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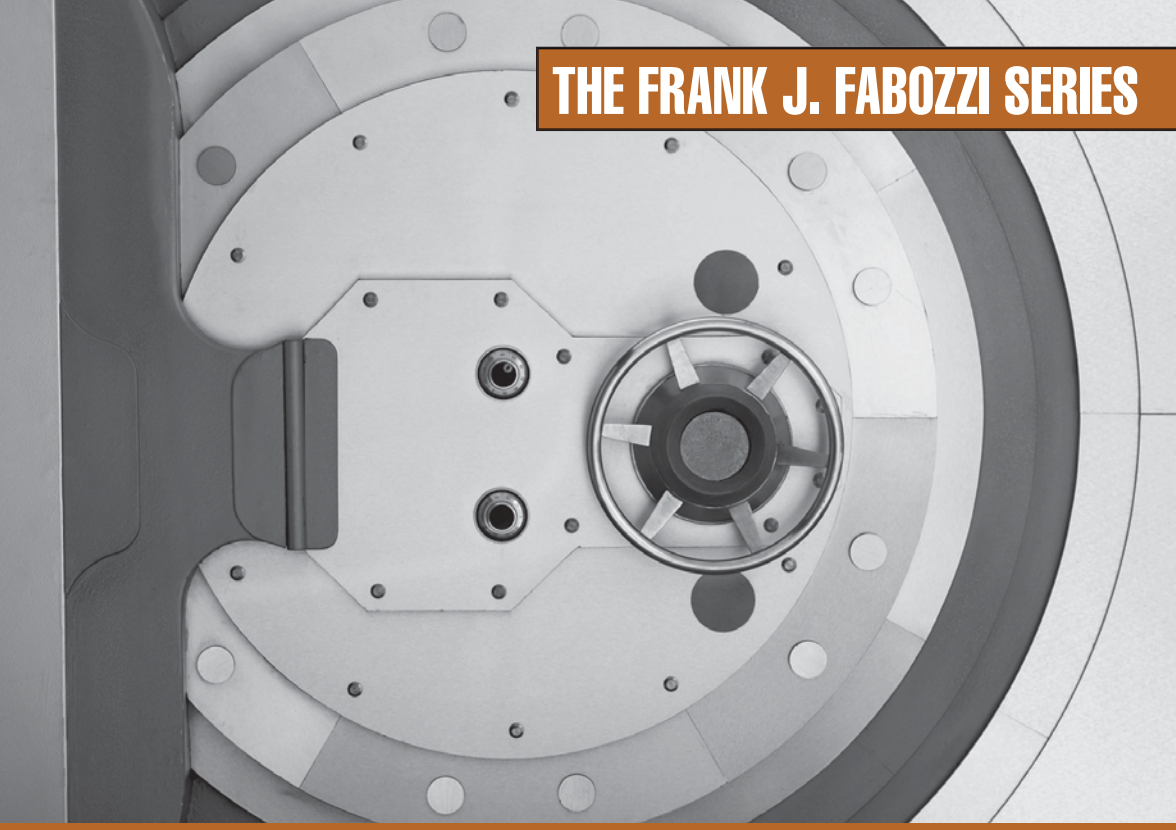

FINANCE

Capital Markets, Financial Management, and Investment Management

FRANK J. FABOZZI • PAMELA PETERSON DRAKE

Finance

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FJF
To my wife Donna, and my children
Francesco, Patricia, and Karly

PPD
To my husband Randy

Contents

Preface

Recent financial events have emphasized the need for an understanding of financial decision-making, financing instruments, and strategies used in financial and investment management. In this book, we provide an introduction to these topics in the field of finance.

We begin our introduction to finance in Part One, where we introduce you to financial mathematics and financial analysis. These are the basic tools of finance that span investment and financing decision-making.

In Part Two, we develop the fundamentals of capital market theory and discuss financial markets, financial intermediaries, and regulators of financial activities. Knowledge of capital markets and how assets are priced is essential to decision-making that involves raising capital in the markets or investing capital. In this part, we also cover the basics of interest rates, bond and stock valuation, asset pricing theory, and derivative instruments.

We present the decision-making within a business enterprise in Part Three. These decisions include capital budgeting—that is, whether or not to invest in specific long-lived projects—and capital structure—that is, how to finance the business. In this part, we also discuss the management of current assets and risk management.

In Part Four, we cover the basics of investment decision-making, beginning with the determination of an investment objective and then proceeding to discuss and demonstrate portfolio theory and performance evaluation. In addition, we discuss basic techniques for managing equity and bond portfolios, and the use of futures and options in portfolio management.

