ch23

Student: _____

1. The payoff values on bond options are positively linked to the changes in interest rates.
   True False

2. A bond call option gives the holder the right to sell the underlying bond at a prespecified exercise price.
   True False

3. FIs may increase fee income by serving as a counterparty for other entities wanting to hedge risk on their own balance sheet.
   True False

4. The buyer of a bond call option stands to make a positive payoff if changes in market interest rates cause the bond price to rise above the exercise price.
   True False

5. Buying a call option on a bond ensures a bank that it will be able to sell the bond at a given point in time for a price at least equal to the exercise price of the option.
   True False

6. The payoffs on bond call options move symmetrically with changes in interest rates.
   True False

7. The gain to a buyer of bond call options is unlimited, even if interest rates decrease to zero.
   True False

8. The buyer of a bond put option stands to make a profit if changes in market interest rates cause the bond price to fall below the exercise price.
   True False

9. The loss to a buyer of bond put options is limited to the premium paid.
   True False

10. The gain to the writer of a bond option is unlimited.
    True False

11. The loss to the buyer of a bond option is unlimited.
    True False

12. The trading process of options is the same as that of futures contracts.
    True False

13. The profit on bond call options moves asymmetrically with interest rates.
    True False

14. Regulators tend to discourage, and even prohibit in some cases, FIs from writing options because the upside potential is unlimited and the downside losses are potentially limited.
    True False

15. Writing an interest rate call option may hedge an FI when rates rise and bond prices fall.
    True False

16. When interest rates rise, writing a bond call option may cause profits to offset the loss on an FI's bonds.
    True False

17. Hedging the FI's interest rate risk by buying a put option on a bond is an attractive alternative to a manager.
True False

18. The losses on a purchased put option position when rates fall are limited to the option premium paid.
True False

19. Simultaneously buying a bond and a put option on a bond produces the same payoff as buying a call option on a bond.
True False

20. A naked option is an option written that has no identifiable underlying asset or liability position.
True False

21. A hedge with a futures contract reduces volatility in payoff gains on both the upside and downside of interest rate movements.
True False

22. A hedge using a put option contract completely offsets gains but only partially offsets losses on an FI's balance sheet.
True False

23. The Black-Scholes model does not work well to value bond options because of violations of the underlying assumption of a constant variance of returns on the underlying asset.
True False

24. All else equal, the value of an option increases with an increase in the variance of returns in the underlying asset.
True False

25. The concept of pull-to-maturity reflects the increasing variance of a bond's price as the maturity of the bond approaches.
True False

26. Options become more valuable as the variability of interest rates decreases.
True False

27. Most bond options trade on the over the counter markets as opposed to organized exchanges such as the Chicago Board Options Exchange.
True False

28. An option's delta has a value between 0 and 100.
True False

29. Open interest refers to the dollar amount of outstanding option contracts.
True False

30. Futures options on bonds have interest rate futures contracts as the underlying asset.
True False

31. Interest rate futures options are preferred to bond options because they have more favorable liquidity, credit risk, and market-to-market features.
True False

32. Exercise of a put option on futures by the buyer of the option will occur if interest rates have increased.
True False

33. Exercise of a put option on interest rate futures by the buyer of the option results in the buyer putting to the writer the bond futures contract at an exercise price higher than the currently trading bond future.
True False

34. The total premium cost to an FI of hedging by buying put options is the price of each put option times the number of put options purchased.
True False

35. A hedge of interest rate risk with a put option completely offsets gains but only partly offsets losses.
True False

36. The premium on a credit spread call option is the maximum loss attainable to the buyer of the option in situations where the credit spread increases.
True False

37. The payoff of a credit spread call option increases as the yield spread on a specified benchmark bond increases above some exercise spread.
True False

38. A digital default option expires unexercised in situations where the loan is paid in accordance with the loan agreement.
True False

39. A digital default option pays a stated amount in the event that a portion of the loan is not paid.
True False

40. CBOT catastrophe call spread options have variable payoffs that are capped at a level of less than 100 percent of extreme losses.
True False

