

# Private Wealth Management

## The Portfolio Management Process and the Investment Policy Statement

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### LEARNING OUTCOMES

Mastery	The candidate should be able to:
<input type="checkbox"/>	a. explain the importance of the portfolio perspective;
<input type="checkbox"/>	b. describe the steps of the portfolio management process and the components of those steps;
<input type="checkbox"/>	c. explain the role of the investment policy statement in the portfolio management process and describe the elements of an investment policy statement;
<input type="checkbox"/>	d. explain how capital market expectations and the investment policy statement help influence the strategic asset allocation decision and how an investor's investment time horizon may influence the investor's strategic asset allocation;
<input type="checkbox"/>	e. define investment objectives and constraints and explain and distinguish among the types of investment objectives and constraints;
<input type="checkbox"/>	f. contrast the types of investment time horizons, determine the time horizon for a particular investor, and evaluate the effects of this time horizon on portfolio choice;
<input type="checkbox"/>	g. justify ethical conduct as a requirement for managing investment portfolios.

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## 1

## INTRODUCTION

In setting out to master the concepts and tools of portfolio management, we first need a coherent description of the portfolio management process. The portfolio management process is an integrated set of steps undertaken in a consistent manner to create and maintain an appropriate portfolio (combination of assets) to meet clients' stated goals. The process we present in this reading is a distillation of the shared elements of current practice.

Because it serves as the foundation for the process, we also introduce the investment policy statement through a discussion of its main components. An investment policy statement (IPS) is a written document that clearly sets out a client's return objectives and risk tolerance over that client's relevant time horizon, along with applicable constraints such as liquidity needs, tax considerations, regulatory requirements, and unique circumstances.

The portfolio management process moves from planning, through execution, and then to feedback. In the planning step, investment objectives and policies are formulated, capital market expectations are formed, and strategic asset allocations are established. In the execution step, the portfolio manager constructs the portfolio. In the feedback step, the manager monitors and evaluates the portfolio compared with the plan. Any changes suggested by the feedback must be examined carefully to ensure that they represent long-run considerations.

The investment policy statement provides the foundation of the portfolio management process. In creating an IPS, the manager writes down the client's special characteristics and needs. The IPS must clearly communicate the client's objectives and constraints. The IPS thereby becomes a plan that can be executed by any advisor or portfolio manager the client might subsequently hire. A properly developed IPS disciplines the portfolio management process and helps ensure against ad hoc revisions in strategy.

When combined with capital market expectations, the IPS forms the basis for a strategic asset allocation. Capital market expectations concern the risk and return characteristics of capital market instruments such as stocks and bonds. The strategic asset allocation establishes acceptable exposures to IPS-permissible asset classes to achieve the client's long-run objectives and constraints.

The portfolio perspective underlies the portfolio management process and IPS. The next sections illustrate this perspective.

## 2

## INVESTMENT MANAGEMENT

Investment management is the service of professionally investing money. As a profession, investment management has its roots in the activities of European investment bankers in managing the fortunes created by the Industrial Revolution. By the beginning of the 21st century, investment management had become an important part of the financial services sector of all developed economies. By the end of 2003, the United States alone had approximately 15,000 money managers (registered investment advisors) responsible for investing more than \$23 trillion, according to the *Directory of Registered Investment Advisors* (Standard & Poor's, 2004). No worldwide count of

investment advisors is available, but looking at another familiar professionally managed investment, the number of mutual funds stood at about 54,000 at year-end 2003; of these funds only 15 percent were US based.<sup>1</sup>

The economics of investment management are relatively simple. An investment manager's revenue is fee driven; primarily, fees are based on a percentage of the average amount of assets under management and the type of investment program run for the client, as spelled out in detail in the investment management contract or other governing document. Consequently, an investment management firm's size is judged by the amount of assets under management, which is thus directly related to manager's revenue, another measure of size. Traditionally, the value of an investment management business (or a first estimate of value) is determined as a multiple of its annual fee income.

To understand an investment management firm or product beyond its size, we need to know not only its investment disciplines but also the type or types of investor it primarily serves. Broadly speaking, investors can be described as institutional or individual. Institutional investors are entities such as pension funds, foundations and endowments, insurance companies, and banks that ultimately serve as financial intermediaries between individuals and financial markets. The investment policy decisions of institutional investors are typically made by investment committees or trustees, with at least some members having a professional background in finance. The committee members or trustees frequently also bear a fiduciary relationship to the funds for which they have investment responsibility. Such a relationship, if it is present, imposes some legal standards regarding processes and decisions, which is reflected in the processes of the investment managers who serve that market segment.

Beginning in the second half of the 20th century, the tremendous growth of institutional investors, especially defined benefit pension plans, spurred a tremendous expansion in investment management firms or investment units of other entities (such as bank trust divisions) to service their needs.<sup>2</sup> As the potentially onerous financial responsibilities imposed on the sponsors by such plans became more evident, however, the 1980s and 1990s saw trends to other types of retirement schemes focused on participant responsibility for investment decisions and results. In addition, a long-lasting worldwide economic expansion created a great amount of individual wealth. As a result, investment advisors oriented to serving high-net-worth individuals as well as mutual funds (which serve the individual and, to a lesser extent, the smaller institutional market) gained in relative importance.

Such individual-investor-oriented advisors may incorporate a heavy personal financial planning emphasis in their services. Many wealthy families establish family offices to serve as trusted managers of their finances. Family offices are entities, typically organized and owned by a family, that assume responsibility for services such as financial planning, estate planning, and asset management, as well as a range of practical matters from tax return preparation to bill paying. Some family offices evolve such depth in professional staff that they open access to their services to other families (multi-family offices). In contrast to family offices, some investment management businesses service both individual and institutional markets, sometimes in separate divisions or corporate units, sometimes worldwide, and sometimes as part of a financial giant (American Express and Citigroup are examples of such financial supermarkets). In such cases, wrap-fee accounts packaging the services of outside

<sup>1</sup> These facts are based on statistics produced by the Investment Company Institute and the International Investment Funds Association.

<sup>2</sup> A defined benefit pension plan specifies the plan sponsor's obligations in terms of benefit to plan participants. The plan sponsor bears the investment risk of such plans.

investment managers may vie for the client's business with in-house, separately managed accounts, as well as in-house mutual funds, external mutual funds, and other offerings marketed by a brokerage arm of the business.

Investment management companies employ portfolio managers, analysts, and traders, as well as marketing and support personnel. Portfolio managers may use both outside research produced by **sell-side analysts** (analysts employed by brokerages) and research generated by in-house analysts—so-called **buy-side analysts** (analysts employed by an investment manager or institutional investor). The staffing of in-house research departments depends on the size of the investment management firm, the variety of investment offerings, and the investment disciplines employed. An example may illustrate the variety of talent employed: The research department of one money manager with \$30 billion in assets under management employs 34 equity analysts, 23 credit analysts, 3 hedge fund analysts, 12 quantitative analysts, 4 risk management professionals, 1 economist, and 1 economic analyst. That same company has a trading department with 8 equity and 8 bond traders and many support personnel. CFA charterholders can be found in all of these functions.

### 3

## THE PORTFOLIO PERSPECTIVE

The portfolio perspective is our focus on the aggregate of all the investor's holdings: the portfolio. Because economic fundamentals influence the average returns of many assets, the risk associated with one asset's returns is generally related to the risk associated with other assets' returns. If we evaluate the prospects of each asset in isolation and ignore their interrelationships, we will likely misunderstand the risk and return prospects of the investor's total investment position—our most basic concern.

The historical roots of this portfolio perspective date to the work of Nobel laureate Harry Markowitz (1952). Markowitz and subsequent researchers, such as Jack Treynor and Nobel laureate William Sharpe, established the field of modern portfolio theory (MPT)—the analysis of rational portfolio choices based on the efficient use of risk. Modern portfolio theory revolutionized investment management. First, professional investment practice began to recognize the importance of the portfolio perspective in achieving investment objectives. Second, MPT helped spread the knowledge and use of quantitative methods in portfolio management. Today, quantitative and qualitative concepts complement each other in investment management practice.

In developing his theory of portfolio choice, Markowitz began with the perspective of investing for a single period. Others, including Nobel laureate Robert Merton, explored the dynamics of portfolio choice in a multiperiod setting. These subsequent contributions have greatly enriched the content of MPT.

