

## Study Plan

### Chapter 6

#### **Learning Objectives**

After studying this chapter you should be able to:

- Calculate an investment's total return in money or percentage terms, identify the components of the total return, and explain why total return is a key metric for assessing an investment's performance;
- Describe the historical performance of asset classes such as bills, bonds, and shares and articulate the important lessons that history provides;
- Calculate the standard deviation from a series of historical returns; and
- Distinguish between systematic and unsystematic risk, explain why systematic risk is more closely linked to returns than is unsystematic risk, and illustrate how diversification reduces volatility.

#### **Summary and conclusions**

- An important measure of an investment's performance is its total return. The total return is the sum of the income that the investment pays, plus any change in the price of the investment.
- Total returns can be expressed either in dollar or percentage terms.
- Historically, shares have earned higher average returns than bonds, and bonds have earned higher returns than bills. However, higher returns come at the price of higher volatility.
- Real returns measure the change in purchasing power over time, whereas nominal returns measure the change in dollars accumulated. Investors who care about what they can consume with their wealth should focus on real returns.
- Historically, shares returns are only approximately normally distributed.
- One measure of risk is standard deviation, which captures deviations from the average outcome. For broad asset classes, the relationship between average returns and standard deviation is nearly linear.
- The volatility (standard deviation) of individual shares is generally higher than the volatility of a portfolio. This suggests that diversification lowers risk.
- There is a point beyond which additional diversification does not reduce risk. The risk that cannot be eliminated through diversification is called systematic risk, whereas the risk that disappears in a well-diversified portfolio is called unsystematic risk. The variance or standard deviation of any investment equals the sum of the systematic and unsystematic components of risk.
- Because investors can easily eliminate unsystematic risk by diversifying, the market should only reward investors based on the systematic risk that they bear.

- For individual investments, there is no strong linear relationship between average returns and standard deviation. This is the case, because standard deviation includes both systematic and unsystematic risk, and returns should only be linked to systematic risk.