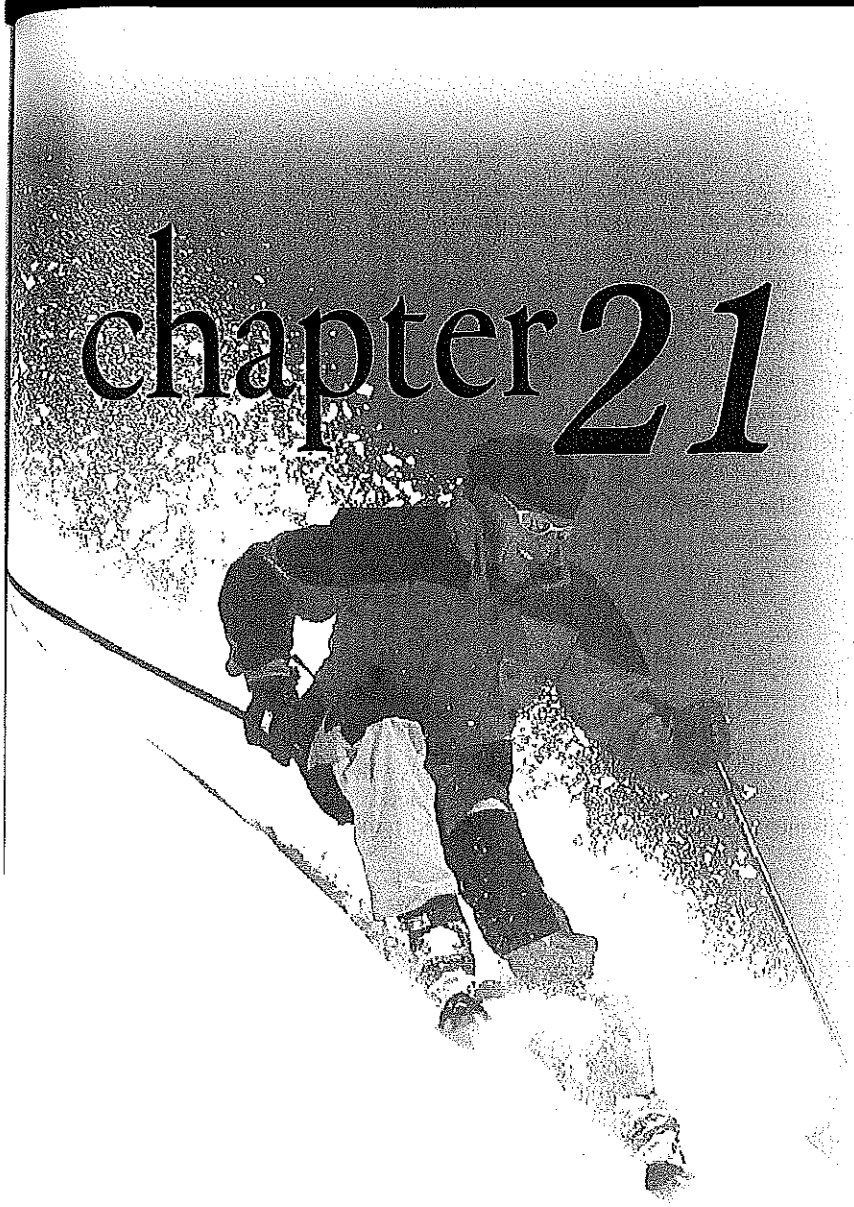


chapter 21

Portfolio Management

As you near the end of your study of investing tools and techniques, which will help you handle your inheritance, you realize that you have covered a number of important topics. However, it sometimes seems that you are seeing the trees, but not the forest. It strikes you that all of this might make more sense if there were a clear framework for thinking about all the issues you need to consider. And, in fact, there is. Portfolio management can be thought of as a process, one which can be viewed in an orderly, sensible manner. By doing this, you see where the various pieces fit, and you are less likely to overlook one or more important issues.

AFTER READING THIS CHAPTER YOU WILL BE ABLE TO:

- Discuss why portfolio management should be considered, and implemented as, a process.
- Describe a framework for managing portfolios in an orderly manner.
- Assess related issues of importance, such as asset allocation.

Chapter 21 considers the practice of portfolio management—how investors should go about actually managing their money, or having it managed for them. In particular we consider why and how portfolio management should be thought of as an ongoing, systematic process. Having a framework within which to make portfolio decisions allows investors to be more consistent in managing their portfolios. It also allows us to consider some topics of importance to all investors, such as taxes, protection against inflation, probabilities of potential market returns, the life cycle of investors, and other related issues.

Portfolio management involves a series of decisions and actions that are made by every investor, whether individual or institution. Portfolios should be viewed within an organized framework whether investors follow a passive approach or an active approach to selecting and holding their financial assets. As we saw when we examined portfolio theory, the relationships among the various investment alternatives that are held as a portfolio must be considered together if an investor is to hold an optimal portfolio and achieve his or her investment objectives.

✓ Portfolio management can be thought of as an ongoing process. This provides investors with an organized, systematic framework for managing a portfolio.

In this chapter we outline a framework for portfolio management that allows investors to proceed in an orderly manner. We also consider some practical approaches to important portfolio management issues.

Portfolio Management as a Process

Portfolio Management Process The second step in the investment decision process, involving the management of a group of assets (i.e., a portfolio) as a unit

The **portfolio management process** has been described by Maginn, Tuttle, McLeavey, and Pinto (2007) in a book on managing investment portfolios as part of the CFA Institute Investment Series.[1] CFA Institute, the successor organization to the Association for Investment Management and Research, awards the CFA designation and acts as the professional organization for the investment industry. It advocates the highest levels of professional standards and ethical conduct, and takes positions on issues of importance to the capital markets.

Structuring portfolio management as a process is an important development because of its contrast with the past, where portfolio management was treated on an ad hoc basis, matching investors with portfolios on an individual basis, one investor at the time. Portfolio management should be structured so that an investor can execute a thoughtful, organized plan. Alternatively, an investment organization can carry out an effective plan for a client based on a clear understanding between the two parties.

Think of portfolio management as an ongoing process by which:

1. Each investor identifies objectives, constraints, and preferences as part of an orderly framework to guide them in managing their portfolios.
2. Capital market expectations for the economy, industries and sectors, and individual securities are considered and quantified.
3. Strategies are developed and implemented. This involves asset allocation, portfolio optimization, and selection of securities.

[1]See John L. Maginn, CFA, Donald L. Tuttle, CFA, Dennis W. McLeavey, CFA, and Jerald E. Pinto, CFA, Eds., *Managing Investment Portfolios: A Dynamic Process*, CFA Institute Investment Series. John Wiley & Sons, Publishers, 2007. This chapter is indebted to this book and earlier editions for the overall format of much of the discussion. While this discussion centers on individual investors and changes the terminology somewhat, it is clearly indebted to the investment process outlined in Maginn et al.

4. Portfolio factors are monitored and responses are made as investor objectives and constraints and/or market expectations change.
5. The portfolio is rebalanced as necessary by repeating the asset allocation, portfolio strategy, and security selection steps.
6. Portfolio performance is measured and evaluated to ensure attainment of the investor objectives.

Figure 21-1 illustrates the portfolio construction, monitoring, and revision process described by Maginn and Tuttle in an earlier edition of this book. Notice that it begins with the specification of investor objectives, constraints and preferences. This should lead investors to articulate what they hope to accomplish, and how. Next, capital market expectations for the economy as well as individual assets are determined and quantified.

The combination of portfolio policies/strategies and capital market expectations provides a basis for portfolio construction and revision. This includes the asset allocation decision, a very important determinant of the success of any investing program, as well as portfolio optimization and security selection. Monitoring is an important part of the process. Portfolio rebalancing is also an important part of any ongoing portfolio management process.

The process is ultimately focused on the attainment of investor objectives. In order to determine how well investor objectives are being met, we must measure and evaluate portfolio performance, the last step in the process. This topic is discussed in Chapter 22.

