Super Day Prep Questions

Below are some of my favorite questions to review before a Super Day. Some of them are quantitative questions that are a little tricky, but quite straightforward once you think through the solution. Others are more conceptually focused, similar to what a more senior banker would ask.

1. What is WACC, conceptually? How do you calculate it?
   a. The Discount Rate therefore reflects not just the time value of money, but also the return that investors require before they can invest. It also represents the "risk" of a company, because higher potential returns correspond to higher risk. Can be thought of as the "opportunity cost of capital": You're determining the "cost" of each part of a company's capital structure, and then calculating a weighted average based on how much Equity, Debt, and Preferred Stock it has.
   b. WACC = Cost of Equity % Equity + Cost of Debt % Debt (1 - Tax Rate) + Cost of Preferred Stock % Preferred Stock

2. Tell me 3 places where taxes affect a DCF
   a. Calculating Beta (conversion from unlevered to levered)
   b. Calculating FCF (NOPAT)
   c. Calculating Cost of Debt (interest is tax deductible)

3. What are the three ways that lowering tax can affect a DCF valuation?
   a. Lowering tax seems like a beneficial change for the business, but that may not translate into an improvement in the DCF valuation. There are three main changes, which can oppose each other, that occur when you alter the tax rate:
      i. First, simply flowing through an income statement would reveal that net income increases if tax decreases. This would similarly increase the free cash flow amount and improve the valuation
      ii. Secondly, the after-tax cost of debt is equal to Debt x (1 - tax rate), so decreasing the tax rate would increase the cost of debt. Conceptually, this happens because the effect of the tax shield decreases. Here, an increase of the cost of debt would increase the WACC and lower the valuation
      iii. Lastly, the tax rate also affects the beta. Assuming that CAPM is being used, the formula for beta is equal to: Unlevered Beta x (1+(D/E)x(1-t)). Mathematically, lowering the tax rate will increase the levered beta, which in turn increases the WACC and lowers the valuation. Conceptually, the decrease in the tax rate reduces the tax shield increasing the effect of interest, making the equity riskier. Cumulatively, one would have to flow through all three changes to determine the net change in valuation.

4. You have a company with an EV/Revenue of 2x and an EV/EBITDA of 10x. What is the EBITDA margin?
   a. 20% EBITDA margin = EBITDA / Revenue
   b. = (EBITDA / EV) * (EV / Revenue)
   c. = .1 * 2 = .2
   d. 20%

5. What is the interest tax shield?
   a. The interest tax shield is a phenomenon that makes debt a cheaper vehicle of capital than equity. Interest is tax-deductible, as it appears higher than the tax line
on the income statement and is treated as a cash expense. Mechanically, the greater the amount of expenses that a company has, the less tax it has to pay, which provides financial benefits for the company. The interest tax shield is one of the reasons that debt is such an attractive financing vehicle and is also the reason we calculate after-tax cost of debt for the WACC. The PV of a tax shield is Debt Amount x Tax Rate.

6. **How does paying down $100M debt affect a company's enterprise value?**
   a. In this scenario, we would be spending $100M in cash to pay down $100M in debt. Using the enterprise value formula, the changes in debt and cash would equal each other out. Paying down debt is also considered a capital structure change, so we should immediately recognize that this does not change the enterprise value of the company.

7. **Company A has a P/E of 5x and Company B has a P/E of 8x. Company A's cost of debt is 5%, its cost of cash interest is 2% and its tax rate is 50%. If Company A purchases Company B using 50% stock, 25% debt and 25% cash, is the deal accretive or dilutive?**
   a. Here, we must determine the cost of debt and cash for Company A as well as the cost of stock. We already know that Company A's implied cost of equity is 20% and the earnings yield we receive from Company B is 12.5%. To determine the cost of debt, we simply take the given 5% and apply the tax rate because of the tax shield (5% (1 - 50%) = 2.5%). We determine the cost of cash using an identical methodology (2% (1 - 50%) = 1.0%). Next, we need to multiply each of these costs by their weighting. We multiply 50% stock consideration by the 20% cost of equity (10%), 25% debt consideration by the 2.5% after-tax cost of debt (0.625%) and the 25% cash consideration by the 1% after-tax cost of cash (0.25%). We then add each of these rates up (10% + 0.625% + 0.25%) to get 10.875% blended cost. We compare this to the 12.5% and determine that the deal is now accretive. This exercise also shows us that in general, debt and cash are cheaper methods of financing.

8. **What is a DCF/can you walk me through a DCF in under 60 seconds?**
   a. "In a DCF analysis, you value a company with the Present Value of its Free Cash Flows plus the Present Value of its Terminal Value. You can divide the process into 6 steps: 1. Project a company's Free Cash Flows over a 5-10 year period. 2. Calculate the company's Discount Rate, usually using WACC (Weighted Average Cost of Capital). 3. Discount and sum up the company's Free Cash Flows. 4. Calculate the company's Terminal Value. 5. Discount the Terminal Value to its Present Value. 6. Add the discounted Free Cash Flows to the discounted Terminal Value."

9. **Assuming a 30% tax rate, walk me through 3 statements with a: $50 increase in stock-based compensation**
   a. Starting on the IS... Pre-tax income down by 50, NI down by 35
   b. Moving onto the SCF... NI down by 35, add back 50 in CFO since stock-based compensation is non-cash expense, net change in cash is up 15
   c. Finally, on the BS... A: Assets up by 15; cash up 15 L: No change in liabilities SE: Shareholder's Equity up by 15; Stock-based compensation up 50 and NI down 35 ...and the Balance Sheet balances
10. What is the Beta of a gambling ring?
   a. 0 - no correlation to market

11. What are some multiples you could use for a company with a negative Net Income?
   a. Revenue-based multiples (e.g. EV / Revenue) Industry-specific multiples (e.g. EV / Unique Users for internet companies)

12. 5 things a company can do with cash?
   a. Finance future project / CapEx
   b. Pay back debt
   c. Acquisitions
   d. Stock buy-backs
   e. Issue cash dividends

13. What is leverage and how do its mechanics amplify returns in an LBO?
   a. Leverage and the act of "levering up a company" refers to taking on debt or other forms of borrowed capital in order to increase a company's returns. LBO's use leverage to improve returns for the investor, which is possible because of three key functions of debt: ● Taking on debt gives you access to other people's capital that you would otherwise not be able to use. A greater resource pool allows you to purchase a greater quantity of productive assets while reducing the up-front cash investment ● Using the company or asset's cash flows to repay debt principal produces a better return than just keeping the cash. This is partially a result of the tax shield that is applied to interest, which is a function of how governments and regulators treat debt. Similarly, allowing interest to be tax-deductible makes debt a cheaper source of capital than equity ● Typically a business experiences growth in EBITDA so the exit price is higher than the entry price even at the same multiple. Since the sponsor typically pays back a lot of the debt, a much larger portion of the exit price belongs to the sponsor, creating high returns. For example, entering and exit at an EV of $100, a sponsor may only invest $25 in cash, but receive $80 upon exit, simply by paying down debt

14. If you are valuing a coal mine company, would you use the Gordon Growth Method or the Multiples Method to calculate the TV? Explain.
   a. Would use multiples method, since Gordon Growth assumes cash flows exist into perpetuity and coal is a depleting resource – find multiples for similar coal companies and value the company that way