CHAPTER 2
MANAGING INDIVIDUAL INVESTOR PORTFOLIOS

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Chapter 2
Managing Individual Investor Portfolios

LEARNING OUTCOME STATEMENTS

After completing this chapter, you will be able to do the following:

• Review situational profiling for individual investors and discuss source of wealth, measure of wealth, and stage of life as approaches to situational profiling.
• Prepare an elementary situational profile for an individual investor.
• Discuss the role of psychological profiling in understanding individual investor behavior.
• Formulate the basic principles of the behavioral finance investment framework.
• Discuss the influence of investor psychology on risk tolerance and investment choices.
• Discuss the use of a personality typing questionnaire for identifying an investor’s personality type.
• Formulate the relationship of risk attitudes and decision-making styles with individual investor personality types.
• Discuss the potential benefits for both clients and investment advisors of having a formal investment policy statement.
• Review the process involved in creating an investment policy statement for a client.
• Discuss each of the major objectives that an individual investor’s investment policy statement includes.
• Distinguish between an individual investor’s ability to take risk and willingness to take risk.
• Discuss how to set risk and return objectives for individual investor portfolios.
• Discuss each of the major constraints that an individual investor’s investment policy statement includes.
• Formulate and justify an investment policy statement for an individual investor.
• Demonstrate the use of a process of elimination to arrive at an appropriate strategic asset allocation for an individual investor.
• Determine the strategic asset allocation that is most appropriate given an individual investor’s investment objectives and constraints.
• Compare and contrast traditional deterministic versus Monte Carlo approaches in the context of retirement planning.
• Discuss the advantages of the Monte Carlo approach to retirement planning.

1 INTRODUCTION

In the context of portfolio management, the terms “private client,” “high-net-worth investor,” and “individual investor” are used virtually interchangeably to reference the unique challenges of managing personal or family assets. Although a more precise definition of the individual investor is elusive, the basic need to properly manage one’s financial affairs is self-evident, and the precedent for seeking professional management is well established. Indeed, Anglo-Saxon law has recognized the role of trustee, responsible for managing assets on behalf of others, as far back as the Middle Ages.

Private asset management has only recently begun to receive greater attention from the academic community and financial press. In contrast to large, tax-exempt institutional portfolios that are typically assumed to operate in perpetuity, the universe of private investors is
heterogeneous, burdened by taxes, and less well suited to the simplifying assumptions of modern financial theory. Individual investors have diverse investment objectives, time horizons, and perceptions of risk, all subject to tax schedules that have varying degrees of stability and logic.

The increasing attention to private asset management reflects both a rising demand for financial services and an increased interest in empirical investor behavior. Net wealth in individually managed portfolios increased rapidly in the 1990s and beyond, creating a growth market for personalized financial services. At the same time, increased personal responsibility for investing retirement assets, evidenced by the growth in the self-directed segment of defined contribution pensions and savings plans, as well as the portability of fully vested retirement assets, has further increased the need for professional investment management at the individual level.

With the help of a case study, this chapter examines the portfolio management process for individual investors. The Ingers are typical of a successful multigenerational family, with most of their wealth generated by a family business. Now that a cash sale of the business is imminent, they must reassess their financial situation and set appropriate guidelines for their soon-to-be large investment portfolio. The Ingers’ goal is to create an investment policy statement (IPS) that recognizes their investment goals and constraints and then establishes consistent parameters for investing portfolio assets. The IPS should serve as the fundamental point of reference for both the Inger family and their investment advisors.

2 CASE STUDY

Victoria Jourdan, CFA, works for an investment firm that manages private client accounts. Both Jourdan and the Inger family reside in a politically stable country whose currency trades at a fixed exchange rate of 1:1 with the Euro. Real GDP growth and inflation both average about 3 percent annually, resulting in nominal annual growth of approximately 6 percent.

The country in which the Ingers reside maintains a flat tax of 25 percent on all personal income and a net capital gains tax (based on the sale of price-appreciated assets) of 15 percent, with no distinction between short- and long-term holding periods. Also incorporated into the tax code is a wealth transfer tax. Any asset transfer between two parties, whether as a gift or family inheritance, is taxed at the flat rate of 50 percent.

The country maintains a national pension plan, but that plan’s long-term viability has been called into question because of an unfavorable demographic trend toward older, retirement-age recipients. Public debate has grown about how to assure the financial security of future retirees, and among this debate’s chief outcomes has been the creation of self-contributory, tax-advantaged investment accounts for individuals. Taxpayers may annually contribute up to €5,000 of after-tax income to a Retirement Saving Account (RSA), which they then control. RSA investment returns are exempt from taxation, and participants may begin making tax-free withdrawals of any amount at age 62.

2.1 The Inger Family

Jourdan has been asked to manage the Inger family account, which is a new relationship for her firm. Jourdan observes that the Inger family has no stated investment policy or guidelines, and she arranges for a meeting with Peter and Hilda Inger, who have been married for 37 years, plus their two children, Christa and Hans, aged 25 and 30, respectively. Peter, Hilda, and Hans accept the invitation, but Christa, who currently resides a considerable distance away from her parents, cannot attend.
Peter Inger, 59, is a successful entrepreneur who founded a boat manufacturing business, IngerMarine, when he was 23 years old. He has worked compulsively to build the company into a producer of luxury pleasure boats sold worldwide, but he is now considering a business succession plan and retirement. Peter is eager to “monetize” his equity stake in IngerMarine and believes he will be able to sell his company within the next three months. He is already evaluating three separate bids that indicate probable proceeds, net of taxes on gains, of approximately €55 million to the Inger family in total. The four Inger family members are the sole IngerMarine shareholders, and any sale proceeds will accrue to the four family members in proportion to their percentage ownership in IngerMarine. Peter believes that everyone in his family is financially secure and wishes to preserve that security; he recognizes the family’s need for a coherent investment plan.

Hilda Inger, 57, comes from a wealthy family. Since her marriage to Peter, she has been a housewife and mother to Christa and Hans. Hilda is the beneficiary of a trust established by her family. Throughout her lifetime, the trust will distribute to her an inflation-indexed annual payment (currently €75,000), which is taxed as personal income. At her death, payments will stop, and the trust’s remaining assets will be transferred to a local charity.

Both Hans and Christa are unmarried. Hans currently works as a senior vice president at IngerMarine and specializes in boat design. Peter has tried to involve Christa in the family business but she has resisted, instead achieving moderate recognition and financial success as an artist. Christa has a 5-year-old son, Jürgen, whom she has chosen to raise alone.

The meeting with Peter, Hilda, and Hans and several telephone discussions with Christa result in the following financial and personal details for the Inger family:

### 2.2 Inger Family Data

#### Income (annual)

- **Peter salary**
  - €500,000
- **Hans salary**
  - 100,000
- **Hilda trust payout**
  - 75,000
- **Christa (art sales)**
  - 50,000

#### Peter Personal Assets

- **Home (fully paid for, held jointly with Hilda)**
  - €1,200,000
- **IngerMarine company equity**
  - 60,000,000
- **Diversified equity securities**
  - 750,000
- **Fixed income securities**
  - 1,000,000
- **Cash (money market fund)**
  - 1,000,000
- **Gold bullion**
  - 500,000
- **RSA**
  - 50,000

#### Hilda Personal Assets

- **IngerMarine company equity**
  - €1,200,000

#### Hans Personal Assets

- **Home (net of mortgage)**
  - €200,000
- **IngerMarine company equity**
  - 2,400,000
- **Diversified equity securities**
  - 200,000
- **Cash (money market fund)**
  - 100,000
Christa Personal Assets

- IngerMarine company equity: €1,200,000
- Balanced mutual funds: €75,000
- Cash (money market fund): €25,000

\(^a\)Peter expects to receive a fixed annual payment of €100,000 (taxable as income) from the IngerMarine pension plan, beginning five years from now.

\(^b\)IngerMarine equity values are pretax market values; the equity has a zero cost basis for purposes of taxation on capital gains. The company stock pays no dividend.

\(^c\)Beginning at age 62, Peter plans to take a fixed annual distribution of approximately €5,000 (tax exempt).

2.3 Jourdan’s Findings and Personal Observations

**Peter**

**Personality:** Peter is a perfectionist and likes to maintain control. Now that he has attained financial success, he seems intent on preserving his wealth. He has consistently been averse to risk, leverage, and change, both in his company and in his personal life. IngerMarine has followed policies of low debt and slow growth, focusing on earnings stability. Like many of his countrymen, Peter holds a portion of his liquid assets in gold bullion. He believes that gold provides a viable hedge against catastrophic economic surprises and plans to maintain his current holding (€500,000) for the foreseeable future. By his own admission, Peter has been slow to adopt a succession plan—he has always believed that he was the best person to run IngerMarine. Although he now wants to sell IngerMarine and retire, in the past he resisted various purchase offers for the company.

**Goals:** Peter wants to maintain the standard of living that he and Hilda currently enjoy. In fact, he is actively investigating real estate for a second home, and he desires that the new home “make a statement.” Hilda hopes the home will ultimately be featured in a magazine and anticipates that it will cost approximately €7 million.

Peter also wants to get to know his grandson better. Since Jürgen’s birth, Peter has been estranged from his daughter and he wants to restore the relationship. He would like to provide financial support for Jürgen’s health- and education-related expenses, and he plans to begin a gifting program for Jürgen next year; the gifts will be €15,000 per year, increasing with inflation.

Peter has a passion for photography and anticipates purchasing a minority interest (€5 million) in *Exteriors*, a noted photography magazine. The purchase would reflect his desire to support the magazine’s high-quality work and might also lead to a post-retirement consulting opportunity. Because the investment is unlikely to produce meaningful current income, Peter does not intend to make any additional investment in *Exteriors*. Finally, Peter also has a strong desire to ensure his family’s financial security and feels he will have accumulated enough wealth through the sale of IngerMarine to realize this goal. He does not, however, have a formal estate plan for transferring assets to his children and grandchildren.

**Hilda**

**Personality:** Hilda has intentionally removed herself from the family business. She has been a major factor, however, in Peter’s decision to retire and have a second home closer to their daughter.
and grandson. In light of the major changes about to take place, Hilda wants to become more knowledgeable and active in managing the family’s wealth.

**Goals**: Hilda has a strong interest in interior design and two years ago founded a small, sole-proprietorship design company. She is eager to apply her talents to designing and building the Ingers’ new home and desires complete freedom in determining the home’s interior design. Her company currently operates on a breakeven basis, with revenues approximately matching expenses.

**Hans**

**Personality**: Hans appears to be somewhat of a gambler. He has always felt financially secure, and is much more willing than his father Peter to engage in riskier investment opportunities. He sees his father as overly conservative and believes that IngerMarine would be in a more commanding position if Peter had only leveraged the company to expand production and marketing efforts. He drives a very expensive sports car.

**Goals**: Hans does not want to stay in the boat business and would prefer a career that allows him more free time. He has wanted to participate with college friends in various real estate projects, but his father has steadfastly refused to underwrite the investments. Consistent with his attitudes about risk, Hans prefers high-return investments, believing that he has enough time in his life to recover from any occasional losses. Although Hans is in no hurry to marry and have children, he believes he will ultimately do so and has been looking for a new, larger home, in the €500,000 to €700,000 price range. Finally, Hans is considering a minority investment (estimated to be €550,000, with no further investment planned) in a nightclub scheduled to open in his city.

**Christa**

**Personality**: Christa has been estranged from the family for several years. She has resisted pressure to enter the family business, deciding instead to pursue a career in art. She has also elected to raise her son Jürgen without family support, which has created tension within the family. She is very self-reliant but admits to having limited financial expertise. Her relations with the family have recently improved, and she is looking forward to increased contact with her parents.

**Goals**: Christa is hoping to take a more proactive role in her financial affairs. She recognizes the need for a coordinated family financial plan, yet she does not wish to rely solely on the family’s wealth to provide for her son’s future. She would like to move into a larger apartment that would afford her the opportunity to create a painting studio. Rents are expensive, however, and she needs an assured source of income so that she may focus on her art career.

### 3 INVESTOR CHARACTERISTICS

A distinguishing characteristic of private asset management is the wide range of personal concerns and preferences that influence the decision-making process. Often unaccounted for in traditional models of “rational investor” behavior, such factors as personality, life experiences, and personal circumstances can play an important role in determining the framework for addressing financial decisions. An investment approach that begins with consideration of the Ingers’ biases, preferences, and perceptions of risk paves the way for a meaningful discussion of portfolio...
objectives and may result in a stronger, more enduring client relationship than if such consideration were not given.

3.1 Situational Profiling

Many useful attempts have been made to categorize individual investors by stage of life or by economic circumstance. Such “situational” profiling runs the risk of oversimplifying complex behavior and should be used with a measure of caution—individual investors are unique and likely to exhibit characteristics that cut across arbitrary lines of categorization. Nonetheless, situational profiling can serve as a useful first step in considering an investor’s basic philosophy and preferences, facilitating the discussion of investment risk by anticipating areas of potential concern or special importance to the investor. Examples of situational profiling include approaches based on source of wealth, measure of wealth, and stage of life.

Source of wealth. Some classification schemes presume that the manner in which an individual investor has acquired wealth offers insight into that investor’s probable attitude toward risk. Successful entrepreneurs, such as Peter Inger, who have created their wealth by personally taking business or market risks, are assumed to exhibit a higher level of risk tolerance than those who have been more passive recipients of wealth. “Self-made” investors may have greater familiarity with risk-taking and a higher degree of confidence in their ability to recover from setbacks. Such self-made investors, however, often have a strong sense of personal control over the risks that they assume. Despite their demonstrated willingness to take entrepreneurial risk, they can be very reluctant to cede control to a third party or to accept investment volatility over which they have no influence. Peter’s slowness to adopt a succession plan and his largely conservative investment decisions typify such behavior.

In contrast, more-passive recipients of wealth may be associated with reduced willingness to assume risk. Such investors may have inherited their wealth; received a large, one-time payment; or simply accumulated savings during a period of secure employment. Because of the relatively passive nature of their wealth accumulation, these investors are assumed to have less experience with risk-taking, less understanding of what taking risk means, and less confidence that they can rebuild their wealth should it be lost. Christa Inger may be an example of such an investor.

Measure of wealth. Given the subjective nature of financial well-being, it is difficult to categorize investors based on portfolio size (net worth). A portfolio that one individual considers large and ample to meet future needs may be insufficient in the eyes of another individual. All the same, it is not unreasonable to consider that investors who perceive their holdings as small may demonstrate lower tolerance for portfolio volatility than investors who perceive their holdings as large. A portfolio whose returns do not easily support the investor’s lifestyle might be considered small. If the investor’s ongoing needs are so well covered that succession and estate planning issues have become important, the portfolio might be considered “large.”

Stage of life. In life-stage classifications, investment policy, and particularly risk tolerance, are determined by one’s progress on the journey from childhood to youth, adulthood, maturity, retirement, and death. Theoretically, a person’s ability to accept risk should begin at a high level and gradually decline through his lifetime, while willingness to assume risk should be driven largely by cash flow considerations (income versus expenses). The human financial condition is driven by additional factors, however, such as life experiences, living conditions, starting point on
the scale of wealth, and personal abilities and ambitions. For the sake of illustration, an individual’s investment policy can be viewed as passing through four general phases: foundation, accumulation, maintenance, and distribution.

During the foundation phase of life, the individual is establishing the base from which wealth will be created. This base might be a marketable skill, the establishment of a business, or the acquisition of educational degrees and certifications. During the foundation phase, the individual is usually young, with a long time horizon, which normally would be associated with an above-average tolerance for risk. Risk tolerance should certainly be above-average in the foundation stage if the individual has inherited wealth. Lacking such wealth, the foundation phase may be the period when an individual’s investable assets are at their lowest and financial uncertainty is at its highest. A young entrepreneur may have substantial expenses in establishing a business, resulting in a liquidity need that overrides all other considerations. Marriage and the arrival of children may create a desire for more-rapid wealth accumulation that is not yet matched by either ability or willingness to assume risk.

Ironically, at the point in life when individuals should theoretically be ready to assume risk, many are either unwilling or unable to do so. Christa, because of her desired independence, has many of the financial stresses associated with the foundation phase and may still be building the foundation of her ultimate career as an artist. Her son Jürgen is in the earliest days of this phase as he begins his childhood education.

In the accumulation phase, earnings accelerate as returns accrue from the marketable skills and abilities acquired during the foundation period and gradually reach their peak. In the early years of the accumulation phase, income rises and investable assets begin to accumulate. Expenses also rise during this period, through the establishment of family, purchase of homes, and care and education of children. In the middle and later years of wealth accumulation, expenses typically begin to decline as children reach adulthood, educational needs are fulfilled, and home purchases are completed. Income generally continues to rise as the individual reaches peak productivity. If an individual’s personal spending habits do not change, the gap between income and expenses may widen throughout the accumulation phase, allowing for an increase in savings.

Some individuals may forgo investing their growing wealth and instead increase spending on luxury items or perhaps make gifts to relatives or charities. For investors, however, the accumulation phase is characterized by increased risk tolerance, driven by their increasing wealth and a still long-term time horizon. Hans is in the early years of this phase and is clearly willing to assume high risk to achieve his wealth and lifestyle goals.

During the maintenance phase, the individual has moved into the later years of life and usually has retired from daily employment or the pressures of owning a business. This phase focuses on maintaining the desired lifestyle and financial security. Preserving accumulated wealth begins to increase in importance, while the growth of wealth may begin to decline in importance. Risk tolerance will begin to decline; not only is the individual’s time horizon shortening but his confidence in the ability to replace capital or recover from losses is often diminished.

In the maintenance phase, investors will typically reduce exposure to higher-volatility asset classes, such as common stocks, and increase exposure to lower-volatility investments, such as intermediate-term bonds. Because the individual now has less time to recover from poor investment results, portfolio stability becomes increasingly important. In this phase, the challenge is to achieve a desired level of portfolio stability and maintain an exposure to risky assets sufficient to preserve the portfolio’s purchasing power. Investors who become too conservative too soon after retirement may reach an elderly age with assets that have suffered significant declines in
purchasing power. With the imminent sale of IngerMarine, Peter is about to enter the maintenance phase.

In the distribution phase, accumulated wealth is transferred to other persons or entities. For many, this phase begins when the individual is still reaping the benefits of the maintenance phase and retirement. For most, the phase involves a conscious decision to begin transferring wealth. Dealing with tax constraints often becomes an important consideration in investment planning, as investors seek to maximize the after-tax value of assets transferred to others. Although asset distribution may take place in the later stages of life, planning for such transfers can begin much earlier.

For individuals with substantial wealth, the distribution phase should be a well-planned program executed during the course of several years. Efficient wealth transfers take advantage of market conditions, tax laws, and various transfer mechanisms. An individual may consider various transfer strategies: He might establish trusts or foundations for heirs or charities, make outright gifts of cash or assets, modify the legal ownership structure of certain assets, and make advance provisions for care in the event of health problems and to pay wealth transfer taxes.

Although the progression from accumulation to distribution may be linear, it is not necessarily so. Individuals in the accumulation phase may become dissatisfied with a career choice and return to the foundation phase. Some may be forced to make such a move as demand for their skills diminishes. A sudden illness or accident may move an individual unexpectedly to the distribution phase.

In each of the above phases, personal circumstances are a driving force in how an individual responds to each cycle of life. The foundation phase will be different for those who enter life with a base of inherited wealth than it will for those who come from families of modest means. The distribution phase can become increasingly complicated for the very wealthy but remain quite basic for those with little wealth. Because of obligations and lifestyle, some investors never leave the accumulation phase. For others, the stress of an adverse life experience, such as living through an economic calamity or war, may override all phases and never allow them to properly match their willingness and ability to assume risk in a suitable investment program.

Situational assessments allow investment advisors to quickly categorize potential clients and explore investment issues likely to be of greatest importance to them. We must note, however, that investors seldom fall easily into just one category, and clearly a dynamic relationship exists among the above considerations. Peter and Hilda, for example, have a multigenerational planning perspective and a portfolio sufficiently large to maintain a long-term investment time horizon—their risk tolerance is not necessarily diminished because of their age. Although Hans may be moving into the accumulation phase, he clearly retains elements associated with the foundation phase (e.g., above-average risk tolerance). Similarly, Christa’s circumstances most directly mirror the accumulation phase, although she has the financial ability to develop a long-term investment plan. Source of wealth considerations play an obvious role in the Inger family situation and are colored by stage-of-life issues. One recipient of inherited wealth (e.g., Hans) in a later life stage may view his or her portfolio as sufficiently large to assume additional risk, but a second recipient in an earlier stage (e.g., Christa), with less experience and lower confidence, may exhibit less willingness to take risk. The value of situational paradigms, therefore, lies more in their general insights into human behavior and less in their ability to fully interpret individual circumstances. Investment advisors should emphasize the process of gathering and assessing relevant situational information rather than the specific category in which an individual investor may fall. The advisor
who recognizes familiar patterns is better able to anticipate areas of potential concern and to structure a discussion of portfolio policy in terms relevant to the client.

