

Finance for Executives

A Practical Guide for Managers

Nuno Fernandes

Copyright © 2017 Nuno Fernandes

All rights reserved. No reproduction, copy or transmission of this publication may be made without written permission.

No portion of this publication may be reproduced, copied or transmitted save with written permission or in accordance with the provisions of the Copyright, Designs and Patents Act 1988, or under the terms of any licence permitting limited copying issued by the Copyright Licensing Agency, Saffron House, 6–10 Kirby Street, London EC1N 8TS.

Any person who does any unauthorized act in relation to this publication may be liable to criminal prosecution and civil claims for damages.

The rights of Nuno Fernandes to be identified as the author of this work have been asserted by him in accordance with the Copyright, Designs and Patents Act 1988.

Books may be purchased in quantity and/or special sales by contacting the publisher, NPV Publishing, by email at Sales@NpvPublishing.com

Although every precaution has been taken to verify the accuracy of the information contained herein, the author and publisher assume no responsibility for any errors or omissions. No liability is assumed for damages that may result from the use of information contained within.

All trademarks used herein are the property of their respective owners. The use of any trademark in this text does not vest in the author or publisher any trademark ownership rights in such trademarks, nor does the use of such trademarks imply any affiliation with or endorsement of this book by such owners.

This book is sold subject to the condition that it shall not, by way of trade or otherwise, be lent, re-sold, hired out or otherwise circulated without the publisher's prior consent in any form of binding or cover other than that in which it is published and without a similar condition including this condition being imposed on the subsequent purchaser.

British Library Cataloguing in Publication Data

A catalogue record for this book is available from the British Library

Library of Congress Cataloguing in Publication Data

Fernandes, Nuno

Finance for Executives: A Practical Guide for Managers

p. cm.

Includes bibliographical references and index

ISBN-13: 978-9899885417

ISBN-10: 989988541X

1. Corporations—Finance. 2. International business enterprises—Finance. 3. Corporate Finance

To Isabel, Francisco, and Luísa

About the Author

Nuno Fernandes is Professor of Finance and Director of Strategic Finance at IMD, a top-ranked business school. IMD is ranked No. 1 in open enrollment programs worldwide (2012 to 2017) by the *Financial Times*. At IMD, Professor Fernandes directs the Strategic Finance program, as well as many partnership programs for leading international companies.

Professor Fernandes works with senior leaders and executive committees to help them with investment selection, financial strategies, mergers and acquisitions (M&As), international investments, risk analysis, and general governance issues. Professor Fernandes is a specialist in corporate finance, international financial markets, and emerging market risks. He has published in the leading international academic journals, including the *Journal of Financial Economics*, *Review of Financial Studies*, *Journal of International Business Studies*, and the *Journal of Portfolio Management*. He speaks at business conferences in Asia, Europe, and North America, and is a regular contributor to the business press worldwide, including *The Financial Times* and *The Wall Street Journal*.

Professor Fernandes advises companies and financial institutions in Asia, Europe, Latin America, and the Middle East in formulating winning financial strategies, global portfolio investments, international valuations, M&As, risk management, and emerging market investments.

Professor Fernandes is Portuguese and holds a PhD from IESE Business School (Spain). Prior to joining IMD, he was Director of the Master in Finance (CFA Program Partner) at Católica Lisbon School of Business & Economics (Portugal) and a Visiting Scholar at Columbia Business School (New York). His work has earned him some distinguished awards, including the AEFIN prize and a grant from the FDIC (the US regulator for financial institutions). In 2008 he received the Lamfalussy Fellowship from the European Central Bank. This fellowship is conferred on the top researchers in finance worldwide. He has recently received the Journal of Financial Intermediation's Best Paper Award for 2014.

What Is This Book About?