If Markowitz, Merton, and other researchers created the supply, three developments in the investment community created demand for the portfolio perspective. First, institutional investing emerged worldwide to play an increasingly dominant role in financial markets. Measuring and controlling the risk of large pools of money became imperative. The second development was the increasing availability of ever-cheaper computer processing power and communications possibilities. As a result, a broader range of techniques for implementing MPT portfolio concepts became feasible. The third related development was the professionalization of the investment management field. This professionalization has been reflected in the worldwide growth of the professional accreditation program leading to the Chartered Financial Analyst (CFA®) designation.

## PORTFOLIO MANAGEMENT AS A PROCESS

# 4

The unified presentation of portfolio management as a process represented an important advance in the investment management literature. Prior to the introduction of this concept in the first edition of this book, much of the traditional literature reflected an approach of selecting individual securities without an overall plan. Through the eyes of the professional, however, portfolio management is a *process*, an integrated set of activities that combine in a logical, orderly manner to produce a desired product. The process view is a *dynamic* and *flexible* concept that applies to all types of portfolio investments—bonds, stocks, real estate, gold, collectibles; to various organizational types—trust company, investment counsel firm, insurance company, mutual fund; to a full range of investors—individuals, pension plans, endowments, foundations, insurance companies, banks; and is independent of manager, location, investment philosophy, style, or approach. Portfolio management is a continuous and systematic process complete with feedback loops for monitoring and rebalancing. The process can be as loose or as disciplined, as quantitative or as qualitative, and as simple or as complex as its operators desire.

The portfolio management process is the same in every application: an integrated set of steps undertaken in a consistent manner to create and maintain appropriate combinations of investment assets. In the next sections, we explore the main features of this process.

## THE PORTFOLIO MANAGEMENT PROCESS LOGIC

# 5

Three elements in managing any business process are planning, execution, and feedback. These same elements form the basis for the portfolio management process as depicted in Figure 1.

### 5.1 The Planning Step

The planning step is described in the four leftmost boxes in Figure 1. The top two boxes represent investor-related input factors, while the bottom two factors represent economic and market input.

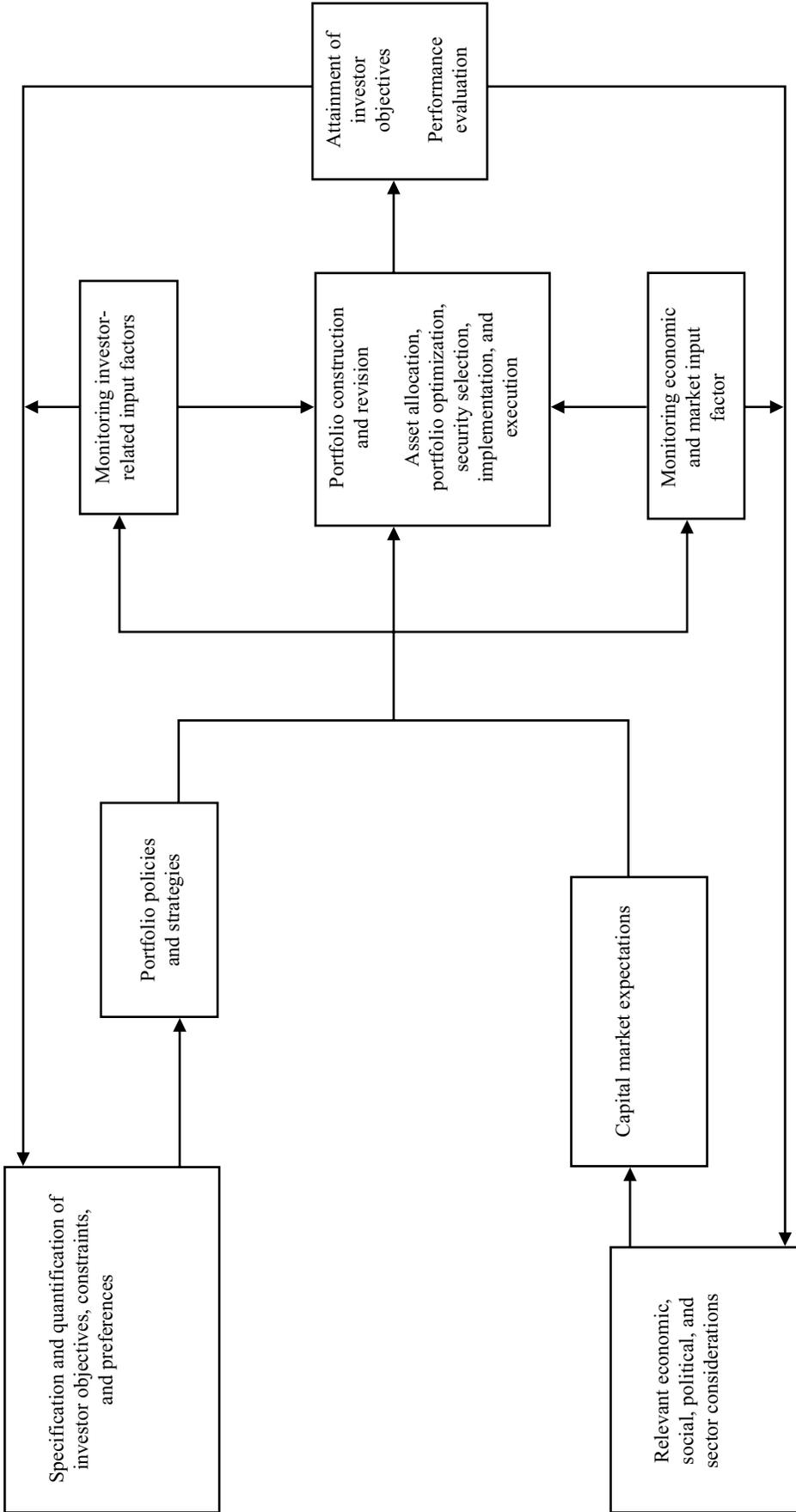
#### 5.1.1 Identifying and Specifying the Investor's Objectives and Constraints

The first task in investment planning is to identify and specify the investor's objectives and constraints. **Investment objectives** are desired investment outcomes. In investments, objectives chiefly pertain to return and risk. Constraints are limitations on the investor's ability to take full or partial advantage of particular investments. For example, an investor may face constraints related to the concentration of holdings as a result of government regulation, or restrictions in a governing legal document. Constraints are either internal, such as a client's specific liquidity needs, time horizon, and unique circumstances, or external, such as tax issues and legal and regulatory requirements. In Section 6, we examine the objective and constraint specification process.

#### 5.1.2 Creating the Investment Policy Statement

Once a client has specified a set of objectives and constraints, the manager's next task is to formulate the investment policy statement. The IPS serves as the governing document for all investment decision-making. In addition to objectives and constraints, the IPS may also cover a variety of other issues. For example, the IPS generally details

Figure 1 The Portfolio Construction, Monitoring, and Revision Process



reporting requirements, rebalancing guidelines, frequency and format of investment communication, manager fees, investment strategy, and the desired investment style or styles of investment managers. A typical IPS includes the following elements:

- a brief client description;
- the purpose of establishing policies and guidelines;
- the duties and investment responsibilities of parties involved, particularly those relating to fiduciary duties, communication, operational efficiency, and accountability. Parties involved include the client, any investment committee, the investment manager, and the bank custodian;
- the statement of investment goals, objectives, and constraints;
- the schedule for review of investment performance as well as the IPS itself;
- performance measures and benchmarks to be used in performance evaluation;
- any considerations to be taken into account in developing the strategic asset allocation;
- investment strategies and investment style(s); and
- guidelines for rebalancing the portfolio based on feedback.

The IPS forms the basis for the strategic asset allocation, which reflects the interaction of objectives and constraints with the investor's long-run capital market expectations. When experienced professionals include the policy allocation as part of the IPS, they are implicitly forming capital market expectations and also examining the interaction of objectives and constraints with long-run capital market expectations. In practice, one may see IPSs that include strategic asset allocations, but we will maintain a distinction between the two types.

The planning process involves the concrete elaboration of an **investment strategy**—that is, the manager's approach to investment analysis and security selection. A clearly formulated investment strategy organizes and clarifies the basis for investment decisions. It also guides those decisions toward achieving investment objectives. In the broadest sense, investment strategies are passive, active, or semiactive.

