94.00

Quiz A for 2:30 Class: 2/27/13 **Name** Key

Note: There are no points for solving this problem. All points are for setting up the equations, plugging in the relevant numbers, and stating what you want to solve for (if you are not simply solving the equation).

Assume that markets are perfect and that Sequester Inc. has outstanding debt with a market value $125 million and a book value of $100 million and outstanding equity with a market value of $250 million and a book value of $150 million. Sequester's debt is risk-free and its equity has a beta of 0.8. The cost of capital for Sequester's debt is 2% and for Sequester's equity is 6.8%. Sequester is considering issuing $50 million of additional risk-free debt and using the proceeds to repurchase $50 million of equity.

a. Calculate the beta of Sequester's assets before it issues the additional debt.
b. Without doing any calculations, how will the required return on Sequester's equity change after the debt issue/equity repurchase? Why is this the case?
c. Calculate the cost of capital on Sequester's equity after the issuance of additional debt.
d. Without doing any calculations, how will the debt issue/equity repurchase affect the beta of the firm's assets? ~~Why is this the case~~?
e. Assume you own Sequester stock with a market value of $250,000 and Sequester bonds with a market value of $125,000. What changes would you need to make in your portfolio so that the return you will expect to earn will be unchanged after the firm's debt issue/equity repurchase?

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

a. $\beta_U = \left(\frac{125}{125+250}\right)0 + \left(\frac{250}{125+250}\right)0.8$ (+2, +2, +4) (8)

b. Increase. (+4) Firm is promising more risk-free (+4) cashflows to the bondholders. This leaves stockholders with even more risk

c. $r_E = r_U + \frac{175}{200}(r_U - .02)$ (+2, +2, +2)

$r_U = \left(\frac{125}{125+250}\right).02 + \left(\frac{250}{125+250}\right)(.068)$ (+2, +1, +2, +1, +2)

d. No change. (+4) Reason: A change in leverage changes how the firm's risk is distributed between S/H & B/H but does not change the risk of the firm's assets.

e. Sell $50,000 of stock & buy $50,000 of debt (+6)
Reason: I currently own an unlevered position in Sequester with 0.1% of the firm's outstanding securities. After the change I need 0.1% of the firm's securities.
$\Rightarrow$ Debt = .001(175 million) = $175,000
$\Rightarrow$ Equity = .001(200 million) = $200,000