

# STUDY SESSION

# 1

## Ethical and Professional Standards

**T**his study session introduces ethics, related challenges to ethical behavior, and the role played by ethics in the investment profession. A framework to support ethical decision-making is provided to help guide behavior. The CFA Institute Code of Ethics and Standards of Professional Conduct (Code and Standards) are examined, with attention given to each standard and its application. The session concludes with coverage of the Global Investment Performance Standards.

### READING ASSIGNMENTS

<b>Reading 1</b>	Ethics and Trust in the Investment Profession by Bidhan L. Parmar, PhD, Dorothy C. Kelly, CFA, and David B. Stevens, CIMC, CFA
<b>Reading 2</b>	Code of Ethics and Standards of Professional Conduct <i>Standards of Practice Handbook</i> , Eleventh Edition
<b>Reading 3</b>	Guidance for Standards I–VII <i>Standards of Practice Handbook</i> , Eleventh Edition
<b>Reading 4</b>	Introduction to the Global Investment Performance Standards (GIPS)
<b>Reading 5</b>	Global Investment Performance Standards (GIPS)

**LEARNING OUTCOMES****READING 1. ETHICS AND TRUST IN THE INVESTMENT PROFESSION**

The candidate should be able to:

- a** explain ethics;
- b** describe the role of a code of ethics in defining a profession;
- c** identify challenges to ethical behavior;
- d** describe the need for high ethical standards in the investment industry;
- e** distinguish between ethical and legal standards;
- f** describe and apply a framework for ethical decision making.

**READING 2. CODE OF ETHICS AND STANDARDS OF PROFESSIONAL CONDUCT**

The candidate should be able to:

- a** describe the structure of the CFA Institute Professional Conduct Program and the process for the enforcement of the Code and Standards;
- b** state the six components of the Code of Ethics and the seven Standards of Professional Conduct;
- c** explain the ethical responsibilities required by the Code and Standards, including the sub-sections of each Standard.

**READING 3. GUIDANCE FOR STANDARDS I–VII**

The candidate should be able to:

- a** demonstrate the application of the Code of Ethics and Standards of Professional Conduct to situations involving issues of professional integrity;
- b** distinguish between conduct that conforms to the Code and Standards and conduct that violates the Code and Standards;
- c** recommend practices and procedures designed to prevent violations of the Code of Ethics and Standards of Professional Conduct.

**READING 4. INTRODUCTION TO THE GLOBAL INVESTMENT PERFORMANCE STANDARDS (GIPS)**

The candidate should be able to:

- a** explain why the GIPS standards were created, what parties the GIPS standards apply to, and who is served by the standards;
- b** explain the construction and purpose of composites in performance reporting;
- c** explain the requirements for verification.

## READING 5. GLOBAL INVESTMENT PERFORMANCE STANDARDS (GIPS)

The candidate should be able to:

- a** describe the key features of the GIPS standards and the fundamentals of compliance;
- b** describe the scope of the GIPS standards with respect to an investment firm's definition and historical performance record;
- c** explain how the GIPS standards are implemented in countries with existing standards for performance reporting and describe the appropriate response when the GIPS standards and local regulations conflict;
- d** describe the nine major sections of the GIPS standards.

# STUDY SESSION

# 2

## Quantitative Methods (1)

**T**his study session introduces quantitative concepts and techniques used in financial analysis and investment decision making. The time value of money and discounted cash flow analysis form the basis for cash flow and security valuation. Descriptive statistics used for conveying important data attributes such as central tendency, location, and dispersion are presented. Characteristics of return distributions such as symmetry, skewness, and kurtosis are also introduced. Finally, all investment forecasts and decisions involve uncertainty: Therefore, probability theory and its application quantifying risk in investment decision making is considered.

### READING ASSIGNMENTS

- |                  |   |
|------------------|---|
| <b>Reading 6</b> | The Time Value of Money<br>by Richard A. DeFusco, PhD, CFA, Dennis W. McLeavey, CFA, Jerald E. Pinto, PhD, CFA, and David E. Runkle, PhD, CFA                 |
| <b>Reading 7</b> | Discounted Cash Flow Applications<br>by Richard A. DeFusco, PhD, CFA, Dennis W. McLeavey, CFA, Jerald E. Pinto, PhD, CFA, and David E. Runkle, PhD, CFA       |
| <b>Reading 8</b> | Statistical Concepts and Market Returns<br>by Richard A. DeFusco, PhD, CFA, Dennis W. McLeavey, CFA, Jerald E. Pinto, PhD, CFA, and David E. Runkle, PhD, CFA |
| <b>Reading 9</b> | Probability Concepts<br>by Richard A. DeFusco, PhD, CFA, Dennis W. McLeavey, CFA, Jerald E. Pinto, PhD, CFA, and David E. Runkle, PhD, CFA                    |

**LEARNING OUTCOMES****READING 6. THE TIME VALUE OF MONEY**

The candidate should be able to:

- a** interpret interest rates as required rates of return, discount rates, or opportunity costs;
- b** explain an interest rate as the sum of a real risk-free rate and premiums that compensate investors for bearing distinct types of risk;
- c** calculate and interpret the effective annual rate, given the stated annual interest rate and the frequency of compounding;
- d** solve time value of money problems for different frequencies of compounding;
- e** calculate and interpret the future value (FV) and present value (PV) of a single sum of money, an ordinary annuity, an annuity due, a perpetuity (PV only), and a series of unequal cash flows;
- f** demonstrate the use of a time line in modeling and solving time value of money problems.

**READING 7. DISCOUNTED CASH FLOW APPLICATIONS**

The candidate should be able to:

- a** calculate and interpret the net present value (NPV) and the internal rate of return (IRR) of an investment;
- b** contrast the NPV rule to the IRR rule, and identify problems associated with the IRR rule;
- c** calculate and interpret a holding period return (total return);
- d** calculate and compare the money-weighted and time-weighted rates of return of a portfolio and evaluate the performance of portfolios based on these measures;
- e** calculate and interpret the bank discount yield, holding period yield, effective annual yield, and money market yield for US Treasury bills and other money market instruments;
- f** convert among holding period yields, money market yields, effective annual yields, and bond equivalent yields.

**READING 8. STATISTICAL CONCEPTS AND MARKET RETURNS**

The candidate should be able to:

- a** distinguish between descriptive statistics and inferential statistics, between a population and a sample, and among the types of measurement scales;
- b** define a parameter, a sample statistic, and a frequency distribution;
- c** calculate and interpret relative frequencies and cumulative relative frequencies, given a frequency distribution;
- d** describe the properties of a data set presented as a histogram or a frequency polygon;
- e** calculate and interpret measures of central tendency, including the population mean, sample mean, arithmetic mean, weighted average or mean, geometric mean, harmonic mean, median, and mode;

- f** calculate and interpret quartiles, quintiles, deciles, and percentiles;
- g** calculate and interpret 1) a range and a mean absolute deviation and 2) the variance and standard deviation of a population and of a sample;
- h** calculate and interpret the proportion of observations falling within a specified number of standard deviations of the mean using Chebyshev's inequality;
- i** calculate and interpret the coefficient of variation and the Sharpe ratio;
- j** explain skewness and the meaning of a positively or negatively skewed return distribution;
- k** describe the relative locations of the mean, median, and mode for a unimodal, nonsymmetrical distribution;
- l** explain measures of sample skewness and kurtosis;
- m** compare the use of arithmetic and geometric means when analyzing investment returns.

## READING 9. PROBABILITY CONCEPTS

The candidate should be able to:

- a** define a random variable, an outcome, an event, mutually exclusive events, and exhaustive events;
- b** state the two defining properties of probability and distinguish among empirical, subjective, and a priori probabilities;
- c** state the probability of an event in terms of odds for and against the event;
- d** distinguish between unconditional and conditional probabilities;
- e** explain the multiplication, addition, and total probability rules;
- f** calculate and interpret 1) the joint probability of two events, 2) the probability that at least one of two events will occur, given the probability of each and the joint probability of the two events, and 3) a joint probability of any number of independent events;
- g** distinguish between dependent and independent events;
- h** calculate and interpret an unconditional probability using the total probability rule;
- i** explain the use of conditional expectation in investment applications;
- j** explain the use of a tree diagram to represent an investment problem;
- k** calculate and interpret covariance and correlation;
- l** calculate and interpret the expected value, variance, and standard deviation of a random variable and of returns on a portfolio;
- m** calculate and interpret covariance given a joint probability function;
- n** calculate and interpret an updated probability using Bayes' formula;
- o** identify the most appropriate method to solve a particular counting problem and solve counting problems using factorial, combination, and permutation concepts.