- In a passive investment approach, portfolio composition does not react to changes in capital market expectations (*passive* means *not reacting*). For example, a portfolio indexed to the MSCI-Europe Index, an index representing European equity markets, might add or drop a holding in response to a change in the index composition but not in response to changes in capital market expectations concerning the security's investment value. **Indexing**, a common passive approach to investing, refers to holding a portfolio of securities designed to replicate the returns on a specified index of securities. A second type of passive investing is a strict buy-and-hold strategy, such as a fixed, but non-indexed, portfolio of bonds to be held to maturity.
- In contrast, with an active investment approach, a portfolio manager will respond to changing capital market expectations. Active management of a portfolio means that its holdings differ from the portfolio's **benchmark** or comparison portfolio in an attempt to produce positive excess risk-adjusted returns, also known as positive **alpha**. Securities held in different-from-benchmark weights reflect expectations of the portfolio manager that differ from consensus expectations. If the portfolio manager's differential expectations are also on average correct, active portfolio management may add value.
- A third category, the semiactive, risk-controlled active, or enhanced index approach, seeks positive alpha while keeping tight control over risk relative to the portfolio's benchmark. As an example, an index-tilt strategy seeks to track

closely the risk of a securities index while adding a targeted amount of incremental value by tilting portfolio weightings in some direction that the manager expects to be profitable.

Active investment approaches encompass a very wide range of disciplines. To organize this diversity, investment analysts appeal to the concept of investment style. Following Brown and Goetzmann (1997), we can define an investment style (such as an emphasis on growth stocks or value stocks) as a natural grouping of investment disciplines that has some predictive power in explaining the future dispersion in returns across portfolios.

### 5.1.3 Forming Capital Market Expectations

The manager's third task in the planning process is to form capital market expectations. Long-run forecasts of risk and return characteristics for various asset classes form the basis for choosing portfolios that maximize expected return for given levels of risk, or minimize risk for given levels of expected return.

### 5.1.4 Creating the Strategic Asset Allocation

The fourth and final task in the planning process is determining the strategic asset allocation. Here the manager combines the IPS and capital market expectations to determine target asset class weights; maximum and minimum permissible asset class weights are often also specified as a risk-control mechanism. The investor may seek both single-period and multiperiod perspectives in the return and risk characteristics of asset allocations under consideration. A single-period perspective has the advantage of simplicity. A multiperiod perspective can address the liquidity and tax considerations that arise from rebalancing portfolios over time, as well as serial correlation (long- and short-term dependencies) in returns, but is more costly to implement.

This reading focuses on the creation of an IPS in the planning step and thereby lays the groundwork for the discussion in other readings of tailoring the IPS to individual and institutional investors' needs. The execution and feedback steps in the portfolio management process are as important as the planning step. For now, we merely outline how these steps fit in the portfolio management process.

## 5.2 The Execution Step

The execution step is represented by the "portfolio construction and revision" box in Figure 1. In the execution step, the manager integrates investment strategies with capital market expectations to select the specific assets for the portfolio (the portfolio selection/composition decision). Portfolio managers initiate portfolio decisions based on analysts' inputs, and trading desks then implement these decisions (portfolio implementation decision). Subsequently, the portfolio is revised as investor circumstances or capital market expectations change; thus the execution step interacts constantly with the feedback step.

In making the portfolio selection/composition decision, portfolio managers may use the techniques of portfolio optimization. Portfolio optimization—quantitative tools for combining assets efficiently to achieve a set of return and risk objectives—plays a key role in the integration of strategies with expectations and appears in Figure 1 in the portfolio construction and revision box.

At times, a portfolio's actual asset allocation may purposefully and temporarily differ from the strategic asset allocation. For example, the asset allocation might change to reflect an investor's current circumstances that are different from normal. The temporary allocation may remain in place until circumstances return to those described in the IPS and reflected in the strategic asset allocation. If the changed circumstances become permanent, the manager must update the investor's IPS and

the temporary asset allocation plan will effectively become the new strategic asset allocation. A strategy known as tactical asset allocation also results in differences from the strategic asset allocation. Tactical asset allocation responds to changes in short-term capital market expectations rather than to investor circumstances.

The portfolio implementation decision is as important as the portfolio selection/composition decision. Poorly managed executions result in transaction costs that reduce performance. Transaction costs include all costs of trading, including explicit transaction costs, implicit transaction costs, and missed trade opportunity costs. Explicit transaction costs include commissions paid to brokers, fees paid to exchanges, and taxes. Implicit transaction costs include bid–ask spreads and market price impacts of large trades. Missed trade opportunity costs can arise due to price changes that prevent trades from being filled.

In sum, in the execution step, plans are turned into reality—with all the attendant real-world challenges.

### 5.3 The Feedback Step

In any business endeavor, feedback and control are essential elements in reaching a goal. In portfolio management, this step has two components: monitoring and rebalancing, and performance evaluation.

#### 5.3.1 *Monitoring and Rebalancing*

Monitoring and rebalancing involve the use of feedback to manage ongoing exposures to available investment opportunities so that the client's current objectives and constraints continue to be satisfied. Two types of factors are monitored: investor-related factors such as the investor's circumstances, and economic and market input factors.

One impetus for portfolio revision is a change in investment objectives or constraints because of changes in investor circumstances. Portfolio managers need a process in place to stay informed of changes in clients' circumstances. The termination of a pension plan or death of a spouse may trigger an abrupt change in a client's time horizon and tax concerns, and the IPS should list the occurrence of such changes as a basis for appropriate portfolio revision.

More predictably, changes in economic and market input factors give rise to the regular need for portfolio revision. Again, portfolio managers need to systematically review the risk attributes of assets as well as economic and capital market factors. A change in expectations may trigger portfolio revision. When asset price changes occur, however, revisions can be required even without changes in expectations. The actual timing and magnitude of rebalancing may be triggered by review periods or by specific rules governing the management of the portfolio and deviation from the tolerances or ranges specified in the strategic asset allocation, or the timing and magnitude may be at the discretion of the manager. For example, suppose the policy allocation calls for an initial portfolio with a 70 percent weighting to stocks and a 30 percent weighting to bonds. Suppose the value of the stock holdings then grows by 40 percent, while the value of the bond holdings grows by 10 percent. The new weighting is roughly 75 percent in stocks and 25 percent in bonds. To bring the portfolio back into compliance with investment policy, it must be rebalanced back to the long-term policy weights. In any event, the rebalancing decision is a crucial one that must take into account many factors, such as transaction costs and taxes (for taxable investors). Disciplined rebalancing will have a major impact on the attainment of investment objectives. Rebalancing takes us back to the issues of execution, as is appropriate in a feedback process.

### 5.3.2 Performance Evaluation

Investment performance must periodically be evaluated by the investor to assess progress toward the achievement of investment objectives as well as to assess portfolio management skill.

The assessment of portfolio management skill has three components. Performance measurement involves the calculation of the portfolio's rate of return. Performance attribution examines why the portfolio performed as it did and involves determining the sources of a portfolio's performance. **Performance appraisal** is the evaluation of whether or not the manager is doing a good job based on how the portfolio did relative to a benchmark (a comparison portfolio).

Often, we can examine a portfolio's performance, in terms of absolute returns, through three sources: decisions regarding the strategic asset allocation, **market timing** (returns attributable to shorter-term tactical deviations from the strategic asset allocation), and security selection (skill in selecting individual securities within an asset class). However, portfolio management is frequently conducted with reference to a benchmark, or for some entities, with reference to a stream of projected liabilities or a specified target rate of return. As a result, relative portfolio performance evaluation, in addition to absolute performance measurement, is often of key importance.

With respect to relative performance we may ask questions such as, "Relative to the investment manager's benchmark, what economic sectors were underweighted or overweighted?" or "What was the manager's rationale for these decisions and how successful were they?" Portfolio evaluation may also be conducted with respect to specific risk models, such as multifactor models, which attempt to explain asset returns in terms of exposures to a set of risk factors.

Concurrent with evaluation of the manager is the ongoing review of the benchmark to establish its continuing suitability. For some benchmarks, this review would include a thorough understanding of how economic sectors and subsectors are determined in the benchmark, the classification of securities within them, and how frequently the classifications change. For any benchmark, one would review whether the benchmark continues to be a fair measuring stick given the manager's mandate.

As with other parts of the portfolio management process, performance evaluation and performance presentation are critical. These topics play a central role in the portfolio management process.

## 5.4 A Definition of Portfolio Management

In sum, the process logic is incorporated in the following definition, which is the cornerstone for this book. Portfolio management is an ongoing process in which

- investment objectives and constraints are identified and specified;
- investment strategies are developed;
- portfolio composition is decided in detail;
- portfolio decisions are initiated by portfolio managers and implemented by traders;
- portfolio performance is measured and evaluated;
- investor and market conditions are monitored; and
- any necessary rebalancing is implemented.

