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Financial Modeling Fundamentals, Module 12: Leveraged Buyouts and LBO Models – Interview Questions

Table of Contents:

Interview Questions 2
LBO Concepts and Overview 2
IRR Calculations 7
The Purchase Price, Debt, and Sources & Uses Schedule 14
Financial Statement and Debt Projections 19
Exit Strategies 23
Making Investment Decisions 27
More Advanced LBO Features 32

Interview Questions

These questions apply to both **investment banking** and **private equity** interviews.

The difference is that the questions in IB interviews focus more on the **concepts** behind an LBO, how you set one up and walk through it, and how to approximate the IRR in different scenarios.

If you haven't had much prior finance experience, you are **not** likely to receive complex or tricky questions on these topics.

Similar questions could also come up in PE interviews, but interviewers there are more likely to focus on more advanced aspects, such as considerations around exit strategies and how you use LBO models to make investment recommendations.

Case studies are also very common in PE interviews; we don't cover them *directly in this specific section*, but please see the Excel Exercises and Case Studies section of the Interview Guide for examples, or look at the LBO case studies in the modeling courses.

The second set of interview questions here on "IRR Calculations" explains how to do the math for short and simple exercises, which are **far** more common than complex ones.

LBO Concepts and Overview

These questions represent the *most common* and *most likely* ones in investment banking interviews.

You are less likely to get questions on advanced topics because bankers are more concerned with your knowledge of accounting, valuation, and DCF analysis than they are with your knowledge of leveraged buyouts.

Therefore, these conceptual questions about LBOs are the most important ones, and if you have limited time for interview prep, **you should focus on these**.

1. What is a leveraged buyout, and why does it work?

In a leveraged buyout (LBO), a private equity firm acquires a company using a combination of Debt and Equity, operates it for several years, and then sells the company at the end of the period to realize a return on its investment.

During the period of ownership, the PE firm uses the company's cash flows to pay for the interest expense on the Debt and to repay Debt principal.

It works because **leverage amplifies returns**: If the deal performs well, the PE firm will realize higher returns than if it had bought the company with 100% Equity.

But leverage also presents risks because it means the returns will be even worse if the deal does *not* perform well.

2. Why do PE firms use leverage when buying companies?

To **amplify** their returns. Leverage does **NOT** "increase returns": Using leverage – borrowing money from others – to fund a deal simplify makes positive returns even more positive and negative returns even more negative.

All PE firms *aim for* positive returns above a certain IRR, and using leverage makes it easier to get there… if the deal goes well.

A secondary benefit is that the PE firm has more capital available to buy other companies since it won't use up all its funds on acquiring one company.

3. Walk me through a basic LBO model.

"In an LBO model, in Step 1, you make assumptions for the Purchase Price, Debt and Equity, Interest Rate on Debt, and other variables such as the company's revenue growth and margins.

In Step 2, you create a Sources & Uses schedule to show *exactly* how much how much in Investor Equity the PE firm contributes; you also create a Purchase Price Allocation Schedule to calculate the Goodwill.

In Step 3, you adjust the company's Balance Sheet for the new Debt and Equity figures, allocate the purchase price, and add Goodwill & Other Intangibles to the Assets side to make everything balance.

In Step 4, you project the company's Income Statement, Balance Sheet, and Cash Flow Statement, and determine how much Debt it repays each year based on its Free Cash Flow.

Finally, in Step 5, you make assumptions about the exit, usually assuming an EBITDA Exit Multiple, and you calculate the IRR and Money-on-Money multiple based on the proceeds the PE firm earns at the end."

4. Can you explain the legal structure behind a leveraged buyout and how it benefits the private equity firm?

In a leveraged buyout, the PE firm forms a "holding company," which it owns, and then this "holding company" acquires the real company.

The banks and other lenders that provide the Debt lend to this Holding Company so that the Debt is at the "HoldCo" level.

Managers and executives at the acquired company that retain ownership after the deal closes also have shares in this Holding Company.

This structure is important because it means that the private equity firm is **NOT** "on the hook" for the Debt it uses in the deal: It's up to the Target Company to repay it.

Not only does the PE firm borrow other peoples' money to do the deal, but it doesn't even borrow the money directly – the *company* borrows the money so the *PE firm* can do the deal.

5. What assumptions impact a leveraged buyout the most?

The Purchase and Exit assumptions, usually based on EBITDA multiples, make the biggest impact on a leveraged buyout.

A *lower* Purchase Multiple results in *higher* returns, and a *higher* Exit Multiple results in *higher* returns.

After that, the % Debt Used makes the biggest impact. If the deal performs well, more leverage will make it perform even better, and vice versa if it does not perform well.

Revenue growth, EBITDA margins, interest rates and principal repayments on Debt all make an impact as well, but less so than the other assumptions.

6. How do you select the purchase multiples and exit multiples in an LBO model?

For public companies, typically you assume a share-price premium and check the implied purchase multiple against the valuation methodologies to make sure it's reasonable.

For example, you might assume a 30% premium to the company's share price of $10.00, which implies an EV / EBITDA multiple of 10x.

For private companies, you determine the purchase multiple by looking at comparable companies, precedent transactions, and the DCF analysis.

The exit multiple is typically similar to the purchase multiple but could go higher or lower depending on the company's FCF growth and ROIC by the end.

You always use a *range* of purchase and exit multiples to analyze the transaction via sensitivity tables.

7. What is an "ideal" candidate for an LBO?

Almost any deal can work *at the right price*. Assuming the price is right – i.e., the company is relatively undervalued compared with its peers – an ideal LBO candidate should also:

- Have stable and predictable cash flows (so it can repay Debt);
- Not have much need for ongoing investments such as CapEx;
- Be in a fast-growing and highly fragmented industry (so the company can make add-on acquisitions);
- Have opportunities to cut costs and increase margins;
- Have a strong management team;
- Have a solid base of assets to use as collateral for Debt;
- Have a realistic path to an exit, with returns driven by EBITDA growth and Debt paydown rather than multiple expansion.

The first point about stable cash flows is the most important one after price.

8. How do you use an LBO model to value a company, and why does it set the "floor valuation" for the company?

You use it to value a company by setting a targeted IRR, such as 25%, and then using Goal Seek in Excel to determine the purchase price that the PE firm could pay to achieve that IRR.

For example, if the exit multiple is 11x, which translates into $1,000 in Equity Proceeds for the PE firm, Goal Seek in Excel might tell you that the firm could pay $328 in Investor Equity to achieve a 25% IRR over 5 years.

At a 50% Debt / Equity split, that translates into a Purchase Enterprise Value of $656.

This method produces a "floor valuation" because it tells you *the maximum amount* a PE firm could pay to realize a certain IRR. Other methodologies are not constrained in the same way.

9. Wait a minute, how is an LBO valuation different from a DCF valuation? Don't they both value the company based on its cash flows?

They are both based on cash flows, but in a DCF you're saying, "What *could* this company be worth, based on **the Present Value of its cash flows**?"

But in an LBO, you're saying, "What *could* we pay for this company if we want to achieve an IRR of, say, 25%, in 5 years?"

Both methodologies are similar, but with the LBO valuation, you're *constraining* the values based on the returns you're targeting.

10. How is a leveraged buyout different from a normal M&A deal?

In an LBO, you assume the company is sold after 3-5 years (and sometimes a bit more than that). As a result, you focus on the IRR and MoM multiple as the key metrics.

