Quiz A for 2:30 Class: 11/6/13 Name Key

Use the following information to answer Short Answers 1 and 2 below.

Assume that the risk-free interest rate equals 3%, that DeadBerry's current stock price is \$6.50 per share, and that there is a 60% chance that DeadBerry's stock price will fall by \$2.50 per share one year from today and a 40% chance that DeadBerry's stock will rise by \$1.50 per share one year from today.

Short Answer 1 (15 points): Calculate the value of a put with a \$6 strike price.

$\Delta = \frac{0-2}{8-4} = -0.5$ +5; $B = \frac{2-4(-.5)}{1.03} = 3.8835$ +5; $P = 6.50(-.5)+3.8835 = 0.63346$ +5

Short Answer 2 (15 points): Given your answer above, what portfolio of stocks and bond would be equivalent to the put?

+3/+4/+4/+4 short sell 0.5 shares; Buy 3.8835 of risk-free bonds

Problem (75 points): Twit Inc (a service that sends one-word posts out to subscribers) has debt that matures for \$15 million four years from today.

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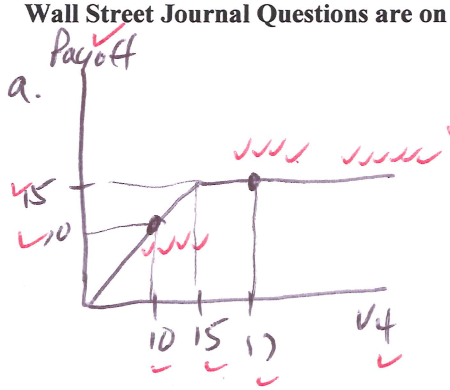
a. Sketch a graph that shows the possible payoffs on Twit's debt and the specific payoffs on the firm's debt if the firm's assets are worth \$10 and \$17 million four years from today.

b. On a separate graph show how the payoff structure of the bonds can be duplicated with a position in Twit's assets and options. Show the specific payoffs on the individual assets and portfolio if Twit's assets are worth \$10 and \$17 million four years from today. Be sure to clearly label everything.

c. Based only on what drives option prices, briefly discuss how the value of a firm's stock and bonds would change if the firm's assets suddenly become more volatile.

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

21 a.



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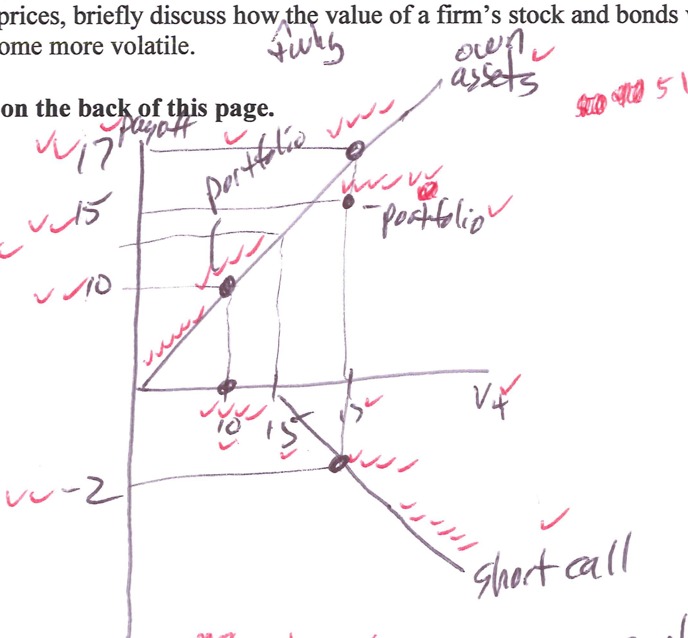

16 c. (stock ↑) since (stock is a call) + (calls increase when volatility of the underlying asset rises)

(bonds ↓) since equals (assets minus call) when volatility rises)

⇒ (subtract larger call value

score = 75 × $\frac{\text{checks}}{88}$