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Overview and Key Rules of Thumb

The **leveraged buyout model (LBO model)** is a more advanced topic, and you may not necessarily get many questions about it in entry-level investment banking interviews.

But it is still important to understand at least the concept and how a simple model works, because anything is fair game for interviews – even if you don't have an accounting or finance background.

If you're interviewing for private equity roles, LBO-related questions will comprise the majority of technical questions, so you should know everything in this section like the back of your hand. And if you're interviewing for more a more technical group in banking, such as Leveraged Finance, LBO-related questions are also likely.

Since the LBO model is a more advanced topic, you may be tempted to memorize the most common questions and answers… but we would strongly recommend **against** that.

Just like with accounting, valuation, DCF, and merger model questions, interviewers can easily put a twist on the traditional questions and ask something that throws you off – but if you understand the **concepts**, you'll be in good shape anyway.

Here are the key topics you need to know:

1. **What** is an LBO, and why does it work?
2. How do you make **basic model assumptions** in an LBO?
3. How do you **project** the financial statements in an LBO and pay off debt?
4. How do you calculate **returns** and determine what influences returns?
5. What are **more advanced** LBO features that you might see?

If you're interviewing for equity research, asset management, or hedge fund roles, the LBO model is less important because you don't work with **transactions** (i.e. buying and selling entire companies) as much there.

But it's still good to know the basics so that you can understand what happens when a company you're following gets sold to a private equity firm.

Key Rule #1: What Is an LBO and Why Does It Work?

Most people compare a **leveraged buyout** to buying a house with a down payment and a mortgage, living in that house for years, and then selling it at the end of the period.

We think there is a better analogy to use: rather than buying a house and living in it yourself, think about it in terms of buying a **house to rent out to other people**.

Let's say that you want to buy your first property, a single-family home, for $500,000. You want to operate it for a few years, and then sell it for a higher value in the future.

You've saved up a lot of money and you have a high-paying job, so there are two ways you could purchase the house:

1. Pay for it with **100% cash**, i.e. $500,000 in cash, upfront.
2. Pay for it with **30% cash** ($150,000) as the down payment and take out a mortgage for the rest ($350,000). The mortgage has an interest rate of 5%, and you'll need to repay the principal evenly over 40 years (normally this is 20-30 years but we're using cleaner numbers here).

It may seem like option #1 is clearly better – after all, you don't have to pay off interest or pay off the debt itself!

…But it's not that simple, because you will also **earn income** from this property, and you can use that income to pay the interest on the debt and to repay the debt itself.

So here's the real question you need to ask: **Are you better off paying *less* in cash up-front and using the property's income to pay off interest and debt principal, or are you better off paying *more* in cash up-front and keeping all that income for yourself?**

Let's see how the numbers compare, using these assumptions:

- House value of $500,000, with rental income of $35,000 per year (7% yield).
- **Scenario 1:** Buy it with 100% cash.
- **Scenario 2:** Buy it with 30% cash and 70% debt, and 5% interest on the debt with 2.5% principal repayment each year (paid off over 40 years).
- We can sell the house for **$550,000** at the end of the 5-year period, and we must use the proceeds to repay the remaining mortgage.
- We'll ignore fees and taxes in the interest of simplicity.

Here's what Scenario #1 looks like:

	Scenario 1 - 100% Cash Purchase:					
	Cash Used:		100.0%	$ 500		
	Debt Used:		0.0%	-		
Revenue and Expenses:	**Purchase**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Rental Income:	$ -	$ 35	$ 35	$ 35	$ 35	$ 35
Interest Payments:	-	-	-	-	-	-
Debt Principal Payments:	-	-	-	-	-	-
Purchase or Sale of Property:	(500)	-	-	-	-	550
Net Cash Flow:	**$ (500)**	**$ 35**	**$ 35**	**$ 35**	**$ 35**	**$ 585**
	Return Multiple:					**1.5 x**
	Internal Rate of Return (IRR):					**9%**

Not bad. We get 1.5x our money back over 5 years, and we end up with a **9% internal rate of return (IRR)** – in other words, we would have had to have invested the $500K and earned 9% interest, compounded annually, to achieve this same result otherwise.