### 3.2 Psychological Profiling

A determinant of individual investing that has generally received less focus than other, more objective influences is the psychological process by which an individual establishes his or her investment preferences. Clearly, every individual brings to the investment decision-making process an objective set of financial circumstances, goals, and constraints that will strongly influence the set of investment alternatives from which he chooses. Yet underlying behavioral patterns and personality characteristics often also play an important role in setting individual risk tolerance and return objectives. Psychological profiling, sometimes referred to as personality typing, bridges the differences between “traditional finance” (economic analysis of objective financial circumstances) and what has come to be defined as “behavioral finance.”

### Traditional Finance

Much of the standard history of economic and financial theory rests on the philosophy that financial market participants are rational, information-based investors with dispassionate objectives that maximize the expected utility of wealth.

In models of traditional, or standard, investment decision making, investors are assumed to

- exhibit risk aversion,
- hold rational expectations, and
- practice asset integration.

*Risk aversion* implies that investors with otherwise equivalent investment options will prefer the investment with the lowest volatility. They will choose an investment with a certain outcome over an investment with an uncertain outcome that has the same expected value.

*Rational expectations* assume that investors are coherent, accurate, and unbiased forecasters. Their forecasts will reflect all relevant information, and they will learn from their past mistakes.

*Asset integration* refers to the process by which investors choose among risky investments. Investors practice asset integration by comparing the portfolio return/risk distributions that result from combining various investment opportunities with their existing holdings. Assets are evaluated in the context of their impact on the aggregate investment portfolio, not as stand-alone investments.

As a consequence of the traditional assumptions about individual economic behavior, traditional models of the portfolio building process have historically relied on the following tenets:

- Asset pricing is driven by economic considerations such as production costs and prices of substitutes.
- Portfolios are constructed holistically, reflecting covariances between assets and overall objectives and constraints.

### Behavioral Finance

A growing body of research points to differences in behavior caused by differences in how individuals approach uncertain situations. In these studies, psychological considerations appear to play an important role in guiding investor behavior, especially during periods of stress. Work done by Daniel Kahneman, Meir Statman, Richard Thaler, Robert Shiller, Amos Tversky, and others has firmly established the field of “behavioral finance,” and several investment firms currently incorporate behavioral finance as a cornerstone of their investment philosophy. These decision-
making models attempt to incorporate the principles of behavioral finance, in which individual investors are recognized to

- exhibit loss aversion,
- hold biased expectations, and
- practice asset segregation.

*Loss aversion* is demonstrated when investors evaluate opportunities in terms of gain or loss rather than in terms of uncertainty with respect to terminal wealth. Faced with the choice between (a) a certain loss or (b) an uncertain outcome that might produce a smaller loss but whose expected value is a larger loss, investors are likely to exhibit loss aversion by choosing the uncertain alternative. Choosing the uncertain outcome actually demonstrates risk-seeking behavior—traditional finance predicts that investors, being risk averse, should choose the certain loss over an alternative whose expected loss is larger.

In their discussion of “prospect theory,” Kahneman and Tversky (1979) found that individuals place different weights on gains and losses. Their studies yielded evidence that most people are more distressed by prospective losses than they are pleased by the prospect of equivalent gains. Further, individuals responded differently to equivalent probabilistic scenarios, depending on whether the outcomes resulted in gains or losses. Kahneman and Tversky found that when subjects were presented with a choice between a sure gain of $500 or a 50/50 chance to either gain $1,000 or receive nothing at all, respondents overwhelmingly chose the “sure gain.” Correspondingly, when another group was asked to choose between a sure loss of $500 or a 50/50 chance to lose either $1,000 or nothing at all, a majority gravitated to the uncertain alternative. It appears to be human nature to prefer an uncertain loss to a certain loss but to prefer a certain gain to an uncertain gain.

*Biased expectations* result from cognitive errors and misplaced confidence in one’s ability to assess the future. Examples of cognitive errors include mistaking the skills of the average manager for those of a particular manager; overestimating the significance of low-probability events; and overestimating the representativeness of one asset compared with another asset.

*Asset segregation* is the evaluation of investment choices individually, rather than in aggregate. Related behavior includes reference dependence, in which economic behavior is shaped by the frame of reference or the context in which choices are presented, and mental accounting (organizing investments into separate psychological accounts depending on purpose or preference).

According to behavioral models of individual decision making, portfolio construction takes place under a more complex set of assumptions than those given previously:

- Asset pricing reflects both economic considerations, such as production costs and prices of substitutes, and subjective individual considerations, such as tastes and fears.
- Portfolios are constructed as “pyramids” of assets, layer by layer, in which each layer reflects certain goals and constraints.

Within this behavioral framework, individuals also have characteristics that either sharpen or blunt the human tendencies for risk avoidance. The process of “personality typing” seeks to identify and categorize these characteristics to facilitate the discussion of risk and risk tolerance. We emphasize, however, that the primary value of any personality typing approach is to provide both the investor and the manager with a framework for thinking about the influence of personality on investment decision-making, not to neatly categorize investors into arbitrarily defined personality types.
Personality Typing

Generally, all investors have unique, complex personality dimensions shaped by socioeconomic background, personal experience, and current wealth status. These diverse factors make it difficult to precisely categorize investors into types. Yet by combining studies of historical behavior with surveys and scenario analysis, we can broadly classify investor into types. Through “personality typing,” investment advisors can better understand the behavioral drivers that lead to an individual’s goal setting, asset allocation, and risk taking decisions, and thus advisors can better manage client expectations and behavior.

Personality typing can assist investment advisors in determining an individual investor’s propensity for risk taking and his decision-making style in seeking returns. By assigning values to the factors that successfully identify an individual’s propensity to assume risk in the investment process, the advisor can obtain very useful information on the client’s risk tolerance.

Generally, two approaches to personality classification exist. Often the default option within investment firms is an ad hoc evaluation by the investment advisor, who categorizes the investor based on personal interviews and a review of past investment activity. Although experienced managers may claim proficiency in their ability to profile investor personalities, subjective assessments are difficult to standardize, and their terms often mean different things to different people. Even when the assessment is generally correct, the degree of an individual investor’s risk tolerance is difficult to gauge.

Reflecting a discomfort with this ad hoc approach, a growing number of investment firms now employ short client questionnaires to gain insight into the investor’s propensity to accept risk and the decision-making style used in pursuing investment returns. These questionnaires address investment topics but may also include self-evaluative statements that have no direct investment context. A hypothetical example of such a questionnaire is presented in Exhibit 2-1. The classification scheme blends the Bailard, Biehl, and Kaiser approach1 with the analytical psychology of Carl Jung.2 The questionnaire is representative but certainly not definitive or exhaustive; it is intended to reflect the process and content typically employed by investment firms and consultants engaged in more or less formal personality typing of clients.

### Exhibit 2-1

**Decision-Making Style and Risk Tolerance Questionnaire**

<table>
<thead>
<tr>
<th>Decision-Making Style Questions</th>
<th>Does Not Apply</th>
<th>Somewhat Applies</th>
<th>Generally Applies</th>
<th>Always Applies</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I keep all my mail. I never throw anything out.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2. My favorite subject in school was mathematics.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>3. I would rather sit in front of the television than organize one of my closets.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4. I would rather work by myself than in groups.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>5. I consider myself to be independent.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>6. When asked out to dinner or a movie, I generally organize the event.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>7. I am bothered by people who don’t work hard.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>8. I never leave anything unfinished.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>9. I generally drive very fast.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>10. I enjoy competitive sports.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>11. I rarely worry about finances.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

---

1 See Bailard, Biehl, and Kaiser (1986).
2 See, for example, Berens (2000).
12. I like seeing scary movies. 0 1 2 3
13. I am always eager to meet new people. 0 1 2 3
14. I sometimes become impatient waiting for an elevator. 0 1 2 3
15. People accuse me of having a “quick temper.” 0 1 2 3

<table>
<thead>
<tr>
<th>Risk Tolerance Questions</th>
<th>Does Not Apply</th>
<th>Somewhat Applies</th>
<th>Generally Applies</th>
<th>Always Applies</th>
</tr>
</thead>
<tbody>
<tr>
<td>16. I become nervous when flying.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>17. I don’t like contact sports like football.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>18. When arguing with friends, I am usually the one who concedes.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>19. I never had a strong bond with my parents.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>20. I wish I could be more expressive with my feelings.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>21. I never raise my voice.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>22. I don’t like to discuss personal items with friends.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>23. I like art.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>24. I would classify my political beliefs as liberal.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>25. I am not easily excitable.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>26. I don’t swim in the ocean.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>27. I am afraid of public speaking.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>28. If offered a bigger house, I would pass because I don’t like the hassle of moving.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>29. I have had many relationships with the opposite sex.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>30. I often wear cutting-edge new fashions.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>31. I will always take the initiative when others do not.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

The critical question that must be answered with respect to client questionnaires is whether the results consistently assign respondents to risk-taking and decision-making styles that explain the respondents’ actual behavior. In addition, there must be a meaningful link between the survey results and the ultimate personality typing. To obtain the appropriate linkage between investor survey responses and ultimate investment behavior, a stratified sample can be drawn to replicate the overall demographic characteristics of investors. A stratified random sample involves independent sampling from subgroups that, when combined, represent a population’s overall characteristics. Results from the sample questions (each question addresses a specific category of investor risk tolerance and decision-making style) are tabulated and used to identify systematic differences in decision-making style and risk tolerance. Continuing with the example from Exhibit 2-1, raw scores are portrayed across the two dimensions of decision-making style and risk tolerance. Based on these measures, four investment personality types are established. The types are consistent with distinct style/risk tradeoffs and may provide predictive insight into an individual’s ultimate investment behavior.

**Cautious Investors**

Cautious investors are generally averse to potential losses. This aversion may be a consequence of their current financial situation or of various life experiences, but most exhibit a strong need for financial security. Cautious investors usually desire low-volatility investments with little potential for loss of principal. Although these individuals generally do not like making their own decisions, they are not easily persuaded by others and often choose not to seek professional advice. Cautious
investors dislike losing even small amounts of money and seldom rush into investments. They often miss opportunities because of overanalysis or fear of taking action. Their investment portfolios generally exhibit low turnover and low volatility.

**Methodical Investors**
This group relies on “hard facts.” Methodical investors may intently follow market analysts or undertake research on trading strategies. Even when their hard work is rewarded, they typically remain on a quest for new and better information. Their reliance on analysis and database histories generally keeps them from developing emotional attachments to investment positions, and their discipline makes them relatively conservative investors.

**Spontaneous Investors**
Spontaneous investors are constantly readjusting their portfolio allocations and holdings. With every new development in the marketplace, they fear a negative consequence. Although spontaneous investors generally acknowledge that they are not investment experts, they doubt all investment advice and external management decisions. They are over-managers; their portfolio turnover ratios are the highest of any personality type. Although some investors in this group are successful, most experience below-average returns. Their investment profits are often offset by the commission and trading charges generated by second-guessing and frequent adjustment of portfolio positions. Spontaneous investors are quick to make decisions on investment trades and generally are more concerned with missing an investment trend than with their portfolio’s level of risk.

**Individualist Investors**
This group has a self-assured approach to investing. Individualists gain information from a variety of sources and are not averse to devoting the time needed to reconcile conflicting data from their trusted sources. They are also not afraid to exhibit investment independence in taking a course of action. Individualist investors place a great deal of faith in hard work and insight, and have confidence that their long-term investment objectives will be achieved.

An advisor can use questionnaire results to plot an investor’s risk/style score, as Exhibit 2-2 illustrates. Clearly, the more extreme investor personality types will plot farther away from the center of the graph.

**Exhibit 2-2**
Personality Types

<table>
<thead>
<tr>
<th></th>
<th>Decisions based primarily on thinking</th>
<th>Decisions based primarily on feeling</th>
</tr>
</thead>
<tbody>
<tr>
<td>More Risk Averse</td>
<td>Methodical</td>
<td>Cautious</td>
</tr>
<tr>
<td>Less Risk Averse</td>
<td>Individualist</td>
<td>Spontaneous</td>
</tr>
</tbody>
</table>

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As mentioned earlier, a predictive link must exist from the questionnaire responses to the resulting personality typing that is derived, and to the subsequent investment behavior that occurs. If the correlation is high between the personality dimensions outlined in the questionnaire and the individual’s ultimate portfolio selections, then the exercise has predictive value. If the results are uncorrelated, then the questionnaire must be revised. In the example above, a stratified sample of clients would complete the questionnaire, and the raw scores would be used to identify subgroups. Each subgroup would then be associated with a specific investment style. A “Methodical” subgroup might be expected to maintain a “value” equity portfolio of very stable stocks, along with a substantial commitment to highly rated fixed income securities.

Correlation analysis can be used to assess a questionnaire’s usefulness. By assigning ranks to personality types (1 = Methodical, 2 = Cautious, 3 = Individualistic, 4 = Spontaneous) and to the riskiness of respondents’ existing portfolios, standard statistical methods can be used to evaluate whether personality types are correlated with investor behavior, especially risk-taking. If a significant positive correlation exists, the questionnaire may have predictive value and be of practical use to advisors. Note that because questionnaire design and analysis is a specialized area, advisors would be wise to have their classification scheme validated by a psychometrician; the style/risk personality typing example presented here should be viewed as only suggestive of those actually used in practice.

The Inger Family
In trying to classify the Inger family using the above approach, Jourdan asks each family member to complete the investor style/risk survey. Based on their responses, Jourdan classifies the family members as shown in Exhibit 2-3.

### Exhibit 2-3
**Inger Family Personality Types**

<table>
<thead>
<tr>
<th>Decisions based primarily on thinking</th>
<th>Decisions based primarily on feeling</th>
</tr>
</thead>
<tbody>
<tr>
<td>More risk averse</td>
<td></td>
</tr>
<tr>
<td>Methodical</td>
<td>Cautious</td>
</tr>
<tr>
<td>Individualist</td>
<td>Spontaneous</td>
</tr>
<tr>
<td>Less risk averse</td>
<td></td>
</tr>
</tbody>
</table>

- ● Peter Inger
- ■ Hilda Inger
- ♦ Hans Inger
- ★ Christa Inger
The symbols represent the family member’s composite survey score. The position of the symbol relative to the box represents the strength or polarization of the personality type. For example, Hilda scored fairly evenly in all categories with a slight bias toward an “individualist” personality, while Hans’ score demonstrates a strong bias toward a “spontaneous” investor.

After reviewing the results of the Inger family’s questionnaires, Jourdan notes that their scores are generally consistent with her initial observations. Her only mild surprise is that Christa was positioned as a “Cautious” investor, which does not fully coincide with what some would see as a relatively aggressive or adventurous decision to ignore the family business and support her child through a career in art.

The survey scores reflect each family member’s appetite for risk in his or her individual portfolio, but the challenge remains of integrating these diverse personalities and goals into a coordinated family investment program.

4 INVESTMENT POLICY STATEMENT

The investment policy statement is a client-specific summation of the circumstances, objectives, constraints, and policies that govern the relationship between advisor and investor. A well-constructed IPS presents the investor’s financial objectives, the degree of risk he or she is willing to take, and any relevant investment constraints that the advisor must consider. It also sets operational guidelines for constructing a portfolio that can be expected to best meet these objectives while remaining in compliance with any constraints. Finally, the IPS establishes a mutually agreed-upon basis for portfolio monitoring and review.

Constructing an IPS is a dynamic process in which an individual and his investment advisor must identify and then reconcile investment objectives, portfolio constraints, and risk tolerance. The exercise should produce realistic investment goals and, equally important, a common vocabulary for advisor and investor to discuss risk and return.

The process of writing a thorough policy statement ultimately gives the individual investor greater control over her financial destiny. To the extent that drafting the IPS has been an educational process, the investor emerges better able to recognize appropriate investment strategies and no longer needs to blindly trust the investment advisor. Further, an IPS is portable and easily understood by other advisors. If a second opinion is needed, or if a new investment advisor must be introduced, the IPS facilitates a thorough review and ensures investment continuity.

Finally, the IPS serves as a document of understanding that protects both the advisor and the individual investor. If management practices or investor directions are subsequently questioned, both parties can refer to the policy statement for clarification or support. Ideally, the review process set forth in the IPS will identify such issues before they become serious.

4.1 Setting Return and Risk Objectives

Establishing portfolio objectives for return and risk, described in the introductory chapter, is a systematic process applicable for institutional as well as individual investor portfolios. As one reconciles investment goals with risk tolerance, however, client-specific investment parameters emerge. Both the general process and client-specific results are illustrated as Jourdan continues to work with the Inger family.

*Return Objective.* The process of identifying an investor’s desired and required returns should take place concurrently with the discussion of risk tolerance. In the end, the IPS must present a return objective that is attainable given the portfolio’s risk constraints.
It is important at the outset to distinguish between a return requirement and a return desire. The former refers to a return level necessary to achieve the investor’s primary or critical long-term financial objectives; the latter denotes a return level associated with the investor’s secondary goals. In the case of Peter and Hilda, it appears that their current needs are being met by Peter’s salary of €500,000. If IngerMarine is sold, they may require a return that replaces Peter’s salary (a critical objective) and desire a return that will accommodate their major acquisitions and still leave their children financially secure (important but less critical objectives). Return requirements are generally driven by annual spending and relatively long-term saving goals. Historically, these goals have often been classified as income requirements and growth requirements, with the presumption that portfolio income (dividends, interest, and rent) is used for current spending, and portfolio gains (from price appreciation) are reinvested for growth. Income needs, therefore, are met with income-producing securities, primarily bonds, and growth objectives are pursued with stocks and other equity-oriented investments.

“Growth” and “income” are intuitively appealing descriptors, and the terms remain in use. The terms are flawed, however, in that they blur the distinction between an investor’s return requirements and risk tolerance. Portfolios classified as income-oriented are typically biased toward a lower-risk, heavily fixed-income asset allocation. Conversely, growth-oriented portfolios are biased toward equities, with little direct consideration of risk tolerance.

Return requirements are often first presented in nominal terms, without adjustment for inflation. When an investor’s current spending and long-term savings goals are expressed in terms of purchasing power, however, it becomes clear that even income-oriented portfolios require a considerable element of nominal growth.

As an alternative to “growth” and “income,” a “total return” approach to setting return requirements looks first at the individual’s investment goals and then identifies the annual after-tax portfolio return necessary to meet those goals. That required return must then be reconciled with the individual’s separately determined risk tolerance and investment constraints. With the notable exception of tax considerations, it is typically less important whether the total investment return stems from income or price appreciation.

When an investor’s return objectives are inconsistent with his risk tolerance, a resolution must be found. If the investor’s return objectives cannot be met without violating the portfolio’s parameters for risk tolerance, he may need to modify his low- and intermediate-priority goals. Alternatively, he may have to accept a slightly less comfortable level of risk, assuming that he has the “ability” to take additional risk. An individual, for example, who discovers that his retirement goals are inconsistent with current assets and risk tolerance may have to defer the planned date of retirement, accept a reduced standard of living in retirement, or increase current savings (a reduction in the current standard of living).

If the investment portfolio is expected to generate a return that exceeds the investor’s return objectives, there is the luxury of dealing with a surplus. The investor must decide whether to (a) protect that surplus by assuming less risk than she is able and willing to accept or (b) to use the surplus as the basis for assuming greater risk than needed to meet the original return goals, with the expectation of achieving a higher return.

To calculate the required return and to fully understand the cumulative effects of anticipated changes in income, living expenses, and various stage-of-life events, an advisor may wish to incorporate a cash flow analysis. The cash flow statement in Exhibit 2-4 simplistically highlights a five-year horizon for Peter and Hilda Inger based on information gleaned by Jourdan from interviews and background examination.
Exhibit 2-4
Peter and Hilda Inger
Five-Year Cash Flow Statement

<table>
<thead>
<tr>
<th>Inflows</th>
<th>Current</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salary: Peter (taxed as income)</td>
<td>500,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trust payment: Hilda (taxed as income)</td>
<td>75,000</td>
<td>77,250</td>
<td>79,568</td>
<td>81,955</td>
<td>84,413</td>
<td>86,946</td>
</tr>
<tr>
<td>Pension: Peterb (taxed as income)</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>100,000</td>
</tr>
<tr>
<td>RSA: Peterb (tax-free)</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>5,000</td>
<td>5,000</td>
<td>5,000</td>
</tr>
<tr>
<td>Sale of company (taxed as gain)</td>
<td>– 61,200,000</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Total inflows</td>
<td>575,000</td>
<td>61,277,250</td>
<td>79,568</td>
<td>86,955</td>
<td>89,413</td>
<td>191,946</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Outflows</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Income tax (25%)</td>
<td>(143,750)</td>
<td>(19,313)</td>
<td>(19,892)</td>
<td>(20,489)</td>
<td>(21,103)</td>
<td>(46,737)</td>
</tr>
<tr>
<td>Gains tax (15%)</td>
<td>(9,180,000)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Second home</td>
<td>– (7,000,000)</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Investment in magazine</td>
<td>– (5,000,000)</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Support for Jürgen</td>
<td>– (15,000)</td>
<td>(15,450)</td>
<td>(15,914)</td>
<td>(16,391)</td>
<td>(16,883)</td>
<td></td>
</tr>
<tr>
<td>Transfer tax on support payment (50%)</td>
<td>(7,500)</td>
<td>(7,725)</td>
<td>(7,957)</td>
<td>(8,196)</td>
<td>(8,442)</td>
<td></td>
</tr>
<tr>
<td>Living and miscellaneous expensesa</td>
<td>(500,000)</td>
<td>(515,000)</td>
<td>(530,450)</td>
<td>(546,364)</td>
<td>(562,754)</td>
<td>(579,637)</td>
</tr>
<tr>
<td>Total expenses</td>
<td>(643,750)</td>
<td>(21,736,813)</td>
<td>(573,517)</td>
<td>(590,724)</td>
<td>(608,444)</td>
<td>(651,699)</td>
</tr>
<tr>
<td>Net additions/withdrawals</td>
<td>(68,750)</td>
<td>39,540,437</td>
<td>(493,949)</td>
<td>(503,769)</td>
<td>(519,031)</td>
<td>(459,753)</td>
</tr>
</tbody>
</table>

a Assumed to increase with inflation at 3% annually
b Fixed annual payments

Net cash flows for Peter and Hilda conveniently stabilize in Year 2 and decline in Year 5. Consequently, we can estimate their after-tax return objective in Exhibit 2-5 by dividing projected needs in Year 2 (€493,949) by their net investable assets at the end of Year 1 (€42.3 million). We find that €493,949/€42.3 million = 1.17 percent. Adding the current annual inflation rate of 3.00 percent to 1.17 percent results in an approximate after-tax nominal return objective of 4.17 percent. [Note: Strictly speaking, the inflation rate should be adjusted upward by the portfolio’s average tax rate. For ease of presentation, we have simply added 3 percent inflation.]