INDIVIDUAL INVESTORS

Significant differences exist among investors as to objectives, constraints, and preferences. Individual investors may engage in direct investing, indirect investing, or a combination of the two. Investors use differing approaches to the valuation of securities. Some may believe in efficient markets, while others may attempt to use the principles of behavioral finance in their investing activities. Individual investors may find it useful to think of a life-cycle

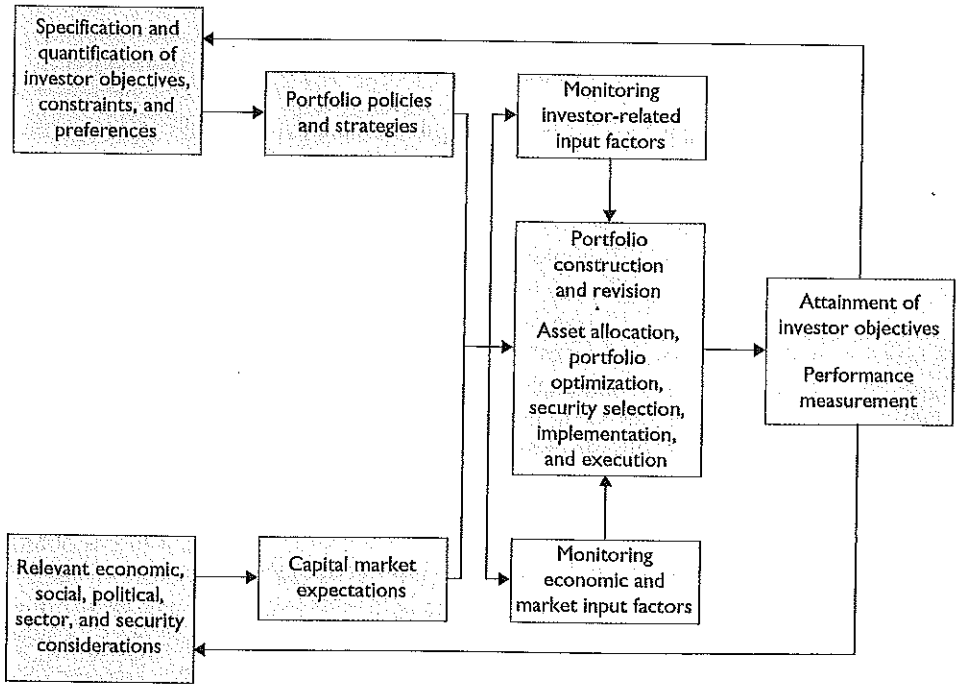


Figure 21-1

The portfolio construction, monitoring, and revision process.

SOURCE: Figure 1-1 from "Chapter 1—The Portfolio Process and Its Dynamics" by John L. Maginn and Donald L. Tuttle from *MANAGING INVESTMENT PORTFOLIOS: A DYNAMIC PROCESS*, 2/e. Copyright © CFA Institute. Reproduced and republished from Managing Investment Portfolios: A Dynamic Process, 2/e with permission from CFA Institute. All rights reserved.

approach, as people go from the beginning of their careers to retirement. Taxes often are a very important consideration for individual investors.

Because each individual's financial profile is different, individual investors must incorporate their unique factors. Nevertheless, investors should attempt to formulate an organized, logical framework within which they will make and execute portfolio decisions. We will refer to this as the **investment strategy**.[2]

Investment Strategy An organized, logical framework within which to make and execute portfolio decisions

Having a well thought-out plan and sticking to it will prevent arbitrary revisions of a soundly designed investment strategy. It also helps investors to plan and execute on a long-term basis and resist short-term pressures that could derail the plan.

Checking Your Understanding

1. If investment management is thought of as a process, do investment management firms need to structure themselves in a similar manner?
2. If individuals are to a large extent free to act as they choose, why do they need to be explicit in stating their investment strategy?

Formulate an Appropriate Investment Strategy

The first step in the portfolio management process should involve giving some careful thought to what the investor is trying to achieve, and determining if the investing goals are reasonable. For example, attempting to earn a compound average rate of return of 15 percent annually from a portfolio of stocks over a long period of time is not consistent with the known history of stock returns, as discussed in Chapter 6.

The approach recommended by Maginn et al. in formulating an investment strategy is simply to provide information, in the following order, for an investor.

- Objectives:
  - return requirements
  - risk tolerance

followed by:

- Constraints and Preferences:
  - liquidity
  - time horizon
  - laws and regulations
  - taxes
  - unique preferences and circumstances

We discuss each of these in turn next.

OBJECTIVES

Return and risk are the basis of all financial decisions in general, and investing decisions in particular.

[2]This is similar to what Maginn et al. call the *investment policy statement.*

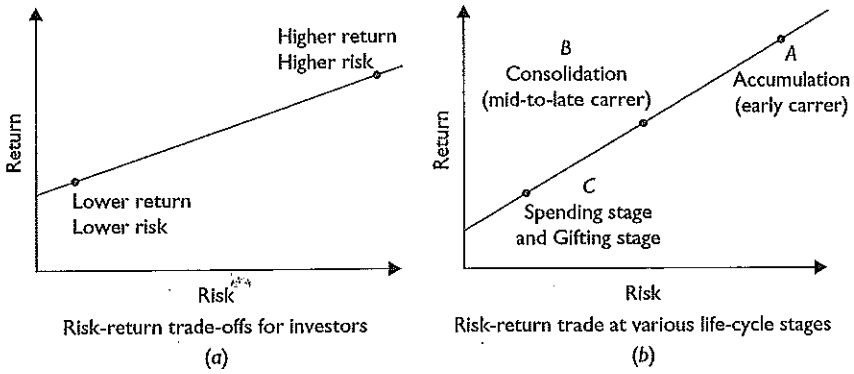


Figure 21-2

Risk-return position at various life-cycle stages.

SOURCE: Figures 3-5 and 3-6 from "Chapter 3—Individual Investors" by Ronald W. Kaiser in *MANAGING INVESTMENT PORTFOLIOS: A DYNAMIC PROCESS*, 2/e. Copyright © CFA Institute. Reproduced and republished from Managing Investment Portfolios: A Dynamic Process, 2/e with permission from CFA Institute. All rights reserved.

- Portfolio objectives are always going to center on return and risk because these are the two aspects of most interest to investors.

Investors seek returns, but must assume risk in order to have an opportunity to earn the returns. A good starting point here is to think in terms of the return-risk trade-off developed in Chapter 1 and emphasized throughout the text. Expected return and risk are related by an upward-sloping trade-off, as shown in part (*a*) of Figure 21-2.

Alternatively, the life-cycle approach can be depicted as shown in part (*b*) of Figure 21-2. Here we see four different phases in which individual investors view their wealth, although it is important to note that the boundaries between the stages are not necessarily clear-cut and can require years to complete. Furthermore, an individual can be a composite of these stages at the same time. The four stages are:

1. *Accumulation Phase* In the early stage of the life cycle, net worth is typically small, but the time horizon is long. Investors can afford to assume large risks.
2. *Consolidation Phase* In this phase, involving the mid-to-late career stage of the life cycle when income exceeds expenses, an investment portfolio can be accumulated. A portfolio balance is sought to provide a moderate trade-off between risk and return.
3. *Spending Phase* In this phase, living expenses are covered from accumulated assets rather than earned income. While some risk-taking is still preferable, the emphasis is on safety, resulting in a relatively low position on the risk-return trade-off.
4. *Gifting Phase* In this phase, the attitudes about the purpose of investments changes. The basic position on the trade-off remains about the same as in stage 3.

Expected Returns We know from Chapter 7 that investors must think in terms of expected returns, which implicitly or explicitly involves probability distributions. The future is uncertain, and the best that investors can do is to make probabilistic estimates of likely returns over some holding period, such as one year. Because the future is uncertain, mistakes are inevitable, but this is simply the nature of investing decisions. Estimates of expected returns must be made regardless of the uncertainties, using the best information and investment processes available.

If an investor is uncomfortable taking the risk of placing 100 percent of investable funds in stocks, that suggests some strategies and some likely outcomes for the expected return of a portfolio. The asset allocation decision will reflect alternative routes available to the investor.

Inflation should be a concern for investors when thinking about the expected returns for a portfolio. The inflation rate of 13 percent in 1979–1980 speaks for itself in terms of the awful impact it had on investors' real wealth. But even with a much lower inflation—say, 3 percent—the damage is substantial. Inflation typically persists steadily across time, at varying rates, eroding values.

Example 21-1 At a 3 percent inflation rate, the purchasing power of a dollar is cut in half in less than 25 years. Therefore, someone retiring at age 60 who lives to approximately 85 and does not protect his or herself from inflation will suffer a drastic decline in purchasing power over the years.

The very low inflation rates of the late 1990s and early 2000s, along with talk of deflation in 2008, may have lulled many investors into thinking that inflation is no longer a serious problem, and that they need not consider this issue as very important. However, for the last 80+ years, the compound annual rate of inflation has been approximately 3 percent. Furthermore, over more recent lengthy periods, the rate of inflation has been substantial.

Example 21-2 According to the Bureau of Labor Statistics, a basket of goods that cost $100 in 1970 cost $534.39 by the end of 2007. You can use a handy inflation calculator for any set of years at http://www.bls.gov/.

It is reasonable to assume that inflation could be higher in the future than it was in the first decade of the twenty-first century; regardless, this is not an issue that investors should ignore.