Maybe we could do better in the stock market, but a 9% return is decent and is much better than getting 1% or 2% in a savings account at a bank. But now consider what this looks like with only **30% cash** used:

	Scenario 2 - 30% Cash Purchase:					
	Cash Used:		30.0%	$ 150		
	Debt Used:		70.0%	350		
Revenue and Expenses:	**Purchase**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Rental Income:	$ -	$ 35	$ 35	$ 35	$ 35	$ 35
Interest Payments:	-	(18)	(18)	(18)	(18)	(18)
Debt Principal Payments:	-	(9)	(9)	(9)	(9)	(9)
Purchase or Sale of Property:	(150)	-	-	-	-	244
Net Cash Flow:	**$ (150)**	**$ 9**	**$ 9**	**$ 9**	**$ 9**	**$ 253**
	Return Multiple:					**1.9 x**
	Internal Rate of Return (IRR):					**15%**

Our returns have improved **significantly**, because we've only paid $150K in cash in the beginning rather than $500K.

While we have to pay for interest and debt principal and then pay off the remaining debt principal at the end, overall we still perform much better.

We earn close to **2x** our initial investment back, and the IRR is 15% rather than 9% – and for the average person, it would be extremely difficult to earn 15% year after year with an investment of that size in the stock market.

The returns go up because reducing the amount of cash you pay *up-front* for an asset has a disproportionate effect on your returns… since money *today* is worth more than money *tomorrow*.

Private equity firms do the same exact thing, but with entire companies rather than properties or houses: they buy the company using a combination of **debt** and **equity** (cash), and then they sell it 3-5 years into the future to realize a return.

And just like how we used the home's rental income to pay off interest and debt principal, the PE firm uses the company's cash flows to pay off interest and debt principal.

So why does an LBO work? There are three key reasons:

1. By using debt, you reduce the **up-front cash payment** for the company, which boosts your returns.
2. Using the company's cash flows to **repay** debt principal and pay interest also produces a better return than keeping the cash flow.
3. You **sell the company** in the future, which allows you to gain back the majority of the funds you spent to acquire it in the first place.

Unlike a merger model, you are **not** assuming that the PE firm keeps the company it acquires for the long-term. If it did that, realizing solid returns (above 15%) would be impossible.

It pays to use as much debt as the company's cash flow can possibly support, and to maximize the price when you go to sell the company in the future.

The Mechanics of an LBO

Here's how it works:

1. The private equity firm calculates how much it will cost to **acquire** all the shares outstanding of the company (if it's public) or to simply acquire the company (if it's private).
2. To **raise the funds**, the PE firm will use a small amount of its cash on-hand (almost always less than 50% of the company's total value) and then raise debt from investors to pay for the rest…
3. …And it can **raise debt from investors** because it says to them, "We're using the debt to buy an *income-generating asset* – this company. And we'll

repay everything because we'll sell this company in the future and use the proceeds to pay you back."

4. The PE firm raises the debt from investors, and then it combines that cash with its own cash to **acquire** the company.
5. The PE firm **operates** the company for years into the future, and uses its cash flow to pay the interest and repay the principal on the debt that it borrowed to buy the company.
6. Then at the end of 3-5 years, the PE firm **sells the company** or takes it public via an IPO and realizes a return like that.

It is very similar to the process of buying a house using a down payment and a mortgage, with the key difference being the **magnitude**: (most) companies are much more valuable than (most) houses.

What Makes for a Good LBO Candidate?

