***Financial Markets and Institutions, 7e* (Saunders)**

**Chapter 23 Managing Risk off the Balance Sheet with Derivative Securities**

1) A spot contract is for immediate delivery whereas a forward contract is for future delivery.

Answer: TRUE

Difficulty: 1 Easy

Topic: Forward and Futures Contracts

Bloom's: Remember

AACSB: Reflective Thinking

Learning Goal: 23-01 Know how risk can be hedged with forward contracts.

Accessibility: Keyboard Navigation

2) The lack of perfect correlation between spot and futures prices implies that most hedges will have some basis risk.

Answer: TRUE

Difficulty: 1 Easy

Topic: Forward and Futures Contracts

Bloom's: Understand

AACSB: Reflective Thinking

Learning Goal: 23-01 Know how risk can be hedged with forward contracts.

Accessibility: Keyboard Navigation

3) Gains and losses on a futures contract must be recognized daily.

Answer: TRUE

Difficulty: 1 Easy

Topic: Forward and Futures Contracts

Bloom's: Remember

AACSB: Reflective Thinking

Learning Goal: 23-01 Know how risk can be hedged with forward contracts.

Accessibility: Keyboard Navigation

4) Buying a cap is similar to buying a call option on bond prices.

Answer: FALSE

Difficulty: 2 Medium

Topic: Options

Bloom's: Understand

AACSB: Reflective Thinking

Learning Goal: 23-04 Know how risk can be hedged with option contracts.

Accessibility: Keyboard Navigation

5) A macrohedge is a hedge of a particular asset or liability exposure to a change in a macroeconomic variable.

Answer: FALSE

Difficulty: 2 Medium

Topic: Forward and Futures Contracts

Bloom's: Remember

AACSB: Reflective Thinking

Learning Goal: 23-03 Distinguish a microhedge from a macrohedge.

Accessibility: Keyboard Navigation

6) Basis risk is the risk that the prices or value of the underlying spot and the derivatives instrument used to hedge do not move predictably relative to one another.

Answer: TRUE

Difficulty: 2 Medium

Topic: Forward and Futures Contracts

Bloom's: Remember

AACSB: Reflective Thinking

Learning Goal: 23-01 Know how risk can be hedged with forward contracts.

Accessibility: Keyboard Navigation

7) Writing a call option on a bond pays off if interest rates rise.

Answer: TRUE

Difficulty: 2 Medium

Topic: Options

Bloom's: Understand

AACSB: Reflective Thinking

Learning Goal: 23-04 Know how risk can be hedged with option contracts.

Accessibility: Keyboard Navigation

8) Forward contracts are not subject to default risk because the exchanges honor the contract in case the counterparty defaults; but future contracts are subject to default risk because they are non standardized contracts.

Answer: FALSE

Difficulty: 1 Easy

Topic: Forward and Futures Contracts

Bloom's: Understand

AACSB: Reflective Thinking

Learning Goal: 23-01 Know how risk can be hedged with forward contracts.; 23-02 Know how risk can be hedged with futures contracts.

Accessibility: Keyboard Navigation

9) Swaps are usually the best hedging tool to use to hedge long-term risks of four or five years or more.

Answer: TRUE

Difficulty: 2 Medium

Topic: Swaps

Bloom's: Understand

AACSB: Reflective Thinking

Learning Goal: 23-05 Know how risk can be hedged with swap contracts.

Accessibility: Keyboard Navigation

10) A U.S. corporation has a yen-denominated loan it must repay in six months. A long position in yen futures could help offset the corporation's foreign exchange risk.

Answer: TRUE

Difficulty: 2 Medium

Topic: Forward and Futures Contracts

Bloom's: Understand

AACSB: Reflective Thinking

Learning Goal: 23-01 Know how risk can be hedged with forward contracts.

Accessibility: Keyboard Navigation

11) A purchaser of a bond call option gains if interest rates fall.

Answer: TRUE

Difficulty: 2 Medium

Topic: Options

Bloom's: Understand

AACSB: Reflective Thinking

Learning Goal: 23-04 Know how risk can be hedged with option contracts.

Accessibility: Keyboard Navigation

12) As interest rates fall, bond prices and call option potential profits increase.

Answer: TRUE

Difficulty: 1 Easy

Topic: Options

Bloom's: Understand

AACSB: Reflective Thinking

Learning Goal: 23-04 Know how risk can be hedged with option contracts.

Accessibility: Keyboard Navigation

13) Swaps and forwards are subject to contingent risk; exchange-traded futures and options are not.

Answer: TRUE

Difficulty: 3 Hard

Topic: Forward and Futures Contracts; Swaps

Bloom's: Understand

AACSB: Reflective Thinking

Learning Goal: 23-01 Know how risk can be hedged with forward contracts.; 23-05 Know how risk can be hedged with swap contracts.

Accessibility: Keyboard Navigation

14) The buyer of an American-style bond call option has the right, but not the obligation, to sell the bond at a set price until the option expires.