# STUDY SESSION

# 3

## Quantitative Methods (2)

**T**his study session introduces the common probability distributions used to describe the behavior of random variables, such as asset prices and returns. How to estimate measures of a population (mean, standard deviation) based on a population sample is shown. A framework for hypothesis testing, used for validating dataset hypotheses, follows, along with techniques to test a hypothesis. The session ends with coverage of technical analysis, a set of tools that uses asset price, trading volume, and other similar data for making investment decisions.

### READING ASSIGNMENTS

<b>Reading 10</b>	Common Probability Distributions by Richard A. DeFusco, PhD, CFA, Dennis W. McLeavey, CFA, Jerald E. Pinto, PhD, CFA, and David E. Runkle, PhD, CFA
<b>Reading 11</b>	Sampling and Estimation by Richard A. DeFusco, PhD, CFA, Dennis W. McLeavey, CFA, Jerald E. Pinto, PhD, CFA, and David E. Runkle, PhD, CFA
<b>Reading 12</b>	Hypothesis Testing by Richard A. DeFusco, PhD, CFA, Dennis W. McLeavey, CFA, Jerald E. Pinto, PhD, CFA, and David E. Runkle, PhD, CFA
<b>Reading 13</b>	Technical Analysis by Barry M. Sine, CMT, CFA, and Robert A. Strong, PhD, CFA

**LEARNING OUTCOMES****READING 10. COMMON PROBABILITY DISTRIBUTIONS**

The candidate should be able to:

- a** define a probability distribution and distinguish between discrete and continuous random variables and their probability functions;
- b** describe the set of possible outcomes of a specified discrete random variable;
- c** interpret a cumulative distribution function;
- d** calculate and interpret probabilities for a random variable, given its cumulative distribution function;
- e** define a discrete uniform random variable, a Bernoulli random variable, and a binomial random variable;
- f** calculate and interpret probabilities given the discrete uniform and the binomial distribution functions;
- g** construct a binomial tree to describe stock price movement;
- h** define the continuous uniform distribution and calculate and interpret probabilities, given a continuous uniform distribution;
- i** explain the key properties of the normal distribution;
- j** distinguish between a univariate and a multivariate distribution and explain the role of correlation in the multivariate normal distribution;
- k** determine the probability that a normally distributed random variable lies inside a given interval;
- l** define the standard normal distribution, explain how to standardize a random variable, and calculate and interpret probabilities using the standard normal distribution;
- m** define shortfall risk, calculate the safety-first ratio, and select an optimal portfolio using Roy's safety-first criterion;
- n** explain the relationship between normal and lognormal distributions and why the lognormal distribution is used to model asset prices;
- o** distinguish between discretely and continuously compounded rates of return and calculate and interpret a continuously compounded rate of return, given a specific holding period return;
- p** explain Monte Carlo simulation and describe its applications and limitations;
- q** compare Monte Carlo simulation and historical simulation.

**READING 11. SAMPLING AND ESTIMATION**

The candidate should be able to:

- a** define simple random sampling and a sampling distribution;
- b** explain sampling error;
- c** distinguish between simple random and stratified random sampling;
- d** distinguish between time-series and cross-sectional data;
- e** explain the central limit theorem and its importance;
- f** calculate and interpret the standard error of the sample mean;
- g** identify and describe desirable properties of an estimator;



- h** distinguish between a point estimate and a confidence interval estimate of a population parameter;
- i** describe properties of Student's  $t$ -distribution and calculate and interpret its degrees of freedom;
- j** calculate and interpret a confidence interval for a population mean, given a normal distribution with 1) a known population variance, 2) an unknown population variance, or 3) an unknown population variance and a large sample size;
- k** describe the issues regarding selection of the appropriate sample size, data-mining bias, sample selection bias, survivorship bias, look-ahead bias, and time-period bias.

## READING 12. HYPOTHESIS TESTING

The candidate should be able to:

- a** define a hypothesis, describe the steps of hypothesis testing, and describe and interpret the choice of the null and alternative hypotheses;
- b** distinguish between one-tailed and two-tailed tests of hypotheses;
- c** explain a test statistic, Type I and Type II errors, a significance level, and how significance levels are used in hypothesis testing;
- d** explain a decision rule, the power of a test, and the relation between confidence intervals and hypothesis tests;
- e** distinguish between a statistical result and an economically meaningful result;
- f** explain and interpret the  $p$ -value as it relates to hypothesis testing;
- g** identify the appropriate test statistic and interpret the results for a hypothesis test concerning the population mean of both large and small samples when the population is normally or approximately normally distributed and the variance is 1) known or 2) unknown;
- h** identify the appropriate test statistic and interpret the results for a hypothesis test concerning the equality of the population means of two at least approximately normally distributed populations, based on independent random samples with 1) equal or 2) unequal assumed variances;
- i** identify the appropriate test statistic and interpret the results for a hypothesis test concerning the mean difference of two normally distributed populations;
- j** identify the appropriate test statistic and interpret the results for a hypothesis test concerning 1) the variance of a normally distributed population, and 2) the equality of the variances of two normally distributed populations based on two independent random samples;
- k** distinguish between parametric and nonparametric tests and describe situations in which the use of nonparametric tests may be appropriate.

## READING 13. TECHNICAL ANALYSIS

The candidate should be able to:

- a** explain principles of technical analysis, its applications, and its underlying assumptions;
- b** describe the construction of different types of technical analysis charts and interpret them;
- c** explain uses of trend, support, resistance lines, and change in polarity;

- d** describe common chart patterns;
- e** describe common technical analysis indicators (price-based, momentum oscillators, sentiment, and flow of funds);
- f** explain how technical analysts use cycles;
- g** describe the key tenets of Elliott Wave Theory and the importance of Fibonacci numbers;
- h** describe intermarket analysis as it relates to technical analysis and asset allocation.

# STUDY SESSION

# 4

## Economics (1)

**T**his study session begins by introducing fundamental concepts of demand and supply analysis for individual consumers and firms. Also covered are the various market structures (perfect competition, oligopoly, monopoly) in which firms operate. Key macroeconomic concepts and principles then follow, including aggregate output and income measurement, aggregate demand and supply analysis, and analysis of economic growth factors. The study session concludes with coverage of the business cycle and its effect on economic activity.

### READING ASSIGNMENTS

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|-------------------|---|
| <b>Reading 14</b> | Topics in Demand and Supply Analysis<br>by Richard V. Eastin, PhD, and Gary L. Arbogast, PhD, CFA         |
| <b>Reading 15</b> | The Firm and Market Structures<br>by Richard Fritz, PhD, and Michele Gambera, PhD, CFA                    |
| <b>Reading 16</b> | Aggregate Output, Prices, and Economic Growth<br>by Paul R. Kutasovic, PhD, CFA, and Richard Fritz, PhD   |
| <b>Reading 17</b> | Understanding Business Cycles<br>by Michele Gambera, PhD, CFA, Milton Ezrati, and Bolong Cao,<br>PhD, CFA |

**LEARNING OUTCOMES****READING 14. TOPICS IN DEMAND AND SUPPLY ANALYSIS**

The candidate should be able to

- a** calculate and interpret price, income, and cross-price elasticities of demand and describe factors that affect each measure;
- b** compare substitution and income effects;
- c** distinguish between normal goods and inferior goods;
- d** describe the phenomenon of diminishing marginal returns;
- e** determine and interpret breakeven and shutdown points of production;
- f** describe how economies of scale and diseconomies of scale affect costs.

**READING 15. THE FIRM AND MARKET STRUCTURES**

The candidate should be able to:

- a** describe characteristics of perfect competition, monopolistic competition, oligopoly, and pure monopoly;
- b** explain relationships between price, marginal revenue, marginal cost, economic profit, and the elasticity of demand under each market structure;
- c** describe a firm's supply function under each market structure;
- d** describe and determine the optimal price and output for firms under each market structure;
- e** explain factors affecting long-run equilibrium under each market structure;
- f** describe pricing strategy under each market structure;
- g** describe the use and limitations of concentration measures in identifying market structure;
- h** identify the type of market structure within which a firm operates.