Finance is an exciting and key area for executives to master. Over the course of my career, I have developed a significant number of educational programs for executives that cover many fields in finance and their links with business. But I always faced a challenge. One question was frequently asked after these sessions: “This was great, and I’d like to know more about it. Can you recommend a book for me to read that covers these topics?” Most finance textbooks are too complex and long, and the practical relevance for executives is obscured by more theoretical and technical topics. Some other books are too basic and limited in scope, covering only a very limited set of topics, such as accounting ratios. When faced with this question, eventually I would recommend a couple of chapters from one book, some readings from another, or the kind of 1000-page handbook that people love to carry on the plane back home. After several years, I realized that too many people were asking for the same thing, but “that thing” did not exist in the market. That is why I decided to write this book.

I have noticed when working with general managers that many of them fear finance, the culprits often being jargon, complicated math, and non-standard concepts that do not make intuitive sense. In this book, I try to avoid all these pitfalls by using sound academic research and theories (many of them Nobel Prize winning), and focusing only on the important “nuggets” that are relevant for practitioners, without delving into all the complicated technical details underlying the conclusions. In addition, the book presents several practical applications of key finance tools, how they link with strategy, and how to implement them with Microsoft Excel.

This book has been designed to meet the needs of executives, both finance as well as non-finance managers. Any executive who wants to probe further and grasp the fundamentals of strategic finance issues will benefit from this book.

OBJECTIVES

Finance should be fun, and practical as well. With this book at hand as a reference, executives will have access to a set of tools that will help them develop their intuition for solving key financial problems, analyze alternatives in decision making, and formulate strategies.

Finance is simple. It is about connecting money with ideas. There are several investors with money available, and there are several ideas looking for financing. Finance is just the engine that connects these two forces: money and ideas. And, of course, the overall goal is successful companies that create value for both the suppliers of money and the suppliers of ideas!

These core personal premises regarding finance led me to build in the following features into my book to maximize its utility:

- **Simplicity** — The core concepts in finance are simple, and they should also become intuitively transparent after using this book.
- **Conciseness** — The chapters are short and self-contained to appeal to busy executives who are keen on value-added activities.
- **Practical focus** — The core concepts are explained, but the reader will also learn to identify the problems and pitfalls of different real-world choices.
- **Application of theory to practice** — It is important for top executives to become familiar with important academic research that impacts their companies. This book is grounded in world-class research, and only presents the salient highlights of academic research on each topic. It is therefore not a literature review of all that has been written on each topic.
- **Real-world focus** — The book features examples from actual companies and empirical data on many companies and industries around the world.

From my experience, working with real-world problems and real-world data is more fruitful than theoretical discussions on formulas. Because practice with real-world data is crucial to learning finance, each chapter of this book presents empirical examples of the concepts, uses real-world data to illustrate the key ideas, and allows global executives to “think finance” and have fun with finance!

TARGET AUDIENCE

Most executives need to understand and drive the strategy of their company on the basis of sound financial principles, but with the overarching goal of value creation. This book targets them.

Finance for Executives is a book for business executives, from all backgrounds, seeking

- To focus on the links between finance and the strategy of their company, be it a private or publicly traded company
- To discover how to create value for their company and boost its financial performance
- To understand the key ingredients of long-term value creation

- To create a cost-of-capital culture within a company
- To refresh and broaden their understanding of the latest financial concepts and tools
- To learn not just about accounting numbers, but also about sound financial decision making in areas such as financing and payout policies, mergers and acquisitions (M&As), project valuation, or risk management and derivatives
- To ultimately make better decisions

This book can also be used in executive training programs in finance, as well as in MBA, master's, and executive MBA programs. Indeed, the book is based on many years of executive education and consulting with world-class corporations from all continents of the world. I have been teaching corporate valuation, capital structure and other financial policies, M&As, and risk management for different audiences. I have learned a lot from my regular interactions with practitioners, including CEOs, CFOs, and other senior executives who are interested in the broad world of strategic finance. I have therefore been able to identify what key topics are relevant to different companies, private or public, and what difficulties exist (often language related) in addressing them in practice. Each chapter in this book has benefited from this rich experience.

