

BASICS OF PORTFOLIO PLANNING AND CONSTRUCTION

Alistair Byrne, PhD, CFA
Frank E. Smudde, MSc, CFA

LEARNING OUTCOMES

The candidate should be able to:

- describe the reasons for a written investment policy statement (IPS);
- describe the major components of an IPS;
- describe risk and return objectives and how they may be developed for a client;
- distinguish between the willingness and the ability (capacity) to take risk in analyzing an investor's financial risk tolerance;
- describe the investment constraints of liquidity, time horizon, tax concerns, legal and regulatory factors, and unique circumstances and their implications for the choice of portfolio assets;
- explain the specification of asset classes in relation to asset allocation;
- describe the principles of portfolio construction and the role of asset allocation in relation to the IPS;
- describe how environmental, social, and governance (ESG) considerations may be integrated into portfolio planning and construction.

1. INTRODUCTION

To build a suitable portfolio for a client, investment advisers should first seek to understand the client's investment goals, resources, circumstances, and constraints. Investors can be

categorized into broad groups based on shared characteristics with respect to these factors (e.g., various types of individual investors and institutional investors). Even investors within a given type, however, will invariably have a number of distinctive requirements. In this chapter, we consider in detail the planning for investment success based on an individualized understanding of the client.

This chapter is organized as follows: Section 2 discusses the investment policy statement, a written document that captures the client's investment objectives and the constraints. Section 3 discusses the portfolio construction process, including the first step of specifying a strategic asset allocation for the client. Section 4 concludes and summarizes the chapter.

2. PORTFOLIO PLANNING

Portfolio planning can be defined as a program developed in advance of constructing a portfolio that is expected to define the client's investment objectives. The written document governing this process is the investment policy statement (IPS). The IPS is sometimes complemented by a document outlining policy on **sustainable investing**—distinguishing between companies (or sectors) that either can or cannot efficiently manage their financial, environmental, and human capital resources to generate attractive long-term profitability.¹ Policies on sustainable investing may also be integrated within the IPS itself. In the remainder of this chapter, the integration of sustainable investing within the IPS will be our working assumption.

2.1. The Investment Policy Statement

The IPS is the starting point of the portfolio management process. Without a full understanding of the client's situation and requirements, it is unlikely that successful results will be achieved. "Success" can be defined as a client achieving his or her important investment goals using means that he or she is comfortable with (in terms of risks taken and other concerns). The IPS essentially communicates a plan for achieving investment success.

The IPS is typically developed following a fact-finding discussion with the client. This fact-finding discussion can include the use of a questionnaire designed to articulate the client's risk tolerance as well as specific circumstances. In the case of institutional clients, the fact finding may involve asset–liability management studies, identification of liquidity needs, and a wide range of tax and legal considerations.

The IPS can take a variety of forms.² A typical format will include the client's investment objectives and the constraints that apply to the client's portfolio.

The client's objectives are specified in terms of risk tolerance and return requirements. These must be consistent with each other: a client is unlikely to be able to find a portfolio

¹In practice, the term "sustainable investing" is sometimes synonymous with "responsible investing" or "socially responsible investing."

²In this chapter, an IPS is assumed to be a document governing investment management activities covering all or most of the financial wealth of a client. In many practical contexts, investment professionals work with investment mandates that only cover parts of a client's wealth or financial risk. Governance documents such as "Limited Partnership Agreements" and "Investment Management Agreements" will govern such mandates. Their contents are to a large degree comparable to the contents of the IPS as described in this chapter.

that offers a relatively high expected return without taking on a relatively high level of expected risk. As part of their financial planning, clients may specify specific spending goals, each of which could have different risk tolerance and return objectives.

The constraints section covers factors that need to be taken into account when constructing a portfolio for the client that meets the objectives. The typical categories are liquidity requirements, time horizon, regulatory requirements, tax status, and unique needs. The constraints may be internal (i.e., set by the client), or external (i.e., set by law or regulation). These are discussed in detail below.

Having a well-constructed IPS for all clients should be standard procedure for an investment manager. The investment manager should build the portfolio with reference to the IPS and be able to refer to it to assess the suitability of a particular investment for the client. In some cases, the need for the IPS goes beyond simply being a matter of standard procedure. In some countries, the IPS (or an equivalent document) is a legal or regulatory requirement. For example, UK pension schemes must have a statement of investment principles under the Pensions Act 1995 (Section 35), and this statement is in essence an IPS. The UK Financial Services Authority also has requirements for investment firms to “know their customers.” The European Union’s Markets in Financial Instruments Directive (“MiFID”) requires firms to assign clients to categories, such as eligible counterparties, institutional clients, and retail clients.

In the case of an institution, such as a pension plan or university endowment, the IPS may set out the governance arrangements that apply to the investment funds. For example, this information could cover the investment committee’s approach to appointing and reviewing investment managers for the portfolio, and the discretion that those managers have.

The IPS should be reviewed on a regular basis to ensure that it remains consistent with the client’s circumstances and requirements. For example, the UK Pensions Regulator suggests that a pension scheme’s statements of investment principles—a form of IPS—should be reviewed at least every three years. The IPS should also be reviewed if the manager becomes aware of a material change in the client’s circumstances, or on the initiative of the client when his or her objectives, time horizon, or liquidity needs change.

2.2. Major Components of an IPS

There is no single standard format for an IPS. Many IPS and investment governance documents with a similar purpose (as noted previously), however, include the following sections:

- *Introduction.* This section describes the client.
- *Statement of Purpose.* This section states the purpose of the IPS.
- *Statement of Duties and Responsibilities.* This section details the duties and responsibilities of the client, the custodian of the client’s assets, and the investment managers.
- *Procedures.* This section explains the steps to take to keep the IPS current and the procedures to follow to respond to various contingencies.
- *Investment Objectives.* This section explains the client’s objectives in investing.
- *Investment Constraints.* This section presents the factors that constrain the client in seeking to achieve the investment objectives.

- *Investment Guidelines.* This section provides information about how policy should be executed (e.g., on the permissible use of leverage and derivatives) and on specific types of assets excluded from investment, if any.
- *Evaluation and Review.* This section provides guidance on obtaining feedback on investment results.
- *Appendices:* (A) Strategic Asset Allocation (B) Rebalancing Policy. Many investors specify a strategic asset allocation (SAA), also known as the policy portfolio, which is the baseline allocation of portfolio assets to asset classes in view of the investor's investment objectives and the investor's policy with respect to rebalancing asset class weights. This SAA may include a statement of policy concerning hedging risks such as currency risk and interest rate risk.

The sections that are most closely linked to the client's distinctive needs, and probably the most important from a planning perspective, are those dealing with investment objectives and constraints. An IPS focusing on these two elements has been called an IPS in an "objectives and constraints" format.

In the following sections, we discuss the investment objectives and constraints format of an IPS beginning with risk and return objectives. The process of developing the IPS is the basic mechanism for evaluating and trying to improve an investor's overall expected return-risk stance. In a portfolio context, return objectives and expectations must be tailored to be consistent with risk objectives. The risk and return objectives must also be consistent with the constraints that apply to the portfolio. In recent years, a large proportion of investors explicitly included non-financial considerations when formulating their investment policies. This is often referred to as sustainable investing (which we discussed earlier, as well as related terms) whereby environmental, social, and governance (ESG) considerations are reflected. Sustainable investing both recognizes that ESG considerations may eventually affect the financial risk-return profile of the portfolio and expresses societal convictions of the investor. In a survey by CFA Institute,³ 73% of respondents indicated they take ESG factors in consideration in their investment decisions on behalf of their clients. In this chapter, we discuss sustainable investing aspects of investment policy, where relevant.

2.2.1. Risk Objectives

When constructing a portfolio for a client, it is important to ensure that the risk of the portfolio is suitable for the client. The IPS should state clearly the risk tolerance of the client. Risk objectives are specifications for portfolio risk that reflect the risk tolerance of the client. Quantitative risk objectives can be absolute or relative or a combination of the two.

Examples of an absolute risk objective would be a desire not to suffer any loss of capital or not to lose more than a given percent of capital in any 12-month period. Note that these objectives are not related to investment market performance, good or bad, and are absolute in the sense of being self-standing. The fulfillment of such objectives could be achieved by not taking any risk; for example, by investing in an insured bank certificate of deposit at a creditworthy bank. If investments in risky assets are undertaken, however, such statements would need to be restated as a probability statement to be operational (i.e., practically useful). For example, the desire not to lose more than 4 percent of capital in any 12-month period

³*Environmental, Societal, and Governance Issues in Investing: A Guide for Investment Professionals*, CFA Institute, 2015

might be restated as an objective that with 95 percent probability the portfolio not lose more than 4 percent in any 12-month period. Measures of absolute risk include the variance or standard deviation of returns and value at risk.⁴

Some clients may choose to express relative risk objectives, which relate risk relative to one or more benchmarks perceived to represent appropriate risk standards. For example, investments in large-cap UK equities could be benchmarked to an equity market index, such as the FTSE 100 Index. The S&P 500 Index could be used as a benchmark for large-cap US equities, or for investments with cash-like characteristics, the benchmark could be an interest rate such as Libor or a Treasury bill rate. For risk relative to a benchmark, the measure could be tracking risk, or tracking error.⁵ In practice, such risk objectives are used in situations where the total wealth management activities on behalf of a client are divided into partial mandates.

For institutional clients, the benchmark may be linked to some form of liability the institution has. For example, a pension plan must meet the pension payments as they come due and the risk objective will be to minimize the probability that it will fail to do so. A related return objective might be to outperform the discount rate used in finding the present value of liabilities over a multi-year time horizon.

When a policy portfolio (that is, a specified set of long-term asset class weightings and hedge ratios) is used, the risk objective may be expressed as a desire for the portfolio return to be within a band of plus or minus X percent of the benchmark return calculated by assigning an index or benchmark to represent each asset class present in the policy portfolio. Again, this objective has to be interpreted as a statement of probability; for example, a 95 percent probability that the portfolio return will be within X percent of the benchmark return over a stated time period. Example 1 reviews this material.

EXAMPLE 1 Types of Risk Objectives

A Japanese institutional investor has a portfolio valued at ¥10 billion. The investor expresses his first risk objective as a desire not to lose more than ¥1 billion in the coming 12-month period. The investor specifies a second risk objective of achieving returns within 4 percent of the return to the TOPIX stock market index, which is the investor's benchmark. Based on this information, address the following:

1. A. Characterize the first risk objective as absolute or relative.
B. Give an example of how the risk objective could be restated in a practical manner.
2. A. Characterize the second risk objective as absolute or relative.
B. Identify a measure for quantifying the risk objective.

⁴**Value at risk** is a money measure of the minimum value of losses expected during a specified time period at a given level of probability.

⁵**Tracking risk** (sometimes called **tracking error**) is the standard deviation of the differences between a portfolio's returns and its benchmark's returns.