41. Buying a cap is like buying insurance against a decrease in interest rates.
True False

42. Buying a floor means buying a put option on interest rates.
True False

43. An FI buys a collar by buying a floor and selling a cap.
True False

44. An FI would normally purchase a cap if it was funding fixed-rate assets with variable-rate liabilities.
True False

45. Banks that are more exposed to rising interest rates than falling interest rates may seek to finance a cap by selling a floor.
True False

46. One advantage of caps, collars, and floors is that because they are exchange-traded options there is no counterparty risk present in the transactions.
True False

47. Managing interest rate risk for less creditworthy FIs by running a cap/floor book may require the backing of external guarantees such as standby letters of credit because of the nature of the options.
True False

48. As of June 2009, commercial banks had listed for sale option contracts with a notational value of approximately
A. $16.2 trillion.
B. $29.7 trillion.
C. $8.1 trillion.
D. $51.0 trillion.
E. $36.9 trillion.

49. The purchaser of an option must pay the writer a
    A. strike price.
    B. market price.
    C. margin.
    D. premium.
    E. basis.

50. Giving the purchaser the right to buy the underlying security at a prespecified price is a
    A. put option.
    B. call option.
    C. naked option.
    D. futures option.
    E. credit spread call option.

51. Giving the purchaser the right to sell the underlying security at a prespecified price is a
    A. put option.
    B. call option.
    C. naked option.
    D. futures option.
    E. credit spread call option.

52. The buyer of a bond call option
    A. receives a premium in return for standing ready to sell the bond at the exercise price.
    B. receives a premium in return for standing ready to buy bonds at the exercise price.
    C. pays a premium and has the right to sell the underlying bond at the agreed exercise price.
    D. pays a premium and has the right to buy the underlying bond at the agreed exercise price.
    E. pays a premium and has the obligation to buy the underlying bond at the agreed exercise price.

53. The writer of a bond call option
    A. receives a premium and must stand ready to sell the bond at the exercise price.
    B. receives a premium and must stand ready to buy bonds at the exercise price.
    C. pays a premium and has the right to sell the underlying bond at the agreed exercise price.
    D. pays a premium and has the right to buy the underlying bond at the agreed exercise price.
    E. pays a premium and has the obligation to buy the underlying bond at the agreed exercise price.

54. The writer of a bond put option
    A. receives a premium in return for standing ready to sell the bond at the exercise price.
    B. receives a premium in return for standing ready to buy bonds at the exercise price.
    C. pays a premium and has the right to sell the underlying bond at the agreed exercise price.
    D. pays a premium and has the right to buy the underlying bond at the agreed exercise price.
    E. pays a premium and has the obligation to buy the underlying bond at the agreed exercise price.

55. The buyer of a bond put option
    A. receives a premium in return for standing ready to sell the bond at the exercise price.
    B. receives a premium in return for standing ready to buy bonds at the exercise price.
    C. pays a premium and has the right to sell the underlying bond at the agreed exercise price.
    D. pays a premium and has the right to buy the underlying bond at the agreed exercise price.
    E. pays a premium and has the obligation to buy the underlying bond at the agreed exercise price.

56. A contract that results in the delivery of a futures contract when exercised is a
    A. put option.
    B. call option.
    C. naked option.
    D. futures option.
    E. credit spread call option.

57. An option that does NOT identifiably hedge an underlying asset is a
    A. put option.
    B. call option.
    C. naked option.
    D. futures option.
    E. credit spread call option.

58. A contract whose payoff increases as a yield spread increases above some stated exercise spread is a
    A. put option.
    B. call option.
    C. digital default option.
    D. futures option.
    E. credit spread call option.

59. A contract that pays the par value of a loan in the event of default is a
    A. put option.
    B. call option.
    C. digital default option.
    D. futures option.
    E. credit spread call option.

60. The tendency of the variance of a bond's price to decrease as maturity approaches is called
    A. open interest.
    B. pull-to-par.
    C. digital default option.
    D. futures option.
    E. credit spread call option.