Also, PE firms can use only Debt and Equity (Equity means "Cash" in this context) to fund deals, whereas normal companies in M&A deals can use Cash, Debt, and Stock.

Synergies and EPS accretion/dilution matter a lot in M&A deals, but not at all in LBOs.

You determine the Purchase Price in similar ways, but in an LBO, you'll often "back into" the Purchase Price based on the price required to achieve a targeted IRR.

11. A strategic acquirer usually prefers to pay for another company with 100% Cash – if that's the case, why would a PE firm want to use Debt in an LBO?

It's a different scenario in an LBO because:

1) The PE firm **plans to sell the company in a few years** – so it's less concerned with the expense of Debt and more concerned with using leverage to *amplify* its returns by reducing the capital it contributes upfront.

2) In an LBO, **the company is responsible for repaying the Debt**, so the acquired company assumes most of the risk. In a standard M&A deal, the Buyer or "Combined Entity" carry the Debt, so there's far more risk for the acquirer.

12. How could a private equity firm boost its returns in an LBO?

The main returns drivers are Multiple Expansion, EBITDA Growth, and Debt Paydown and Cash Generation, so a PE firm could improve its returns by improving any of those.

In practice, this means:

- **Multiple Expansion** – Reduce the Purchase Multiple and/or increase the Exit Multiple.
- **EBITDA Growth** – Increase the company's revenue growth rate or boost its margins by cutting expenses.
- **Debt Paydown and Cash Generation** – Increase the Leverage (Debt) used in the deal, or improve the company's cash flow by cutting CapEx and Working Capital requirements.

Since the PE firm has the most control over the last factor, **the easiest way to boost returns is to use more Debt (assuming the deal doesn't blow up and destroy the universe).**

Return to Top.

IRR Calculations

Questions on quick IRR calculations in leveraged buyouts are *very* common in private equity interviews, but they could also come up in investment banking interviews.

The key is to remember the **Rules of Thumb** covered earlier in the guide:

- Take 100%, divide by the # of Years, and multiply by ~75% to approximate the IRR in "Double Your Money" scenarios.
- Take 200%, divide by the # of Years, and multiply by ~65% to approximate the IRR in "Triple Your Money" scenarios.

If you get a scenario like a Dividend Recap or an IPO Exit, think about the **Average # of Years** it takes for the PE firm to receive all the Equity Proceeds.

For example, if the company goes public in Year 4 and it takes the PE firm 3 years to sell its entire stake, the Equity Proceeds arrive, on average, in Year 5.

1. How do you calculate the internal rate of return (IRR) in an LBO model, and what does it mean?

The IRR in an LBO is "the effective annual compounded interest rate": For example, if you invest $100 in the beginning and get back $200 after 5 years, what interest rate would turn that $100 into $200 by the end?

You calculate the IRR by making the Investor Equity (Cash) that a PE firm contributes a negative, and then using positives for Dividends to the PE firm and the Net Proceeds to the PE firm at the end.

Then, you apply the IRR function in Excel to all the numbers, making sure that you've entered "0" for any periods where there's no cash received or spent.

If there are no Dividends or other distributions in between purchase and exit:

IRR = (Exit Proceeds / Investor Equity) ^ (1 / # Years) – 1

2. How can you quickly approximate the IRR in an LBO? Are there any rules of thumb?

Yes. If you double your money, you can divide 100% by the # of years and multiply by ~75% to account for the compounding, and that gives you the approximate IRR.

If you triple your money, you can divide 200% by the # of years and multiply by ~65%, since there's a greater compounding effect there.

The key numbers include:

- **Double Your Money in 3 Years** = ~25% IRR
- **Double Your Money in 5 Years** = ~15% IRR
- **Triple Your Money in 3 Years** = ~45% IRR
- **Triple Your Money in 5 Years** = ~25% IRR

Technically, it's 44% instead of the 45% IRR, and the first ~25% should be 26%, but the mental math is easier with these figures.

3. A PE firm acquires a $100 million EBITDA company for a 10x purchase multiple and funds the deal with 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 in this time and generates no extra Cash.

What's the IRR?

Initially, the PE firm uses 40% Equity, which means $100 million * 10x * 40% = $400 million.

The Exit Enterprise Value = $150 million * 9x = $1,350 million (Mental Math: $150 million * 10x = $1.5 billion, and subtract $150 million).

The initial Debt amount was $600 million, and the company repaid $250 million, so $350 million of Debt remains upon exit.

The Equity Proceeds to the PE firm are $1,350 million – $350 million = $1 billion.

$1 billion / $400 million = 2.5x, which is in between 2x and 3x over 5 years; since 2x over 5 years is 15% and 3x is 25%, this IRR is approximately **20%**.

4. A PE firm acquires a $200 million EBITDA company using 50% Debt, at an EBITDA purchase multiple of 6x.

The company's EBITDA grows to $300 million by Year 3, and the exit multiple stays the same.

Assuming the company pays its interest and required Debt principal but generates no additional Cash, what is the MINIMUM IRR?

The Purchase Enterprise Value is $200 million * 6x = $1.2 billion, and the PE firm uses $600 million of Investor Equity and $600 million of Debt.

The Exit Enterprise Value in Year 3 is $300 million * 6x = $1.8 billion.

The PE firm realizes the minimum IRR when the Equity Proceeds are at their minimum level.

For that to happen, **the company must repay no Debt and generate no additional Cash**.

We already know the company generates no additional Cash, so we have to calculate the Equity Proceeds under the assumption that **the company repays no Debt**.

$1.8 billion – $600 million = $1.2 billion, which is a 2x multiple over 3 years.

That corresponds to a ~25% IRR (technically, 26%), so that is the minimum in this scenario.

5. How does the IRR change if the company repays ALL its Debt but nothing else changes?

If the company repays the full Debt balance, the PE firm gets the full Exit Enterprise Value of $1.8 billion as Equity Proceeds at the end (i.e., $1.8 billion – $0 = $1.8 billion).

The firm has tripled its money in 3 years, which is a ~45% IRR (technically, 44%).

These results tell us that the IRR will be between 25% and 45% depending on the Debt repayment.

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

You use 5x Debt / EBITDA to fund the deal, and the company repays 50% of that Debt over 5 years.

By how much does EBITDA need to grow over 5 years for you to realize a 20% IRR?

A 2x multiple in 5 years is a 15% IRR, while a 3x multiple is a 25% IRR, so a 20% IRR should be right in between: A 2.5x multiple.

Initially, we buy the business for an Enterprise Value of $1,000, using $500 of Investor Equity and $500 of Debt.

We need to earn back $1,250 in proceeds at the end, since 2.5 * $500 = $1,250.

The company repays $250 in Debt, which means that $250 in Debt remains at the end.

Therefore, we need to sell the company for an Exit Enterprise Value of $1,250 + $250 = $1,500.

Since the Exit Multiple stays the same at 10x, EBITDA must grow to $150 over 5 years.

7. A PE firm acquires a business for a 12x EBITDA multiple, using 5x Debt / EBITDA, and plans to sell it in 5 years. The company's initial EBITDA is $100, and it grows to $200 by Year 5.

If there's no Debt repayment and no additional Cash generation, what exit multiple do we need for a 25% IRR?

Initially, we buy the company for an Enterprise Value of $1,200 using Debt of $500 and Investor Equity of $700.

To realize a 25% IRR over 5 years, we need to triple our money by earning $2,100 in proceeds at the end.

No Debt is repaid, so we need to sell the company for an Exit Enterprise Value of $2,600.

