Derivatives
Revisions 1
Questions

A. Multiple Choice Questions

A1. For farmers seeking to protect themselves from falling commodity prices when they sell their produce, which of the following would be an appropriate course of action?
a. To go long in a commodity futures contract
b. To go short in a commodity futures contract
c. To go short in a commodity put option
d. To go long in a commodity call option

A2. For an airline seeking to guard itself against rising fuel prices, which of the following would be an appropriate course of action?
a. To go long in oil futures
b. To go short in oil futures
c. To go short in oil call options
d. To go long in oil put options

A3. Joe longs 10 universal stock futures on a large UK company at a price of £4.50. The next day, the futures price has risen to £4.95 and Joe closes out. What profit does Joe make?
a. £0.45
b. £4.50
c. £450
d. £4500

A4. What is the worst that could happen to you if you held a long call option?
a. Lose the cost of the option
b. Lose the exercise price of the option
c. Lose the exercise price less the cost of the option
d. Lose everything you own

A5. Why are speculators important for the futures and options markets?
a. They provide price transparency
b. They provide liquidity
c. They ensure the market is priced correctly
d. They ensure risk management occurs in the market

A6. Which of the following involves the least potential loss?
a. Long futures position
b. Short futures position
c. Long options position
d. Short options position

A7. Which of the following is the biggest problem with having a forward contract as opposed to a futures contract?
a. Restricted choice of underlying items

b. Only specific price moves will be recognised
c. There is an increased possibility of default
d. Can only be traded at certain times

A8. Which of the following exchanges in the UK trade derivatives in some form?
a. London Stock Exchange
b. NYSE – LIFFE
c. London Metals Exchange
d. All of the above

A9. Which of the following is false about the relationship between forward and future prices?
a. If interest rates have a positive correlation with the underlying, then the futures price will exceed the forward price
b. If interest rates have a negative correlation with the underlying, then the futures price will be lower than the forward price
c. If interest rates have a zero correlation with the underlying, then the futures price will be the same as the forward price
d. If shorts would rather have a futures position than a forward position, then futures prices will exceed forward prices

A10. Which of the following statements is incorrect?
a. A long call position could be motivated by a belief the underlying is about to rise in price
b. A short call position is exposed to unlimited downside risk for a limited gain
c. A short call option position could only be justified by a belief the underlying is about to fall in price
d. Put option positions, both long and short are always ultimately limited in how much risk is taken

B. Questions

B1. What is the difference between a long forward position and a short forward position?

B2. Explain carefully the difference between hedging, speculation, and arbitrage

B3. What is the difference between entering into a long forward contract when the forward price is $50 and taking a long position in a call option with a strike price of $50?

B4. Explain carefully the difference between selling a call option and buying a put option.

B5. An investor enters into a short forward contract to sell 100,000 British pounds for US dollars at an exchange rate of 1.900 US dollars per pound. How much does the investor gain or lose if the exchange rate at the end of the contract is **a.** 1.8900 and **b.** 1.9200

B6. A trader enters into a short cotton futires contract when the futures price is 50 cents per pound. The contract is for the delivery of 50,000 pounds. How much does the trader gain or lose if the cotton price at the end of the contract is **a.** 48.20 cents per pound and **b.** 51.30 cents per pound?

B7. Suppose that you write a put contract with a strike price of $40 and an expiration date in 3 months. The current stock price is $41 and the contract is on 100 shares. What have you commited yourself to? How much could you gain or lose?

B8. What is the difference between the over-the-counter market and the exchange-traded market? What are the bid and offer quotes of a market maker in the over-the-counter market?

B9. You would like to speculate on a rise in the price of a certain stock. The current stock price is $29 and a 3-month call with a strike price of $30 costs $2.90. You have $5,800 to invest. Identify two alternative investments strategies, one in the stock and the other in an option on the stock. What are the potential gains and losses from each?

B10. Suppose that you own shares worth $25 each. How can put options be used to provide you with insurance against a decline in the value of your holding over the next 4 months?

C. Problems

C1. The price of gold is currently $600 per ounce. The forward price for delivery in 1 year is $800. An arbitrageur can borrow money at 10% per annum. What should the arbitrageurs do? Assume that the cost of storing gold is zero and that gold provides no income.

C2. The current price of a stick is $94, and 3-month European call options with a strike price of $95 currently sell for $4.70. An investor who fells that the price of the stock will increase is trying to decide between buying 100 shares and buying 2,000 call options (=20 contracts). Both strategies involve an investment of $9,400. What advise would you give? How high does the stock price have to rise for the option strategy to be more profitable?