PREFACE

The first of the Canadian editions of this text was written ten years ago. The intervening years have been a period of rapid and profound change in the investments industry. This is due in part to an abundance of newly designed securities, in part to the creation of new trading strategies that would have been impossible without concurrent advances in computer technology, and in part to rapid advances in the theory of investments that have come out of the academic community. In no other field, perhaps, is the transmission of theory to real-world practice as rapid as is now commonplace in the financial industry. These developments place new burdens on practitioners and teachers of investments far beyond what was required only a short while ago.

Investments, Fourth Canadian Edition, is intended primarily as a textbook for courses in investment analysis. Our guiding principle has been to present the material in a framework that is organized by a central core of consistent fundamental principles. We make every attempt to strip away unnecessary mathematical and technical detail, and we have concentrated on providing the intuition that may guide students and practitioners as they confront new ideas and challenges in their professional lives.

This text will introduce you to major issues currently of concern to all investors. It can give you the skills to conduct a sophisticated assessment of current issues and debates covered by both the popular media as well as more specialized finance journals. Whether you plan to become an investment professional, or simply a sophisticated individual investor, you will find these skills essential.

Our primary goal is to present material of practical value, but all five of us are active researchers in the science of financial economics and find virtually all of the material in this book to be of great intellectual interest. Fortunately, we think, there is no contradiction in the field of investments between the pursuit of truth and the pursuit of money. Quite the opposite. The capital asset pricing model, the arbitrage pricing model, the efficient markets hypothesis, the option-pricing model, and the other centrepieces of modern financial research are as much intellectually satisfying subjects of scientific inquiry as they are of immense practical importance for the sophisticated investor.

In our effort to link theory to practice, we also have attempted to make our approach consistent with that of the Institute of Chartered Financial Analysts (ICFA), a subsidiary of the Association of Investment Management and Research (AIMR). In addition to fostering research in finance, the AIMR and ICFA administer an education and certification program to candidates seeking the title of Chartered Financial Analyst (CFA). The CFA curriculum represents the consensus of a committee of distinguished scholars and practitioners regarding the core of knowledge required by the investment professional.

There are many features of this text that make it consistent with and relevant to the CFA curriculum. The end-of-chapter problem sets contain questions from past CFA exams, and for students who will be taking the exam, each CFA question in the text and the exam from which it has been taken is listed at this book's Web site <www.mcgrawhill.ca/college/bodie>. There are also topics covered in the Canadian Securities Course, given by the Canadian Securities Institute (CSI) as part of the Canadian certification process for financial professionals. Much of the material in the book parallels the content of more advanced courses designed and offered by the CSI to develop portfolio management skills.

www.aimr.org and *www.aimr.org/cfaprogram*, *www.csi.ca*

In the Fourth Edition, we have introduced a systematic collection of Excel spreadsheets that give students tools to explore concepts more deeply than was previously possible. These spreadsheets are available through the World Wide Web, and provide a taste of the sophisticated analytic tools available to professional investors.

UNDERLYING PHILOSOPHY

Of necessity, our text has evolved along with the financial markets. In the Fourth Edition, we address many of the changes in the investment environment.

At the same time, many basic *principles* remain important. We believe that attention to these few important principles can simplify the study of otherwise difficult material and that fundamental principles should organize and motivate all study. These principles are crucial to understanding the securities already traded in financial markets and in understanding new securities that will be introduced in the future. For this reason, we have made this book thematic, meaning we never offer rules of thumb without reference to the central tenets of the modern approach to finance.

The common theme unifying this book is that *security markets are nearly efficient*, meaning most securities are usually priced appropriately given their risk and return attributes. Underlying this theme is perhaps the most fundamental principle in finance — that of the *single-price law*. This principle, alternatively known as *the law of one price*, insists that the same price must apply to any two financial instruments, or combinations of instruments, that offer identical payment streams. This leads to the notion of arbitrage and the avoidance of arbitrage that drives prices to their appropriate values. Arbitrage profits are popularly described as "free lunches," and there are few free lunches found in markets as competitive as the financial market. This simple observation is remarkably powerful in its implications for the design of investment strategies; as a result, our discussions of strategy are always guided by the implications of the efficient markets hypothesis. While the degree of market efficiency is, and always will be, a matter of debate, we hope our discussions throughout the book convey a good dose of healthy criticism concerning much conventional wisdom.