Solutions:

1. A. This is an absolute risk objective.
B. This risk objective could be restated in a practical manner by specifying that the 12-month 95 percent value at risk of the portfolio must not be more than ¥1 billion.
2. A. This is a relative risk objective.
B. This risk objective could be quantified using the tracking risk as a measure. For example, assuming returns follow a normal distribution, an expected tracking risk of 2 percent would imply a return within 4 percent of the index return approximately 95 percent of the time. Remember that tracking risk is stated as a one standard deviation measure.

A client's overall risk tolerance is a function of the client's ability to bear (accept) risk and his or her "risk attitude," which might be considered as the client's willingness to take risk. For ease of expression, from this point on we will refer to ability to bear risk and willingness to take risk as the two components of risk tolerance. Above average ability to bear risk and above average willingness to take risk imply above average risk tolerance. Below average ability to bear risk and below average willingness to take risk imply below average risk tolerance. These interactions are shown in Exhibit 1.

EXHIBIT 1. Risk Tolerance

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

The *ability* to bear risk is measured mainly in terms of objective factors, such as time horizon, expected income, and the level of wealth relative to liabilities. For example, an investor with a 20-year time horizon can be considered to have a greater ability to bear risk, other things being equal, than an investor with a 2-year horizon. This difference is because over 20 years there is more scope for losses to be recovered or other adjustments to circumstances to be made than there is over two years.

Similarly, an investor whose assets are comfortably in excess of their liabilities has more ability to bear risk than an investor whose wealth and expected future expenditure are more closely balanced. For example, a wealthy individual who can sustain a comfortable lifestyle after a very substantial investment loss has a relatively high ability to bear risk. A pension plan that has a large surplus of assets over liabilities has a relatively high ability to bear risk.

The *willingness* to take risk, or risk attitude, is a more subjective factor based on the client's psychology and perhaps also his or her current circumstances. Although the list of factors that are related to an individual's risk attitude remains open to debate, it is believed that some psychological factors, such as personality type, self-esteem, and inclination to independent thinking, are correlated with risk attitude. Some individuals are comfortable

taking financial and investment risk, whereas others find it distressing. Although there is no single agreed-upon method for measuring risk tolerance, a willingness to take risk may be gauged by discussing risk with the client or by asking the client to complete a psychometric questionnaire. For example, financial planning academic John Grable and collaborators have developed 13-item and 5-item risk attitude questionnaires that have undergone some level of technical validation. The five-item questionnaire is shown in Exhibit 2.

EXHIBIT 2. A Five-Item Risk Assessment Instrument

1. Investing is too difficult to understand.
 - a. Strongly agree
 - b. Tend to agree
 - c. Tend to disagree
 - d. Strongly disagree
2. I am more comfortable putting my money in a bank account than in the stock market.
 - a. Strongly agree
 - b. Tend to agree
 - c. Tend to disagree
 - d. Strongly disagree
3. When I think of the word “risk” the term “loss” comes to mind immediately.
 - a. Strongly agree
 - b. Tend to agree
 - c. Tend to disagree
 - d. Strongly disagree
4. Making money in stocks and bonds is based on luck.
 - a. Strongly agree
 - b. Tend to agree
 - c. Tend to disagree
 - d. Strongly disagree
5. In terms of investing, safety is more important than returns.
 - a. Strongly agree
 - b. Tend to agree
 - c. Tend to disagree
 - d. Strongly disagree

Source: Grable and Joo (2004).

The responses, a), b), c), and d), are coded 1, 2, 3, and 4, respectively, and summed. The lowest score is 5 and the highest score is 20, with higher scores indicating greater risk tolerance. For two random samples drawn from the faculty and staff of large US universities ($n = 406$), the mean score was 12.86 with a standard deviation of 3.01 and a median (i.e., most frequently observed) score of 13.

Note that a question, such as the first one in Exhibit 2, indicates that risk attitude may be associated with non-psychological factors (such as level of financial knowledge and understanding and decision-making style) as well as psychological factors.

The adviser needs to examine whether a client's ability to accept risk is consistent with the client's willingness to take risk. For example, a wealthy investor with a 20-year time horizon, who is thus able to take risk, may also be comfortable taking risk; in this case the factors are consistent. If the wealthy investor has a low willingness to take risk, there would be a conflict.

In the institutional context, there could also be conflict between ability and willingness to take risk. In addition, different stakeholders within the institution may take different views. For example, the trustees of a well-funded pension plan may desire a low-risk approach to safeguard the funding of the scheme and beneficiaries of the scheme may take a similar view. The sponsor, however, may wish a higher-risk/higher-return approach in an attempt to reduce future funding costs. When a trustee bears a fiduciary responsibility to pension beneficiaries and the interests of the pension sponsor and the pension beneficiaries conflict, the trustee should act in the best interests of the beneficiaries.

When ability to take risk and willingness to take risk are consistent, the investment adviser's task is the simplest. When ability to take risk is below average and willingness to take risk is above average, the investor's risk tolerance should be assessed as below average overall. When ability to take risk is above average but willingness is below average, the portfolio manager or adviser may seek to counsel the client and explain the conflict and its implications. For example, the adviser could outline the reasons why the client is considered to have a high ability to take risk and explain the likely consequences, in terms of reduced expected return, of not taking risk. The investment adviser, however, should not aim to change a client's willingness to take risk that is not a result of a miscalculation or misperception. Modification of elements of personality is not within the purview of the investment adviser's role. The prudent approach is to reach a conclusion about risk tolerance consistent with the lower of the two factors (ability and willingness) and to document the decisions made.

Example 2 is the first of a set that follows the analysis of an investment client through the preparation of the major elements of an IPS.

EXAMPLE 2 The Case of Henri Gascon: Risk Tolerance

Henri Gascon is an energy trader who works for a major French oil company based in Paris. He is 30 years old and married with one son, aged 5. Gascon has decided that it is time to review his financial situation and consults a financial adviser. The financial adviser notes the following aspects of Gascon's situation:

- Gascon's annual salary of €250,000 is more than sufficient to cover the family's outgoings.
- Gascon owns his apartment outright and has €1,000,000 of savings.
- Gascon perceives that his job is reasonably secure.
- Gascon has a good knowledge of financial matters and is confident that equity markets will deliver positive returns over the longer term.

- In the risk tolerance questionnaire, Gascon strongly disagrees with the statements that “making money in stocks and bonds is based on luck” and that “in terms of investing, safety is more important than returns.”
- Gascon expects that most of his savings will be used to fund his retirement, which he hopes to start at age 50.

Based only on the information given, which of the following statements is *most* accurate?

- A. Gascon has a low ability to take risk, but a high willingness to take risk.
- B. Gascon has a high ability to take risk, but a low willingness to take risk.
- C. Gascon has a high ability to take risk, and a high willingness to take risk.

Solution: C is correct. Gascon has a high income relative to outgoings, a high level of assets, a secure job, and a time horizon of 20 years. This information suggests a high *ability* to take risk. At the same time, Gascon is knowledgeable and confident about financial markets and responds to the questionnaire with answers that suggest risk tolerance. This result suggests he also has a high *willingness* to take risk.

EXAMPLE 3 The Case of Jacques Gascon: Risk Tolerance

Henri Gascon is so pleased with the services provided by the financial adviser, that he suggests to his brother Jacques that he should also consult the adviser. Jacques thinks it is a good idea. Jacques is a self-employed computer consultant also based in Paris. He is 40 years old and divorced with four children, aged between 12 and 16. The financial adviser notes the following aspects of Jacques' situation:

- Jacques' consultancy earnings average €40,000 per annum, but are quite volatile.
- Jacques is required to pay €10,000 per year to his ex-wife and children.
- Jacques has a mortgage on his apartment of €100,000 and €10,000 of savings.
- Jacques has a good knowledge of financial matters and expects that equity markets will deliver very high returns over the longer term.
- In the risk tolerance questionnaire, Jacques strongly disagrees with the statements “I am more comfortable putting my money in a bank account than in the stock market” and “When I think of the word “risk” the term “loss” comes to mind immediately.”
- Jacques expects that most of his savings will be required to support his children at university.

Based on the above information, which statement is correct?

- A. Jacques has a low ability to take risk, but a high willingness to take risk.
- B. Jacques has a high ability to take risk, but a low willingness to take risk.
- C. Jacques has a high ability to take risk, and a high willingness to take risk.

Solution: A is correct. Jacques does not have a particularly high income, his income is unstable, and he has reasonably high outgoings for his mortgage and maintenance payments. His investment time horizon is approximately two to six years given the ages

of his children and his desire to support them at university. This finely balanced financial situation and short time horizon suggests a low ability to take risk. In contrast, his expectations for financial market returns and risk tolerance questionnaire answers suggest a high willingness to take risk. The financial adviser may wish to explain to Jacques how finely balanced his financial situation is and suggest that, despite his desire to take more risk, a relatively cautious portfolio might be the most appropriate approach to take.

2.2.2. Return Objectives

A client's return objectives can be stated in a number of ways. Similar to risk objectives, return objectives may be stated on an absolute or a relative basis.

As an example of an absolute objective, the client may want to achieve a particular percentage rate of return, for example, X percent. This could be a nominal rate of return or be expressed in real (inflation-adjusted) terms.

Alternatively, the return objective can be stated on a relative basis, for example, relative to a benchmark return. The benchmark could be an equity market index, such as the S&P 500 or the FTSE 100, or a cash rate of interest such as Libor. A relative return objective might be stated as, for example, a desire to outperform the benchmark index by one percentage point per year.

Some institutions also set their return objective relative to a peer group or universe of managers; for example, an endowment aiming for a return that is in the top 50 percent of returns of similar institutions, or a private equity mandate aiming for returns in the top quartile among the private equity universe. This objective can be problematic when limited information is known about the investment strategies or the returns calculation methodology being used by peers, and we must bear in mind the impossibility of *all* institutions being "above average." Furthermore, a good benchmark should be investable—that is, able to be replicated by the investor—and a peer benchmark typically does not meet that criterion.

In each case, the return requirement can be stated before or after fees. Care should be taken that the fee basis used is clear and understood by both the manager and client. The return can also be stated on either a pre- or post-tax basis when the investor is required to pay tax. For a taxable investor, the baseline is to state and analyze returns on an after-tax basis.

The return objective could be a required return—that is, the amount the investor needs to earn to meet a particular future goal—such as a certain level of retirement income.

The manager or adviser must ensure that the return objective is realistic. Care should be taken that client and manager are in agreement on whether the return objective is nominal (which is more convenient for measurement purposes) or real (i.e., inflation-adjusted, which usually relates better to the objective). It must be consistent with the client's risk objective (high expected returns are unlikely to be possible without high levels of risk) and also with the current economic and market environment. For example, 15 percent nominal returns might be possible when inflation is 10 percent, but will be unlikely when inflation is 3 percent.