There are a few characteristics that private equity firms look for when buying companies – ideal candidates should:

- Have **stable** and predictable cash flows (so they can repay debt);
- Be **undervalued** relative to peers in the industry (lower purchase price);
- Be **low-risk** businesses (debt repayments);
- Not have much need for ongoing investments such as **CapEx**;
- Have an opportunity to **cut costs** and increase margins;
- Have a strong **management** team;
- Have a **solid base of assets** to use as collateral for debt.

The first point about **stable cash flows** is the most important one. This is why leveraged buyouts rarely happen in industries like oil, gas, and mining, where commodity prices can change dramatically and push cash flows up or down by 50-100% in a year.

The rest of the points are all related to boosting cash flow, optimizing debt repayment, and getting as a high price as possible when the PE firm sells the company.

Key Rule #2: How to Make Basic Model Assumptions

You need to do 3 major things here:

1. Assume a **purchase price** and the amount of debt and equity you'll be using.
2. Figure out the **debt terms**, including interest rates and annual repayment.
3. Create a **Sources & Uses** schedule that tracks where your funds are coming from, and where they're going to.

For the purchase price, you would use all the standard methodologies and also look at the **premium** if it's a public company; you focus on **Equity Value** because you need to acquire all the outstanding shares of a public company.

The percentages of debt and equity would be based on recent, similar deals as well as what lenders will go for – if you propose 90% debt, for example, that might be too aggressive and risky for them.

Here's what these basic assumptions might look like for a leveraged buyout:

Transaction Assumptions & Model Output Summary			
Current Share Price:	$ 58.78	Equity Value @ Purchase Price:	$ 5,286
Offer Premium:	16.5%	Funds Required:	$ 6,452
Offer Price Per Share:	$ 68.50		
% Debt:	75.0%	Debt Required:	$ 4,839
% Equity:	25.0%	Equity Used:	$ 1,613
Enterprise Value @ Purchase Price:	$ 6,074	EBITDA Purchase Multiple:	9.7 x

Interest rates and annual repayments depend on the type of debt you want to use and what's going on in the market.

Bank debt generally has lower interest rates as well as 10-20% annual principal repayment – it's "less risky" since it's secured by collateral; **high-yield debt**, by

contrast, tends to have higher interest rates and no annual repayment because it's unsecured and therefore riskier, and investors will demand higher returns as a result.

There are other differences as well. For example, bank debt has **maintenance covenants** (e.g. Total Debt / EBITDA must always be below 4x, or EBITDA / Interest Expense must always be above 2x), whereas high-yield debt has **incurrence covenants** (e.g. the company cannot acquire another company and cannot sell off assets).

Normally in an LBO, you'll look at several different combinations of debt and assess what makes the most sense for the company you're acquiring:

- What's the **Leverage Ratio (Debt / EBITDA)**? Is it too high or too low relative to other companies?
- What's the **Interest Coverage Ratio (EBITDA / Interest)?** Is that too high or too low relative to other companies?
- Is the company planning a major expansion or acquisition that would limit the types of debt it can take on?
- What are lenders comfortable with? Will it be more / less difficult to get investors on board with certain debt structures?

There's a lot that goes into it, and there's no simple rule you can apply to determine the "best" structure. Here's what the debt assumptions might look like for the same LBO example we used above:

Debt Assumptions			
Debt Percentages:		**Debt Amounts:**	
Total Debt Percentage:	75.0%	Total Debt Required:	$ 4,839
Bank Debt:	55.0%	Bank Debt:	2,662
High-Yield Debt:	45.0%	High-Yield Debt:	2,178
Bank Debt Interest Rate:	6.0%	Bank Debt Principal Repayment %:	1.0%
High-Yield Debt Interest Rate:	9.0%	High-Yield Debt Principal Repayment %:	0.0%

Notice how the bank debt has a **lower interest rate** and **higher principal repayments** (though the 1% is still very low there), and how the high-yield debt has no principal repayments.

Sources & Uses

Once you've determined everything above, you create a **Sources & Uses** schedule that shows where the transaction funding is coming from, and where it's going to.

