Session 16: Post Class tests

1. In recent years, analysts have shifted away from PE ratios to EV/EBITDA multiples in large segments of the equity markets. Which of the following is a sensible reason for this shift? (The others may be reasons but they may not be sensible).
    a. EV/EBITDA multiples will yield values that are generally lower than PE ratios
    b. EV/EBITDA multiples are not affected by growth
    c. EBITDA is a good measure of free cash flow to the firm
    d. EV/EBITDA can be compared across companies that use different depreciation methods
    e. EBITDA can be used to service debt
    f. All of the above

2. In computing the EV/EBITDA multiple, we estimate the enterprise value of a firm by adding together the values of debt and equity and netting out cash. Which of the following is the reason for netting out cash in computing this multiple?
    a. Cash is easy to value.
    b. Cash is liquid
    c. Cash can be used to pay down debt
    d. The income from cash is not part of EBITDA
    e. None of the above

3. Infrastructure companies often trade at low multiples of EV to EBITDA. Which of the following is the best explanation for this phenomenon?
    a. They pay little in taxes
    b. They have high earnings
    c. They have high growth
    d. They have high depreciation and amortization
    e. They have high net capital expenditures (difference between capital expenditures and depreciation)

4. You are trying to value Zimco Telecom Inc., a money losing company that reported EBITDA of -$80 million in the most recent year on revenues of $ 1 billion. You expect revenues to grow 6% a year for the next 5 years and the EBITDA/Revenue margin to improve to 8% by year 5. If healthy telecom companies trade at a multiple of 6 times EBITDA and you choose to apply this multiple to the fifth year's expected EBITDA, estimate the value of equity per share today. (You have a cost of capital of 12% for the next 5 years, a cash balance of $ 50 million, debt outstanding of $200 million and 12 million shares outstanding today.)
    a. $0.00
    b. $10.19
    c. $17.87
    d. $41.03
    e. None of the above

5. You have run a regression of EV/EBITDA multiples across all companies in the market and arrived at the following:

    EV/EBITDA = 5+80*(Growth rate$_{Revenues}$)-20*(Cost of capital)-12*(Effective tax rate)

Astor Inc. is a publicly traded company with EBITDA of $100 million and enterprise value of $ 480 million; it has an expected growth rate in revenues of 6% for the next 5 years and a cost of capital of 10%. Assuming that this stock is fairly priced, what is Astor's effective tax rate?

      a. 0%
      b. 15%
      c. 25%
      d. 40%
      e. 50%

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1. c. **EV/EBITDA can be compared across companies that use different depreciation methods**. Companies that use accelerated depreciation will report lower net income than companies that use straight line depreciation and may look more expensive on a PE ratio basis. None of the other reasons hold up: EV/EBITDA is affected by cost of capital, which can be affected by financial leverage and while EBITDA may be a measure of intermediate cash flow, it is not free (since you still have to pay taxes and cover capital expenditures).
2. **d. The income from cash is not part of EBITDA**. To preserve consistency, you have to net out the cash (and any other assets whose income is not part of EBITDA from the numerator).
3. **e. They have high net capital expenditures.** High depreciation, high earnings and lower taxes, by themselves, should push up your EV/EBITDA multiple. Having high net capital expenditures, holding growth constant, will lead to lower EV to EBITDA.
4. **c. $17.87.** To get the value, you first need to estimate the expected EBITDA in year 5:
   - Expected revenues in year 5 = 1000 $*1.06^5$ = $1,338 million
   - Expected EBITDA in year 5 = 1,338 *.08 = $107.05 million

   Applying the EV/EBITDA multiple (6) for a healthy telecom firm
   - Expected EV = 107.05 * 6 = $642.3 million

   Discounting back at 12% for five years, we get:
   - EV today = $642.3 million/ 1.12^5 = $364.5 million
   - Equity value today = $364.5+ 50 – 200 = $214.5 million
   - Equity value per share = $214.5/12 = $17.87/share
5. **c. 25%**. To estimate the growth rate, recognize that the firm is correctly priced right now:

   Current EV/EBITDA multiple = 480/100 = 4.80
   Set equal to the expected value in the regression
   4.80 =5+80*(0.06)-20*(0.10)-12(Tax rate)
   Solve for the tax rate, tax rate = 25%