When a client has unrealistic return expectations, the manager or adviser will need to counsel them about what is achievable in the current market environment and within the client's tolerance for risk.

EXAMPLE 4 The Case of Henri Gascon: Return Objectives

Having assessed his risk tolerance, Henri Gascon now begins to discuss his retirement income needs with the financial adviser. He wishes to retire at age 50, which is 20 years from now. His salary meets current and expected future expenditure requirements, but he does not expect to be able to make any additional pension contributions to his fund. Gascon sets aside €100,000 of his savings as an emergency fund to be held in cash. The remaining €900,000 is invested for his retirement.

Gascon estimates that a before-tax amount of €2,000,000 in today's money will be sufficient to fund his retirement income needs. The financial adviser expects inflation to average 2 percent per year over the next 20 years. Pension fund contributions and pension fund returns in France are exempt from tax, but pension fund distributions are taxable upon retirement.

1. Which of the following is closest to the amount of money Gascon will have to accumulate in nominal terms by his retirement date to meet his retirement income objective (i.e., expressed in money of the day in 20 years)?
 - A. €900,000
 - B. €2,000,000
 - C. €3,000,000
2. Which of the following is closest to the annual rate of return that Gascon must earn on his pension portfolio to meet his retirement income objective?
 - A. 2.0%
 - B. 6.2%
 - C. 8.1%

Solution to 1. C is correct. At 2 percent annual inflation, €2,000,000 in today's money equates to €2,971,895 in 20 years measured in money of the day [$2m \times (1 + 2\%)^{20}$].

Solution to 2. B is correct. €900,000 growing at 6.2 percent per year for 20 years will accumulate to €2,997,318, which is just above the required amount. (The solution of 6.2 percent comes from $€2,997,318/€900,000 = (1 + X)^{20}$, where X is the required rate of return.)

In the following sections, we analyze five major types of constraints on portfolio selection: liquidity, time horizon, tax concerns, legal and regulatory factors, and unique circumstances.

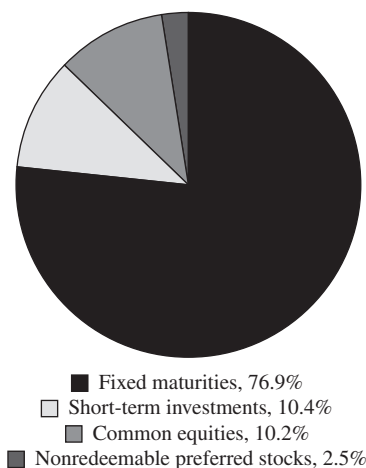
2.2.3. Liquidity Requirements

The IPS should state what the likely requirements are to withdraw funds from the portfolio. Examples for an individual investor would be outlays for covering health care payments or tuition fees. For institutions, it could be spending rules and requirements for endowment funds, the existence of claims coming due in the case of property and casualty insurance, or benefit payments for pension funds and life insurance companies.

When the client does have such a requirement, the manager should allocate part of the portfolio to cover the liability. This part of the portfolio will be invested in assets that are

liquid—that is, easily converted to cash—and have low risk when the liquidity need is actually present (e.g., a bond maturing at the time when private education expenses will be incurred), so that their value is known with reasonable certainty. For example, the asset allocation in the insurance portfolios of US insurer Progressive Corporation (see Exhibit 3) shows a large allocation to fixed-income investments (called “Fixed maturities” by the company), some of which are either highly liquid or have a short maturity. These investments enable the company, in the case of automobile insurance, to pay claims for which the timing is unpredictable.

EXHIBIT 3. Asset Allocation of Progressive Corporation



Source: Progressive Corporation, 2018 Second Quarter Report.

2.2.4. Time Horizon

The IPS should state the time horizon over which the investor is investing. It may be the period over which the portfolio is accumulating before any assets need to be withdrawn; it could also be the period until the client’s circumstances are likely to change. For example, a 55-year-old pension plan investor hoping to retire at age 65 has a ten-year horizon. The portfolio may not be liquidated at age 65, but its structure may need to change, for example, as the investor begins to draw an income from the fund.

The time horizon of the investor will affect the nature of investments used in the portfolio. Illiquid or risky investments may be unsuitable for an investor with a short time horizon because the investor may not have enough time to recover from investment losses, for example. Such investments, however, may be suitable for an investor with a longer horizon, especially if the risky investments are expected to have higher returns.

EXAMPLE 5 Investment Time Horizon

1. Frank Johnson is investing for retirement and has a 20-year horizon. He has an average risk tolerance. Which investment is likely to be the *least* suitable for a major allocation in Johnson's portfolio?
 - A. Listed equities
 - B. Private equity
 - C. US Treasury bills
2. Al Smith has to pay a large tax bill in six months and wants to invest the money in the meantime. Which investment is likely to be the *least* suitable for a major allocation in Smith's portfolio?
 - A. Listed equities
 - B. Private equity
 - C. US Treasury bills

Solution to 1: C is correct. With a 20-year horizon and average risk tolerance, Johnson can accept the additional risk of listed equities and private equity compared with US Treasury bills.

Solution to 2: B is correct. Private equity is risky, has no public market, and is the least liquid among the assets mentioned.

2.2.5. Tax Concerns

Tax status varies among investors. Some investors will be subject to taxation on investment returns and some will not. For example, in many countries returns to pension funds are exempt from tax. Some investors will face a different tax rate on income (dividends and interest payments) than they do on capital gains (associated with increases in asset prices). Typically, when there is a differential, income is taxed more highly than gains. Gains may be subject to a lower rate of tax or part or all of the gain may be exempt from taxation. Furthermore, income may be taxed as it is earned, whereas gains may be taxed when they are realized. Hence, in such cases there is a time value of money benefit in the deferment of taxation of gains relative to income.

In many cases, the portfolio should reflect the tax status of the client. For example, a taxable investor may wish to hold a portfolio that emphasizes capital gains and receives little income. A taxable investor based in the United States is also likely to consider including U.S. municipal bonds ("munis") in his or her portfolio because interest income from munis, unlike from treasuries and corporate bonds, is exempt from taxes. A tax-exempt investor, such as a pension fund, will be relatively indifferent to the form of returns.

2.2.6. Legal and Regulatory Factors

The IPS should state any legal and regulatory restrictions that constrain how the portfolio is invested.

In some countries, such institutional investors as pension funds are subject to restrictions on the composition of the portfolio. For example, there may be a limit on the proportion of equities or other risky assets in the portfolio, or on the proportion of the portfolio that may be invested overseas. The United States has no limits on pension fund asset allocation but some countries do, examples of which are shown in Exhibit 4. Pension funds also often face restrictions on the percentage of assets that can be invested in securities issued by the plan sponsor, so-called **self-investment limits**.

EXHIBIT 4. Examples of Pension Fund Investment Restrictions

Country	Listed Equity	Real Estate	Government Bonds	Corporate Bonds	Foreign Currency Exposure
Switzerland	50%	30%	100%	100%	Unhedged 30%
Japan	100%	Not permitted	100%	100%	No limits
South Africa	75%	25%	100%	75%	25%

Source: OECD Survey of Investment Regulation of Pension Funds, July 2018.

When an individual has access to material nonpublic information about a particular security, this situation may also form a constraint. For example, the directors of a public company may need to refrain from trading the company's stock at certain points of the year before financial results are published. The IPS should note this constraint so that the portfolio manager does not inadvertently trade the stock on the client's behalf.

2.2.7. Unique Circumstances

This section of the IPS should cover any other aspect of the client's circumstances, including beliefs and values, that is likely to have a material impact on the composition of the portfolio. A client may have considerations derived from his or her religion or ethical values that could constrain investment choices. For instance, an investor seeking compliance with Shari'a (the Islamic law) will avoid investing in businesses and financial instruments inconsistent with Shari'a, such as casinos and bonds, because Shari'a prohibits gambling and lending money on interest. Similarly, an investor may wish to avoid investments that he or she believes are inconsistent with their faith. Charitable and pension fund investors may have constituencies that want to express their values in an investment portfolio.

Whether rooted in religious beliefs or not, a client may have personal objections to certain products (e.g., weapons, tobacco, gambling) or practices (e.g., environmental impact of business activities, human impact of government policies, labor standards), which could lead to the exclusion of certain companies, countries, or types of securities (e.g., interest-bearing debt) from the investable universe as well as the client's benchmark. Such considerations are often referred to as ESG (environmental, social, governance), and investing in accordance with such considerations is referred to as SRI (socially responsible investing).

There are several implementation approaches in which ESG considerations can be expressed in an investment portfolio. The oldest form is **negative screening** (or **exclusionary screening**), which refers to the practice of excluding certain sectors or excluding companies that deviate from accepted standards or norms. Exclusion based on *values*, such as exclusion of gambling, alcohol, and tobacco-related companies, relate to an investor's moral or ethical

beliefs in a company's or sector's business. Exclusion based on standards and norms refers to business practices that an investor does not want to be associated with from either a reputational or financial risk point of view. These practices may include harmful production processes, corruption, and land ownership issues.

Another common approach is **best-in-class**, whereby investors seek to identify companies within an industry that rank (or score) most favorably based on ESG considerations. Under this approach, investor portfolios would include only securities of those companies that exceed a certain threshold when evaluating ESG considerations. **Shareholder engagement** (sometimes call *active ownership*) is the practice of entering into a dialogue with companies (including with respect to ESG issues). Note that this is a different approach than best-in-class selection, where securities companies that do not meet investor standards are excluded. Generally speaking, the IPS should contain guidelines on shareholder voting behavior.

While exclusionary screening and best-in-class eliminate investment options, **thematic investing** and **impact investing** focus on investment in objectives, themes, and trends that relate positively to ESG issues. An example of a thematic investment (i.e., related to a business theme or societal trend) that considers ESG would be investments in alternative energy providers. In impact investing, an investment is selected primarily on its expected social or environmental benefits with measurable investment returns.

The final ESG implementation approach, **ESG integration**, refers to the integration of qualitative and quantitative ESG factors into traditional security and industry analysis. The focus of ESG integration is to identify risks and opportunities arising from ESG factors and to determine whether a company is properly managing its ESG resources in accordance with a sustainable business model. Examples of ESG integration may include potential earnings per share dilution due to a company's overly generous options program for key executives; a company's poor environmental safety or labor standards potentially resulting in a large future liability that affects the company's profitability and financial condition; or a company's technology leadership position in a certain production process technology may give a company a competitive advantage once new regulations come into place.

These ESG implementation approaches may impact a portfolio manager's investment universe and, in some cases, the manner in which investment management firms operate. The growth of ESG investing has resulted in the development of new investment management services, such as data providers specializing in quantitative and qualitative data on sustainability and governance aspects of businesses. Data quality, however, needs to be judged carefully in each case: disclosure standards differ across jurisdictions; data services companies may have limited coverage of a relevant investment universe; and data item definitions may differ. Nevertheless, the availability of such data makes it possible to estimate certain ESG considerations (e.g., the CO₂ footprint of an investment portfolio) and implement these considerations as a constraint in the portfolio construction process.