EXCEL TEMPLATES

In most of the chapters, concrete examples are explained step by step. Further, an Excel spreadsheet containing all the models used in the different chapters is available for download from the book's website:

www.FinanceforExecutives.net

Practitioners will find the file easy to use and to customize to their own requirements. It is useful in a variety of situations: value creation and its decomposition into managerial drivers or key performance indicators (KPIs), cost of capital estimation, project evaluation, mergers and acquisitions, company valuation, options valuation, etc.

ACKNOWLEDGMENTS

The ideas in this book have been developed and reinforced by many people. I have greatly benefited from my regular interactions with hundreds of executives from all backgrounds, including CEOs and CFOs of many companies around the world, teaching sessions, developing company-specific programs, consulting, and even informal conversations. I am grateful to them for sharing their wisdom with me and inspiring many of the ideas in the book.

I owe a big thank you to the following academic reviewers and colleagues for their constructive advice and insightful reviews of this book through its many drafts: Yiorgos Allayannis (Darden), Bo Becker (Stockholm School of Economics), Geert Bekaert (Columbia Business School), Arnoud Boot (University of Amsterdam), Guilherme Brito (Católica Lisbon), José Manuel Campa (IESE), Andrey Golubov (Cass Business School), José Guedes (Católica Lisbon), Campbell Harvey (Duke University), Pedro Matos (Darden), Igor Osobov (University of Connecticut), and Daniel Rogers (Portland State University).

I am also extremely grateful to my colleagues at IMD, professors Arturo Bris, Salvatore Cantale, Kamran Kashani, Stuart Read, and Leif Sjoblom, for their comments on this book. At IMD, I must specifically thank people who have generously read, edited, and provided comments on drafts of this book, namely, Susan Broomfield, Marianne Foerster, Beverley Lennox, Lindsay McTeague, Michelle Perrinjaquet, and Susan Stehli. I am also indebted to Walter Giardiello and Raphaël Thiébaud, my assistants at IMD, for their diligent help and support along this journey. Among many other things, they expertly oversaw the production of all the exhibits in this book, an amazing task given the multitude of databases and formats employed. I also appreciate the support received from a very good and capable friend, Kyril Lakishyk, who managed the entire cover design process.

I could not have created this work without my students, who read and used virtually the entire book in their finance classes at IMD, in MBA, and executive education courses. Over the years, they endured reading earlier drafts of the book, corrected mistakes, commented on the content, and provided additional thoughts and insights that helped shape *Finance for Executives* into the book that you now hold in your hands.

Many business professionals were kind enough to read various chapters and share their observations with me. Among this group, a special word of thanks goes to Marc Chauvet, Viktor Dobrikov, Natalia Filchakova, Jacques Guillemot, Luís Henzler, Hammad Hussain, Tracey Keys, Paulo Marcos, Pedro Marques, Alexandre Mesquita, Urs Rohner, Severin Schwan, Isaak Tsalicoglou, Stephan Wullschleger, and Yingjie Yang.

This book could not have been written without the love and support of my family. My wife, Isabel, gave unsparingly of her time and effort to support my writing. She has read and commented on different drafts of this book, and has always been a sounding board and source of ideas for my work. Finally, my two children helped me with their patience and uncomplainingly sacrificed time with their dad on account of his work on this book. Francisco had to put up with his dad typing away for long hours instead of helping him assemble and disassemble his Legos, and Luísa had to count her teddy bears and PLAYMOBIL toys on her own.

Introduction

HOW TO USE THIS BOOK

This is a book to be used, not a book to be read from beginning to end.

Each chapter is highly readable and practical, yet rigorous. The self-contained chapters include fundamental concepts, analytical tools, and demonstrations of applications of those tools. Executives can then tailor their reading to the specific circumstances applicable to their company.

This book contains empirical evidence, based on real company cases, of the value of financial techniques/tools. In essence, each short chapter is written in a way that allows executives to put the concepts immediately into practice.