**READING 16. AGGREGATE OUTPUT, PRICES, AND ECONOMIC GROWTH**

The candidate should be able to:

- a** calculate and explain gross domestic product (GDP) using expenditure and income approaches;
- b** compare the sum-of-value-added and value-of-final-output methods of calculating GDP;
- c** compare nominal and real GDP and calculate and interpret the GDP deflator;
- d** compare GDP, national income, personal income, and personal disposable income;
- e** explain the fundamental relationship among saving, investment, the fiscal balance, and the trade balance;
- f** explain the IS and LM curves and how they combine to generate the aggregate demand curve;
- g** explain the aggregate supply curve in the short run and long run;

- h** explain causes of movements along and shifts in aggregate demand and supply curves;
- i** describe how fluctuations in aggregate demand and aggregate supply cause short-run changes in the economy and the business cycle;
- j** distinguish between the following types of macroeconomic equilibria: long-run full employment, short-run recessionary gap, short-run inflationary gap, and short-run stagflation;
- k** explain how a short-run macroeconomic equilibrium may occur at a level above or below full employment;
- l** analyze the effect of combined changes in aggregate supply and demand on the economy;
- m** describe sources, measurement, and sustainability of economic growth;
- n** describe the production function approach to analyzing the sources of economic growth;
- o** distinguish between input growth and growth of total factor productivity as components of economic growth.

## READING 17. UNDERSTANDING BUSINESS CYCLES

The candidate should be able to:

- a** describe the business cycle and its phases;
- b** describe how resource use, housing sector activity, and external trade sector activity vary as an economy moves through the business cycle;
- c** describe theories of the business cycle;
- d** describe types of unemployment and compare measures of unemployment;
- e** explain inflation, hyperinflation, disinflation, and deflation;
- f** explain the construction of indexes used to measure inflation;
- g** compare inflation measures, including their uses and limitations;
- h** distinguish between cost-push and demand-pull inflation;
- i** interpret a set of economic indicators and describe their uses and limitations.

# STUDY SESSION

# 5

## Economics (2)

**T**his study session begins with monetary and fiscal policy, including their use by central banks and governments. Economics in a global context is then introduced. Next follows a discussion on the flows of goods and services and physical and financial capital that occur across national borders. Highlighted in the discussion are the relationships between different types of flows and the benefits of trade to trade partners. Finally, given that operations and investments in global markets involve foreign exchange (currency) risk, the session concludes with an overview of currency market fundamentals.

### READING ASSIGNMENTS

- |                   |   |
|-------------------|---|
| <b>Reading 18</b> | Monetary and Fiscal Policy<br>by Andrew Clare, PhD, and Stephen Thomas, PhD                                 |
| <b>Reading 19</b> | International Trade and Capital Flows<br>by Usha Nair-Reichert, PhD, and Daniel Robert Witschi,<br>PhD, CFA |
| <b>Reading 20</b> | Currency Exchange Rates<br>by William A. Barker, PhD, CFA, Paul D. McNelis, and<br>Jerry Nickelsburg        |

**LEARNING OUTCOMES****READING 18. MONETARY AND FISCAL POLICY**

The candidate should be able to:

- a** compare monetary and fiscal policy;
- b** describe functions and definitions of money;
- c** explain the money creation process;
- d** describe theories of the demand for and supply of money;
- e** describe the Fisher effect;
- f** describe roles and objectives of central banks;
- g** contrast the costs of expected and unexpected inflation;
- h** describe tools used to implement monetary policy;
- i** describe the monetary transmission mechanism;
- j** describe qualities of effective central banks;
- k** explain the relationships between monetary policy and economic growth, inflation, interest, and exchange rates;
- l** contrast the use of inflation, interest rate, and exchange rate targeting by central banks;
- m** determine whether a monetary policy is expansionary or contractionary;
- n** describe limitations of monetary policy;
- o** describe roles and objectives of fiscal policy;
- p** describe tools of fiscal policy, including their advantages and disadvantages;
- q** describe the arguments about whether the size of a national debt relative to GDP matters;
- r** explain the implementation of fiscal policy and difficulties of implementation;
- s** determine whether a fiscal policy is expansionary or contractionary;
- t** explain the interaction of monetary and fiscal policy.

**READING 19. INTERNATIONAL TRADE AND CAPITAL FLOWS**

The candidate should be able to:

- a** compare gross domestic product and gross national product;
- b** describe benefits and costs of international trade;
- c** distinguish between comparative advantage and absolute advantage;
- d** compare the Ricardian and Heckscher–Ohlin models of trade and the source(s) of comparative advantage in each model;
- e** compare types of trade and capital restrictions and their economic implications;
- f** explain motivations for and advantages of trading blocs, common markets, and economic unions;
- g** describe common objectives of capital restrictions imposed by governments;
- h** describe the balance of payments accounts including their components;

- i explain how decisions by consumers, firms, and governments affect the balance of payments;
- j describe functions and objectives of the international organizations that facilitate trade, including the World Bank, the International Monetary Fund, and the World Trade Organization.

## READING 20. CURRENCY EXCHANGE RATES

The candidate should be able to:

- a define an exchange rate and distinguish between nominal and real exchange rates and spot and forward exchange rates;
- b describe functions of and participants in the foreign exchange market;
- c calculate and interpret the percentage change in a currency relative to another currency;
- d calculate and interpret currency cross-rates;
- e convert forward quotations expressed on a points basis or in percentage terms into an outright forward quotation;
- f explain the arbitrage relationship between spot rates, forward rates, and interest rates;
- g calculate and interpret a forward discount or premium;
- h calculate and interpret the forward rate consistent with the spot rate and the interest rate in each currency;
- i describe exchange rate regimes;
- j explain the effects of exchange rates on countries' international trade and capital flows.



# STUDY SESSION

# 6

## Financial Reporting and Analysis (1)

This study session introduces the principal information sources used to evaluate a company's financial performance. Primary financial statements (income statement, balance sheet, cash flow statement, and statement of changes in equity) in addition to notes to these statements and management reporting are examined. A general framework for conducting financial statement analysis is provided. The session also includes a description of the roles played by financial reporting standard-setting bodies and regulatory authorities.

### READING ASSIGNMENTS

<b>Reading 21</b>	Financial Statement Analysis: An Introduction by Elaine Henry, PhD, CFA, and Thomas R. Robinson, PhD, CFA
<b>Reading 22</b>	Financial Reporting Standards by Elaine Henry, PhD, CFA, Jan Hendrik van Greuning, DCom, CFA, and Thomas R. Robinson, PhD, CFA

### LEARNING OUTCOMES

#### READING 21. FINANCIAL STATEMENT ANALYSIS: AN INTRODUCTION

The candidate should be able to:

- a describe the roles of financial reporting and financial statement analysis;
- b describe the roles of the statement of financial position, statement of comprehensive income, statement of changes in equity, and statement of cash flows in evaluating a company's performance and financial position;

**Note:** Changes in accounting standards as well as new rulings and/or pronouncements issued after the publication of the readings on financial reporting and analysis may cause some of the information in these readings to become dated. Candidates are *not* responsible for anything that occurs after the readings were published. In addition, candidates are expected to be familiar with the analytical frameworks contained in the readings, as well as the implications of alternative accounting methods for financial analysis and valuation discussed in the readings. Candidates are also responsible for the content of accounting standards, but not for the actual reference numbers. Finally, candidates should be aware that certain ratios may be defined and calculated differently. When alternative ratio definitions exist and no specific definition is given, candidates should use the ratio definitions emphasized in the readings.

- c** describe the importance of financial statement notes and supplementary information—including disclosures of accounting policies, methods, and estimates—and management's commentary;
- d** describe the objective of audits of financial statements, the types of audit reports, and the importance of effective internal controls;
- e** identify and describe information sources that analysts use in financial statement analysis besides annual financial statements and supplementary information;
- f** describe the steps in the financial statement analysis framework.

## READING 22. FINANCIAL REPORTING STANDARDS

The candidate should be able to:

- a** describe the objective of financial statements and the importance of financial reporting standards in security analysis and valuation;
- b** describe roles and desirable attributes of financial reporting standard-setting bodies and regulatory authorities in establishing and enforcing reporting standards, and describe the role of the International Organization of Securities Commissions;
- c** describe the status of global convergence of accounting standards and ongoing barriers to developing one universally accepted set of financial reporting standards;
- d** describe the International Accounting Standards Board's conceptual framework, including the objective and qualitative characteristics of financial statements, required reporting elements, and constraints and assumptions in preparing financial statements;
- e** describe general requirements for financial statements under International Financial Reporting Standards (IFRS);
- f** compare key concepts of financial reporting standards under IFRS and US generally accepted accounting principles (US GAAP) reporting systems;
- g** identify characteristics of a coherent financial reporting framework and the barriers to creating such a framework;
- h** describe implications for financial analysis of differing financial reporting systems and the importance of monitoring developments in financial reporting standards;
- i** analyze company disclosures of significant accounting policies.