Although we have provided general insights into the portfolio management process, we make no judgments and voice no opinions about how the process should be organized, who should make which decisions, or any other process-operating matter. How well the process works is a critical component of investment success. In a survey of pension fund chief operating officers, Ambachtsheer, Capelle, and Scheibelhut (1998)

found that 98 percent of the respondents cited a poor portfolio management process as a barrier to achieving excellence in organizational performance. The organization of the portfolio management process of any investment management company should be the result of careful planning.

## INVESTMENT OBJECTIVES AND CONSTRAINTS

# 6

As previously discussed, the IPS is the cornerstone of the portfolio management process. Because of the IPS's fundamental importance, we introduce its main components in this reading. In this section, we return to the tasks of identifying and specifying the investor's objectives and constraints that initiate the planning step.

Although we discuss objectives first and then constraints, the actual process of delineating these for any investor may appropriately start with an examination of investor constraints. For example, a short time horizon affects the investor's ability to take risk.

### 6.1 Objectives

The two objectives in this framework, risk and return, are interdependent—one cannot be discussed without reference to the other. The risk objective limits how high the investor can set the return objective.

#### 6.1.1 Risk Objective

The first element of the risk–return framework is the risk objective because it will largely determine the return objective. A 10 percent standard deviation risk objective, for example, implies a different asset allocation than a 15 percent standard deviation risk objective, because expected asset risk is generally positively correlated with expected asset return. In formulating a risk objective, the investor must address the following questions:

- 1 *How do I measure risk?* Risk measurement is a key issue in investments, and several approaches exist for measuring risk. In practice, risk may be measured in absolute terms or in relative terms with reference to various risk concepts. Examples of absolute risk objectives are a specified level of standard deviation or variance of total return. The **variance** of a random variable is the expected value of squared deviations from the random variable's mean. Variance is often referred to as volatility. **Standard deviation** is the positive square root of variance. An example of a relative risk objective is a specified level of tracking risk. Tracking risk is the standard deviation of the differences between a portfolio's and the benchmark's total returns.  
Downside risk concepts, such as **value at risk (VaR)**, may also be important to an investor. Value at risk is a probability-based measure of the loss that one anticipates will be exceeded only a specified small fraction of the time over a given horizon—for example, in 5 percent of all monthly holding periods. Besides statistical measures of risk, other risk exposures, such as exposures to specific economic sectors, or risk with respect to a factor model of returns, may be relevant as well.
- 2 *What is the investor's willingness to take risk?* The investor's stated willingness to take risk is often very different for institutional versus individual investors. Managers should try to understand the behavioral and, for individuals, the

personality factors behind an investor's willingness to take risk. In the reading on individual investors, we explore behavioral issues in reference to the investor's willingness to take risk.

- 3 *What is the investor's ability to take risk?* Even if an investor is eager to bear risk, practical or financial limitations often limit the amount of risk that can be prudently assumed. For the sake of illustration, in the following discussion we talk about risk in terms of the volatility of asset values.
  - In terms of spending needs, how much volatility would inconvenience an investor who depends on investments (such as a university in relationship to its endowment fund)? Or, how much volatility would inconvenience an investor who otherwise cannot afford to incur substantial short-term losses? Investors with high levels of wealth relative to probable worst-case short-term loss scenarios can take more risk.
  - In terms of long-term wealth targets or obligations, how much volatility might prevent the investor from reaching these goals? Investors with high levels of wealth relative to long-term wealth targets or obligations can take more risk.
  - What are the investor's liabilities or pseudo liabilities? An institution may face legally promised future payments to beneficiaries (liabilities) and an individual may face future retirement spending needs (pseudo liabilities).
  - What is the investor's financial strength—that is, the ability to increase the savings/contribution level if the portfolio cannot support the planned spending? More financial strength means more risk can be taken.
- 4 *How much risk is the investor both willing and able to bear?* The answer to this question defines the investor's risk tolerance. Risk tolerance, the capacity to accept risk, is a function of both an investor's willingness and ability to do so. Risk tolerance can also be described in terms of risk aversion, the degree of an investor's inability and unwillingness to take risk. The investor's specific risk objectives are formulated with that investor's level of risk tolerance in mind. Importantly, any assessment of risk tolerance must consider both an investor's willingness and that investor's ability to take risk. When a mismatch exists between the two, determining risk tolerance requires educating the client on the dangers of excess risk taking or of ignoring inflation risk, depending on the case. In our presentation in this book, we assume that such education has taken place and that we are providing an appropriate risk objective in the IPS proposed to the client. When an investor's willingness to accept risk exceeds ability to do so, ability prudently places a limit on the amount of risk the investor should assume. When ability exceeds willingness, the investor may fall short of the return objective because willingness would be the limiting factor. These interactions are shown in Table 1.

An investor with an above-average ability to assume risk may have legitimate reasons for choosing a lower risk strategy. As well, an investor may face the pleasant situation of having an excess of wealth to meet financial needs for a long period of time. In these cases, the investor needs to have a clear understanding of the eventual consequences of the decision to effectively spend down excess wealth over time. As with any strategy, such a decision must be reevaluated periodically. In the case of a high-net-worth investor who has earned substantial wealth from entrepreneurial risk taking, such an investor may now simply not want to lose wealth and may desire only liquidity to spend in order to maintain her current lifestyle.

- 5 *What are the specific risk objective(s)?* Just as risk may be measured either absolutely or relatively, we may specify both absolute risk and relative risk objectives. In practice, investors often find that quantitative risk objectives are easier to specify in relative than in absolute terms. Possibly as a consequence, absolute risk objectives in particular are frequently specified in qualitative rather than quantitative terms.

What distinguishes the risk objective from risk tolerance is the level of specificity. For example, the statement that a person has a “lower than average risk tolerance” might be converted operationally into “the loss in any one year is not to exceed  $x$  percent of portfolio value” or “annual volatility of the portfolio is not to exceed  $y$  percent.” Often, clients—particularly individual investors—do not understand or appreciate this level of specificity, and more-general risk-tolerance statements substitute for a quantitative risk objective.

- 6 *How should the investor allocate risk?* This is how some investors frame capital allocation decisions today, particularly when active strategies will play a role in the portfolio. The question may concern the portfolio as a whole or some part of it. Risk budgeting disciplines address the above question most directly. After the investor has determined the *measure* of risk of concern to him (e.g., VaR or tracking risk) and the *desired total quantity of risk* (the overall risk budget), an investor using risk budgeting would allocate the overall risk budget to specific investments so as to maximize expected overall risk-adjusted return. The resulting optimal risk budgets for the investments would translate to specific allocations of capital to them.

**Table 1 Risk Tolerance**

Willingness to Take Risk	Ability to Take Risk	
	Below Average	Above Average
Below Average	Below-average risk tolerance	Resolution needed
Above Average	Resolution needed	Above-average risk tolerance

### 6.1.2 Return Objective

The second element of the investment policy framework is the return objective, which must be consistent with the risk objective. Just as tension may exist between willingness and ability in setting the risk objective, so the return objective requires a resolution of return desires versus the risk objective. In formulating a return objective, the investor must address the following four questions:

- 1 *How is return measured?* The usual measure is total return, the sum of the return from price appreciation and the return from investment income. Return may be stated as an absolute amount, such as 10 percent a year, or as a return relative to the benchmark’s return, such as benchmark return plus 2 percent a year. Nominal returns must be distinguished from real returns. Nominal returns are unadjusted for inflation. Real returns are adjusted for inflation and sometimes simply called inflation-adjusted returns. Also, pretax returns must be distinguished from post-tax returns. Pretax returns are returns before taxes, and post-tax returns are returns after taxes are paid on investment income and realized capital gains.
- 2 *How much return does the investor say she wants?* This amount is the stated return desire. These wants or desires may be realistic or unrealistic. For example, an investor may have higher than average return desires to meet high

consumption desires or a high ending wealth target: for instance, “I want a 20 percent annual return.” The advisor or portfolio manager must continually evaluate the desire for high returns in light of the investor’s ability to assume risk and the reasonableness of the stated return desire, especially relative to capital market expectations.

- 3 *How much return does the investor need to achieve, on average?* This amount is the required return or return requirement. Requirements are more stringent than desires because investors with requirements typically must achieve those returns, at least on average. An example of a return requirement is the average return a pension fund projects it must earn to fund liabilities to current and future pensioners, based on actuarial calculations. The compound rate of return that an individual investor must earn to attain the asset base needed for retirement is another example of a return requirement. A third example would be the return that a retired investor must earn on his investment portfolio to cover his annual living expenses. We illustrate these last two cases.