Exhibit 2-5
Peter and Hilda Inger
Investable Assets, Net Worth, and Required Return

<table>
<thead>
<tr>
<th>Investable Assets</th>
<th>Amount</th>
<th>Percent of Net Worth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 1 cash flow</td>
<td>€39,540,437</td>
<td>77%</td>
</tr>
<tr>
<td>Stock holdings</td>
<td>750,000</td>
<td>1%</td>
</tr>
<tr>
<td>Fixed-income holdings</td>
<td>1,000,000</td>
<td>2%</td>
</tr>
<tr>
<td>Cash equivalents</td>
<td>1,000,000</td>
<td>2%</td>
</tr>
<tr>
<td>RSA account</td>
<td>50,000</td>
<td>0%</td>
</tr>
<tr>
<td>Total</td>
<td>€42,340,437</td>
<td>83%</td>
</tr>
</tbody>
</table>
### Real Estate

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>First home</td>
<td>€1,200,000</td>
<td>2%</td>
</tr>
<tr>
<td>Second home</td>
<td>7,000,000</td>
<td>14%</td>
</tr>
<tr>
<td>Total</td>
<td>€8,200,000</td>
<td>16%</td>
</tr>
</tbody>
</table>

### Gold

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>€500,000</td>
<td>1%</td>
</tr>
</tbody>
</table>

### Net Worth

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>€51,040,437</td>
<td>100%</td>
</tr>
</tbody>
</table>

### Required Return

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distributions in Year 2</td>
<td>€493,949</td>
<td>1.17%</td>
</tr>
<tr>
<td>Divided by investable assets</td>
<td>€42,340,437</td>
<td>4.17%</td>
</tr>
<tr>
<td>Plus expected inflation</td>
<td>3%</td>
<td></td>
</tr>
</tbody>
</table>

**Risk objective.** An individual’s risk objective, or overall risk tolerance, is a function of both ability to take risk and willingness to take risk.

**Ability to take risk.** Assessing an individual’s ability to take risk is suited to quantitative measurement. It is generally the investment advisor who defines the terms of the analysis and then must explain the results. Although approaches to the analysis will vary, all must address the following questions:

1. What are the investor’s financial needs and goals, both long term and short term?

   An investor’s ability to take risk is determined by his financial goals relative to resources and the time frame within which these goals must be met. If the investor’s financial goals are modest relative to the investment portfolio, clearly she has greater ability, all else equal, to accommodate volatility and negative short-term returns.

   As the investment portfolio grows or as its time horizon lengthens, the ability to recover from intermediate investment shortfalls also increases. All else equal, longer-term objectives allow the investor greater opportunity to consider more-volatile investments, with correspondingly higher expected returns.

   Peter and Hilda Ingers’ investment objectives are primarily short to intermediate term in nature:

   - Support for current lifestyle
   - Construction of second home
   - Investment in *Exteriors*
   - Support for Jürgen’s education
   - Expansion of Hilda’s design company

   Longer term, Peter and Hilda wish to preserve the financial security that their family currently enjoys. Preserving purchasing power is apparently more important to them than creating further wealth.

2. How important are these goals? How serious are the consequences if they are not met?

   Critical goals allow lower margin for error and reduce the portfolio’s ability to accommodate volatile investments. Financial security and the ability to maintain current lifestyle are generally among the investor’s highest priorities; luxury spending, however defined, is least critical.

   Beyond assuring their financial security, the Ingers’ investment goals appear *important* but perhaps not *critical*. The second home is important to both Peter and Hilda and will play a
major role in defining their future lifestyle. Similarly, Peter’s investment in Exteriors is not 
driven by economic need, but it will play an important role in his life after the sale of Inger 
Marine.

3. How large an investment shortfall can the investor’s portfolio bear before jeopardizing its 
ability to meet major short-term and long-term investment goals?

The limit of a portfolio’s ability to accept risk is reached when the probability of failing to 
meet a high-priority objective becomes unacceptably high. The investment advisor can provide 
guidance with probability estimates and identify clearly unrealistic expectations, but the 
ultimate determination of “acceptable” will also depend on the investor’s general willingness 
to accept risk.

Willingness to take risk. In contrast to ability to take risk, investor willingness involves a more 
subjective assessment. No absolute measure of willingness exists, nor does any assurance that 
williness will remain constant through time. Psychological profiling provides estimates of an 
individual’s willingness to take risk, but final determination remains an imprecise science. It may, 
in fact, be necessary that investors have personal experience with significant losses as well as gains 
before a productive discussion of risk tolerance with them is possible.

Peter Inger’s case illustrates both nuances in his willingness to take risk and a tension 
between willingness and ability. Peter’s risk-taking has clearly centered on the business risk of 
IngerMarine. He has retained ownership of the company for many years, demonstrating tolerance 
for business risks that he may feel he controls. In other areas, including company debt policy and 
expansion plans, Peter has shown less willingness to take risk. His personal debt policy and low-
volatility investment portfolio also indicate a conservative approach to finances. When asked what 
he would consider to be bad portfolio performance, Peter at first answered “any loss greater than 5 
percent is unacceptable.” After being reminded of his ability to take risk, however, he revised his 
answer to no loss greater than 10 percent.

4.2 Constraints

The IPS should identify all economic and operational constraints on the investment portfolio. 
Portfolio constraints generally fall into one of five categories:

- Liquidity
- Time horizon
- Taxes
- Legal and regulatory environment
- Unique circumstances

4.2.1 Liquidity

Liquidity refers generally to the investment portfolio’s ability to efficiently meet an investor’s 
anticipated and unanticipated demands for cash distributions. Two trading characteristics of its 
holdings determine a portfolio’s liquidity:

- Transaction costs. Transaction costs may include brokerage fees, bid–ask spread, price 
impact (resulting, for example, from a large sale in a thinly traded asset), or simply the time 
and opportunity cost of finding a buyer. As transaction costs increase, assets become less 
“liquid” and less appropriate as a funding source for cash flows.
- Price volatility. An asset that can be bought or sold at fair value with minimal transaction 
costs is said to trade in a highly liquid market. If the market itself is inherently volatile,
however, the asset’s contribution to portfolio liquidity (the ability to meet cash flow needs) is limited. Price volatility compromises portfolio liquidity by lowering the certainty with which cash can be realized.

Significant liquidity requirements constrain the investor’s ability to bear risk. Liquidity requirements can arise for any number of reasons but generally fall into one of the following categories:

a. Ongoing expenses. The ongoing costs of daily living create a predictable need for cash and constitute one of the investment portfolio’s highest priorities. Because of their high predictability and short time horizon, anticipated expenses must be met using a high degree of liquidity in some portion of the investment portfolio.

b. Emergency reserves. As a precaution against unanticipated events such as sudden unemployment or uninsured losses, keeping an emergency reserve is highly advisable. The reserve’s size should be client specific and might cover a range from three months to more than one year of the client’s anticipated expenses. Individuals working in a cyclical or litigious environment may require a larger reserve than those in more stable settings. Although the timing of emergencies is by definition uncertain, the need for cash when such events do occur is immediate.

c. Negative liquidity events. Liquidity events involve discrete future cash flows or major changes in ongoing expenses. Examples might include a significant charitable gift, anticipated home repairs, or a change in cash needs brought on by retirement. As the time horizon to a major liquidity event decreases, the need for portfolio liquidity rises.

For the sake of completeness, positive liquidity events and external support should also be noted in the policy statement. In the case of a multigenerational family plan, positive liquidity events might include anticipated gifts and inheritance; the advisor should note, however, that inheritance planning is a sensitive and potentially divisive topic among family members.

Significant liquidity events facing the Ingers include the sale of IngerMarine and subsequent loss of Peter’s salary, the purchase of a second home, and the investment in Exteriors. As the potential need for cash distributions increases, so too must the investment portfolio’s commitment to assets that can be easily sold at predictable prices. Peter and Hilda have agreed on a normal liquidity reserve equal to two years of Peter’s current salary (2 × €500,000) but will maintain an above-average reserve during their transition into retirement.

Illiquid holdings. To ensure that all parties have a complete understanding of portfolio liquidity, the IPS should specifically identify significant holdings of illiquid assets and describe their role in the investment portfolio. Examples might include real estate, limited partnerships, common stock with trading restrictions, and assets burdened by pending litigation.

The home or primary residence, often an individual investor’s largest and most illiquid asset, presents difficult diversification and asset allocation issues. Unfortunately, this asset defies easy classification, having investment returns in the form of psychological and lifestyle benefits as well as the economic benefits of shelter and potential price appreciation.

The emotions attached to the primary residence will vary from individual to individual, and investment advisors must be sensitive to their clients’ long-term view of the “home.” Some investors may view their residence as part of their overall investment portfolio; others may view it as a “homestead” or sanctuary where life is lived, children are raised, and retirements are planned. Whether the primary residence is viewed objectively or with emotional attachment, the fact...
remains that it generally represents a significant percentage of an individual investor’s total net worth. As such, the IPS should address the investment role of the primary residence.

It is not uncommon to exclude the residence from the asset allocation decision, under the premise that the home is a “sunk cost,” a “legacy” or “private use” asset that is not actively managed as an investment. A similar approach treats the home as a long-term investment that will be used to meet equally long-term housing needs or estate planning goals. Somewhat analogous to cash-flow matching or bond defeasance, the home and the investment goals that it offsets are removed from consideration in building the actively managed investment portfolio. Parents may, for example, wish to pass on to their children the wealth necessary to purchase a house and meet this goal through their own home ownership. Other investors may view the residence as a source of funding to meet future healthcare and housing costs.

Lifestyle changes often dictate selling a large, primary family residence and moving into a more manageable property or living arrangement (e.g., as an individual or couple matures, or as children move away to start their own lives and families). An increasingly popular option for older individuals in Western Europe and the U.S. is to use the value of the primary residence to fund the costs of living in a managed care facility. Generally, these facilities provide members with progressive levels of healthcare and personal assistance, making it possible to continue living independently.

Alternatively, many individuals plan to retire in their primary residence. The IPS should recognize and discuss financial risks and liquidity issues created by a concentration of net worth in the investor’s residence. Although the residence is typically considered to be a long-term, illiquid holding, it can also be the source of significant short-term losses and cash flow problems. Financial engineers continue to develop products and techniques that allow individuals better access to their home equity (current market value, less any debt associated with the home) and better control over their exposure to fluctuations in property values. Some products, such as “reverse mortgages” and other annuity plans, have initially proven to be costly and illiquid. Newer financial vehicles are on the horizon, however, that may efficiently allow homeowners to “lock in” the current equity value of their home. In one such product (Robert Shiller’s “macro securities”), hedges are built on the notion of swaps, in which two parties can exchange the returns of home appreciation for a static interest rate return. Any decline in home value would be paid by the counterparty in exchange for the static rate of return.

Factoring the primary residence into a formal retirement plan is an uncertain proposition. Real estate returns vary with location, and the investor’s holding period can be difficult to predict. Nonetheless, if the primary residence is treated as part of the investment portfolio, the advisor can use models for forecasting regional real estate inflation rates to approximate future values. Such models can be useful but will not capture the short-term dynamics of real estate markets.

The Inger Family. It appears that Peter and Hilda can afford to build their second residence. Nonetheless, they should bear in mind that the two homes will constitute 16 percent of their net worth. Peter and Hilda’s primary residence has a current market value of approximately €1,200,000 and could serve in the future as a source of funds.

4.2.2 Time Horizon

The investment time horizon has already been seen to play an important role in setting return objectives and defining liquidity constraints. No universal definition of “long-term” or “short-
term” exists, however, and discussion is often left in relative rather than absolute terms. In many planning contexts, time horizons greater than 15 to 20 years can be viewed as relatively long term, and horizons of less than 3 years as relatively short term. Between 3 years and 15 years, there is a transition from intermediate to long term that different investors may perceive differently.

A second issue relating to the investment time horizon is whether the investor faces a single- or multistage horizon. Certain investor circumstances, such as an elderly investor with limited financial resources, are consistent with a single-stage time horizon. Given the unique nature and complexity of most individual investors’ circumstances, however, the time horizon constraint most often takes a multistage form.

“Stage-of-life” classifications, as discussed earlier, often assume that the investment time horizon shortens gradually as investors move through the various stages of life. Although this assumption may often be true, it is not always. Once the primary investors’ needs and financial security are secure, the process of setting risk and return objectives may take place in the context of multigenerational estate planning. The advisor’s clients may be advanced in years yet be planning for their grandchildren; it may be the grandchildren’s personal circumstances that determine the investment portfolio’s goals and time horizon.

Peter and Hilda are extremely secure, assuming that the sale of IngerMarine is successful. They have expressed a desire to provide financial security for three generations and clearly have a long-term and probably multistage time horizon.

4.2.3 Taxes
The issue of taxes is perhaps the most universal and complex investment constraint to be found in private portfolio management. Taxation of income or property is a global reality and poses a significant challenge to wealth accumulation and transfer. Although tax codes are necessarily country specific, the following general categories are widely recognized:

- **Income Tax.** Income tax is calculated as a percentage of total income, often with different rates applied to various levels of income. Wages, rent, dividends, and interest earned are commonly treated as taxable income.

- **Gains Tax.** Capital gains (profits based on price appreciation) resulting from the sale of property, including financial securities, are often distinguished from income and taxed separately. In many countries, the tax rate for capital gains is lower than the corresponding income tax; a minimum holding period between purchase and sale is sometimes required.

- **Wealth Transfer Tax.** A wealth transfer tax is assessed as assets are transferred, without sale, from one owner to another. Examples of wealth transfer taxes include “estate” or “inheritance” taxes paid at the investor’s death and “gift” taxes paid on transfers made during the investor’s lifetime.

- **Property Tax.** Property tax most often refers to the taxation of real property (real estate) but may also apply to financial assets. Such taxes are generally assessed annually, as a percentage of reported value. Although straightforward in concept, property taxes present challenges with regard to valuation and compliance.

Taxation varies greatly across regions and continents, but marginal tax rates of 50 percent are not uncommon. With tax burdens of such magnitude, clearly the individual investor must approach investments and financial planning from an after-tax perspective. Exhibit 2-6 illustrates the degree of variation in top marginal tax rates that can exist internationally at a given point in time.

**Exhibit 2-6**

**Top Marginal Tax Rates**
### Exhibit 2-7
**Effect of Taxes on Portfolio Performance**

**Example A: Periodic 25% Tax**

<table>
<thead>
<tr>
<th>Year</th>
<th>Beginning Value</th>
<th>Returns(^\text{a})</th>
<th>Tax (25%)</th>
<th>Ending Value</th>
<th>Cumulative Gain</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Source: “The Global Executive,” Ernst & Young, 2005*

*Note: Rates shown are subject to periodic change and do not fully reflect the complexity of the tax codes from which they were taken; additional regional taxes may also apply. This exhibit should not be used for tax planning purposes.*

Taxes affect portfolio performance in two ways. When taxes are paid at the end of a given measurement period, portfolio growth is simply reduced by the amount of tax. When the same tax is assessed periodically throughout the measurement period, growth is further reduced: Funds that would otherwise compound at the portfolio growth rate are no longer available for investment. Exhibit 2-7 illustrates the effect of taxes on portfolio performance. In Example A, a periodic tax of 25 percent, similar to an annual income tax, is applied against investment returns over five years. In Example B, a tax of 25 percent is applied against the cumulative investment return at the end of a five-year holding period, similar to a capital gains tax. The difference in ending portfolio values demonstrates the benefit of deferring tax payments.
Example B: Cumulative 25% Tax

<table>
<thead>
<tr>
<th>Year</th>
<th>Beginning Value</th>
<th>Returns(^a)</th>
<th>Tax</th>
<th>Ending Value</th>
<th>Cumulative Gain</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>100,000</td>
<td>10,000</td>
<td>n/a</td>
<td>110,000</td>
<td>10,000</td>
</tr>
<tr>
<td>2</td>
<td>110,000</td>
<td>11,000</td>
<td>n/a</td>
<td>121,000</td>
<td>21,000</td>
</tr>
<tr>
<td>3</td>
<td>121,000</td>
<td>12,100</td>
<td>n/a</td>
<td>133,100</td>
<td>33,100</td>
</tr>
<tr>
<td>4</td>
<td>133,100</td>
<td>13,310</td>
<td>n/a</td>
<td>146,410</td>
<td>46,410</td>
</tr>
<tr>
<td>5</td>
<td>146,410</td>
<td>14,641</td>
<td>n/a</td>
<td>161,051</td>
<td>61,051</td>
</tr>
</tbody>
</table>

Less 25% Tax (15,263) (15,263) (15,263)

145,788 45,788

\(^a\)Annual return: 10%

Tax strategies are ultimately unique to the individual investor and the prevailing tax code. Although the details of tax planning often involve complex legal and political considerations, all strategies share some basic principles.

**Tax Deferral.** For the long-term investor, periodic tax payments severely diminish the benefit of compounding portfolio returns. Many tax strategies, therefore, seek to defer taxes and maximize the time during which investment returns can be reinvested. (Exhibit 2-7 demonstrated the value of tax deferral in general.) A portfolio strategy focusing on low turnover, for example, extends the average investment holding period and postpones gains taxes.

Loss harvesting, another tax reduction strategy, focuses on realizing capital losses to offset otherwise taxable gains without impairing investment performance. Low turnover and loss harvesting strategies are representative of a general portfolio policy that strives for a low rate of capital gains realization, resulting in deferred tax payments.

**Tax Avoidance.** The ideal solution is to avoid taxes when legally possible.\(^4\) A number of countries have introduced special purpose savings accounts, such as Peter Inger’s RSA account, that may be exempt or deferred from taxation. Tax-exempt bonds may be available as alternative investment vehicles. Estate planning and gifting strategies may allow the investor to reduce future estate taxes by taking advantage of specific tax laws.

Tax-advantaged investment alternatives typically come at a price, however, paid in some combination of lower returns, reduced liquidity, and diminished control.

- Tax-exempt securities typically offer lower returns or involve higher expenses (including higher transaction costs) relative to taxable alternatives, and they are attractive only when the

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\(^4\) The term “tax avoidance” is typically used in reference to the legal pursuit of tax efficient investment strategies; the term “tax evasion” typically describes an illegal attempt to circumvent tax liability.

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following relationship holds (ignoring differential transaction costs): 
\[ R_{\text{Tax-free}} > [R_{\text{Taxable}} \times (1 - \text{Tax rate})]. \]

- Liquidity is reduced in tax-sheltered savings accounts when a minimum holding period is required or when withdrawals are limited to specific purposes.
- The investor must often relinquish or share the direct ownership of assets placed in tax-advantaged partnerships or trusts.

**Tax Reduction.** If taxes cannot be avoided entirely, opportunities may remain to reduce their impact. When income tax rates exceed the capital gains tax rate, as they do in a number of countries (see Exhibit 2-6), a portfolio manager may emphasize securities and investment strategies whose investment returns are recognized as gains rather than income (a portfolio “tilt,” for example, toward low-dividend-paying stocks). Because the gains tax is assessed only at the time of sale, such strategies may also benefit from tax deferral as well as the lower tax rate. If only net gains are taxed, a policy to actively realize offsetting losses (“loss harvesting”) will reduce reported gains. To achieve portfolio tax efficiency, a manager may use a variety of additional strategies, an increasing number of which are made possible through the use of derivatives.\(^5\)

**Wealth transfer taxes.** Wealth transfer strategies belong perhaps more to the world of tax- and estate-planning attorneys than to the realm of portfolio management. As a practical matter, however, investment advisors should have a working knowledge of estate planning principles, as it is often the advisor who first recognizes the investor’s need for estate planning and makes the necessary recommendation to seek legal counsel.