# STUDY SESSION

# 7

## Financial Reporting and Analysis (2)

This study session addresses the three major financial statements—the income statement, the balance sheet, and the cash flow statement—by examining each in turn. The purpose, elements of, construction, pertinent ratios, and common-size analysis are presented for each major financial statement. The session concludes with a discussion of financial analysis techniques including the use of ratios to evaluate corporate financial health.

### READING ASSIGNMENTS

<b>Reading 23</b>	Understanding Income Statements by Elaine Henry, PhD, CFA, and Thomas R. Robinson, PhD, CFA
<b>Reading 24</b>	Understanding Balance Sheets by Elaine Henry, PhD, CFA, and Thomas R. Robinson, PhD, CFA
<b>Reading 25</b>	Understanding Cash Flow Statements by Elaine Henry, PhD, CFA, Thomas R. Robinson, PhD, CFA, Jan Hendrik van Greuning, DCom, CFA, and Michael A. Broihahn, CPA, CIA, CFA
<b>Reading 26</b>	Financial Analysis Techniques by Elaine Henry, PhD, CFA, Thomas R. Robinson, PhD, CFA, and Jan Hendrik van Greuning, DCom, CFA

**Note:** Changes in accounting standards as well as new rulings and/or pronouncements issued after the publication of the readings on financial reporting and analysis may cause some of the information in these readings to become dated. Candidates are *not* responsible for anything that occurs after the readings were published. In addition, candidates are expected to be familiar with the analytical frameworks contained in the readings, as well as the implications of alternative accounting methods for financial analysis and valuation discussed in the readings. Candidates are also responsible for the content of accounting standards, but not for the actual reference numbers. Finally, candidates should be aware that certain ratios may be defined and calculated differently. When alternative ratio definitions exist and no specific definition is given, candidates should use the ratio definitions emphasized in the readings.

**LEARNING OUTCOMES****READING 23. UNDERSTANDING INCOME STATEMENTS**

The candidate should be able to:

- a** describe the components of the income statement and alternative presentation formats of that statement;
- b** describe general principles of revenue recognition and accrual accounting, specific revenue recognition applications (including accounting for long-term contracts, installment sales, barter transactions, gross and net reporting of revenue), and implications of revenue recognition principles for financial analysis;
- c** calculate revenue given information that might influence the choice of revenue recognition method;
- d** describe key aspects of the converged accounting standards for revenue recognition issued by the International Accounting Standards Board and Financial Accounting Standards Board in May 2014;
- e** describe general principles of expense recognition, specific expense recognition applications, and implications of expense recognition choices for financial analysis;
- f** describe the financial reporting treatment and analysis of non-recurring items (including discontinued operations, unusual or infrequent items) and changes in accounting policies;
- g** distinguish between the operating and non-operating components of the income statement;
- h** describe how earnings per share is calculated and calculate and interpret a company's earnings per share (both basic and diluted earnings per share) for both simple and complex capital structures;
- i** distinguish between dilutive and antidilutive securities and describe the implications of each for the earnings per share calculation;
- j** convert income statements to common-size income statements;
- k** evaluate a company's financial performance using common-size income statements and financial ratios based on the income statement;
- l** describe, calculate, and interpret comprehensive income;
- m** describe other comprehensive income and identify major types of items included in it.

**READING 24. UNDERSTANDING BALANCE SHEETS**

The candidate should be able to:

- a** describe the elements of the balance sheet: assets, liabilities, and equity;
- b** describe uses and limitations of the balance sheet in financial analysis;
- c** describe alternative formats of balance sheet presentation;
- d** distinguish between current and non-current assets and current and non-current liabilities;
- e** describe different types of assets and liabilities and the measurement bases of each;
- f** describe the components of shareholders' equity;

- g** convert balance sheets to common-size balance sheets and interpret common-size balance sheets;
- h** calculate and interpret liquidity and solvency ratios.

## READING 25. UNDERSTANDING CASH FLOW STATEMENTS

The candidate should be able to:

- a** compare cash flows from operating, investing, and financing activities and classify cash flow items as relating to one of those three categories given a description of the items;
- b** describe how non-cash investing and financing activities are reported;
- c** contrast cash flow statements prepared under International Financial Reporting Standards (IFRS) and US generally accepted accounting principles (US GAAP);
- d** distinguish between the direct and indirect methods of presenting cash from operating activities and describe arguments in favor of each method;
- e** describe how the cash flow statement is linked to the income statement and the balance sheet;
- f** describe the steps in the preparation of direct and indirect cash flow statements, including how cash flows can be computed using income statement and balance sheet data;
- g** convert cash flows from the indirect to direct method;
- h** analyze and interpret both reported and common-size cash flow statements;
- i** calculate and interpret free cash flow to the firm, free cash flow to equity, and performance and coverage cash flow ratios.

## READING 26. FINANCIAL ANALYSIS TECHNIQUES

The candidate should be able to:

- a** describe tools and techniques used in financial analysis, including their uses and limitations;
- b** classify, calculate, and interpret activity, liquidity, solvency, profitability, and valuation ratios;
- c** describe relationships among ratios and evaluate a company using ratio analysis;
- d** demonstrate the application of DuPont analysis of return on equity and calculate and interpret effects of changes in its components;
- e** calculate and interpret ratios used in equity analysis and credit analysis;
- f** explain the requirements for segment reporting and calculate and interpret segment ratios;
- g** describe how ratio analysis and other techniques can be used to model and forecast earnings.

# STUDY SESSION

# 8

## Financial Reporting and Analysis (3)

This study session examines financial reporting for specific categories of assets and liabilities. Inventories, long-lived assets, income taxes, and non-current liabilities are examined in greater detail because of their effect on financial statements and reported measures of profitability, liquidity, and solvency. For these items in particular, the analyst should be attentive to chosen accounting treatment, corresponding effect on reported performance, and the potential for financial statement manipulation.

### READING ASSIGNMENTS

<b>Reading 27</b>	Inventories by Michael Broihahn, CPA, CIA, CFA
<b>Reading 28</b>	Long-lived Assets by Elaine Henry, PhD, CFA, and Elizabeth A. Gordon, PhD, MBA, CPA
<b>Reading 29</b>	Income Taxes By Elbie Louw, PhD, CFA, CIPM, and Michael A. Broihahn, CPA, CIA, CFA
<b>Reading 30</b>	Non-current (Long-term) Liabilities by Elizabeth A. Gordon, PhD, MBA, CPA, and Elaine Henry, PhD, CFA

**Note:** Changes in accounting standards as well as new rulings and/or pronouncements issued after the publication of the readings on financial reporting and analysis may cause some of the information in these readings to become dated. Candidates are *not* responsible for anything that occurs after the readings were published. In addition, candidates are expected to be familiar with the analytical frameworks contained in the readings, as well as the implications of alternative accounting methods for financial analysis and valuation discussed in the readings. Candidates are also responsible for the content of accounting standards, but not for the actual reference numbers. Finally, candidates should be aware that certain ratios may be defined and calculated differently. When alternative ratio definitions exist and no specific definition is given, candidates should use the ratio definitions emphasized in the readings.

**LEARNING OUTCOMES****READING 27. INVENTORIES**

The candidate should be able to:

- a** distinguish between costs included in inventories and costs recognised as expenses in the period in which they are incurred;
- b** describe different inventory valuation methods (cost formulas);
- c** calculate and compare cost of sales, gross profit, and ending inventory using different inventory valuation methods and using perpetual and periodic inventory systems;
- d** calculate and explain how inflation and deflation of inventory costs affect the financial statements and ratios of companies that use different inventory valuation methods;
- e** explain LIFO reserve and LIFO liquidation and their effects on financial statements and ratios;
- f** convert a company's reported financial statements from LIFO to FIFO for purposes of comparison;
- g** describe the measurement of inventory at the lower of cost and net realisable value;
- h** describe implications of valuing inventory at net realisable value for financial statements and ratios;
- i** describe the financial statement presentation of and disclosures relating to inventories;
- j** explain issues that analysts should consider when examining a company's inventory disclosures and other sources of information;
- k** calculate and compare ratios of companies, including companies that use different inventory methods;
- l** analyze and compare the financial statements of companies, including companies that use different inventory methods.