Therefore, if EBITDA grows to $200 by Year 5, we need an exit multiple of $2,600 / $200 = 13x.

8. Now assume the company repays 75% of the initial Debt balance over 5 years.

What exit multiple do we need for a 25% 5-year IRR?

75% of $500 in Debt is $375, which means that $125 in Debt remains at the end.

We still contributed $700 in Investor Equity at the beginning, and therefore need to earn back $2,100 in proceeds at the end.

Therefore, we need to sell the company for an Exit Enterprise Value of $2,100 + $125 = $2,225.

As a result, we need an exit multiple of $2,225 / $200 = 11.1x (you could round this to 11x in an interview).

9. A private equity firm acquires a $200 EBITDA company for an 8x EBITDA multiple using 50% Debt.

It wants to sell the company in 3 years, but it's difficult to find buyers, so the firm decides to take the company public instead.

If this company's EBITDA increases to $240, and it repays ALL the Debt over 3 years, and the PE firm takes it public and sells off its stake evenly in Years 3 – 5 at a 10x EBITDA multiple, what's the approximate IRR?

Initially, the PE firm pays $1,600 for this company and uses $800 in Investor Equity and $800 in Debt.

The PE firm sells its stake in the company for an Exit Enterprise Value of $240 * 10x = $2,400, and all the Debt has been repaid by this point, so the Proceeds to the PE Firm are $2,400.

Tripling our money in 3 years would be a 45% IRR, and tripling it in 5 years would be a 25% IRR.

Since this is an IPO and the stake is gradually sold off between Year 3 and Year 5, the "Average Year #" for receiving the proceeds is 4.

As a result, the IRR is somewhere in between these figures – we could approximate it as a 35% IRR (it's actually 32%).

10. How does the IRR change if, after going public, the company's share price drops by approximately 10% per year in Years 4 and 5?

A 10% share price decline each year means that the EBITDA multiple falls to 9x and then 8x.

The "average" EBITDA multiple at which the PE firm sells its stake is 9x rather than 10x.

Therefore, the Proceeds to the PE Firm decline from $2,400 to $2,160, since $2,400 – $240 = $2,160.

The multiple is $2,160 / $800 = 2.7x.

A 2.5x multiple over 5 years is a 20% IRR, while a 2.5x multiple over 3 years is a ~35% IRR, so we'd expect an IRR in between those. But it will be closer to 35% since 2.7x is above 2.5x.

We could approximate this IRR as **30%**; in real life, it is exactly 30%.

11. What's the approximate IRR if a PE firm acquires a company using $500 of Investor Equity, sells it for $1,000 in Equity Proceeds in Year 3, and receives a Dividend of $250 in Year 2?

Doubling our money in 3 years normally corresponds to a ~25% IRR.

But the Dividend turns this into $1,250 / $500 = 2.5x, which is halfway between doubling and tripling our money.

You'd *think*, based on "3x in 3 years = ~45% IRR" that the IRR would be around 35% here.

But the Dividends arrived in Year 2 instead of Year 3, so it's higher than that. We would approximate it as "Between 35% and 40%" – in real life, it is 39%.

12. A PE firm acquires a company with $100 in EBITDA, which grows to $150 by the end of 7 years, at which point the PE firm sells the company for a 10x EBITDA multiple.

The PE firm uses $500 of Debt initially, and the company has $300 of Net Debt remaining upon exit.

If the PE firm realizes an approximate IRR of 10% on this investment, what was the purchase multiple?

The Exit Equity Proceeds to the PE Firm are 10x * $150 – $300 = $1,200.

We don't know what multiple a 10% IRR over 7 years corresponds to, but we can estimate it as:

- 2x → 100% / 7 * 75% = ~14% * 75% = Between 10% and 11%.
- 3x → 200% / 7 * 65% = ~28% * 65% = Between 18% and 19%.

Therefore, we can say the multiple is approximately 2x.

This means that the PE firm must have used $600 in Investor Equity in the beginning.

Since the PE firm used $500 of Debt, the Purchase Enterprise Value was $500 + $600 = $1,100, and the purchase multiple was $1,100 / $100 = 11x.

13. Could a private equity firm earn a 20% IRR if it buys a company for a Purchase Enterprise Value of $1 billion and sells it for an Exit Enterprise Value of $1 billion after 5 years?

Yes, this is possible. A 20% 5-year IRR corresponds to a 2.5x multiple, so the PE firm needs to earn back 2.5x its Investor Equity.

It can do this if it uses $600 million in Debt and $400 million in Investor Equity, and the company repays all the Debt and generates no excess Cash.

In that case, the PE firm receives all $1 billion in proceeds at the end, since $1 billion / $400 million = 2.5x.

14. Could a private equity firm ever earn a 20%+ IRR if it buys a company using Investor Equity of $1 billion and gets back exactly $1 billion in Equity Proceeds at the end of 5 years?

Mathematically, this is possible, but in reality, it is nearly impossible.

For the PE firm to earn a 20% IRR in this scenario, the acquired company would have to issue extremely high Dividends and/or do multiple Dividend Recaps during the 5-year holding period.

Most companies cannot pay anything close to a 20% Dividend Yield, so this scenario is exceptionally unlikely.

Return to Top.

The Purchase Price, Debt, and Sources & Uses Schedule

The questions in this category are all **more advanced** than the ones in the previous sections, which dealt with the basic concepts behind an LBO and how to quickly calculate IRR.

These questions are more likely if you've had significant work experience or you're interviewing for private equity roles instead.

1. What's the true purchase price in a leveraged buyout?

Just as in a merger model, you always start with the Equity Purchase Price – the cost of acquiring all the company's common shares.

Then, depending on the treatment of Cash, Debt, Transaction Fees, and Equity Rollovers, the "true price" may be different, which is why you create a Sources & Uses schedule.

For example, if existing Debt is "assumed" (kept in placed or replaced with new Debt that's the same), it won't affect the purchase price. But if the PE firm repays the existing Debt with its Investor Equity or a combination of Debt and Investor Equity, that increases the effective price.

Using Excess Cash to fund the deal reduces the true price, as do Equity Rollovers.

The true price is often close to the Purchase Enterprise Value, but it won't be the same because of these issues.

2. How can you determine how much Debt a PE firm might use in an LBO and how many tranches there would be?

You look at recent, similar LBOs and use the median Debt / EBITDA levels from them as references; you could also look at highly leveraged public companies in the industry and check their Debt / EBITDA levels.

For example, if the median Debt / EBITDA for LBOs has been 5x, with 2x Term Loans and 3x Subordinated Notes, you might assume those same figures.

Then, you would test these assumptions by projecting the company's leverage (Debt / EBITDA) and coverage (EBITDA / Interest) ratios over time.

If they hold up reasonably well – e.g., the company's coverage ratio always stays above 2x – then you might stick with the original numbers. If not, you have to try different assumptions.

3. Can you describe the different types of Debt a PE firm might use in a leveraged buyout, and why it might use them?

Broadly speaking, Debt is split into **Secured Debt** and **Unsecured Debt**, which some people also label "Bank Debt" and "High-Yield Debt" or "Senior Debt" and "Junior Debt."

Secured Debt consists of Term Loans and Revolvers, is backed by collateral, tends to have lower, floating interest rates, may have amortization, and uses maintenance covenants such as restrictions on the company's EBITDA, Debt / EBITDA, and EBITDA / Interest.

