GUIDE TO PORTFOLIO MANAGEMENT

James L. Farrell, Jr.

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To my wife, Cyrille

and our children, Barbara, Catherine, and Jimmy

PREFACE

Portfolio management can be generally described as consisting of three major activities: (1) asset allocation, (2) weighting shifts across major asset classes, and (3) security selection within asset classes. Over the years, there have evolved many analytical techniques with enormous potential for improving all three phases of the process of portfolio management. Many of these analytical techniques are described extensively in the academic literature, but for many practitioners and students they remain an abstruse body of knowledge with little practical relevance. Still other techniques that are more directly applicable are available only from relatively obscure and scattered sources.

The purpose of this book is to provide a comprehensive description of the practice of portfolio management and to show how the evolving analytical techniques can be applied to improve the process. While the book is analytical and of necessity quantitative in some parts, it is written with an emphasis on the economic intuition behind the theories and analytical techniques. Furthermore, it emphasizes application of the techniques by way of examples and problems as well as descriptions of actual applications. The book should appeal to experienced practitioners interested in the potential of these techniques for portfolio management as well as to students concerned with developing greater insight into the relevancy of this body of knowledge for practical application.

Chapter 1 describes the various asset classes, assesses the risk-return relationship among asset classes, and comments on the competitive nature of the capital markets. The next four chapters (2–5) describe methods for explicitly estimating returns for stocks and bonds as well as the theoretical framework for explicitly considering risk and return. The following four chapters (6–9) provide the framework for formally deriving an asset allocation; for measuring the quality of analytical judgments about stocks, groups, and the general market; and for developing active-passive strategies of portfolio management in both the domestic and international equity markets. Chapter 10 gives insight into active-passive strategies of fixed-income management, while Chapter 11 provides the formal framework for option evaluation and insight into uses of option strategies as a

means of altering the risk-return characteristics of a portfolio. Chapter 12 provides the framework for assessing the manager's capability in the three components of portfolio management: (1) asset allocation, (2) asset class weighting, and (3) security selection within asset classes.

I would like to acknowledge the many people who have helped with the preparation of this book. I especially appreciate the efforts of Charles D'Ambrosio, McGraw-Hill series editor, who provided initial motivation, critical review, and constant encouragement. Bill Sharpe of Stanford University provided encouragement, commented on the initial outline, and reviewed several chapters. Peter Dietz of Frank Russell Company provided an excellent review of the complete manuscript, and Gifford Fong of Gifford Fong Associates reviewed the chapter on bond management. James Greenleaf of Lehigh University reviewed several chapters and was especially helpful in providing insights for the chapter on options. Madeline Keim of MPT Associates typed the manuscript and generally expedited completion of the project. Finally, my associates — Dave Baker, Mike Kantor, Mike Clare, Bill Brock, Gerry Goodwin, and George Peterson — were encouraging and helpful throughout the process, and I thank them for the support.

James L. Farrell, Jr.

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INTRODUCTION TO PORTFOLIO MANAGEMENT

INTRODUCTION

Portfolio management consists of three major activities: (1) asset allocation, (2) weighting shifts across major asset classes, and (3) security selection within asset classes. Asset allocation can best be characterized as the blending together of major asset classes to obtain the highest long-run return at the lowest risk. Managers can make opportunistic shifts in asset class weightings in order to improve return prospects over the longer-term objective. For example, if the manager judges the outlook for equities to be considerably more favorable than for bonds over the forthcoming year, the manager may well desire to shift from bonds to equities. Finally, managers can also improve return prospects by selecting securities within the individual asset classes that have above-average return prospects.

Since the process of asset allocation should begin by defining the classes of assets available for inclusion in the portfolio, we'll begin the chapter by describing and comparing the basic characteristics of the major classes of securities. We'll also show market values as well as a total value for these major classes in order to provide some measure of the magnitude of the "market" and its components. We'll then describe the types of market indexes that are available and their uses in evaluating the behavior of the differing classes of securities.

Since understanding the differing return behavior and riskiness of asset classes is important, we'll describe methods of calculating the return on securities and ways of measuring risk. We'll then discuss the results of studies that have analyzed the behavior of returns on major security classes over time. We'll see that differing returns on asset classes have been in line with the differing riskiness of the classes, suggesting a risk-return trade-off in security markets. In this regard we'll discuss factors that have traditionally been associated with causing differences in the riskiness of assets. We'll conclude the chapter by describing the efficient-market hypothesis and indicating the way that it conditions our philosophy of portfolio management.