Outline

Chapter	Title
1	The Main Accounting Metrics and Ratios
2	What Is the Cost of Capital for My Company?
3	A Managerial Framework for Value Creation
4	Selecting the Right Investment Projects — Capital Budgeting Tools
5	Deciding between Different Sources of Capital — The Capital Structure Decision
6	Borrowing from Banks and Capital Markets
7	Raising Equity — IPOs and SEOs
8	Returning Money to Shareholders — Dividends, Buybacks and the Payout Policy
9	Key Principles for Company Valuation
10	Value Creation through Mergers and Acquisitions
11	Derivatives and Risk Management
12	Management of Corporate Risks with Futures, Forwards, and Swaps
13	Management of Corporate Risks with Options

This book starts with a chapter on the main financial ratios and key accounting terms. **Chapter 1** reviews the key accounting statements, focusing on the main points executives should look at when analyzing financial statements.

Chapter 2 covers questions such as the following: What is the cost of capital, and how does it change over time? How does the cost of equity vary across different companies? How do I compute my company's weighted average cost of capital? What is the relation between risk and cost of capital?

Chapter 3 focuses on what value creation is and how it should link to the company strategy. Indeed, value creation is the responsibility of every executive, yet not all executives have access to the latest strategies and tools of value creation. This chapter outlines a best-practice foundation in value creation for different companies and organizations.

Chapter 4 focuses on questions such as the following: Which of two apparently profitable investment projects should my company choose? How can I ensure that my company allocates capital to projects that add value? What criteria should we use to decide between different capital expenditures? How do I decide between different cost reduction projects? How do I evaluate brands? What should we pay attention to when we evaluate projects outside the company's core business?

Chapter 5 addresses practical issues associated with the financing policy: Why do some companies have sustainably very high amounts of debt? How much debt should we have in our company? How does the optimal financing mix vary across industries? What is the impact of debt on operations (customers, suppliers, employees, etc.)?

Chapter 6 covers capital-raising activities in debt markets, addressing questions such as the following: Should we issue fixed-rate debt or floating-rate debt? My company has traditionally used only bank loans. Are corporate bonds an alternative? How do rating agencies look at different companies? What is the risk of investing in bonds? What are credit default swaps (CDSs)? Should we have long-term or short-term debt?

Chapter 7 addresses questions such as: Should my company go public? How do equity-raising processes work? What are the stages in an initial public offering? What are the costs and fees of public equity issues? What happens when a company issues rights? Why do companies have stock splits? Is there value in being listed in different exchanges around the world?

Chapter 8 answers questions such as the following: My company has been trading on the stock exchange for 8 years, and is profitable. Is it time to start paying dividends? What is the best way of returning money to shareholders? When should a company repurchase shares? Why don't we keep all the cash in the company? How do I design an optimal strategy to remunerate shareholders?

Chapter 9 describes the main methods used to value companies, addressing questions such as the following: Our company is considering spinning off a division that is no longer core to our business. What is its fair value? How many years should we use when valuing companies? What are the different methods used to value companies? How do different multiples work?

Chapter 10 covers mergers and acquisitions (M&As), their objectives, and the techniques used in the valuation of a target company. We address questions such as the following: When do mergers create value? What are the appropriate methodologies to value potential acquisition candidates? How can we ensure that our acquisitions create value? How do I choose between different payment methods? What happens after the M&A deal is concluded?

Chapters 11 to 13 cover key concepts related to derivatives markets. Effective usage of derivatives can create significant value and allows for effective risk management strategies. The functioning of the markets is described, and several pitfalls of using derivatives are illustrated. The chapters address questions such as the following: Why and when should we use derivatives for risk management? What are the differences between futures and forwards? How are stock options valued? How do derivatives markets work, and how can companies use them effectively? How are futures, swaps, and options priced in the market?