Answer: FALSE

Difficulty: 1 Easy

Topic: Options

Bloom's: Remember

AACSB: Reflective Thinking

Learning Goal: 23-04 Know how risk can be hedged with option contracts.

Accessibility: Keyboard Navigation

15) The writer of an American-style bond call option has the right, but not the obligation, to buy the bond at a preset price until the option expires.

Answer: FALSE

Difficulty: 1 Easy

Topic: Options

Bloom's: Remember

AACSB: Reflective Thinking

Learning Goal: 23-04 Know how risk can be hedged with option contracts.

Accessibility: Keyboard Navigation

16) The maximum gain (ignoring commissions and taxes) from buying an at-the-money bond put option is the bond price at time of option purchase less the put premium. The maximum loss is the put premium.

Answer: TRUE

Difficulty: 2 Medium

Topic: Options

Bloom's: Remember

AACSB: Reflective Thinking

Learning Goal: 23-04 Know how risk can be hedged with option contracts.

Accessibility: Keyboard Navigation

17) A fixed-floating interest rate swap is called a plain vanilla swap.

Answer: TRUE

Difficulty: 1 Easy

Topic: Swaps

Bloom's: Remember

AACSB: Reflective Thinking

Learning Goal: 23-05 Know how risk can be hedged with swap contracts.

Accessibility: Keyboard Navigation

18) An FI with DA < kDL may choose to enter into a long-term swap in which it pays a fixed rate of interest and receives a variable rate in order to effectively reduce the duration gap.

Answer: FALSE

Difficulty: 3 Hard

Topic: Swaps

Bloom's: Understand

AACSB: Reflective Thinking

Learning Goal: 23-05 Know how risk can be hedged with swap contracts.

Accessibility: Keyboard Navigation

19) A bank with a negative repricing gap could enter into a swap to pay a fixed rate of interest and receive a variable rate of interest to effectively reduce its repricing gap.

Answer: TRUE

Difficulty: 2 Medium

Topic: Swaps

Bloom's: Understand

AACSB: Reflective Thinking

Learning Goal: 23-05 Know how risk can be hedged with swap contracts.

Accessibility: Keyboard Navigation

20) A bank has a positive repricing gap and wishes to protect its profits from an unfavorable interest rate move. Purchasing a cap will help limit this bank's interest rate risk.

Answer: FALSE

Difficulty: 2 Medium

Topic: Options

Bloom's: Understand

AACSB: Reflective Thinking

Learning Goal: 23-04 Know how risk can be hedged with option contracts.

Accessibility: Keyboard Navigation

21) Which of the following requires daily cash flow settlements between the parties?

A) Forward contract

B) Futures contract

C) Purchased options contract

D) Swap contract

E) Collars

Answer: B

Difficulty: 1 Easy

Topic: Forward and Futures Contracts

Bloom's: Understand

AACSB: Reflective Thinking

Learning Goal: 23-01 Know how risk can be hedged with forward contracts.

Accessibility: Keyboard Navigation

22) A macrohedge is a

A) hedge of a particular asset or liability.

B) hedge of an entire balance sheet.

C) hedge using options.

D) hedge without basis risk.

E) hedge using futures on macroeconomic variables.

Answer: B

Difficulty: 1 Easy

Topic: Forward and Futures Contracts

Bloom's: Remember

AACSB: Reflective Thinking

Learning Goal: 23-03 Distinguish a microhedge from a macrohedge.

Accessibility: Keyboard Navigation

23) A microhedge is a

A) hedge of a particular asset or liability.

B) hedge against a change in a particular macro variable.

C) hedge of an entire balance sheet.

D) hedge using options.

E) hedge without basis risk.

Answer: A

Difficulty: 1 Easy

Topic: Forward and Futures Contracts

Bloom's: Remember

AACSB: Reflective Thinking

Learning Goal: 23-01 Know how risk can be hedged with forward contracts.

Accessibility: Keyboard Navigation

24) Basis risk occurs because it is generally impossible to

A) hedge unanticipated rate changes.

B) exactly predict interest rate changes.

C) exactly match the terms of the hedging instrument with the terms of the asset or liability at risk.

D) find negatively correlated asset prices.

E) All of these choices are correct.

Answer: C

Difficulty: 1 Easy

Topic: Forward and Futures Contracts

Bloom's: Understand; Evaluate

AACSB: Analytical Thinking

Learning Goal: 23-01 Know how risk can be hedged with forward contracts.

Accessibility: Keyboard Navigation

25) A bond portfolio manager has a $25 million market value bond portfolio with a six-year duration. The manager believes interest rates may increase 50 basis points. Which of the following could be used to help limit his risk?

I. Sell the bonds forward.

II. Buy bond futures contracts.

III. Buy call options on the bonds.

IV. Buy put options on the bonds.

A) I only

B) II only

C) I and III only

D) I and IV only

E) II and III only

Answer: D

Difficulty: 1 Easy

Topic: Forward and Futures Contracts

Bloom's: Understand

AACSB: Reflective Thinking

Learning Goal: 23-01 Know how risk can be hedged with forward contracts.; 23-04 Know how risk can be hedged with option contracts.; 23-03 Distinguish a microhedge from a macrohedge.; 23-02 Know how risk can be hedged with futures contracts.

