

STUDY SESSION

17

Derivatives

Derivatives—financial instruments that derive their value from the value of some underlying asset—have become increasingly important and fundamental in effectively managing financial risk and creating synthetic exposures to asset classes. As in other security markets, arbitrage and market efficiency play a critical role in establishing prices.

This study session builds the conceptual framework for understanding the basic derivatives (forwards, futures, options, and swaps), derivative markets, and the use of options in risk management.

READING ASSIGNMENTS

Reading 57	Derivative Markets and Instruments by Don M. Chance, PhD, CFA
Reading 58	Basics of Derivative Pricing and Valuation by Don M. Chance, PhD, CFA
Reading 59	Risk Management Applications of Option Strategies by Don M. Chance, PhD, CFA

LEARNING OUTCOMES

READING 57. 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 58. 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.

READING 59. RISK MANAGEMENT APPLICATIONS OF OPTION STRATEGIES

The candidate should be able to:

- a determine the value at expiration, the profit, maximum profit, maximum loss, breakeven underlying price at expiration, and payoff graph of the strategies of buying and selling calls and puts and determine the potential outcomes for investors using these strategies;
- b determine the value at expiration, profit, maximum profit, maximum loss, breakeven underlying price at expiration, and payoff graph of a covered call strategy and a protective put strategy, and explain the risk management application of each strategy.