Q1. Which of the following companies has the highest sensitivity of operating profits to 100% increase in revenue?

|  |  |  |  |
| --- | --- | --- | --- |
|  | Company A | Company B | Company C |
| Revenue | $100 | $200 | $300 |
| Variable Costs | $80 | $170 | $260 |
| Fixed Costs | $10 | $20 | $30 |
| Operating Profits (EBIT) | $10 | $10 | $10 |

|  |  |  |  |
| --- | --- | --- | --- |
|  | Company A | Company B | Company C |
| Revenue | $200 | $400 | $600 |
| Variable Costs | $160 | $340 | $520 |
| Fixed Costs | $10 | $20 | $30 |
| Operating Profits (EBIT) | $30 | $40 | $50 |
| % Change in Operating Profits | 2  (=200%) | 3  (=300%) | 4  (=400%) |

Also, you could have computed DOL as (EBIT+FC)/(EBIT) where EBIT is the current level of operating profits

DOL for Company A = (Operating Profits + FC)/Operating Profits = (10+10)/10 = 2

DOL for Company B = (Operating Profits + FC)/Operating Profits = (10+20)/10 = 3

DOL for Company C = (Operating Profits + FC)/Operating Profits = (10+30)/10 = 4

This indicates that 100% increase in revenue for Company A is associated with 200% increase of EBIT, i.e. 100%\*2

Either way, you can see that Company C has the highest sensitivity of EBIT with respect to changes in revenue



Q2. Company ABC is involved in the business of selling drones. The variable cost of each drone is $10 and the price of each drone is $14. The fixed costs for the firm is $10 million.

(A) How many drones does Company ABC need to sell to break-even?



14Q – 10Q – 10M = 0

Q = 2.5M

It needs to sell 2.5 million drones to break even.

(B) How much revenue in dollars does Company ABC need to make in order to break even?



2.5M\*14 = 35M

The break-even point in terms of dollars is 35 million dollars.

(C) Company ABC is currently selling 3.5 million drones. When sales go up by 20%, what is the percentage change of operating profits? (If the percentage change is 12.34%, then report the answer as 0.1234) 0.7

DOL = Q/(Q-Q at break-even) = 3.5M/(3.5M-2.5M) = 3.5

Or EBIT = Revenue – Variable costs – Fixed costs = 3.5M(14-10) – 10M = 4M ->  
DOL = (4M+10M)/4M = 3.5

20% increase in sales is associated with 70% increase in operating profits (=3.5\*20%).



Q3. Currently, Company XYZ has degree of operating leverage of 1.5 and degree of financial leverage of 8. If there is 5% increase in the amount of sales, how much would the earning per share change in terms of %? (If the percentage change is 12.34%, then report the answer as 0.1234) 0.6



DTL = DOL \* DFL = 1.5\*8 = 12



5% increase in sales is associated with 60% increase of EPS (=12\*5% )



Q4. Company SZ currently has 50 million common stocks outstanding and the price of each stock is $20. It is thinking about sourcing another $200 million under two different financing schemes:



First choice: Issue another 10 million common stocks at $20/share.

Second choice: Issue a perpetual bond whose price is $200 million - the coupon on the perpetual bond is $1 million every year.



Assume the tax rate is 20%.



(A) Compute EPS under the first financing choice if EBIT is $50 million in the following year.



|  |  |
| --- | --- |
|  | Choice 1 |
| EBIT | 50000000 |
| Interest Expense | 0 |
| EBT | 50000000 |
| Tax @ 20% | 10000000 |
| EAT | 40000000 |
| Preferred Dividends | 0 |
| Earning to CS | 40000000 |
| # of Common Shares | 60000000 |
| EPS | 0.666667 |

(B) Compute EPS under the second financing choice if EBIT is $50 million in the following year.

|  |  |
| --- | --- |
|  | Choice 2 |
| EBIT | 50000000 |
| Interest Expense | 1000000 |
| EBT | 49000000 |
| Tax @ 20% | 9800000 |
| EAT | 39200000 |
| Preferred Dividends | 0 |
| Earning to CS | 39200000 |
| # of Common Shares | 50000000 |
| EPS | 0.784 |

(C) How much EBIT does Company SZ need to make in order that EPS is the same across the two different financing schemes?

EBIT\*(1-0.2)/60M = (EBIT-1M)\*(1-0.2)/50M

EBIT = $6M