Accessibility: Keyboard Navigation

26) Which of the following are potentially subject to risk-based capital requirements?

A) Swaps and futures

B) Swaps and forwards

C) Forwards and futures

D) Purchased option positions and futures

E) Purchased option positions and swaps

Answer: B

Difficulty: 2 Medium

Topic: Derivative Trading Policies of Regulators

Bloom's: Remember

AACSB: Reflective Thinking

Learning Goal: 23-06 Understand how the different hedging methods compare.

Accessibility: Keyboard Navigation

27) A forward contract

A) is marked to market.

B) has significant default risk.

C) is standardized.

D) is traded over the counter.

E) is highly liquid.

Answer: B

Difficulty: 2 Medium

Topic: Forward and Futures Contracts

Bloom's: Remember

AACSB: Reflective Thinking

Learning Goal: 23-01 Know how risk can be hedged with forward contracts.

Accessibility: Keyboard Navigation

28) The price of a bond rises from 98 to par. Even if you do nothing, this would still result in an immediately recognized loss on a \_\_\_\_\_\_\_\_ on a bond, and a paper gain on a bond \_\_\_\_\_\_\_\_.

A) long forward contract; call option

B) short futures contract; call option

C) call option; put option

D) short futures contract; put option

E) short forward contract; call option

Answer: B

Difficulty: 3 Hard

Topic: Forward and Futures Contracts; Options

Bloom's: Understand

AACSB: Reflective Thinking

Learning Goal: 23-04 Know how risk can be hedged with option contracts.; 23-03 Distinguish a microhedge from a macrohedge.

Accessibility: Keyboard Navigation

29) A \_\_\_\_\_\_\_\_ position in T-bond futures should be used to hedge falling interest rates and a \_\_\_\_\_\_\_\_ position in T-bond futures should be used to hedge falling bond prices.

A) long; short

B) long; long

C) short; long

D) short; short

E) None of the options are correct.

Answer: B

Difficulty: 2 Medium

Topic: Forward and Futures Contracts

Bloom's: Understand

AACSB: Reflective Thinking

Learning Goal: 23-02 Know how risk can be hedged with futures contracts.

Accessibility: Keyboard Navigation

30) Which of the following bond option positions increase in value when interest rates increase?

A) Long call; written put

B) Long put; written call

C) Long put; long call

D) Written put; written call

E) None of the options are correct.

Answer: B

Difficulty: 3 Hard

Topic: Options

Bloom's: Understand

AACSB: Reflective Thinking

Learning Goal: 23-04 Know how risk can be hedged with option contracts.

Accessibility: Keyboard Navigation

31) For a bond put option, the \_\_\_\_\_\_\_\_ the exercise price, the greater the cost of the put, and for a bond call option, the \_\_\_\_\_\_\_\_ the exercise price, the higher the cost of the call option.

A) higher; higher

B) lower; lower

C) higher; lower

D) lower; higher

E) None of the options are correct.

Answer: C

Difficulty: 3 Hard

Topic: Options

Bloom's: Understand

AACSB: Reflective Thinking

Learning Goal: 23-04 Know how risk can be hedged with option contracts.

Accessibility: Keyboard Navigation

32) The safest way to hedge a bond asset with options is to

A) purchase a call option on the bond.

B) write a call option on the bond.

C) purchase a put option on the bond.

D) write a put option on the bond.

E) None of the options are correct.

Answer: C

Difficulty: 2 Medium

Topic: Options

Bloom's: Remember

AACSB: Reflective Thinking

Learning Goal: 23-04 Know how risk can be hedged with option contracts.

Accessibility: Keyboard Navigation

33) The safest way to hedge a bond liability with options is to

A) purchase a call option on the bond.

B) write a call option on the bond.

C) purchase a put option on the bond.

D) write a put option on the bond.

E) None of the options are correct.

Answer: A

Difficulty: 2 Medium

Topic: Options

Bloom's: Remember

AACSB: Reflective Thinking

Learning Goal: 23-04 Know how risk can be hedged with option contracts.

Accessibility: Keyboard Navigation

34) An FI with DA > kDL could do which of the following to reduce the duration gap?

A) Engage in a swap and pay a variable rate and receive a fixed rate of interest

B) Sell bond futures contracts

C) Buy bonds forward

D) Buy bond call options

E) None of the options are correct.

Answer: B

Difficulty: 2 Medium

Topic: Forward and Futures Contracts

Bloom's: Understand

AACSB: Reflective Thinking

Learning Goal: 23-03 Distinguish a microhedge from a macrohedge.

Accessibility: Keyboard Navigation

35) The largest two categories of swaps are

A) credit risk and interest rate swaps.

B) currency and commodity swaps.

C) interest rate and currency swaps.

D) equity and interest rate swaps.

E) None of the options are correct.

Answer: C

Difficulty: 1 Easy

Topic: Comparison of Hedging Methods

Bloom's: Remember

AACSB: Reflective Thinking

Learning Goal: 23-05 Know how risk can be hedged with swap contracts.