Multiple variables potentially influence the timing of personal wealth transfers, including the investor’s net worth, time horizon, and charitable intentions, as well as the age, maturity, and tax status of the beneficiaries. Generally speaking, strategies for addressing wealth transfers focus on either the timing or the legal structure (partnerships, trusts, etc.) of the transfer. The possible legal structures for a wealth transfer are necessarily country specific. Timing of wealth transfers, however, involves the more universal principles of tax avoidance, tax deferral, and maximized compound returns.

**Transfer at death.** If the investor pursues no other strategy, a wealth transfer tax may be assessed at death (often referred to as an estate tax or death tax). In this scenario, the transfer tax has been deferred for as long as possible, retaining maximum financial flexibility for the individual and maximizing the final value of the investment portfolio. In a multigeneration estate plan, however, this strategy may not minimize transfer taxes.

**Early transfers.** Accelerated wealth transfers and philanthropic gifting may be desirable when the investor wishes to maximize the amount of his or her estate, after taxes, that is passed on to individuals or organizations. Early gifting of higher-growth assets into the hands of a younger generation may shelter the subsequent growth of those assets from transfer taxes when the investor ultimately dies. Logically, earlier transfers to younger beneficiaries offer the greatest tax deferral. Because assets transferred to children will quite possibly be taxed again when the children die, it may be advantageous to make gifts directly to grandchildren, effectively skipping a generation of transfer taxes. Note that some tax regimes may differentiate among recipients, taxing gifts made to family members, for example, at lower rates than gifts made to other parties.

The benefit of early wealth transfers is largely determined by tax codes and life expectancies. Additional issues to consider before making a permanent transfer include (1) the

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\(^5\) See Brunel (2002).
amount of retained wealth needed to ensure the financial security of the primary investor; (2) possible unintended consequences of transferring large amounts of wealth to younger, potentially less mature beneficiaries; and (3) the probable stability or volatility of the tax code. Early transfers implicitly assume that the current tax structure will remain relatively constant through time. If an early gift is made and the transfer tax is later abolished, refunds are unlikely.

4.2.4 Legal and Regulatory Environment
In the context of portfolio management for individual investors, legal and regulatory constraints most frequently involve taxation and the transfer of personal property ownership. Legal and regulatory constraints vary greatly from country to country and change frequently. Achieving investment objectives within the constraints of a given jurisdiction frequently requires consultation with local experts, including tax accountants and estate planning attorneys. Whatever a portfolio manager’s level of legal and regulatory understanding, she must be careful to avoid giving advice that would constitute the practice of law (the role of a licensed attorney). To the extent that the manager is acting in a fiduciary capacity (e.g., employed as trustee of a trust), prudent investor rules may apply, depending on the legal jurisdiction.

The Personal Trust. The use of trusts to implement investment and estate planning strategies is well established in English and American law, and a basic familiarity with the vocabulary of trusts is often useful in other jurisdictions as well. A trust is a legal entity established to hold and manage assets in accordance with specific instructions.

The term “personal trust” refers to trusts established by an individual, who is called the “grantor.” The trust is a recognized owner of assets and can be subject to taxation in much the same manner that individuals are taxed. To form a trust, the creator (grantor) drafts a trust document defining the trust’s purpose and naming a trustee who will be responsible for oversight and administration of the trust’s assets. The trustee may or may not be the same person as the grantor. Many banks have “trust departments” that provide trustee services, including trust administration, investment management, and custody of assets. “Trust companies” are non-bank providers of trust services that have been granted trust powers by a government or regulatory body; these companies may or may not be owned by a bank.

The trust is funded when the grantor transfers legal ownership of designated assets to the trust. The assets of the trust can include a wide variety of items that the grantor owns, such as investment securities, residential or commercial real estate, farm or timber land, notes, precious metals, oil and gas leases, and collectibles. The valuation, marketability, and restrictions on sale of such assets can present challenges for the trustee trying to prudently manage the trust’s holdings.

Personal trusts are not in and of themselves an investment strategy but rather an important tool for implementing certain aspects of an investment strategy (e.g., gifting). The appeal of personal trusts lies in the flexibility and control with which the grantor can specify how trust assets are to be managed and distributed, both before and after the grantor’s demise. The two basic types of personal trusts, revocable and irrevocable, differ largely with respect to the issue of control. In a revocable trust, any term of the trust can be revoked or amended by the grantor at any time, including those terms dealing with beneficiaries, trustees, shares or interests, investment provisions, and distribution provisions. Revocable trusts are often used in place of a will or in combination with a will, because of their tax planning efficiency and the generally lower legal expenses associated with transferring ownership of personal property at the time of the grantor’s death. Because the grantor retains control over the trust’s terms and assets, she also remains responsible for any tax liabilities, such as income and gains taxes, generated by the trust’s assets;
trust assets remain subject to any wealth transfer tax due after the grantor’s demise (often referred to as estate taxes or death taxes). Upon the grantor’s death, the trust can typically no longer be amended; in accordance with the terms of the trust, trust assets either continue under management by a trustee or are distributed outright to the trust’s beneficiaries.

In an irrevocable trust, the terms of management during the grantor’s life and the disposition of assets upon the grantor’s death are fixed and cannot be revoked or amended. The creation of an irrevocable trust is generally considered to be an immediate and irreversible transfer of property ownership, and a wealth transfer tax, sometimes called a gift tax, may have to be paid when the trust is funded. U.S. tax treatment of irrevocable trusts is similar to the tax treatment of individuals. The trust, not the grantor, is responsible for tax liabilities generated by trust assets and for filing its own tax return. The grantor retains no control or ownership interest in the trust, and the trust’s assets are no longer considered part of the grantor’s estate.

The framework for investment decision-making within a trust can vary significantly, but ultimate responsibility for investment oversight resides with the trustee (or co-trustees, if the trust document names multiple trustees). In revocable trusts, the trustee is often the grantor, who may or may not wish to personally manage the investment portfolio. As trustee of a revocable trust, the grantor may (1) appoint an investment manager, who then acts as an “agent” for the trustee; (2) amend the trust document to include a co-trustee with investment responsibility; or (3) manage the investment process directly. In the first two scenarios, the grantor may require that the agent or co-trustee obtain prior approval from the grantor before executing individual transactions. Requiring such prior approval can present difficulties from an investment management perspective, as no party has full authority to act. Upon the death of the grantor/trustee, the trust passes authority on to the successor trustee or co-trustees (named in the trust document), who then have responsibility for managing the assets according to the terms of the trust.

The Family Foundation. Civil law countries, as found in continental Europe, are characterized by the existence of family foundations. Similar to an irrevocable trust, the foundation is an independent entity, often governed by family members. Such foundations can be part of a multigeneration estate plan and often serve as a vehicle for introducing younger family members to the process of managing family assets.

There are many examples of trusts and foundations with customized terms of distribution. It is important to keep in mind, however, that trusts, foundations, and similar structures are only instruments with which to implement an underlying investment, estate-planning, or tax-saving strategy. Following are examples of how the Ingers might use such instruments:

a. **Gifting to grandchildren.** Jürgen is currently too young to receive large, direct gifts, but an irrevocable trust might be established for his benefit. The trustee would disburse funds from the trust, in accordance with conditions specified in the trust document by the Ingers. The terms for distribution might limit early access, or allow funding only for specific purposes, such as education expenses. As previously mentioned, generation-skipping gifts may reduce wealth-transfer taxes.

b. **Gifting to children.** Although the Ingers are eager to provide for the financial security of their children, they may be reluctant to entrust Hans and Christa with the management of large, unconditional transfers of family wealth. Christa does not seem to have the necessary investment skills or experience, and Hans’ appetite for risk-taking may leave his parents uneasy. As an alternative to direct transfers, the Ingers could create a trust or foundation and structure the terms of distribution such that lifetime support is assured. The trust or foundation
might be instructed to distribute funds based on reasonable need, as defined by the Ingers, or as the children reach specific ages and stages of life.

c. *Gifting with retained interest.* Various options exist for creating hybrid structures that provide immediate support for one party but ultimately distribute their assets to a second party. The Ingers might consider a trust in which they retain an ownership interest in any income generated by the trust but give up control over the trust’s assets. All income would be distributed to Peter and Hilda, making them the income beneficiaries of the trust. When the income beneficiaries die or have no further claim on income, the trust’s remaining assets will be distributed to remaindermen, which might be charities, foundations, or other individuals, including the Ingers’ children. Such trusts are generally irrevocable and treated as a deferred gift to the remaindermen. Transfer taxes on the gift’s present value may have to be paid at the time the trust is created. When the remainder beneficiaries are charities or foundations, such arrangements may be referred to as a “charitable remainder trust.”

The conflicting needs and interests of income beneficiaries and remaindermen may present the trustee of an irrevocable trust with portfolio management challenges. Trust beneficiaries will often pressure the trustee to favor either current income or long-term growth, depending on their beneficial interest. Income beneficiaries will typically desire that the trustee seek to maximize current income through the selection of higher income-producing assets. Remainderman beneficiaries will favor investments with long-term growth potential, even if this reduces current income. The trustee has the responsibility to consider the needs of both groups, under guidelines and criteria provided by the trust document. Although many older trust documents commonly define income as “interest, dividends and rents,” the trend is to adopt a total return approach, consistent with modern portfolio management, that allows distributions from realized capital gains as well as traditional “income” sources.

**Jurisdiction**

Individual investors may enjoy a limited degree of flexibility in determining the jurisdiction in which their income and assets will be taxed. Some countries have both national and regional tax codes. By choosing to live in a region with low tax rates, the investor may be able to reduce his tax liability. Generally speaking, however, all investment returns (including “offshore” investments) are subject to taxation in the investor’s country of citizenship or residence. The same is true for trusts, which are taxed in accordance with their “situs” (locality under whose laws the trust operates).

“Offshore” investments and trusts in “tax friendly” countries typically offer some measure of enhanced privacy, asset protection, and estate planning advantages, as well as possible opportunities to reduce tax liabilities. If tax reduction is the investor’s only concern, however, an alternative domestic tax strategy may prove more efficient. Again, investors are generally required to declare and pay taxes on returns received from offshore investments, regardless of whether return data are disclosed by the host country.

**4.2.5 Unique Circumstances**

Not surprisingly, individual investors often present their investment advisors with a wide range of unique circumstances that act to constrain portfolio choices. Such constraints might include guidelines for social or special purpose investing, assets legally restricted from sale, directed brokerage arrangements, and privacy concerns. It is also appropriate to list here any assets held outside the investment portfolio and not otherwise discussed in the IPS.
In the Ingers’ case, a unique circumstance exists in the self-imposed limitation on acceptable investments. In the 1960s, Peter and several of his friends lost money in equity investment schemes. Since that time, he has had a bias against putting his money in the stock market. Peter does feel quite comfortable with investments in real estate, however, and mentions that he has always been quite successful and comfortable investing in real estate projects. After several “educational” discussions, Peter still insists that he wants only a limited exposure to common stock investments.

4.2.6 Peter and Hilda Inger’s Investment Policy Statement
Using all of the information she has gathered about Peter and Hilda Inger, Jourdan formulates an investment policy statement for them. Exhibit 2-8 displays the IPS.

Exhibit 2-8
Investment Policy Statement
prepared for
Peter and Hilda Inger

I. Background
Peter and Hilda Inger own and operate IngerMarine, a producer of luxury pleasure boats sold worldwide. The Ingers are eager to convert their equity stake in IngerMarine to cash and have received bids indicating probable proceeds to Peter and Hilda of €52 million, net of taxes. They consider everyone in their family to be financially secure and wish to preserve that security.

The Ingers’ family consists of their son Hans, daughter Christa, and grandson Jürgen. Hans is a senior vice president at IngerMarine, specializing in design. Christa is an artist and a single mother to Jürgen.

II. Return Objectives
Longer term, the Ingers wish to assure not only their own financial security and standard of living but that of their children as well. The investment portfolio must replace Peter’s salary, which currently covers the couple’s annual expenses and gifting. It should also provide a return sufficient to offset the effect of inflation (assumed to approximate 3 percent annually) on what will ultimately be their children’s inheritance.

Required Return:*  1.17%
Expected Inflation:  3.00%
Return Objective:  4.17%
* Expected Cash flow Requirement in Year 2 divided by investable assets (€493,949/€42,340,438)

III. Risk Tolerance
Abilility: Following the sale of IngerMarine, the Ingers’ investment portfolio will be able to accommodate considerable volatility without endangering its ability to meet their financial objectives. Given Peter and Hilda’s cash flow circumstances, their likely wealth position after the IngerMarine sale, and their postretirement objectives, their ability to take risk appears to be “above average.”
Willingness: The Ingers are relatively conservative by nature. Personality typing of the Ingers identifies Peter as “methodical” and Hilda as “individualist.” Peter seems to have managed IngerMarine with a bias toward low debt and stable earnings rather than rapid expansion. The

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Ingers have historically held a large portion of their liquid assets in money market accounts. Furthermore, the Ingers do not want a portfolio value decline of more than 10 percent in nominal terms in any given 12-month period. Their willingness to take risk is generally “below average.”

To reconcile the portfolio’s considerable ability to accommodate risk and the Ingers’ apparent preference for lower risk, their overall risk tolerance is described in this policy statement as “moderate” or “average.”

IV. Constraints

Liquidity
The Ingers have multiple short- to intermediate-term liquidity constraints:

- Construction of a second home (next one to three years) € 7,000,000
- Probable investment in the magazine *Exteriors* (within one year) € 5,000,000
- Emergency reserve € 1,000,000
- Annual expenses (estimated to rise with inflation) € 500,000
- Annual support for grandson (estimated to rise with inflation) € 15,000
- Illiquid holding: IngerMarine currently represents a disproportionately large and illiquid part of the Ingers’ net worth.
- Illiquid holding: After the sale of IngerMarine and the construction of their second home, the Ingers will have approximately 16 percent of their net worth committed to personal residences.

Time Horizon
- Aside from the liquidity events listed above, the Ingers have a long-term, multistage time horizon.

Taxes
- The Ingers are subject to their country’s tax code and wish to pursue strategies that maximize the wealth passed on to their children.

Legal and Regulatory Environment
- Any Retirement Savings Accounts created by the Ingers must be managed in compliance with prevalent fiduciary standards for diversification and prudence.

Unique Circumstances
- The critical component of Peter and Hilda’s retirement plan is the disposition of IngerMarine stock to a willing buyer. This situation should be continually monitored to ensure that the assumptions made in any plan remain valid.
- The Ingers’ second home will represent an illiquid portion of their total net worth. They have discussed the possible risks and have decided to not consider the home as part of their actively managed investment portfolio. The second home will not carry a mortgage.
- Estate Planning Considerations: (1) *Gifts to children*. The Ingers will consider various means of tax-efficiently securing their children’s financial security, including outright gifts and the creation of special purpose trusts or foundations. (2) *Charitable gifts*. In addition to outright gifts, the Ingers will consider special purpose trusts or foundations, naming selected charities as remaindernmen and family members as income beneficiaries.
- The complex family changes that are about to occur suggest the need for increased flexibility in whatever investment strategy is adopted, to accommodate potentially frequent and abrupt shifts in attitudes and circumstances.
- The Ingers want only limited exposure to common stock investments.
- The Ingers want to maintain a fixed long-term holding of €500,000 in gold bullion.
5 AN INTRODUCTION TO ASSET ALLOCATION

In establishing a strategic asset allocation policy, the advisor’s challenge is to find a set of asset-class weights that produce a portfolio consistent with the individual investor’s return objective, risk tolerance, and constraints. This task must be completed from a taxable perspective, taking into consideration (1) after-tax returns, (2) the tax consequences of any shift from current portfolio allocations, (3) the impact of future rebalancing, and (4) asset “location.” The issue of asset location results from the individual investor’s ownership of both taxable and tax-deferred investment accounts—clearly, nontaxable investments should not be “located” in tax-exempt accounts.

In the balance of the chapter, we will illustrate the basic concepts of asset allocation for individual investors with a new case study, followed by a continuation of the Inger case. The chapter concludes with a discussion of probabilistic analysis, as applied to individual investor asset allocation and retirement planning.

5.1 Asset Allocation Concepts

This section illustrates how to arrive at an appropriate strategic asset allocation (or set of approximately equivalent allocations) through a process of elimination. As emphasized in the introductory chapter, investment objectives and constraints must be formulated prior to addressing asset allocation.

Example 2-1 introduces a new case study and provides the background information needed to establish asset allocation guidelines for a new private client, Susan Fairfax. The discussion then returns to Peter and Hilda Inger, formulating a strategic asset allocation appropriate to the Ingers’ IPS.

Example 2-1. Asset Allocation Concepts (1).

Susan Fairfax is president of Reston Industries, a U.S.-based company whose sales are entirely domestic and whose shares are listed on the New York Stock Exchange. The following additional facts reflect her current situation:

- Fairfax is single and 58 years old. She has no immediate family, no debts, and does not own a residence. She is in excellent health and covered by Reston-paid health insurance that continues after her expected retirement at age 65.
- Her base salary of $500,000 a year, inflation-protected, is sufficient to support her present lifestyle but can no longer generate any excess for savings.
- She has $2,000,000 of savings from prior years held in the form of short-term instruments.
- Reston rewards key employees through a generous stock-bonus incentive plan, but the company provides no pension plan and pays no dividend.
- Fairfax’s incentive plan participation has resulted in her ownership of Reston stock worth $10 million (current market value). The stock was received tax-free but is subject to tax at a 35 percent rate (on entire proceeds) if sold. She expects to hold the Reston stock at least until her retirement.
- Her present level of spending and the current annual inflation rate of 4 percent are expected to continue after her retirement.
Fairfax is taxed at 35 percent on all salary, investment income, and realized capital gains. Her composite tax rate is assumed to continue at this level indefinitely. Fairfax’s orientation is patient, careful, and conservative in all things. She has stated that an annual after-tax real total return of 3 percent would be completely acceptable to her, if it were achieved in a context whereby an investment portfolio created from her accumulated savings was unlikely to decline by more than 10 percent in nominal terms in any given 12-month period.

Working with Fairfax, HH Advisors (HH) created the following draft version of an investment policy statement.

**Investment Policy Statement for Susan Fairfax**

**Overview**

Ms. Fairfax is 58 years old and has seven years until her planned retirement. She has a fairly lavish lifestyle but few financial worries: Her salary pays all current expenses, and she has accumulated $2 million in cash equivalents from savings in previous years (the “Savings Portfolio”). Her health is excellent, and her employer-paid health insurance coverage will continue after retirement. She has sought professional advice to begin planning for her investment future, a future that is complicated by ownership of a $10 million block of company stock. The stock is listed on the NYSE, pays no dividends, and has a zero-cost basis for tax purposes. All salary, investment income (except interest on municipal bonds), and realized capital gains are taxed to Ms. Fairfax at a 35 percent rate. This tax rate and a 4 percent annual inflation rate are expected to continue into the future. Ms. Fairfax would accept a 3 percent real, after-tax return from the investment portfolio to be formed from her Savings Portfolio, if that return could be obtained with only modest downside risk (i.e., less than a 10 percent annual decline). She describes herself as being conservative in all things.

**Objectives**

- **Return Requirement.** Ms. Fairfax’s need for portfolio income begins seven years from now, when her salary stops on the day she retires. The interim return focus for her investment portfolio (to be created from the Savings Portfolio) should be on growing the portfolio’s value in a way that provides protection against loss of purchasing power. Her 3 percent real, after-tax return preference implies a gross total return requirement of at least 10.8 percent, assuming her investments are fully taxable (as is the case now) and assuming 4 percent inflation and a 35 percent tax rate. For Ms. Fairfax to maintain her current lifestyle, she must generate $500,000 × (1.04)^7, or $658,000, in annual, inflation-adjusted income when she retires. If the market value of Reston’s stock does not change, and if she has been able to earn a 10.8 percent return on the investment portfolio (or 7 percent nominal after-tax return = $2,000,000 × (1.07)^7 = $3,211,500), she should accumulate $13,211,500 by retirement age. To generate $658,000, a return on $13,211,500 of approximately 5.0 percent is needed.

- **Risk Tolerance.** Ms. Fairfax has a below-average willingness to take risk, as evidenced by her statement that in any given year, she does not want to experience a decline of more than 10 percent in the value of the investment portfolio. This desire indicates that her portfolio should have below-average risk exposure to minimize its downside volatility. A below-average willingness is also suggested by her generally careful and conservative orientation. Her overall wealth position, however, suggests an above-average ability to take risk. Because of her preferences and the nondiversified nature of the total portfolio, an average to below-average risk tolerance objective is appropriate for the portfolio.
It should be noted that truly meaningful statements about the risk of Ms. Fairfax’s total portfolio are tied to assumptions about the volatility of Reston’s stock (if it is retained) and about when and at what price the Reston stock will be sold. Because the Reston holding constitutes 83 percent of Ms. Fairfax’s total portfolio, it will largely determine the large risk she is likely to experience as long as the holding remains intact.