We cover a lot of ground in this book, providing a comprehensive overview of finance. We take the reader, who may have little or no familiarity with finance, to a level of understanding that gives the reader a better appreciation for the complex financial issues that companies and investors face today.

The approach in this book is different from the traditional book that is used in an introductory undergraduate or MBA finance course. In such courses, the focus is on financial management (also referred to as *corporate finance* or *business finance*). We believe that a more appropriate course covers capital markets and investment management, and that is the primary motivation for writing this book. Moreover, we believe there are topics

that are often neglected in financial management courses that we cover in this book: financial strategy, financial engineering, asset securitization, and financial risk management.

We hope that the reader benefits from our broader perspective of topics.

Frank J. Fabozzi
Pamela Peterson Drake

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Frank J. Fabozzi is Professor in the Practice of Finance and Becton Fellow at the Yale School of Management. Prior to joining the Yale faculty, he was a Visiting Professor of Finance in the Sloan School at MIT. Professor Fabozzi is a Fellow of the International Center for Finance at Yale University and on the Advisory Council for the Department of Operations Research and Financial Engineering at Princeton University. He is the editor of the *Journal of Portfolio Management* and an associate editor of the *Journal of Fixed Income* and *Journal of Structured Finance*. He earned a doctorate in economics from the City University of New York in 1972. In 2002, Professor Fabozzi was inducted into the Fixed Income Analysts Society's Hall of Fame and is the 2007 recipient of the C. Stewart Sheppard Award given by the CFA Institute. He earned the designation of Chartered Financial Analyst and Certified Public Accountant. He has authored and edited numerous books on finance.

Pamela Peterson Drake, PhD, CFA, is the J. Gray Ferguson Professor of Finance and Department Head, Department of Finance and Business Law in the College of Business at James Madison University. She received her Ph.D. in finance from the University of North Carolina at Chapel Hill and her B.S. in Accountancy from Miami University. Professor Drake previously taught at Florida State University (1981–2004), and was an Associate Dean at Florida Atlantic University (2004–2007). She has published numerous articles in academic journals, as well as authored and co-authored several books. Professor Drake's expertise is in financial analysis and valuation.

PART

One

Background

CHAPTER 1

What Is Finance?

Finance is the application of economic principles to decision-making that involves the allocation of money under conditions of uncertainty. Investors allocate their funds among financial assets in order to accomplish their objectives, and businesses and governments raise funds by issuing claims against themselves that are invested. Finance provides the framework for making decisions as to how those funds should be obtained and then invested. It is the financial system that provides the platform by which funds are transferred from those entities that have funds to invest to those entities that need funds to invest.

The theoretical foundations for finance draw from the field of economics and, for this reason, finance is often referred to as *financial economics*. The tools used in financial decision-making, however, draw from many areas outside of economics: financial accounting, mathematics, probability theory, statistical theory, and psychology. In Chapters 2 and 3, we cover the mathematics of finance as well as the basics of financial analysis that we use throughout this book. We need to understand the former topic in order to determine the value of an investment, the yield on an investment, and the cost of funds. The key concept is the time value of money, a simple mathematical concept that allows financial decision-makers to translate future cash flows to a value in the present, translate a value today into a value at some future point in time, and calculate the yield on an investment. The time-value-of-money mathematics allows an evaluation and comparison of investments and financing arrangements. Financial analysis involves the selection, evaluation, and interpretation of financial data and other pertinent information to assist in evaluating the operating performance and financial condition of a company. These tools include financial ratio analysis, cash flow analysis, and quantitative analysis.

It is generally agreed that the field of finance has three specialty areas:

- Capital markets and capital market theory
- Financial management
- Investment management

We cover these three areas in this book in Parts Two, Three, and Four of this book. In this chapter, we provide an overview of these three specialty areas and a description of the coverage of the chapters in the three parts of the book.

CAPITAL MARKETS AND CAPITAL MARKET THEORY

The specialty field of capital markets and capital market theory focuses on the study of the financial system, the structure of interest rates, and the pricing of risky assets.

The financial system of an economy consists of three components: (1) financial markets; (2) financial intermediaries; and (3) financial regulators. For this reason, we refer to this specialty area as financial markets and institutions. In Chapter 4, we discuss the three components of the financial system and the role that each plays. We begin the chapter by defining financial assets, their economic function, and the difference between debt and equity financial instruments. We then explain the different ways to classify financial markets: internal versus external markets, capital markets versus money markets, cash versus derivative markets, primary versus secondary markets, private placement versus public markets, order driven versus quote driven markets, and exchange-traded versus over-the-counter markets. We also explain what is meant by market efficiency and the different forms of market efficiency (weak, semi-strong, and strong forms). In the discussion of financial regulators, we discuss changes in the regulatory system in response to the problems in the credit markets in 2008. We discuss the major market players (that is, households, governments, nonfinancial corporations, depository institutions, insurance companies, asset management firms, investment banks, nonprofit organizations, and foreign investors), as well as the importance of financial intermediaries.