Accessibility: Keyboard Navigation

36) A bondholder owns 15-year government bonds with a $5 million face value and a 6 percent coupon that is paid annually. The bonds are currently priced at $550,018.73 with a yield of 5.034 percent. The bonds have a duration of 10.53 years. If interest rates are projected to increase by 50 basis points, how much will the bondholder gain or lose?

A) $27,571

B) $25,063

C) −$27,571

D) −$25,063

E) $5,313

Answer: C

Explanation: $ΔP = −Dur x (ΔR/(1 + R)) × P0 = −10.53 × (0.0050/1.0534) × 550,018.73 = −$27,571

Difficulty: 3 Hard

Topic: Forward and Futures Contracts

Bloom's: Analyze; Apply

AACSB: Analytical Thinking

Learning Goal: 23-01 Know how risk can be hedged with forward contracts.

Accessibility: Keyboard Navigation

37) An FI has long-term fixed-rate assets funded by short-term variable-rate liabilities. To protect the equity value, the FI may engage in a swap to pay a \_\_\_\_\_\_\_\_ rate and receive a \_\_\_\_\_\_\_\_ interest.

A) fixed; variable

B) variable; variable

C) variable; fixed

D) fixed; fixed

E) None of the options are correct.

Answer: A

Difficulty: 3 Hard

Topic: Swaps

Bloom's: Remember

AACSB: Reflective Thinking

Learning Goal: 23-05 Know how risk can be hedged with swap contracts.

Accessibility: Keyboard Navigation

38) The profits on a derivatives position are fixed when a bond's price falls below a certain point, but above that point the profits fall when the bond price rises. This profit profile fits which of the following positions?

A) Purchased call option

B) Written call option

C) Purchased put option

D) Written put option

E) None of the options are correct.

Answer: B

Difficulty: 3 Hard

Topic: Options

Bloom's: Understand

AACSB: Reflective Thinking

Learning Goal: 23-04 Know how risk can be hedged with option contracts.

Accessibility: Keyboard Navigation

39) Plain vanilla interest rate swaps are exchanges of

A) principal only.

B) interest only.

C) principal and interest.

D) principal and currency.

E) interest rate and currency.

Answer: B

Difficulty: 1 Easy

Topic: Swaps

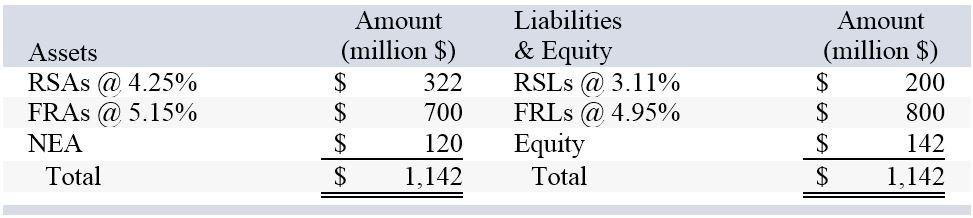
Bloom's: Remember

AACSB: Reflective Thinking

Learning Goal: 23-05 Know how risk can be hedged with swap contracts.

Accessibility: Keyboard Navigation

40) After conducting a rate-sensitive analysis, a bank finds itself with the following amounts of rate-sensitive assets and liabilities (RSAs and RSL) and fixed-rate assets and liabilities (FRAs and FRLs); the rate of return and cost rates on the accounts are also given:



If we were to design a macrohedge, which of the following positions would help reduce the bank's interest rate risk?

I. Long position in bond futures contracts

II. Buying put options on bonds

III. Purchasing an interest rate cap

A) I only

B) II only

C) III only

D) I and III only

E) II and III only

Answer: A

Explanation: Risk is from falling interest rates or rising prices with a positive repricing gap.

Difficulty: 3 Hard

Topic: Forward and Futures Contracts; Options

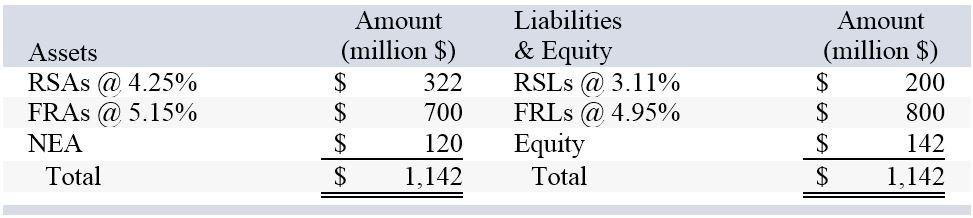
Bloom's: Understand

AACSB: Reflective Thinking

Learning Goal: 23-04 Know how risk can be hedged with option contracts.; 23-02 Know how risk can be hedged with futures contracts.

Accessibility: Keyboard Navigation

41) After conducting a rate-sensitive analysis, a bank finds itself with the following amounts of rate-sensitive assets and liabilities (RSAs and RSL) and fixed-rate assets and liabilities (FRAs and FRLs); the rate of return and cost rates on the accounts are also given:



If the bank wishes to set up a swap to totally hedge the interest rate risk, the bank should

A) pay a variable rate of interest and receive a fixed rate of interest.