Contrary to some people's beliefs, common stocks are not always an inflationary hedge. In the 1970s, for example, inflation more than doubled to an average annual rate of about 7.5 percent, and the average stock showed a return of slightly less than 6 percent. Nevertheless, common stocks have been one of the best major asset classes to own in terms of maintaining purchasing power over long periods.

Establishing a Portfolio Risk Level Investors should establish a portfolio risk level that is suitable for them, and then seek the highest returns consistent with that level of risk. We will assume here that investors have a long-run horizon. If not, they should carefully consider the risks that stocks entail, and perhaps hold modest equity positions.

Assuming you are a long-term investor, and that you own an S&P 500-type portfolio, ask yourself what is the worst that is likely to happen to you as an investor in stocks. Ignoring the Great Depression, consider the worst events that have occurred. During the bear market of 1973–1974, investors could have lost about 37 percent of their investment in S&P 500 stocks. During the bear market of 2000–2002, investors could have lost over 40 percent. In 2008, stocks showed a loss of 35–45 percent, depending on the exact time measured. Therefore, it is reasonable to assume that with a long time horizon, investors will face one or more bear markets with approximately 40 percent declines. This is in line with the long-term standard deviation of S&P 500 returns of about 20 percent—with two standard deviations on either side of the mean return encompassing 95 percent of all returns.

If an investor can accept a loss (at least on paper) of approximately 40 percent once or twice in an investing lifetime, and is otherwise optimistic about the economy and about stocks, the investor can assume the risk of U.S. stocks. On the other hand, if such a potential decline is unacceptable, an investor will need to construct a portfolio with a lower risk profile. For example, a portfolio of 50 percent stocks and 50 percent Treasury bills would

cut the risk approximately in half. Other alternatives consisting of stocks and bonds would also decrease the risk.

✓ Perhaps the best way to think about investor objectives is to think about an investor's risk tolerance. Investors decide how much risk they are willing to take, and then attempt to maximize expected return given this level of risk.

Checking Your Understanding

3. Assume you believe that inflation will be higher in the future than it has been in the past, averaging 3.5 percent on a compound annual basis. How can you determine the impact of such an inflation rate on your purchasing power?

CONSTRAINTS AND PREFERENCES

These items are described for a particular investor as the circumstances warrant. Since investors vary widely in their constraints and preferences, these details may vary widely also.

Time Horizon Investors need to think about the time period involved in their investment plans. The objectives being pursued may require a strategy that speaks to specific planning horizons. In the case of an individual investor, for example, this could well be the investor's expected lifetime. In the case of an institutional investor, the time horizon can be quite long. For example, for a company with a defined-benefit retirement plan whose employees are young, and which has no short-term liquidity needs, the time horizon can be thought of as truly long term.

Liquidity Needs As noted in Chapter 2, liquidity is the ease with which an asset can be sold without a sharp change in price as the result of selling. Obviously, cash equivalents (money market securities) have high liquidity and are easily sold at close to face value. Many stocks also have great liquidity, but the price at which they are sold will reflect their current market valuations.

Investors must decide how likely they are to sell some part of their portfolio in the short run. As part of the asset allocation decision, they must decide how much of their funds to keep in cash equivalents.

The financial crisis in 2008 gave a whole new emphasis and perspective on liquidity considerations. Borrowing became much more difficult to do, and the cost of borrowing, when available, was considerably higher. Investors wanted liquid positions, and safe positions, as evidenced by the "flight to safety" to Treasury securities.

Tax Considerations Individual investors, unlike some institutional investors, must consider the impact of taxes on their investment programs. The treatment of ordinary income as opposed to capital gains is an important issue because typically there is a differential tax rate. Furthermore, the tax laws in the United States have been changed several times, making it difficult for investors to forecast the tax rate that will apply in the future.

Example 21-3 During the Bush administration, dividends were taxed at 15 percent, the lowest tax rate on dividends in modern history. Furthermore, long-term capital gains were taxed at a maximum of 15 percent Ordinary income, on the other hand, could be taxed at a federal rate as high as 35 percent.

In addition to the differential tax rates and their changes over time, the capital gains component of security returns benefits from the fact that the tax is not payable until the gain is realized. This tax deferral is, in effect, a tax-free loan that remains invested for the benefit of the taxpayer. As explained below, some securities become "locked up" by the reluctance of investors to pay the capital gains that will result from selling the securities. For example, think about a stock bought for, say, $2 per share 40 years ago that today, after stock splits and growth, is worth $150 per share. Almost the entire proceeds from the sale of such a stock will be taxable if the security is sold—even with a favorable capital gains rate, the tax bill will be sizable.

Retirement programs offer tax sheltering whereby any income and/or capital gains taxes are avoided until such time as the funds are withdrawn. Investors with various retirement and taxable accounts must grapple with the issue of which type of account should hold stocks as opposed to bonds (given that bonds generate higher current income).

Some Practical Advice

One of the easiest and most effective ways for an individual to add value to their portfolio is to be aware of the differences in taxes. Holding a security for more than 12 months, and thereby qualifying for a long-term capital gain, allows the investor to keep 85 percent of the gain since the capital gains tax in this case is 15 percent. In contrast, ordinary income can be taxed at a marginal rate as high as 35 percent. Therefore, one could be giving up 20 percent of the gain to taxes solely as a result of the holding period. Making up such a difference would be difficult to do.

Example 21-4 An investor with a 10 percent rate of return would have an 8.5 percent after-tax rate of return with a long-term capital gain. The same rate of return taxed at the top federal marginal tax rate of 35 percent would result in a 6.5 percent rate of return, which is 31 percent less.

Legal and Regulatory Requirements Investors must obviously deal with regulatory requirements growing out of both common law and the rulings and regulations of state and federal agencies. Individuals are subject to relatively few such requirements, while a particular institutional portfolio, such as an endowment fund or a pension fund, is subject to several legal and regulatory requirements.[3,4]

Unique Needs and Circumstances Investors often face a variety of unique circumstances. An individual who is 40 may plan to retire in 10 more years. Or an individual may feel that their life span is threatened by illness, and wish to benefit within a certain period of time.

[3]With regard to fiduciary responsibilities, one of the most famous concepts is the Prudent Man Rule. This rule, which concerns fiduciaries, goes back to 1830, although it was not formally stated until more than 100 years later. Basically, the rule states that a fiduciary, in managing assets for another party, shall act like people of "prudence, discretion and intelligence" act in governing their own affairs.

[4]One of the important pieces of federal legislation governing institutional investors is the Employment Retirement Income Security Act, referred to as ERISA. This act, administered by the Department of Labor, regulates employer-sponsored retirement plans. It requires that plan assets be diversified and that the standards being applied under the act be applied to management of the portfolio as a whole.

Determine and Quantify Capital Market Expectations

Having considered their objectives and constraints, the next step is to determine a set of investment strategies that hopefully will allow an investor to accomplish their objective. Included here are such issues as asset allocation, portfolio diversification, and the impact of taxes. Once portfolio strategies are developed, they can be used along with the investor's expectations for the capital market and for individual assets to choose a portfolio of assets. Most importantly, the asset allocation decision must be made.

FORMING EXPECTATIONS

The forming of expectations involves two steps:

1. *Macroexpectational factors* These factors influence the market for bonds, stocks, and other assets on both a domestic and international basis. These are expectations about the capital markets.
2. *Microexpectational influences* These factors involve the cause agents that underlie the desired return and risk estimates and influence the selection of a particular asset for a particular portfolio.

RATE OF RETURN ASSUMPTIONS

Most investors base their actions on some assumptions about the rate of return expected from various assets. Obviously, it is important for investors to plan their investing activities on realistic rate of return assumptions.

As a starting point, investors should study carefully the historical rates of return available in such sources as the data provided by Ibbotson Associates or the comparable data discussed in Chapter 6. We know the historical mean returns, both arithmetic and geometric, and the standard deviation of the returns for major asset classes such as stocks, bonds, and bills.

Having analyzed the historical series of returns, there are several difficulties in forming expectations about future returns. For example, how much should investors be influenced by recent stock market returns, particularly when they are unusually good or bad returns?

Example 21-5 The cumulative gain on the S&P 500 Index for 1995 and 1996 was 69.2 percent, the best two-year period in a generation and one of the best in the history of stock market returns for this index (only four other consecutive two-year periods were better as measured by the S&P 500). The geometric mean of approximately 30 percent a year for the years 1995 and 1996 was almost three times the annual average gain for common stocks over many years.

Do investors form unrealistic expectations about future returns as a result of such activity? In the four previous cases of two-year cumulative returns averaging 30 percent per year or more (comparable to 1995–1996), the average annual return for the next five years was negative in two cases (−7.5 percent and −11.2 percent), and less than 9 percent in two cases of positive returns. Moreover, most observers believe that stock returns tend to "revert toward the mean" over time—that is, periods of unusually high returns tend to be followed by periods of lower returns (although not necessarily losses), and the opposite is also true.