EXAMPLE 6 Ethical Preferences

The F&C Responsible UK Equity Growth Fund is designed for investors who wish to have ethical and environmental principles applied to the selection of their investments. The fund's managers apply both positive (characteristics to be emphasized in the portfolio) and negative (characteristics to be avoided in the portfolio) screening criteria:

Positive criteria

- Supplies the basic necessities of life (e.g., healthy food, housing, clothing, water, energy, communication, health care, public transport, safety, personal finance, education)
- Offers product choices for ethical and sustainable lifestyles (e.g. fair trade, organic)
- Improves quality of life through the responsible use of new technologies
- Shows good environmental management
- Actively addresses climate change (e.g., renewable energy, energy efficiency)
- Promotes and protects human rights
- Supports good employment practices
- Provides a positive impact on local communities
- Maintains good relations with customers and suppliers
- Applies effective anti-corruption controls
- Uses transparent communication

Negative criteria

- Tobacco production
- Alcohol production
- Gambling
- Violent material
- Manufacture and sale of weapons
- Unnecessary exploitation of animals
- Nuclear power generation
- Poor environmental practices
- Human rights abuses
- Poor relations with employees, customers or suppliers

[Excerpted from F&C documents; www.fandc.com/new/Advisor/Default.aspx?ID=79620.]

When the portfolio represents only part of the client's total wealth, there may be aspects or portions of wealth not under the control of the manager that have implications for the portfolio. For example, an employee of a public company whose labor income and retirement income provision are reliant on that company and who may have substantial investment exposure to the company through employee share options and stock holdings, may decide that their portfolio should not invest additional amounts in that stock. An entrepreneur may be reluctant to see his or her portfolio invested in the shares of competing businesses or in any business that has risk exposures aligned with his or her entrepreneurial venture.

A client's income may rely on a particular industry or asset class. Appropriate diversification requires that industry or asset class to be de-emphasized in the client's investments. For example, a stockbroker should consider having a relatively low weighting in equities, as his skills and thus income-generating ability are worth less when equities do not perform well. Employees should similarly be wary of having concentrated share positions in the equity of the company they work for. If the employer encounters difficulties, not only may the employee lose his or her job, but their investment portfolio could also suffer a significant loss of value.

2.3. Gathering Client Information

As noted above, it is important for portfolio managers and investment advisers to know their clients. For example, in the EU, MiFID II requires financial intermediaries to undertake substantial fact finding. This is required not only in the case of full service wealth management or in the context of an IPS, but also in “lighter” forms of financial intermediation, such as advisory relationships (in which clients make investment decisions after consultation with their investment adviser or broker) or execution-only relationships (in which the client makes his investment decisions independently).

An exercise in fact finding about the customer should take place at the beginning of the client relationship. This will involve gathering information about the client’s circumstances as well as discussing the client’s objectives and requirements.

Important data to gather from a client should cover family and employment situation as well as financial information. If the client is an individual, it may also be necessary to know about the situation and requirements of the client’s spouse or other family members. The health of the client and his or her dependents is also relevant information. In an institutional relationship, it will be important to know about key stakeholders in the organization and what their perspective and requirements are. Information gathering may be done in an informal way or may involve structured interviews or questionnaires or analysis of data. Many advisers will capture data electronically and use special systems that record data and produce customized reports.

Good record keeping is very important, and may be crucial in a case in which any aspect of the client relationship comes into dispute at a later stage.

EXAMPLE 7 Henri Gascon: Description of Constraints

Henri Gascon continues to discuss his investment requirements with the financial adviser. The financial adviser begins to draft the constraints section of the IPS.

Gascon expects that he will continue to work for the oil company and that his relatively high income will continue for the foreseeable future. Gascon and his wife do not plan to have any additional children, but expect that their son will go to a university at age 18. They expect that their son’s education costs can be met out of their salary income.

Gascon’s emergency reserve of €100,000 is considered to be sufficient as a reserve for unforeseen expenditures and emergencies. His retirement savings of €900,000 has been contributed to his defined-contribution pension plan account to fund his retirement. Under French regulation, pension fund contributions are paid from gross income (i.e., income prior to deduction of tax) and pension fund returns are exempt from tax, but pension payments from a fund to retirees are taxed as income to the retiree.

With respect to Gascon’s retirement savings portfolio, refer back to Example 2 as needed and address the following:

1. As concerns liquidity,
 - A. a maximum of 50 percent of the portfolio should be invested in liquid assets.
 - B. the portfolio should be invested entirely in liquid assets because of high spending needs.
 - C. the portfolio has no need for liquidity because there are no short-term spending requirements.

2. The investment time horizon is closest to
 - A. 5 years.
 - B. 20 years.
 - C. 40 years.
3. As concerns taxation, the portfolio
 - A. should emphasize capital gains because income is taxable.
 - B. should emphasize income because capital gains are taxable.
 - C. is tax exempt and thus indifferent between income and capital gains.
4. The principle legal and regulatory factors applying to the portfolio are
 - A. US Securities laws.
 - B. European banking laws.
 - C. French pension fund regulations.
5. As concerns unique needs, the portfolio should
 - A. have a high weighting in oil and other commodity stocks.
 - B. be invested only in responsible and sustainable investments.
 - C. not have significant exposure to oil and other commodity stocks.

Solution to 1. C is correct. The assets are for retirement use, which is 20 years away. Any short-term spending needs will be met from other assets or income.

Solution to 2. B is correct. The relevant time horizon is to the retirement date, which is 20 years away. The assets may not be liquidated at that point, but a restructuring of the portfolio is to be expected as Gascon starts to draw an income from it.

Solution to 3. C is correct. Because no tax is paid in the pension fund, it does not matter whether returns come in the form of income or capital gains.

Solution to 4. C is correct. The management of the portfolio will have to comply with any rules relating the French pension funds.

Solution to 5. C is correct. Gascon's human capital (i.e., future labor income) is affected by the prospects of the oil industry. If his portfolio has significant exposure to oil stocks, he would be increasing a risk exposure he already has.

Example 8, the final one based on Henri Gascon, shows how the information obtained from the fact-finding exercises might be incorporated into the objectives and constraints section of an IPS.

EXAMPLE 8 Henri Gascon: Outline of an IPS

Following is a simplified excerpt from the IPS the adviser prepares for Henri Gascon, covering objectives and constraints.

Risk Objectives:

- The portfolio may take on relatively high amounts of risk in seeking to meet the return requirements. With a 20-year time horizon and significant assets and income,

the client has an above average ability to take risk. The client is a knowledgeable investor, with an above average willingness to take risk. Hence, the client's risk tolerance is above average, explaining the above portfolio risk objective.

- The portfolio should be well diversified with respect to asset classes and concentration of positions within an asset class. Although the client has above average risk tolerance, his investment assets should be diversified to control the risk of catastrophic loss.

Return Objectives:

- The portfolio's long-term return requirement is 6.2 percent per year, in nominal terms and net of fees, to meet the client's retirement income goal.

Constraints:

- *Liquidity:* The portfolio consists of pension fund assets and there is no need for liquidity in the short to medium term.
- *Time Horizon:* The portfolio will be invested with a 20-year time horizon. The client intends to retire in 20 years, at which time an income will be drawn from the portfolio.
- *Tax Status:* Under French law, contributions to the fund are made gross of tax and returns in the fund are tax-free. Hence, the client is indifferent between income and capital gains in the fund.
- *Legal and Regulatory Factors:* The management of the portfolio must comply with French pension fund regulations.
- *Unique Needs:* The client is an executive in the oil industry. The portfolio should strive to minimize additional exposures to oil and related stocks.

3. PORTFOLIO CONSTRUCTION

Once the IPS has been compiled, the investment manager can construct a suitable portfolio. Strategic asset allocation is a traditional focus of the first steps in portfolio construction. The strategic asset allocation is stated in terms of percent allocations to asset classes. An **asset class** is a category of assets that have similar characteristics, attributes, and risk/return relationships. The **strategic asset allocation** (SAA) is the set of exposures to IPS-permissible asset classes that is expected to achieve the client's long-term objectives given the client's risk profile and investment constraints. An SAA could include a policy of hedging portfolio risks not explicitly covered by asset class weights. The obvious examples are hedge ratios for foreign currency exposure, or the management of interest rate risk resulting from asset-liability mismatch, and the hedging of inflation risk. So-called "overlay" portfolios of derivatives are often used for this purpose.

The focus on the SAA is the result of a number of important investment principles. One principle is that a portfolio's systematic risk accounts for most of its change in value over the long term. **Systematic risk** is risk related to the economic system (e.g., risk related to business cycle) that cannot be eliminated by holding a diversified portfolio. This risk is different from **nonsystematic risk**, which is the unique risks of particular assets, which may be avoided by holding other assets with offsetting risks. A second principle is that the returns to groups of similar assets (e.g., long-term debt claims) predictably reflect exposures to certain sets of systematic factors (e.g., for the debt claims, unexpected changes in the interest rate). Thus, the SAA is a means of providing the investor with exposure to the systematic risks of asset classes in proportions that meet the risk and return objectives.

The process of formulating a strategic asset allocation is based on the IPS, already discussed, and capital market expectations, introduced in Section 3.1. How to make the strategic asset allocation operational with a rebalancing policy and a translation into actual investment portfolios will be described in Section 3.3. Section 3.4 lists some alternatives to the approach chosen and describes some portfolio construction techniques.

3.1. Capital Market Expectations

Capital market expectations are the investor's expectations concerning the risk and return prospects of asset classes, however broadly or narrowly the investor defines those asset classes. When associated with the client's investment objectives, the result is the strategic asset allocation that is expected to allow the client to achieve his or her investment objectives (at least under normal capital market conditions).

Traditionally, capital market expectations are quantified in terms of asset class expected returns, standard deviation of returns, and correlations among pairs of asset classes. Formally, the expected return of an asset class consists of the risk-free rate and one or more risk premium(s) associated with the asset class. Expected returns are in practice developed in a variety of ways, including the use of historical estimates, economic analysis, and various kinds of valuation models. Standard deviations and correlation estimates are frequently based on historical data and risk models.

3.2. The Strategic Asset Allocation

Traditionally, investors have distinguished cash, equities, bonds (government and corporate), and real estate as the major asset classes. In recent years, this list has been expanded with private equity, hedge funds, high yield and emerging market bonds, and commodities. In addition, such assets as art and intellectual property rights may be considered asset classes for those investors prepared to take a more innovative approach and to accept some illiquidity. Combining such new asset classes as well as hedge funds and private equity under the header "alternative investments" has become accepted practice.