Suppose that a married couple needs £2 million in 18 years to fund retirement. Their current investable assets total £1,200,000. The projected future need (£2 million) incorporates expected inflation. The couple would need to earn  $(£2,000,000/£1,200,000)^{1/18} - 1.0 = 2.88$  percent per year after-tax to achieve their goal. Every cash flow needs to be accounted for in such calculations. If the couple needed to liquidate £25,000 from the portfolio at the end of each year (keeping all other facts unchanged), they would need to earn 4.55 percent per year on an after-tax basis to have £2 million in 18 years (a financial calculator is needed to confirm this result). If all investment returns were taxed at 35 percent, 4.55 percent after tax would correspond to a 7 percent pretax required return  $[4.55/(1 - 0.35) = 7\%]$ .

A retiree may depend on his investment portfolio for some or all of his living expenses. That need defines a return requirement. Suppose that a retiree must achieve a 4 percent after-tax return on his current investment portfolio to meet his current annual living expenses. Thus, his return requirement on a real, after-tax basis is 4 percent per year. If he expects inflation to be 2 percent per year and a 40 percent tax rate applies to investment returns from any source, we could estimate his pretax nominal return requirement as  $(\text{After-tax real return requirement} + \text{Expected inflation rate}) / (1 - \text{Tax rate}) = (4\% + 2\%) / (1 - 0.40) = 10$  percent.

In contrast to desired returns, which can be reduced if incongruent with risk objectives, large required returns are an important source of potential conflict between return and risk objectives. Other required return issues that are relevant to specific situations include the following:

- What are the needs and desires for current spending versus ending wealth?
  - How do nominal total return requirements relate to expected rates of price inflation? If assets fund obligations subject to inflation, the return requirements should reflect expected rates of inflation.
- 4 *What are the specific return objectives?* The return objective incorporates the required return, the stated return desire, and the risk objective into a measurable annual total return specification. For example, an investor with a 5 percent after-tax, required, inflation-adjusted annual rate of return but above-average risk tolerance might reasonably set a higher than 5 percent after-tax, inflation-adjusted annual rate of return objective to maximize expected wealth.

An investor's return objective should be consistent with that investor's risk objective. A high return objective may suggest an asset allocation with an expected level of risk that is too great in relation to the risk objective, for example. In addition, the anticipated return from the portfolio should be sufficient to meet wealth objectives or liabilities that the portfolio must fund.

For investors with current investment income needs, the return objective should be sufficient to meet spending needs from capital appreciation and investment income: When a well-considered return objective is not consistent with risk tolerance, other adjustments may need to take place, such as increasing savings or modifying wealth objectives.

An investor delegating portfolio management to an investment manager will communicate a mandate—a set of instructions detailing the investment manager's task and how his performance will be evaluated—that includes a specification of the manager's benchmark. Because the manager's performance will be evaluated against the benchmark, the benchmark's total return is an effective return objective for the investment manager. These instructions may be part of the investment policy statement or, in the case of a portfolio with multiple managers, outlined in separate instructions for each mandate to each manager.

Although an absolute return objective is sometimes set (e.g., 8 percent), the reality of the markets suggests that a relative return objective may be more plausible. A relative return objective is stated as a return relative to the portfolio benchmark's total return (e.g., 1 percent higher than the benchmark).

Table 2 illustrates the variation in return requirement and risk tolerance among various categories of investors.

**Table 2 Return Requirements and Risk Tolerances of Various Investors**

Type of Investor	Return Requirement	Risk Tolerance
Individual	Depends on stage of life, circumstances, and obligations	Varies
Pension Plans (Defined Benefit)	The return that will adequately fund liabilities on an inflation-adjusted basis	Depends on plan and sponsor characteristics, plan features, funding status, and workforce characteristics
Pension Plans (Defined Contribution)	Depends on stage of life of individual participants	Varies with the risk tolerance of individual participants
Foundations and Endowments	The return that will cover annual spending, investment expenses, and expected inflation	Determined by amount of assets relative to needs, but generally above-average or average
Life Insurance Companies	Determined by rates used to determine policyholder reserves	Below average due to factors such as regulatory constraints
Non-Life-Insurance Companies	Determined by the need to price policies competitively and by financial needs	Below average due to factors such as regulatory constraints
Banks	Determined by cost of funds	Varies

## 6.2 Constraints

The investor's risk and return objectives are set within the context of several constraints: liquidity, time horizon, tax concerns, legal and regulatory factors, and unique circumstances. Although all of these factors influence portfolio choice, the first two constraints bear directly on the investor's ability to take risk and thus constrain both risk and return objectives.

### 6.2.1 Liquidity

A liquidity requirement is a need for cash *in excess of new contributions* (for pension plans and endowments, for example) or *savings* (for individuals) at a specified point in time. Such needs may be anticipated or unanticipated, but either way they stem from liquidity events. An example of a liquidity event is planned construction of a building in one year.

The liquidity requirement may reflect nonrecurring needs or the desire to hold cash against unanticipated needs (a safety or reserve fund). This requirement may be met by holding cash or cash equivalents in the portfolio or by converting other assets into cash equivalents. Any risk of economic loss because of the need to sell relatively less liquid assets to meet liquidity requirements is **liquidity risk**. (An asset that can be converted into cash only at relatively high total cost is said to be relatively less liquid.) Liquidity risk, therefore, arises for two reasons: an asset-side reason (asset liquidity) and a liability-side reason (liquidity requirements). Portfolio managers control asset selection but not liquidity requirements; as a result, in practice, managers use asset selection to manage liquidity risk. If the portfolio's asset and income base are large relative to its potential liquidity requirements, relatively less liquid assets can be held. A distinct consideration is liquidity requirements in relation to price risk of the asset—the risk of fluctuations in market price. Assets with high price risk are frequently less liquid, especially during market downturns. If the timing of an investor's liquidity requirements is significantly correlated with market downturns, these requirements can influence asset selection in favor of less risky assets. In many cases, therefore, consideration of both liquidity risk and price risk means that an investor will choose to hold some part of the portfolio in highly liquid and low-price-risk assets in anticipation of future liquidity requirements. Investors may also modify the payoff structure of a risky portfolio to address liquidity requirements using derivative strategies, although such modifications often incur costs. (**Derivatives** are contracts whose payoffs depend on the value of another asset, often called the underlying asset.)

### 6.2.2 Time Horizon

Time horizon most often refers to the time period associated with an investment objective. Investment objectives and associated time horizons may be short term, long term, or a combination of the two. (A time horizon of 10 years or more is often considered to be long term. Investment performance over the long term should average results over several market and business cycles.) A multistage horizon is a combination of shorter term and longer term horizons. An example of a multistage horizon is the case of funding children's education shorter term and the investor's retirement longer term.

Other constraints, such as a unique circumstance or a specific liquidity requirement, can also affect an investor's time horizon. For example, an individual investor's temporary family living arrangement can dictate that his time horizon constraint be stated in multistage terms. Similarly, an institutional investor's need to make an imminent substantial disbursement of funds for a capital project can necessitate a multistage approach to the time horizon constraint.

In general, relevant time horizon questions include the following:

- *How does the length of the time horizon modify the investor's ability to take risk?*  
The longer the time horizon the more risk the investor can take. The longer the time horizon, the greater the investor's ability to replenish investment resources by increasing savings. A long-term investor's labor income may also be an asset

sufficiently stable to support a higher level of portfolio risk.<sup>3</sup> Cash may be safe for a short-term investor but risky for a long-term investor who will be faced with continuously reinvesting.

- *How does the length of the time horizon modify the investor's asset allocation?* Many investors allocate a greater proportion of funds to risky assets when they address long-term as opposed to short-term investment objectives. Decreased risk-taking ability with shorter horizons can thus constrain portfolio choice.
- *How does the investor's willingness and ability to bear fluctuations in portfolio value modify the asset allocation?* With a focus on risk, even an investor with a long-term objective may limit risk taking because of sensitivity to the possibility of substantial interim losses. The chance of unanticipated liquidity needs may increase during market downturns, for instance, because a market downturn may be linked to a decline in economic activity affecting income or other sources of wealth. An investor that often faces unanticipated short-term liquidity needs will usually favor investments with a shorter time horizon so as to limit the risk of loss of value.
- *How does a multistage time horizon constrain the investor's asset allocation?* The investment policy must be designed to accommodate all time horizons in a multistage horizon case. Such design will probably entail some compromise in the setting of objectives to attain short-, medium-, and long-term goals.

