LBO Model Interview

Questions: Mental Math Olympics

2 Gold Medals and 1 Silver...
“If I don’t have much of a finance background, how much do I need to know about LBO models in interviews?”

“Should I expect case studies or modeling tests? How quickly should I be able to build a model?”
LBO Model Interview Questions

• **SHORT ANSWER:** LBO questions could come up, but case studies are unlikely except in private equity or more advanced IB interviews.

• **Point #1:** Interviewers have started asking *more difficult* questions on the *fundamentals* (“More difficult” = Tricky IRR approximations).

• **Point #2:** They also like to ask you a *progression* of questions on the same topic or scenario to see how much you know.

• **Point #3:** Very *simple* “case studies” or short tests with numbers are far more common than longer ones – even in PE interviews!
Typical Progression for LBO Models

• **First**: Can you walk through a basic LBO model and explain why the math works?

• **Next**: What makes for an ideal LBO candidate?

• **Next**: How do you approximate the IRR if X, Y, and Z happen?

• **Next**: What purchase multiple or EBITDA growth do you need to realize a certain IRR?

• **Next**: How can you approximate the IRR when a PE firm exits a deal through an IPO?
Question #1: LBO Model Walkthrough

• “Can you walk me through a basic LBO model and explain why the math works?”

• **ANSWER:** “In a leveraged buyout, a PE firm acquires a company using a combination of Debt and Equity, operates it for several years, and then sells it; the math works because leverage *amplifies* returns; the PE firm earns a higher return if the deal does well because it uses less of its own money upfront.”

• **Step 1:** Make assumptions for the Purchase Price, Debt and Equity, Interest Rate on Debt, and Revenue Growth and Margins

• **Step 2:** Create a Sources & Uses schedule to calculate the true price
• **Step 3:** Adjust the Balance Sheet for the effects of the deal, such as the new Debt, Equity, and Goodwill

• **Step 4:** Project the company’s statements, or at least its cash flow, and determine how much Debt it repays each year

• **Step 5:** Make assumptions about the exit, usually using an EBITDA multiple, and calculate the MoM multiple and IRR
Question #2: Ideal LBO Candidates

• “What makes for an ideal LBO candidate?”

• **Factor #1:** Price! Almost any deal can work at the right price, but if a company’s too expensive, chances of failure are high.

• **Factor #2:** Stable and predictable cash flows to service the Debt.

• **Factor #3:** Not a huge need for ongoing CapEx or other big investments; room to expand margins.

• **Factor #4:** Realistic path to exit, with returns driven by EBITDA growth and Debt paydown instead of multiple expansion.
Question #3: Approximating IRR

- **Rules of Thumb**: Divide 100%, 200%, 300%, etc. by the # of Years and multiply by a percentage < 100% to account for compounding.

- **Double Your Money**: 100% / # Years * ~75%
- **Triple Your Money**: 200% / # Years * ~65%
- **Quadruple Your Money**: 300% / # Years * ~55%

- **Key**: Must “back into” the Initial Investor Equity and Exit Equity Proceeds – If you have those and the # of Years, you can get the IRR.

- **2x Money in 3 Years**: ~25-26% IRR; **2x Money in 5 Years**: ~15% IRR
- **3x Money in 3 Years**: ~44-45% IRR; **3x Money in 5 Years**: ~25% IRR
Question #3: Approximating IRR

• “A PE firm acquires a $100 million EBITDA company for a 10x multiple using 60% Debt.

• The company’s EBITDA grows to $150 million by Year 5, but the exit multiple drops to 9x. The company repays $250 million of Debt and generates no extra Cash. What’s the IRR?”

• **Initial Investor Equity** = $100 million * 10 * 40% = $400 million
• **Exit Enterprise Value** = $150 million * 9 = $1,350 million
• **Debt Remaining on Exit** = $600 million – $250 million = $350 million
• **Exit Equity Proceeds** = $1,350 million – $350 million = $1 billion
• **IRR**: 2.5x multiple over 5 years; 2x = 15% and 3x = 25%, so ~20%
Question #4: Back-Solving for Assumptions

• “You buy a $100 EBITDA business for a 10x multiple, and you believe that you can sell it again in 5 years for 10x EBITDA.

• You use 5x Debt / EBITDA to fund the deal, and the company repays 50% of that Debt over 5 years, generating no extra Cash. How much EBITDA growth do you need to realize a 20% IRR?”

• Initial Investor Equity = $100 * 10 * 50% = $500
• 20% IRR Over 5 Years = ~2.5x multiple (2x = ~15% and 3x = ~25%)
• Exit Equity Proceeds = $500 * 2.5 = $1,250
• Remaining Debt = $250, so Exit Enterprise Value = $1,500
• Required EBITDA = $150, since $1,500 / 10 = $150
Question #5: Approximating IRR in an IPO Exit

• “A PE firm acquires a $200 EBITDA company for an 8x multiple using 50% Debt.

• The company’s EBITDA increases to $240 in 3 years, and it repays ALL the Debt. The PE firm takes it public and sells off its stake evenly over 3 years at a 10x multiple. What’s the IRR?”

• Initial Investor Equity = $200 * 8 * 50% = $800
• Exit Enterprise Value = Exit Equity Proceeds = $240 * 10 = $2,400
• “Average Year” to Exit = 1/3 * 3 + 1/3 * 4 + 1/3 * 5 = 4 years
• IRR: 3x over 3 years = ~45%, and 3x over 5 years = ~25%
• Approximate IRR: ~35% (This one’s a bit off – see Excel...)
Recap and Summary

• **Most Important:** *Must* understand the intuition behind an LBO, what makes for good buyout candidates, and so on

• **Principle #1:** Can always **approximate** the IRR if you know the multiple and the # of years in the holding period

• **Principle #2:** So for these questions, you **must** determine the Initial Investor Equity, Exit Equity Proceeds, and # of Years

• **Principle #3:** You can always back into an assumption like the Purchase Multiple or EBITDA *if you have everything else* and they also give you the IRR (one equation with a single variable!)
Recap and Summary

• **Principle #4**: More unusual scenarios such as an IPO exit, dividend recap exit, and so on – Calculate the “Average” Year in which you receive the Equity Proceeds

• **Principle #5**: These tricks stop working well for very short or very long holding periods, and for cases where the full exit takes years and years... so understand their limits as well!