As the strategic asset allocation is built up by asset classes, the decision about how to define those asset classes is an important one. Defining the asset classes also determines the extent to which the investor controls the risk and return characteristics of the eventual investment portfolio. For example, separating bonds into government bonds and corporate bonds, and then further separating corporate bonds into investment grade and non-investment grade (high yield) and government bonds into domestic and foreign government bonds, creates four bond categories for which risk–return expectations can be expressed and correlations with other asset classes (and, in an asset–liability management context, with the liabilities) can be estimated. An investment manager who wants to explicitly consider the risk–return characteristics of those bond categories in the strategic asset allocation may choose to treat them as distinct asset classes. Similarly, in equities some investors distinguish between emerging market and developed market equities, between domestic and international equities, or between large-cap and small-cap equities. In some regulatory environments for institutional investors, asset class definitions are mandatory, thereby forcing investment managers to articulate risk–return expectations (and apply risk management) on the asset classes specified. Conversely, a broader categorization of asset classes leaves the allocation between different categories of bonds and equities, for example, to managers responsible for these asset classes.

When defining asset classes, a number of criteria apply. Intuitively, an asset class should contain relatively homogeneous assets while providing diversification relative to other asset

classes. In statistical terms, risk and return expectations should be similar, and paired correlations of assets should be relatively high within an asset class but should be lower versus assets in other asset classes. Also, the asset classes, while being mutually exclusive, should add up to a sufficient approximation of the relevant investable universe. Applying these criteria ensures that the strategic asset allocation process has considered all available investment alternatives.

EXAMPLE 9 Specifying Asset Classes

The strategic asset allocations of many institutional investors make a distinction between domestic equities and international equities, or between developed market equities and emerging market equities. Often, equities are separated into different market capitalization brackets, resulting, for example, in an asset class such as domestic small-cap equity.

The correlation matrix in Exhibit 5 shows the paired correlations of monthly returns between different equity asset classes and other asset classes. Specifically, these correlations are measured over the period from December 2000 through August 2018. In addition, the exhibit shows the annualized volatility of monthly returns.

EXHIBIT 5. Asset Class Correlation Matrix

	US		European		US	European		US		US
	Equities		Equities		Small-Cap	Gov't. Bonds		US Treasuries		High-Yield
Correlations	Equities	Markets	Equities	Equities	Equities	Commodities	Bonds	Equities	Credits	Credit
US Equities	1.00	0.78	0.88	0.59	0.89	0.32	0.08	−0.37	0.19	0.66
Emerging Markets	0.78	1.00	0.84	0.64	0.75	0.46	0.21	−0.24	0.34	0.70
European Equities	0.88	0.84	1.00	0.64	0.79	0.43	0.16	−0.28	0.29	0.68
Japanese Equities	0.59	0.64	0.64	1.00	0.57	0.32	0.24	−0.18	0.29	0.52
US Small-Cap Equities	0.89	0.75	0.79	0.57	1.00	0.32	0.09	−0.36	0.19	0.69
Commodities	0.32	0.46	0.43	0.32	0.32	1.00	0.13	−0.18	0.12	0.36
European Gov't. Bonds	0.08	0.21	0.16	0.24	0.09	0.13	1.00	0.45	0.60	0.30
US Treasuries	−0.37	−0.24	−0.28	−0.18	−0.36	−0.18	0.45	1.00	0.58	−0.19
US Credits	0.19	0.34	0.29	0.29	0.19	0.12	0.60	0.58	1.00	0.54
US High-Yield Credit	0.66	0.70	0.68	0.52	0.69	0.36	0.30	−0.19	0.54	1.00
Volatility	14.3%	21.6%	18.4%	15.6%	18.4%	22.3%	4.9%	4.4%	5.5%	9.3%

Correlations and volatilities have been calculated using monthly returns from December 2000 through August 2018, unhedged, in USD.

Sources: MSCI Bloomberg, S&P.

Based only on the information given, address the following:

1. Contrast the correlations between equity asset classes with the correlations between equity asset classes and US Treasuries.
2. The monthly returns of which equity asset class differ the most from US equities?

Solution to 1: The matrix reveals very strong correlation between the equity asset classes. For example, the correlation between European equities and US equities is 0.88. The correlation of equities with bonds, however, is much lower. For example, US equities, emerging markets equities, European equities, and Japanese equities all have negative correlation with US government bonds (−0.37, −0.24 and −0.28, and −0.18, respectively). It is worth noting, however, that correlations can vary through time and the values shown may be specific to the sample period used.

Solution to 2: Among equity asset classes as listed in the table, the correlation between US and Japanese equities is the lowest, at 0.59. By contrast, correlations between US equities and emerging markets, European and US small cap equities are 0.78 or higher.

Using correlation as a metric, Example 9 tends to indicate that only emerging markets were well differentiated from European equities. So, why do investors still often subdivide equities? Apart from any regulatory reasons, one explanation might be that this decomposition into smaller asset classes corresponds to the way the asset allocation is structured in portfolios. Many investment managers have expertise exclusively in specific areas of the market, such as emerging market equities, US small-cap equity, or international investment-grade credit. Bringing the asset class definitions of the asset allocation in line with investment products actually available in the market may simplify matters from an organizational perspective.

The risk–return profile of the strategic asset allocation depends on the expected returns and risks of the individual asset classes, as well as the correlation between those asset classes. In general, adding assets classes with low correlation improves the risk–return trade-off (more return for similar risk). Typically, the strategic asset allocation for risk-averse investors will have a large weight in government bonds and cash, whereas those with more willingness and ability to take risk will have more of their assets in risky asset classes, such as equities and many types of alternative investments.

It is customary to represent asset classes using benchmarks and universes calculated by providers such as FTSE, MSCI, or Bloomberg. An exclusionary screening or a best-in-class policy (discussed previously) limits the number of securities to choose from, potentially impacting the risk and expected return estimates for these asset classes. Some examples of exclusions may be controversial weaponry or tobacco companies, or investments in certain countries. When such exclusions apply, risk and return estimates based on non-traditional (“off-the-shelf”) asset class benchmarks may not be applicable. Separate benchmark indices reflecting the exclusions may be available from the providers to mitigate this issue.

ABP is the pension fund for the Dutch government sector employees. The fund offers teachers, police officers, the military, and other civil servants a defined benefit pension plan, aiming for a pension of 70% of the average career real income for employees. As of the first quarter of 2018, ABP had €405 billion under management. The strategic asset allocation⁶ as of this period is shown in Exhibit 6.

EXHIBIT 6 Strategic Asset Allocation for ABP

Real assets

Equities, developed countries	27%
Equities, emerging markets	9%
Real estate	10%
Private Equity	5%
Hedge Funds	4%
Commodities	5%
Infrastructure	3%
Total real assets	63%

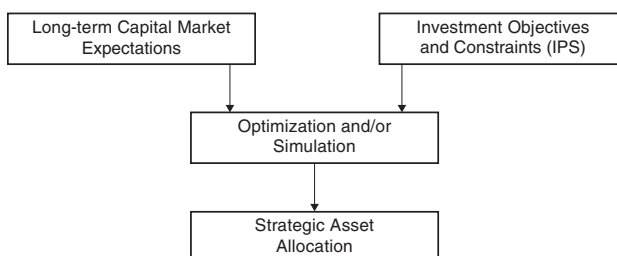
Fixed-income securities

Government bonds	13%
Corporate bonds	13%
Inflation-linked bonds	8%
Emerging market bonds	3%
Total fixed-income securities	37%
Total	100%

Source: ABP Quarterly Report Q1 2018.

A strategic asset allocation results from combining the constraints and objectives articulated in the IPS and long-term capital market expectations regarding the asset classes. The strategic asset allocation or policy portfolio will subsequently be implemented into real portfolios. Exhibit 7 illustrates conceptually how investment objectives and constraints and long-term capital market expectations combine into a policy portfolio.

EXHIBIT 7. Strategic Asset Allocation Process



⁶ABP defines an asset class category called “real assets,” which contains asset classes (not fixed-income securities) that are expected to perform well in times of inflation, but considered a major risk. The use of the term “real assets” differs from the use elsewhere in the CFA curriculum.

In some frameworks used in practice, the asset allocation is an integral part of the investment policy statement. This presentation, however, keeps the asset allocation separate from the investment policy statement because clients' investment objectives and constraints qualitatively differ in nature from capital market expectations, thus requiring different types of analysis, different sources of information, and different review cycles.

The combination of investment objectives/constraints and capital market expectations theoretically occurs using optimization techniques. In this section we apply mean–variance optimization to a sample set of investment objectives and constraints, using an investment universe with associated market expectations. We assume that investors choosing from a range of asset allocations with similar returns would prefer those with lower risk. Choosing from allocations with similar levels of risk, investors would prefer those with the highest return. Formally, investors' risk and return objectives can be described as a utility function, in which utility increases with higher expected returns and lower risk. This assumption could yield an expected utility equation such as that shown in Equation 1.⁷

$$U_p = E(R_p) - \lambda \sigma_p^2 \quad (1)$$

where

- U_p = the investor's expected utility from the portfolio
- $E(R_p)$ = the expected return of the portfolio
- σ_p = the standard deviation of returns of the portfolio
- λ = a measure of the investor's risk aversion

This utility function expresses a positive relationship between utility and expected portfolio return (i.e., higher expected return increases utility, all else equal) and a negative relationship between utility and volatility of portfolio return as measured by the variance of portfolio returns. The stronger the negative relationship, the greater the investor's risk aversion. The portfolio is understood to represent a particular asset allocation. The asset allocation providing the highest expected utility is the one that is optimal for the investor given his or her risk aversion.

For different values of U_p , a line can be plotted that links those combinations of risk and expected return that produces that level of utility: an indifference curve. An investor would attain equal utility from all risk/return combinations on that curve.

Capital market expectations, specified in asset classes' expected returns, standard deviations of return, and correlations, translate into an efficient frontier of portfolios. A multi-asset class portfolio's expected return is given by

$$E(R_p) = \sum_{i=1}^n w_i E(R_i) \quad (2)$$

where w_i equals the weight of asset class i in the portfolio, and its risk is given by

$$\sigma_p = \sqrt{\sum_{i=1}^n \sum_{j=1}^n w_{p,i} w_{p,j} \text{Cov}(R_i, R_j)} \quad (3)$$

⁷Sharpe, Chen, Pinto, and McLeavey (2007).

