



Hull OFOD9e Multiple Choice Questions and Answers Ch03

□)دوعس كل مل اة عم ا ج 4dp assignment

Hull: Options, Futures and Other Derivatives, Ninth Edition

Chapter 3: Hedging Strategies Using Futures

Multiple Choice Test Bank: Questions with Answers

1. The **basis** is defined as **spot minus futures**. A trader is hedging the sale of an asset with a **short futures position**. The basis increases unexpectedly. Which of the following is true?
- A. **The hedger's position improves.**
 - B. The hedger's position worsens.
 - C. The hedger's position sometimes worsens and sometimes improves.
 - D. The hedger's position stays the same.

Answer: A

The price received by the trader is the futures price plus the basis. It follows that the trader's position improves when the basis increases.

2. Futures contracts trade with every month as a delivery month. A company is hedging the purchase of the underlying asset on June 15. Which futures contract should it use?
- A. The June contract
 - B. **The July contract**
 - C. The May contract
 - D. The August contract

Answer: B

As a general rule the futures maturity month should be **as close as possible to but after the month when the asset will be purchased**. In this case the asset will be purchased in June and so the best contract is the July contract.

3. On March 1 a commodity's spot price is \$60 and its August futures price is \$59. On July 1 the spot price is \$64 and the August futures price is \$63.50. A company entered into futures contracts on March 1 to hedge its purchase of the commodity on July 1. It closed out its position on July 1. **What is the**

effective price (after taking account of hedging) paid by the company?

- A. \$59.50
- B. \$60.50
- C. \$61.50
- D. \$63.50

Answer: A

The user of the commodity takes a long futures position. The gain on the futures is $63.50 - 59$ or $\$4.50$. The effective paid realized is therefore $64 - 4.50$ or $\$59.50$. This can also be calculated as the March 1 futures price ($=59$) plus the basis on July 1 ($=0.50$).

4. On March 1 the price of a commodity is \$1,000 and the December futures price is \$1,015. On November 1 the price is \$980 and the December futures price is \$981. A producer of the commodity entered into a December futures contracts on March 1 to hedge the sale of the commodity on November 1. It closed out its position on November 1. What is the effective price (after taking account of hedging) received by the company for the commodity?
- A. \$1,016
 - B. \$1,001
 - C. \$981
 - D. \$1,014

Answer: D

The producer of the commodity takes a short futures position. The gain on the futures is $1015 - 981$ or $\$34$. The effective price realized is therefore $980 + 34$ or $\$1014$. This can also be calculated as the March 1 futures price ($=1015$) plus the November 1 basis ($=-1$).

5. Suppose that the standard deviation of monthly changes in the price of commodity A is \$2. The standard deviation of monthly changes in a futures price for a contract on commodity B (which is similar to commodity A) is \$3.

The correlation between the futures price and the commodity price is 0.9. What **hedge ratio** should be used when hedging a one month exposure to the price of commodity A?

- A. **0.60**
- B. 0.67
- C. 1.45
- D. 0.90

Answer: A

The optimal hedge ratio is $0.9 \times (2/3)$ or 0.6.

6. A company has a \$36 million portfolio with a beta of 1.2. The futures price for a contract on an index is 900. Futures contracts on \$250 times the index can be traded. What trade is necessary to reduce beta to 0.9?
- A. Long 192 contracts
 - B. Short 192 contracts
 - C. Long 48 contracts
 - D. **Short 48 contracts**

Answer: D

To reduce the beta by 0.3 we need to short $0.3 \times 36,000,000 / (900 \times 250)$ or 48 contracts.

7. A company has a \$36 million portfolio with a beta of 1.2. The futures price for a contract on an index is 900. Futures contracts on \$250 times the index can be traded. What trade is necessary to increase beta to 1.8?
- A. Long 192 contracts
 - B. Short 192 contracts
 - C. **Long 96 contracts**
 - D. Short 96 contracts

Answer: C

To increase beta by 0.6 we need to go long $0.6 \times 36,000,000 / (900 \times 250)$ or 96 contracts

8. Which of the following is true?

- A. The optimal hedge ratio is the slope of the best fit line when the spot price (on the y-axis) is regressed against the futures price (on the x-axis).
- B. The optimal hedge ratio is the slope of the best fit line when the futures price (on the y-axis) is regressed against the spot price (on the x-axis).
- C. The optimal hedge ratio is the slope of the best fit line when the change in the spot price (on the y-axis) is regressed against the change in the futures price (on the x-axis).
- D. The optimal hedge ratio is the slope of the best fit line when the change in the futures price (on the y-axis) is regressed against the change in the spot price (on the x-axis).

Answer: C

The optimal hedge ratio reflects the ratio of movements in the spot price to movements in the futures price.

9. Which of the following describes tailing the hedge?

- A. A strategy where the hedge position is increased at the end of the life of the hedge
- B. A strategy where the hedge position is increased at the end of the life of the futures contract
- C. A more exact calculation of the hedge ratio when forward contracts are used for hedging
- D. None of the above

Answer: D

Tailing the hedge is a calculation appropriate when futures are used for hedging. It corrects for daily settlement

10. A company due to pay a certain amount of a foreign currency in the future decides to hedge with futures contracts. Which of the following best describes the advantage of hedging?