**READING 28. LONG-LIVED ASSETS**

The candidate should be able to:

- a** distinguish between costs that are capitalised and costs that are expensed in the period in which they are incurred;
- b** compare the financial reporting of the following types of intangible assets: purchased, internally developed, acquired in a business combination;
- c** explain and evaluate how capitalising versus expensing costs in the period in which they are incurred affects financial statements and ratios;
- d** describe the different depreciation methods for property, plant, and equipment and calculate depreciation expense;
- e** describe how the choice of depreciation method and assumptions concerning useful life and residual value affect depreciation expense, financial statements, and ratios;
- f** describe the different amortisation methods for intangible assets with finite lives and calculate amortisation expense;

- g** describe how the choice of amortisation method and assumptions concerning useful life and residual value affect amortisation expense, financial statements, and ratios;
- h** describe the revaluation model;
- i** explain the impairment of property, plant, and equipment and intangible assets;
- j** explain the derecognition of property, plant, and equipment and intangible assets;
- k** explain and evaluate how impairment, revaluation, and derecognition of property, plant, and equipment and intangible assets affect financial statements and ratios;
- l** describe the financial statement presentation of and disclosures relating to property, plant, and equipment and intangible assets;
- m** analyze and interpret financial statement disclosures regarding property, plant, and equipment and intangible assets;
- n** compare the financial reporting of investment property with that of property, plant, and equipment;
- o** explain and evaluate how leasing rather than purchasing assets affects financial statements and ratios;
- p** explain and evaluate how finance leases and operating leases affect financial statements and ratios from the perspective of both the lessor and the lessee.

## READING 29. INCOME TAXES

The candidate should be able to:

- a** describe the differences between accounting profit and taxable income and define key terms, including deferred tax assets, deferred tax liabilities, valuation allowance, taxes payable, and income tax expense;
- b** explain how deferred tax liabilities and assets are created and the factors that determine how a company's deferred tax liabilities and assets should be treated for the purposes of financial analysis;
- c** calculate the tax base of a company's assets and liabilities;
- d** calculate income tax expense, income taxes payable, deferred tax assets, and deferred tax liabilities, and calculate and interpret the adjustment to the financial statements related to a change in the income tax rate;
- e** evaluate the effect of tax rate changes on a company's financial statements and ratios;
- f** distinguish between temporary and permanent differences in pre-tax accounting income and taxable income;
- g** describe the valuation allowance for deferred tax assets—when it is required and what effect it has on financial statements;
- h** explain recognition and measurement of current and deferred tax items;
- i** analyze disclosures relating to deferred tax items and the effective tax rate reconciliation and explain how information included in these disclosures affects a company's financial statements and financial ratios;
- j** identify the key provisions of and differences between income tax accounting under International Financial Reporting Standards (IFRS) and US generally accepted accounting principles (GAAP).



**READING 30. NON-CURRENT (LONG-TERM) LIABILITIES**

The candidate should be able to

- a** determine the initial recognition, initial measurement and subsequent measurement of bonds;
- b** describe the effective interest method and calculate interest expense, amortisation of bond discounts/premiums, and interest payments;
- c** explain the derecognition of debt;
- d** describe the role of debt covenants in protecting creditors;
- e** describe the financial statement presentation of and disclosures relating to debt;
- f** explain motivations for leasing assets instead of purchasing them;
- g** distinguish between a finance lease and an operating lease from the perspectives of the lessor and the lessee;
- h** determine the initial recognition, initial measurement, and subsequent measurement of finance leases;
- i** compare the disclosures relating to finance and operating leases;
- j** compare the presentation and disclosure of defined contribution and defined benefit pension plans;
- k** calculate and interpret leverage and coverage ratios.

# STUDY SESSION

# 9

## Financial Reporting and Analysis (4)

**T**his study session introduces the concept of financial reporting quality. The session examines the financial reporting quality differences that may exist between companies and the means for identifying them. Warning signs of poor or low quality reporting are covered. The application of financial analysis techniques to evaluate a company's past and projected performance, assess credit risk, and screen for potential equity investments follows. Common adjustments to reported financials to facilitate cross-company comparisons conclude the session.

### READING ASSIGNMENTS

- Reading 31** Financial Reporting Quality  
by Jack T. Ciesielski, CPA, CFA, Elaine Henry, PhD, CFA, and Thomas I. Selling, PhD, CPA
- Reading 32** Financial Statement Analysis: Applications  
by Thomas R. Robinson, PhD, CFA, Jan Hendrik van Greuning, DCom, CFA, Elaine Henry, PhD, CFA, and Michael A. Broihahn, CPA, CIA, CFA

### LEARNING OUTCOMES

#### READING 31. FINANCIAL REPORTING QUALITY

The candidate should be able to:

- a** distinguish between financial reporting quality and quality of reported results (including quality of earnings, cash flow, and balance sheet items);
- b** describe a spectrum for assessing financial reporting quality;
- c** distinguish between conservative and aggressive accounting;

**Note:** Changes in accounting standards as well as new rulings and/or pronouncements issued after the publication of the readings on financial reporting and analysis may cause some of the information in these readings to become dated. Candidates are *not* responsible for anything that occurs after the readings were published. In addition, candidates are expected to be familiar with the analytical frameworks contained in the readings, as well as the implications of alternative accounting methods for financial analysis and valuation discussed in the readings. Candidates are also responsible for the content of accounting standards, but not for the actual reference numbers. Finally, candidates should be aware that certain ratios may be defined and calculated differently. When alternative ratio definitions exist and no specific definition is given, candidates should use the ratio definitions emphasized in the readings.

- d** describe motivations that might cause management to issue financial reports that are not high quality;
- e** describe conditions that are conducive to issuing low-quality, or even fraudulent, financial reports;
- f** describe mechanisms that discipline financial reporting quality and the potential limitations of those mechanisms;
- g** describe presentation choices, including non-GAAP measures, that could be used to influence an analyst's opinion;
- h** describe accounting methods (choices and estimates) that could be used to manage earnings, cash flow, and balance sheet items;
- i** describe accounting warning signs and methods for detecting manipulation of information in financial reports.

## **READING 32. FINANCIAL STATEMENT ANALYSIS: APPLICATIONS**

The candidate should be able to:

- a** evaluate a company's past financial performance and explain how a company's strategy is reflected in past financial performance;
- b** forecast a company's future net income and cash flow;
- c** describe the role of financial statement analysis in assessing the credit quality of a potential debt investment;
- d** describe the use of financial statement analysis in screening for potential equity investments;
- e** explain appropriate analyst adjustments to a company's financial statements to facilitate comparison with another company.

## STUDY SESSION

# 10

## Corporate Finance (1)

**T**his study session provides an introduction to corporate governance and investing and financing decisions. An overview of corporate governance is presented along with a framework for understanding and analyzing corporate governance and stakeholder management. The growing impact of environmental and social considerations in investing is also highlighted. Capital budgeting and the assessment of capital investments are covered next. The session ends with practical techniques to estimate a company's or project's cost of capital.

### READING ASSIGNMENTS

- |                   |  |
|-------------------|--|
| <b>Reading 33</b> | Corporate Governance and ESG: An Introduction<br>by Assem Safieddine, PhD, Young Lee, CFA, Donna F. Anderson, CFA, and Deborah Kidd, CFA |
| <b>Reading 34</b> | Capital Budgeting<br>by John D. Stowe, PhD, CFA, and Jacques R. Gagné, FSA, CFA, CIPM  |
| <b>Reading 35</b> | Cost of Capital<br>by Yves Courtois, CMT, MRICS, CFA, Gene C. Lai, PhD, and Pamela Peterson Drake, PhD, CFA                              |

**LEARNING OUTCOMES****READING 33. CORPORATE GOVERNANCE AND ESG: AN INTRODUCTION**

The candidate should be able to:

- a** describe corporate governance;
- b** describe a company's stakeholder groups and compare interests of stakeholder groups;
- c** describe principal–agent and other relationships in corporate governance and the conflicts that may arise in these relationships;
- d** describe stakeholder management;
- e** describe mechanisms to manage stakeholder relationships and mitigate associated risks;
- f** describe functions and responsibilities of a company's board of directors and its committees;
- g** describe market and non-market factors that can affect stakeholder relationships and corporate governance;
- h** identify potential risks of poor corporate governance and stakeholder management and identify benefits from effective corporate governance and stakeholder management;
- i** describe factors relevant to the analysis of corporate governance and stakeholder management;
- j** describe environmental and social considerations in investment analysis;
- k** describe how environmental, social, and governance factors may be used in investment analysis.

**READING 34. CAPITAL BUDGETING**

The candidate should be able to:

- a** describe the capital budgeting process and distinguish among the various categories of capital projects;
- b** describe the basic principles of capital budgeting;
- c** explain how the evaluation and selection of capital projects is affected by mutually exclusive projects, project sequencing, and capital rationing;
- d** calculate and interpret net present value (NPV), internal rate of return (IRR), payback period, discounted payback period, and profitability index (PI) of a single capital project;
- e** explain the NPV profile, compare the NPV and IRR methods when evaluating independent and mutually exclusive projects, and describe the problems associated with each of the evaluation methods;
- f** describe expected relations among an investment's NPV, company value, and share price.