Early repayment of principal is allowed, maturity periods tend to be shorter (~5 years up to 10 years), and the investors tend to be conservative banks.

Unsecured Debt consists of Senior Notes, Subordinated Notes, and Mezzanine, and is not backed by collateral; interest rates tend to be higher and fixed rather than floating, there is no amortization, and it uses incurrence covenants (e.g., The company can't sell Assets above a certain dollar amount).

Early repayment is not allowed, maturity periods tend to be longer (8-10 years, and sometimes much longer or even indefinite), and the investors tend to be hedge funds, merchant banks, and mezzanine funds.

4. Why do the *less* risky, lower-yielding forms of Debt amortize? Shouldn't amortization be a feature of riskier Debt to reduce the risk?

Amortization reduces credit risk but also reduces the potential returns. Since risk and potential returns are correlated, amortization **should be a feature of *less* risky Debt**.

If $100 million of 10% interest bonds stay outstanding for 10 years, and the company repays them, in full, after 10 years, the investors earn a 10% IRR on those bonds.

But if there's amortization or optional repayment, that balance will decline to less than $100 million by the end, so the investors earn *less than* a 10% IRR. But the investors also take on less risk because more capital is returned earlier on.

5. Why might a PE firm choose to use Term Loans rather than Subordinated Notes in an LBO, if it has the choice between two capital structures with similar levels of leverage?

Term Loans are less expensive than Subordinated Notes since interest rates are lower, and they give the company more flexibility with its cash flows since optional repayments are allowed in most cases.

Also, since Term Loans have maintenance covenants, they might be better if the company is planning to divest assets, make acquisitions, or spend a huge amount on CapEx, any of which might be forbidden with incurrence covenants found in Subordinated Notes.

6. Why might a PE firm do the opposite and use Subordinated Notes instead?

On the surface, this doesn't make much sense because Subordinated Notes are more expensive than Term Loans.

However, a PE firm might prefer Subordinated Notes if they doubt a company's ability to comply with the maintenance covenants found in Term Loans (e.g., if the company's EBITDA is projected to decline for a few years).

Also, if the company wants to avoid paying cash interest (or the PE firm has doubts about its ability to do so), it may opt for Subordinated Notes with Payment-in-Kind (PIK) Interest so that the interest accrues to the loan principal.

7. Why might Excess Cash act as a funding source in an LBO, and why might its usage also cause controversy?

Excess Cash might act as a funding source in an LBO if a company uses its Cash to repurchase its shares, reducing the number of shares that a PE firm has to purchase.

It's not that the PE firm "gets" the company's Excess Cash before the deal takes place – it's that the company *uses its Cash* to reduce the purchase price *for* the PE firm.

Pre-deal shareholders often object to such moves, saying that the company should have issued a Special Dividend to them or used the cash in a more productive way.

Using Excess Cash to fund a deal also increases the ownership stakes of existing investors that choose to roll over their shares – since Excess Cash reduces the Investor Equity the PE firm needs to contribute.

8. What's the point of assuming a Minimum Cash Balance in an LBO?

The point is that all companies need some minimum amount of cash to continue running their businesses and delivering products to customers.

You can't just assume that *all* the company's Cash can be used to fund the deal or repay Debt after the deal takes place.

You must keep this Minimum Cash Balance in mind if you assume that Excess Cash is used to fund an LBO, and you must factor it in when calculating how much Debt principal a company could potentially repay each year.

9. How might you estimate this Minimum Cash Balance if the company doesn't disclose it?

You might look at how low its Cash balance has fallen historically, or you might look at Cash as a % of Total Expenses and see how that figure has trended in the past.

For example, if Cash has always been between 5% and 10% of (COGS + OpEx), you might make the Minimum Cash Balance between 5% and 10% of (COGS + OpEx).

10. How does an Equity Rollover affect the Sources & Uses schedule in an LBO?

The Equity Rollover counts as a Source of Funds because it reduces the amount of Debt and Investor Equity that are required to do the deal.

For example, if a company's existing investors are rolling over 10 million out of 50 million shares, the PE firm only needs to purchase 40 million shares instead of all 50 million.

The Equity Rollover also results in reduced ownership for the PE firm after the deal takes place.

11. You're setting up the Transaction Assumptions for an LBO, but you don't have any information on the Debt Comps. How might you estimate the interest rates on Debt?

You could also estimate the Interest Rate on Debt by using **default spreads**, similar to the method you sometimes use with Cost of Debt in the WACC calculation.

Start with the yields of 10-Year Bonds issued by the central bank of the country you're in, and then calculate the company's interest coverage ratio and leverage ratio to get a sense of its credit rating (or use its actual credit rating).

Then, look up the company's default spread based on this credit rating and add that to the 10-Year Bond rate.

For example, if the company's leverage ratio will be 5x after the deal takes place, and that corresponds to a BB+ credit rating, you might look up BB+-rated companies and find that most of them have spreads of 4.0%.

If the 10-Year Government Bond Rate is 3.0%, then the interest rate might be 3.0% + 4.0% = 7.0%.

12. What does "assuming" or "refinancing" Debt mean, and how do these two options affect an LBO model?

The terms of most Debt state that in a "change of control" scenario, the Debt must be repaid.

In LBO scenarios, PE firms must repay it with either Investor Equity (their cash) or new Debt.

In practice, most PE firms usually choose to "replace" a company's existing Debt with new Debt in the same amount; using Investor Equity would reduce their returns.

"Assuming" Debt means that the PE firm keeps the existing Debt in place, or that it replaces it with new, identical Debt: In both cases, there's no net impact on the Investor Equity required.

"Debt Assumed" shows up under both Sources and Uses in the S&U schedule.

"Refinancing" Debt means that the PE firm repays it using Investor Equity or some combination of Investor Equity and New Debt; in these cases, more Investor Equity (and, possibly, additional Debt) is required for the deal.

"Debt Refinanced" shows up only on the Uses side of the S&U schedule.

13. How do the transaction and financing fees factor into the LBO model?

The company or PE firm must pay for these fees upfront in Cash, thereby increasing the purchase price, but the accounting treatment of the fees differs.

Legal & Advisory Fees (e.g., fees paid to investment bankers, lawyers, accountants, etc.) are deducted from Cash and Retained Earnings.

Financing Fees (e.g., fees paid to lenders to arrange for the Debt), as of 2016 under both U.S. GAAP and IFRS, are deducted from the carrying value of the Debt and Cash on the other side of the Balance Sheet.

Even though the book value of Debt declines as a result of these fees, the company pays interest on the *face value* of the Debt, i.e. what it was before fees.

For a $100 million Debt issuance with $3 million in financing fees, the company pays interest on $100 million rather than $97 million.

Return to Top.

Financial Statement and Debt Projections

These questions are also more likely to come up in private equity interviews than in investment banking interviews.

However, it is still important to understand the basics of projecting Free Cash Flow and Debt repayment in LBOs, no matter what you're interviewing for.

1. Can you explain how to adjust the Balance Sheet in an LBO model?

The adjustments are similar to those in an M&A deal, but in an LBO, you don't "combine" the Seller's Balance Sheet with the Buyer's since the "Buyer" is an empty shell corporation.

You still write down the company's Shareholders' Equity and replace it with the Investor Equity the PE firm is contributing, you still create Goodwill and Other Intangible Assets, and you might adjust the Deferred Tax-related items as well.

You also add the new Debt and possibly adjust the existing Debt on the L&E side of the Balance Sheet; you adjust Cash on the Assets side for deal funding and transaction fees. You may also write up or down Asset values.

