Derivatives

LEARNING OUTCOMES

Pricing and Valuation of Forward Commitments

The candidate should be able to:

- □ describe how equity forwards and futures are priced, and calculate and interpret their no-arbitrage value
- □ describe the carry arbitrage model without underlying cashflows and with underlying cashflows
- □ describe how interest rate forwards and futures are priced, and calculate and interpret their no-arbitrage value
- □ describe how fixed-income forwards and futures are priced, and calculate and interpret their no-arbitrage value
- □ describe how interest rate swaps are priced, and calculate and interpret their no-arbitrage value
- □ describe how currency swaps are priced, and calculate and interpret their no-arbitrage value
- □ describe how equity swaps are priced, and calculate and interpret their no-arbitrage value

Valuation of Contingent Claims

The candidate should be able to:

- □ describe and interpret the binomial option valuation model and its component terms
- □ describe how the value of a European option can be analyzed as the present value of the option's expected payoff at expiration

- □ identify an arbitrage opportunity involving options and describe the related arbitrage
- □ calculate the no-arbitrage values of European and American options using a two-period binomial model
- □ calculate and interpret the value of an interest rate option using a two-period binomial model
- □ identify assumptions of the Black–Scholes–Merton option valuation model
- □ interpret the components of the Black–Scholes–Merton model as applied to call options in terms of a leveraged position in the underlying
- □ describe how the Black–Scholes–Merton model is used to value European options on equities and currencies
- □ describe how the Black model is used to value European options on futures
- □ describe how the Black model is used to value European interest rate options and European swaptions
- □ interpret each of the option Greeks
- □ describe how a delta hedge is executed
- □ describe the role of gamma risk in options trading
- □ define implied volatility and explain how it is used in options trading