

PORTFOLIO SELECTION

As the boxed article that follows explains in historical perspective, modern portfolio managers seek to achieve the best possible tradeoff between risk and return. A top-down analysis of their strategies starts with the broadest decisions concerning portfolio composition and progresses to ever-finer details about the exact makeup of the portfolio.

For example, the **capital allocation decision** refers to the proportion of the overall portfolio that the investor chooses to place in safe but low-return money market securities versus risky but higher-return securities like stocks. Given the fraction of funds apportioned to risky investments, the investor next makes an **asset allocation decision**, which describes the distribution of risky investments across broad asset classes like stocks, bonds, real estate, foreign assets, and so on. Finally, the **security selection decision** describes the choice of which particular securities to hold within each asset class.

The top-down analysis of portfolio construction has much to recommend it. Most institutional investors follow a top-down approach. Capital allocation and asset allocation decisions will be made at a high organizational level, with the choice of the specific securities to hold within each asset class delegated to particular portfolio managers.

Individual investors typically follow a less structured approach to investment management, but they too typically give priority to broader allocation issues. For example, an individual's first decision is usually how much of his or her wealth must be left in a safe bank or money market account.

This chapter starts with the broadest investment decision: capital allocation between **risk-free assets** versus the risky portion of the portfolio, in which the composition of the



risky portfolio is taken as given and referred to as “the” **risky asset**. Then we examine how to construct that optimal risky portfolio.

The capital allocation problem is solved in two stages. First we determine the risk-return tradeoff encountered when choosing between the risky and risk-free assets. Then we show how risk aversion determines the optimal mix of the two assets. This analysis leads us to examine so-called passive strategies, which call for allocation of the portfolio between a (risk-free) asset money market fund and an index fund of common stocks.

The discussion of the construction of the optimal risky portfolio begins at the simplest level, with an explanation of how diversification can reduce the variability of portfolio returns. Then we examine efficient diversification strategies at the asset allocation and security selection levels. We start with a simple, restricted example of asset allocation with two risky mutual funds: a long-term debt fund and an equity fund. With this example we investigate the relationship between investment proportions and the resulting portfolio expected return and standard deviation. We then add a risk-free asset (e.g., T-bills) to the menu of assets and determine the optimal asset allocation.

Moving from asset allocation to security selection, we first generalize our discussion of restricted asset allocation (with only two risky assets) to a universe of many risky securities. We show how the best attainable capital allocation line emerges from the efficient portfolio algorithm, so that portfolio optimization can be conducted in two stages, asset allocation and security selection.

Finally, in the appendixes to this chapter, we examine common fallacies regarding the power of diversification in the context of the insurance principle.



6.1 CAPITAL ALLOCATION ACROSS RISKY AND RISK-FREE PORTFOLIOS

History shows us that long-term bonds have been riskier investments than investments in Treasury bills and that stock investments have been riskier still. On the other hand, the riskier investments have offered higher average returns. Investors, of course, do not make all-or-nothing choices from these investment classes. They can and do construct their portfolios using securities from all asset classes. Some of the portfolio may be in risk-free Treasury bills, and some in high-risk stocks.

The most straightforward way to control the risk of the portfolio is through the fraction of the portfolio invested in Treasury bills and other safe money market securities versus risky assets. This *capital allocation decision* is an example of an *asset allocation* choice—a choice among broad investment classes, rather than among the specific securities within each asset class. Most investment professionals consider asset allocation to be the most important part of portfolio construction. Therefore, we start our discussion of the risk-return tradeoff available to investors by examining the most basic asset allocation choice: the choice of how much of the portfolio to place in risk-free money market securities versus in other risky asset classes.