Overall, this book moves beyond spreadsheets and accounting, and takes a broader perspective on finance. The main objective of the book is for executives in any part of the organization to understand and internalize the links between company strategy and finance. The unifying thread running across the different chapters is the emphasis on the managerial implications of financial analysis.

Contents

1	The Main Accounting Metrics and Ratios	1
1.1	Income Statement — Main Items	1
1.2	Balance Sheet — Main Items	4
1.2.1	Assets	5
1.2.2	Liabilities and Shareholders' Equity	6
1.3	The Main Financial Ratios and Their Usage	7
1.3.1	Growth Rates	8
1.3.2	Profitability Financial Ratios	9
1.3.3	Operating Financial Ratios	11
1.3.4	Financial Leverage Ratios	13
1.3.5	Liquidity and Solvency Financial Ratios	14
1.4	Decomposing ROE into three components	15
2	What Is the Cost of Capital for My Company?	17
2.1	Risk and the Cost of Debt	19
2.1.1	Credit Spreads Change over Time	22
2.1.2	The Risk-Free Rate Changes over Time	23
2.2	Risk and the Cost of Equity	24
2.3	Putting It All Together — Estimating the Company's Cost of Capital	29
3	A Managerial Framework for Value Creation	35
3.1	A Framework for Value Creation	35
3.2	Return on Invested Capital — When Does Value Creation Occur?	36
3.3	Efficiency and Profitability — The Key Drivers of Value Creation	38
3.4	How Managers Can Impact the ROIC	39
3.4.1	Efficiency Improvements	40
3.4.2	Profitability Improvements	41
3.4.3	Excel — Decomposition of the ROIC	41
3.5	Achieving a Culture of Value — Right Incentives for Each Level of the Organization	43
3.6	The Value–Growth Matrix	44
4	Selecting the Right Investment Projects — Capital Budgeting Tools	47
4.1	Project Valuation Using Discounted Cash Flows	47
4.1.1	Defining Free Cash Flows to the Firm (FCFFs)	49
4.1.2	Forecasting Future Cash Flows in Capital Budgeting Applications	50

4.1.3	Which Cash Flows Should We Consider?	54
4.1.4	Projects with an Unknown But Very Long Horizon — Terminal Value	55
4.2	Project Valuation — An Application	56
4.2.1	What Is the Growth in Perpetuity?	59
4.2.2	Inflation and Project Valuation	61
4.3	Profit Margin or Value?	61
4.4	Decision Making and the Use of the NPV	63
4.4.1	Expansion Projects	63
4.4.2	New Product Launches	64
4.4.3	Mutually Exclusive Projects	65
4.4.4	Cost Reduction Projects	65
4.4.5	Valuing Brands and Royalties	65
4.4.6	Royalty Interest	66
4.5	Sensitivity Analysis	67
4.6	What to Do When the Project Is in a Different Industry — The Pure Play Method	69
4.6.1	Privately Held Companies	69
4.6.2	Projects in Different Industries	72
4.7	Alternative Project Valuation Technique — The FCFE Method	73
4.8	Other Project Valuation Metrics	75
4.8.1	Internal Rate of Return (IRR)	75
4.8.2	Payback Period	75
4.8.3	Return Index (RI)	76
4.8.4	Why We Should Focus on NPV	76
5	Deciding between Different Sources of Capital — The Capital Structure Decision	79
5.1	The Advantages of Debt — Tax Benefits	79
5.1.1	Valuing the Tax Savings from Debt	81
5.2	How Can a Company Change Its Capital Structure Relatively Quickly?	83
5.3	The Advantages of Debt — Monitoring and Committing	84
5.4	How Much to Borrow — Leverage and Risk	85
5.4.1	Cost of Debt Goes Up with Leverage	85
5.4.2	Cost of Equity Goes Up with Leverage	87
5.4.3	Overall — Cost of Debt and Equity	90
5.5	How Much to Borrow — Distress Costs	91
5.5.1	Customers and Financial Distress Costs	91
5.5.2	Suppliers and Financial Distress Costs	92
5.5.3	Overall — Financial Distress Summary	92
5.6	How Much to Borrow — Managerial Flexibility	94
5.7	Putting It All Together — The Trade-Offs Behind the Financing Mix	95
5.7.1	Optimal Capital Structure and the Cost of Capital	98
5.8	Empirical Evidence from Around the World	99