- A. It leads to a better exchange rate being paid
- B. It leads to a more predictable exchange rate being paid
- C. It caps the exchange rate that will be paid
- D. It provides a floor for the exchange rate that will be paid

Answer: B

Hedging is designed to reduce risk not increase expected profit. Options can be used to create a cap or floor on the price. Futures attempt to lock in the price

11. Which of the following best describes the capital asset pricing model?

- A. Determines the amount of capital that is needed in particular situations
- B. Is used to determine the price of futures contracts
- C. Relates the return on an asset to the return on a stock index
- D. Is used to determine the volatility of a stock index

Answer: C

CAPM relates the return on an asset to its beta. The parameter beta measures the sensitivity of the return on the asset to the return on the market. The latter is usually assumed to be the return on a stock index such as the S&P 500.

12. Which of the following best describes “stack and roll”?

- A. Creates long-term hedges from short term futures contracts
- B. Can avoid losses on futures contracts by entering into further futures contracts
- C. Involves buying a futures contract with one maturity and selling a futures contract with a different maturity
- D. Involves two different exposures simultaneously

Answer: A

Stack and roll is a procedure where short maturity futures contracts are entered into. When they are close to maturity they are replaced by more short maturity futures contracts and so on. The result is the creation of a long term hedge from short-term futures contracts.

13. Which of the following increases basis risk?

- A. A large difference between the futures prices when the hedge is put in place and when it is closed out
- B. Dissimilarity between the underlying asset of the futures contract and the hedger's exposure
- C. A reduction in the time between the date when the futures contract is closed and its delivery month
- D. None of the above

Answer: B

Basis is the difference between futures and spot at the time the hedge is closed out. This increases as the time between the date when the futures contract is put in place and the delivery month increases. (C is not therefore correct). It also increases as the asset underlying the futures contract becomes more different from the asset being hedged. (B is therefore correct.)

14. Which of the following is a reason for hedging a portfolio with an index futures?

- A. The investor believes the stocks in the portfolio will perform better than the market but is uncertain about the future performance of the market
- B. The investor believes the stocks in the portfolio will perform better than the market and the market is expected to do well
- C. The portfolio is not well diversified and so its return is uncertain
- D. All of the above

Answer: A

Index futures can be used to remove the impact of the performance of the overall market on the portfolio. If the market is expected to do well hedging against the performance of the market is not appropriate. Hedging cannot correct for a poorly diversified portfolio.

15. Which of the following does NOT describe beta?

- A. A measure of the sensitivity of the return on an asset to the return on an index
- B. The slope of the best fit line when the return on an asset is regressed against the return on the market
- C. The hedge ratio necessary to remove market risk from a portfolio
- D. Measures correlation between futures prices and spot prices for a commodity

Answer: D

A, B, and C all describe beta but beta has nothing to do with the correlation between futures and spot prices for a commodity

16. Which of the following is true?

- A. Hedging can always be done more easily by a company's shareholders than by the company itself
- B. If all companies in an industry hedge, a company in the industry can sometimes reduce its risk by choosing not to hedge
- C. If all companies in an industry do not hedge, a company in the industry can reduce its risk by hedging
- D. If all companies in an industry do not hedge, a company is liable increase its risk by hedging

Answer: D

If all companies in a industry hedge, the prices of the end product tends to reflect movements in relevant market variables. Attempting to hedge those movements can therefore increase risk.

17. Which of the following is necessary for tailing a hedge?
- A. Comparing the size in units of the position being hedged with the size in units of the futures contract
 - B. Comparing the value of the position being hedged with the value of one futures contract
 - C. Comparing the futures price of the asset being hedged to its forward price
 - D. None of the above

Answer: B

When tailing a hedge the optimal hedge ratio is applied to the ratio of the value of the position being hedged to the value of one futures contract.

18. Which of the following is true?
- A. Gold producers should always hedge the price they will receive for their production of gold over the next three years
 - B. Gold producers should always hedge the price they will receive for their production of gold over the next one year
 - C. The hedging strategies of a gold producer should depend on whether its shareholders want exposure to the price of gold
 - D. Gold producers can hedge by buying gold in the forward market

Answer: C

Some shareholders buy gold stocks to gain exposure to the price of gold. They do not want the company they invest in to hedge. In practice gold mining companies make their hedging strategies clear to shareholders.

19. A silver mining company has used futures markets to hedge the price it will receive for everything it will produce over the next 5 years. Which of the following is true?

- A. It is liable to experience liquidity problems if the price of silver falls dramatically
- B. It is liable to experience liquidity problems if the price of silver rises dramatically
- C. It is liable to experience liquidity problems if the price of silver rises dramatically or falls dramatically
- D. The operation of futures markets protects it from liquidity problems

Answer: B

The mining company shorts futures. It gains on the futures when the price decreases and loses when the price increases. It may get margin calls which lead to liquidity problems when the price rises even though the silver in the ground is worth more.

20. A company will buy 1000 units of a certain commodity in one year. It decides to hedge 80% of its exposure using futures contracts. The spot price and the futures price are currently \$100 and \$90, respectively. If the spot price and the futures price in one year turn out to be \$112 and \$110, respectively. What is the average price paid for the commodity?
- A. \$92
 - B. \$96
 - C. \$102
 - D. \$106

Answer: B

On the 80% (hedged) part of the commodity purchase the price paid will be $112 - (110 - 90)$ or \$92. On the other 20% the price paid will be the spot price of \$112. The weighted average of the two prices is $0.8 \times 92 + 0.2 \times 112$ or \$96.