**Constraints**

- **Time Horizon.** Ms. Fairfax has a multistage time horizon. The first stage is the intermediate-term period, seven years, until her retirement. The second stage is relatively long term, representing Ms. Fairfax’s life expectancy of perhaps 30 years or more. During the first stage, Ms. Fairfax should arrange her financial affairs in preparation for the balance of the second stage, a retirement period of indefinite length. Of the two horizons, the second horizon is the dominant one because it is during this period that her assets must fulfill their primary function of funding her expenses, in an annuity sense, in retirement.

- **Liquidity.** With liquidity defined either as income needs or as cash reserves to meet emergency needs, Ms. Fairfax’s immediate liquidity requirement is minimal. She has $500,000 of salary available annually, healthcare costs are not a concern, and she has no planned needs for cash from the portfolio.

- **Taxes.** Ms. Fairfax’s taxable income (salary, taxable investment income, and realized capital gains on securities) is taxed at a 35 percent rate. Careful tax planning and coordination of tax policy with investment planning is required. All else equal, investment strategies should seek to maximize after-tax income and defer the realization of taxable gains. Sale of the Reston stock will have sizeable tax consequences because Ms. Fairfax’s cost basis is zero; special planning will be needed for this sale. Ms. Fairfax may want to consider some form of charitable giving, either during her lifetime or at death. She has no immediate family, and no other potential gift or bequest recipients are known.

- **Laws and Regulations.** Ms. Fairfax should be aware of and abide by all laws and regulations relating to her “insider” status at Reston and her holding of Reston stock. Although no trust instrument is in place, if Ms. Fairfax’s future investing is handled by an investment advisor, the responsibilities associated with the Prudent Person Rule will come into play, including the responsibility for investing in a diversified portfolio.

- **Unique Circumstances and/or Preferences.** Clearly, the value of the Reston stock dominates Ms. Fairfax’s portfolio value. A well-defined exit strategy must be developed for the stock as soon as is practical and appropriate. If the stock’s value increases, or at least does not decline before the holding is liquidated, Ms. Fairfax’s present lifestyle can be sustained after retirement. A significant and prolonged setback for Reston Industries, however, could have disastrous consequences for the portfolio. Such circumstances would require a dramatic downscaling of Ms. Fairfax’s lifestyle or generation of alternate sources of income to maintain her current lifestyle. A worst-case scenario might be characterized by a 50 percent drop in the market value of Reston’s stock and a subsequent sale of the stock, with proceeds subject to a 35 percent tax. The net proceeds from such a sale would be $10,000,000 × 0.5 × (1 – 0.35) = $3,250,000. When added to the Savings Portfolio, Ms. Fairfax’s total portfolio value would be $5,250,000. For this portfolio to generate $658,000 in income, a 12.5 percent return would be required.

Ms. Fairfax will need to seek legal estate planning assistance, especially if she wishes to establish a gifting program.

**Synopsis**
The policy governing investments in Ms. Fairfax’s Savings Portfolio shall emphasize realizing a 3 percent real, after-tax return from a mix of high-quality assets representing, in aggregate, no more than average, and preferably below average, risk. Ongoing attention shall be given to Ms. Fairfax’s tax planning and legal needs, her progress toward retirement, and the value of her Reston stock. The Reston stock holding is a unique circumstance of decisive significance; corporate developments should be monitored closely, and protection against the effects of a worst-case scenario should be implemented as soon as possible.

In setting asset allocation guidelines for Ms. Fairfax, one of the constraints that HH Advisors must address is her concern regarding negative portfolio returns. So-called “safety-first” rules⁶ provide a means of reasonably approximating and controlling downside risk; HH uses the following safety-first guideline in establishing an asset allocation policy for Ms. Fairfax.

IF:

- the portfolio has an important or dominant equity component
- the portfolio does not make significant use of options
- the investment horizon for the shortfall risk concern is not short term

THEN:

the normal distribution may reasonably be used as an approximate model of portfolio returns.

Fama (1976) and Campbell, Lo, and MacKinlay (1997), for example, provide evidence about the normal distribution as applied to U.S. common stocks. A 2.5 percent probability of failing to meet a return threshold may be acceptable for many clients. For a normal distribution of returns, the probability of a return that is more than two standard deviations below the mean or expected return is approximately 2.5 percent. If the client is more (less) risk averse, the advisor can choose a larger (smaller) number for standard deviation. Therefore, if we subtract two standard deviations from a portfolio’s expected return and the resulting number is above the client’s return threshold, the client may find the resulting portfolio acceptable. If the resulting number is below the client’s threshold, the portfolio may be unsatisfactory. Of course, the client may have other or different downside risk objectives than the two-standard-deviation approach we have used to illustrate this concept.

Once return and risk objectives and constraints have been established, an advisor sometimes will include a statement of the client’s strategic asset allocation as part of the IPS. HH now turns to the task of establishing an appropriate strategic asset allocation for the investment portfolio to be created from Ms. Fairfax’s existing savings (the “Savings Portfolio”). An HH analyst has developed the five potential asset allocations presented in Exhibit 2-9 and Exhibit 2-10. The analyst has commented that there is more uncertainty in the expectational data for REITs than for small- or large-cap U.S. stocks.

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<table>
<thead>
<tr>
<th>Exhibit 2-9 Proposed Asset Allocation Alternatives</th>
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<tbody>
<tr>
<td><strong>Asset Class</strong></td>
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<th>Municipal bonds</th>
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<th>Small-cap U.S. stocks</th>
<th>International stocks (EAFE)</th>
<th>Real estate investment trusts (REITs)</th>
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<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
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<tr>
<td>Expected total return</td>
<td>9.9%</td>
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<tr>
<td>Expected after-tax total return</td>
<td>7.4%</td>
<td>7.2%</td>
<td>6.5%</td>
<td>9.4%</td>
<td>7.5%</td>
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<tr>
<td>Expected standard deviation</td>
<td>9.4%</td>
<td>12.4%</td>
<td>8.5%</td>
<td>18.1%</td>
<td>10.1%</td>
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<td>Sharpe ratio</td>
<td>0.574</td>
<td>0.524</td>
<td>0.506</td>
<td>0.547</td>
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Exhibit 2-10
Asset Allocation Alternatives: Nominal and Real Expected Returns

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<tr>
<th>Allocation</th>
<th>Nominal expected return</th>
<th>9.9%</th>
<th>11.0%</th>
<th>8.8%</th>
<th>14.4%</th>
<th>10.3%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expected real after-tax return</td>
<td>3.4%</td>
<td>3.2%</td>
<td>2.5%</td>
<td>5.4%</td>
<td>3.5%</td>
<td></td>
</tr>
</tbody>
</table>

The process of selecting the most satisfactory from among several potential strategic asset allocations, both in the case of Susan Fairfax and for individual investors generally, consists of the following steps:

1. Determine the asset allocations that meet the investor’s return requirements. In carrying out this step, the investment advisor should compare expected returns for the different asset allocations on a basis consistent with the IPS. The policy statement might, for example, set return requirements in real, after-tax terms. In that case, the advisor would adjust for the effects of taxes and expected inflation before deciding which allocations meet the investor’s return requirement.

2. Eliminate asset allocations that fail to meet quantitative risk objectives or are otherwise inconsistent with the investor’s risk tolerance. For example, an investor may have risk objectives related to the expected standard deviation of return, worst-case return, or any of several other downside risk concepts (as is true for Fairfax). On a long-term basis, an individual investor will be unable to apply an asset allocation that violates a risk objective.

3. Eliminate asset allocations that fail to satisfy the investor’s stated constraints. For example, an investor may have a liquidity requirement that is appropriately met by holding a certain level of cash equivalents, and allocations must satisfy that constraint. Unique circumstances may also make certain allocations unacceptable to the investor.
4. Evaluate the expected risk-adjusted performance and diversification attributes of the asset allocations that remain after Steps 1 through 3 to select the allocation that is expected to be most rewarding for the investor.

Example 2-2 applies these four steps to the Fairfax case.

**Example 2-2. Asset Allocation Concepts (2).**

**Step 1: Return Requirement**
Fairfax has stated that she is seeking a 3 percent real, after-tax return. Exhibit 2-9 provides nominal, pretax figures, which HH must adjust for both taxes and inflation to determine which portfolios meet Fairfax’s return guideline. A simple approach is to subtract the municipal bond return component from the stated return, then subject the resulting figure to a 35 percent tax rate and add back tax-exempt municipal bond income. This calculation produces a nominal, after-tax return, from which the expected 4 percent per year inflation rate is subtracted to arrive at the real, after-tax return. For example, Allocation A has an expected real after-tax return of 3.4 percent, calculated by $[0.099 - (0.072 \times 0.4)] \times (1 - 0.35) + (0.072 \times 0.4) - 0.04 = 0.034 = 3.4$ percent.

Alternately, the return can be calculated by multiplying the taxable returns by their allocations, summing these products, adjusting for the tax rate, adding the result to the product of the nontaxable (municipal bond) return and its allocation, and deducting the inflation rate from this sum. For Allocation A, $[(0.045 \times 0.10) + (0.13 \times 0.2) + (0.15 \times 0.1) + (0.15 \times 0.1) + (0.1 \times 0.1)] \times (1 - 0.35) + (0.072 \times 0.4) - (0.04) = 0.035 = 3.5$ percent.

Exhibit 2-10 presents the allocations’ expected nominal returns—without adjustment for either inflation or taxes—and their expected real after-tax returns calculated by the first of the above approaches. From Exhibit 2-10, the HH analyst notes that Allocations A, B, D, and E meet Fairfax’s real, after-tax return objective of 3 percent a year.

**Step 2 - Risk Tolerance**
Fairfax has stated that a worst-case nominal return of $-10$ percent in any 12-month period would be acceptable. As discussed above, the expected return less two times the portfolio risk (expected standard deviation) is a reasonable baseline measure of shortfall risk. If the resulting number is above the client’s threshold return level, the criterion is met. Two of the remaining four allocations—A and E—meet the risk tolerance criterion.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Allocation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expected return</td>
<td>A 9.9%</td>
</tr>
<tr>
<td>Exp. standard deviation</td>
<td>A 9.4%</td>
</tr>
<tr>
<td>Worst-case return</td>
<td>A −8.9%</td>
</tr>
</tbody>
</table>

**Step 3 – Constraints**
Portfolios A and E both meet the stated constraints of Fairfax and neither is eliminated in this step.

**Step 4 – Risk-adjusted performance and diversification evaluation**
The recommended allocation is A. The allocations that are expected to meet both the minimum real, after-tax objective and the maximum risk tolerance objective are A and E. Both allocations
have similar Sharpe ratios and expected real after-tax returns. Both A and E have large exposures to municipal bonds; Allocation E, however, has a large position in REIT stocks, whereas Allocation A’s counterpart large equity allocation is to a diversified portfolio of large- and small-cap domestic stocks. Allocation A provides greater diversification through its large and small stock representation, as opposed to the specialized nature of REIT stocks. Furthermore, because of the great uncertainty in the expectational data for small- and large-cap stocks compared with REIT stocks, we can be more confident in selecting Allocation A that Fairfax’s return and risk objectives will be met. Therefore, HH Advisors specifies Allocation A as Fairfax’s strategic asset allocation.

The Susan Fairfax case in Examples 2-1 and 2-2 presented a process for selecting the strategic asset allocation most appropriate to her objectives and constraints. Example 2-3 contrasts the asset allocation problem of Peter and Hilda Inger to that of Fairfax.

**Example 2-3. Asset Allocation for Peter and Hilda Inger.**

To recap some important facts presented in the family’s IPS, the Ingers have average risk tolerance in general but are relatively averse to common stock investments as a result of Peter’s prior negative experience. Peter, however, has always been successful and comfortable investing in real estate projects (even those constituting greater overall risk than corresponding equity investments). Also, the Ingers do not wish to experience a loss greater than 10 percent, in nominal terms, in any given 12-month period. The Ingers’ required return was calculated as their estimated disbursements, including taxes, beginning in Year 2, divided by their net worth at the end of Year 1 (€493,949/€42,340,438 = 1.17 percent). Adding expected annual inflation of 3 percent, the Ingers’ stated return objective is 4.17 percent.

The critical component of Peter and Hilda’s retirement plan is the disposition of IngerMarine stock to a willing buyer. If the sale is not realized, their investment objectives and the associated strategic asset allocation will both require review. We have discussed certain principles of asset allocation for individual investors and illustrated their application in previous examples. In terms of the IPS and asset allocation, what similarities and contrasts would an investment advisor observe in applying the methods used for Fairfax in Examples 2-1 and 2-2 to the Ingers? Among the key observations are the following:

**Risk Tolerance and Return Objective.** In consultation with the client, the investment advisor needs to develop an IPS prior to embarking on asset allocation. The client’s risk tolerance and return objective are important parts of an IPS, and any asset allocation must be appropriate for these objectives. The Ingers want a chosen asset allocation to satisfy a downside risk constraint of −10 percent, just as in the Fairfax case. Yet because the Ingers’ objective of a 1.17 percent real, after-tax return is less than one half of Fairfax’s in magnitude, all else being equal we would expect a wider variety of asset allocations to satisfy the Ingers’ requirements.

**Asset Class Selection.** As with Fairfax, the Ingers’ investment advisor must establish an appropriate set of asset classes. The asset classes in Exhibit 2-9 have a U.S. bias. Eurozone equities and fixed-income asset classes for the Ingers would play a similar role to U.S. equities and U.S. fixed income classes for Fairfax, because the Ingers’ consumption is in euros. U.S. equities represent a substantial proportion of the market value of world equities, and one might expect them
to play a meaningful role in the Ingers’ portfolio. The advisor would need to respect Peter’s aversion to holding equities, however. On the other hand, because of Peter’s prior experience and success with real estate projects, the Ingers might include more than one real estate investment asset type among those permissible for investment. The inclusion of a wide array of asset classes brings diversification benefits, as long as portfolio risk and expected return characteristics remain consistent with the investment policy statement. Emerging Markets, Commodities, and Private Capital Ventures are examples of asset classes that may be strong diversifiers but that also have higher volatility and less liquidity than traditional equity and fixed-income investments. Like Fairfax, the Ingers are taxable investors; if possible in their domestic market, the Ingers should probably also include tax-exempt investments as a permissible asset class.

**Taxation and Asset Allocation Simulation.** As in the Fairfax case, the Ingers’ advisor should make an asset allocation decision in real, after-tax terms. This observation raises the point that expected after-tax returns for the Ingers will be computed using a tax rate different from Fairfax’s, and such returns would incorporate their own expectations concerning future inflation rates.

Taxes present one of the more vexing challenges in asset allocation for private wealth clients, because taxes depend heavily on the regulatory environment and the investor’s unique set of financial circumstances. In modeling asset allocation scenarios, the advisor must address the question of whether to use after-tax return assumptions for individual asset classes or to instead use pretax assumptions and apply taxes to the resulting investment outcomes. Running simulations using after-tax return assumptions can be a daunting task—listed below are some of the hurdles in configuring asset allocation scenarios using after-tax estimates.

- **Location.** After-tax risk and return assumptions will be influenced by an investment’s “location.” After-tax returns on common stocks located in a tax-sheltered retirement account, for example, may differ distinctly from the return on common stocks located in an unsheltered account. Consequently, an advisor may need to break down the traditional asset classes into multiple, location-specific subclasses, each with its own risk and return profile.

- **Tax Conventions.** Differing tax treatment of investment returns, depending for example on holding period or method of dissolution, may again create multiple risk and return characteristics for a given asset class. Securities held for a required minimum time period may be taxed at different, often more favorable rates. Assets ultimately gifted to charity or family members may be taxed favorably or not at all.

- **Investment Instruments.** Investment securities whose tax characteristics are easily recognizable and predictable today may change dramatically over time, through legislative initiative or tax authority interpretations.

### 5.2 Monte Carlo Simulation in Personal Retirement Planning

We describe Monte Carlo simulation in detail in the chapter on asset allocation. Here we focus on its applicability to personal retirement planning. With the introduction of Monte Carlo simulation methodologies, the technology of retirement planning for individuals now rivals that of corporate pension planning. Monte Carlo analysis is computer and data intensive, so its availability for personal retirement planning at affordable cost is a direct result of the availability of inexpensive
computing power. Such methodologies are now readily available to individual investors and their
investment managers, from a variety of vendors.\(^7\)

Monte Carlo simulation is the process by which probability “distributions” are arrayed to
create path-dependent scenarios to predict end-stage results.\(^8\) The methodology is useful when
trying to forecast future results that depend on multiple variables with various degrees of volatility.
Its use in projecting retirement wealth is valuable because the prediction of future wealth depends
on multiple factors (e.g., investment returns, inflation, etc.), each with a unique distribution of
probable outcomes. Monte Carlo simulation is generally superior to steady-state, or deterministic,
forecasting because it incorporates the consequences of variability across long-term assumptions
and the resulting path dependency effect on wealth accumulation. Merely using long-term averages
for capital market returns or inflation assumptions oversimplifies their variability and leads to the
clearly unrealistic implication of linear wealth accumulation. There is also an inherent assumption
when using deterministic forecasting that performance in future periods will more or less replicate
historical performance. Monte Carlo estimation, in contrast, allows for the input of probability
estimates over multiperiod time frames and generates a probability distribution of final values
rather than a single point estimate. This approach allows the investment advisor to view
projections of possible best- and worst-case scenarios and leads to better financial planning over
long time frames.

The ultimate objective of probabilistic approaches, such as Monte Carlo simulation, for
investment planning is to improve the quality of managers’ recommendations and investors’
decisions. A brief look at the distinction between traditional deterministic analysis and
probabilistic analysis reveals how the latter approach seeks to achieve that objective. In both
approaches, the individual supplies a similar set of personal information, including age, desired
retirement age, current income, savings, and assets in taxable, tax deferred, and tax-exempt
vehicles. In a deterministic analysis, single numbers are specified for interest rates, asset returns,
inflation, and similar economic variables. In a Monte Carlo or probabilistic analysis, a probability
distribution of possible values is specified for economic variables, reflecting the real-life
uncertainty about those variables’ future values.

Suppose an individual investor is 25 years away from her desired retirement age. A
deterministic retirement analysis produces single number estimates of outcomes for stated
objectives, such as retirement assets and retirement income at the end of 25 years. Using the same
inputs, a Monte Carlo analysis produces probability distributions for those objective variables by
tabulating the outcomes of a large number (often 10,000) of simulation trials, each trial
representing a possible 25-year experience. Each simulation trial incorporates a potential blend of
economic factors (interest rates, inflation, etc.), in which the blending reflects the economic
variables’ probability distributions.

Consequently, whereas deterministic analysis provides a yes/no answer concerning whether
the individual will reach a particular goal for retirement income, or perhaps retirement wealth,
mirroring a single set of economic assumptions, a Monte Carlo analysis provides a probability
estimate, as well as other detailed information, that allows the investor to better assess risk (for
example, percentiles for the distribution of retirement income). Thus Monte Carlo analysis is far
more informative about the risk associated with meeting objectives than deterministic analysis.

\(^7\) Wei Hu and Robert L. Young, CFA, of Financial Engines Inc. made important contributions to our presentation of
Monte Carlo simulation for retirement planning in this section.

\(^8\) Path dependency exists when the outcome in a given period is influenced or constrained by the outcomes of prior
events.

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The investor can then respond to such risk information by changing variables under her control. An advisory module may present a range of alternative asset allocations and the associated probabilities for reaching goals and objectives.

A probabilistic approach conveys several advantages to both investors and their investment advisors. First, a probabilistic forecast more accurately portrays the risk–return tradeoff than a deterministic approach. Until recently, advisors nearly exclusively used deterministic projections to inform their recommendations and communicate with their clients. Unfortunately, such projections cannot realistically model how markets actually behave. The probability of observing a scenario in which the market return is constant each year is effectively zero. Fundamentally, deterministic models answer the wrong question. The relevant question is not “How much money will I have if I earn 10 percent a year?” but rather “Given a particular investment strategy, what is the likelihood of achieving 10 percent a year?” By focusing on the wrong question, deterministic models can fail to illustrate the consequences of investment risk, producing, in effect, a misleading “return–return” tradeoff in investors’ minds whereby riskier strategies are always expected to produce superior long-term rewards.

In contrast, a probabilistic forecast vividly portrays the actual risk–return tradeoff. For example, an investor considering placing a higher percentage of his portfolio in equities might be told that the average forecast return of the S&P 500 Index is 13 percent. Given an average forecast money market return of 5 percent, it may seem obvious that more equity exposure is desirable. This choice, however, should take into account the risk that the S&P 500 will not achieve its average return every year. Moreover, the median simulation outcome of the S&P 500, using the average return of 13 percent, is likely to be substantially lower because of return volatility. For example, a 20-year forecast of $1,000 invested in the S&P 500, using a riskless average return of 13 percent, yields ending wealth of $11,500. If a simulation is performed assuming normally distributed returns with an annual standard deviation of 20 percent, the median wealth after 20 years is only $8,400. In addition, a simulation-based forecast shows that there is substantial downside risk: The fifth percentile of wealth after 20 years is only approximately $2,000, even before adjusting for inflation.