6	Borrowing from Banks and Capital Markets	109
6.1	Valuation of Bonds and Yield to Maturity	109
6.1.1	Zero-Coupon Bonds	110
6.1.2	Coupon Bonds	113
6.2	Risks of Investing in Bonds — Maturity and Price Risk	115
6.2.1	Price Changes Depend on the Coupons	116
6.2.2	Returns to Bondholders — Changes in Bond Prices over Time	118
6.3	Yield Curve and Risk-Free Rates	120
6.4	Borrowing through Corporate Bonds	123
6.4.1	Credit Ratings and Credit Spreads	123
6.4.2	Credit Spreads Change over Time	127
6.4.3	Who Buys Corporate Bonds?	128
6.4.4	Retail Bonds	129
6.4.5	Selecting the Right Maturity for Debt	130
6.4.6	Bond Spreads and Liquidity	132
6.4.7	Credit Default Swaps	133
6.5	Borrowing through Bank Loans	136
6.6	Hybrid Financing Instruments	138
6.6.1	Callable Bonds	138
6.6.2	Convertible Bonds	138
6.6.3	Contingent Convertibles (CoCos)	139
7	Raising Equity — IPOs and SEOs	143
7.1	Why Should a Company Go Public?	143
7.2	Becoming a Public Traded Company — Initial Public Offerings	144
7.2.1	A Firm Commitment Lowers the Risk to the Company	145
7.2.2	How the IPO Price Is Set	146
7.2.3	Underpricing	148
7.2.4	The Costs of a New Issue — Investment Banking Fees	150
7.2.5	Overallotment Options — Greenshoe	151
7.2.6	Market Timing — The Long-Run Performance Following IPOs	153
7.3	New Equity Financing — Seasoned Equity Offerings	154
7.3.1	Cash Offer SEO	155
7.3.2	Rights Offer SEO	156
7.3.3	Market Timing and SEOs	160
7.4	Why Do Companies Have Stock Splits?	160
7.5	Control and Ownership Dilution	164
7.6	Cross-Listing in Foreign Exchanges	166
7.6.1	Reasons for a Company to List in a Foreign Exchange	166
7.6.2	Is There Value in Being Cross-Listed?	168
7.6.3	Different Types of ADRs and GDRs	169

8	Returning Money to Shareholders — Dividends, Buybacks, and the Payout Policy	175
8.1	Dividend Metrics	176
8.2	The Importance of Dividends for Shareholder Returns	176
8.3	When Should a Company Pay Dividends?	177
8.3.1	Reinvest in the Company or Pay Dividends?	177
8.3.2	Types of Shareholders and Dividends	179
8.3.3	What Are Scrip (or Stock) Dividends?	180
8.4	The Impact of Dividends on Stock Prices	181
8.4.1	What Happens after the Dividend Has Been Paid?	181
8.4.2	Signaling New Information through Dividends	182
8.5	Is It Possible to Have Too Much Cash?	183
8.6	Empirical Evidence on Dividend Payouts	186
8.7	Returning Money to Shareholders Through Share Buybacks	189
8.7.1	Buybacks Provide Flexibility	191
8.7.2	Once a Buyback Has Been Decided, Should a Company Try to Time the Market?	193
9	Key Principles for Company Valuation	197
9.1	Valuation Map	197
9.2	Valuing a Business Using Discounted Cash Flows	198
9.2.1	Defining Free Cash Flows to the Firm (FCFF)	199
9.2.2	Forecasting Future Cash Flows	200
9.2.3	Terminal Value and the Explicit or Forecasting Period	203
9.2.4	Growth in Perpetuity	205
9.2.5	Company Valuation by DCF — Putting It All Together	206
9.3	Valuation of Privately Held Companies	209
9.4	How to Deal with Cash, Marketable Securities, and Unconsolidated Subsidiaries	215
9.5	Valuation Using Comparable Companies — Multiples	216
9.5.1	Steps in a Multiple-Based Valuation	217
9.5.2	Multiples and Terminal Value Estimates	218
9.5.3	Which Multiple to Choose?	219
9.5.4	Multiples Are Related to a Company's Fundamentals	220
9.5.5	The Number of Companies to Include in the Peer Group	221
9.5.6	Key Assumptions in a Multiples Valuation	222
10	Value Creation through Mergers and Acquisitions	225
10.1	The Market for M&As	225
10.1.1	What Are Hostile Takeovers?	227
10.2	The Reasons for M&As	227
10.2.1	When Do M&As Create Value?	230
10.2.2	Empirical Evidence	231

