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

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

Information on:

Spain's Leverage stock: current market value = $20,000, beta = 1.2
Spain's Leverage bonds: maturity = 6 years, maturity value = $80,000, current market value = $50,000
Returns: Spain's Leverage bonds = 8.1%, U.S. Treasuries that mature in 6 years = 3%
If we value Spain's Leverage stock as a call on the firm's assets: the price of a U.S. Treasury that matures for $85,000 in 4 years = $66,999, implied volatility = 28.1%, $d_1 = 0.4081$, $d_2 = -0.2809$

Note: Bonus WSJ Questions on back of page

$A = 20,000 + 50,000 = 70,000$

$\Delta = N(d_1) = N(0.4081) = .65910$

$$\beta_V = \frac{\beta_E}{\Delta\left(1+\frac{D}{E}\right)} = \frac{1.2}{.65910\left(1+\frac{50,000}{20,000}\right)}$$

$$\beta_D = \left(1-\Delta\right)\left(\frac{A}{D}\right)\beta_V = (1-.65910)\left(\frac{70,000}{50,000}\right)\beta_V$$

or

$$\left(1+\frac{20,000}{50,000}\right)$$