Distinctive Features

Investments is designed to emphasize several important aspects of making investment decisions, as follows.

The central principle is the existence of near-informational-efficiency of well-developed security markets such as ours, and the general awareness that competitive markets do not offer arbitrage opportunities or free lunches to participants.

A second aspect of investing is the risk-return tradeoff. This too is a no-free-lunch notion, holding that in competitive security markets, higher expected returns come only at a price: the need to bear greater investment risk. However, this notion leaves several questions unanswered. How should one measure the risk of an asset? What should be the quantitative tradeoff between risk (properly measured) and expected return? The approach we present to these issues is known as *modern portfolio theory (MPT)*. Modern portfolio theory focuses on the techniques and implications of *efficient diversification*, and we devote considerable attention to the effect of diversification on portfolio risk as well as the implications of efficient diversification for the proper measurement of risk and the risk-return relationship.

This text puts greater emphasis on asset allocation than most of its competitors. We prefer this emphasis for two important reasons. First, it corresponds to the procedure that most individuals actually follow. Typically, you start with all of your money in a bank account, only then considering how much to invest in something riskier that might offer a higher expected return. The logical step at this point is to consider other risky asset classes, such as stock, bonds, or real estate. This is an asset allocation decision. Second, in most cases, the asset allocation choice is far more important in determining overall investment performance than is the set of security selection decisions. Asset allocation is the primary determinant of the risk-return profile of the investment portfolio, and so it deserves primary attention in a study of investment policy.

The text examines the evidence on market efficiency and uses the results to motivate the traditional forms of investment analysis used to identify superior investment opportunities. The dilemma of the apparent futility of conducting expensive analyses in the face of efficient markets is resolved by explaining the value of the analysis and the need for it to arrive at efficient pricing. The usual issues of pricing and portfolio management in the fixed-income arena and fundamental, statement and technical analysis of equities are supplemented by a broader and deeper treatment of derivative securities than offered by most investments texts. Markets for derivatives, including options, futures and more complex instruments, have become both crucial and integral to the financial universe and are the major sources of innovation in that universe. Your only choice is to become conversant in these markets — whether you are to be a finance professional or simply a sophisticated individual investor.

NEW IN THE FOURTH EDITION

Chapter 1 has been almost entirely rewritten to focus on the recent market turbulence, lessons for proper valuation techniques, and agency issues surrounding recent controversies.

Chapter 2 contains revised treatment of indices, including the new Standard & Poor's index for Toronto.

Chapter 3 describes the evolution of Canadian markets, with equities moved to the TSE and Nasdaq linked to Montreal Exchange.

Chapter 4 has been retitled "Mutual Funds and the Institutional Environment." The new title reflects more focus on mutual funds, with new material on exchange-traded funds (ETFs) and taxation moved to an appendix to the chapter.

Chapter 7 contains a lengthy new subsection on demand for stocks and equilibrium prices as an introduction to the CAPM.

Chapter 9 contains new material on behavioural finance and its implications for security pricing.

Chapter 10 contains new material on the equity premium puzzle and on survivorship bias in our assessment of security returns.

Chapter 11 contains an expanded treatment of innovations in the bond market, with default risk moved to the end of the chapter.

Chapter 12 has simplified the treatment of bootstrapping by including the "dirty price" method of bootstrapping and by eliminating the complications due to the first coupon. It also includes an examination of the link between forward interest rates and forward or futures contracts on interest rate instruments.

Chapter 13 has been retitled "Managing Bond Portfolios" and includes new material on bond convexity and on bond duration in the presence of call provisions.

Chapter 14 has replaced the Nortel example with the Bank of Montreal, for obvious reasons; new valuation ratios such as price-to-cash-flow and the PEG have been introduced, and an Excel application for the growth model has been added.

Chapter 16 has a new introduction that highlights the fine line between some technical and econometric analysis.