Following the bottom that was reached in the stock market in August 1982, the S&P 500 Composite Index showed a compound annual average return of approximately 18.5 percent a year for the years 1982–1999. This is 80 percent larger than the long-run average return of about

10.2 percent a year for the years 1920–2005. And the return was negative in only one year, 1990, and this was relatively small. However, the years 2000–2002 brought substantial losses in the stock market, followed by five years of positive stock returns, one of which (2003) was 28 percent. Therefore, we need to ask how investor expectations about stock returns are influenced by these unusually good, and bad, returns in recent years? How are investors, particularly relatively new investors, affected by this history as they form expectations about future returns?

What about 2008, one of the most extraordinary years in market history in terms of volatility, violent daily fluctuations in market indexes, and stock market losses? Investment banks failed (Lehman Brothers), others were reorganized (Goldman Sachs), credit markets froze, massive bailouts of financial institutions occurred, and government intervention in the economic system took place on an unprecedented scale. Should 2008 be recognized as an anomaly, not likely (hopefully) to reoccur, or should it be included in future planning when assessing likely market returns?

Investors should recognize some key points about future rates of return. In estimating the expected return on stocks (as proxied by the S&P 500), Ibbotson Associates combines the riskless rate and expected risk premium of large company stocks over riskless bonds. The expected equity risk premium to be used in this calculation is based on the *arithmetic mean* of equity risk premiums and not the geometric mean because this is an additive relationship. As stated in the Ibbotson Associates *Yearbook*, ". . . the arithmetic mean is correct because an investment with uncertain returns will have a higher expected ending wealth value than an investment that earns, with certainty, its compound or geometric rate of return each year."[5]

A second key point that investors should recognize in thinking about expected rates of return, and the returns they can realistically expect to achieve, is that common stock returns involve considerable risk. While we know that the annual average compound rate of return on common stocks for the period 1926–2007, according to Table 6-5, was 10.05 percent, that does not mean that all investors can realistically expect to achieve this historical rate of return. To see this, we can analyze the probabilities of actually realizing various compound rates of return over time.

Jones and Wilson have analyzed data for the S&P 500 index using "corrected" S&P observations.[6] The differences in this mean and that provided by Ibbotson Associates and others stems from a difference in the data used for the earlier years of the S&P 500 by taking into account more stocks than have previously been used.

Jones and Wilson determined from a statistical analysis of the data that the historical returns on the S&P 500 Index are lognormally distributed, which means that we can use compound rates of return to estimate probabilities based on the mean and standard deviation of the logs of annual total returns. These probabilities are calculated and reported as the probabilities of achieving any specified *compound* annual average rate of return over any specified holding period. It is important to note that these are probabilities of achieving *at least* the stated compound rate of return or more.

Table 21-1 shows the probabilities of achieving at least a specified compound rate of return, or *more*, based on the history of the S&P 500 Index over the period 1926–2007.[7] In analyzing this table, remember that the calculated geometric mean for the revised S&P 500 for this period was approximately 10.05 percent. These probabilities should be interpreted in the following manner: "Based *solely* on the entire history of annual returns on the S&P

[5]See Roger G. Ibbotson and Rex A. Sinquefield, *Stocks, Bonds, Bills, and Inflation (SBBI)*, updated in *Stocks, Bonds, Bills, and Inflation 1996 Yearbook*, p. 155. Chicago: Ibbotson Associates. All rights reserved.

[6]See Charles P. Jones and Jack W. Wilson, "Probabilities Associated with Common Stock Returns," *The Journal of Portfolio Management* (Fall 1995): 21–32.

[7]We avoid including the year 2008 because of the extraordinary events that occurred during the financial crisis. The stock market saw many extreme movements, both up and down, in daily returns.

Table 21-1 Estimated Probabilities of Receiving a Specified Compound Annual Average Rate of Return, or Greater, for Various Holding Periods Based on Data for Years 1926–2007

Per Annum Return %	Years											
	1	2	3	4	5	10	15	20	25	30	35	40
35	0.13	0.05	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30	0.17	0.09	0.05	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
29	0.19	0.10	0.06	0.04	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	0.20	0.11	0.07	0.04	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27	0.21	0.13	0.08	0.05	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00
26	0.22	0.14	0.09	0.06	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00
25	0.24	0.16	0.11	0.08	0.05	0.01	0.00	0.00	0.00	0.00	0.00	0.00
24	0.25	0.17	0.12	0.09	0.07	0.02	0.00	0.00	0.00	0.00	0.00	0.00
23	0.27	0.19	0.14	0.11	0.08	0.02	0.01	0.00	0.00	0.00	0.00	0.00
22	0.28	0.21	0.16	0.12	0.10	0.03	0.01	0.00	0.00	0.00	0.00	0.00
21	0.30	0.23	0.18	0.14	0.12	0.05	0.02	0.01	0.00	0.00	0.00	0.00
20	0.31	0.25	0.20	0.17	0.14	0.06	0.03	0.01	0.01	0.00	0.00	0.00
19	0.33	0.27	0.22	0.19	0.16	0.08	0.04	0.02	0.01	0.01	0.00	0.00
18	0.35	0.29	0.25	0.22	0.19	0.11	0.06	0.04	0.03	0.02	0.01	0.01
17	0.37	0.31	0.28	0.25	0.22	0.14	0.09	0.06	0.04	0.03	0.02	0.01
16	0.38	0.34	0.30	0.28	0.25	0.17	0.13	0.09	0.07	0.05	0.04	0.03
15	0.40	0.36	0.33	0.31	0.29	0.22	0.17	0.13	0.11	0.09	0.07	0.06
14	0.42	0.39	0.37	0.35	0.33	0.27	0.22	0.19	0.16	0.14	0.12	0.10
13	0.44	0.42	0.40	0.38	0.37	0.32	0.28	0.25	0.23	0.21	0.19	0.17
12	0.46	0.44	0.43	0.42	0.41	0.38	0.35	0.33	0.31	0.29	0.28	0.27
11	0.48	0.47	0.47	0.46	0.46	0.44	0.43	0.41	0.40	0.40	0.39	0.38
10	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.51	0.51	0.51
9	0.52	0.53	0.54	0.54	0.55	0.57	0.58	0.59	0.61	0.62	0.62	0.63
8	0.54	0.56	0.57	0.58	0.59	0.63	0.66	0.68	0.70	0.72	0.73	0.75
7	0.56	0.59	0.61	0.62	0.64	0.69	0.73	0.76	0.78	0.81	0.82	0.84
6	0.58	0.62	0.64	0.66	0.68	0.75	0.79	0.83	0.85	0.88	0.89	0.91
5	0.60	0.65	0.68	0.70	0.72	0.80	0.85	0.88	0.91	0.93	0.94	0.95
4	0.62	0.67	0.71	0.74	0.76	0.84	0.89	0.92	0.94	0.96	0.97	0.98
3	0.64	0.70	0.74	0.77	0.80	0.88	0.92	0.95	0.97	0.98	0.99	0.99
2	0.67	0.73	0.77	0.80	0.83	0.91	0.95	0.97	0.98	0.99	0.99	1.00
1	0.68	0.75	0.80	0.83	0.86	0.94	0.97	0.98	0.99	1.00	1.00	1.00
0	0.70	0.78	0.82	0.86	0.89	0.96	0.98	0.99	1.00	1.00	1.00	1.00
−1	0.72	0.80	0.85	0.88	0.91	0.97	0.99	1.00	1.00	1.00	1.00	1.00
−2	0.74	0.82	0.87	0.90	0.93	0.98	0.99	1.00	1.00	1.00	1.00	1.00
−3	0.76	0.84	0.89	0.92	0.94	0.99	1.00	1.00	1.00	1.00	1.00	1.00
−4	0.78	0.86	0.91	0.94	0.96	0.99	1.00	1.00	1.00	1.00	1.00	1.00
−5	0.80	0.88	0.92	0.95	0.97	1.00	1.00	1.00	1.00	1.00	1.00	1.00
−6	0.81	0.89	0.94	0.96	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00
−7	0.83	0.91	0.95	0.97	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00
−8	0.84	0.92	0.96	0.98	0.99	1.00	1.00	1.00	1.00	1.00	1.00	1.00
−9	0.86	0.93	0.97	0.98	0.99	1.00	1.00	1.00	1.00	1.00	1.00	1.00
−10	0.87	0.94	0.97	0.99	0.99	1.00	1.00	1.00	1.00	1.00	1.00	1.00
−15	0.93	0.98	0.99	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
−20	0.96	0.99	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
−25	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
−30	0.99	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Index for the period 1926–2007, where the geometric mean was approximately 10.05 percent, what are the probabilities of achieving *at least* a specified *compound* rate of return over various holding periods ranging from one to 40 years?"

