

Quiz A for 9:45 Class: 08/06/13

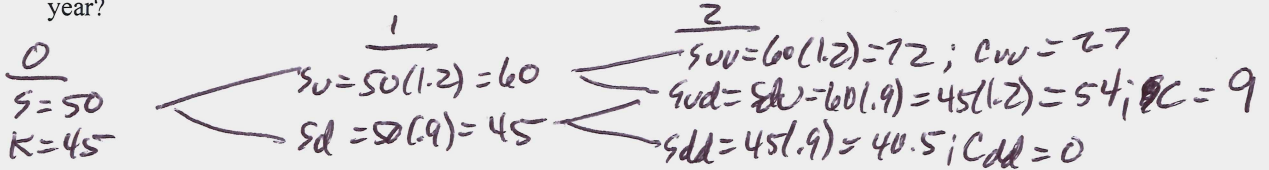
Name Key

Note: Answer everything on a per-share basis.

Assume that Dellay Computers has a current stock price of \$50 per share and its stock price will rise by 20% or fall by 10% each of the next two years. You would like to build a portfolio today that is equivalent to a call that expires two years from today with a \$45 strike price. The risk-free interest rate is 1%.

- a. What portfolio today is equivalent to the call?  
 b. What will it cost today to build this portfolio?  
 c. How will you need to rebalance your portfolio one year from today if Dellay's stock price falls next year?

V=+1



(12)  $\Delta_u = \frac{27 - 9}{72 - 54} = 1$ ;  $B_u = \frac{9 - 1(54)}{1.01} = -44.5545$ ;  $C_u = 60(1) - 44.5545 = 15.4455$

(12)  $\Delta_d = \frac{9 - 0}{54 - 40.5} = 0.6667$ ;  $B_d = \frac{0 - (0.6667)(40.5)}{1.01} = -26.7327$ ;  
 $C_d = 45(0.6667) - 26.7327 = 3.2673$

(12)  $\Delta = \frac{15.4455 - 3.2673}{60 - 45} = 0.81188$ ;  $B = \frac{3.2673 - 0.81188(45)}{1.01} = -32.9379$ ;  
 $C = 50(0.81188) - 32.9379 = 7.6561$

a. Buy 0.81188 shares, short-sell 32.9379 bonds

b. \$7.6561

c. change in shares =  $0.6667 - 0.81188 = -0.1452 \Rightarrow$  sell 1452 shares  
 change in bonds: Buy \$6.5746 of bonds

calculation:

$$.1452(45)$$

or

$$-26.7327 - (-32.9379)(1.01)$$