61. Which of the following observations is NOT true?
    A. Variance of bond prices is nonconstant over time.
    B. Variance of bond prices rises at first and then falls as the bond approaches maturity.
    C. As the bond approaches maturity, all price paths must lead to 100 percent of the face value of the bond.
    D. As the bond approaches maturity, all price paths must lead to the principal paid by the issuer on maturity.
    E. Variance of a bond's price or return increases as maturity approaches.

62. The outstanding number of put or call contracts is called
    A. open interest.
    B. pull-to-par.
    C. cap.
    D. floor.
    E. collar.

63. The purchase often of a series of put options with multiple exercise dates results in a
    A. open interest.
    B. pull-to-par.
    C. cap.
    D. floor.
    E. collar.

64. Using the proceeds from the simultaneous sale of a floor to finance the purchase of a cap is to open a position called a
    A. open interest.
    B. pull-to-par.
    C. cap.
    D. floor.
    E. collar.

65. Purchasing a succession of call options on interest rates is called a
    A. open interest.
    B. pull-to-par.
    C. cap.
    D. floor.
    E. collar.

66. Buying a cap is similar to
    A. writing a call option on interest rates.
    B. buying a call option on interest rates.
    C. buying a put option on interest rates.
    D. buying a floor on interest rates.
    E. buying a collar on interest rates.

67. As interest rates increase, the writer of a bond call option stands to make
    A. limited gains.
    B. limited losses.
    C. unlimited losses.
    D. unlimited gains.
    E. Answers A and B only.

68. Which of the following holds true for the writer of a call option if interest rates decrease?
    A. Makes profits limited to call premium
    B. Makes losses limited to call premium
    C. Potential to make large losses
    D. Potential to make unlimited profits
    E. Answers B and D only.

69. As interest rates increase, the buyer of a bond put option stands to
    A. make limited gains.
    B. incur limited losses.
    C. incur unlimited losses.
    D. lose the entire premium amount.
    E. Answers A and D only.

70. Rising interest rates will cause the market value of
    A. call options on bonds to increase.
    B. put options on bonds to decrease.
    C. call options on bonds to decrease.
    D. bond futures to increase.
    E. Answers A and B only.

71. Which of the following is a good strategy to adopt when interest rates are expected to rise?
    A. Buying a call option on a bond.
    B. Writing a call option on a bond.
    C. Writing a put option on a bond.
    D. Buying bond futures.
    E. All of the above.

72. What is the advantage of an options hedge over a futures hedge?
    A. The options hedge has lower credit risk exposure.
    B. The options hedge has lower transaction costs.
    C. The options hedge is marked to market less frequently.
    D. The options hedge offers the most downside risk protection.
    E. The options hedge offers the most upside gain potential.

73. What is the advantage of a futures hedge over an options hedge?
    A. The futures hedge has lower credit risk exposure.
    B. The futures hedge reduces volatility in profit gains on both sides.
    C. The futures hedge is marked to market less frequently.
    D. The futures hedge offers the least downside risk protection.
    E. The futures hedge completely offsets losses but only partly offsets gains.

74. The combination of being long in the bond and buying a put option on a bond mimics the profit function of
    A. buying a put option.
    B. writing a put option.
    C. writing a call option.
    D. buying a call option.
    E. buying a floor.

75. Identify a problem associated with using the Black-Scholes model to value bond options.
    A. It assumes short-term interest rates are constant.
    B. It assumes that commissions are charged.
    C. It assumes fluctuating variance of returns on the underlying asset.
    D. It assumes that the variance of bond prices is nonconstant over time.
    E. All of the above.

76. Contrast the marking to market characteristics of options versus futures contracts.
    A. Options are marked to market continuously while futures are marked to market at the close of trading each day.
    B. Options are marked to market at expiration while futures are marked to market at the close of trading each day.
    C. Options are marked to market daily while futures are marked to market at the close of trading each day.
    D. Options are marked to market monthly while futures are marked to market at the close of trading each day.
    E. There is no difference in the marking to market characteristics.