As Table 21-1 shows, the probability of achieving approximately 10.05 percent or more on a compound basis is (essentially) 50 percent, regardless of the holding period. Note that for rates of return of 10.05 percent or more, the probabilities of achieving that rate of return *decrease* over time, contrary to assertions of many market observers that the risk of owning common stocks decreases over time. On the other hand, the probabilities of achieving at least a 9 percent rate of return, or an 8 percent rate of return, or any lower return, increase over time because these rates of return are below the geometric mean return for the period. Nevertheless, after 40 years the probability of earning a compound rate of return of 9 percent or more on the S&P 500, based on this long history, is only .63—thus, investor have slightly less than a one in three chance of earning 9 percent or less if the future is like the past. Even for a compound rate of return of 8 percent or more, the probability after 40 years is only 75 percent, which means there is a one in four chance of earning 8 percent or less.

The message from Table 21-1 is important. Based on the known history of stock returns, the chance that an investor will actually achieve some compound rate of return over time from owning common stocks may not be as high as he or she believes. Common stocks are risky, and expected returns are not guaranteed.

Checking Your Understanding

4. The geometric mean for the S&P 500 for the period 1926–2007 was 10.05 percent. What was the probability, based on the returns data, of earning 10.05 percent or more for any holding period?

Developing and Implementing Investing Strategies

Having considered the objectives and constraints, and formed capital market expectations, the next step is actually constructing a portfolio. Included here are such issues as asset allocation, portfolio optimization, and security selection. In summary, once the portfolio strategies are developed, they are used along with the investment manager's expectations for the capital market and for individual assets to choose a portfolio of assets.

Portfolio construction can be viewed from a broad perspective as consisting of the following steps (again, given the investor's investing strategy and capital market expectations):

1. Define the universe of securities eligible for inclusion in a particular portfolio. This step is really the asset allocation decision, probably the key decision made by investment managers.
2. Utilize an optimization procedure to select securities and determine the proper portfolio weights for these securities.

Both of these steps are discussed in more detail as follows.

ASSET ALLOCATION

As discussed in Chapter 8, the asset allocation decision involves deciding the percentage of investable funds to be placed in stocks, bonds, cash equivalents, and so forth. That is, asset allocation involves which of the major asset classes an investor will choose for his or her portfolio. While multiple asset classes are available, for discussion purposes we can think of

the asset allocation decision in terms of stocks, bonds, and safe assets (Treasury bills) because most investors hold some or all of these three asset classes.[8]

Within an asset class, diversified portfolios will tend to produce similar returns over time. However, different asset classes are likely to produce results that are quite dissimilar. Therefore, differences in asset allocation will be the key factor over time causing differences in portfolio performance.

William Sharpe, a winner of the Nobel prize in Economics, has stated that when he breaks down the performance results of pension fund managers including not only the major asset classes but also growth and value stocks, "asset allocation accounts for 98 percent or more of the returns." As Sharpe noted, "those are really profound numbers."

Example 21-6 To appreciate the importance of the asset allocation decision, think of an investor with a five-year investment horizon making this decision at the beginning of 1995. If this investor had placed all of his or her portfolio funds in stocks, the investor would have enjoyed great success as the market compounded at 20+ percent for the next five years. On the other hand, think of this investor making the decision at the beginning of 2000, with a three-year horizon. A 100 percent commitment to stocks would have resulted in large losses as the market declined sharply. In contrast, the investor who placed all of his or her funds in bonds at the beginning of 2000 would have been spared this debacle, and enjoyed nice returns.

✓ Asset allocation is the most important investment decision made by investors because it is the basic determinant of the return and risk taken. Having allocated funds to asset classes, an investor's fate is largely determined by market conditions.

The Asset Allocation Decision Factors to consider in making the asset allocation decision include the investor's return requirements (current income versus future income), the investor's risk tolerance, and the time horizon. This is done in conjunction with the investment manager's expectations about the capital markets and about individual assets, as described above.

How asset allocation decisions are made by investors remains a subject that is not fully understood. It is known that actual allocation decisions often differ widely from how investors say they will allocate assets.

According to some analyses, asset allocation is closely related to the age of an investor. This involves the so-called life-cycle theory of asset allocation. This makes intuitive sense because the needs and financial positions of workers in their 50s will differ on average from those who are starting out in their 20s. According to the life-cycle theory, for example, as individuals approach retirement they become more risk averse.

Table 21-2 illustrates the asset allocation decision by presenting two examples to show how major changes during life can affect asset allocation. One investor is "conservative," and one "aggressive." They begin their investment programs with different allocations and end with different allocations, but their responses to major changes over the life cycle are similar. Both investors have a minimum of 50 percent allocated to stocks at all stages of the life cycle because of the need for growth.

[8]Strategic asset allocation is usually done once every few years, thereby establishing a long-run, or strategic asset mix. Tactical asset allocation is performed routinely, driven by changes in predictions concerning asset returns. In effect, tactical asset allocation is a market timing approach to portfolio management intended to increase exposure to a particular market when its performance is expected to be good, and decrease exposure when performance is expected to be poor.

Table 21-2 How Major Changes Can Affect Your Asset Allocation

	Conservative			Aggressive		
Asset Category	Early Career (%)	Late Career (%)	Retirement (%)	Early Career (%)	Late Career (%)	Retirement (%)
Cash	10	10	10	10	10	10
Bonds	20	30	40	0	10	10
Large-Cap Stocks	40	40	40	30	40	50
Small-Cap Stocks	15	10	5	30	20	15
International Stocks	15	10	5	30	20	15

SOURCE: Maria Crawford Scott, "How Major Changes in Your Life Can Affect Your Asset Allocation," *AAII Journal*, October 1995, p. 17. Copyright © 1995 by the American Association of Individual Investors. Reprinted by permission.

Table 21-2, published in *AAII Journal*, a magazine for individual investors, is illustrative only. Different investors will choose different allocations. Lifestyle changes could cause investors to move from one stage to the other, or changes in life may not cause a change in the allocation percentages. Moreover, even among similar age groups, goals can vary substantially. Overall, asset allocation decisions may depend more on goals than age. The important point is that all investors must make the asset allocation decision, and this decision will have a major impact on the investment results achieved.

It seems reasonable to assert that the level of risk tolerance affects the asset allocation decision. One study examined the risk preferences of households using financial data for a large random sample of U.S. households. The definition of risk used was relative risk aversion, defined as investors' tolerance for risk as measured relative to his or her wealth level. This study found differences in relative risk aversion across three distinct categories of individuals—those 65 and older, those with very high levels of wealth, and those with incomes below the poverty level. The study also found clear patterns for asset allocation over wealth and income levels, with the proportion allocated to risky assets rising consistently with both income and wealth.

PORTFOLIO OPTIMIZATION

Stated at its simplest, portfolio construction involves the selection of securities to be included in the portfolio and the determination of portfolio funds (the weights) to be placed in each security. As we know from Chapter 7, the Markowitz model provides the basis for a scientific portfolio construction resulting in efficient portfolios. An efficient portfolio, as discussed in Chapter 8, is one with the highest level of expected return for a given level of risk, or the lowest risk for a given level of expected return.

On a formal basis, the Markowitz model provides an organized framework for portfolio optimization, which allows investors to construct portfolios that are efficient. The basic concepts pioneered by Markowitz are widely known and used today by money managers and investors to varying degrees.

Monitor Market Conditions and Investor Circumstances

It is important to monitor market conditions, the relative asset mix, and the investor's circumstances. Investing is an ongoing and dynamic process, and changes occur rapidly and frequently.

MONITORING MARKET CONDITIONS

The need to monitor market conditions is obvious. Investment decisions are made in a dynamic marketplace where change occurs on a continuing basis. Key macro variables, such as inflation and interest rates, should be tracked on a regular basis. Information about the prospects for corporate earnings is obviously important because of the impact of earnings on stock prices.

We now have enough market history to understand that financial crises are inevitable in a capitalistic economy where market participants are more or less free to act. Certainly the subprime meltdown and its aftershocks in 2008 presented a real challenge to the economy. Before that, we saw the Internet bubble in the late 1990s, and before that, the savings and loan crisis in the 1980s. The real question investors face is not if there will be another financial crisis in the future, but when.

Some Practical Advice

How might investors spot a future problem in the economy? One good tipoff is very large sums of money flowing to one sector, such as subprime and related securities, or dot.com companies in the late 1990s. Such imbalances have to be corrected, sooner or later.

CHANGES IN INVESTOR'S CIRCUMSTANCES

An investor's circumstances can change for several reasons. These can be easily organized on the basis of the framework for determining portfolio policies outlined above.