You deduct one-time Transaction Fees from Retained Earnings and Financing Fees from the book value of the new Debt issued.

2. How is Purchase Price Allocation different in LBO models? Does it matter more or less than in M&A deals?

It's the same process as in M&A deals, but it tends to matter **far less** because leveraged buyouts are based on cash flow, Debt repayment, and the IRR from acquiring and then selling a company.

Many of the new items that get created in the PPA process, such as D&A on Asset Write-Ups, affect the company's EPS but barely make an impact on its cash flow, which is why many LBO models leave out this schedule.

3. How do you project Free Cash Flow and Cash Flow Available for Debt Repayment in an LBO model?

You start with Net Income, add back D&A, factor in the Change in Working Capital, and subtract CapEx to determine a company's FCF in a leveraged buyout.

You should **not** add back Stock-Based Compensation because it creates additional shares, reducing the PE firm's ownership in the company; it's easier to treat SBC as a cash expense.

You might factor in other items such as Deferred Taxes, but these should not make a huge difference for FCF.

Cash Flow Available for Debt Repayment is similar to FCF, but also adds the company's Beginning Cash Balance and subtracts its Minimum Cash Balance and other obligations such as repayments of assumed Debt.

4. How is the "Free Cash Flow" in an LBO model different from the FCF in a DCF?

First, **the purpose** is quite different since FCF in an LBO model determines a company's ability to repay Debt, *not* the implied value of the entire company.

Second, FCF in an LBO model starts with Net Income, not NOPAT, and so it **includes** the Net Interest Expense. But it's also **not** Levered FCF since it does **not** include Debt principal repayments.

Finally, while FCF is the end point in a DCF, you have to go beyond it in an LBO model because of the company's Beginning Cash Balance, Minimum Cash, and, potentially, other obligations such as repayments of Existing Debt.

5. Why might a company's FCF in an LBO model differ from its Cash Flow Available for Debt Repayment?

It might differ because of the additional components that go into Cash Flow Available for Debt Repayment: The Beginning Cash, Minimum Cash, and Other Obligations.

For example, if a company generates $100 in FCF in the first year following an LBO, it won't necessarily be able to repay exactly $100 of Debt; it might be more or less than that.

If it starts out with $100 in Cash that year, it might be able to repay $200 instead. But if its Minimum Cash Balance is $50, it can repay only $150.

6. What does the "tax shield" in an LBO mean?

All it means is that Interest on Debt reduces a company's taxes because the Interest is tax-deductible.

However, the company's cash flow is still lower than it would have been WITHOUT the Debt – the tax savings helps, but the additional Interest Expense still reduces Net Income.

Some people think this "tax shield" makes a huge difference in an LBO, but it makes a marginal impact next to key drivers such as the purchase and exit multiples.

7. How do you set up the formulas for Mandatory and Optional Debt Repayments in an LBO model?

Mandatory Principal Repayment for a tranche of Debt is based on the percentage that amortizes each year, the initial amount of Debt raised, and the amount of Debt remaining.

You should take the **minimum** between Amortization % * Initial Amount and Debt Remaining because you never want to repay more than the total remaining Debt (e.g., 20% * $100 million = $20 million per year, but if only $10 million is left, repay just the $10 million).

The Optional Debt Repayment formula is similar, but it's based on the **minimum** between the Cash Flow Available *at the current point* and amount of Debt remaining *at the current point*.

For example, if, after Mandatory Repayments, the company has $100 million in cash flow and $250 million of Debt remaining, it would repay $100 million.

But if it had only $50 million remaining, it would repay that entire remaining $50 million.

8. How do you use a Revolver in an LBO model?

You draw on the Revolver when the company doesn't have enough cash flow to meet its Mandatory Debt Repayments.

For example, if the company needs to repay $150 million in Debt principal, but it has only $100 million in Cash Flow Available for Debt Repayment, it would draw on $50 million from its Revolver to make up for the deficit and repay the full amount.

The company will then pay interest and fees on this additional borrowing, and it will repay the Revolver balance as soon as it can do so.

The Revolver is similar to a personal overdraft account at a bank.

9. Which Key Metrics and Ratios might you calculate in an LBO, and what do they tell you?

You calculate key metrics and ratios such as Debt / EBITDA, EBITDA / Interest, and FCF Conversion because they give you better insight into how a deal performs over time. They can also indicate how risky a deal is, what the key risks are, and if the PE firm can do anything to boost returns.

For example, if the company goes from 5x Debt / EBITDA to 3x in 1-2 years, perhaps the PE firm could use more Debt in the beginning, or it could do a Dividend Recap at that stage to boost its returns.

And if the company's FCF Conversion increases from 10% to 30%, the deal is more attractive because it's a sign that more of the returns come from Debt Paydown and Cash Generation.

10. Since an LBO is based on Free Cash Flow, why do you focus on EBITDA and EV / EBITDA in the assumptions?

EBITDA is quick to calculate, and it's sometimes a reasonable approximation for Cash Flow from Operations, so lenders and potential acquirers focus on it.

But the other reason is that EV / EBITDA tends to be more stable over time than Equity Value-based multiples.

If we used P / E or Equity Value / FCF multiples, they might change dramatically as the company repays Debt.

If we used one of those, we might have to adjust the exit multiple rather than starting out at a figure close to the purchase multiple.

Finally, you can use EBITDA and EV / EBITDA even if the company has negative Net Income (due to high interest expense, for example).

Return to Top.

Exit Strategies

Questions on exit strategies in leveraged buyouts are also more advanced than the ones you normally receive in investment banking interviews, but they could still come up.

The most important questions here are the first few on the trade-offs of different exit strategies and the relationship between IRR and Money-on-Money (MoM) multiples.

1. What are the different exit strategies available to a private equity firm in a leveraged buyout, and what are the advantages and disadvantages of each one?

The main exit strategies are an M&A deal, an initial public offering (IPO), and a dividend recapitalization.

In an M&A Deal, the PE firm sells the company to another company or PE firm. It's a clean and simple break where the firm earns all the deal proceeds in one fell swoop.

In an IPO Exit, the PE firm takes the company public and sells off its shares gradually over time; sometimes companies that can't be acquired *can* go public, which is the main advantage.

But the disadvantage is that the sale of the PE firm's stake takes much longer, so there's also more risk (e.g., if the company's share price drops). The firm can't sell its entire stake all at once because it sends a negative signal to other investors.

In a Dividend Recapitalization, the company issues Dividends to the PE firm continually or takes on additional Debt to issue Dividends, and the PE firm earns the deal proceeds gradually over time.

It is very tough to earn an acceptable IRR with the Dividend Recap, but sometimes it is the only option if the M&A or IPO markets are underdeveloped or the company has legal or PR issues that prevent it from using those strategies.

2. What IRR and MoM multiple do PE firms typically target?

Most private equity firms aim for an IRR of at least 20%, about twice what public equity markets in developed countries have returned historically.

The targeted multiple depends on the time frame of each investment, but a 20% IRR over 5 years equates to a 2.5x multiple, so many firms target at least that much.

If the firm holds companies for longer periods – say, 7 years on average – then it may need to target a higher multiple, such as 3.5x (a ~20% IRR over 7 years).

Most firms also target different numbers for Base, Upside, and Downside cases, and aim to avoid *losing money* no matter what happens.