A second benefit of a probabilistic approach is that a simulation can give information on the possible tradeoff between short-term risk and the risk of not meeting a long-term goal. This tradeoff arises when an investor must choose between lowering short-term volatility on one hand and lowering the portfolio’s long-term growth because of lower expected returns on the other hand.

Third, as already discussed, taxes complicate investment planning considerably by creating a sequential problem in which buy and sell decisions during this period affect next-period decisions through the tax implications of portfolio changes. Through its ability to model a nearly limitless range of scenarios, Monte Carlo analysis can capture the variety of portfolio changes that can potentially result from tax effects.

Finally, an expected value of future returns is more complicated than an expected value of concurrent returns, even in the simplest case of independent and normally distributed returns. For concurrent returns, the expected portfolio return is simply the weighted sum of the individual expected returns, and the variance depends on the individual variances and covariances, leading to the benefits of diversification with lower covariances. In this case, the $1 invested is simply divided among several investment alternatives. The future return case, however, involves a multiplicative situation; for example, the expected two-period return is the product of one plus the expected values of the one-period returns, leading to the importance of considering expected geometric return. As Michaud (1981) demonstrates, the expected geometric return depends on the
horizon of the investment. The stochastic nature of the problem can be summarized by recognizing that the $1 invested now will then be reinvested in the next period and possibly joined by an additional $1 investment. This scenario clearly differs from the simple one-period case of spreading the dollar among several asset classes. Again, Monte Carlo analysis is well suited to model this stochastic process and its resulting alternative outcomes.

Monte Carlo simulation can be a useful tool for investment analysis but like any investment tool it can be used either appropriately or inappropriately. What should investors and managers know about a particular Monte Carlo product in order to be confident that it provides reliable information? Unfortunately, not all commercially available Monte Carlo products generate equally reliable results, so users should be aware of product differences that affect the quality of results.

First, any user of Monte Carlo should be wary of a simulation tool that relies only on historical data. History provides a view of only one possible path among the many that might occur in the future. As previously mentioned, it is difficult to estimate the expected return on an equity series using historical data, because the volatility of equity returns is large in relation to the mean. For example, suppose we are willing to assume that the expected return of the S&P 500 is equal to the average historical return. Annual data from 1926 through 1994 would yield an average return of 12.16 percent. Adding just five more years of data, however, would produce an average return of 13.28 percent. For a 20-year horizon, this relatively small adjustment in the input data would lead to a difference of more than 20 percent in ending wealth, given returns every year that were equal to the assumed average.

Second, a manager who wants to evaluate the likely performance of a client’s portfolio should choose a Monte Carlo simulation that simulates the performance of specific investments, not just asset classes. Although asset class movements can explain a large proportion of, for example, mutual fund returns, individual funds can differ greatly in terms of their performance, fees, fund-specific risk, and tax efficiency. Failing to recognize these factors can yield a forecast that is far too optimistic. As an example of how much fees can affect performance, consider the case of a hypothetical S&P 500 index fund that charges an annual fee of 60 basis points; expected return is 13 percent with annual standard deviation of 20 percent and normally distributed returns, and capital gains are taxed at 20 percent. A Monte Carlo simulation shows that a $1,000 investment will grow to a median after-tax wealth of $6,200 after 20 years, if that fund pays no short-term distributions. In contrast, an investor with access to an institutional fund that charges only 6 basis points will see her after-tax wealth grow to a median of $6,800 after 20 years.

Third, any Monte Carlo simulation used for advising real-world investors must take into account the tax consequences of their investments. Monte Carlo simulation must and can be flexible enough to account for specific factors such as individual-specific tax rates, the different treatment of tax-deferred versus taxable accounts, and taxes on short-term mutual fund distributions. To understand the importance of short-term income distributions, take the previous example of the institutionally priced index fund. If the same fund were to pay half of its annual return as a short-term distribution taxed at a rate of 35 percent, the $6,800 median wealth after 20 years would shrink to just $5,600.

Certainly, no forecasting tool is perfect, and Monte Carlo simulation has drawbacks that create challenges in relying on it solely as a window to the future. Inputting distributions in determining probability outcomes for the simulations can be biased by historical perspective and the perceptions of the analyst. The process can be quite rigorous and still produce estimates that vary widely from actual results.
6 SUMMARY

This chapter has presented an overview of portfolio management for individual investors, including the information-gathering process, situational and psychological profiling of clients, formulation of an investment policy statement, strategic asset allocation, and the use of Monte Carlo simulation in personal retirement planning.

• Situational profiling seeks to anticipate individual investors’ concerns and risk tolerance by specifying the investor’s source of wealth, measure or adequacy of wealth in relationship to needs, and stage of life.

• Psychological profiling addresses human behavioral patterns and personality characteristics and their effect on investment choices. It is particularly important in assessing risk tolerance.

• Underlying behavioral patterns often play an important role in setting individual risk tolerance and return objectives.

• Based on their responses to a questionnaire, individual investors may be classified into descriptive personality types, such as cautious, methodical, spontaneous, or individualist.

• Using the results of situational and psychological profiling, and the financial information gathered in the interviewing process, an advisor can formulate an investment policy statement.

• A carefully formulated IPS serves as the keystone to the relationship between investor and investment advisor. The process of creating an IPS mirrors the process of portfolio management. The policy statement reconciles investment goals with the realities of risk tolerance and investment constraints, resulting in operational guidelines for portfolio construction and a mutually agreed-upon basis for portfolio monitoring and review. By necessity, the investor and advisor must discuss the construction of an IPS in a linear fashion. In practice, the process is dynamic, similar to solving simultaneously for multiple variables.

• The return objective for an investment portfolio must ultimately be made consistent with the investor’s risk tolerance and the portfolio’s ability to generate returns. The traditional division of return requirements between “income” and “growth” objectives may seem intuitive, but these terms blur the distinction between return goals and risk tolerance. The “total return” approach seeks to identify a portfolio return that will meet the investor’s objectives without exceeding the portfolio’s risk tolerance or violating its investment constraints.

• Risk tolerance reflects both an investor’s ability and willingness to accept risk. Ability to accept risk is a probabilistic assessment of the investment portfolio’s ability to withstand negative investment outcomes and still meet the investor’s objectives. Willingness to accept risk is a more subjective assessment of the investor’s propensity for risk taking. Because many individuals are unfamiliar with the quantitative terminology of risk tolerance, the investment advisor may use psychological or situational profiling to anticipate client attitudes toward risk.

• Investment constraints include the following:

1. Liquidity. Liquidity needs may be categorized as ongoing expenses, emergency reserves, and negative liquidity events. Liquidity is the ease and price certainty with which assets can be converted into cash. Because assets with stable prices and low transaction costs are generally low-risk investments, an increasing need for liquidity will constrain the investment portfolio’s ability to accept risk. Significant illiquid holdings and their associated risks should be documented. For many investors, the home or residence represents a large percentage of total net worth and is relatively illiquid. Although the primary residence may be viewed as offsetting long-term needs for care and housing, it should be discussed as a source of investment risk and as a source of funding for future...
cash flow needs. The investor and advisor should together thoroughly review the risks associated with any concentration of net worth. Large “positive” liquidity events should also be documented, even though they will not act as a constraint.

2. **Time Horizon.** The investor’s time horizon also constrains his ability to accept risk; shorter investment horizons allow less time to make up portfolio losses. The time horizon constraint may be categorized as short term, intermediate term, or long term and as single stage or multistage. With sufficient assets and multigenerational estate planning, even older investors may retain a long-term investment perspective.

3. **Taxes.** The basic principles of tax deferral, avoidance, and reduction underlie all tax-driven portfolio strategies, but individual solutions are highly country specific and client specific. Taxes relevant to portfolio management generally fall into four major categories: income, gains, wealth transfer, and property.

4. **Legal and Regulatory Environment.** The investment portfolio’s legal and regulatory environment is ultimately country and client specific. A basic knowledge of English and American trust law is often valuable, however, as the terminology is widely recognized and the framework widely applied.

5. **Unique Circumstances.** The IPS should capture all unique investment considerations affecting the portfolio. Unique circumstances might include guidelines for social investing, trading restrictions, and privacy concerns.
   - As a general rule, only certain asset allocations will be consistent with the client’s return objectives, risk tolerance, and investment constraints. The advisor can use a process of elimination to arrive at an appropriate long-term strategic allocation.
   - For individual investors, investment decisions, including asset allocation, are made on an after-tax basis. This is a key distinction in contrast to tax-exempt institutions.
   - Monte Carlo simulation has certain advantages over deterministic approaches: It more accurately portrays risk–return trade-offs, can illustrate the trade-offs between the attainment of short-term and long-term goals, provides more realistic modeling of taxes, and is better suited to assessing multiperiod effects.
PROBLEMS

Problems 1 through 8 relate to the Inger family: father (Peter), mother (Hilda), son (Hans), and daughter (Christa) and her child (Jürgen). Peter is the founder and majority owner of IngerMarine.

Christa estimates that her revised annual living expenses, including a new studio and apartment, will average €132,500 (excluding Jürgen’s educational costs). If necessary, she could combine her apartment and studio to reduce spending by €32,500. She does not want her financial security to be dependent on further gifting from her parents and is pleased that, after the sale of IngerMarine, she will be able to meet her new living expenses with proceeds from art sales (€50,000) and the expected total return of the proposed investment portfolio (€82,500). Because of the uncertainty of art sales, Christa plans to establish an emergency reserve equal to one year’s living expenses. Her after-tax proceeds from the sale of IngerMarine are expected to be €1,200,000 \times (1 – 0.15) = €1,020,000. She also holds €75,000 in balanced mutual funds and €25,000 in a money market fund. Christa intends to reevaluate her policy statement and asset allocation guidelines every three years.

1. Discuss Christa’s liquidity requirements.

2. Determine Christa’s return requirement and evaluate whether her portfolio can be expected to satisfy that requirement if inflation averages 3 percent annually and she reduces her annual living expenses to €100,000 by combining her apartment and studio.

3. Explain why an analysis of Christa’s investment policy statement might become necessary before the next three-year review.

Hans’ increasingly irresponsible lifestyle has become a burden to his parents. Hans was recently arrested for reckless driving—he crashed his car into a restaurant, causing considerable damage and injuring a patron. As a result of Hans’ behavior, Peter has placed him on probationary leave of absence from IngerMarine but will allow him to retain his annual salary of €100,000. The restaurant patron is suing Hans for €700,000 in damages, and the restaurant owner estimates that it will take €500,000 to repair damages to his building. Hans’ insurance will cover costs to a maximum of only €200,000.

4. Assess the impact of these events on Hans’ liquidity and his personal financial statement. What course of action should he pursue?

5. Assess Hans’ probable future ability to assume risk, based on information about his background and current living situation.

Peter and Hilda are considering an investment of €1,000,000 in one of the following investment funds:

<table>
<thead>
<tr>
<th>Investment</th>
<th>Projected Income</th>
<th>Projected Price Appreciation</th>
<th>Projected Turnover</th>
</tr>
</thead>
</table>

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6. Evaluate each investment fund based only on its after-tax return. Note: Capital gains tax = Price appreciation × 15% × Turnover rate

IngerMarine has experienced a catastrophic event from which it cannot recover. Damage claims resulting from a design flaw are expected to leave IngerMarine bankrupt and its stock worthless. Peter’s pension is also lost.

7. Assess the probable impact on Peter’s and Hilda’s return requirement.

8. Assess the probable impact on Peter’s and Hilda’s portfolio constraints.

9. Adapted from the 2001 CFA Level III examination

James Stephenson, 55 years old and single, is a surgeon. He has accumulated a $2.0 million investment portfolio with a large concentration in small-capitalization U.S. equities. During the last five years, his portfolio has averaged a 20 percent annual total return on investment. Stephenson’s current portfolio of $2.0 million is invested as shown in Exhibit 9-1.

<table>
<thead>
<tr>
<th>Exhibit 9-1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Summary of Stephenson’s Current Portfolio</strong></td>
</tr>
<tr>
<td>Value</td>
</tr>
<tr>
<td>Short-term bonds</td>
</tr>
<tr>
<td>Domestic large-cap equities</td>
</tr>
<tr>
<td>Domestic small-cap equities</td>
</tr>
<tr>
<td><strong>Total portfolio</strong></td>
</tr>
</tbody>
</table>

His newly hired financial advisor, Caroline Coppa, has compiled the following notes from her meetings with Stephenson:

Stephenson hopes that long term, his investment portfolio will continue to earn 20 percent annually. For the remainder of this year, he would like to earn a return greater than the 5 percent yield to maturity currently available from short-term government notes. When asked about his risk tolerance, he described it as “average.” He was surprised when informed that U.S. small-cap portfolios have historically experienced extremely high volatility.

Stephenson does not expect to retire before age 70. His current annual income from his surgical practice is $250,000, which is more than sufficient to meet his current yearly expenses of $150,000. 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. He could not state any additional long-term goals or needs.
Stephenson’s 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.

Stephenson soon expects to receive an additional $2.0 million from an inheritance and plans to invest the entire amount in an index fund that best complements the current portfolio. Coppa is evaluating the four index funds shown in Exhibit 10-2 for their ability to produce a portfolio that will meet the following two criteria relative to the current portfolio:

- maintain or enhance expected return
- maintain or reduce volatility

Each fund is invested in an asset class that is not substantially represented in the current portfolio.

### Exhibit 9-2

**Index Fund Characteristics**

<table>
<thead>
<tr>
<th>Index Fund</th>
<th>Expected Annual Return</th>
<th>Expected Annual Standard Deviation</th>
<th>Correlation of Returns with Current Portfolio</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>15%</td>
<td>25%</td>
<td>+0.80</td>
</tr>
<tr>
<td>B</td>
<td>11%</td>
<td>22%</td>
<td>+0.60</td>
</tr>
<tr>
<td>C</td>
<td>16%</td>
<td>25%</td>
<td>+0.90</td>
</tr>
<tr>
<td>D</td>
<td>14%</td>
<td>22%</td>
<td>+0.65</td>
</tr>
</tbody>
</table>

A. Formulate the following elements of Stephenson’s investment policy statement and justify your response for each element with two arguments:

i. Return objective
ii. Risk tolerance
iii. Liquidity requirements
iv. Time horizon

B. State which fund Coppa should recommend to Stephenson. Justify your choice by describing how your chosen fund best meets both of the criteria set forth by Coppa. (No calculations are required.)

10. Adapted from the 2000 CFA Level III examination

Robert Taylor, 50 years old and a U.S. resident, recently retired and received a $500,000 cash payment from his employer as an early retirement incentive. He also obtained $700,000 by exercising his company stock options. Both amounts are net of tax. Taylor is not entitled to a pension; however, his medical expenses are covered by insurance paid for by his former employer. Taylor is in excellent health and has a normal life expectancy.

Taylor’s wife died last year after a long illness, which resulted in devastating medical expenses. All their investments, including a home, were liquidated to fully satisfy these medical expenses.
Taylor has no assets other than the $1,200,000 cash referenced above, and he has no debts. He plans to acquire a $300,000 home in three months and insists on paying cash given his recent adverse experience with creditors. When presented with investment options, Taylor consistently selects the most conservative alternative.

After settling into his new home, Taylor’s living expenses will be $2,000 per month and will rise with inflation. He does not plan to work again.

Taylor’s father and his wife’s parents died years ago. His mother, Renee, is 72 years old and in excellent physical health. Her mental health, however, is deteriorating and she has relocated to a long-term care facility. Renee’s expenses total $3,500 per month. Her monthly income is $1,500 from pensions. Her income and expenses will rise with inflation. She has no investments or assets of value. Taylor, who has no siblings, must cover Renee’s income shortfall.

Taylor has one child, Troy. Troy and a friend need funds immediately for a start-up business with first-year costs estimated at $200,000. The partners have no assets and have been unable to obtain outside financing. The friend’s family has offered to invest $100,000 in the business in exchange for a minority equity stake if Taylor agrees to invest the same amount.

Taylor would like to assist Troy; however, he is concerned about the partners’ ability to succeed, the potential loss of his funds, and whether his assets are sufficient to support his needs and to support Renee. He plans to make a decision on this investment very soon. If he invests $100,000 in Troy’s business, he insists that this investment be excluded from any investment strategy developed for his remaining funds.

With the above information, portfolio manager Sarah Wheeler prepared the investment policy statement for Taylor shown in Exhibit 10-1.

### Exhibit 10-1
Robert Taylor Investment Policy Statement

| Return objective | • Income requirement is $2,000 monthly.  
| • Total return requirement is 2.7% annually ($24,000/$900,000). |
| Risk tolerance | • Substantial asset base and low return requirement provide ample resources to support an aggressive, growth-oriented portfolio. |
| Time horizon | • Client is 50 years old, recently retired, and in excellent health.  
| • Time horizon exceeds 20 years. |
| Liquidity needs | • $300,000 is needed in three months for purchase of home.  
| • Modest additional cash is needed for normal relocation costs. $100,000 may be needed for possible investment in son’s business.  
| • A normal, ongoing cash reserve level should be established. |
| Tax concerns | • There is little need to defer income.  
| • Mother’s expenses may have an effect. |
| Legal and regulatory factors | • No special considerations exist. |
| Unique circumstances | • Client desires to support mother.  
| • Client insists that any investment in son’s business be excluded from long-term planning.  
| • Client has strong aversion to debt. |

A. Evaluate the appropriateness of Taylor’s investment policy statement with regard to the following objectives:
i. Return requirement  
ii. Risk tolerance  
iii. Time horizon  
iv. Liquidity requirements

After revising the investment policy statement and confirming it with Taylor, Wheeler is now developing a long-term strategic asset allocation for Taylor. Wheeler will use the following revised information to recommend one of the allocations in Exhibit 10-2.

- Taylor has decided to invest $100,000 in his son’s business but still insists that this investment be disregarded in making his allocation decision.
- Taylor’s total cash flow needs have changed to $4,200 a month.
- The available asset base is $800,000.
- Wheeler estimates that the inflation rate will be 1 percent next year.
- Taylor is determined to maintain the real value of his assets because he plans to set up a charitable foundation in the future.
- Taylor insists on taking no more risk than absolutely necessary to achieve his return goals.

<table>
<thead>
<tr>
<th>Asset Class Weighting</th>
<th>Allocation A</th>
<th>Allocation B</th>
<th>Allocation C</th>
<th>Allocation D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stocks</td>
<td>20%</td>
<td>40%</td>
<td>60%</td>
<td>80%</td>
</tr>
<tr>
<td>Bonds</td>
<td>75%</td>
<td>55%</td>
<td>35%</td>
<td>15%</td>
</tr>
<tr>
<td>Cash</td>
<td>5%</td>
<td>5%</td>
<td>5%</td>
<td>5%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Expected Annual</th>
<th>Allocation A</th>
<th>Allocation B</th>
<th>Allocation C</th>
<th>Allocation D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Return</td>
<td>6.7%</td>
<td>7.5%</td>
<td>8.2%</td>
<td>9.1%</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>9.0%</td>
<td>11.5%</td>
<td>15.3%</td>
<td>19.0%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Potential for Growth</th>
<th>Allocation A</th>
<th>Allocation B</th>
<th>Allocation C</th>
<th>Allocation D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asset Growth</td>
<td>Very low</td>
<td>Low</td>
<td>Moderate</td>
<td>High</td>
</tr>
<tr>
<td>Income Growth</td>
<td>Very low</td>
<td>Low</td>
<td>Moderate</td>
<td>High</td>
</tr>
<tr>
<td>Current Income</td>
<td>High</td>
<td>High</td>
<td>Low</td>
<td>Very low</td>
</tr>
<tr>
<td>Stability</td>
<td>Very high</td>
<td>High</td>
<td>Moderate</td>
<td>Low</td>
</tr>
</tbody>
</table>

B. Select the strategic asset allocation that is most appropriate for Taylor and justify your selection with two supporting reasons related to the revised information shown above.

11. Adapted from the 1999 CFA Level III examination
Mark and Andrea Mueller, U.S. residents, are reviewing their financial plan. The Muellers, both 53 years old, have one daughter, 18 years old. With their combined after-tax salaries totaling $100,000 a year, they are able to meet their living expenses and save $25,000 after taxes annually. They expect little change in either their incomes or expenses on an
inflation-adjusted basis other than the addition of their daughter’s college expenses. Their only long-term financial goal is to provide for themselves and for their daughter’s education. The Muellers both wish to retire in 10 years.

Their daughter, a talented musician, is now entering an exclusive five-year college program. This program requires a $50,000 contribution, payable now, to the college’s endowment fund. Thereafter, her tuition and living expenses, to be paid entirely by the Muellers, are estimated at $40,000 annually.

The Mueller’s personal investments total $600,000, and they plan to continue to manage the portfolio themselves. They prefer “conservative growth investments with minimal volatility.” One-third of their portfolio is in the stock of Andrea’s employer, a publicly traded technology company with a highly uncertain future. The shares have a very low-cost basis for tax purposes. The Muellers, currently taxed at 30 percent on income and 20 percent on net realized capital gains, have accumulated losses from past unsuccessful investments that can be used to fully offset $100,000 of future realized gains.