The covariance between the returns on asset classes i and j is given by the product of the correlation between the two asset classes and their standard deviations of return:

$$\text{Cov}(R_i, R_j) = \rho_{ij} \sigma_i \sigma_j \quad (4)$$

where

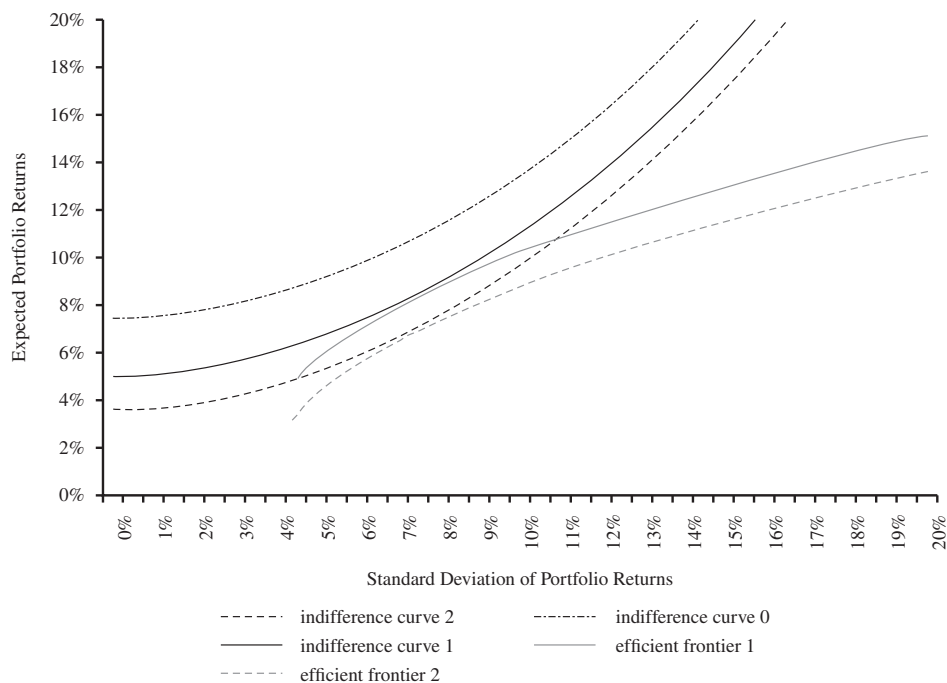
$\text{Cov}(R_i, R_j)$ = the covariance between the return of asset classes i and j

ρ_{ij} = the correlation between the returns of asset classes i and j

The resulting portfolios can be represented as a scatter of dots in a chart depicting their risk and expected return. As a portfolio's risk is a positive function of the risk of its assets and the correlations among them, a portfolio consisting of lowly correlated risky assets has lower risk than one with similarly risky assets with high correlation. It is therefore possible to construct different portfolios with equal expected returns but with different levels of risk. The line that connects those portfolios with the minimal risk for each level of expected return (above that of the **minimum-variance portfolio**—the portfolio with the minimum variance for each given level of expected return) is the efficient frontier. Clearly, the efficient frontier will move “upward” as more lowly correlated assets with sufficient expected return are added to the mix because it lowers the risk in the portfolios for equal expected returns. Similarly, when return expectations increase for asset classes while volatility and correlation assumptions remain unchanged, the efficient frontier will move upward because each portfolio is able to generate higher returns for the same level of risk.

Both the efficient frontier and a range of indifference curves can be plotted in the risk–return space. In Exhibit 8, the dark curves that are concave from below represent efficient frontiers associated with different assumed expected returns. The lighter colored curves are indifference curves. The point where the efficient frontier intersects with the indifference curve with the highest utility attainable (i.e., the point of tangency) represents the optimal asset allocation for the client/investor. In Exhibit 8, efficient frontier 1 has a point of tangency with indifference curve 1. Higher levels of utility, such as those associated with indifference curve 0, can apparently not be reached with the assets underlying the efficient frontier. It is clear that when capital market expectations change, this change moves the efficient frontier away from its original location. In the chart, this movement is illustrated by efficient frontier 2, which incorporates different capital market expectations. This new efficient frontier has a point of tangency with indifference curve 2, which is associated with a lower level of expected utility. Because the point of tangency represents the strategic asset allocation, it implies the asset allocation should be adjusted. Similarly, should investment objectives or constraints change, the indifference curves will change their shape and location. This change will again move the point of tangency, and hence change the asset allocation.

EXHIBIT 8. Strategic Asset Allocation Efficient Frontier



This framework describes how investor objectives and capital market expectations should theoretically be reconciled. It will, however, not be the exact procedure that in practice will be followed. First, an IPS does not necessarily translate the client's investment objectives and constraint into a utility function. Rather, an IPS gives threshold levels for risk and expected return, combined with a number of additional constraints that cannot be captured in this model. Second, the model illustrated is a single-period model, whereas in practice, the constraints from the IPS will make it more appropriate to use multi-period models. Multi-period problems can be more effectively addressed using simulation.

EXAMPLE 10 Approaching an SAA for a Private Investor

Rainer Gottschalk recently sold his local home construction company in the south of Germany to a large homebuilder with a nationwide reach. Upon selling his company, he accepted a job as regional manager for that nationwide homebuilder. He is now considering his and his family's financial future. He looks forward to his new job, where he likes his new role, and which provides him with income to fulfill his family's short-term and medium-term liquidity needs. He feels strongly that he should not invest the proceeds of the sale of his company in real estate because his income already depends on the state of the real estate market. Also, reflecting family values, he feels strongly his savings should not support the tobacco industry. He therefore wants his equity allocation to exclude any stocks of tobacco product manufacturers or retailers. He

consults a financial adviser from his bank about how to invest his money to retire in good wealth in 20 years.

The IPS they develop suggests a return objective of 5 percent, with a standard deviation of 10 percent. The bank's asset management division provides Gottschalk and his adviser with the following data (Exhibit 9, Panel 1) on market expectations. The advisor estimates that excluding the tobacco industry from the investment universe affects expected equity returns of European equities by -0.2% and annual standard deviation by $+0.1\%$. The impact on emerging market equities, and on the correlation structure, was considered negligible. Gottschalk accepts the results of these calculations as shown in Exhibit 9, Panel 2.

EXHIBIT 9. Risk, Return, and Correlation Estimates

	Expected Return	Standard Deviation	Correlation Matrix		
			European Equities	Emerging Mkt Equities	European Govt Bonds
Panel 1					
European equities	6.0%	15.0%	1.00	0.78	−0.08
Emerging market equities	8.0%	20.1%	0.78	1.00	−0.07
European govern- ment bonds	2.0%	7.8%	−0.08	−0.07	1.00
Panel 2					
European equities	5.8%	15.1%	1.00	0.78	−0.08
Emerging market equities	8.0%	20.1%	0.78	1.00	−0.07
European govern- ment bonds	2.00%	7.8%	−0.08	−0.07	1.00

Standard deviation and correlation calculated over the period March 1999–August 2018. All data in unhedged euros.

Sources: MSCI, Bloomberg

To illustrate the possibilities, the adviser presents Gottschalk with the following plot (Exhibit 10), in which the points forming the shaded curve outline the risk–return characteristics of the portfolios that can be constructed out of the three asset classes. An imaginary line linking the points with the lowest standard deviation for each attainable level of return would be the efficient frontier. The two straight lines show the risk and return objectives. Gottschalk should aim for portfolios that offer an expected return of at least 6 percent (the straight horizontal line or above) and a standard deviation of return of 12 percent or lower (the straight vertical line to the left).

EXHIBIT 10. Efficient Frontier

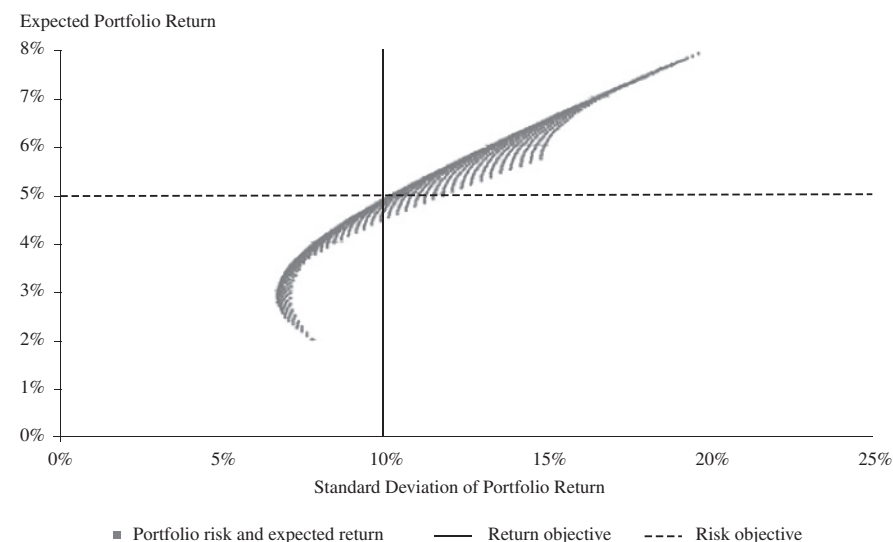


Exhibit 10 shows that no portfolio satisfies the two objectives (return of 5% and standard deviation of 10%) exactly, as the highest expected return that can be attained at a maximum volatility of 10% is 4.9%. This difference, Gottschalk and the advisor agree, is acceptable. The portfolio that would correspond with this expected return consists of 16 percent European stocks, 38 percent emerging market equities, and 46 percent government bonds.

3.3. Steps Toward an Actual Portfolio

The strategic asset allocation in itself does not yet represent an actual investment portfolio. It is the first step in implementing an investment strategy. For quantitatively oriented portfolio managers, the next step is often risk budgeting.

As used in this chapter, **risk budgeting** is the process of deciding on the amount of risk to assume in a portfolio (the overall risk budget), and subdividing that risk over the sources of investment return (e.g., strategic asset allocation, tactical asset allocation, and security selection). Because the decision about the total amount of risk to be taken is made in constructing the IPS, at this stage we are concerned about the subdivision of that risk.

Apart from the exposures to systematic risk factors specified in the strategic asset allocation, the returns of an investment strategy depend on two other sources: tactical asset allocation and security selection. **Tactical asset allocation** is the decision to deliberately deviate from the policy exposures to systematic risk factors (i.e., the policy weights of asset classes) with the intent to add value based on forecasts of the near-term returns of those asset classes. For instance, an investor may decide to temporarily invest more of the portfolio in

equities than the SAA prescribes if the investor anticipates that equities will deliver a higher return over the short term than other asset classes. **Security selection** is an attempt to generate higher returns than the asset class benchmark by selecting securities with a higher expected return. For example, an investment manager may decide to add more IBM stock in his portfolio than the weight in his equity benchmark if he expects this stock to do better than the benchmark. To fund this purchase, he may sell another stock expected to do worse than either the benchmark or IBM. Obviously, deciding to deviate from policy weights or to select securities aiming to beat the benchmark creates additional uncertainty about returns. This risk is over and above the risk inherent in the policy portfolio. Hence, an investment policy should set risk limits and desired payoffs for each of these three activities.