- *Change in Wealth* A change in wealth may cause an investor to behave differently, possibly accepting more risk in the case of an increase in wealth, or becoming more risk averse in the case of a decline in wealth.
- *Change in Time Horizon* Traditionally, we think of investors aging and becoming more conservative in their investment approach.
- *Change in Liquidity Requirements* A need for more current income could increase the emphasis on dividend-paying stocks, while a decrease in current income requirements could lead to greater investment in small stocks whose potential payoff may be years in the future.
- *Change in Tax Circumstances* An investor who moves to a higher tax bracket may find municipal bonds more attractive. Also, the timing of the realization of capital gains can become more important.
- *Change in Legal/Regulatory Considerations* Laws affecting investors change regularly, whether tax laws or laws governing retirement accounts, annuities, and so forth.
- *Change in Unique Needs and Circumstances* Investors face a number of possible changes during their life, depending on many economic, social, political, health, and work-related factors.

Checking Your Understanding

5. Why do most market observers view asset allocation as the most important decision an investor makes? Explain your answer in the context of the 2008 financial crisis.

Rebalancing the Portfolio

Portfolio Rebalancing
Periodically rebalancing a portfolio to maintain some specified or desired asset allocation decision

Even the most carefully constructed portfolio is not intended to remain intact without change. Portfolio managers spend much of their time monitoring their portfolios and doing **portfolio rebalancing**. The key is to know when and how to do such rebalancing because a trade-off is involved: the cost of trading versus the cost of not trading.[9]

The cost of trading involves commissions, possible impact on market price, and the time involved in deciding to trade. The cost of not trading involves holding positions that are not best suited for the portfolio's owner, holding positions that violate the asset allocation plan, holding a portfolio that is no longer adequately diversified, and so forth.

One of the problems involved in rebalancing is the "lockup" problem. This situation arises in taxable accounts subject to capital gains taxes. Even at low levels of turnover, the tax liabilities generated can be larger than the gains achieved by the active management driving the turnover. In the absence of taxes, such as with tax-deferred IRA and 401-k plans, investors would simply seek to hold those securities with the highest risk-adjusted expected rates of return. With a lockup problem, however, investors may be reluctant to rebalance the portfolio because of the capital gains taxes that will result on the accrued appreciation which, until realized, remains untaxed.

Individual investors, having taken the time to make the asset allocation decision, need to recognize that their chosen asset allocation percentages will likely get out of alignment over time. They often forget to rebalance their portfolios. This means that they may lose the benefits of having an asset allocation plan. Rebalancing reduces the risks of sharp losses—in general, a rebalanced portfolio is less volatile than one that is not rebalanced.

Investors should concentrate on keeping their chosen asset allocation percentages in line over the long run. There is no one correct formula for when to rebalance. One rule of thumb with a reasonable following is to rebalance when asset allocations vary by 10 percent or more, barring unusual circumstances.

Rebalancing is difficult for many investors because it represents a contrarian strategy. To rebalance, investors are selling those asset classes that have appreciated, and reinvesting the funds in those that have not. This is very difficult to do psychologically. During the stock market bubble in the late 1990s, it was almost impossible to do as the market continued to rise and rise. Ultimately, of course, the benefits of rebalancing emerged as stocks plummeted and bonds appreciated.

Box 21-1 is a good discussion of the rebalancing issue from a practical standpoint, as presented in S&P's *Outlook*. Note that the tax liability issue is discussed in this article.

Box 21-1

Rebalancing Is Worth the Effort

A periodic review and revision of your asset allocation can become a disciplined way to sell high and buy low, allowing you to lock in gains and reduce risk. To rebalance or not to rebalance, that is the question.

Rebalancing simply means periodically reviewing your portfolio to ensure that it is still fulfilling your investment goals. If, for example, an investor set up a portfolio that was 60% stocks and 40% bonds three years ago, the outperformance of bonds in recent years could mean that the portfolio no longer reflects the desired allocation strategy. In fact, it would have flip-flopped to 40% stocks and 60% bonds. In that case, you might want to rebalance—meaning sell some bonds and buy more stocks—to get the portfolio back to the asset allocation you want.

[9]This discussion is indebted to Robert D. Arnott and Robert M. Lovell, Jr., "Monitoring and Rebalancing the Portfolio," in *Managing Investment Portfolios*, Second Edition, edited by John L. Maginn and Donald L. Tuttle. New York: Warren, Gorham and Lamont, 1990.

Many investors dislike rebalancing, however, because it means selling winners in favor of losers. Rebalancing can also generate trading fees, as well as taxes on any gains booked by selling securities.

But most financial professionals believe the benefits outweigh these disadvantages.

"You want to rebalance to avoid owning a portfolio dominated by overvalued securities," says David Braverman, senior director of portfolio services at Standard & Poor's. "Rebalancing can reduce the risk of your portfolio and, often, boost returns as well."

That's because rebalancing forces you to sell high and buy low.

"Think of it as an exercise to remind yourself that you do have to sell," says David Blitzer, S&P's managing director for investment analysis. "Rebalancing gives you a discipline for determining what to sell and when to sell it. The idea is that no one is going to be the perfect market timer. Rebalancing is a guaranteed way to buy low, though perhaps not at the low, and sell high, though perhaps not at the high."

How often should you rebalance? Most experts suggest you do it once a year, though some say you might want to consider rebalancing even more frequently if the markets are especially volatile.

"I use the 5% rule with my clients," says Larry Swedroe, a financial planner with Buckingham Asset Management in St. Louis. "If a portfolio shifts more than 5% away from a desired asset allocation, that's when you want to think about rebalancing."

If you haven't rebalanced in the past year, you should think about it. Take a look at all your investments, whether they are in a taxable brokerage or mutual fund account, or a tax-deferred account like a 401(k) plan or an individual retirement account (IRA). Calculate how much is in stocks and how much is in bonds. Then determine whether you are comfortable with your allocations. S&P is currently recommending an asset allocation of 65% stocks, 15% bonds, and 20% cash.

It is also important to drill down deeper than that. Within your stock portfolio, for example, you probably want a split between U.S. stocks and foreign issues. Many financial planners advocate keeping at least 10% of your equity portfolio in foreign stocks.

Similarly, many investors prefer to keep their bond portfolios invested in a mix of U.S. Treasuries, municipals, and corporate bonds .

Once you determine how to bring your asset allocation back to where you want it, there are several ways to get it done.

Some advisers suggest making as many changes as possible in a tax-deferred account like a 401(k) or an IRA because that will reduce your immediate tax liability. Also, since few 401(k) accounts charge trading fees, it is a way to cut down on transaction costs.

You can also rebalance without incurring a tax liability by using new money instead of moving around existing money in your portfolio.

"Try to rebalance using new cash, rather than selling current investments," says Swedroe. "If you have too much in bonds right now, invest some new money in stocks, instead of having to sell the bond position to raise money to put more in stocks."

If rebalancing is going to cause a tax liability, you might want to consider waiting until the end of the year. Then you can determine whether to pay the tax in the current year, or defer it to the following year.

"I meet with each of my clients in November, and we map out a strategy for rebalancing," says Alan Kahn, president of AJK Financial in Syosset, NewYork. "If we see the portfolio is going to incur net gains because of the rebalancing, we calculate the tax implications and decide whether the trades should be made in December, which puts the tax into the current year, or in January, which defers the tax to the following year. The important thing to remember is that you are in control of the portfolio; it isn't taking control of itself."

SOURCE: "Rebalancing Is Worth the Effort" from *THE OUTLOOK*, March 26, 2003, p. 12. Reprinted by permission of McGraw-Hill.

Performance Measurement

The portfolio management process is designed to facilitate making investment decisions in an organized, systematic manner. Clearly, it is important to evaluate the effectiveness of the overall decision-making process. The measurement of portfolio performance allows investors to determine the success of the portfolio management process, and of the portfolio manager. It is a key part of monitoring the investment strategy that was based on investor objectives, constraints, and preferences.

Performance measurement is important to both those who employ a professional portfolio manager on their behalf as well as to those who invest personal funds. It allows investors

to evaluate the risks that are being taken, the reasons for the success or failure of the investing program, and the costs of any restrictions that may have been placed on the investment manager. This, in turn, could lead to revisions in the process.

Unresolved issues remain in performance measurement despite the development of an entire industry to provide data and analyses of ex-post performance. Nevertheless, it is a critical part of the investment management process, and the logical capstone in its own right of the entire study of investments. We therefore consider this issue next as a separate and concluding chapter of the text.

Some Practical Approaches to Portfolio Management

In the previous discussion we outlined a portfolio management process that can guide investors in a systematic, rational manner. This process identifies the issues that are of importance to investors in managing a portfolio of financial assets. These issues include expectations about the future, taxes, portfolio rebalancing, and so forth. Let's now consider how investors can deal with some of these issues by employing some options available to today's investors. This is a nonexhaustive list that simply illustrates some of the approaches to portfolio management that are readily available to investors.