77. What reflects the degree to which the rate on the option's underlying asset moves relative to the spot rate on the asset or liability that is being hedged?
    A. Credit risk.
    B. Basis risk.
    C. Hedge risk.
    D. Volatility.
    E. Open interest.

78. Which of the following shows the change in the value of a put option for each $1 change in the underlying bond?
    A. Open interest.
    B. Volatility.
    C. Delta.
    D. Basis.
    E. Sigma.

79. For put options, the delta has a negative sign
    A. since the value of the put option falls when bond prices rise.
    B. since the value of the put option rises when bond prices rise.
    C. since the value of the put option falls when bond prices fall.
    D. since the change in interest rates is equal to the change in the interest rate on the bond underlying the option contract.
    E. to adjust for basis risk.

80. KKR issues a $10 million 18-month floating rate note priced at LIBOR plus 400 basis points. What is KKR's interest rate risk exposure and how can it be hedged?
A. KKR is exposed to interest rate increases; short hedge by buying put options.
B. KKR is exposed to interest rate increases; long hedge by buying call options.
C. KKR is exposed to interest rate decreases; long hedge by buying call options.
D. KKR is exposed to interest rate decreases; short hedge by buying put options.
E. KKR is exposed to interest rate increases; short hedge by buying call options.

81. A bank with total assets of $271 million and equity of $31 million has a leverage adjusted duration gap of +0.21 years. Use the following quotation from the Wall Street Journal to construct an at-the-money futures option hedge of the bank's duration gap position.

TREASURY BILLS (IMM)-$1 million; 91-day ($25.28 ea.)		
Strike Price	Calls-Settle	Puts-Settle
96.00	28 basis points	63 basis points
96.25	19 basis points	78 basis points
96.50	12 basis points	96 basis points

If 91-day Treasury bill rates increase from 3.75 percent to 4.75 percent, what will be the profit/loss per contract on the bank's futures option hedge?
A. A loss of $556.16 per put option contract.
B. A profit of $556.16 per put option contract.
C. A loss of $1,971.84 per call option contract.
D. A profit of $1,971.84 per call option contract.
E. A profit of $2,528 per put option contract.

82. Credit spread call options are useful because
A. its value increases as the risk premium on a specified benchmark bond of the borrower increases above some exercise spread.
B. an increase in the value of the call option will tend to offset the decreasing value of an FI's loan and net worth as the credit quality of the borrower decreases.
C. they will always cause a loss at least equal to the required premium on the option.
D. All of the above.
E. Answers A and B only.

83. An FI concerned that the risk on a loan will increase can
A. purchase a credit spread call option.
B. sell a credit spread call option.
C. sell a credit spread put option.
D. purchase a naked option.
E. sell a naked option.

84. A digital default option
A. always pays the par value of a loan if exercised.
B. has a payout that is capped at 80 percent of the par value of the loan.
C. will cause the FI never to lose more than the premium paid to purchase the option.
D. Answers A and C only.
E. Answers A and B only.

85. Buying a cap option agreement
A. means buying a (or several) call option on interest rates.
B. means buying insurance against excessive decreases in interest rates.
C. allows more than one exercise date.
D. All of the above are correct.
E. Answers A and C only.

An FI manager purchases a zero-coupon bond that has two years to maturity. The manager paid $76.95 per $100 for the bond. The current yield on a one-year bond of equal risk is 12 percent, and the one-year rate in one year is expected to be either 16.65 percent or 15.35 percent. Either rate is equally probable.

86. What is the yield to maturity for the two-year bond if held to maturity?
    A. 27.99 percent.
    B. 13.54 percent.
    C. 29.95 percent.
    D. 14.00 percent.
    E. 11.53 percent.

87. Given the expected one-year rates in one year, what are the possible bond prices in one year?
    A. $85.22 and $86.25.
    B. $85.73 and $86.69.
    C. $85.22 and $86.69.
    D. $85.73 and $86.25.
    E. $83.35 and $84.65.

88. If the manager buys a one-year option with an exercise price equal to the expected price of the bond in one year, what will be the exercise price of the option?
    A. $84.00.
    B. $85.99.
    C. $86.21.
    D. $85.74.
    E. $85.96.