3. Would you rather achieve a high IRR or a high MoM multiple in a leveraged buyout?

It's completely dependent on **the time frame**. Over a short period, such as 6 months, a high IRR, such as 50%, is meaningless because you've barely made money (~1.25x multiple).

But over a long period – say, 10 years – a high MoM multiple such as 3x is meaningless because it corresponds to a ~12% IRR.

Limited Partners judge private equity funds by their IRRs, but they also don't want the money to be returned to them *too quickly*.

The best answer to this question is: "PE firms care more about IRR because that's how they're measured, but over short time frames, it's better to earn a high multiple, and over longer time frames, it's better to earn a high IRR. Also, if the PE firm has already exceeded its hurdle rate, it will focus more on MoM multiples."

4. Why might a PE firm have to use an IPO rather than an M&A deal to exit an LBO?

One problem is that the company might be **too big** to be sold in a traditional M&A deal: For example, maybe it's the biggest company in the industry already.

Another problem is that acquirers may not be interested in 100% of the company, at least at the price the PE firm is seeking.

If the industry is stagnant or declining, it may also be difficult to find an acquirer for the entire business.

5. Why might a PE firm have to resort to a Dividend Recapitalization for its exit in an LBO?

A firm would do this only if M&A and IPO exits are completely impossible.

This scenario often happens in emerging and frontier markets, where capital markets are small and undeveloped, and also when the company is too small to go public (e.g., a $20 million revenue business).

It can also happen when the company has regulatory or "public relations" obstacles that prevent it from going public or getting acquired – for example, if the company operates in tobacco or adult entertainment, it might be difficult to find willing acquirers or investors.

6. What are the main differences in an IPO Exit vs. an M&A Exit?

The main difference is that in an IPO exit, the PE firm cannot sell its entire stake at once. Instead, it sells a much smaller percentage, such as 20-30%, in the initial deal, and then sells the rest of its shares over time.

If the company's share price increases after the IPO, the PE firm could capture some of the upside – but if the company's share price decreases, the PE firm loses out.

IPOs also tend to be priced based on forward P / E multiples rather than trailing EV / EBITDA multiples, which could be better or worse depending on the company.

Sometimes, portions of the company's remaining Debt are kept in place in an IPO, which *typically* helps the PE firm since it doesn't have to repay all the Debt.

It's arguably easier to earn a higher IRR in an M&A exit; a firm might achieve a similar MoM multiple in an IPO exit, but the IRR might be very different depending on the timing.

7. What are the advantages and disadvantages of a Dividend Recapitalization for the exit?

There is no real "advantage" other than the fact that *any* company with sufficient cash flow could issue Dividends to the PE firm to support this strategy; unlike with M&A and IPO exits, there are no specific industry, regulatory, or size criteria.

But the disadvantage is that it will be extremely difficult for the PE firm to realize anything close to a 20% IRR solely with Dividends – think about how few public companies have Dividend yields that exceed even 5%.

8. In an LBO, is it better for the company to repay Debt principal with its excess cash flow or for it to issue Dividends to the PE firm?

There won't be much difference in terms of MoM multiples: Any cash flow that the company does **not** use to repay Debt goes to Dividends instead.

For example, $100 million in Dividends in Year 3 means that in Year 5, the remaining Debt balance will be $100 million higher and the Equity Proceeds will be $100 million lower.

However, issuing Dividends will almost always result in a higher IRR because **money today is worth more than money tomorrow**. The PE firm earns its proceeds earlier, so the IRR is higher.

This might *not* be true in scenarios with PIK (Paid-in-Kind) Interest, where the Interest accrues to the Debt principal, but companies typically can't repay PIK Debt early.

9. What might trigger "Multiple Expansion" in an LBO, and is this assumption ever justified?

A valuation multiple is **shorthand for valuation:** It's an abbreviated way of expressing a company's Discount Rate, FCF, and FCF Growth Rate.

So, yes, Multiple Expansion is possible in an LBO: For example, if a company's Return on Invested Capital (ROIC) improves and its WACC stays the same, then its FCF and FCF Growth should both increase, which should, theoretically, boost its exit multiple.

Some PE firms aim for Multiple Expansion in deals, but it's very tough to predict and depends heavily on market conditions as well.

Even if a PE firm improves a company's ROIC significantly, the exit multiple might stay the same or fall if the overall market has declined.

10. If there's an Equity Rollover in an LBO, could the IRR to management/existing investors ever be different than the IRR to the PE firm?

The management/existing investors could realize a *different* IRR only if they rolled over their shares at a different purchase price or something else changed their ownership – such as options, incentive plans, or early distributions of their proceeds.

But if the PE firm acquired 80% of the company, existing investors rolled over their shares for 20% of the company, and nothing else changed in between, the IRRs should be the same.

11. Is it always accurate to add Cash and subtract Debt when calculating the Proceeds to Equity Investors at the end of an LBO?

No, but this is the most common assumption in LBO models – at least for deals with assumed M&A exits.

While it's safe to assume that the PE firm must repay the Debt it used to acquire the company, you can't necessarily assume that it will "take" all the company's Cash upon exit.

For example, if the company hasn't generated any extra Cash and still has only its Minimum Cash Balance at the end, in all likelihood, the PE firm will have to leave it in place.

Some models account for this problem by adding *only* extra Cash generated during the holding period in the exit calculations at the end.

12. Would you rather have an extra dollar of Debt paydown or an extra dollar of EBITDA in an LBO?

An extra dollar of EBITDA is more beneficial because not only does extra EBITDA *pay for* Debt paydown, but it also increases the company's Exit Enterprise Value by a multiple of that dollar.

A simple way to think about is that $1 of Debt paydown increases the Equity Proceeds to the PE firm at the end by $1, but $1 of extra EBITDA increases the Equity Proceeds by *at least* $1 * [A multiple such as 5-6x].

Return to Top.

Making Investment Decisions

This section lies in "private equity" territory. Since you do **not** make investment decisions as an investment banker, these questions are extremely unlikely to come up in IB interviews.

Even in PE interviews, you're more likely to get these questions after you've completed a case study or modeling test and you're presenting your recommendations.

1. Can you walk me through how you might make an investment decision based on the output from an LBO model?

You start by determining the **investment criteria:** For example, maybe you're aiming for a 20% IRR and 2.5x-3.0x multiple in the Base Case and a 1.5x minimum multiple in the Downside Case.

Then, you build projections and look at the LBO model output in the Base Case.

If the numbers don't work at this point, it's an easy "No"; if they do work, you build the projections for the Downside Case and start testing everything there.

If it seems like you could easily lose money in the Downside Case, you might say "No"; but if the worst-case multiple is above, say, 1x, the deal might still work.

Finally, you make a decision and back it up with qualitative criteria. If the numbers tell you "Yes," you find the qualitative points to support your argument; if they tell you "No," you find the qualitative reasons to go against the deal.

2. Why might you recommend AGAINST a deal even if the IRRs and MoM multiples are favorable in the Downside, Base, and Upside cases?

You might recommend against a deal if there's a problem with the industry, such as a lack of good exit strategies, or credit markets that won't support the deal.

For example, if it seems impossible for the company to go public and there are no likely buyers, the PE firm might conclude that it's impossible to *realize* anything close to the returns predicted by the LBO model.

3. Why might you decide IN FAVOR of a deal even if the IRRs and MoM multiples are NOT favorable across the different cases?

You might recommend a deal if the numbers are "borderline," and you believe there's an easy way to boost them above the thresholds.

