

FIN 534 – Homework Chapter 8

Each question is worth five points apiece for a total of 20 points for this homework assignment.

1. Which of the following statements is CORRECT?

- a. Put options give investors the right to buy a stock at a certain strike price before a specified date.
- b. Call options give investors the right to sell a stock at a certain strike price before a specified date.
- c. Options typically sell for less than their exercise value.
- d. LEAPS are very short-term options that were created relatively recently and now trade in the market.
- e. An option holder is not entitled to receive dividends unless he or she exercises their option before the stock goes ex dividend.

2. Which of the following statements is CORRECT?

- a. If the underlying stock does not pay a dividend, it makes good economic sense to exercise a call option as soon as the stock's price exceeds the strike price by about 10%, because this permits the option holder to lock in an immediate profit.
- b. Call options generally sell at a price less than their exercise value.
- c. If a stock becomes riskier (more volatile), call options on the stock are likely to decline in value.
- d. Call options generally sell at prices above their exercise value, but for an in-the-money option, the greater the exercise value in relation to the strike price, the lower the premium on the option is likely to be.
- e. Because of the put-call parity relationship, under equilibrium conditions a put option on a stock must sell at exactly the same price as a call option on the stock.

3. Which of the following statements is CORRECT?

- a. An option's value is determined by its exercise value, which is the market price of the stock less its striking price. Thus, an option can't sell for more than its exercise value.
- b. As the stock's price rises, the time value portion of an option on a stock increases because the difference between the price of the stock and the fixed strike price increases.
- c. Issuing options provides companies with a low cost method of raising capital.
- d. The market value of an option depends in part on the option's time to maturity and also on the variability of the underlying stock's price.
- e. The potential loss on an option decreases as the option sells at higher and higher prices because the profit margin gets bigger.

4. The current price of a stock is \$22, and at the end of one year its price will be either \$27 or \$17. The annual risk-free rate is 6.0%, based on daily compounding. A 1-year call option on the stock, with an exercise price of \$22, is available. Based on the binominal model, what is the option's value?

- a. \$2.43
- b. \$2.70
- c. \$2.99
- d. \$3.29
- e. \$3.62

5. An analyst wants to use the Black-Scholes model to value call options on the stock of Ledbetter Inc. based on the following data:

The price of the stock is \$40.

The strike price of the option is \$40.

The option matures in 3 months ($t = 0.25$).

The standard deviation of the stock's returns is 0.40, and the variance is 0.16.

The risk-free rate is 6%.

Given this information, the analyst then calculated the following necessary components of the Black-Scholes model:

d_1

$d_1 = 0.175$

d_2

$d_2 = -0.025$

$N(d_1)$

$N(d_1) = 0.56946$

$N(d_2)$

$N(d_2) = 0.49003$

$N(d_1)$

$N(d_1)$ and $N(d_2)$ represent areas under a standard normal distribution function. Using the Black-Scholes model, what is the value of the call option?

a. \$2.81

b. \$3.12

c. \$3.47

d. \$3.82

e. \$4.20

1 is e : An option holder is not entitled to receive dividends unless he or she exercises their option before the stock goes ex dividend.

2 is d :

3 is d : The market value of an option depends in part on the option's time to maturity and also on the variability of the underlying stock's price

4 is c ; \$2.99

5 is c : \$3.47