In 10 years, Mark will receive a distribution from a family trust. His portion is now $1.2 million and is expected to grow prior to distribution. Mark receives no income from the trust and has no influence over, or responsibility for, its management. The Muellers know that these funds will change their financial situation materially but have excluded the trust from their current financial planning.

A. Construct the objectives and constraints portion of an investment policy statement for the Muellers, addressing each of the following:
   i. Return objective
   ii. Risk tolerance
   iii. Time horizon
   iv. Liquidity requirements
   v. Tax concerns
   vi. Unique circumstances

Ten years have passed. The Muellers, now both aged 63, will retire this year. The distribution from Mark’s family trust will occur within the next two weeks. The Muellers’ current circumstances are summarized below:

Personal Circumstances and Assets
- Pension income will total $100,000 a year and will not increase with inflation.
- Annual expenses will total $180,000 initially and will increase with inflation.
- Inflation is expected to be 2 percent annually.
- Their personal investments now total $1,000,000 (excluding trust distribution).
- The Muellers will rely on this $1,000,000 portfolio to support their lifestyle and do not wish to reduce their level of spending.
- The Muellers have health problems and neither is expected to live more than 10 years. All health care expenses will be covered by employer-paid insurance.
- The Muellers’ daughter is now financially independent, and the Muellers’ sole investment objective is to meet their spending needs.
- The Muellers are not concerned with growing or maintaining principal. The income deficit may be met with both investment income and by invading principal.
Trust Distribution Assets

- The trust distribution totals $2,000,000 and will occur within the next two weeks. No tax liability is created by the distribution.
- The Muellers will maintain separate accounts for their personal assets and the trust distribution.
- They do not plan to withdraw income or principal.
- Tax liabilities produced by these assets will be paid from this portfolio.
- The Muellers plan to donate these assets to an arts society when the surviving spouse dies. They have made a minimum pledge of $2.6 million toward construction of a new building.
- An after-tax annual return of 5.4 percent is required over five years to meet the minimum pledge.
- The Muellers are concerned only that a minimum gift of $2.6 million is available. The Muellers assume that at least one of them will live at least five years and that neither will live more than 10 years.

Alternative portfolios for the Muellers’ consideration appear in Exhibit 11-1.

<table>
<thead>
<tr>
<th>Asset Allocation</th>
<th>Portfolio</th>
<th>Portfolio</th>
<th>Portfolio</th>
<th>Portfolio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic large-cap stocks</td>
<td>14%</td>
<td>30%</td>
<td>40%</td>
<td>30%</td>
</tr>
<tr>
<td>Domestic small-cap stocks</td>
<td>3</td>
<td>5</td>
<td>10</td>
<td>25</td>
</tr>
<tr>
<td>Foreign stocks</td>
<td>3</td>
<td>5</td>
<td>10</td>
<td>25</td>
</tr>
<tr>
<td>Intermediate-term fixed income</td>
<td>70</td>
<td>60</td>
<td>30</td>
<td>20</td>
</tr>
<tr>
<td>Cash equivalents</td>
<td>10</td>
<td>0</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

| Expected annual return<sup>a</sup> | 4.2%      | 5.8%      | 7.5%      | 8.5%      |
| Annual standard deviation        | 6.0%      | 8.0%      | 13.0%     | 18.0%     |

<sup>a</sup>Nominal after-tax returns

B. Select and justify with three reasons the most appropriate of the four portfolios from Exhibit 11-1 as an asset allocation for the Muellers’ $1,000,000 in personal assets.

C. Select and justify with three reasons the most appropriate of the four portfolios from Exhibit 11-1 as an asset allocation for the Muellers’ $2,000,000 in trust distribution assets.

12. Adapted from the 1997 CFA Level III examination

John Mesa, CFA, is a portfolio manager in the Trust Department of BigBanc. Mesa has been asked to review the investment portfolios of Robert and Mary Smith, a retired couple and potential clients. Previously, the Smiths had been working with another financial advisor, WealthMax Financial Consultants (WFC). To assist Mesa, the Smiths have provided the following background information:
**Family:** We live alone. Our only daughter and granddaughter are financially secure and independent.

**Health:** We are both 65 years of age and in good health. Our medical costs are covered by insurance.

**Housing:** Our house needs major renovation. The work will be completed within the next six months, at an estimated cost of $200,000.

**Expenses:** Our annual after-tax living costs are expected to be $150,000 for this year and are rising with inflation, which is expected to continue at 3 percent annually.

**Income:** In addition to income from the Gift Fund and the Family Portfolio (both described below), we receive a fixed annual pension payment of $65,000 (after taxes), which continues for both of our lifetimes.

**Financial Goals:** Our primary objective is to maintain our financial security and support our current lifestyle. A secondary objective is to leave $1 million to our grandchild and $1 million to our local college. We recently completed the $1 million gift to the college by creating a “Gift Fund.” Preserving the remaining assets for our granddaughter is important to us.

**Taxes:** Our investment income, including bond interest and stock dividends, is taxed at 30 percent. Our investment returns from price appreciation (capital gains) are taxed at 15 percent, at the time of sale. We have no other tax considerations.

**General Comments:** We needed someone like WFC to develop a comprehensive plan for us to follow. We can follow such a plan once it is prepared for us. We invest only in companies with which we are familiar. We will not sell a security for less than we paid for it. Given our need for income, we invest only in dividend-paying stocks.

**Investments:** We benefit from two investment accounts:

- The Gift Fund ($1 million) represents our gift to the college. During our lifetimes, we will receive fixed annual payments of $40,000 (tax free) from the Gift Fund. Except for the annual payments to us, the Gift Fund is managed solely for the benefit of the college—we may not make any other withdrawals of either income or principal. Upon our deaths, all assets remaining in the Gift Fund will be transferred into the college’s endowment.

- The Family Portfolio ($1.2 million) represents the remainder of our lifetime savings. The portfolio is invested entirely in very safe securities, consistent with the investment policy statement prepared for us by WFC as shown in Exhibit 12-1:

**Exhibit 12-1**

**WFC Investment Policy Statement for Smith Family Portfolio**

| The Smith Family Portfolio’s primary focus is the production of current income, with long-term capital appreciation a secondary consideration. The need for a dependable income stream precludes investment vehicles with even modest likelihood of losses. Liquidity needs reinforce the need to emphasize minimum-risk investments. Extensive use of short-term investment-grade investments is entirely justified by the expectation that a low-inflation environment will exist indefinitely into the future. For these reasons, investments will emphasize U.S. Treasury bills and notes, intermediate-term investment-grade corporate debt, and select “blue chip” stocks with assured dividend distributions and minimal price fluctuations. |
To assist in a discussion of investment policy, Mesa presents four model portfolios used by BigBanc; Exhibit 12-2 applies the bank’s long-term forecasts for asset class returns to each portfolio.

### Exhibit 12-2

<table>
<thead>
<tr>
<th>Asset Class</th>
<th>Total Return</th>
<th>Yield</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. large-cap stocks</td>
<td>13.0%</td>
<td>3.0%</td>
<td>0%</td>
<td>35%</td>
<td>45%</td>
<td>0%</td>
</tr>
<tr>
<td>U.S. small-cap stocks</td>
<td>15.0</td>
<td>1.0</td>
<td>0</td>
<td>5</td>
<td>15</td>
<td>0</td>
</tr>
<tr>
<td>Non-U.S. stocks</td>
<td>14.0</td>
<td>1.5</td>
<td>0</td>
<td>10</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td>U.S. corporate bonds (AA)</td>
<td>6.5</td>
<td>6.5</td>
<td>80</td>
<td>20</td>
<td>0</td>
<td>30</td>
</tr>
<tr>
<td>U.S. Treasury notes</td>
<td>6.0</td>
<td>6.0</td>
<td>0</td>
<td>10</td>
<td>5</td>
<td>20</td>
</tr>
<tr>
<td>Non-U.S. government bonds</td>
<td>6.5</td>
<td>6.5</td>
<td>0</td>
<td>5</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Municipal bonds (AA)</td>
<td>4.0</td>
<td>4.0</td>
<td>0</td>
<td>10</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Venture capital</td>
<td>20.0</td>
<td>0.0</td>
<td>0</td>
<td>0</td>
<td>10</td>
<td>25</td>
</tr>
<tr>
<td>U.S. Treasury bills</td>
<td>4.0</td>
<td>4.0</td>
<td>20</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**After-tax expected return**

4.2% 7.5% 13.0% 6.4%

**Sharpe ratio**

0.35 0.50 0.45 0.45

**After-tax yield**

4.2% 2.9% 1.9% 3.3%

*Expected inflation: 3.0%

**a**Tax-exempt

A. Prepare and justify an alternative investment policy statement for the Smiths’ Family Portfolio.

B. Describe how your IPS addresses three specific deficiencies in the WFC investment policy statement.

C. Recommend a portfolio from Exhibit 13-2 for the Family Portfolio. Justify your recommendation with specific reference to
   i. three portfolio characteristics in Exhibit 13-2 other than expected return or yield.
   ii. the Smiths’ return objectives. Show your calculations.

13. Adapted from the 2004 CFA Level III examination

Louise and Christopher Maclin live in London, United Kingdom, and currently rent an apartment in the metropolitan area. Christopher Maclin, aged 40, is a supervisor at Barnett Co. and earns an annual salary of £80,000 before taxes. Louise Maclin, aged 38, stays home to care for their newborn twins. She recently inherited £900,000 (after wealth-transfer taxes) in cash from her father’s estate. In addition, the Maclins have accumulated the following assets (current market value):

- £5,000 in cash
- £160,000 in stocks and bonds
- £220,000 in Barnett common stock

The value of their holdings in Barnett stock has appreciated substantially as a result of the company’s growth in sales and profits during the past ten years. Christopher Maclin is confident that the company and its stock will continue to perform well.
The Maclins need £30,000 for a down payment on the purchase of a house and plan to make a £20,000 non-tax deductible donation to a local charity in memory of Louise Maclin’s father. The Maclins’ annual living expenses are £74,000. After-tax salary increases will offset any future increases in their living expenses.

During discussions with their financial advisor, Grant Webb, the Maclins express concern about achieving their educational goals for their children and their own retirement goals. The Maclins tell Webb:

- They want to have sufficient funds to retire in 18 years when their children begin their four years of university education.
- They have been unhappy with the portfolio volatility they have experienced in recent years. They state that they do not want to experience a loss in portfolio value greater than 12 percent in any one year.
- They do not want to invest in alcohol and tobacco stocks.
- They will not have any additional children.

After their discussions, Webb calculates that in 18 years the Maclins will need £2 million to meet their educational and retirement goals. Webb suggests that their portfolio be structured to limit shortfall risk (defined as expected total return minus two standard deviations) to no lower than a negative 12 percent return in any one year. Maclin’s salary and all capital gains and investment income are taxed at 40 percent and no tax-sheltering strategies are available. Webb’s next step is to formulate an investment policy statement for the Maclins.

A. i. Formulate the risk objective of an investment policy statement for the Maclins.
   ii. Formulate the return objective of an investment policy statement for the Maclins.
   Calculate the pre-tax rate of return that is required to achieve this objective. Show your calculations.

B. Formulate the constraints portion of an investment policy statement for the Maclins, addressing each of the following:
   i. Time horizon
   ii. Liquidity requirements
   iii. Tax concerns
   iv. Unique circumstances

Note: Your response to Part B should not address legal and regulatory factors.
SOLUTIONS

1. Need for cash:
   - Ongoing expenses: €132,500/year
   - Emergency reserve: €132,500
   - Anticipated income: €50,000/year art sales
   - €82,500/year expected total return on portfolio (subject to risk)
   - €1,020,000 after taxes from sale of IngerMarine

   The after-tax proceeds from the imminent sale of IngerMarine well exceed her anticipated needs for cash for the coming year (2 × €132,500 = €265,000). Thus Christa’s liquidity needs are currently met. Because portfolio returns are risky and her anticipated annual income of €132,500 just covers her annual cash needs, however, Christa may face a challenge in the form of liquidity requirements at some point in the future.

2. After the sale of IngerMarine, Christa’s portfolio will have a market value of roughly €1,120,000, taking account of the after-tax proceeds from the sale of IngerMarine (€1,020,000), her balanced mutual funds (€75,000), and her money market fund (€25,000). Her expected portfolio return is €82,500, equal to a 7.4 percent rate of return. Her required real return, if she reduces her spending by combining her apartment and studio, is €50,000 (art sales of €50,000 less €100,000 expenses), or 4.5 percent as a rate of return on her portfolio.

   Because the portfolio’s expected return of 7.4 percent translates to a real return of approximately 4.4 percent (7.4 percent less 3 percent inflation), the portfolio is not expected to meet the return requirement of 4.5 percent.

3. Portfolio guidelines and investment policy should be reviewed whenever a significant change occurs in the underlying assumptions of the policy statement. At Christa’s portfolio performance reviews, the need for an interim reevaluation of the policy statement should always be considered. Possible triggers for a policy statement review might include the following:
   - A change in personal circumstances affecting risk–return objectives or portfolio constraints. Examples could include an increase in expected income from nonportfolio sources, uninsured health problems, or marriage.
   - A change in market conditions affecting long-term risk–return relationships among asset classes. Examples could include a shift in outlook for inflation and global political changes.
   - New investment markets or vehicles. Examples could include markets made accessible through commingled investment funds and Retirement Saving Accounts.
   - A change in tax laws. An example could be elimination of the capital gains tax.
   - A severe performance shortfall, sufficient to jeopardize the portfolio’s ability to meet expense needs in excess of income from other sources.

4. Hans’s reckless actions will significantly reduce his portfolio. Hopefully this incident will make him aware of his financial vulnerability and the long-term consequences of his actions. The potential costs of the accident have created an immediate need for liquidity. Currently, Hans has a diversified equity portfolio valued at €200,000 and cash of €100,000.
If he has not already done so, he should immediately use the cash to retain an attorney for his upcoming legal challenges. He should also make his financial advisor aware of his situation and instruct him or her to establish a high level of portfolio liquidity. Hans may need to convert a portion of his IngerMarine holdings to cash, if he can, and should notify his father of this possibility. Alternatively, Hans may be able to obtain a loan using IngerMarine shares as collateral. If the IngerMarine holdings cannot be monetized, Hans may be able to borrow against the equity in his home.

5. In light of the auto accident, Hans must reassess his investment portfolio. Assuming that the legal challenges against him are successful, he stands to lose €1,000,000 in savings (after insurance). In addition, his legal fees may be large, resulting in a further decline in net worth. His salary has not been reduced, but depending on the outcome of his legal troubles, he may face job termination. His investment personality profile classified Hans as a spontaneous risk-taker, and his propensity to engage in riskier investing will have to be reevaluated. Even though Hans is young, his ability to take risk has been severely curtailed by the recent incident. His net worth may be reduced by as much as half, and he faces the potential loss of his current income. Hans will now need to consider rebuilding his life, engaging in lower-risk investing until his contingent liabilities are settled.

6. Peter and Hilda are subject to a flat tax of 25 percent on all income and a capital gains tax of 15 percent. The analysis below presents comparative after-tax returns. Even though the High Growth Stock Fund maintains high portfolio turnover, its return is high enough to provide superior after-tax performance. Of course, a complete investment evaluation should also address the relative risk of each investment alternative. The High Growth Stock Fund is quite likely to have high portfolio volatility, and this factor must also be considered before a final decision is made.

<table>
<thead>
<tr>
<th>After-Tax Investment Evaluation</th>
<th>High-Growth Stock Fund</th>
<th>Equity Value Fund</th>
<th>Municipal Bond Fund</th>
</tr>
</thead>
<tbody>
<tr>
<td>Investment</td>
<td>€1,000,000</td>
<td>€1,000,000</td>
<td>€1,000,000</td>
</tr>
<tr>
<td>Projected income</td>
<td>€20,000</td>
<td>€25,000</td>
<td>€50,000</td>
</tr>
<tr>
<td>Projected price appreciation</td>
<td>€120,000</td>
<td>€100,000</td>
<td>€20,000</td>
</tr>
<tr>
<td>Projected income tax liability</td>
<td>(€5,000)</td>
<td>(€6,250)</td>
<td>€0</td>
</tr>
<tr>
<td>Projected capital gains tax liabilitya</td>
<td>(€13,500)</td>
<td>(€3,750)</td>
<td>(€450)</td>
</tr>
<tr>
<td>Net investment gains</td>
<td>€121,500</td>
<td>€115,000</td>
<td>€69,550</td>
</tr>
</tbody>
</table>

*Gains tax liability = Price appreciation × 15% × Turnover rate

7. Remaining investment portfolio:
   - Stocks   €750,000
   - Bonds    1,000,000
   - Cash     1,000,000
   - Gold     500,000
   - €3,250,000

   Additional resources:
   - Hilda’s trust distribution  €75,000/year

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The goal of replacing Peter’s €500,000 salary has become a “desired” portfolio return that is clearly not realistic. Peter and Hilda must now reconsider the return that they will “require” in order to meet their basic financial goals. The required return must be reconcilable with their new investment constraints and ability to assume risk. Before reaching an achievable return objective, Peter and Hilda will have to address some difficult decisions regarding their future lifestyle and long-term goals. Possible changes might include the following:

- Postpone retirement
- Attempt to rebuild IngerMarine
- Return to the workforce as consultants or salaried employees
- Sell home
- Curtail gifting programs
- Cancel plans for second home
- Cancel investment in Exteriors magazine
- Liquidate Hilda’s design company.

8. Portfolio Constraints

- **Liquidity.** The Ingers’ short-term liquidity needs have clearly increased. Because spending commitments are sometimes difficult to curtail, Peter and Hilda may need to withdraw as much as €500,000 in the coming year from their remaining assets, to pay for expenses previously covered by Peter’s salary. Fortunately, the Ingers have an emergency reserve of cash and bullion equivalent to approximately three years’ salary.

  The Ingers must ultimately reconcile their ongoing liquidity needs, as well as targeted liquidity events, with their remaining net worth. Left unchanged, the increased liquidity requirements will require an increasing allocation to investments with lower volatility and lower return. At the same time, withdrawals will begin to outstrip returns, leaving the Ingers’ portfolio in a deteriorating situation.

- **Time horizon.** Peter and Hilda’s investment time horizon has been shortened, as the increased need to secure their own financial future has left them less able to approach portfolio risk from a multigenerational perspective. Their joint life expectancy, however, would reasonably warrant a portfolio time horizon that is still long term (20 to 25 years or more).

- **Taxes.** Tax rates remain unchanged for the Ingers, although their tax burden will decline with the loss of Peter’s income. Their business loss from IngerMarine may be available to offset future investment gains.

- **Regulatory Environment.** The regulatory environment is unchanged.

- **Unique circumstances.** It would be appropriate to note the bankruptcy of IngerMarine and any consequences it might have for portfolio management, such as the allocation of portfolio assets to build a new family business.

9. A. i. **Return objective:** Stephenson’s expressed desire for 20 percent average annual return is unrealistic. Coppa should counsel Stephenson on the level of returns he can reasonably expect from the financial markets over long time periods and to
define an achievable return objective. Nevertheless, Stephenson’s circumstances support an above-average return objective that emphasizes capital appreciation. This formulation is justified by the following:

- Because Stephenson has a sizable asset base and ample income to cover his current spending, focus should be on growing the portfolio.
- Stephenson’s low liquidity needs and long time horizon support a long-term capital appreciation approach.
- Stephenson is in the consolidation phase of his life cycle and does not rely on the portfolio to meet living expenses.

Stephenson stated that he wants a return in excess of 5.0 percent for the remainder of the year. This short-term goal needs to be considered to the extent possible but should not be a significant factor in the IPS, which focuses on the client’s long-term return objective.

To maintain his lifestyle after retirement, Stephenson needs approximately $234,000 in inflation-adjusted after-tax income annually when he retires in 15 years [$150,000 × (1.03)$^{15} = $233,695]. Assuming he can achieve a 7 percent return (3% inflation + 4% real return = 7%), Stephenson will have $5.5 million in 15 years [$2 million × (1.07)$^{15} = $5.52 million]. Generating $234,000 from a $5.52 million asset base requires a 4.2 percent after-tax return.

ii. Risk Tolerance: Stephenson has an above-average risk tolerance.
- Although Stephenson describes his risk tolerance as “average,” his current investment portfolio indicates an apparent above-average willingness to take risk.
- His financial situation (large current asset base, ample income to cover expenses, lack of need for liquidity or cash flow, and long time horizon) indicates an above-average ability to assume risk.

iii. Liquidity Requirements: Stephenson’s liquidity needs are low.
- Stephenson has no regular cash flow needs from the portfolio because the income from his medical practice meets all current spending needs.
- No large, one-time cash needs are stated. It would be appropriate, however, to keep a small cash reserve for emergencies.

iv. Time Horizon: Stephenson’s time horizon is long term and consists of two stages:
- time until retirement, which he expects to be 15 years, and
- his lifetime following retirement, which could range from 15 to 20 years.

