Quiz A: 4/18/12 Name & Time Key

Quiz: Given the following information, set up the calculations required to determine the beta of Dropping Apple's assets and debt. Plug in as many numbers as possible.

Information on:

Dropping Apple's stock: current market value = $50,000, beta = 1.4
Dropping Apple's bonds: maturity = 4 years, maturity value = $55,000, current market value = $40,000
Returns: Dropping Apple's bonds = 8.3%, U.S. Treasuries that mature in 4 years = 2%
If we value Dropping Apple's stock as a call on the firm's assets: the price of a U.S. Treasury that matures for $55,000 in 4 years = $50,811, implied volatility = 49.1%, $d_1 = 1.0732$, $d_2 = 0.0914$

Note: Bonus WSJ Questions on back of page

$A = 50{,}000 + 40{,}000 = 90{,}000$

$D = N(d_1) = N(1.0732) = .85769$

+7 $\beta_U = \frac{\beta_E}{\Delta(1+\frac{D}{E})} = \frac{1.4}{.85769\left(1+\frac{40{,}000}{50{,}000}\right)}$ (29)

+7 $\beta_D = (1-\Delta)\left(\frac{A}{D}\right)\beta_U = (1-.85769)\left(\frac{90{,}000}{40{,}000}\right)\beta_U$ (21)

or $\left(1+\frac{50{,}000}{40{,}000}\right)$