Common Sources of Funding:	Common Uses of Funding:
• Debt (all types) • Investor Equity (cash from the PE firm) • Debt Assumed	• Equity Value of Company • Advisory, Legal, Financing, and Other Fees • Debt Assumed • Refinanced Debt

It probably makes intuitive sense to include Debt and Cash from the PE firm in the "Sources" column – after all, that's how the firm pays for the deal.

The Uses column consists of anything that you **use those funds for** – the vast majority of the funds goes to pay for the company itself, but there are also lots of fees there…

…and the possibility of having to **refinance existing debt** – in other words, pay off the company's debt when the PE firm acquires it.

Most of the time, the PE firm **must** pay off any existing debt when it buys a company because the terms of the debt state that it must be repaid when the company is acquired. But it is not a hard-and-fast requirement.

If the PE firm **assumes** the debt instead, it records it in both the Sources and Uses columns and the existing debt remains on the company's Balance Sheet afterward.

If the PE firm assumes the debt, it has no impact on the total funds it must raise; if it pays off the debt, it increases the funds required.

You can see the impact for yourself in the Sources & Uses table below:

Sources & Uses of Funds				
Sources:			**Uses:**	
Bank Debt:	$ 2,662		Equity Value of Company @ Purchase Price:	$ 5,286
High-Yield Debt:	2,178		Refinance Existing Debt:	1,105
Assume Existing Debt:	-		Assume Existing Debt:	-
Investor Equity:	1,613		Advisory Fees:	13
Total Sources:	**$ 6,452**		Financing Fees:	48
			Total Uses:	**$ 6,452**

Since the PE firm is refinancing this company's existing debt, that increases the **funds required** to complete the deal by $1.1 billion.

Do You Pay the Equity Value or Enterprise Value to Acquire a Company in a Leveraged Buyout?

Neither one! At least, not *exactly* either one – it depends on what you do with the company's existing Debt:

- **Assume Existing Debt:** In this case, the effective purchase price will be closer to the company's Equity Value (but not the same due to cash).
- **Repay Existing Debt:** Here, the effective purchase price will be closer to the company's Enterprise Value (but not the same due to cash).

This is a little confusing, but that's how it works. And if you understand these concepts, you'll be well-ahead of other interviewees who have no idea how to explain this.

Key Rule #3: How to Project the Statements and Pay Off Debt

Ideally, you can re-use the existing financial statements that you've already built for the company rather than re-inventing the wheel here.

Projecting the full financial statements goes beyond the scope of this interview guide and gets into the concepts covered in our financial modeling courses – but here are a few quick guidelines, starting with the Income Statement:

- **Revenue Growth:** You generally want this to decline over time (e.g. 10% initially down to 5% in Year 5).
- **EBIT / EBITDA Margins:** These should stay in the same range each year.
- **Balance Sheet Items:** Many of these can be percentages of revenue, COGS, or Operating Expenses; you can use historical averages.
- **Depreciation & Amortization and Other Non-Cash Charges:** Historical averages and percentages of revenue.
- **Capital Expenditures:** Make it a percentage of revenue, use a historical average, or assume a fixed dollar amount growth each year.

Here's what these assumptions look like in our sample LBO model:

	Historical			Projections				
	Prior Year 2	Prior Year 1	Last Year	Year 1	Year 2	Year 3	Year 4	Year 5
Revenue Growth %:	16.6%	6.1%	1.3%	5.0%	5.0%	4.0%	4.0%	3.0%
COGS % Revenue:	48.5%	44.4%	43.4%	45.5%	45.5%	45.5%	45.5%	45.5%
SG&A % Revenue:	24.2%	26.7%	28.2%	26.4%	26.4%	26.4%	26.4%	26.4%
R&D % Revenue:	4.0%	4.6%	4.5%	4.4%	4.4%	4.4%	4.4%	4.4%
Stock-Based Compensation % Revenue:	1.4%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%
Depreciation & Amortization % Revenue:	7.8%	8.8%	8.8%	8.5%	8.5%	8.5%	8.5%	8.5%
Effective Cash Interest Rate:	2.4%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%
Amortization of Intangibles:	25	41	37	51	51	45	40	40
Change in Operating Assets and Liabilities % Revenue:	0.9%	(3.1%)	(6.2%)	(2.8%)	(2.8%)	(2.8%)	(2.8%)	(2.8%)
CapEx % Revenue:	7.0%	5.2%	4.3%	5.5%	5.5%	5.5%	5.5%	5.5%

