Hull OFOD9e Multiple Choice Questions and Answers Ch05

4dp assignment (جامعة الملك سعود□)

Hull: Options, Futures, and Other Derivatives, Ninth Edition
Chapter 5: Determination of Forward and Futures Prices
Multiple Choice Test Bank: Questions with Answers

1. Which of the following is a consumption asset?
   A. The S&P 500 index
   B. The Canadian dollar
   C. Copper
   D. IBM stock

   Answer: C

   A, B, and D are investment assets (held by at least some investors purely for investment purposes). C is a consumption asset.

2. An investor shorts 100 shares when the share price is $50 and closes out the position six months later when the share price is $43. The shares pay a dividend of $3 per share during the six months. How much does the investor gain?
   A. $1,000
   B. $400
   C. $700
   D. $300

   Answer: B

   The investor gains $7 per share because he or she sells at $50 and buys at $43. However, the investor has to pay the $3 per share dividend. The net profit is therefore 7−3 or $4 per share. 100 shares are involved. The total gain is therefore $400.

3. The spot price of an investment asset that provides no income is $30 and the risk-free rate for all maturities (with continuous compounding) is 10%. What is the three-year forward price?
   A. $40.50
   B. $22.22
   C. $33.00

D. $33.16

Answer: A

The 3-year forward price is the spot price grossed up for 3 years at the risk-free rate. It is $30e^{0.1\times3}$ =$40.50.

4. The spot price of an investment asset is $30 and the risk-free rate for all maturities is 10% with continuous compounding. The asset provides an income of $2 at the end of the first year and at the end of the second year. What is the three-year forward price?
   A. $19.67
   B. $35.84
   C. $45.15
   D. $40.50

   Answer: B

   The present value of the income is $2e^{-0.1\times1}+2e^{-0.1\times2}$= $3.447. The three year forward price is obtained by subtracting the present value of the income from the current stock price and then grossing up the result for three years at the risk-free rate. It is $(30-3.447)e^{0.1\times3} = \$35.84$.

5. An exchange rate is 0.7000 and the six-month domestic and foreign risk-free interest rates are 5% and 7% (both expressed with continuous compounding). What is the six-month forward rate?
   A. 0.7070
   B. 0.7177
   C. 0.7249
   D. 0.6930

   Answer: D

   The six-month forward rate is $0.7000e^{-(0.05-0.07)\times0.5}$=$0.6930$.

6. Which of the following is true?

A. The convenience yield is always positive or zero.
B. The convenience yield is always positive for an investment asset.
C. The convenience yield is always negative for a consumption asset.
D. The convenience yield measures the average return earned by holding futures contracts.

Answer: A

The convenience yield measures the benefit of owning an asset rather than having a forward/futures contract on an asset. For an investment asset it is always zero. For a consumption asset it is greater than or equal to zero.

7. A short forward contract that was negotiated some time ago will expire in three months and has a delivery price of \$40. The current forward price for three-month forward contract is \$42. The three month risk-free interest rate (with continuous compounding) is 8%. What is the value of the short forward contract?
A. +\$2.00
B. −\$2.00
C. +\$1.96
D. −\$1.96

Answer: D

The contract gives one the obligation to sell for \$40 when a forward price negotiated today would give one the obligation to sell for \$42. The value of the contract is the present value of −\$2 or $-2e^{-0.08\times 0.25} = -\$1.96$.

8. The spot price of an asset is positively correlated with the market. Which of the following would you expect to be true?
A. The forward price equals the expected future spot price.
B. The forward price is greater than the expected future spot price.
C. The forward price is less than the expected future spot price.
D. The forward price is sometimes greater and sometimes less than the expected future spot price.

Answer: C

When the spot price is positively correlated with the market the forward price is less than the expected future spot price. This is because the spot price is expected to provide a return greater than the risk-free rate and the forward price is the spot price grossed up at the risk-free rate.

9. Which of the following describes the way the futures price of a foreign currency is quoted by the CME group?
   A. The number of U.S. dollars per unit of the foreign currency
   B. The number of the foreign currency per U.S. dollar
   C. Some futures prices are always quoted as the number of U.S. dollars per unit of the foreign currency and some are always quoted the other way round
   D. There are no quotation conventions for futures prices

   Answer: A

   The futures price is quoted as the number of US dollars per unit of the foreign currency. Spot exchange rates and forward exchange rates are sometimes quoted this way and sometimes quoted the other way round.

10. Which of the following describes the way the forward price of a foreign currency is quoted?
   A. The number of U.S. dollars per unit of the foreign currency
   B. The number of the foreign currency per U.S. dollar
   C. Some forward prices are quoted as the number of U.S. dollars per unit of the foreign currency and some are quoted the other way round
   D. There are no quotation conventions for forward prices

   Answer: C

   The futures price is quoted as the number of US dollars per unit of the foreign currency. Spot exchange rates and forward exchange rates are sometimes quoted this way and sometimes quoted the other way round.