Chapter 18 contains a new subsection entitled "Hedging Bets on Mispriced Options," which explores delta-neutral strategies designed to exploit differences in implied volatilities between two traded options on the same underlying asset.

Chapter 19 contains new material on interest rate futures and a reorganization of the material on commodity futures pricing, which has been merged with the discussion on the relationship between futures prices and expected spot prices.

Chapter 20 provides new content on alternative performance measures, including Morningstar ratings and style analysis.

Chapter 21 has expanded coverage of the use of index securities in passive and active management, with both broad and technical aspects.

Chapter 22 includes general updates to material covering ETFs as basket funds or closed-end funds, for international investing and expansion of the examples.

New! Excel applications. New to the Fourth Edition are boxes featuring Excel spreadsheet applications. A sample spreadsheet is presented in the text with an interactive version and related questions available on this book's Web site.

ORGANIZATION AND CONTENT

This Canadian edition is both an adaptation of the U.S. text for a Canadian audience and an extension of the material to incorporate several topics of specific Canadian interest. The adaptation has changed the presentation and examples of the basic material with respect to currency, macroeconomic environment, tax rates and legislation, and other legal and institutional features of the Canadian economy. Substantial information about the U.S. institutions is included, as much of the investment activity by Canadian investors takes place in U.S. markets, implying that Canadian investment professionals cannot afford to ignore the situation south of their country's border. Not only does the U.S. market set the standards for most of the financial innovation and research in Canada, but it also paces many of the economic developments that underlie the performance of the Canadian financial system. Nevertheless, several Canadian financial aspects are unique and deserve more extended coverage in their theoretical and empirical aspects.

Part One: Introduction

The first four chapters motivate the study of investing and include a description of the markets, instruments, and institutions that are specific to the Canadian environment, as well as a summary description of the same concepts in the U.S. context. The material includes detailed descriptions of financial instruments and how to trade them in the markets. The fourth chapter is nominally an introduction to how individuals interact with institutions in the investment industry. It explains how consumption needs and taxes motivate investment choices, but its primary emphasis is on the most popular vehicle used by investors to participate in financial markets — the mutual fund. There is a detailed presentation of the mutual fund industry and its results in meeting investors' concerns, including tax consequences.

Parts Two & Three: Portfolio Theory & Equilibrium in Capital Markets

These together present the core of modern portfolio theory. Chapter 5 starts with a review of the historical returns to various classes of Canadian instruments and continues with an introduction to the risk-return tradeoff. The text then moves from the issue of capital allocation between cash and eq-

uities, through portfolio diversification, to the development of the capital market line in Chapter 6. The next two chapters treat the development of the CAPM and its extensions and alternative models, such as the arbitrage pricing theory. Then Chapter 9 addresses the issues of market efficiency, with evidence for and against it such as anomalies. Chapter 10 reviews empirical evidence on security returns, including tests of the CAPM and other studies in the context of market efficiency.

Part Four: Fixed-Income Securities

Part Four is the first of three parts on security valuation. This Part treats fixed-income securities — bond pricing (Chapter 14), term structure relationships (Chapter 15), and interest-rate risk management (Chapter 16). The next two Parts deal with equity securities and derivative securities. For a course emphasizing security analysis and excluding portfolio theory, one may proceed directly from Part One to Part Four with no loss in continuity.

Part Five: Equities

The three chapters are devoted to the popular forms of security analysis — fundamental, statement and technical. Fundamental analysis treats refinements of the dividend discount model as well as macroeconomic analysis, while statement analysis presents the traditional accounting approach to assessing value. Technical analysis includes only a brief and critical presentation of some popular techniques.

Part Six: Derivative Assets

Chapters 17 and 18 describe options, beginning with a description of the instruments, their payoffs, and the markets in which they trade, and then continuing to the details of models for valuation. Chapter 19 presents similar material for futures and forward contracts. Together these chapters describe how risk management can be achieved.

Part Seven: Active Portfolio Management

This section presents active management as an alternative to passive acceptance of efficient markets. It describes how to measure the performance of individuals and institutions who attempt to time markets or select portfolios, and how they can practise the techniques such as selective indexing, or inclusion of active portfolio components; finally it addresses international investing as an added component of portfolios.