B. Fund D represents the single best addition to complement Stephenson’s current portfolio, given his selection criteria. First, Fund D’s expected return (14.0 percent) has the potential to increase the portfolio’s return somewhat. Second, Fund D’s relatively low correlation coefficient with his current portfolio (+0.65) indicates that it will provide larger diversification benefits than any of the other alternatives except Fund B. The result of adding Fund D should be a portfolio with about the same expected return and somewhat lower volatility compared with the original portfolio.

The three other funds have shortcomings in either expected return enhancement or volatility reduction through diversification benefits:
• Fund A offers the potential for increasing the portfolio’s return but is too highly correlated to provide substantial volatility reduction benefits through diversification.
• Fund B provides substantial volatility reduction through diversification benefits but is expected to generate a return well below the current portfolio’s return.
• Fund C has the greatest potential to increase the portfolio’s return but is too highly correlated to provide substantial volatility reduction benefits through diversification.

10. A. i. The IPS’s return objective section is inadequate.
• Although Wheeler accurately indicates Taylor’s personal income requirement, she has not recognized the need to support Renee.
• Wheeler does not indicate the need to protect Taylor’s purchasing power by increasing income by at least the rate of inflation over time.
• Wheeler does not indicate the impact of income taxes on the return requirement.
• Wheeler calculates required return based on assets of $900,000, appropriately excluding Taylor’s imminent $300,000 liquidity need (house purchase) from investable funds. However, Taylor may invest $100,000 in his son’s business. If he does, Taylor insists this asset be excluded from his plan. In that eventuality, Taylor’s asset base for purposes of Wheeler’s analysis would be $800,000.
• Assuming a $900,000 capital base, Wheeler’s total return estimate of 2.7 percent is lower than the actual required after-tax real return of 5.3 percent ($48,000/$900,000).

ii. The risk tolerance section is inappropriate.
• Wheeler fails to consider Taylor’s below-average willingness to assume risk as exemplified by his aversion to loss, his consistent preference for conservative investments, his adverse experience with creditors, and his desire not to work again.
• Wheeler fails to consider Taylor’s below-average ability to assume risk, which is based on his recent life changes, the size of his capital base, high personal expenses versus income, and expenses related to his mother’s care.
• Wheeler’s policy statement implies that Taylor has a greater willingness and ability to accept volatility (higher risk tolerance) than is actually the case. Based on Taylor’s need for an after-tax return of 5.3 percent, a balanced approach with both a fixed-income and growth component is more appropriate than an aggressive growth strategy.

iii. The time horizon section is partially appropriate.
• Wheeler accurately addresses the long-term time horizon based only on Taylor’s age and life expectancy.
• Wheeler fails to consider that Taylor’s investment time horizon is multistage. Stage 1 represents Renee’s life expectancy, during which time Taylor will supplement her income. Stage 2 begins at Renee’s death, concluding Taylor’s need to supplement her income, and ends with Taylor’s death.

iv. The liquidity section is partially appropriate.
• Wheeler addresses potential liquidity events.
• Wheeler fails to specifically consider ongoing expenses ($2,000/month for Taylor’s living expenses and $2,000/month to support his mother) relative to expected portfolio returns.
• The reference to a “normal, ongoing cash reserve” is vague. The reserve’s purpose and size should be specified.

B. Allocation B is most appropriate for Taylor. Taylor’s nominal annual return requirement is 6.3 percent, based on his cash flow (income) needs ($50,400 annually), to be generated from a current asset base of $800,000. After adjusting for expected annual inflation of 1.0 percent, the real return requirement becomes 7.3 percent. To grow to $808,000 ($800,000 \times 1.01$), the portfolio must generate $58,400 ($50,400 + $8,000) in the first year ($58,400/$800,000 = 7.3\%).

Allocation B meets Taylor’s minimum return requirement. Of the possible allocations that provide the required minimum real return, Allocation B also has the lowest standard deviation of returns (i.e., the least volatility risk) and by far the best Sharpe ratio. In addition, Allocation B offers a balance of high current income and stability with moderate growth prospects.

Allocation A has the lowest standard deviation and best Sharpe ratio but does not meet the minimum return requirement when inflation is included in that requirement. Allocation A also has very low growth prospects.

Allocation C meets the minimum return requirement and has moderate growth prospects but has a higher risk level (standard deviation) and a lower Sharpe ratio, as well as less potential for stability, than Allocation B.

11. **A.** The Muellers’ investment policy statement should include the following objectives and constraints.

   i. **Return objective:** The Muellers’ return objective should reflect a total return approach that combines capital appreciation and capital preservation. After retirement, they will need approximately $75,000 (adjusted for inflation) annually to maintain their current standard of living. Given the Muellers’ limited needs and asset base, preserving their financial position on an inflation-adjusted basis may be a sufficient objective. Their long life expectancy and undetermined retirement needs, however, lead to the likely requirement for some asset growth over time, at least to counter any effects of inflation.

   Although the Muellers wish to exclude the future trust distribution from their current planning, that distribution will substantially increase their capital base and dramatically alter the return objective of their future IPS, primarily by reducing their needed return level.

   ii. **Risk Tolerance:** The Muellers are in the middle stage of the investor life cycle. Their income (relative to expenses), total financial resources, and long time horizon give them the ability to assume at least an average, if not an above-average, level of investment risk. Their stated preference of “minimal volatility” investments, however, apparently indicates a below-average willingness to assume risk. The large realized losses they incurred in previous investments may contribute to their desire for safety. Also, their need for continuing cash outflow to meet their
daughter’s college expenses may temporarily and slightly reduce their risk-taking ability. In sum, the Muellers’ risk tolerance is average.

Two other issues affect the Muellers’ ability to take risk. First, the holding of Andrea’s company stock represents a large percentage of the Mueller’s total investable assets and thus is an important risk factor for their portfolio. Reducing the size of this holding or otherwise reducing the risk associated with a single large holding should be a priority for the Muellers. Second, the future trust distribution will substantially increase their capital base and thus increase their ability to assume risk.

iii. **Time Horizon:** Overall, the Muellers’ ages and long life expectancies indicate a long time horizon. They face a multistage horizon, however, because of their changing cash flow and resource circumstances. Their time horizon can be viewed as having three distinct stages: the next five years from now (some assets, negative cash flow because of their daughter’s college expenses), the following five years (some assets, positive cash flow), and beyond 10 years (increased assets from a sizable trust distribution, decreased income because they plan to retire).

iv. **Liquidity:** The Muellers need $50,000 now to contribute to the college’s endowment fund. Alternatively, they may be able to contribute $50,000 of Andrea’s low-cost-basis stock to meet the endowment obligation. In addition, they expect the regular annual college expenses ($40,000) to exceed their normal annual savings ($25,000) by $15,000 for each of the next five years. This relatively low cash flow requirement of 2.7 percent ($15,000/$550,000 asset base after $50,000 contribution) can be substantially met through income generation from their portfolio, further reducing the need for sizable cash reserves. Once their daughter completes college, the Muellers’ liquidity needs should be minimal until retirement because their income more than adequately covers their living expenses.

v. **Tax concerns:** The Muellers are subject to a 30 percent marginal tax rate for ordinary income and a 20 percent rate for realized capital gains. The difference in the rates makes investment returns in the form of capital gains preferable to equivalent amounts of taxable dividends and interest.

Although taxes on capital gains would normally be a concern to investors with low-cost-basis stock, this is not a major concern for the Muellers because they have a tax loss carryforward of $100,000. The Muellers can offset up to $100,000 in realized gains with the available tax loss carryforward without experiencing any cash outflow or any reduction in asset base.

vi. **Unique Circumstances:** The large holding of the low-basis stock in Andrea’s company, a “technology company with a highly uncertain future,” is a key factor to be included in the evaluation of the risk level of the Muellers’ portfolio and the future management of their assets. In particular, the family should systematically reduce the size of the investment in this single stock. Because of the existence of the tax loss carryforward, the stock position can be reduced by at least 50 percent (perhaps more depending on the exact cost basis of the stock) without reducing the asset base to pay a tax obligation.

In addition, the trust distribution in 10 years presents special circumstances for the Muellers, although they prefer to ignore these future assets in their current planning. The trust will provide significant assets to help meet their long-term
return needs and objectives. Any long-term investment policy for the family must consider this circumstance, and any recommended investment strategy must be adjusted before the distribution takes place.

B. **Personal Portfolio:** Portfolio A is the most appropriate portfolio for the Muellers. Because their pension income will not cover their annual expenditures, the shortfall will not likely be met by the return on their investments, so the 10 percent cash reserve is appropriate. As the portfolio is depleted over time, it may be prudent to allocate more than 10 percent to cash equivalents. The income deficit will be met each year by a combination of investment return and capital invasion.

   Now that their daughter is financially independent, the Mueller’s sole objective for their personal portfolio is to provide for their own living expenses. Their willingness and need to accept risk is fairly low. Clearly, there is no need to expose the Muellers to the possibility of a large loss. Also, their health situation has considerably shortened their time horizon. Therefore, a 70 percent allocation to intermediate-term high-grade fixed-income securities is warranted.

   The income deficit will rise each year as the Muellers’ expenses rise with inflation, but their pension income remains constant. The conservative 20 percent allocation to equities should provide diversification benefits and some protection against unanticipated inflation over the expected maximum 10-year time horizon.

   Portfolio B, the second-best portfolio, has no cash reserves, so it could not meet the Muellers’ liquidity needs. Also, although it has a higher expected return, Portfolio B’s asset allocation results in a somewhat higher standard deviation of returns than Portfolio A.

   Portfolios C and D offer higher expected returns but at markedly higher levels of risk and with relatively lower levels of current income. The Muellers’ large income requirements and low risk tolerance preclude the use of Portfolios C and D.

C. **Trust Distribution Portfolio:** Portfolio B is the most appropriate for the trust assets. Portfolio B’s expected return of 5.8 percent exceeds the required return of 5.4 percent, and the required return will actually decline if the surviving spouse lives longer than five years. The portfolio’s time horizon is relatively short, ranging from a minimum of 5 years to a maximum of 10 years. The Muellers’ sole objective for this money is to adequately fund the building addition. The portfolio’s growth requirements are modest, and the Muellers have below-average willingness to accept risk. The portfolio would be unlikely to achieve its objective if large, even short-term losses were absorbed during the minimum five-year time horizon. Except for taxes, no principal or income disbursements are expected for at least five years; therefore, only a minimal or even zero cash reserve is required. Accordingly, an allocation of 40 percent to equities to provide some growth and 60 percent to intermediate-term fixed-income to provide stability and capital preservation is appropriate.

   There is no second-best portfolio. Portfolio A’s cash level is higher than necessary, and the portfolio’s expected return is insufficient to achieve the $2,600,000 value within the minimum value in five years. Portfolio C has a
sufficient expected return, but it has a higher cash level than is necessary and, more importantly, a standard deviation of return that is too high given the Muellers’ below-average risk tolerance. Portfolio D has a sufficient return and an appropriate cash level but a clearly excessive risk (standard deviation) level. Portfolios C and D share the flaw of having excessive equity allocations that fail to recognize the relatively short time horizon and that generate risk levels much higher than necessary or warranted.

12. A. To prepare an appropriate IPS, a manager should address the Smiths’ return objective, risk tolerance, and constraints.

Return objective: To achieve its objectives, the Family Portfolio must provide for after-tax distributions equal to the difference between the Smiths’ expenses and their fixed income payments. To maintain its real value, the portfolio must also grow at a rate that offsets inflation’s impact on the Smiths’ total expenses, including those currently covered by the fixed pension and Gift Fund payments.

A secondary objective is the gifting of $1 million to the Smiths’ granddaughter. Because the Family Portfolio will be worth $1 million after the renovation of their house, the Smiths need no further capital growth to reach their nominal goal. To maintain its real value, the portfolio must have growth at least equal to the rate of inflation.

Risk tolerance: The Smiths are in a relatively late stage of the investor life cycle, and their comments suggest a conservative bias or below-average willingness to accept risk. In light of their long-term goals and current financial security, however, the Smiths have the ability to accommodate moderate portfolio volatility.

In the short term, the consequences of an adverse investment outcome are limited; the Smiths could use principal from the Family Portfolio to cover occasional performance shortfalls. They are thus able to accommodate some measure of short-term volatility in return for greater long-term expected returns. In extreme circumstances, the Smiths could modify or forgo their secondary objective of leaving $1 million to their granddaughter.

The consequences of an adverse portfolio outcome in the long term, however, could be serious. Depending on the length of their remaining lifetimes and the growth rate of their expenses, the Smiths could seriously deplete the corpus of the Family Portfolio and jeopardize their financial security.

The Smiths’ comments imply that they have spent a lifetime saving and building a “safe” collection of income-oriented investments. Their desire to preserve market value and the WealthMax Financial Consultants (WFC) policy statement’s emphasis on secure investments suggest that they may fall, at least partially, into the “cautious” category, a group with below-average risk tolerance.

Time horizon: The Family Portfolio should have an intermediate to slightly longer-term investment horizon.

The Smiths’ joint life expectancy, at 65 years of age, is still substantial. Because their objective of financial security is well provided for in the short term
(see discussion of risk tolerance), the Smiths can afford to focus more on the long-term aspects of that objective.

To the extent that the Smiths emphasize the objective of leaving $1 million to their granddaughter in their planning, a longer-term time horizon would be warranted.

Liquidity requirements: The Smiths’ current annual living costs ($150,000 after taxes) are being met, which allows them to address longer-term growth objectives. The Smiths must plan for the upcoming expense of renovating their home. Their Family Portfolio should anticipate the renovation costs by holding a reserve of at least $200,000 in highly liquid, short-term funds.

Laws and regulations: No special legal or regulatory problems are apparent.

Tax concerns: The Smiths must pay a higher tax on dividends and interest than on capital gains. All else being equal, therefore, they prefer portfolio returns in the form of capital gains rather than equivalent amounts of taxable investment income.

Unique circumstances: Establishment of the Gift Fund has increased the Smiths’ dependence on fixed payments. As a consequence of this increased exposure to the eroding effects of inflation, the Smith’s long-term financial security is significantly reduced.

Synopsis: The Smiths may not fully appreciate the impact of inflation and taxes on their financial security. The Family Portfolio can meet their immediate needs, but it is unlikely to grow at the same rate as disbursements. Depending on how long the Smiths live, the secondary objective of giving $1 million to their granddaughter may not be fully attainable, even in nominal terms.

B. Rather than a true policy statement, the WFC statement is a compendium of opinions and assertions that may or may not be supportable by evidence and may or may not be appropriate to the Smiths’ specific situation. WFC’s statement fails to
- identify specific return requirement.
- consider inflation.
- consider the Smiths’ willingness and ability to accept risk.
- consider the Smiths’ investment time horizon.
- specify the Smiths’ liquidity requirements.
- address the possibility of legal and regulatory constraints.
- consider tax concerns.
- consider possible unique circumstances.

C. i. Portfolio B is an appropriate recommendation based on three portfolio characteristics other than expected return and yield: diversification, efficiency (Sharpe ratio), and risk.
• Diversification across asset classes contributes to portfolio efficiency and is a desirable portfolio characteristic. Portfolio B appears to be the most broadly diversified.

• Efficiency, as measured by return for each unit of risk (Sharpe ratio), is a desirable portfolio characteristic. Portfolio B dominates the other portfolios on this criterion.

• Risk is an attribute that must be constrained to fit the Smiths’ fiscal and psychological tolerance levels. The 85 percent allocation to equities and venture capital in Portfolio C entails relatively high risk. Portfolio B, which is more balanced between fixed-income and equity markets, is better suited to the Smiths’ below-average risk profile.

ii. Meeting the Smiths’ return objectives in the first year will require an after-tax total return of 7.5 percent on the $1 million remaining in the Family Portfolio after their house renovation. The Family Portfolio must accommodate a disbursement of $45,000 and grow at a rate that offsets the impact of inflation:

<table>
<thead>
<tr>
<th>Expenses</th>
<th>($150,000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sources of funds</td>
<td></td>
</tr>
<tr>
<td>Pension (after tax)</td>
<td>65,000</td>
</tr>
<tr>
<td>Gift Fund (after tax)</td>
<td>105,000</td>
</tr>
<tr>
<td>Family Portfolio disbursement (after tax)</td>
<td>45,000</td>
</tr>
<tr>
<td>Total</td>
<td>$150,000</td>
</tr>
</tbody>
</table>

Required return

| Disbursement ($45,000) | 4.50% |
| Inflation | 3.00% |
| Total | 7.50% |

Subsequent distributions from the Family Portfolio will increase at a rate substantially higher than inflation (to offset the lack of growth in $105,000 of fixed pension and Gift Fund payments):

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 2</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expenses (3% growth)</td>
<td>$150,000</td>
<td>$154,500</td>
</tr>
<tr>
<td>Portfolio distribution</td>
<td>$45,000</td>
<td>49,500</td>
</tr>
</tbody>
</table>

Portfolios B and C both have expected returns that meet the Smiths’ projected disbursements in Year 1. Portfolio C’s expected return is closer to that necessary to meet their objective over a longer time frame. However, Portfolio C’s level of risk is too high given the Smiths’ risk tolerance. Although Portfolio C should allow the Smiths to both fund their lifetime real income needs and leave $1 million to their grandchild, the risk in Portfolio C may endanger both their income and the bequest.

The Smiths’ advisor should select Portfolio B based on its appropriate risk level and conformity with the Smiths’ constraints. As a consequence of Portfolio
B’s probable inability to meet the Smiths’ long-term spending needs, however, principal invasion may be necessary, and the secondary objective of giving $1 million, even in nominal terms, to their granddaughter may be forfeited.

13. A. i. The Maclins’ overall risk objective must consider both willingness and ability to take risk:

**Willingness:** The Maclins have a below-average willingness to take risk, based on their unhappiness with the portfolio volatility they have experienced in recent years and their desire not to experience a loss in portfolio value in excess of 12 percent in any one year.

**Ability:** The Maclins have an average ability to take risk. Although their fairly large asset base and long time horizon in isolation would suggest an above-average ability to take risk, their living expenses of £74,000 are significantly higher than Christopher’s after-tax salary of £80,000(1 – 0.40) = £48,000 causing them to be very dependent on projected portfolio returns to cover the difference and thereby reducing their ability to take risk.

**Overall:** The Maclins’ overall risk tolerance is below average, as their below-average willingness to take risk dominates their average ability to take risk in determining their overall risk tolerance.

ii. The Maclins’ return objective is to grow the portfolio to meet their educational and retirement needs as well as to provide for ongoing net expenses. The Maclins will require annual after-tax cash flows of £26,000 (calculated below) to cover ongoing net expenses and will need £2 million in 18 years to fund their children’s education and their retirement. To meet this objective, the Maclins’ pretax required return is 7.38 percent which is determined below.

The after-tax return required to accumulate £2 million in 18 years beginning with an investable asset base of £1,235,000 (calculated below) and with annual outflows of £26,000 is 4.427 percent, which when adjusted for the 40 percent tax rate, results in a 7.38 percent pretax return (4.427%/(1 – 0.40) = 7.38%).

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Christopher’s Annual Salary</td>
<td>£80,000</td>
</tr>
<tr>
<td>Less: Taxes (40%)</td>
<td>−32,000</td>
</tr>
<tr>
<td>Living Expenses</td>
<td>−74,000</td>
</tr>
<tr>
<td>Net Annual Cash Flow</td>
<td>−£26,000</td>
</tr>
<tr>
<td>Inheritance</td>
<td>900,000</td>
</tr>
<tr>
<td>Barnett Co. Common Stock</td>
<td>220,000</td>
</tr>
<tr>
<td>Stocks and Bonds</td>
<td>160,000</td>
</tr>
<tr>
<td>Cash</td>
<td>5,000</td>
</tr>
<tr>
<td>Subtotal</td>
<td>£1,285,000</td>
</tr>
</tbody>
</table>

Less One-time Needs:
- Down Payment on House: −30,000
- Charitable Donation: −20,000
- Investable Asset Base: £1,235,000

*Note:* No inflation adjustment is required in the return calculation because increases in living expenses will be offset by increases in Christopher’s salary.
B. The Maclins’ investment policy statement should include the following constraints:
   i. **Time horizon.** The Maclins have a two-stage time horizon, because of their changing cash flow and resource needs. The first stage is the next 18 years. The second stage begins with their retirement and the university education years for their children.
   ii. **Liquidity requirements.** The Maclins have one-time immediate expenses totaling £50,000 that include the deposit on the house they are purchasing and the charitable donation in honor of Louise’s father.
   iii. **Tax concerns.** A 40 percent tax rate applies to both ordinary income and capital gains.
   iv. **Unique circumstances.** The large holding of the Barnett Co. common stock represents almost 18 percent of the Maclins’ investable asset base. The concentrated holding in Barnett Co. stock is a key risk factor of the Maclins’ portfolio and achieving better diversification will be a factor in the future management of the Maclins’ assets.

The Maclins’ desire not to invest in alcohol and tobacco stocks is another constraint on investment.