11. Which of the following is NOT a reason why a short position in a stock is closed out?
    A. The investor with the short position chooses to close out the position
    B. The lender of the shares issues instructions to close out the position
    C. The broker is no longer able to borrow shares from other clients
    D. The investor does not maintain margins required on his/her margin account

    Answer: B

    A, C, and D are all reasons why the short position might be closed out. B is not. The lender of shares cannot issue instructions to close out the short position.

12. Which of the following is NOT true?
    A. Gold and silver are investment assets
    B. Investment assets are held by significant numbers of investors for investment purposes
    C. Investment assets are never held for consumption
    D. The forward price of an investment asset can be obtained from the spot price, interest rates, and the income paid on the asset

    Answer: C

    Investment assets are sometimes held for consumption. Silver is an example. To be an investment asset, an asset has to be held for investment by at least some traders

13. What should a trader do when the one-year forward price of an asset is too low? Assume that the asset provides no income.
    A. The trader should borrow the price of the asset, buy one unit of the asset and enter into a short forward contract to sell the asset in one year.

B. The trader should borrow the price of the asset, buy one unit of the asset and enter into a long forward contract to buy the asset in one year.
C. The trader should short the asset, invest the proceeds of the short sale at the risk-free rate, enter into a short forward contract to sell the asset in one year
D. The trader should short the asset, invest the proceeds of the short sale at the risk-free rate, enter into a long forward contract to buy the asset in one year

Answer: D

If the forward price is too low relative to the spot price the trader should short the asset in the spot market and buy it in the forward market.

14. Which of the following is NOT true about forward and futures contracts?
A. Forward contracts are more liquid than futures contracts
B. The futures contracts are traded on exchanges while forward contracts are traded in the over-the-counter market
C. In theory forward prices and futures prices are equal when there is no uncertainty about future interest rates
D. Taxes and transaction costs can lead to forward and futures prices being different

Answer: A

Futures contracts are more liquid than forward contracts. To unwind a futures position it is simply necessary to take an offsetting position. The statements in B, C, and D are correct

15. As the convenience yield increases, which of the following is true?
A. The one-year futures price as a percentage of the spot price increases
B. The one-year futures price as a percentage of the spot price decreases
C. The one-year futures price as a percentage of the spot price stays the same

D. Any of the above can happen

Answer: B

As the convenience yield increases, the futures price declines relative to the spot price. This is because the convenience of owning the asset (as opposed to having a futures contract) becomes more important.

16. As inventories of a commodity decline, which of the following is true?

A. The one-year futures price as a percentage of the spot price increases
B. The one-year futures price as a percentage of the spot price decreases
C. The one-year futures price as a percentage of the spot price stays the same
D. Any of the above can happen

Answer: B

When inventories decline, the convenience yield increases and the futures price as a percentage of the spot price declines.

17. Which of the following describes a known dividend yield on a stock?

A. The size of the dividend payments each year is known
B. Dividends per year as a percentage of today's stock price are known
C. Dividends per year as a percentage of the stock price at the time when dividends are paid are known
D. Dividends will yield a certain return to a person buying the stock today

Answer: C

The dividend yield is the dividend per year as a percent of the stock price at the time when the dividend is paid.

18. Which of the following is an argument used by Keynes and Hicks?

A. If hedgers hold long positions and speculators holds short positions, the futures price will tend to be higher than the expected future spot price
B. If hedgers hold long positions and speculators holds short positions, the futures price will tend to be lower than the expected future spot price
C. If hedgers hold long positions and speculators holds short positions, the futures price will tend to be lower than today's spot price
D. If hedgers hold long positions and speculators holds short positions, the futures price will tend to be higher than today's spot price

Answer: A

Keynes and Hicks argued that hedgers will be prepared to accept negative returns on average because of the benefits of hedging whereas speculators require positive returns on average. This leads to A.

19. Which of the following describes contango?
A. The futures price is below the expected future spot price
B. The futures price is below today's spot price
C. The futures price is a declining function of the time to maturity
D. The futures price is above the expected future spot price

Answer: D

Contango is defined as the futures price being above the expected future spot price. It is also sometimes used to describe the situation where the futures price is above the spot price.

20. Which of the following is true for a consumption commodity?
A. There is no limit to how high or low the futures price can be, except that the futures price cannot be negative
B. There is a lower limit to the futures price but no upper limit
C. There is an upper limit to the futures price but no lower limit, except that the futures price cannot be negative
D. The futures price can be determined with reasonable accuracy from

the spot price and interest rates

Answer: C

If the futures price of a consumption commodity becomes too high an arbitrageur will buy the commodity and sell futures to lock in a profit. An arbitrageur cannot follow the opposite strategy of buying futures and selling or shorting the asset when the futures price is low. This is because consumption assets cannot be shorted . Furthermore, people who hold the asset in general do so because they need the asset for their business. They are not prepared to swap their position in the asset for a similar position in a futures. Consequently, there is an upper limit but no lower limit to the futures price.