B) pay a fixed rate of interest and receive a variable rate of interest.

C) pay a variable rate of interest and receive a variable rate of interest.

D) pay a fixed rate of interest and receive a fixed rate of interest.

E) None of the options are correct.

Answer: A

Explanation: Risk is from falling interest rates or rising prices with a positive repricing gap.

Difficulty: 3 Hard

Topic: Swaps

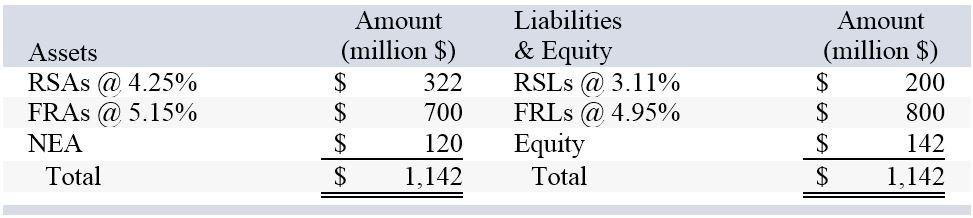
Bloom's: Understand

AACSB: Reflective Thinking

Learning Goal: 23-05 Know how risk can be hedged with swap contracts.

Accessibility: Keyboard Navigation

42) After conducting a rate-sensitive analysis, a bank finds itself with the following amounts of rate-sensitive assets and liabilities (RSAs and RSL) and fixed-rate assets and liabilities (FRAs and FRLs); the rate of return and cost rates on the accounts are also given:



Suppose the institution wishes to fully hedge the interest rate risk with a swap. A swap is available with whatever notional principal is needed that pays fixed at 4.95 percent and pays variable at LIBOR. LIBOR is currently 5.11 percent. By how much would profits change right now if the bank engages in the swap?

A) $202,600

B) −$202,600

C) $300,000

D) −$195,200

E) $195,200

Answer: D

Explanation: Pay variable; receive fixed; (322 − 200) × (4.95% − 5.11%) = −$195,200

Difficulty: 3 Hard

Topic: Swaps

Bloom's: Analyze; Apply

AACSB: Analytical Thinking

Learning Goal: 23-05 Know how risk can be hedged with swap contracts.

Accessibility: Keyboard Navigation

43) A thrift purchases a one-year interest rate floor with a floor rate of 4.23 percent from a large bank. The option has a notional principal of $1 million and costs $2,000. If in one year, interest rates are 3.15 percent, the thrift's net profit, ignoring commissions and taxes, was \_\_\_\_\_\_\_\_; and if in one year, interest rates were 5.2 percent, the thrift's net profit was \_\_\_\_\_\_\_\_.

A) $0; $7,500

B) $8,800; −$2,000

C) $8,800; $0

D) $29,500; −$2,000

E) $29,500; $0

Answer: B

Explanation: Max [(Floor rate − Actual rate) × NP, 0] − 2,000 = ((4.23% − 3.15%) × $1 million) − 2,000 = $8,800; $0 − 2000 = −$2,000

Difficulty: 2 Medium

Topic: Options

Bloom's: Analyze; Apply

AACSB: Analytical Thinking

Learning Goal: 23-04 Know how risk can be hedged with option contracts.

Accessibility: Keyboard Navigation

44) A regional bank negotiates the purchase of a one-year interest rate cap with a cap rate of 5.45 percent with a large bank. The option has a notional principle of $2 million and costs $3,400. In one year, interest rates are 6.33 percent. The regional bank's net profit, ignoring commissions and taxes, was

A) $105,600.

B) $18,400.

C) $17,600.

D) $14,200.

E) $11,500.

Answer: D

Explanation: Max [(Actual rate − Cap rate) × NP, 0] − 3,400 = ((6.33% − 5.45%) × 2m) − 3,400 = $14,200

Difficulty: 2 Medium

Topic: Options

Bloom's: Analyze; Apply

AACSB: Analytical Thinking

Learning Goal: 23-04 Know how risk can be hedged with option contracts.

Accessibility: Keyboard Navigation

45) Your firm has sold long-term government bonds short on a when-issued basis; your firm must purchase the bonds and deliver them when they are issued in six months. To hedge this risk, you could

I. buy at-the-money put options on bonds.

II. sell bond futures contracts.

III. write at-the-money call options on bonds.

A) I only

B) II only

C) I and III only

D) II and III only

E) None of these choices are correct.

Answer: E

Explanation: The risk is from rising prices.

Difficulty: 2 Medium

Topic: Forward and Futures Contracts; Options

Bloom's: Understand; Evaluate

AACSB: Analytical Thinking

Learning Goal: 23-04 Know how risk can be hedged with option contracts.; 23-02 Know how risk can be hedged with futures contracts.

Accessibility: Keyboard Navigation

46) In 2016, only about \_\_\_\_\_\_\_\_ of the largest banks actively used derivatives.