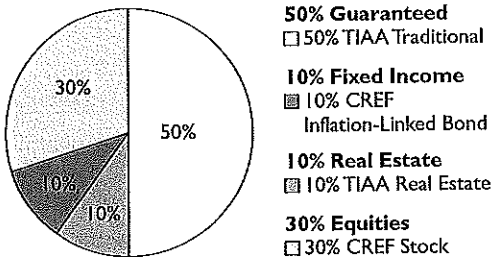
The Asset Allocation Decision

Studies suggest that the asset allocation decision can account for more than 90 percent of the variance in returns for large pension fund portfolios. Many investors now regard the asset allocation decision as the most important one to be made in determining the success of their portfolio over time. How does asset allocation get implemented in practice? An easy and practical way to do asset allocation is to look at some suggested allocations by leading financial services firms. Most of the larger firms, such as Fidelity, Vanguard, and so forth, show example asset allocations.

Consider the model portfolios of TIAA-CREF, one of the largest financial service providers in the world. TIAA-CREF illustrates several model portfolios that accommodate a range of investor risk tolerances. For example, for a conservative investor who emphasizes safety and stability, the following asset allocation is recommended.

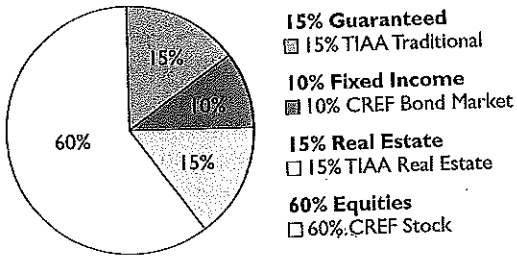
Notice that 50 percent of the portfolio is allocated to a guaranteed fund. Even so, 30 percent is allocated to equities to provide some growth opportunities over time.

Conservative Investor:



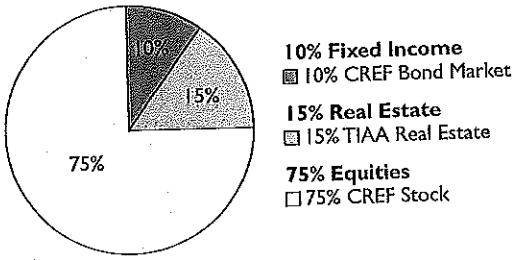
What about a moderately aggressive investor who seeks more growth possibilities while still emphasizing stability? TIAA-CREF recommends the following asset allocation.

Moderately Aggressive Investor:



Finally, what about the "aggressive" investor building a retirement portfolio (as opposed to a speculator). This approach offers investors both growth and income stocks, and both domestic and international opportunities. Note that even at this stage only 75 percent of funds are invested in equities because the investor still needs diversification and some stability.

Aggressive Investor:



SOURCE: TIAA-CREF website.

As another example, the Vanguard website illustrates nine model portfolios by showing how they would have performed on a historical basis covering 80+ years.[10] At one extreme, a 100 percent bond portfolio would have experienced an average annual return of 5.5 percent, while at the other extreme a 100 percent stock portfolio would have experienced an average annual return of 10.4 percent (but obviously with a larger risk). A portfolio of 50 percent bonds and 50 percent stocks would have experienced an average annual return of 8.4 percent.

Other mutual fund companies offer "all in one funds" not only for retirement planning purposes but also for strategic purposes over an investor's lifetime. For example, T. Rowe Price offers "Personal Strategy Funds" for investors who want a "simple, well-diversified portfolio." Offerings include a strategy income fund, a strategy balanced fund, and a strategy growth fund. In each of these cases, the asset allocation decision is made for the investor.

Life-Cycle Funds

Retirement planning and investing is a major industry, and an activity that will affect a large majority of the population. Failure to adequately prepare for retirement, from a financial standpoint, will have very unfortunate consequences.

[10]This information can be found at https://personal.vanguard.com/us/planningeducation/general/PEdGPCreateTheRightMixContent.jsp.

According to the Investment Company Institute, at the end of 2007 Americans held $17.6 trillion in retirement assets, up $1.1 trillion from year-end 2006. IRAs play a major role in the retirement assets held. At year-end 2007, investors held $9.2 trillion in IRAs and defined contribution plans, accounting for about half of the entire retirement market. Of course, retirement assets fell in 2008.

A simple approach for some individual investors in managing their retirement funds is to buy a life-cycle fund (also called a target-date fund). Life-cycle funds are balanced funds (holding both equity and fixed income investments) with an asset allocation that automatically adjusts to a more conservative posture as your retirement date approaches. They are available in many 401(k) plans.

Fidelity and Vanguard are the two largest providers of life-cycle funds. Fidelity uses 18 underlying mutual funds in an active management approach while Vanguard uses only a few funds in a passive management approach. For example, the Vanguard Target Retirement 2040 Fund is for people in their 30s with approximately 30 years to retirement. The fund starts out mostly invested in stocks, but by approximately 2023 it is roughly 50/50 stocks and bonds because at that point investors will be roughly 11 or 12 years from retirement.

Tax Advantaged Investing

For taxable investors, the impact of taxes should play an important part in their portfolio management strategy. Too often tax considerations are an afterthought, or are handled on an ad hoc basis. Taxes can easily have a larger impact than any other costs associated with a portfolio of securities.

A simple approach to tax advantaged investing traditionally was to choose a portfolio of growth stocks that would be held for a multiple year period. These stocks generally pay minimal or no dividends, thereby escaping the higher taxation associated with dividends.

The 2003 tax cuts allowed investors to more easily construct a diversified portfolio with a low tax impact. The capital-gains rate for long-term gains was cut to 15 percent, with the same rate applied to dividends issued by domestic stocks and mutual funds. Note that payouts from foreign stocks and REITs (real estate investment trusts) do not qualify for the dividend tax break. Of course, tax rates are subject to change, and do change, being a product of the political process.

We know from Chapter 2 that many municipal bonds are not subject to federal taxation. Tax-free money market accounts are also available. Investors holding corporate bonds, particularly the high-yield variety, typically should do so in tax-advantaged accounts; otherwise, the interest will be taxed at full income tax rates.

Some mutual funds strive for tax efficiency. Of course, index funds by nature are tax efficient because their only portfolio changes occur when the underlying index changes. Some actively managed funds also seek to be tax efficient by keeping turnover low, minimizing the capital gains that are realized. Others try to match realized gains by selling those positions with losses, thereby offsetting the gains with losses.

Some of the tax efficient mutual funds can be identified by their names, such as Vanguard's Tax-Managed Balanced fund, which invests in both stocks and bonds. Others can be found by doing some research on such sites as Morningstar. For example, Third Avenue Value is well known for having a low tax impact on investors.

ETFs, typically being passively managed portfolios, tend to have extremely low expenses. They also typically have little turnover, few or no capital gains distributions, and low dividend yields; therefore, they tend to be tax efficient.

Minimize Costs and Effort, and Improve Performance, When Managing a Portfolio

A 2008 issue of Standard & Poor's *The Outlook* contained the following statement: "Evidence suggests that most investors' portfolios significantly underperform both the stock market and the mutual funds in which they invest."[11] If this is really true, what can the average investor do to improve the performance of their portfolio?

In earlier chapters we considered issues involved with passive portfolio management. Chief among these perhaps is the use of index funds. Such funds offer investors diversification and very low costs, allowing them to come close to earning the returns available on some index of assets, such as the S&P 500 Index or an international stock index.

Passive investing in the form of index funds and some ETFs is the way to go for most investors. Take a long run approach, make a reasonable asset allocation decision regarding index funds and ETFs, and enjoy the benefits of low costs, low taxes, diversification, and matching the performance of the overall markets in which you are invested. Surprising as it may be to many people, such a strategy would allow most investors to outperform their friends and contemporaries over a long period of time.

Jack Bogle, the founder of Vanguard and a persistent critic of actively managed mutual funds, perhaps said it best: Just "buy right and sit tight."

Summary

- Portfolio management should be thought of as a process that can be applied to each investor.
- The portfolio management process can be applied to each investor to produce a set of strategy recommendations for accomplishing a given end result.
- The entire process involves developing explicit investment policies, consisting of objectives, constraints, and preferences, determining and quantifying capital market expectations, constructing the portfolio, monitoring portfolio factors and responding to changes, rebalancing the portfolio when necessary, and measuring and evaluating portfolio performance.
- The first step is to develop an investment policy for the investor, consisting of carefully stated objectives, constraints, and preferences.
- The portfolio construction process can be thought of in terms of the asset allocation decision and the portfolio optimization decision.
- Asset allocation is the most important investment decision made by investors. Types of asset allocation include strategic and tactical.
- It is important to monitor market conditions, the relative asset mix, and the investor's circumstances. Investing is an ongoing and dynamic process, and changes occur rapidly and frequently.
- Portfolio managers spend much of their time monitoring their portfolios and doing portfolio rebalancing. The key is to know when and how to do such rebalancing because a trade-off is involved: the cost of trading versus the cost of not trading.
- The measurement of portfolio performance allows investors to determine the success of the portfolio management process, and of the portfolio manager.
- Today's investors can take advantage of recommended asset allocations from financial firms, life-cycle funds, tax advantage investing, and, very simply, index funds and ETFs.

