

Quiz B for 2:30 Class: 10/23/13

Name Key

**Short Answer 1 (15 points):** Gamma Air's stock has a market value of \$100 million and its debt has a market value of \$50 million. You currently own \$110,000 of Gamma Air stock and \$40,000 of Gamma Air bonds. What transactions would be required for you to have an unlevered position in Gamma Air?

+8/47 Sell \$10,000 of Gamma stock + buy \$10,000 of Gamma bonds

**Short Answer 2 (15 points):** Briefly explain why it will be rational for managers to expend less effort than is optimal for stockholders.

+11/14 Management bears the cost of its effort but shares the benefit with stockholders

**Problem (75 points):** Space Balloon Inc. has a 20% chance of earning \$5 million, a 40% chance of earning \$9 million, a 30% chance of earning \$17 million, and a 10% chance of earning \$29 million. If the corporate tax rate equals 35%, the personal tax rate on equity income equals 10%, and the personal tax rate on ordinary income equals 30%, what is the optimal level of interest expense for Space Balloon?

Note: Calculations required. You will only receive partial credit if you show your work.

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

+3 + debt share

$$+7 \tau^* = 1 - \frac{(1 - (.8)(.35))(1 - .1)}{(1 - .3)} = +0.0743 \quad (34)$$

+4 + debt share

$$+7 \tau^* = 1 - \frac{(1 - (.4)(.35))(1 - .1)}{(1 - .3)} = -0.105 \quad (34)$$

+7  $\Rightarrow$  optimal = 9

Note: 0-5:  $\tau^* = +0.1643$   
 17-29:  $\tau^* = -0.2407$   
 29+:  $\tau^* = -0.2857$