For example, if the Base Case IRR is 18%, and the MoM multiple is 1.3x in the Downside Case, you might look at the projections, realize the company generates a huge amount of Excess Cash, and argue that the company could distribute this Excess Cash or do a Dividend Recap to boost the IRR above 18%.

You could also argue that a different capital structure that lets the company repay more of the Debt would result in a higher IRR, making the deal math more favorable as well.

4. How does a Returns Attribution Analysis for an LBO affect your investment decision?

This analysis makes an impact because certain returns sources are considered more favorable than others.

Specifically, if a deal is predicated on Multiple Expansion, you should be very skeptical because Multiple Expansion is highly speculative and often fails to materialize in real life.

But if a deal depends mostly on EBITDA Growth, it's more credible because it's easier to grow a company's business than to increase its multiple.

Debt Paydown and Cash Generation is somewhere in the middle; it's less speculative than Multiple Expansion, but it's worse than EBITDA Growth because it indicates that the deal depends on financial engineering more than core business growth.

5. What makes an industry more appealing or less appealing to invest in?

An industry is more appealing if it's growing quickly and highly fragmented, and the company is a clear leader (in the top 2-3 positions) in the industry.

These qualities make it appealing because the PE firm can use its funds to acquire other companies and make the original company bigger, resulting in higher market share and, presumably, a higher valuation.

Strong barriers to entry also help, but those are less likely in fragmented markets.

An industry is less appealing if it's highly consolidated (e.g., 2-3 companies own 80% of the market), if it's in decline (e.g., newspapers), or if it's highly speculative (e.g., asteroid mining).

A high rate of technological change and low barriers to entry also make an industry less appealing because cash flows are unlikely to be stable.

6. If a company has $10 million in revenue and $5 million in EBITDA, is it most appealing as an investment candidate if it plans to grow by selling 20% more units, raising its prices by 20%, or cutting its expenses by 20%?

It's most appealing if it grows by raising prices by 20%.

If the company does this, everything will "flow through" to EBITDA: The $2 million in extra revenue will result in an additional $2 million of EBITDA.

If the company sells 20% more units, it will incur higher variable costs, and its EBITDA will increase by less than $2 million.

Expense reduction of 20% will result in only $1 million of additional EBITDA, which makes less of an impact than the price increase.

Investors tend to favor companies with significant **pricing power** because it means they have less serious competition and can grow with less friction.

7. How might a PE firm reduce its downside risk if a leveraged buyout does not perform well?

Much of the risk in leveraged buyouts comes from multiple contraction: The Exit Multiple might be lower than the Purchase Multiple.

The best way to reduce this risk is to avoid acquiring companies trading at relatively high multiples and to focus on companies that are undervalued in some way.

Using more Debt can also boost returns, and acquiring a smaller stake (i.e., something less than 100%) helps in *extreme* Downside cases where the IRR turns negative.

Acquiring companies with significant Tangible Assets that could be sold off, or non-core divisions that could be sold off, also reduces risk: In the worst-case scenario, the PE firm could recover some of its capital from selling those.

A PE firm could also improve a company's operations to reduce risk – for example, it could push management to shut down underperforming divisions or cut costs.

But most of these strategies for mitigating risk depend on *acquiring the right company* in the first place – the PE firm can't do much if the acquired company's sales plummet because of a market downturn.

8. How would you review a Confidential Information Memorandum (CIM) or other marketing materials and decide whether to pursue an acquisition of a company?

You might start by reading the first few pages of the Executive Summary in the beginning to assess the company's industry, size, and possible valuation.

Then, you would skip to the historical and projected financial statements toward the end to see if the LBO math works at all: If it seems impossible to earn a 20% IRR, even with these optimistic projections, you might reject the company right away.

But if the math seems plausible, you might keep reading and go to the market/industry overview section, look at the industry growth rates, the competitors, and assess how this company stands out from others.

If all that checks out, then you might read through the entire document, including the management team, the customers and suppliers, and the products and services.

9. After reading a company's CIM, you decide to meet with the CEO. What are the top 3 questions you would ask him/her?

You'd focus on questions that are **not** answered in the CIM, so the best questions depend heavily on the company, its industry, and how much information is disclosed in the CIM.

For example, if the CIM provides financial projections but little detail behind the revenue and expense numbers, and it seems like the deal might be dependent on add-on acquisitions, you might ask the following questions:

1) "What's driving these assumptions for revenue growth of XX% and operating margins of YY%?" (Especially if they differ from the historical numbers)

2) "What's your company's big-picture strategy, and what do you see as the best sources of growth?"

3) "Can you tell us about your competitors and smaller companies in the market that might be open to acquisitions?"

10. How might you convince the management team of a company to agree to a leveraged buyout?

You might point out the many *perceived* benefits of a leveraged buyout: For example, the company could take its time to execute long-term plans away from the scrutiny of quarterly earnings calls and the public markets.

Also, the management team could end up owning a much higher percentage of the company if you offer them an Equity Rollover or other incentives such as options or additional profits if the IRRs or MoM multiples exceed certain levels.

Finally, it is the Board's fiduciary duty to consider any serious acquisition offer – so if your firm offers a high enough price, the company has to consider it at the very least.

11. How would you present an investment recommendation on a potential LBO candidate?

You'd start by giving a clear "Yes" / "No" recommendation and stating the 3-4 main reasons that explain your decision.

Then, you would go into the qualitative and market factors and the numbers that support your recommendation, including a summary of output from the LBO model; you would also demonstrate that the deal works even in Downside cases.

Then, you would address the Risk Factors and why you might be wrong about your recommendation, and what you could do to mitigate those risks (or what might change your mind if it's a negative recommendation).

Finally, you would conclude by restating your recommendation and using more specific details to support it.

Return to Top.

More Advanced LBO Features

These topics are **unlikely** to come up in interviews, but we still wanted to provide example questions and answers on the more advanced topics.

The *most likely* scenario is that you won't receive these as interview questions at all, but rather as part of case studies or modeling tests in private equity or growth equity interviews.

1. When might a PE firm use a leveraged dividend recap in a leveraged buyout?

A PE firm might do this if the company pays off a significant amount of Debt midway through the holding period or becomes able to support more Debt at that point (e.g., its EBITDA increases significantly and it can support another 1-2x of Debt).

If a deal performs well, a dividend recap will boost the IRR because it allows the PE firm to earn proceeds from the deal earlier on; the MoM multiple won't change by *as* much.

2. Walk me through how the Balance Sheet and IRR in an LBO change with a $100 leveraged dividend recap and $2 in financing fees.

On the Assets side of the Balance Sheet, you deduct the $2 in financing fees from Cash, so the Assets side is down by $2.

On the L&E side, you record $100 – $2 = $98 for the new Debt because you deduct financing fees directly from the book value of the Debt.

You also deduct $100 from Retained Earnings to reflect the Dividends issued to the PE firm, so the L&E side is down by $2 and both sides balance.

In the IRR calculation, you reflect this $100 in Dividends to the PE firm, which boosts the IRR.

3. How would you model a "waterfall returns" structure where different Equity investors in an LBO receive different percentages of the returns based on the overall IRR?

For example, let's say that Investor Group A receives 10% of the returns up to a 15% IRR (Investor Group B receives 90%), but then receives 15% of the returns (with Investor Group B receiving 85%) beyond a 15% IRR. How does that work?

The exact Excel formulas get tricky, but here is the basic idea:

- First, you check to see what the IRR is for the Equity Proceeds generated in the deal. For example, let's say the deal generates $500 million in Equity Proceeds; you do the calculations and find that $500 million equates to an 18% IRR for this period.