**READING 35. COST OF CAPITAL**

The candidate should be able to:

- a** calculate and interpret the weighted average cost of capital (WACC) of a company;
- b** describe how taxes affect the cost of capital from different capital sources;
- c** describe the use of target capital structure in estimating WACC and how target capital structure weights may be determined;
- d** explain how the marginal cost of capital and the investment opportunity schedule are used to determine the optimal capital budget;
- e** explain the marginal cost of capital's role in determining the net present value of a project;
- f** calculate and interpret the cost of debt capital using the yield-to-maturity approach and the debt-rating approach;
- g** calculate and interpret the cost of noncallable, nonconvertible preferred stock;
- h** calculate and interpret the cost of equity capital using the capital asset pricing model approach, the dividend discount model approach, and the bond-yield-plus risk-premium approach;
- i** calculate and interpret the beta and cost of capital for a project;
- j** describe uses of country risk premiums in estimating the cost of equity;
- k** describe the marginal cost of capital schedule, explain why it may be upward-sloping with respect to additional capital, and calculate and interpret its break-points;
- l** explain and demonstrate the correct treatment of flotation costs.

# STUDY SESSION

# 11

## Corporate Finance (2)

**T**his study session covers how companies make use of leverage and manage their working capital to meet short-term operational needs. The various types of leverage (operating, financial, total), measures of leverage, and how leverage affects a company's earnings and financial ratios are examined. A discussion then follows on the different types of working capital and the management issues associated with each. The session concludes with techniques for assessing the effectiveness of working capital management.

### READING ASSIGNMENTS

- |                   |   |
|-------------------|---|
| <b>Reading 36</b> | Measures of Leverage<br>by Pamela Peterson Drake, PhD, CFA, Raj Aggarwal, PhD, CFA, Cynthia Harrington, CFA, and Adam Kobor, PhD, CFA |
| <b>Reading 37</b> | Working Capital Management<br>by Edgar A. Norton, Jr., PhD, CFA, Kenneth L. Parkinson, MBA, CCM, and Pamela Peterson Drake, PhD, CFA  |

### LEARNING OUTCOMES

#### READING 36. MEASURES OF LEVERAGE

The candidate should be able to:

- a** define and explain leverage, business risk, sales risk, operating risk, and financial risk and classify a risk;
- b** calculate and interpret the degree of operating leverage, the degree of financial leverage, and the degree of total leverage;

- c** analyze the effect of financial leverage on a company's net income and return on equity;
- d** calculate the breakeven quantity of sales and determine the company's net income at various sales levels;
- e** calculate and interpret the operating breakeven quantity of sales.

### **READING 37. WORKING CAPITAL MANAGEMENT**

The candidate should be able to:

- a** describe primary and secondary sources of liquidity and factors that influence a company's liquidity position;
- b** compare a company's liquidity measures with those of peer companies;
- c** evaluate working capital effectiveness of a company based on its operating and cash conversion cycles and compare the company's effectiveness with that of peer companies;
- d** describe how different types of cash flows affect a company's net daily cash position;
- e** calculate and interpret comparable yields on various securities, compare portfolio returns against a standard benchmark, and evaluate a company's short-term investment policy guidelines;
- f** evaluate a company's management of accounts receivable, inventory, and accounts payable over time and compared to peer companies;
- g** evaluate the choices of short-term funding available to a company and recommend a financing method.



## STUDY SESSION

# 12

## Portfolio Management (1)

**T**his study session introduces the concept of a portfolio approach to investments. The needs of individual and institutional investors are each examined, along with the range of available investment solutions. The three main steps in the portfolio management process (planning, execution, and feedback) are outlined. Common measures of portfolio risk and return and the introduction of modern portfolio theory—a quantitative framework for asset pricing and portfolio selection—then follow.

### READING ASSIGNMENTS

<b>Reading 38</b>	Portfolio Management: An Overview by Robert M. Conroy, DBA, CFA, and Alistair Byrne, PhD, CFA
<b>Reading 39</b>	Portfolio Risk and Return: Part I by Vijay Singal, PhD, CFA
<b>Reading 40</b>	Portfolio Risk and Return: Part II by Vijay Singal, PhD, CFA

### LEARNING OUTCOMES

#### READING 38. PORTFOLIO MANAGEMENT: AN OVERVIEW

The candidate should be able to:

- a** describe the portfolio approach to investing;
- b** describe types of investors and distinctive characteristics and needs of each;
- c** describe defined contribution and defined benefit pension plans;

- d describe the steps in the portfolio management process;
- e describe mutual funds and compare them with other pooled investment products.

### READING 39. PORTFOLIO RISK AND RETURN: PART I

The candidate should be able to:

- a calculate and interpret major return measures and describe their appropriate uses;
- b describe characteristics of the major asset classes that investors consider in forming portfolios;
- c calculate and interpret the mean, variance, and covariance (or correlation) of asset returns based on historical data;
- d explain risk aversion and its implications for portfolio selection;
- e calculate and interpret portfolio standard deviation;
- f describe the effect on a portfolio's risk of investing in assets that are less than perfectly correlated;
- g describe and interpret the minimum-variance and efficient frontiers of risky assets and the global minimum-variance portfolio;
- h explain the selection of an optimal portfolio, given an investor's utility (or risk aversion) and the capital allocation line.

### READING 40. PORTFOLIO RISK AND RETURN: PART II

The candidate should be able to:

- a describe the implications of combining a risk-free asset with a portfolio of risky assets;
- b explain the capital allocation line (CAL) and the capital market line (CML);
- c explain systematic and nonsystematic risk, including why an investor should not expect to receive additional return for bearing nonsystematic risk;
- d explain return generating models (including the market model) and their uses;
- e calculate and interpret beta;
- f explain the capital asset pricing model (CAPM), including its assumptions, and the security market line (SML);
- g calculate and interpret the expected return of an asset using the CAPM;
- h describe and demonstrate applications of the CAPM and the SML;
- i calculate and interpret the Sharpe ratio, Treynor ratio,  $M^2$ , and Jensen's alpha.

## STUDY SESSION

# 13

## Portfolio Management (2)

**T**his study session introduces the portfolio planning and construction process, including the development of an investment policy statement (IPS). A discussion of risk management, including the various types and measures of risk, follows, and a risk management framework is provided. The session concludes with coverage on how financial technology (fintech) is impacting areas within the investment industry, such as investment analysis, automated advice, and risk management.

### READING ASSIGNMENTS

<b>Reading 41</b>	Basics of Portfolio Planning and Construction by Alistair Byrne, PhD, CFA, and Frank E. Smudde, CFA
<b>Reading 42</b>	Risk Management: An Introduction by Don M. Chance, PhD, CFA, and Michael E. Edleson, PhD, CFA
<b>Reading 43</b>	Fintech in Investment Management by Barbara J. Mack and Robert Kissell, PhD

### LEARNING OUTCOMES

#### READING 41. BASICS OF PORTFOLIO PLANNING AND CONSTRUCTION

The candidate should be able to:

- a** describe the reasons for a written investment policy statement (IPS);
- b** describe the major components of an IPS;
- c** describe risk and return objectives and how they may be developed for a client;

- d** distinguish between the willingness and the ability (capacity) to take risk in analyzing an investor's financial risk tolerance;
- e** 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;
- f** explain the specification of asset classes in relation to asset allocation;
- g** describe the principles of portfolio construction and the role of asset allocation in relation to the IPS.

## **READING 42. RISK MANAGEMENT: AN INTRODUCTION**

The candidate should be able to:

- a** define risk management;
- b** describe features of a risk management framework;
- c** define risk governance and describe elements of effective risk governance;
- d** explain how risk tolerance affects risk management;
- e** describe risk budgeting and its role in risk governance;
- f** identify financial and non-financial sources of risk and describe how they may interact;
- g** describe methods for measuring and modifying risk exposures and factors to consider in choosing among the methods.

## **READING 43. FINTECH IN INVESTMENT MANAGEMENT**

The candidate should be able to

- a** describe "fintech;"
- b** describe Big Data, artificial intelligence, and machine learning;
- c** describe fintech applications to investment management;
- d** describe financial applications of distributed ledger technology.