A) 742

B) 832

C) 942

D) 992

E) 1,442

Answer: E

Difficulty: 1 Easy

Topic: Risks Associated with Futures, Forwards, and Options

Bloom's: Remember

AACSB: Reflective Thinking

Learning Goal: 23-01 Know how risk can be hedged with forward contracts.; 23-04 Know how risk can be hedged with option contracts.; 23-02 Know how risk can be hedged with futures contracts.

Accessibility: Keyboard Navigation

47) A naïve hedge is one

A) in which the hedger is not fully informed.

B) in which the hedger attempts to eliminate all of the risk of the underlying spot position.

C) in which the hedger uses microhedges rather than macrohedges to limit risk.

D) in which the hedger unwittingly increases the risk of the FI's position.

E) that does not have to be reported on the FI's financial statements.

Answer: B

Difficulty: 1 Easy

Topic: Forward and Futures Contracts

Bloom's: Remember

AACSB: Reflective Thinking

Learning Goal: 23-01 Know how risk can be hedged with forward contracts.

Accessibility: Keyboard Navigation

48) A FI buys a $500 million cap of 7 percent at a premium of 0.75 percent of face value. In addition, it sells $500 million floor of 3 percent at a premium of 0.70 percent of face value.

If interest rates rise to 7.25% what is the net profit of the FI?

A) −$1,250,000

B) −$250,000

C) $0

D) $1,000,000

E) $1,250,000

Answer: D

Explanation: The cost of the collar is:

(−0.0075 × 500) + (0.0070 × 500) = −$250,000

If interest rates rises to 7.25%, only the cap will be exercised, the profit from the cap will be:

500 × (0.0725 − 0.07) = 1,250,000

Net profit will be $1,000,000

Difficulty: 3 Hard

Topic: Options

Bloom's: Apply

AACSB: Analytical Thinking

Learning Goal: 23-04 Know how risk can be hedged with option contracts.

Accessibility: Keyboard Navigation

49) A FI buys a $500 million cap of 7 percent at a premium of 0.75 percent of face value. In addition, it sells $500 million floor of 3 percent at a premium of 0.70 percent of face value.

If interest rates fall to 2.5% what is the net profit of the FI?

A) −$2,750,000

B) −$250,000

C) $0

D) $2,000,000

E) $2,750,000

Answer: A

Explanation: The cost of the collar is:

(−0.0075 × 500) + (0.0070 × 500) = −$250,000

If interest rates rises to 2.5%, only the floor will be exercised by the buyer of the floor, the loss from the floor will be:

−500 × (0.03 − 0.025) = −2,500,000

Net loss will be $2,750,000

Difficulty: 3 Hard

Topic: Options

Bloom's: Apply

AACSB: Analytical Thinking

Learning Goal: 23-04 Know how risk can be hedged with option contracts.

Accessibility: Keyboard Navigation

50) A U.S. firm is earning British pounds from its foreign subsidiary. A UK firm is earning dollars from its U.S. subsidiary. Neither firm can borrow at a cost-effective rate outside of its home country/currency. What kind of swap could be used to limit the FX risk of both firms and explain the payment flows involved? (Be specific.)

Answer: The U.S. firm would borrow $ in the United States; the UK firm would borrow £ in the UK. The U.S. firm agrees to pay the £ interest and principal on the UK firm's borrowings using its subsidiary's pound earnings, and the British firm agrees to pay the $ interest and principal on the American firm's debt (using its subsidiary's $ proceeds).

Difficulty: 3 Hard

Topic: Swaps

Bloom's: Understand

AACSB: Reflective Thinking

Learning Goal: 23-05 Know how risk can be hedged with swap contracts.

Accessibility: Keyboard Navigation

51) Why is the credit risk on a plain vanilla interest rate swap generally less than the credit risk of a loan with an equivalent (notional) principal amount?

Answer: Swap payments are netted against one another so the actual payment due is lower than on an equivalent principal loan. There is no lending of principal and, thus, no principal is due on a swap, but it is on a loan. A third party may be hired (for a fee) to guarantee payments on a swap, even if a counterparty defaults, or a standby letter of credit or collateral may be required.

Difficulty: 2 Medium

Topic: Swaps

Bloom's: Understand

AACSB: Reflective Thinking

Learning Goal: 23-05 Know how risk can be hedged with swap contracts.

Accessibility: Keyboard Navigation

52) Is it safer to hedge a contingent liability with options, futures, forwards, or swaps? Explain.

Answer: A contingent liability should be hedged by buying options; then if the liability doesn't occur, the FI is not left with an unlimited loss exposed risk position in a derivative without an offsetting spot position.

Difficulty: 2 Medium

Topic: Forward and Futures Contracts; Options; Swaps

Bloom's: Understand

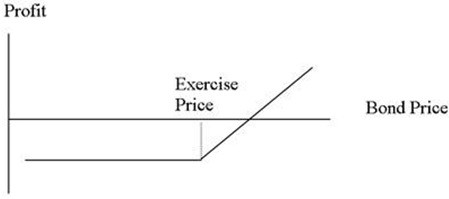
AACSB: Reflective Thinking

Learning Goal: 23-01 Know how risk can be hedged with forward contracts.; 23-04 Know how risk can be hedged with option contracts.; 23-02 Know how risk can be hedged with futures contracts.; 23-05 Know how risk can be hedged with swap contracts.