10.3	Valuation in M&As	232
10.3.1	Stand-Alone Value	233
10.3.2	Value with Synergies	234
10.3.3	WACC Calculation in an M&A Setting	238
10.4	Other Valuation Approaches	242
10.4.1	Current Market Capitalization of the Target	243
10.4.2	Market Multiples	243
10.4.3	Transaction Multiples	244
10.4.4	Previous Premiums Paid	245
10.5	How to Pay for the Deal	245
10.5.1	Can the Payment be Contingent on Some Future Performance Metrics?	247
10.6	The Role of Investment Banks in M&As	248
10.7	What Happens after the M&A Has Been Completed?	250
11	Derivatives and Risk Management	257
11.1	The Main Categories of Derivatives Available to Firms	258
11.1.1	Different Types of Derivative Products	258
11.1.2	Underlying Risks	259
11.1.3	How Derivatives Are Settled	260
11.1.4	The Origins of Derivatives Markets	261
11.2	Why and When Should Companies Use Derivatives	262
11.3	Abuses of Derivatives and Their Implications	265
12	Management of Corporate Risks with Futures, Forwards, and Swaps	271
12.1	Why Use Futures or Forwards?	271
12.2	Differences between Futures and Forward Contracts	275
12.3	Who Profits from Futures and Forward Contracts at Expiration?	277
12.4	The Mechanics of Futures Trading	279
12.4.1	How Does Marking-to-Market Work?	280
12.4.2	Liquidity and Futures	282
12.5	Pricing of Futures and Forwards	282
12.5.1	Stock Futures	285
12.5.2	Interest Rate Futures	286
12.5.3	Foreign Exchange Derivatives	287
12.6	How to Hedge Risks Using Swaps	290
12.6.1	Interest Rate Swaps	290
12.6.2	Why Use Swaps?	291
12.6.3	Using a Swap to Transform Liabilities	291
12.6.4	Using a Swap to Transform Assets	292
12.6.5	How Swaps Can Lower Borrowing Costs	293

12.6.6	Currency Swaps	295
12.6.7	More Complex Swaps	297
13	Management of Corporate Risks with Options	299
13.1	The Payoffs of Options	300
13.1.1	Call Options	300
13.1.1	Put Options	302
13.1.3	How and When Options Are Traded	303
13.2	Hedging Corporate Risks Using Options	304
13.3	Possible Strategies Using Options and Why They Are Useful	307
13.3.1	Covered Call	307
13.3.2	Protective Put	308
13.3.3	Straddle	309
13.3.4	Collar	310
13.3.5	Butterfly Spread	311
13.4	How Options Are Valued	312
13.4.1	Call Option Value	313
13.4.2	Black–Scholes in Practice	313
13.4.3	Option Value Determinants	314
13.4.4	What If the Stock Pays Dividends?	315
13.4.5	Put Option Value	316
13.4.6	Delta Hedging	318
13.4.7	How to Estimate Volatility	318
	<i>Index</i>	323
	<i>Company index</i>	329