# STUDY SESSION

# 14

## Equity Investments (1)

**T**his study session provides a structural overview of financial markets and their operating characteristics. Overview markets include equities, fixed income, derivatives, and alternative investments. Various asset types, market participants, and how assets trade within these markets and ecosystems are described. Coverage of these core asset classes continues in subsequent Level I study sessions, laying the foundation for further study in Levels II and III. The study session then turns to the calculation, construction, and use of security market indexes. A discussion of market efficiency and the degree to which market prices may reflect available information concludes the session.

### READING ASSIGNMENTS

- |                   |   |
|-------------------|---|
| <b>Reading 44</b> | Market Organization and Structure<br>by Larry Harris, PhD, CFA  |
| <b>Reading 45</b> | Security Market Indexes<br>by Paul D. Kaplan, PhD, CFA, and Dorothy C. Kelly,<br>CFA  |
| <b>Reading 46</b> | Market Efficiency<br>by Sean Cleary, PhD, CFA, Howard J. Atkinson, CIMA,<br>ICD.D, CFA, and Pamela Peterson Drake, PhD, CFA |

**LEARNING OUTCOMES****READING 44. MARKET ORGANIZATION AND STRUCTURE**

The candidate should be able to:

- a** explain the main functions of the financial system;
- b** describe classifications of assets and markets;
- c** describe the major types of securities, currencies, contracts, commodities, and real assets that trade in organized markets, including their distinguishing characteristics and major subtypes;
- d** describe types of financial intermediaries and services that they provide;
- e** compare positions an investor can take in an asset;
- f** calculate and interpret the leverage ratio, the rate of return on a margin transaction, and the security price at which the investor would receive a margin call;
- g** compare execution, validity, and clearing instructions;
- h** compare market orders with limit orders;
- i** define primary and secondary markets and explain how secondary markets support primary markets;
- j** describe how securities, contracts, and currencies are traded in quote-driven, order-driven, and brokered markets;
- k** describe characteristics of a well-functioning financial system;
- l** describe objectives of market regulation.

**READING 45. SECURITY MARKET INDEXES**

The candidate should be able to:

- a** describe a security market index;
- b** calculate and interpret the value, price return, and total return of an index;
- c** describe the choices and issues in index construction and management;
- d** compare the different weighting methods used in index construction;
- e** calculate and analyze the value and return of an index given its weighting method;
- f** describe rebalancing and reconstitution of an index;
- g** describe uses of security market indexes;
- h** describe types of equity indexes;
- i** describe types of fixed-income indexes;
- j** describe indexes representing alternative investments;
- k** compare types of security market indexes.

**READING 46. MARKET EFFICIENCY**

The candidate should be able to:

- a** describe market efficiency and related concepts, including their importance to investment practitioners;
- b** distinguish between market value and intrinsic value;
- c** explain factors that affect a market's efficiency;

- d** contrast weak-form, semi-strong-form, and strong-form market efficiency;
- e** explain the implications of each form of market efficiency for fundamental analysis, technical analysis, and the choice between active and passive portfolio management;
- f** describe market anomalies;
- g** describe behavioral finance and its potential relevance to understanding market anomalies.

# STUDY SESSION

# 15

## Equity Investments (2)

**T**his study session focuses on the characteristics, analysis, and valuation of equity securities. Various equity types including public and private equities are described. The various industry classification approaches for global equities and useful frameworks for conducting industry and individual company analysis are presented. Coverage of the three main equity valuation approaches (present value, multiplier, and asset based) conclude the session.

### READING ASSIGNMENTS

<b>Reading 47</b>	Overview of Equity Securities by Ryan C. Fuhrmann, CFA, and Asjeet S. Lamba, PhD, CFA
<b>Reading 48</b>	Introduction to Industry and Company Analysis by Patrick W. Dorsey, CFA, Anthony M. Fiore, CFA, and Ian Rossa O'Reilly, CFA
<b>Reading 49</b>	Equity Valuation: Concepts and Basic Tools by John J. Nagorniak, CFA, and Stephen E. Wilcox, PhD, CFA

### LEARNING OUTCOMES

#### READING 47. OVERVIEW OF EQUITY SECURITIES

The candidate should be able to:

- a** describe characteristics of types of equity securities;
- b** describe differences in voting rights and other ownership characteristics among different equity classes;



- c distinguish between public and private equity securities;
- d describe methods for investing in non-domestic equity securities;
- e compare the risk and return characteristics of different types of equity securities;
- f explain the role of equity securities in the financing of a company's assets;
- g distinguish between the market value and book value of equity securities;
- h compare a company's cost of equity, its (accounting) return on equity, and investors' required rates of return.

## READING 48. INTRODUCTION TO INDUSTRY AND COMPANY ANALYSIS

The candidate should be able to:

- a explain uses of industry analysis and the relation of industry analysis to company analysis;
- b compare methods by which companies can be grouped, current industry classification systems, and classify a company, given a description of its activities and the classification system;
- c explain the factors that affect the sensitivity of a company to the business cycle and the uses and limitations of industry and company descriptors such as "growth," "defensive," and "cyclical";
- d explain how a company's industry classification can be used to identify a potential "peer group" for equity valuation;
- e describe the elements that need to be covered in a thorough industry analysis;
- f describe the principles of strategic analysis of an industry;
- g explain the effects of barriers to entry, industry concentration, industry capacity, and market share stability on pricing power and price competition;
- h describe industry life cycle models, classify an industry as to life cycle stage, and describe limitations of the life-cycle concept in forecasting industry performance;
- i compare characteristics of representative industries from the various economic sectors;
- j describe macroeconomic, technological, demographic, governmental, and social influences on industry growth, profitability, and risk;
- k describe the elements that should be covered in a thorough company analysis.

## READING 49. EQUITY VALUATION: CONCEPTS AND BASIC TOOLS

The candidate should be able to:

- a evaluate whether a security, given its current market price and a value estimate, is overvalued, fairly valued, or undervalued by the market;
- b describe major categories of equity valuation models;
- c describe regular cash dividends, extra dividends, stock dividends, stock splits, reverse stock splits, and share repurchases;
- d describe dividend payment chronology;

- e** explain the rationale for using present value models to value equity and describe the dividend discount and free-cash-flow-to-equity models;
- f** calculate the intrinsic value of a non-callable, non-convertible preferred stock;
- g** calculate and interpret the intrinsic value of an equity security based on the Gordon (constant) growth dividend discount model or a two-stage dividend discount model, as appropriate;
- h** identify characteristics of companies for which the constant growth or a multi-stage dividend discount model is appropriate;
- i** explain the rationale for using price multiples to value equity, how the price to earnings multiple relates to fundamentals, and the use of multiples based on comparables;
- j** calculate and interpret the following multiples: price to earnings, price to an estimate of operating cash flow, price to sales, and price to book value;
- k** describe enterprise value multiples and their use in estimating equity value;
- l** describe asset-based valuation models and their use in estimating equity value;
- m** explain advantages and disadvantages of each category of valuation model.

## STUDY SESSION

# 16

## Fixed Income (1)

**T**his study session introduces the unique attributes that define fixed-income securities, then follows with an overview of global debt markets. Primary issuers, sectors, and bond types are explained. Key concepts for the calculation and interpretation of bond prices, yields, and spreads and coverage of interest rate risk and key related risk measures are presented. Securitization—the creation of fixed-income securities backed by certain (typically less liquid) assets—including the various types, characteristics, and risks of these investments end the session.

### READING ASSIGNMENTS

<b>Reading 50</b>	Fixed-Income Securities: Defining Elements by Moorad Choudhry, PhD, FRM, FCSI, and Stephen E. Wilcox, PhD, CFA
<b>Reading 51</b>	Fixed-Income Markets: Issuance, Trading, and Funding by Moorad Choudhry, PhD, FRM, FCSI, Steven V. Mann, PhD, and Lavone F. Whitmer, CFA
<b>Reading 52</b>	Introduction to Fixed-Income Valuation by James F. Adams, PhD, CFA, and Donald J. Smith, PhD
<b>Reading 53</b>	Introduction to Asset-Backed Securities by Frank J. Fabozzi, PhD, CPA, CFA

**LEARNING OUTCOMES****READING 50. FIXED-INCOME SECURITIES: DEFINING ELEMENTS**

The candidate should be able to:

- a** describe basic features of a fixed-income security;
- b** describe content of a bond indenture;
- c** compare affirmative and negative covenants and identify examples of each;
- d** describe how legal, regulatory, and tax considerations affect the issuance and trading of fixed-income securities;
- e** describe how cash flows of fixed-income securities are structured;
- f** describe contingency provisions affecting the timing and/or nature of cash flows of fixed-income securities and identify whether such provisions benefit the borrower or the lender.

