address the capital budgeting decision (whether an investment project should be accepted or rejected), the payout policy (when and how much cash the firm should distribute to its shareholders through cash dividends and/or by buying back its own shares in the open market), the capital structure decision (how much of the firm's assets should be financed with equity and how much with debt), the business acquisition decision (how much should be paid to acquire another company), and the foreign investment decision (how to account for multiple-currency cash flows and for the different risks of operating in a foreign country). The capital budgeting decision is covered in Chapters 7 through 9, the payout policy in Chapter 11, the capital structure decision in Chapter 13, the acquisition decision in Chapter 14, and the management of cross-border operations in Chapter 17. This section provides an overview of these corporate decisions.

THE CAPITAL BUDGETING DECISION

The **capital budgeting decision**, also called the **capital expenditure decision**, is primarily concerned with the acquisition of fixed assets, such as plant and equipment. This is a major corporate decision because it typically affects the firm's business performance for a long period of time. The decision criteria used in capital budgeting,

such as the **NPV rule** and the **internal rate of return** (**IRR**) **rule**, are direct applications of the fundamental finance principle.

The Net Present Value Rule

The NPV rule is a direct application of the fundamental finance principle because it says that a project should be undertaken only if it does not destroy value. A project does not destroy value when its NPV is positive or zero. It destroys value when its NPV is negative.

A project with a positive NPV creates value because the present value of its expected future cash benefits is *greater* than the initial cash outlay required to launch the project. A project with a negative NPV destroys value because the present value of its expected future cash benefits is *less* than the initial cash outlay required to launch the project. A project with a zero NPV neither creates nor destroys value: it breaks even and should be undertaken because it covers all its costs. In general, the NPV rule can be stated as follows:

A project should be undertaken if its NPV is positive or zero and should be rejected if its NPV is negative.

The properties of the NPV rule are examined in detail in Chapter 7.

The Internal Rate of Return Rule

One of the most commonly used alternatives to the NPV rule, especially in the analysis of capital expenditures, is the IRR rule. A project's IRR is a measure of its *operating* profitability, meaning that it *excludes* the cost of *financing* the project. Thus, to find out if a project creates value, you must compare the project's IRR to the cost of financing the project. Recall that the cost of financing a project is its WACC.

Suppose that a firm has a project whose IRR is 15 percent. The project can be financed at an estimated WACC of 10 percent. Should the firm invest in this project? The answer is yes because its operating profitability, measured by its IRR (which excludes the cost of funding the project), *exceeds* the cost of financing the project, measured by its estimated WACC. If a project's IRR is *lower* than its WACC, the project cannot be financed profitably and should be rejected. If the IRR is equal to the WACC, the project breaks even and should be undertaken because it covers all its costs. In general, the IRR rule can be stated as follows:

A project should be undertaken if its IRR is higher than, or equal to, its cost of capital, and should be rejected if its IRR is lower than its cost of capital.

Chapter 8 examines the properties of the IRR rule as well as other capital budgeting rules and compares them with the NPV criterion.

Sources of Value Creation in a Business Proposal

We have seen that firms with positive NPV proposals are expected to generate excess cash profits – that is, cash profits above the level required to remunerate the firm's shareholders. However, there is nothing more powerful than excess cash profits to attract a horde of eager competitors into a new market. Clearly, the challenge for firms with *recurrent* positive NPV businesses is to keep competitors at bay and