Accessibility: Keyboard Navigation

53) Draw a graph of the gains and losses from owning a bond and simultaneously buying a put on the bond.

Answer:



Difficulty: 1 Easy

Topic: Options

Bloom's: Remember

AACSB: Reflective Thinking

Learning Goal: 23-04 Know how risk can be hedged with option contracts.

Accessibility: Keyboard Navigation

54) A U.S. bank has deposit liabilities denominated in euros that must be repaid in two years. The deposits pay a fixed interest rate of 4 percent. The bank took the money raised and converted it to dollars, whereupon it lent the dollars to a corporate customer that will repay the bank over the next two years in dollars at a variable rate of interest equal to LIBOR +3 percent. The interest rate earned may change every six months.

Other than credit risk, what are the risks to the bank?

Answer: There are two risks other than credit risk:

(1) Interest rates may fall, reducing the income from the corporate loan while the funding cost of the liabilities would stay the same.

(2) The value of the euro could increase against the dollar, raising the dollar cost to repay the euro deposits because the dollars earned would buy fewer euros.

Difficulty: 2 Medium

Topic: Swaps

Bloom's: Remember

AACSB: Reflective Thinking

Learning Goal: 23-05 Know how risk can be hedged with swap contracts.

Accessibility: Keyboard Navigation

55) A U.S. bank has deposit liabilities denominated in euros that must be repaid in two years. The deposits pay a fixed interest rate of 4 percent. The bank took the money raised and converted it to dollars, whereupon it lent the dollars to a corporate customer that will repay the bank over the next two years in dollars at a variable rate of interest equal to LIBOR +3 percent. The interest rate earned may change every six months.

Design a swap that the bank could use to reduce its risks.

Answer: The bank could pay dollars at a variable rate of interest based on LIBOR and receive euros at a fixed rate of interest. This would reduce both the foreign exchange and interest rate risk.

Difficulty: 3 Hard

Topic: Swaps

Bloom's: Create

AACSB: Analytical Thinking

Learning Goal: 23-05 Know how risk can be hedged with swap contracts.

Accessibility: Keyboard Navigation

56) A U.S. corporation is bidding on a revenue-generating contract in England. If the corporation gets the bid, it will be paid in pounds. (A) If the managers are risk averse, can hedging increase the likelihood that the U.S. firm gets the bid? Explain. (B) In this situation, should the corporation hedge with options, futures, or forwards? Explain.

Answer:

(A) Hedging can increase the likelihood the firm gets the bid because if the firm hedges, it can be more certain of the dollar value of the pounds received if it hedges now before the outcome of the bid is known. This should allow the firm to bid more and increase its chances of obtaining the contract even after considering the cost of hedging.

(B) In this case, an options hedge will be preferred (buy puts on the pound) since the firm is not sure that it will get the bid. Options are preferred in this case because the firm does not have to use them if it does not get the bid. If the firm hedges with futures or forwards before receiving the outcome of the bid, and then it doesn't get the bid, the firm finds that it has engaged in highly risky currency speculation without an offsetting spot position to limit the risk.

Difficulty: 3 Hard

Topic: Options

Bloom's: Understand; Evaluate

AACSB: Analytical Thinking

Learning Goal: 23-04 Know how risk can be hedged with option contracts.

Accessibility: Keyboard Navigation

57) What are the advantages and disadvantages of forwards versus futures contracts?

Answer: The advantages of forwards include the participant's ability to negotiate nonstandard terms and the lack of required cash payments before maturity. Advantages of futures include their marketability, the lack of counterparty default risk, and the anonymity of the participants.

Difficulty: 2 Medium

Topic: Forward and Futures Contracts

Bloom's: Understand

AACSB: Reflective Thinking

Learning Goal: 23-01 Know how risk can be hedged with forward contracts.

Accessibility: Keyboard Navigation

58) In terms of direct costs, are futures or options likely to be a more expensive form of hedging? Why? In terms of opportunity costs, which is more expensive? Why?

Answer: In terms of direct costs, options are generally a more expensive form of hedging because they are a right and not an obligation. An option writer knows that the buyer will only exercise the option when it is in the buyer's favor and at the writer's expense, so the writer will charge for this right. In terms of opportunity costs, however, futures are probably a more expensive method of hedging, because futures hedges limit both gains and losses, but long option hedges truncate losses while allowing large gains. However, in a totally efficient market, the additional flexibility provided by options would increase the price of the option relative to futures till no net advantage existed.

Difficulty: 3 Hard

Topic: Comparison of Hedging Methods

Bloom's: Remember; Understand

AACSB: Reflective Thinking

Learning Goal: 23-06 Understand how the different hedging methods compare.