**READING 51. FIXED-INCOME MARKETS: ISSUANCE, TRADING, AND FUNDING**

The candidate should be able to:

- a** describe classifications of global fixed-income markets;
- b** describe the use of interbank offered rates as reference rates in floating-rate debt;
- c** describe mechanisms available for issuing bonds in primary markets;
- d** describe secondary markets for bonds;
- e** describe securities issued by sovereign governments;
- f** describe securities issued by non-sovereign governments, quasi-government entities, and supranational agencies;
- g** describe types of debt issued by corporations;
- h** describe structured financial instruments;
- i** describe short-term funding alternatives available to banks;
- j** describe repurchase agreements (repos) and the risks associated with them.

**READING 52. INTRODUCTION TO FIXED-INCOME VALUATION**

The candidate should be able to:

- a** calculate a bond's price given a market discount rate;
- b** identify the relationships among a bond's price, coupon rate, maturity, and market discount rate (yield-to-maturity);
- c** define spot rates and calculate the price of a bond using spot rates;
- d** describe and calculate the flat price, accrued interest, and the full price of a bond;
- e** describe matrix pricing;
- f** calculate and interpret yield measures for fixed-rate bonds, floating-rate notes, and money market instruments;
- g** define and compare the spot curve, yield curve on coupon bonds, par curve, and forward curve;

- h** define forward rates and calculate spot rates from forward rates, forward rates from spot rates, and the price of a bond using forward rates;
- i** compare, calculate, and interpret yield spread measures.

### **READING 53. INTRODUCTION TO ASSET-BACKED SECURITIES**

The candidate should be able to:

- a** explain benefits of securitization for economies and financial markets;
- b** describe securitization, including the parties involved in the process and the roles they play;
- c** describe typical structures of securitizations, including credit tranching and time tranching;
- d** describe types and characteristics of residential mortgage loans that are typically securitized;
- e** describe types and characteristics of residential mortgage-backed securities, including mortgage pass-through securities and collateralized mortgage obligations, and explain the cash flows and risks for each type;
- f** define prepayment risk and describe the prepayment risk of mortgage-backed securities;
- g** describe characteristics and risks of commercial mortgage-backed securities;
- h** describe types and characteristics of non-mortgage asset-backed securities, including the cash flows and risks of each type;
- i** describe collateralized debt obligations, including their cash flows and risks.

# STUDY SESSION

# 17

## Fixed Income (2)

**T**his study session examines the fundamental elements underlying bond returns and risks with a specific focus on interest rate and credit risk. Duration, convexity, and other key measures for assessing a bond's sensitivity to interest rate risk are introduced. An explanation of credit risk and the use of credit analysis for risky bonds concludes the session.

### READING ASSIGNMENTS

- |                   |  |
|-------------------|--|
| <b>Reading 54</b> | Understanding Fixed-Income Risk and Return<br>by James F. Adams, PhD, CFA, and<br>Donald J. Smith, PhD |
| <b>Reading 55</b> | Fundamentals of Credit Analysis<br>by Christopher L. Gootkind, CFA                                     |

### LEARNING OUTCOMES

#### READING 54. UNDERSTANDING FIXED-INCOME RISK AND RETURN

The candidate should be able to:

- a** calculate and interpret the sources of return from investing in a fixed-rate bond;
- b** define, calculate, and interpret Macaulay, modified, and effective durations;
- c** explain why effective duration is the most appropriate measure of interest rate risk for bonds with embedded options;
- d** define key rate duration and describe the use of key rate durations in measuring the sensitivity of bonds to changes in the shape of the benchmark yield curve;

- e** explain how a bond's maturity, coupon, and yield level affect its interest rate risk;
- f** calculate the duration of a portfolio and explain the limitations of portfolio duration;
- g** calculate and interpret the money duration of a bond and price value of a basis point (PVBP);
- h** calculate and interpret approximate convexity and distinguish between approximate and effective convexity;
- i** estimate the percentage price change of a bond for a specified change in yield, given the bond's approximate duration and convexity;
- j** describe how the term structure of yield volatility affects the interest rate risk of a bond;
- k** describe the relationships among a bond's holding period return, its duration, and the investment horizon;
- l** explain how changes in credit spread and liquidity affect yield-to-maturity of a bond and how duration and convexity can be used to estimate the price effect of the changes.

## READING 55. FUNDAMENTALS OF CREDIT ANALYSIS

The candidate should be able to:

- a** describe credit risk and credit-related risks affecting corporate bonds;
- b** describe default probability and loss severity as components of credit risk;
- c** describe seniority rankings of corporate debt and explain the potential violation of the priority of claims in a bankruptcy proceeding;
- d** distinguish between corporate issuer credit ratings and issue credit ratings and describe the rating agency practice of "notching";
- e** explain risks in relying on ratings from credit rating agencies;
- f** explain the four Cs (Capacity, Collateral, Covenants, and Character) of traditional credit analysis;
- g** calculate and interpret financial ratios used in credit analysis;
- h** evaluate the credit quality of a corporate bond issuer and a bond of that issuer, given key financial ratios of the issuer and the industry;
- i** describe factors that influence the level and volatility of yield spreads;
- j** explain special considerations when evaluating the credit of high yield, sovereign, and non-sovereign government debt issuers and issues.

## STUDY SESSION

# 18

## Derivatives

**T**his study session builds the conceptual framework for understanding the basic derivatives and derivative markets. Essential features and valuation concepts for forward commitments such as forwards, futures, and swaps and contingent claims such as options are introduced.

### READING ASSIGNMENTS

<b>Reading 56</b>	Derivative Markets and Instruments by Don M. Chance, PhD, CFA
<b>Reading 57</b>	Basics of Derivative Pricing and Valuation by Don M. Chance, PhD, CFA

### LEARNING OUTCOMES

#### READING 56. DERIVATIVE MARKETS AND INSTRUMENTS

The candidate should be able to:

- a** define a derivative and distinguish between exchange-traded and over-the-counter derivatives;
- b** contrast forward commitments with contingent claims;
- c** define forward contracts, futures contracts, options (calls and puts), swaps, and credit derivatives and compare their basic characteristics;
- d** describe purposes of, and controversies related to, derivative markets;
- e** explain arbitrage and the role it plays in determining prices and promoting market efficiency.



**READING 57. BASICS OF DERIVATIVE PRICING AND VALUATION**

The candidate should be able to:

- a** explain how the concepts of arbitrage, replication, and risk neutrality are used in pricing derivatives;
- b** distinguish between value and price of forward and futures contracts;
- c** explain how the value and price of a forward contract are determined at expiration, during the life of the contract, and at initiation;
- d** describe monetary and nonmonetary benefits and costs associated with holding the underlying asset and explain how they affect the value and price of a forward contract;
- e** define a forward rate agreement and describe its uses;
- f** explain why forward and futures prices differ;
- g** explain how swap contracts are similar to but different from a series of forward contracts;
- h** distinguish between the value and price of swaps;
- i** explain how the value of a European option is determined at expiration;
- j** explain the exercise value, time value, and moneyness of an option;
- k** identify the factors that determine the value of an option and explain how each factor affects the value of an option;
- l** explain put–call parity for European options;
- m** explain put–call–forward parity for European options;
- n** explain how the value of an option is determined using a one-period binomial model;
- o** explain under which circumstances the values of European and American options differ.

## STUDY SESSION

# 19

## Alternative Investments

**T**his study session provides an overview of the more widely used alternative investments, including hedge funds, private equity, real estate, commodities, and infrastructure investment. Each is examined with emphasis on their distinguishing characteristics, considerations for valuation, and potential benefits and risks. Similarities and differences with traditional investments (stocks, bonds) are also considered.

### READING ASSIGNMENTS

**Reading 58**

Introduction to Alternative Investments  
by Terri Duhon, George Spentzos, CFA, FSIP, and  
Scott D. Stewart, CFA

### LEARNING OUTCOMES

#### READING 58. INTRODUCTION TO ALTERNATIVE INVESTMENTS

The candidate should be able to:

- a** compare alternative investments with traditional investments;
- b** describe categories of alternative investments;
- c** describe potential benefits of alternative investments in the context of portfolio management;
- d** describe hedge funds, private equity, real estate, commodities, infrastructure, and other alternative investments, including, as applicable, strategies, sub-categories, potential benefits and risks, fee structures, and due diligence;
- e** describe, calculate, and interpret management and incentive fees and net-of-fees returns to hedge funds;

- f** describe issues in valuing and calculating returns on hedge funds, private equity, real estate, commodities, and infrastructure;
- g** describe risk management of alternative investments.