89. Given the exercise price of the option, what premium should be paid for this option?
    A. $0.2143 per $100 of bond option purchased.
    B. $0.4420 per $100 of bond option purchased.
    C. $1.2768 per $100 of bond option purchased.
    D. $0.2321 per $100 of bond option purchased.
    E. $1.1652 per $100 of bond option purchased.

An FI manager purchases a zero-coupon bond that has two years to maturity. The manager paid $826.45 per $1,000 for the bond. The current yield on a one-year bond of equal risk is 9 percent, and the one-year rate in one year is expected to be either 11.60 percent or 10.40 percent. Either rate is equally probable.

90. What is the yield to maturity for the two-year bond if held to maturity?
    A. 11.00 percent.
    B. 10.00 percent.
    C. 13.54 percent.
    D. 11.60 percent.
    E. 10.40 percent.

91. Given the expected one-year rates in one year, what are the possible bond prices in one year?
    A. $912.40 and $922.32.
    B. $857.27 and $866.93.
    C. $734.90 and $751.56.
    D. $896.06 and $905.80.
    E. $802.92 and $820.47.

92. If the manager buys a one-year option with an exercise price equal to the expected price of the bond in one year, what will be the exercise price of the option?
    A. $862.10.
    B. $743.23.
    C. $900.93.
    D. $811.70.
    E. $917.36.

93. Given the exercise price of the option, what premium should be paid for this option?
    A. $2.2339 per $1,000 of bond option purchased.
    B. $4.0275 per $1,000 of bond option purchased.
    C. $2.2752 per $1,000 of bond option purchased.
    D. $2.2156 per $1,000 of bond option purchased.
    E. $3.8211 per $1,000 of bond option purchased.

Allright Insurance has total assets of $140 million consisting of $50 million in 2-year, 6 percent Treasury notes and $90 million in 10-year, 7.2 percent fixed-rate Baa bonds. These assets are funded by $100 million 5-year, 5 percent fixed rate GICs and equity.

94. The duration of the T-notes, Baa bonds, and GICs is 1.93 years, 6.9 years, and 4.5 years respectively. What is the leverage-adjusted duration gap for Allright?
    A. 1.99 years.
    B. 5.13 years.
    C. 0.63 years.
    D. 1.91 years.
    E. 1.0 year.

95. If Allright wanted to hedge the balance sheet position, what is the interest rate risk exposure and what hedge would be appropriate?
    A. The balance sheet position is exposed to interest rate increases; use a short hedge.
    B. The balance sheet position is exposed to interest rate increases; use a long hedge.
    C. The balance sheet position is exposed to interest rate decreases; use a long hedge.
    D. The balance sheet position is exposed to interest rate decreases; use a short hedge.
    E. There is no interest rate risk exposure.

96. Market interest rates are expected to increase 1 percent to 11 percent in the next year. If this occurs, what will be the effect on the market value of equity of Allright?
    A. -$801,818.
    B. -$2,430,909.
    C. -$6,529,091.
    D. +$2,430,909.
    E. +$2,532,727.

97. On the advice of its chief financial officer, Allright wants to hedge the balance sheet with T-bond option contracts. The underlying bonds currently have a duration of 8.82 years and a market value of $97,000 per $100,000 face value. Further, the delta of the options is 0.5. What type of contract, and how many contracts should Allright use to hedge this balance sheet?
    A. Puts; 447 contracts.
    B. Calls; 625 contracts.
    C. Puts; 625 contracts.
    D. Calls; 447 contracts.
    E. Puts; 206 contracts.

98. If rates increase 1 percent, what will be the change in value of the option position?
    A. -$1,660,525.
    B. +$1,660,525.
    C. -$2,430,511.
    D. -$765,253.
    E. +$2,430,511.

99. At the time of placement, the premium on the options are quoted at 1¾. What is the cost to Allright in placing the hedge?
    A. $1,093,750.
    B. $782,250.
    C. $360,500.
    D. $1,342,500.
    E. $1,094.