Income Statement									
		Historical			Projections				
	Prior Year 3	Prior Year 2	Prior Year 1	Last Year	Year 1	Year 2	Year 3	Year 4	Year 5
Revenue:	$ 1,610	$ 1,878	$ 1,993	$ 2,018	$ 2,119	$ 2,225	$ 2,314	$ 2,406	$ 2,478
Cost of Goods Sold:		912	885	876	963	1,011	1,052	1,094	1,126
Gross Profit:		966	1,108	1,142	1,156	1,213	1,262	1,312	1,352
Operating Expenses:									
Selling, General & Administrative:		455	532	568	559	587	610	635	654
Research & Development:		76	92	90	93	97	101	105	108
Amortization of Intangibles:		25	41	37	51	51	45	40	40
Total Operating Expenses:		556	665	696	702	735	757	779	802
Operating Income:		410	442	446	453	478	505	533	550
Interest Income:		6	1	1	1	0	0	0	0
Interest Expense - Existing Debt:		(81)	(105)	(87)	-	-	-	-	-
Interest Expense - New Debt:		-	-	-	(344)	(329)	(320)	(310)	(298)
Pre-Tax Income:		335	338	360	109	150	185	223	252
Income Tax Provision:		109	106	100	38	52	65	78	88
Net Income:		$ 227	$ 233	$ 261	$ 71	$ 97	$ 120	$ 145	$ 164
EBITDA:		$ 556	$ 618	$ 624	$ 633	$ 667	$ 701	$ 737	$ 760

Once you have the key financial statement line items for the period you're projecting, you can use the numbers to calculate **how much debt the company pays off each year**.

Calculating Free Cash Flow

In the context of an LBO model, "Free Cash Flow" means **Cash Flow from Operations minus CapEx**. That is slightly different from the definitions used for Levered FCF and Unlevered FCF in the DCF section of the guide.

Here it really means: "How much cash do we have available to repay **debt principal each year**, after we've already paid for our normal expenses and for the interest expense on that debt?"

IF there are other **recurring items** in the Cash Flow from Investing and Cash Flow from Financing sections (e.g. investment purchases or sales each year), you may include those here as well – but it's **not** particularly common to see them in an LBO model.

Here's what the calculations and projections look like in our model:

Cash Flow Statement	Historical			Projections				
	Prior Year 2	Prior Year 1	Last Year	Year 1	Year 2	Year 3	Year 4	Year 5
Operating Activities:								
Net Income:	**$ 227**	**$ 233**	**$ 261**	**$ 71**	**$ 97**	**$ 120**	**$ 145**	**$ 164**
Depreciation & Amortization:	146	176	178	180	188	196	204	210
Stock-Based Compensation:	26	33	33	33	35	36	37	38
Change in Operating Assets & Liabilities:	17	(61)	(125)	(59)	(62)	(65)	(67)	(69)
Cash Flow from Operations:	**416**	**380**	**346**	**224**	**258**	**288**	**319**	**343**
Investing Activities:								
Capital Expenditures:	(131)	(103)	(86)	(116)	(122)	(127)	(132)	(136)
One-Time and Other Items:	(1,756)	(50)	(8)	-	-	-	-	-
Cash Flow from Investing:	**(1,887)**	**(153)**	**(94)**	**(116)**	**(122)**	**(127)**	**(132)**	**(136)**
Free Cash Flow:				**108**	**136**	**161**	**187**	**208**

Remember from the Accounting section that since interest on debt is **tax-deductible**, it shows up on the Income Statement, **NOT** the Cash Flow Statement.