Accessibility: Keyboard Navigation

59) A bank wishes to hedge its $30 million face value bond portfolio (currently priced at 99 percent of par). The bond portfolio has a duration of 9.75 years. It will hedge with T-bond futures ($100,000 face) priced at 98 percent of par. The duration of the T-bonds to be delivered is nine years. How many contracts are needed to hedge? Should the contracts be bought or sold? Ignore basis risk.

Answer:

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| NF | = | 9.75 × (0.99 × 30m) | = | 328.32 | ; | 328 |  | contracts should be sold (round down) |
|  |  | 9 × (0.98 × 100,000) |  |  |  |  |  |  |

Difficulty: 2 Medium

Topic: Appendix 23A: Hedging with Futures Contracts

Bloom's: Analyze; Apply

AACSB: Analytical Thinking

Learning Goal: 23-02 Know how risk can be hedged with futures contracts.

Accessibility: Keyboard Navigation

60) An FI has DA = 2.45 years and kDL = 0.97 years. The FI has total assets equal to $375 million. The FI wishes to effectively reduce the duration gap to one year by hedging with T-bond futures that have a market value of $115,000 and a DFut = 8 years. How many contracts are needed and should the FI buy or sell them? (D = Duration)

Answer:

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| NF | = | (2.45 − 0.97 − 1) × 375m | = | 195.65 | ; | 195 |  | contracts should be sold (round down) |
|  |  | 8 × 115,000 |  |  |  |  |  |  |

Difficulty: 3 Hard

Topic: Appendix 23A: Hedging with Futures Contracts

Bloom's: Analyze; Apply

AACSB: Analytical Thinking

Learning Goal: 23-02 Know how risk can be hedged with futures contracts.

Accessibility: Keyboard Navigation

61) A bank wishes to hedge its $25 million face value bond portfolio (currently priced at 106 percent of par). The bond portfolio has a duration of five years. It will hedge with put options that have a delta of 0.67. The bond underlying the option contract has a market value of $112,000 and a duration of eight years. How many put options are needed? Assume that there is no basis risk on the hedge.

Answer:

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Number of puts | = | 5 × (106% × 25m) | = | 220.72 | ; | 220 |  | put options should be bought. |
|  |  | 0.67 × 8 × 112,000 |  |  |  |  |  |  |

Difficulty: 3 Hard

Topic: Appendix 23B: Hedging with Options

Bloom's: Analyze; Apply

AACSB: Analytical Thinking

Learning Goal: 23-04 Know how risk can be hedged with option contracts.

Accessibility: Keyboard Navigation

62) A $995 million bank has a negative repricing gap equal to 6 percent of assets. The bank is currently paying 4.5 percent on its rate-sensitive liabilities. These rates will vary as interest rates move. The managers wish to reduce the effective repricing gap to zero with an interest rate cap or floor. A one-year cap is available with a 5 percent cap rate and a one-year floor is available at a floor rate of 4 percent.

(a) Suggest a position using either the cap or the floor (but not both) that will limit the bank's interest rate risk. Explain.

(b) Suppose that interest rates are volatile this year and the cap costs $275,000 and the floor costs $195,000. Suggest a collar that helps limit the bank's cost of hedging. How does the collar affect the bank's risk?

Answer:

(a) The bank's risk is from rising interest rates. The required notional principal = 6% × $995 million = $59.7 million, the size of the repricing gap. The bank should purchase the cap with a notional principal amount of $59.7 million. If interest rates rise above the cap rate of 5 percent, driving up the bank's liability costs, payments received on the cap will help offset the rising costs of the rate-sensitive liabilities. The cap doesn't earn anything until rates move above 5 percent, so the bank will lose profitability equal to $59.7 million × 0.005 = $298,500 before the cap moves into the money.

(b) The bank could purchase the cap and sell the floor to limit the cost of hedging. The net cost of the collar is then the income from selling the floor, $195,000 minus the cost of the cap, $275,000, or a net cost of $80,000. Selling the floor limits net gains from the declining cost of the rate-sensitive liabilities on the balance sheet if interest rates drop. In other words, selling the floor adds an opportunity cost from declining interest rates.

Difficulty: 3 Hard

Topic: Appendix 23C: Hedging with Caps, Floors, and Collars

Bloom's: Evaluate; Create

AACSB: Analytical Thinking

Learning Goal: 23-04 Know how risk can be hedged with option contracts.

Accessibility: Keyboard Navigation

63) A bank wishes to reduce its duration gap from 1.2 years to zero by using put options. The bank has $800 million in assets. The underlying bonds on the puts are valued at $115,000 and have a duration of four years. The put options have a delta of 0.58. How many put options are needed? Assume that there is no basis risk on the hedge.

Answer:

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Number of puts | = | 1.2 × 800m | = | 3,598.2 | ; | 3,598 |  | put options should be bought. |
|  |  | 0.58 × 4 × 115,000 |  |  |  |  |  |  |

Difficulty: 3 Hard

Topic: Appendix 23B: Hedging with Options

Bloom's: Analyze; Apply

AACSB: Analytical Thinking

Learning Goal: 23-04 Know how risk can be hedged with option contracts.

Accessibility: Keyboard Navigation