An investment company has purchased $100 million of 10 percent annual coupon, 6-year Eurobonds. The bonds have a duration of 4.79 years at the current market yields of 10 percent. The company wishes to hedge these bonds with Treasury-bond options that have a delta of 0.7. The duration of the underlying asset is 8.82, and the market value of the underlying asset is $98,000 per $100,000 face value. Finally, the volatility of the interest rates on the underlying bond of the options and the Eurobond is 0.84.

100. Given this information, what type of T-bond option, and how many options should be purchased, to hedge this investment?
   A. 792 put options.
   B. 792 call options.
   C. 942 put options.
   D. 942 call options.
   E. 554 put options.

101. Using the above information, what will happen to the market value of the Eurobonds if market interest rates fall 1 percent to 9 percent?
   A. Increase $8,018,182.
   B. Decrease $8,018,182.
   C. Decrease $4,354,545.
   D. Increase $6,735,272.
   E. Increase $4,354,545.

102. Using the above information and your answer to the previous question, will the investment company gain or lose on the option position if interest rates decrease 1 percent to 9 percent?
   A. Lose $4,352,414.
   B. Gain $4,352,414.
   C. Lose $2,559,700.
   D. Gain $3,659,354.
   E. Lose $3,659,354.

103. What is the net gain or loss to the investment company resulting from the change in rates given that the hedge was placed?
   ]
   A. Lose $2,131.
   B. Gain $2,131.
   C. Lose $695,191.
   D. Gain $695,191.
   E. Gain $2,382,858.

In April 2005, an FI bought a one-month sterling T-bill paying ≤100 million in May 2005. The FI's liabilities are in dollars, and current exchange rate is $1.6401/≤1. The bank can buy one-month options on sterling at an exercise price of $1.60/≤1. Each contract has a size of ≤31,250, and the contracts currently have a premium of $0.014 per ≤. Alternatively, options on foreign currency futures contracts, which have a size of ≤62,500, are available for $0.0106 per ≤.

104. What is the foreign exchange risk that the FI is facing, and what type of currency option should be purchased to hedge this risk?
   A. The FI should use put options to hedge the depreciation of the dollar.
   B. The FI should use call options to hedge the depreciation of the pound sterling.
   C. The FI should use put options to hedge the depreciation of the pound sterling.
   D. The FI should use call options to hedge the depreciation of the dollar.
   E. The FI should use put options to hedge the appreciation of the pound sterling.

105. How many options should the FI purchase, and what will be the cost?
   A. 1,600 contracts for $16.96.
   B. 1,600 contracts for $1,060,000.
   C. 3,200 contracts for $44.80.
   D. 3,200 contracts for $1,400,000.
   E. 3,200 contracts for $2,800,000.

106. If the exchange rate in one month is $1.55/≤1, what action should the FI take in regards to the hedge?
A. Call the ≤100 million proceeds of the T-bill from the option writer for $160 million
B. Put the ≤100 million proceeds from the T-bill to the option writer for $160 million.
C. Put the ≤100 million proceeds from the T-bill to the option writer for $155 million.
D. Call the ≤100 million proceeds of the T-bill from the option writer for $155 million
E. Allow the option contracts to expire since they are out of the money.

A bank purchases a 3-year, 6 percent $5 million cap (call options on interest rates), where payments are paid or received at the end of year 2 and 3 as shown below:

End of Year:	0	1	2	3
Cash Flow at end of year:	-	-	x	x

107. Assume interest rates are 5 percent in year 2 and 7 percent in year 3. Which of the following is true?
A. The bank will receive $50,000 at the end of year 2 and receive $50,000 at the end of year 3.
B. The bank will receive $50,000 at the end of year 2 and pay $50,000 at the end of year 3.
C. The bank will receive $0 at the end of year 2 and pay $50,000 at the end of year 3.
D. The bank will receive $0 at the end of year 2 and receive $50,000 at the end of year 3.
E. The bank will receive $50,000 at the end of year 2 and pay $0 at the end of year 3.