Risk budgeting implies that the portfolio manager has to choose, for every asset class, whether to deploy security selection as a return generator. This choice is generally referred to as the choice between active or passive management. Contrary to strategic asset allocation, where exposures to sources of systematic risk are selected and sized, security selection is not rewarded with a long-run payoff to risk. Security selection is a zero-sum game: All investors in an asset class are competing with each to identify a typically limited number of assets that are misvalued. In total, the gross returns of all market participants average out to the market return (the reward for taking systematic risk). This implies that the average active investor will match the market return, and that one investor's gain versus the market return is the other investor's loss versus the market return. However, because active managers tend to trade more and have to pay people (including themselves) to generate investment ideas or information leading to such ideas, the average active manager will underperform the market, net of costs. This does not imply, however, that there are no skillful investment managers who, with some consistency, beat their benchmarks. Neither does it imply that all passive managers will be able to match the benchmark. The higher the turnover of an index, the more trading costs a passive manager will incur, making the task of matching the return of an index more difficult.

The likelihood of adding a significant amount of value from security selection depends on the skills of the manager and the informational efficiency of the market for the asset class his skill relates to. The more efficient an asset class or a subset of that asset class (such as a regional stock, bond, or real estate market or a size category within the stock market), the more skillful an asset manager has to be to add value. Broadly speaking, an efficient market is a market in which prices, on average, very quickly reflect newly available information. That requires a sizeable participation of investors trading risk against expected return, acting on rational expectations, using the same or similar pricing models, and having equal opportunities to access relevant information. Clearly, the market for US large-capitalization equities would be quite efficient. By contrast, some regional bond and equity markets do not have the technical and regulatory systems for information dissemination that are sufficient to serve all investors on a timely basis. Skilled managers should be able to exploit the resulting inefficiencies.

Sometimes the choice between active and passive management is actually made implicitly when the asset class is included in the asset allocation. The markets for some assets—such as those for non-listed real estate and infrastructure assets—are so illiquid that it is very difficult to buy a diversified exposure. As a result, participating in that market is not possible without engaging in security selection.

As the portfolio is constructed and its value changes with the returns of the asset classes and securities in which it is invested, the weights of the asset classes will gradually deviate from the policy weights in the strategic asset allocation. This process is referred to as drift.

Periodically, or when a certain threshold deviation from the policy weight (the bandwidth) has been breached, the portfolio should be rebalanced back to the policy weights. The set of rules that guide the process of restoring the portfolio's original exposures to systematic risk factors is known as the **rebalancing policy**. Even absent a formal risk budget, formulating a rebalancing policy is an important element of risk management, as the following example illustrates.

EXAMPLE 11 Strategic and Tactical Asset Allocation for a European Charity

A European charity has an asset allocation at the beginning of the year consisting of the asset classes and weights shown in Exhibit 11.

EXHIBIT 11. Asset Allocation of a European Charity (beginning of year)

Asset Class	Policy Weight	Corridor (+/–)	Upper Limit	Lower Limit
European equities	30.0%	2.0%	32.0%	28.0%
International equities	15.0%	2.0%	17.0%	13.0%
European government bonds	20.0%	2.0%	22.0%	18.0%
Corporate bonds	20.0%	2.0%	22.0%	18.0%
Cash and money market instruments	15.0%	2.0%	17.0%	13.0%
Total	100.0%			

As Exhibit 11 reveals, the charity has a policy that the asset class weights cannot deviate from the policy weights by more than 2 percent (the corridor). The resulting upper and lower limits for the asset class weights are shown in the rightmost columns of the table. There are two reasons for asset class actual weights to deviate from policy weights: by deliberate choice (tactical asset allocation or market timing) and as a result of divergence of the returns of the different asset classes (drift). In this example, the asset class weights start the year exactly in line with policy weights.

After half a year, the investment portfolio is as shown in Exhibit 12.

EXHIBIT 12. Asset Allocation for a European Charity (6 months later)

Asset Class	Policy Weight	Corridor (+/–)	Upper Limit	Lower Limit	Period Return	Ending Weight
European equities	30.0%	2.0%	32.0%	28.0%	15.0%	32.4%
International equities	15.0%	2.0%	17.0%	13.0%	10.0%	15.5%
European government bonds	20.0%	2.0%	22.0%	18.0%	0.5%	18.9%
Corporate bonds	20.0%	2.0%	22.0%	18.0%	1.5%	19.1%
Cash and money market instruments	15.0%	2.0%	17.0%	13.0%	1.0%	14.2%
Total	100.0%				6.6%	100.0%

1. Discuss the returns of the portfolio and comment on the main asset weight changes.

Solution to 1: The investment portfolio generated a return calculated on beginning (policy) weights of 6.55 percent or 6.6 percent ($= 0.30 \times 15\% + 0.15 \times 10\% + 0.20 \times 0.5\% + 0.20 \times 1.5\% + 0.15 \times 1.0\%$), mainly driven by a strong equity market. Bond returns were more subdued, leading to considerable drift in asset class weights. In particular, the European equity weight breached the upper limit of its allowed actual weight.

The investment committee decides against reducing European equities back to policy weight and adding to the fixed-income and cash investments toward policy weights. Although this rebalancing would be prudent, the committee decides to engage in tactical asset allocation based on the view that this market will continue to be strong over the course of the year. It decides to just bring European equities back to within its bandwidth (a 32 percent portfolio weight) and add the proceeds to cash. Exhibit 13 shows the outcome after another half year.

EXHIBIT 13. Asset Allocation for a European Charity (an additional 6 months later)

Asset Class	Policy Weight	Starting Weight	Corridor (+/–)	Upper Limit	Lower Limit	Period Return	Ending Weight
European equities	30.0%	32.0%	2.0%	32.0%	28.0%	–9.0%	29.7%
International equities	15.0%	15.5%	2.0%	17.0%	13.0%	–6.0%	14.9%
European government bonds	20.0%	18.9%	2.0%	22.0%	18.0%	4.0%	20.0%
Corporate bonds	20.0%	19.1%	2.0%	22.0%	18.0%	4.0%	20.2%
Cash and money market instruments	15.0%	14.6%	2.0%	17.0%	13.0%	2.0%	15.2%
Total	100.0%					–2.0%	100.0%

The prior decision not to rebalance to policy weights did not have a positive result. Contrary to the expectations of the investment committee, both European and international equities performed poorly while bonds recovered. The return of the portfolio was –2.0 percent.

2. How much of this return can be attributed to tactical asset allocation?

Solution to 2: Because tactical asset allocation is the deliberate decision to deviate from policy weights, the return contribution from tactical asset allocation is equal to the difference between the actual return, and the return that would have been made if the asset class weights were equal to the policy weights. Exhibit 14 shows the difference to be –0.30 percent.

EXHIBIT 14. Returns to Tactical Asset Allocation

Asset Class	Policy Weight I	Starting Weight II	Weights Difference III (= II – I)	Period Return IV	TAA Contribution V (= III × IV)
European equities	30.0%	32.0%	2.0%	–9.0%	–0.18%
International equities	15.0%	15.5%	0.5%	–6.0%	–0.03%
European government bonds	20.0%	18.9%	–1.1%	4.0%	–0.05%
Corporate bonds	20.0%	19.1%	–0.9%	4.0%	–0.04%
Cash and money market instruments	15.0%	14.6%	–0.4%	2.0%	–0.01%
Total	100.0%			–2.0%	–0.30%

The process of executing an investment strategy continues with selecting the appropriate manager(s) for each asset class and allocating funds to them. The investment portfolio management process is then well into the execution stage.

The investment managers' performance will be monitored, as well as the results of the tactical and strategic asset allocation. When asset class weights move outside their corridors, money is transferred from the asset classes that have become too large compared with the SAA to those that fall short. Managers as well as the strategic asset allocation will be reviewed on the basis of the outcome of the monitoring process. In addition, capital market expectations may change, as may the circumstances and objectives of the client. These changes could result in an adjustment of the strategic asset allocation.

3.4. ESG Considerations in Portfolio Planning and Construction

The implementation of a policy on sustainable investing affects both strategic asset allocation and implementation of the portfolio construction process. The ESG implementation approaches described previously require a set of instructions for investment managers with regards to the selection of securities, the exercise of shareholder rights, and the selection of investment strategies. Typical examples of ESG issues that help formulate a sustainable investing policy are shown in Exhibit 15.

EXHIBIT 15. Examples of ESG Issues

Environmental Issues	Social Issues	Governance Issues
• Climate change and carbon emissions • Air and water pollution • Biodiversity • Deforestation • Energy efficiency • Waste management • Water scarcity	• Customer satisfaction • Data protection and privacy • Gender and diversity • Employee engagement • Community relations • Human rights • Labor standards	• Board composition • Audit committee structure • Bribery and corruption • Executive compensation • Lobbying • Political contributions • Whistleblower schemes

The list of ESG issues in Exhibit 15 is not exhaustive. Structured, numeric data can be processed for most of these issues (e.g., executive salaries and bonuses, carbon footprint, employee turnover, and employee absenteeism). However, such data is often not required to be disclosed by companies. Many organizations and regulatory bodies have derived frameworks setting out standards on a number of these issues—examples include the Principles of Responsible Investment, the UN Global Compact, and the OECD Guidelines for Multinational Enterprises. Such standards help form the basis of SRI policies for asset owners. In turn, asset owners may exclude or engage with companies in accordance with these issues, or demand that their selected investment managers consider these issues in their investment process.

We previously discussed that the limitation in the investment universe using either exclusionary screening or best-in-class policies affects the expected returns and risk. When selecting or instructing active or passive managers, these managers will clearly want to see their performance measured against a benchmark that reflects the limited universe. There are benchmarks and investment vehicles (both active and passive) available, particularly in equities, that reflect many commonly excluded companies or sectors. For best-in-class inclusion policy, there is no established set of broadly agreed rules; thus asset management products associated with such a policy are customized.

Shareholder engagement requires good cooperation between investor (client) and investment manager. Engagement efforts are time-consuming and the interest in such efforts is often that of clients, rather than that of the investment managers. Clients and investment managers have to be clear with each other about the exercise of voting rights, filing shareholder proposals or entering into conversations with company management. It may be that the engagement and voting is delegated by the client to the investment manager and implemented according to the manager's stewardship policy. Alternatively, the client may instruct some proxy agent to vote on its behalf and according to its own stewardship policies.

Selecting thematic investments, particularly in liquid asset classes, requires finding specialist managers who can identify the right opportunities and manage thematic investment portfolios. In particular, an allocation to thematic investments will bias the total asset class portfolio toward a particular theme, so it is important for the investment manager to demonstrate the impact of the thematic investment on the total risk-return profile of the portfolio. Impact investing specifically selects investment opportunities based on their potential to positively affect ESG issues.

The effort and costs associated with limiting the investment universe as part of sustainable investing suggests a negative impact on investment returns. Sustainable investing proponents argue, however, that potential improvements in governance and the avoidance of risks by companies that screen favorably improve returns. Significant empirical research has been conducted on the performance of ESG factors in equities, including the return differences of ESG equity portfolios relative to mainstream equity portfolios. Academic research remains mixed on the impact of ESG factors on portfolio returns.