### 6.2.3 Tax Concerns

A country's tax policy can affect important aspects of investment decision-making for investors who reside there. Tax concerns arise for taxable investors because tax payments reduce the amount of the total return that can be used for current needs or reinvested for future growth. Differences between the tax rates applying to investment income and capital gains will influence taxable investors' choice of investments and their timing of sales. Estate taxes on wealth triggered by the investor's death can also affect investment decisions. Finally, tax policy changes that affect security prices affect both taxable and tax-exempt investors.

### 6.2.4 Legal and Regulatory Factors

Legal and regulatory factors are external factors imposed by governmental, regulatory, or oversight authorities, which may constrain investment decision-making. For example, some countries limit the use of certain assets or asset classes in retirement accounts. In the United States, the Employee Retirement Income Security Act (ERISA) of 1974, as interpreted by regulatory agencies and the courts, limits the acquisition and holding of employer securities by certain pension plans. In another example, insurance companies may face regulatory constraints on their investment portfolio holdings.

### 6.2.5 Unique Circumstances

Unique circumstances are internal factors (other than a liquidity requirement, time horizon, or tax concern) that may constrain portfolio choices. For example, a university endowment may be constrained to avoid certain investments against which there may be ethical objections or social responsibility considerations. Similarly, an individual investor's portfolio choices may be constrained by circumstances focusing on health needs, support of dependents, and other circumstances unique to the particular individual. Investors may specify avoidance of nondomestic shares or

<sup>3</sup> See Campbell and Viceira (2002) for a discussion of this and the following point.

derivatives. Portfolio choices may also be constrained by investor capability in terms of both human resources and financial resources such as time, interest, background, and technical expertise.

## 7

### THE DYNAMICS OF THE PROCESS

One of the truly satisfying aspects of portfolio management as a professional activity is the underlying logic and the dynamism of the portfolio process concept. In a broad sense, the work of analysts, economists, and market strategists is all a matter of “getting ready.” The work of portfolio management is the action: taking the inputs and moving step by step through the orderly process of converting this raw material into a portfolio that maximizes expected return relative to the investor’s ability to bear risk, that meets the investor’s constraints and preferences, and that integrates portfolio policies with expectational factors and market uncertainties. Portfolio management is where the payoff is, because this is where it all comes together. Of course, it is the end result of this process that is judged: the performance of the portfolio relative to expectations and comparison standards.

Professionalism is enhanced and practice improved by managing portfolios as a process that

- consists of the steps outlined in this volume;
- flows logically and systematically through an orderly sequence of decision-making; and
- is continuous once put into motion with respect to a given investor.

This view approaches portfolio management not as a set of separate elements operating by fits and starts as intuition or inspiration dictates but rather as an integrated whole in which every decision moves the portfolio down the process path and in which no decision can be skipped without sacrificing functional integrity.

## 8

### THE FUTURE OF PORTFOLIO MANAGEMENT

In the last few decades, portfolio management has become a more science-based discipline somewhat analogous to engineering and medicine. As in these other fields, advances in basic theory, technology, and market structure constantly translate into improvements in products and professional practices.

Among the most significant recent theoretical advances in investments is the recognition that the risk characteristics of the nontradable assets owned by an individual client, such as future earnings from a job, a business, or an expected inheritance, should be included in the definition of that client’s portfolio. In the institutional area also, there is an increasing awareness and use of multifactor risk models and methods of managing risk.

Among the most significant market developments is the emergence of a broad range of new standardized derivative contracts—swaps, futures, and options. As active trading in these standardized products continues to develop, they make possible the

creation of an infinite variety of customized investment products tailored to the needs of specific clients. As analysts continue to develop a more comprehensive view of risk, they also command a wider set of tools with which to manage it.<sup>4</sup>

## THE ETHICAL RESPONSIBILITIES OF PORTFOLIO MANAGERS

# 9

In this reading, we have initiated a course of study that we hope will further the reader in his or her career as an investment professional. We select the term investment *professional* advisedly. Dictionaries define professional as “conforming to the standards of a profession.” Every thoughtful person who has explored the subject has concluded that professional standards are of two types: standards of competence and standards of conduct. Merely drawing a livelihood from managing or advising on the investment of client monies is insufficient in itself to make an investment professional.

But verbal distinctions are not the most important point. The conduct of a portfolio manager affects the well-being of clients and many other people. The connection to individuals and their welfare is always present; it is no less important in those institutional contexts in which the portfolio manager may never meet the client. In the first years of the 21st century press attention focused on abuses in the US mutual fund industry such as late trading, abusive market timing, selective disclosure of information on portfolio holdings, and undisclosed payments for “shelf space” to gain placement on brokers’ preferred lists.<sup>5</sup> Certain fund executives facilitated or participated in these activities for personal enrichment, at the expense of the well-being of their clients, mutual fund shareholders. In truth, the docket of cases of professional misconduct is never empty, but the profession can and must work towards minimizing it. The portfolio manager must keep foremost in mind that he or she is in a position of trust, requiring ethical conduct towards the public, client, prospects, employers, employees, and fellow workers. For CFA Institute members, this position of trust is reflected in the Code of Ethics and Standards of Professional Conduct to which members subscribe, as well as in the Professional Conduct Statement they submit annually. Ethical conduct is the foundation requirement for managing investment portfolios.

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### SUMMARY

In this reading, we have presented the portfolio management process and the elements of the investment policy statement.

- According to the portfolio perspective, individual investments should be judged in the context of how much risk they add to a portfolio rather than on how risky they are on a stand-alone basis.
- The three steps in the portfolio management process are the planning step (objectives and constraint determination, investment policy statement creation, capital market expectation formation, and strategic asset allocation creation);

<sup>4</sup> This section on the future of portfolio management was contributed by Dr. Zvi Bodie.

<sup>5</sup> The listing follows the enumeration of William H. Donaldson, CFA, chair of the US Securities and Exchange Commission, in a speech to the Mutual Fund Directors Forum on 7 January 2004.

the execution step (portfolio selection/composition and portfolio implementation); and the feedback step (performance evaluation and portfolio monitoring and rebalancing).

- Investment objectives are specific and measurable desired performance outcomes, and constraints are limitations on the ability to make use of particular investments. The two types of objectives are risk and return. The two types of constraints are internal (posed by the characteristics of the investor) and external (imposed by outside agencies).
- An investment policy statement is a written planning document that governs all investment decisions for the client. This document integrates a client's needs, preferences, and circumstances into a statement of that client's objectives and constraints.
- A policy or strategic asset allocation establishes exposures to IPS-permissible asset classes in a manner designed to satisfy the client's long-run objectives and constraints. The plan reflects the interaction of objectives and constraints with long-run capital market expectations.
- In a passive investment strategy approach, portfolio composition does not react to changes in expectations; an example is indexing, which involves a fixed portfolio designed to replicate the returns on an index. An active approach involves holding a portfolio different from a benchmark or comparison portfolio for the purpose of producing positive excess risk-adjusted returns. A semiactive approach refers to an indexing approach with controlled use of weights different from the benchmark.
- The portfolio selection/composition decision concerns portfolio construction and often uses portfolio optimization to combine assets efficiently to achieve return and risk objectives. The portfolio implementation decision concerns the trading desk function of implementing portfolio decisions and involves explicit and implicit transaction costs.
- The elements of performance evaluation are performance measurement, attribution, and appraisal. Performance measurement is the calculation of portfolio rates of return. Performance attribution is the analysis of those rates of return to determine the factors that explain how the return was achieved. Performance appraisal assesses how well the portfolio manager performed on a risk-adjusted basis, whether absolute or relative to a benchmark.
- Portfolio monitoring and rebalancing use feedback to manage ongoing exposures to available investment opportunities in order to continually satisfy the client's current objectives and constraints.
- Portfolio management is an ongoing process in which the investment objectives and constraints are identified and specified, investment policies and strategies are developed, the portfolio composition is decided in detail, portfolio decisions are initiated by portfolio managers and implemented by traders, portfolio performance is evaluated, investor and market conditions are monitored, and any necessary rebalancing is implemented.
- To determine a risk objective, there are several steps: specify a risk measure (or measures) such as standard deviation, determine the investor's willingness to take risk, determine the investor's ability to take risk, synthesize the investor's willingness and ability into the investor's risk tolerance, and specify an objective using the measure(s) in the first step above.
- To determine a return objective, there are several steps: specify a return measure such as total nominal return, determine the investor's stated return desire, determine the investor's required rate of return, and specify an objective in terms of the return measure in the first step above.