108. Instead of a cap, if the bank had purchased a 3-year 6 percent floor and interest rates are 5 percent and 6 percent in years 2 and 3, respectively, what are the payoffs to the bank?
A. The bank will receive $50,000 at the end of year 2 and receive $50,000 at the end of year 3.
B. The bank will receive $50,000 at the end of year 2 and pay $50,000 at the end of year 3.
C. The bank will receive $0 at the end of year 2 and pay $50,000 at the end of year 3.
D. The bank will receive $0 at the end of year 2 and receive $50,000 at the end of year 3.
E. The bank will receive $50,000 at the end of year 2 and pay $0 at the end of year 3.

109. In addition to purchasing the cap, if the bank also purchases a 3-year 6 percent floor and interest rates are 5 percent and 7 percent in years 2 and 3, respectively, what are the payoffs to the bank? Specifically, the bank will
A. receive $50,000 at the end of year 2 and receive $50,000 at the end of year 3.
B. receive $50,000 at the end of year 2 and pay $50,000 at the end of year 3.
C. receive $0 at the end of year 2 and pay $50,000 at the end of year 3.
D. receive $0 at the end of year 2 and receive $50,000 at the end of year 3.
E. receive $50,000 at the end of year 2 and pay $0 at the end of year 3.

110. In addition to purchasing the cap, if the bank also sells a 3-year 6 percent floor and interest rates are 5 percent and 7 percent in years 2 and 3, respectively, what are the payoffs to the bank? Specifically, the bank
A. receive $50,000 at the end of year 2 and receive $50,000 at the end of year 3.
B. pay $50,000 at the end of year 2 and receive $50,000 at the end of year 3.
C. receive $0 at the end of year 2 and pay $50,000 at the end of year 3.
D. receive $0 at the end of year 2 and $50,000 at the end of year 3.
E. receive $50,000 at the end of year 2 and pay $0 at the end of year 3.

Assume a binomial pricing model where there is an equal probability of interest rates increasing or decreasing 1 percent per year.

111. What should be the price of a three-year 6 percent cap if the current (spot) rates are also 6 percent? The face value is $5,000,000, and time periods are zero, one, and two.
A. $25,000.
B. $20,409.
C. $22,041.
D. $42,450.
E. $66,030.

112. What should be the price of a three-year 6 percent floor if the current (spot) rates are also 6 percent? The face value is $5,000,000, and time periods are zero, one, and two.
   A. $25,000.
   B. $21,598.
   C. $22,462.
   D. $44,460.
   E. $66,030.

113. What should be the price of a three-year 5 percent floor if the current (spot) rates are also 6 percent? The face value is $5,000,000, and time periods are zero, one, and two.
   A. $8,250.
   B. $10,799.
   C. $12,550.
   D. $15,875.
   E. $17,455.

114. What should be the price of a $5,000,000 collar if the bank purchases a three-year 6 percent cap and sells a 5 percent floor, if the current (spot) rates are 6 percent?
   A. The bank will receive net $2,010.
   B. The bank will receive net $31,651.
   C. The bank will pay net $31,651.
   D. The bank will pay net $2,010.
   E. Price = $0.

ch23 Key

1. FALSE
2. FALSE
3. TRUE
4. TRUE
5. FALSE
6. FALSE
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8. TRUE
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42. TRUE

43. FALSE

44. TRUE

45. TRUE

46. FALSE

47. TRUE

48. B

49. D

50. B

51. A

52. D

53. A

54. B

55. C

56. D

57. C

58. E

59. C

60. B

61. E

62. A

63. D

64. E

65. C

66. B

67. A

68. C

69. A

70. C

71. B

72. E

73. B

74. D

75. A

76. B

77. B

78. C

79. A

80. A

81. B

82. E

83. A

84. D

85. E

86. D

87. B

88. C

89. A

90. B

91. D

92. C

93. A

94. D

95. A

96. A

97. C

98. E

99. A

100. C

101. E

102. A

103. B

104. C

105. D

106. B

107. D

108. E

109. A

110. B

111. D

112. D

113. B

114. C

ch23 Summary

Category	*# of Questions*
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