



# LBO Model Interview Questions: Mental Math Olympics

2 Gold Medals and 1 Silver...



# LBO Model Interview Questions

*“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



# Question #1: LBO Model Walkthrough

- **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:**  $100\% / \# \text{ Years} * \sim 75\%$
- **Triple Your Money:**  $200\% / \# \text{ Years} * \sim 65\%$
- **Quadruple Your Money:**  $300\% / \# \text{ Years} * \sim 55\%$
- **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:**  $\sim 25\text{-}26\%$  IRR; **2x Money in 5 Years:**  $\sim 15\%$  IRR
- **3x Money in 3 Years:**  $\sim 44\text{-}45\%$  IRR; **3x Money in 5 Years:**  $\sim 25\%$  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** =  $\sim 2.5x$  multiple (2x =  $\sim 15\%$  and 3x =  $\sim 25\%$ )
- **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!

