Session 27: Post class test solutions

1.
    a. A stock dividend: Value neutral, no cash flow change
    b. Impairment of goodwill from a past acquisition (not tax deductible): Value neutral, no effect on cash flows, past mistake (sunk cost)
    c. A non-cash restructuring charge (which is not tax deductible): Value neutral, no effect on cash flows, past mistake (sunk cost)
    d. Impairment of goodwill from a past acquisition (a portion is tax deductible): Value increasing, Tax savings lead to higher cash flows
    e. A non-cash restructuring charge (which is tax deductible): Value increasing, Tax savings lead to higher cash flows.
    f. A corporate name change with no change in business focus: Value neutral
    g. A corporate name change with change in business focus: Value changing, increase or decrease depends upon returns in new business
2. **e. Increase value by $425 million.** To estimate the value of the chemicals division as a continuing entity, first compute the return on capital:
   Return on capital = 50/1000 = 5%
   Reinvestment rate for a growth rate of 2% = 2%/5% = 40%
   Value of chemical business = 50 (1-.4)/(.10-.02) = $375 million
   Divestiture proceeds = $800 million
   Value effect = 800 – 375 = +425 million
3. **c. $178.57 million**. First, value the firm with an expected growth rate of 1%.
   Return on capital = 1000/10000= 10%
   Reinvestment rate = g/ ROC = 1%/10% = 10%
   Value = 1000 (1-.10)/(.09-.01) = $11,250 million
   With a 2% growth rate
   Reinvestment rate = g/ ROC = 2%/10% = 20%
   Value = 1000 (1-.20)/(.09-.02)= $11,428.57
   Change in value = $11,428.57 - $11,250 = $178.57
   Bonus: If the invested capital were $11 billion, the return on capital would become 9.1%, barely higher than the cost of capital. The change in firm value will become much smaller ($18 million). If the invested capital were $12 billion, the return on capital < cost of capital and increasing growth will lower value.
4. **c. 8.52%.** First, compute the unlevered beta using the current cost of equity.
   Unlevered beta = (9%- 3%)/ 6% = 1.00
   D/E ratio at a 20% debt to capital ratio = 20/80 = 25%
   Levered beta = 1.00 (1+ (1-.4)(.25)) = 1.15
   Cost of equity = 3% + 1.15 (6%) = 9.90%
   Cost of capital = 9.9% (.8) + 5% (1-.4) (.2) = 8.52%
5. **b. $11/share.** First, divide the status quo value by total # shares
   Value per non-voting share = 10,000/ (600 + 400) = $10/share
   Expected value of control = (12000 -10000) *.2 = $400 million
   Control Value per voting share = 400/400 = $1
   Value per voting share = $10 + $1 = $11/share