ASSET CLASS CHARACTERISTICS

By and large the portfolio manager has a choice of two major types of investments. First, there is the fixed-income class. This type is further subdivided into bonds and preferred stocks because the legal obligation of the corporation on bonds and on preferred stocks is substantially different. Nevertheless, both offer essentially the same investment opportunity—a fixed income. Second, there is the equity, or common-stock, security, which does not provide for any specific income in the investment contract.

Table 1-1 compares the characteristics of the different major asset classes. While technically they are fixed-income securities, short-term securities such as treasury bills and commercial paper are shown as a separate class of cash equivalents. Note that the fixed-income category includes three types of bonds—U. S. government, municipals, and corporate—as well as preferred stock. Common stocks are, of course, shown as the sole representative of that class. The columns show the major characteristics that are useful in distinguishing the different securities. These include maturity, form of return, certainty of return, and tax status.

Cash equivalents are short-term in nature, with maturities of a year or less, while bonds have longer maturities that typically range between 20 and 30 years at time of issuance. Preferred stocks generally and common stocks always have a perpetual maturity since, unlike bonds, they are issued with no set date for retirement or repayment.

Bond returns come in the form of coupon payments that are fixed at the time of issue and made periodically—generally every six months—over the life of the investment. At maturity the principal, or face value, of the bond is paid back. The certainty of these payments is generally high in the case of bonds, as they are specified by terms of a bond indenture giving the contractual obligations of the issuing governmental body or corporation. The prospect of payment on U. S. Government Bonds is certain, while on municipals and corporates it is generally high, depending on the credit standing of the issuing organization.

Preferred stocks provide returns in the form of dividend payments that are ordi-

Table 1-1 Asset class characteristics

Security class	Maturity of security	Form of return	Certainty of return	Tax status
Cash equivalents	Short	Discount	High	Fully taxable
Fixed income				
Bonds				
U. S. government	Long	Coupon	Certain	Fully taxable
Municipal	Long	Coupon	High	Not taxable
Corporate	Long	Coupon	High	Fully taxable
Preferred stock	Perpetual	Dividend	Moderately high	Partial exclusion
Common stock	Perpetual	Dividend and capital gain	Least certain	Some tax exclusion

narily set at the time of issuance. While these are fixed payments, they are not contractual obligations as in the case of bonds. Corporate directors can omit payment of dividends without incurring the severe consequences of failure to pay bond interest, where default can result in takeover of the corporation by the bondholders. As a result, the certainty of payment depends even more on the credit rating of the corporation than in the case of bonds.

Returns on common stock come in the form of dividend payments as well as in capital gains. Dividend payments are completely at the discretion of the corporate management; however, once a dividend level has been established, corporations are ordinarily reluctant to cut dividends unless operating conditions deteriorate severely. Capital gains are a function of corporate growth, the holding period of the investor, and the rate at which the market capitalizes the company's earnings at the end of the holding period. All these variables are uncertain, the last perhaps the least certain of all. While returns are essentially unlimited on the upside, common stocks are the least certain of the major asset classes.

Government bond and corporate bond interest is fully subject to income tax, while municipal bond interest is exempt.[1] For an investor fully subject to taxes, municipals are attractive for their after-tax return. Municipals tend to sell at even lower yields than governments, which are of higher credit quality because of this tax advantage. Preferred stocks are of lower quality than corporate bonds, but because the dividends are only partially taxable to other corporations, they tend to sell at a lower before-tax yield than high-grade corporates.

As previously noted, returns on common stock are in the form of dividends and capital gains. Dividends are fully taxable to individual investors but, as in the case of preferred stocks, only partially taxable to other corporations.[2] Organizations like casualty insurance companies have a preference for this kind of income. For individual investors capital gains are essentially subject to only half the tax rate that dividends are. Research is inconclusive, however, as to whether this tax preference leads to a preference on the part of investors for returns in the form of capital gains rather than dividends.

MARKET VALUES

Figure 1-1 shows the aggregate size and composition by asset class of a "world market" portfolio. The portfolio comprises cash equivalents, fixed-income securities,

[1] Municipals are classified as general obligation or revenue bonds. General obligations are bonds issued by state governments or municipal corporations chartered by the state under which all taxing powers are pledged for payment. Revenue bonds, however, do not have the taxing power of the state or local government to ensure payment. Interest and principal for these bonds must be met from the revenues of the project or service financed by the revenue bonds. Interest payments on both categories — general obligation and revenue — are free of taxes.

[2] Individuals can exclude $200 of dividend income from taxable income. Dividend income in excess of the exclusion is fully taxable to individuals. Corporations exclude 85 percent of dividend income from taxation; hence 15 percent is taxable and at a 50-percent tax rate the effective tax on this income would be 7.5 percent. As noted, dividend income is attractive to corporations, especially fire and casualty insurance companies.