Key Words

Investment strategy
Portfolio management process
Portfolio rebalancing

[11] Standard & Poor's *The Outlook*, Vol. 80, No. 17, April 30, 2008, p. 1.

Questions

21-1 What is meant by the portfolio management process?

21-2 Must each investment management firm be organized the same way in order to carry out the investment process?

21-3 What are some of the differences between individual investors and institutional investors?

21-4 What are the objectives of an investment strategy? Do these objectives have equal status?

21-5 How can a well-specified investment strategy facilitate the job of investment managers in managing portfolios?

21-6 Why is the asset allocation decision the most important decision made by investors?

21-7 What is meant by portfolio optimization?

21-8 What rule of thumb might investors follow when considering portfolio rebalancing?

21-9 In forming expectations about future returns from stocks, to what extent should investors be influenced by the more recent past (e.g., the previous 15 years) versus the history of stock market returns starting, for example, in 1926?

CFA

21-10 Why are tax considerations important in developing an investment policy?

CFA

21-11 (a) A treasurer of a municipality with a municipal pension fund has required that its in-house portfolio manager invest all funds in the highest investment grade securities that mature in one month or less. The treasurer believes that this is a safe policy. Comment on this investment policy.

(b) The same treasurer requires that the in-house portfolio municipality's operating fund (i.e., fund needed for day-to-day operations of the municipality) follow the same investment policy. Comment on the appropriateness of this investment policy for managing the municipality's operating fund.

CFA

21-12 James Stephenson Investment Profile

Case Facts

Type of investor	Individual; surgeon, 55 years of age, in good health
Asset base	$2 million
Stated return desire or investment goal	10 percentage points above the average annual return on U.S. small-capitalization stocks
Annual spending needs	$150,000
Annual income from nonportfolio sources (before tax)	$350,00 from surgical practice
Other return factors	Inflation is 3%
Risk considerations	Owns large concentration in U.S. small-capitalization stocks
Specific liquidity requirements	$70,000 charitable donation in 10 months
Time specifications	Retirement at age 70
Tax concerns	Income and capital gains taxed at 30 percent

Questions

1. Underline the word at right that best describes the client's:

A. Willingness to accept risk	Below average	Above average
B. Ability to accept risk	Below average	Above average
C. Risk tolerance	Below average	Above average
D. Liquidity requirement	Significant	Not significant
E. Time horizon	Single stage	Multistage
F. Overall time horizon	Short to intermediate term	Long term
G. Tax concerns	Significant	Not significant

2. Discuss appropriate client objectives:
   A. Risk
   B. Return

CFA

21-13 Foothill College Endowment Fund

Case Facts

Type of investor	Institutional; endowment
Purpose	Provide annual scholarships currently totaling $39.5 million
Asset base	$1 billion
Stated return desire	6 percent, calculated as spending rate of 4 percent plus previously expected college tuition inflation of 2 percent
Other return factors	Revised expectation of college tuition inflation is 3 percent
Tax concerns	Tax exempt

Questions

1. Underline the word at right that best describes the client's:

A. Risk tolerance	Below average	Above average
B. Liquidity requirement	Significant	Not significant
C. Time horizon	Single stage	Multistage
D. Overall time horizon	Short to intermediate term	Long term
E. Tax concern	Significant	Not significant

2. Discuss appropriate client objectives:
   A. Risk
   B. Return

CFA

21-14 Vincenzo Donadoni Investment Profile (adapted from 1998 CFA Level III Exam)

Case Facts

Type of investor	Individual; 56-year-old male in good health
Asset base	13.0 million Swiss francs (CHF)
Stated return desire or investment goal	Leave a trust fund of CHF 15.0 million for three children
Annual spending needs	CHF 250,000 rising with inflation
Annual income from other sources (after tax)	CHF 125,000 consulting income for next two years only
Ability to generate additional income	No
Willingness to accept risk	Impulsive, opinionated, successful, with large bets as a businessman, believes success depends on taking initiative
Specific liquidity requirements	CHF 1.5 million immediately to renovate house CHF 2.0 million in taxes due in nine months
Time specifications	Long term except for liquidity concerns
Legal and regulatory factors	None
Unique circumstances	None

Questions

1. Underline the word at right that best describes the client's:

A. Willingness to accept risk	Below average	Above Average
B. Ability to accept risk	Below average	Above Average
C. Risk tolerance	Below average	Above Average
D. Liquidity requirement	Significant	Not significant
E. Time horizon	Single stage	Multistage
F. Overall time horizon	Short to intermediate term	Long term

2. Discuss appropriate client objectives:
   A. Risk
   B. Return

CFA

21-15 For the following types of investors, appraise the importance of using the specified asset class for strategic asset allocation.

(a) Long-term bonds for a life insurer and for a young investor.
(b) Common stock for a bank and for a young investor.
(c) Domestic tax-exempt bonds for an endowment and for a midcareer professional.
(d) Private equity for a major foundation and for a young investor.

CFA

21-16 Hugh Donovan is chief financial officer (CFO) of LightSpeed Connections (LSC), a rapidly growing U.S. technology company with a traditional defined-benefit pension plan. Because of LSC's young workforce, Donovan believes the pension plan has no liquidity needs and can thus invest aggressively to maximize pension assets. He also believes that Treasury bills and bonds, yielding 5.4 percent and 6.1 percent, respectively, have no place in a portfolio with such a long time horizon. His strategy, which has produced excellent returns for the past two years, is to invest the portfolio as follows:

- 50 percent in a concentrated pool (15 to 20 stocks) of initial public offerings (IPOs) in technology and Internet companies, managed internally by Donovan.
- 25 percent in a small-cap growth fund.
- 10 percent in a venture capital fund.
- 10 percent in an S&P 500 index fund.
- 5 percent in an international equity fund.

(Working with LSC's Investment Committee, the firm's president, Eileen Jeffries, had produced a formal investment policy statement, which reads as follows:

The LSC Pension Plan's return objective should focus on real total returns that will fund its long-term obligations on an inflation-adjusted basis. The "time-to-maturity" of the corporate workforce is a key element for any defined pension plan; given our young workforce, LSC's Plan has a long investment horizon and more time available for wealth compounding to occur. Therefore, the Plan can pursue an aggressive investment

course and focus on the higher return potential of capital growth. Under present U.S. tax laws, pension portfolio income and capital gains are not taxed. The portfolio should focus primarily on investments in business directly related to our main business to leverage our knowledge base.

Jeffries takes an asset-only approach to strategic asset allocation. She is considering three alternative allocations, shown in Exhibit 21-1 along with the portfolio's current asset allocation.

Select and justify the portfolio that is most appropriate for LSC's pension plan.

EXHIBIT 21-1

Alternative Asset Allocations and Current Portfolio

Asset	Portfolio A	Portfolio B	Portfolio C	Current Portfolio
S&P 500 Index	25%	16%	35%	10%
IPO/tech portfolio	20	40	10	50
Small-cap growth fund	26	10	19	25
International equity fund	0	16	15	5
Venture capital fund	10	5	5	10
Money market fund	7	7	2	0
Corporate bond fund	12	6	14	0
Total	100%	100%	100%	100%
Expected return	16.6%	22.1%	13.3%	26.2%
Standard deviation	26.7%	38.4%	19.8%	55.2%

Checking Your Understanding

21-1 Maginn et al. specifically avoided advocating how the process should be organized by money management companies or others, who should make the decisions, and so forth. Each investment management organization should decide for itself how best to carry out its activities, consistent with viewing portfolio management as a process.

21-2 Individual investors need to be explicit in stating their investment strategy in order to avoid conflicts and inconsistencies that often arise. For example, an investor may say that he or she wants a 10 percent after-tax return while maintaining a very low tolerance for risk. Such an objective is very unlikely, based on the history of asset returns, and by having to work through a policy statement the investor can be shown why such a statement is a problem.

21-3 The rule of 72 tells us how many years it will take for $1 to double, given some compound rate of return. This can be reversed to ask how many years it takes for the purchasing power of money to be cut in half because doubling and halving are related concepts. Using the rule of 72 and a 3.5 percent compound growth rate, it would take approximately 20.6 years for the purchasing power to be cut in half (72/3.5 = 20.57 years).

21-4 Because 10.05 percent is both the mean and the median of the S&P 500 returns for the period 1926–2007, the probability of earning more than 10.05 percent for any holding period