- A liquidity requirement is a need for cash in excess of the contribution rate or the savings rate at a specified point in time. This need may be either anticipated or unanticipated.
- A time horizon is the time period associated with an investment objective. Investment objectives and associated time horizons may be short term, long term, or a combination of these two. A multistage horizon is a combination of shorter term and longer term horizons. A time horizon can be considered a constraint because shorter time horizons generally indicate lower risk tolerance and hence constrain portfolio choice, making it more conservative.
- A tax concern is any issue arising from a tax structure that reduces the amount of the total return that can be used for current needs or reinvested for future growth. Tax concerns constrain portfolio choice. If differences exist between the tax rates applying to investment income and capital gains, tax considerations will influence the choice of investment.
- Legal and regulatory factors are external considerations that may constrain investment decision making. For example, a government agency may limit the use of certain asset classes in retirement portfolios.
- Unique circumstances are internal factors (other than a liquidity requirement, time horizon, or tax concerns) that may constrain portfolio choices. For example, an investor seeking to avoid investments in tobacco companies will place an internal constraint on portfolio choice.

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## PRACTICE PROBLEMS

1 A An individual expects to save €50,000 during the coming year from income from non-portfolio sources, such as salary. She will need €95,000 within the year to make a down payment for a house purchase. What is her liquidity requirement for the coming year?

B Endowments are funds that are typically owned by non-profit institutions involved in educational, medical, cultural, and other charitable activities. Classified as institutional investors, endowments are almost always established with the intent of lasting into perpetuity.

The Wilson-Fowler Endowment was established in the United States to provide financial support to Wilson-Fowler College. An endowment's spending rate defines the fraction of endowment assets distributed to the supported institution. The Wilson-Fowler Endowment has established a spending rate of 4 percent a year; the endowment follows the simple rule of spending, in a given year, an amount equal to  $4\% \times$  (Market value of the endowment at the end of the prior year). This amount is committed to the budgetary support of the college for the coming year. At the end of the prior year, the market value of the Wilson-Fowler Endowment's assets stood at \$75,000,000. In addition, the Wilson-Fowler Endowment has committed to contribute \$1,000,000 in the coming year to the construction of a new student dormitory. Planners at the endowment expect the endowment to receive contributions or gifts (from alumni and other sources) of \$400,000 over the coming year. What is the anticipated liquidity requirement of the Wilson-Fowler Endowment for the coming year?

2 The Executive Director of the Judd University Endowment estimates that the capital markets will provide a 9 percent expected return for an endowment portfolio taking above-average risk, and a 7 percent expected return for an endowment portfolio taking average risk. The Judd Endowment provides tuition scholarships for Judd University students. The spending rate has been 4 percent, and the expected tuition inflation rate is 3 percent. Recently university officials have pressured the endowment to increase the spending rate to 6 percent. The endowment has an average to below-average ability to accept risk and only an average willingness to take risk, but a university official claims that the risk tolerance should be raised because higher returns are needed. Discuss an appropriate return objective and risk tolerance for the Judd Endowment.

3 Stux (1994) describes a country allocation strategy across five major equity markets: the United States, the United Kingdom, Germany, France, and Japan. In this strategy, a measure of relative attractiveness among the five equity markets is used as a factor in determining the weights of the five equity markets in the overall portfolio. The investment in each country, however, whatever the country's weight, is an indexed investment in the equity market of that country. The weights of the five equity markets in the overall portfolio generally are expected to differ from benchmark weights (the weights of the countries in an appropriate benchmark for the international equity market), within limits.

- A Characterize the two components (portfolio weights and within-country investments) of the country allocation strategy using the text's framework for classifying investment strategies.
  - B Characterize the country allocation strategy overall.
- 4 Characterize each of the investment objectives given below as one of the following: an absolute risk objective, a relative risk objective, an absolute return objective, or a relative return objective.
- A Achieve a rate of return of 8 percent a year.
  - B Limit the standard deviation of portfolio returns to 20 percent a year or less.
  - C Achieve returns in the top quartile of the portfolio's peer universe (the set of portfolios with similar investment objectives and characteristics).
  - D Maintain a 10 percent or smaller probability that the portfolio's return falls below the threshold level of 5 percent per annum over a one-year time horizon.
  - E Achieve a tracking risk of no more than 4 percent per annum with respect to the portfolio's benchmark.

## The following information relates to Questions 5–10

James Stephenson, age 55 and single, is a surgeon who has accumulated a substantial investment portfolio without a clear long-term strategy in mind. Two of his patients who work in financial markets comment as follows:

- James Hrdina: "My investment firm, based on its experience with investors, has standard investment policy statements in five categories. You would be better served to adopt one of these standard policy statements instead of spending time developing a policy based on your individual circumstances."
- Charles Gionta: "Developing a long-term policy can be unwise given the fluctuations of the market. You want your investment advisor to react continuously to changing conditions and not be limited by a set policy."

Stephenson hires a financial advisor, Caroline Coppa. At their initial meeting, Coppa compiles the following notes:

Stephenson currently has a \$2.0 million portfolio that has a large concentration in small-capitalization US equities. Over the past five years, the portfolio has averaged 20 percent annual total return on investment. Stephenson hopes that, over the long term, his portfolio will continue to earn 20 percent annually. When asked about his risk tolerance, he described it as "average." He was surprised when informed that US small-cap portfolios have experienced extremely high volatility.

He does not expect to retire before age 70. His current income is more than sufficient to meet his expenses. Upon retirement, he plans to sell his surgical practice and use the proceeds to purchase an annuity to cover his post-retirement cash flow needs.

Both his income and realized capital gains are taxed at a 30 percent rate. No pertinent legal or regulatory issues apply. He has no pension or retirement plan but does have sufficient health insurance for post-retirement needs.

- 5 The comments about investment policy statements made by Stephenson's patients are *best* characterized as:

	<u>Hrdina</u>	<u>Gionta</u>
A	Correct	Correct
B	Incorrect	Correct
C	Incorrect	Incorrect

- 6 In formulating the return objective for Stephenson's investment policy statement, the *most* appropriate determining factor for Coppa to focus on is:

- A return desires.
- B ability to take risk.
- C return requirement.

- 7 Stephenson's willingness and ability to accept risk can be *best* characterized as:

	<u>Willingness to accept risk</u>	<u>Ability to accept risk</u>
A	Below average	Above average
B	Above average	Below average
C	Above average	Above average

- 8 Stephenson's tax and liquidity constraints can be *best* characterized as:

	<u>Tax constraint</u>	<u>Liquidity constraint</u>
A	Significant	Significant
B	Significant	Insignificant
C	Insignificant	Insignificant

- 9 Stephenson's time horizon is *best* characterized as:

- A short-term and single-stage.
- B long-term and single-stage.
- C long-term and multistage.

- 10 Stephenson's return objective and risk tolerance are *most* appropriately described as:

	<u>Return Objective</u>	<u>Risk Tolerance</u>
A	Below average	Above average
B	Above average	Below average
C	Above average	Above average

## The following information relates to Questions 11–16

Gina Benedetti, a trust officer at an Italian bank, interviewed Alessandro Santalucia, a new client. A summary of her interview appears in Exhibit 1.

### Exhibit 1 Interview Summary for Client Alessandro Santalucia

Age	45
Family	Married but divorce is pending; three children ages 16, 17, and 18
Hobbies	Speed boat racing, mountain climbing
Business	Real estate speculation, buying firms with turn-around potential
Assets	€1 million in his private business and real estate and €500,000 in a nondiversified investment portfolio
Retirement plans	None; wishes to continue working until physically unable to do so
Current income	Spending modestly exceeds income
Spending plans/Requirements	Children's college education (estimated at €30,000/year per child); divorce settlement may be up to one-half of his assets

Benedetti develops an investment policy statement and recommended asset allocation for Santalucia and puts the following notes in Santalucia's file:

- 1 I met with our staff economist to review his thinking on short-term trends in the economy and financial markets. I relied greatly on his forecast to draft an investment policy statement for Santalucia.
- 2 Santalucia's situation is very similar to that of another client from several years ago. I used that client's asset allocation as a basis for my portfolio recommendations for Santalucia.

Benedetti next meets with her firm's research analyst, Kurt Westerlund, to discuss changes to the firm's recommended list. One company of interest is an upcoming initial public offering (IPO) for Palladio Corp. To analyze this IPO, Westerlund used data from 20 publicly traded peer companies with business lines similar to Palladio's. He combined them into an equally weighted portfolio to approximate the anticipated behavior of Palladio's stock once it becomes publicly traded. Some of this information is presented in Exhibit 2.