3.5. Alternative Portfolio Organizing Principles

The portfolio planning and construction framework presented so far relies on a somewhat rigid process. Nonetheless, there are two newer, less structured developments that deserve specific mention.

The first development is the growth in the offering of exchange-traded funds, or ETFs, in combination with algorithm-based financial advice (or robo-advice). ETFs are funds that track the performance of an asset class index or sub-index, are easily tradeable, and relatively cheap compared to actively managed funds or managed accounts. The broad array of ETF offerings, covering the main equity and fixed-income indices as well as commodities, enable retail investors to obtain fast, inexpensive, and liquid exposure to asset classes. Robo-advice has further reduced the costs for retail investors to create a well-diversified portfolio.

The second development relates to criticism of asset class return forecasts over relevant time horizons, and the perceived instability of asset class correlations and volatilities. Some market participants argue that poor investment portfolio results reflect the sensitivity of modern portfolio theory-based portfolio construction methodologies to small errors in return forecasts or estimated correlations. In response, practitioners developed an investment approach where asset classes were weighted according to risk contribution. This approach is known as *risk parity investing*. Proponents of risk parity investing argue that traditionally constructed portfolios have considerable risk from equities. That is, the typically high (60% or more) weight of equities in institutional portfolios understates the risk impact: equities tend to be much more volatile than fixed income. Opponents of risk parity argue that following the global financial crisis of 2007–2009, favorable results of risk parity portfolios were caused by the long period of decline in interest rates that benefited bond market performance.

4. CONCLUSION AND SUMMARY

In this chapter, we have discussed construction of a client's investment policy statement, including discussion of risk and return objectives and the various constraints that will apply to the portfolio. We have also discussed the portfolio construction process, with emphasis on the strategic asset allocation decisions that must be made.

- The IPS is the starting point of the portfolio management process. Without a full understanding of the client's situation and requirements, it is unlikely that successful results will be achieved.
- The IPS can take a variety of forms. A typical format will include the client's investment objectives and also list the constraints that apply to the client's portfolio.
- The client's objectives are specified in terms of risk tolerance and return requirements.
- The constraints section covers factors that need to be considered when constructing a portfolio for the client that meets the objectives. The typical constraint categories are liquidity requirements, time horizon, regulatory requirements, tax status, and unique needs.
- Clients may have personal objections to certain products or practices, which could lead to the exclusion of certain companies, countries, or types of securities from the investable universe as well as the client's benchmark. Such considerations are often referred to as ESG (environmental, social, governance).
- ESG considerations can be integrated into an investment policy by exclusionary screening, best-in-class selection, active ownership, thematic and impact investing, and ESG integration in security analysis.
- Risk objectives are specifications for portfolio risk that reflect the risk tolerance of the client. Quantitative risk objectives can be absolute or relative or a combination of the two.

- The client's overall risk tolerance is a function of the client's ability to accept risk and their "risk attitude," which can be considered the client's willingness to take risk.
- The client's return objectives can be stated on an absolute or a relative basis. As an example of an absolute objective, the client may want to achieve a particular percentage rate of return. Alternatively, the return objective can be stated on a relative basis, for example, relative to a benchmark return.
- The liquidity section of the IPS should state what the client's requirements are to draw cash from the portfolio.
- The time horizon section of the IPS should state the time horizon over which the investor is investing. This horizon may be the period during which the portfolio is accumulating before any assets need to be withdrawn.
- Tax status varies among investors and a client's tax status should be stated in the IPS.
- The IPS should state any legal or regulatory restrictions that constrain the investment of the portfolio.
- The unique circumstances section of the IPS should cover any other aspect of a client's circumstances that is likely to have a material impact on the composition of the portfolio. Certain ESG implementation approaches, such as negative (exclusionary) screening, best-in-class, thematic investing, impact investing, and ESG integration may be discussed in this section.
- Asset classes are the building blocks of an asset allocation. An asset class is a category of assets that have similar characteristics, attributes, and risk/return relationships. Traditionally, investors have distinguished cash, equities, bonds, and real estate as the major asset classes.
- A strategic asset allocation results from combining the constraints and objectives articulated in the IPS and capital market expectations regarding the asset classes.
- As time goes on, a client's asset allocation will drift from the target allocation, and the amount of allowable drift as well as a rebalancing policy should be formalized.
- In addition to taking systematic risk, an investment committee may choose to take tactical asset allocation risk or security selection risk. The amount of return attributable to these decisions can be measured.
- ESG considerations may be integrated into the portfolio planning and construction process. Such considerations can be difficult given that ESG data is often not required to be disclosed by companies. ESG implementation approaches require a set of instructions for investment managers with regards to the selection of securities, the exercise of shareholder rights, and the selection of investment strategies.

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PRACTICE PROBLEMS

1. Which of the following is *least important* as a reason for a written investment policy statement (IPS)?
 - A. The IPS may be required by regulation.
 - B. Having a written IPS is part of best practice for a portfolio manager.
 - C. Having a written IPS ensures the client's risk and return objectives can be achieved.
2. Which of the following *best* describes the underlying rationale for a written investment policy statement (IPS)?
 - A. A written IPS communicates a plan for trying to achieve investment success.
 - B. A written IPS provides investment managers with a ready defense against client lawsuits.
 - C. A written IPS allows investment managers to instruct clients about the proper use and purpose of investments.
3. A written investment policy statement (IPS) is *most likely* to succeed if:
 - A. it is created by a software program to assure consistent quality.
 - B. it is a collaborative effort of the client and the portfolio manager.
 - C. it reflects the investment philosophy of the portfolio manager.
4. The section of the investment policy statement (IPS) that provides information about how policy may be executed, including restrictions and exclusions, is *best* described as the:
 - A. *Investment Objectives*.
 - B. *Investment Guidelines*.
 - C. *Statement of Duties and Responsibilities*.
5. Which of the following is *least likely* to be placed in the appendices to an investment policy statement (IPS)?
 - A. *Rebalancing Policy*
 - B. *Strategic Asset Allocation*
 - C. *Statement of Duties and Responsibilities*
6. Which of the following typical topics in an investment policy statement (IPS) is *most closely* linked to the client's "distinctive needs"?
 - A. *Procedures*
 - B. *Investment Guidelines*
 - C. *Statement of Duties and Responsibilities*
7. An investment policy statement that includes a return objective of outperforming the FTSE 100 by 120 basis points is *best* characterized as having a(n):
 - A. relative return objective.
 - B. absolute return objective.
 - C. arbitrage-based return objective.
8. Risk assessment questionnaires for investment management clients are *most* useful in measuring:
 - A. value at risk.
 - B. ability to take risk.
 - C. willingness to take risk.

9. Which of the following is *best* characterized as a relative risk objective?
- Value at risk for the fund will not exceed US\$3 million.
 - The fund will not underperform the DAX by more than 250 basis points.
 - The fund will not lose more than €2.5 million in the coming 12-month period.
10. In preparing an investment policy statement, which of the following is *most difficult* to quantify?
- Time horizon
 - Ability to accept risk
 - Willingness to accept risk
11. After interviewing a client in order to prepare a written investment policy statement (IPS), you have established the following:
- The client has earnings that vary dramatically between £30,000 and £70,000 (pre-tax) depending on weather patterns in Britain.
 - In three of the previous five years, the after-tax income of the client has been less than £20,000.
 - The client's mother is dependent on her son (the client) for approximately £9,000 per year support.
 - The client's own subsistence needs are approximately £12,000 per year.
 - The client has more than 10 years' experience trading investments including commodity futures, stock options, and selling stock short.
 - The client's responses to a standard risk assessment questionnaire suggest he has above average risk tolerance.
- The client is *best* described as having a:
- low ability to take risk, but a high willingness to take risk.
 - high ability to take risk, but a low willingness to take risk.
 - high ability to take risk and a high willingness to take risk.
12. After interviewing a client in order to prepare a written investment policy statement (IPS), you have established the following:
- The client has earnings that have exceeded €120,000 (pre-tax) each year for the past five years.
 - She has no dependents.
 - The client's subsistence needs are approximately €45,000 per year.
 - The client states that she feels uncomfortable with her lack of understanding of securities markets.
 - All of the client's current savings are invested in short-term securities guaranteed by an agency of her national government.
 - The client's responses to a standard risk assessment questionnaire suggest she has low risk tolerance.
- The client is *best* described as having a:
- low ability to take risk, but a high willingness to take risk.
 - high ability to take risk, but a low willingness to take risk.
 - high ability to take risk and a high willingness to take risk.

13. A client who is a 34-year-old widow with two healthy young children (aged 5 and 7) has asked you to help her form an investment policy statement. She has been employed as an administrative assistant in a bureau of her national government for the previous 12 years. She has two primary financial goals—her retirement and providing for the college education of her children. This client's time horizon is *best* described as being:
- long term.
 - short term.
 - medium term.
14. The timing of payouts for property and casualty insurers is unpredictable ("lumpy") in comparison with the timing of payouts for life insurance companies. Therefore, in general, property and casualty insurers have:
- lower liquidity needs than life insurance companies.
 - greater liquidity needs than life insurance companies.
 - a higher return objective than life insurance companies.
15. A client who is a director of a publicly listed corporation is required by law to refrain from trading that company's stock at certain points of the year when disclosure of financial results are pending. In preparing a written investment policy statement (IPS) for this client, this restriction on trading:
- is irrelevant to the IPS.
 - should be included in the IPS.
 - makes it illegal for the portfolio manager to work with this client.
16. Consider the pairwise correlations of monthly returns of the following asset classes:

	Brazilian Equities	East Asian Equities	European Equities	US Equities
Brazilian equities	1.00	0.70	0.85	0.76
East Asian equities	0.70	1.00	0.91	0.88
European equities	0.85	0.91	1.00	0.90
US equities	0.76	0.88	0.90	1.00

Based solely on the information in the above table, which equity asset class is *most sharply* distinguished from US equities?

- Brazilian equities.
 - European equities.
 - East Asian equities.
17. Returns on asset classes are *best* described as being a function of:
- the failure of arbitrage.
 - exposure to the idiosyncratic risks of those asset classes.
 - exposure to sets of systematic factors relevant to those asset classes.

-
18. In defining asset classes as part of the strategic asset allocation decision, pairwise correlations within asset classes should generally be:
 - A. equal to correlations among asset classes.
 - B. lower than correlations among asset classes.
 - C. higher than correlations among asset classes.
 19. Tactical asset allocation is *best* described as:
 - A. attempts to exploit arbitrage possibilities among asset classes.
 - B. the decision to deliberately deviate from the policy portfolio.
 - C. selecting asset classes with the desired exposures to sources of systematic risk in an investment portfolio.

