Quiz A: 7/28/16 Name Key

√s = points
80 = 75
70 = 73
68 = 72
67 = 71
66 = 70
63 = 68
60 = 67
57 = 65
56 = 64
51 = 62
50 = 61
46 = 59
44 = 57
40 = 55
31 = 53
27 = 51
21 = 49
20 = 48

Assume there is a 25% chance that Guardian Inc. will have an EBIT of \$100,000 per year, a 40% chance it will have an EBIT of \$250,000 per year, a 30% chance it will have an EBIT of \$400,000 per year, and a 5% chance it will have an EBIT of \$600,000 per year. Assume also that the corporate tax rate equals 35%, that the tax rate on personal interest income is 40%, and that the tax rate on personal equity income is 15%.

Assume that Guardian currently has \$6,000,000 of outstanding bonds that pay an interest rate of 5%.

a. How will issuing an additional \$1,000,000 of bonds that pay an interest rate of 5% + uses the proceeds to repurchase stock affect the value of Guardian due to taxes?

b. Why might this additional debt give the firm an incentive to take excessive risks? How will this hurt the firm's bondholders? How might bondholders attempt to prevent the firm from taking excessive risks?

c. Why might this additional debt better align the interests of the firm's owners and managers?

a. $Int = 6{,}000{,}000 \times .05 = 300{,}000$ 12

$E(T_c) = .35 \times .35 = .1225$ 12

$$T^* = 1 - \frac{(1-.1225)(1-.15)}{(1-.4)} = -.243125$$ 12

⇒ value changes by $-.243125 \times 1{,}000{,}000$ 12

b. The firm might have a (greater incentive to take risks) since √√√√ (stockholders gain at the expense of bondholders)

√√√√ ⇒ (stockholders capture the upside potential) but

√√√√ (dont get harmed by downside once value drops below what owed B/H)

√√√√ ⇒ (B/H lose since upside doesn't help them) because of their

√√√√ (fixed claim)

⇒ but (harmed by downside) √√√√

⇒ B/H might attempt to restrict firm's ability to ↑ risk through (covenants) √√√√

c. (debt service soaks up cash) √√√√ so (mgt won't waste it) √√√√ the (threat of bankruptcy) √√√√ also (motivates mgt to work harder) √√√√