- Next, you determine *the Equity Proceeds that represent a 15% IRR*. Here, you run the numbers and find that $450 million equates to a 15% IRR.

- You allocate 10% of this $450 million, or $45 million, to Investor Group A, and 90%, or $405 million, to Investor Group B.

- Then, you allocate 15% of the remaining $50 million ($500 million minus $450 million) to Investor Group A and 85% to Investor Group B.

4. Why might a private equity firm create a management option pool in an LBO, and how does it affect the model?

The PE firm does this to incentivize the management team to perform while giving up relatively little in exchange.

If a deal performs well and the Exit Equity Value exceeds the initial Investor Equity, a small percentage of the Equity Proceeds will go to management, *barely* reducing the IRR for the PE firm while greatly increasing the IRR for the management team.

If the deal does not perform well, and the Exit Equity Value is below the initial Investor Equity, nothing is paid out to management and the PE firm loses nothing.

5. Walk me through the impact of a 10% option pool in an LBO if the initial Investor Equity is $500 and the Exit Equity Value is $1,000.

The options are in-the-money because the Exit Equity Value exceeds the initial Investor Equity.

The Cash Payment to the PE firm for the exercise of these options is 10% * $500 = $50.

Proceeds to Management are: (10% / (100% + 10%)) * ($1,000 + $50) = ~9% * $1,050 = ~$95.

The PE firm receives: Exit Equity Value of $1,000 + $50 in Cash – $95 in Proceeds to Management, which equals $955.

As a result, its IRR and MoM multiple will decline slightly, but the difference is *very* small.

6. How do add-on acquisitions affect the IRR and financial statements in an LBO?

With add-on acquisitions, you assume that the PE firm uses additional Debt and Equity to acquire other companies and combines them with the original company.

You'll see additional Debt and Equity on the Combined Balance Sheet and the acquired companies' revenue, expense, and cash flow contributions on the statements.

The IRR could increase or decrease depending on the numbers; higher-yielding add-on acquisitions (e.g., the EBITDA / Purchase Enterprise Value is high and above the original company's) tend to increase IRR, while lower-yielding ones tend to decrease it.

But it depends on the funding method as well: It's easier to make add-on acquisitions work, mathematically, with 100% Debt funding because the PE firm won't have to use additional Investor Equity.

7. How does a stub period affect all the calculations in an LBO model?

A "stub period" means that the deal closes not at the end of the company's fiscal year, but in between fiscal years (e.g., at the end of a quarter or a month).

If there's a stub period, you have to "roll forward" the company's last Balance Sheet to the transaction close date and make all the adjustments based on *that* Balance Sheet instead.

You also have to project the company's financial statements, or at least its cash flow and Debt repayment and Cash generation, for the months that comprise this stub period, and use the Balance Sheet figures from the end of the stub period for the first full year in the model.

You also have to use XIRR rather than IRR to calculate the deal's IRR because of this irregular period in the beginning.

8. Walk me through the impact of a $1,000 Shareholder Loan with 10% PIK Interest, and explain why PE firms use Shareholder Loans in leveraged buyouts.

A Shareholder Loan lets a PE firm label its Investor Equity "Debt" and use it to reduce the company's taxes. 10% PIK Interest lets a PE firm "deduct" for tax purposes a 10% IRR per year.

On the Income Statement, you record 10% * $1,000 = $100 in PIK Interest initially, and add back that $100 on the CFS since it is non-cash. This $100 in PIK Interest accrues to the Shareholder Loan's principal.

The Shareholder Loan keeps increasing each year, as does the PIK Interest shown on the Income Statement. The company's taxes decrease because this PIK Interest is a tax-deductible non-cash expense.

Upon exit, this "Shareholder Loan" still counts as Equity, so the PE firm must repay all the real Debt first, and it still earns the Equity Proceeds. The only difference is that you'll allocate a portion of the Equity Proceeds to this Shareholder Loan.

9. In an LBO scenario, are the Preferred Stock investors better off with a 12% coupon rate and no equity participation or a 10% coupon rate and 1% of the company's Equity upon exit?

In most cases, the investors will be better off with the 10% coupon rate and 1% of the company's Equity upon exit.

This is because the Preferred Stock investors **do not contribute any Equity in the beginning to *get* this 1% stake**.

The 1% equity participation option would be worse *only* if the Exit Equity Proceeds correspond to an IRR of *less than* 2%, which is possible but unlikely.

10. How do Subordinated Notes with Call Premiums affect a PE firm's exit strategy in a leveraged buyout?

Call Premiums make it more expensive to repay Debt principal early – for example, the company might have to repay 105% or 103% of the principal rather than 100%.

These Premiums are higher in the early years after the Debt is issued and decline over time.

As a result, they incentivize a PE firm to hold onto a company for a longer period rather than selling it for a "quick flip" – as doing so would result in higher Call Premium Fees and less in Equity Proceeds to the PE firm.

11. Explain what happens on the financial statements when a 10-year Subordinated Note with a par value of $1,000 is issued for $950. Assume no principal repayments.

You must recognize an **Original Issue Discount (OID)** in this case. Initially, you record the Subordinated Notes on the Balance Sheet at a value of $950.

Then, you amortize the OID over 10 years, so that there's $5 in amortization each year on the Income Statement (which gets added back on the CFS), and so that the Subordinated Notes increase by $5 each year ($955, $960, etc.).

The company pays *interest expense* based on the Subordinated Note's constant face value of $1,000, so the OID amortization does **not** affect the company's true cash expenses at all.

12. What if a $1,000 par-value Term Loan A is issued for $950 and there are 20% annual principal repayments and no optional repayments?

You record the Term Loan A on the Balance Sheet at an initial value of $950, and its face value is $1,000, which decreases by $200 per year as the company repays the principal.

With principal repayments, you amortize the OID more quickly, based on the % of the Beginning Debt Principal that is repaid each year.

In the first year, for example, you amortize $50 / 5 = $10 of the OID since the initial OID balance is $50 and the remaining term of the Term Loan is 5 years at the start of that year.

But you also have to recognize a "Loss on Unamortized OID on Repayment" equal to the $200 Repayment / $1,000 Beginning Balance times the OID balance *after* the amortization above.

This number equals 20% * ($50 – $10), or 20% * $40 = $8.

As a result, the OID Ending Balance is $50 – $10 – $8 = $32, and the ending book value of the Debt this first year is $1,000 – $200 + $10 + 8 = $818.

You record both these components of OID Amortization on the Income Statement and also add them back as non-cash expenses on the Cash Flow Statement.

This process continues, with less and less of the OID amortizing each year, until the Term Loan A is repaid in full in Year 5.

The Interest Expense is always based on the **face value** of the Debt, not the book value – so it would be based on $1,000, $800, $600, $400, and $200 in this case.

13. How do Cash Flow Sweeps affect Debt repayment in an LBO?

A Cash Flow Sweep specifies that a certain percentage of the company's excess cash flow *must* be used to repay Debt in a given year.

If there's a 50% Cash Flow Sweep for Term Loan A, for example, it means that *after* the company has made its mandatory repayments on the Term Loan, it must also use 50% of its excess cash flow to repay even more of Term Loan A.

Cash Flow Sweeps rarely make a big impact on the model, but they complicate the optional Debt repayment formulas because you use some smaller percentage of the company's excess cash flow, rather than *everything*, to repay Debt.

Return to Top.