We describe the level and structure of interest rates in Chapter 5. We begin this chapter with two economic theories that each seek to explain the determination of the level of interest rates: the *loanable funds theory* and the *liquidity preference theory*. We then review the Federal Reserve System and the role of monetary policy. As we point out, there is not one interest rate in an economy; rather, there is a structure of interest rates. We explain that the factors that affect interest rates in different sectors of the debt market, with a major focus on the *term structure of interest rates* (i.e., the relationship between interest rate and the maturity of debt instrument of the same credit quality).

As we explain in Chapter 6, derivative instruments play an important role in finance because they offer financial managers and investors the

opportunity to cost effectively control their exposure to different types of risk. The two basic derivative contracts are futures/forward contracts and options contracts. As we demonstrate, swaps and caps/floors are economically equivalent to a package of these two basic contracts. In this chapter, we explain the basic features of derivative instruments and how they are priced. We detail the well-known Black-Scholes option pricing model in the appendix of this chapter. We wait until later chapters, however, to describe how they are employed in financial management and investment management.

Valuation is the process of determining the fair value of a financial asset. We explain the basics of valuation and illustrate these through examples in Chapter 7. The fundamental principle of valuation is that the value of any financial asset is the present value of the expected cash flows. Thus, the valuation of a financial asset involves (1) estimating the expected cash flows; (2) determining the appropriate interest rate or interest rates that should be used to discount the cash flows; and (3) calculating the present value of the expected cash flows using the interest rate or interest rates. In this chapter, we apply many of the financial mathematics principles that we explained in Chapter 2. We apply the valuation process to the valuation of common stocks and bonds in Chapter 7 given an assumed discount rate.

In Chapter 8, we discuss asset pricing models. The purpose of such models is to provide the appropriate discount rate or required interest rate that should be used in valuation. We present two asset pricing models in this chapter: the capital asset pricing models and the arbitrage pricing theory.

FINANCIAL MANAGEMENT

Financial management, sometimes called *business finance*, is the specialty area of finance concerned with financial decision-making within a business entity. Often, we refer to financial management as corporate finance. However, the principles of financial management also apply to other forms of business and to government entities. Moreover, not all non-government business enterprises are corporations. Financial managers are primarily concerned with investment decisions and financing decisions within business organizations, whether that organization is a sole proprietorship, a partnership, a limited liability company, a corporation, or a governmental entity.

In Chapter 9, we provide an overview of financial management. Investment decisions are concerned with the use of funds—the buying, holding, or selling of all types of assets: Should a business purchase a new machine? Should a business introduce a new product line? Sell the old production facility? Acquire another business? Build a manufacturing plan? Maintain a higher level of inventory? Financing decisions are concerned with the pro-

curing of funds that can be used for long-term investing and financing day-to-day operations. Should financial managers use profits raised through the firms' revenues or distribute those profits to the owners? Should financial managers seek money from outside of the business? A company's operations and investment can be financed from outside the business by incurring debt—such as though bank loans or the sale of bonds—or by selling ownership interests. Because each method of financing obligates the business in different ways, financing decisions are extremely important. The financing decision also involves the dividend decision, which involves how much of a company's profit should be retained and how much to distribute to owners.

A company's financial strategic plan is a framework of achieving its goal of maximizing shareholder wealth. Implementing the strategic plan requires both long-term and short-term financial planning that brings together forecasts of the company's sales with financing and investment decision-making. Budgets are employed to manage the information used in this planning; performance measures, such as the balanced scorecard and economic value added, are used to evaluate progress toward the strategic goals. In Chapter 10, we focus on a company's financial strategy and financial planning.

The capital structure of a firm is the mixture of debt and equity that management elects to raise in funding itself. In Chapter 11, we discuss this capital structure decision. We review different economic theories about how the firm should be financed and whether an optimal capital structure (that is, one that maximizes a firm's value) exists. The first economic theory about firm capital structure was proposed by Franco Modigliani and Merton Miller in the 1960s. We explain this theory in the appendix to Chapter 11.

There are times when financial managers have sought to create financial instruments for financing purposes that cannot be accommodated by traditional products. Doing so involves the restructuring or repacking of cash flows and/or the use of derivative instruments. Chapter 12 explains how this is done through what is referred to as financial engineering or as it is more popularly referred to as structured finance.

