+4.00

Quiz A for 1:00 Class: 04/10/13 Name Key

Assume that Accidental Petroleum's stock price currently equals $100 per share and that its stock price will rise 20% or fall 10% each of the next two years. If the risk-free interest rate is 2% per year, what is the value today of a put on Accidental with a strike price of $115 that expires in two years?

Wall Street Journal Questions are on the back of this page.

0 | 1 | 2

$K = 115$, $S = 100$

$S_u = 120 = 100(1.2)$

$S_{uu} = 144 = 120(1.2)$

$P_{uu} = 0$

$S_{ud} = S_{du} = 108 = 100(1.2)(.9) = 100(.9)(1.2)$

$S_d = 90 = 100(.9)$

$P_{ud} = P_{du} = 7 = 115 - 108$

$S_{dd} = 81 = 90(.9)$

$P_{dd} = 34 = 115 - 81$

+1 $\Delta_u = \frac{0 - 7}{144 - 108} = -0.1944$ (5)

+1 $B_u = \frac{7 - (-0.1944)(108)}{1.02} = 27.451$ (5)

+1 $P_u = 120(-0.1944) + 27.451 = 4.1176$ (5)

+1 $\Delta_d = \frac{7 - 34}{108 - 81} = -1$ (5)

+1 $B_d = \frac{34 - (-1)(81)}{1.02} = 112.7451$ (5)

+1 $P_d = 90(-1) + 112.7451 = 22.7451$ (5)

+1 $\Delta = \frac{4.1176 - 22.7451}{120 - 90} = -0.6209$ (9)

+1 $B = \frac{22.7451 - (-0.6209)(90)}{1.02} = 77.0857$ (6)

+1 $P = 100(-0.6209) + 77.0857 = 14.9942$ (5)