During their conversation, Westerlund makes several statements about Palladio and the capital markets:

- Statement #1 "I estimated the Palladio proxy portfolio's beta over several different time periods, and this portfolio beta has always been stable, with the high and low estimates within 5 percent of each other. However, Palladio's estimated beta will be more volatile over time than that of the proxy portfolio."
- Statement #2 "The estimation of beta is affected by several factors, including regression to the mean, volume of trading, and the market proxy used."
- Statement #3 "The capital market line (CML) uses a measure of total risk, and the SML uses a standardized measure of systematic risk."

Statement #4 “The SML is the equation that specifies the required/expected return for a security that is implied by the CML when the market is in equilibrium.”

**Exhibit 2 Data for Palladio Peer Firms Monthly Data, May 2000–May 2006  
(Returns Measured as Decimal; 1% = 0.01)**

	Palladio Proxy Portfolio	Market
Average monthly return	0.0051	0.0025
Variance of returns	0.0033	0.0021
Covariance with market return	0.0015	0.0021
Correlation with market return	0.5697	1.000

Benedetti notes that the current short-term government bill rate offers 2.5 percent annually and her firm’s economist anticipates a market risk premium of 7.0 percent on stock market investments.

In addition to her consideration of Palladio, Benedetti wants to review Borgonovo, Inc., and decide whether it should remain on the bank’s recommended list or be removed. Borgonovo has a beta of 1.2, and a forecasted return of 9.0 percent.

- 11 Which of the following *best* describes Santalucia’s current risk tolerance and liquidity constraint? Santalucia’s risk tolerance is:
- A below average, and his liquidity constraint is significant.  
 B above average, and his liquidity constraint is significant.  
 C above average, and his liquidity constraint is insignificant.
- 12 Do Benedetti’s two notes for Santalucia’s file describe the correct process for constructing an investment policy statement and for developing portfolio recommendations?

	Note #1 on investment policy statement process	Note #2 on developing portfolio recommendations
A	No	No
B	Yes	No
C	Yes	Yes

- 13 Are Westerlund’s statements #1 and #2 correct regarding the:

	Palladio systematic risk?	factors affecting beta estimation?
A	No	Yes
B	Yes	No
C	Yes	Yes

- 14 Are Westerlund’s statements #3 and #4 correct regarding:

	types of risk measures?	equilibrium?
A	No	No
B	Yes	No
C	Yes	Yes

- 15 Based on Exhibit 2, the estimated beta for Palladio is *closest* to:

- A 0.40.
  - B 0.57.
  - C 0.71.
- 16** Based on the relationship of Borgonovo's stock to the SML, what is the *most* appropriate decision Benedetti should make regarding the Borgonovo stock?
- A Keep Borgonovo on the recommended list because it plots below the SML.
  - B Keep Borgonovo on the recommended list because it plots above the SML.
  - C Remove Borgonovo from the recommended list because it plots below the SML.
-

## SOLUTIONS

- 1 **A** The liquidity requirement for this individual is her need for cash in excess of her savings during the coming year. Therefore, her liquidity requirement is  $€95,000 - €50,000 = €45,000$ .
  - B** The Wilson-Fowler Endowment's anticipated liquidity requirement is \$600,000, calculated as \$1,000,000 (the planned contribution to the construction of the new dormitory) minus \$400,000 (the anticipated amount of new contributions to the endowment). Note that the amount of  $4\% \times \$75,000,000 = \$3,000,000$ , as provided for in the spending rule, is fully committed to budgetary support; thus this amount is not available to help meet the endowment's planned contribution to the building project.
- 2 The Judd Endowment's risk tolerance is limited by its ability and willingness to accept risk. Risk tolerance is *not* a function of a need for higher returns. The return objective should be consistent with risk tolerance, so an appropriate return objective for the Judd Endowment is 7 percent. A spending rate of 6 percent is too high for this endowment; raising the return objective to 9 percent would only compound the problem created by a 6 percent spending rate, which is inappropriately high for this endowment.
- 3 **A** The country allocation strategy as described mixes elements of active and passive investment approaches. The portfolio weights are actively determined and differ from benchmark weights, within limits. However, the investments in individual countries are passive, indexed investments.
  - B** Overall, we can classify the country allocation strategy as a semiactive or controlled-active investment approach.
- 4 **A** This is an absolute return objective because it does not reference a comparison to the performance of another portfolio but rather is stated in terms of a fixed number (an 8 percent annual return).
  - B** This is an absolute risk objective because it does not reference a comparison to the performance of another portfolio but rather is stated in terms of a fixed number (a standard deviation of return of 20 percent a year).
  - C** This is a relative return objective because it references a comparison to the performance of other portfolios.
  - D** This is an absolute risk objective because it addresses the risk that a portfolio's return will fall below a minimum acceptable level over a stated time horizon.
  - E** This is a relative risk objective because it references a comparison to the performance of another portfolio, the benchmark.
- 5 **C** is correct. The comments about investment policy statements made by Stephenson's patients are incorrect. The IPS should identify pertinent investment objectives and constraints for a *particular* investor. Clearly identified objectives and constraints ensure that the policy statement is accurate and relevant to the investor's specific situation and desires. The result should be an optimal balance between return and risk for that investor. The IPS provides a long-term plan for an investor and a basis for making disciplined investment decisions over time. The absence of an investment policy statement reduces decision making to an individual-event basis and often leads to pursuing short-term opportunities that may not contribute to, or may even detract from, reaching long-term goals.

- 6 B is correct. An investor's ability to take risk puts an upper limit on a reasonable return objective.
- 7 C is correct. Even though Stephenson describes his risk tolerance as "average," his present investment portfolio and his desire for large returns indicate an above-average willingness to take risk. His financial situation (large asset base, ample income to cover expenses, lack of need for liquidity, and long time horizon) indicates an above-average ability to accept risk.
- 8 B is correct. Stephenson has adequate income to cover his living expenses and has no major outlays for which he needs cash, so his liquidity needs are minimal. He is not a tax-exempt investor (both income and capital gains are taxed at 30%), so taxes should play a considerable role in his investment decisions.
- 9 C is correct. Stephenson's time horizon is long—he is currently only 55 years old. The time horizon consists of two stages: the first stage extends to his retirement in 15 years; the second stage may last for 20 years or more and extends from retirement until his death.
- 10 C is correct.

*Risk:* Stephenson has an above-average risk tolerance based on both his ability and willingness to assume risk. His large asset base, long time horizon, ample income to cover expenses, and lack of need for liquidity or cash flow indicate an above-average ability to assume risk. His concentration in US small-capitalization stocks and his desire for high returns indicate substantial willingness to assume risk.

*Return:* Stephenson's financial circumstances (long time horizon, sizable asset base, ample income, and low liquidity needs) and his risk tolerance warrant an above-average total return objective. His expressed desire for a continued return of 20 percent, however, is unrealistic. Coppa should counsel Stephenson on what level of returns to reasonably expect from the financial markets over long periods of time and to define an achievable return objective.

- 11 A is correct. Santalucia's lifestyle and business career (speedboats, mountain climbing, real estate speculation, turnarounds) show a *willingness* to take risks. His current *ability* to take risks is diminished, given his total assets and his expected divorce settlement, his current income/spending situation, and upcoming college bills. When an investor's willingness to accept risk exceeds the ability to do so, ability prudently places a limit on the amount of risk the investor should assume. Santalucia's pending divorce and college education bills create a significant liquidity constraint.
- 12 A is correct. Neither note describes the correct process. The IPS process requires that members first identify and specify the investor's objectives and constraints and then create the investment policy statement. Incorporating short-term economic trends into the policy statement is inappropriate. Only after the IPS has been created should members form capital market expectations and then create the strategic asset allocation. Using another client's asset allocation from several years earlier is inappropriate because it does not include current capital market expectations.
- 13 C is correct. Westerlund's first statement is correct: Beta is more stable for portfolios than for individual stocks. The second statement is also correct: Beta estimation is affected by all the listed items.
- 14 C is correct. The first statement is correct: Variance, or total risk, is the relevant risk measure for the CML; the SML uses beta, the asset's risk standardized by the market's risk. The second statement is also correct: The SML is based on the CML and both are equilibrium relationships.

- 15** C is correct. The estimated beta is the covariance of Palladio's returns with the market's returns divided by the variance of the market's returns, or  $0.0015/0.0021 = 0.714$ .
- 16** C is correct. The SML required return for Borgonovo is  $2.5\% + 1.2(7\%) = 10.9\%$ . With a forecasted return of 9.0%, Borgonovo lies below the SML (indicating it is overvalued) and should be removed from the bank's recommended list.