In Chapters 11 and 12, we cover the financing side of financial management, whereas in Chapters 13, 14, and 15, we turn to the investment of funds. In Chapters 13 and 14, we discuss decisions involving the long-term commitment of a firm's scarce resources in capital investments. We refer to these decisions as capital budgeting decisions. These decisions play a prominent role in determining the success of a business enterprise. Although there are capital budgeting decisions that are routine and, hence, do not alter the course or risk of a company, there are also strategic capital budgeting decisions that either affect a company's future market position in its current product lines or permit it to expand into a new product lines in the future.

In Chapter 15, we discuss considerations in managing a firm's current assets. Current assets are those assets that could reasonably be converted into cash within one operating cycle or one year, whichever takes longer. Current assets include cash, marketable securities, accounts receivable and inventories, and support the long-term investment decisions of a company.

In Chapter 16 we look at the risk management of a firm. The process of risk management involves determining which risks to accept, which to neutralize, and which to transfer. After providing various ways to define risk, we look at the four key processes in risk management: (1) risk identification, (2) risk assessment, (3) risk mitigation, and (4) risk transferring. The traditional process of risk management focuses on managing the risks of only parts of the business (products, departments, or divisions), ignoring the implications for the value of the firm. Today, some form of enterprise risk management is followed by large corporation. Doing so allows management to align the risk appetite and strategies across the firm, improve the quality of the firm's risk response decisions, identify the risks across the firm, and manage the risks across the firm.

INVESTMENT MANAGEMENT

Investment management is the specialty area within finance dealing with the management of individual or institutional funds. Other terms commonly used to describe this area of finance are *asset management*, *portfolio management*, *money management,* and *wealth management*. In industry jargon, an asset manager "runs money."

Investment management involves five activities: (1) setting investment objectives, (2) establishing an investment policy, (3) selecting an investment strategy, (4) selecting the specific assets, and (5) measuring and evaluating investment performance. We describe these activities in Chapter 17. Setting investment objectives starts with a thorough analysis of what the entity wants to accomplish. Given the investment objectives, policy guidelines must be established, taking into consideration any client-imposed investment constraints, legal/regulatory constraints, and tax restrictions. This task begins with the asset allocation decision (i.e., how the funds are to be allocated among the major asset classes). Next, a portfolio strategy that is consistent with the investment objectives and investment policy guidelines must be selected. In general, portfolio strategies are classified as either active or passive. Selecting the specific financial assets to include in the portfolio, which is referred to as the portfolio selection problem, is the next step. The theory of portfolio selection was formulated by Harry Markowitz in 1952. This theory, as we explain in Chapter 17, proposes how

investors can construct portfolios based on two parameters: mean return and standard deviation of returns. The latter parameter is a measure of risk. An important task is the evaluation of the performance of the asset manager. This task allows a client to determine answers to questions such as: How did the asset manager perform after adjusting for the risk associated with the active strategy employed? And, how did the asset manager achieve the reported return?

Our discussion in Chapter 17 provides the principles of investment management applied to any asset class (e.g., equities, bonds, real estate, and alternative investments). In Chapters 18 and 19, we focus on equity and bond portfolio management, respectively. In Chapter 18, we describe the different stock market indicators followed by the investment community, the difference between fundamental and technical strategies, the popular stock market active strategies employed by asset managers including equity style management, the types of stock market structures and locations in which an asset manager may trade, and trading mechanics and trading costs. In Chapter 19, we cover bond portfolio management, describing the sectors of the bond market and the instruments traded in those sectors, the features of bonds, yield measures for bonds, the risks associated with investing in bonds and how some of those risks can be quantified (e.g., duration as a measure of interest rate risk), bond indexes, and both active and structured bond portfolio strategies.

We explain and illustrate the use of derivatives in equity and bond portfolios in Chapters 20 and 21. In the absence of derivatives, the implementation of portfolio strategies is more costly. Though the perception of derivatives is that they are instruments for speculating, we demonstrate in these two chapters that they are transactionally efficient instruments to accomplish portfolio objectives. In Chapter 20, we introduce stock index futures and Treasury futures, explaining their basic features and illustrating how they can be employed to control risk in equity and bond portfolios. We also explain how the unique features of these contracts require that the basic pricing model that we explained Chapter 6 necessitates a modification of the pricing model. We focus on options in Chapter 21. In this chapter, we describe contract features and explain the role of these features in controlling risk.

SUMMARY

The three primary areas of finance, namely capital markets, financial management, and investment management, are connected by the fundamental threads of finance: risk and return. In this book, we introduce you to these

fundamentals threads and how they are woven throughout the different areas of finance.

Our goal in this book is to provide a comprehensive view of finance, which will enable you to learn about the principles of finance, understand how the different areas of finance are interconnected, and how financial decision-makers manage risk and returns.