So we've already factored in interest by the time we calculate Free Cash Flow here, and it's unnecessary to include it anywhere on the Cash Flow Statement.

Once you've calculated FCF, the logic to repay Debt is straightforward:

- Make any **mandatory repayments** first. For example, if you are **required** to pay off $100 million each year on one tranche of debt, that always has to come first, before anything else.
- Then, with the remaining cash flow available, make **optional repayments**. So if you're left with $50 million after making all the mandatory repayments, you can repay additional debt principal with that $50 million.

There's a bit more to it than this because of the following factors:

- Most companies have a **minimum cash balance** that needs to be maintained at all times – they always need cash to pay employees and cover general operating expenses. So you can't assume that 100% of its cash flow goes into repaying debt.
- Not **all** types of debt can be repaid early – it's allowed with bank debt, but not with high-yield debt.
- The company may not have **enough** cash flow for its minimum mandatory debt repayments, in which case it would need to **borrow** more via a Revolver (sort of like a credit card for a company) to make the mandatory repayments.

Debt & Interest Schedules								
	Historical			Projections				
	Prior Year 2	Prior Year 1	Last Year	Year 1	Year 2	Year 3	Year 4	Year 5
Beginning Bank Debt:				$ 2,662	$ 2,287	$ 2,151	$ 1,990	$ 1,802
Mandatory Repayment:				(27)	(27)	(27)	(27)	(27)
Optional Repayment:				(348)	(110)	(134)	(161)	(181)
Ending Bank Debt:				**2,287**	**2,151**	**1,990**	**1,802**	**1,595**
Beginning High-Yield Debt:				$ 2,178	$ 2,178	$ 2,178	$ 2,178	$ 2,178
Mandatory Repayment:				-	-	-	-	-
Optional Repayment:				-	-	-	-	-
Ending High-Yield Debt:				**2,178**	**2,178**	**2,178**	**2,178**	**2,178**
Interest Paid on New Debt:				$ (344)	$ (329)	$ (320)	$ (310)	$ (298)
Existing Debt Balance:				-	-	-	-	-

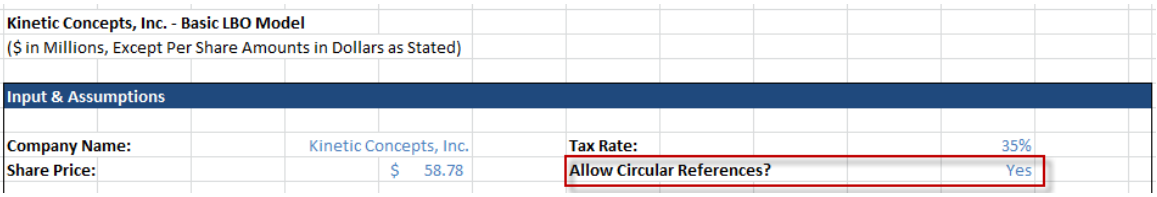
Interest Payments and Circular References

One final note before we move on: the **interest expense** on the Income Statement in an LBO model depends on how much Debt is paid off over the course of a year – because the company pays interest each quarter or each month.

So normally in models you **average** the beginning and ending Debt balances to determine the annual interest expense – but that also creates a **circular reference** because the *ending* Debt balance depends on how much cash flow you had, *after* paying for interest… but the interest itself depends on the ending Debt balance!

You can leave that in, but to simplify models you can base the interest expense on only the **beginning** Debt balance each year to get around this problem.

That's the purpose of the "Allow Circular References?" field at the very top of our model:



If that is set to "Yes," we average the beginning and ending Debt balances each year to calculate interest; otherwise, if it's set to "No," we use the beginning balances instead.

Key Rule #4: How to Calculate Returns

Calculating returns is very similar to what we did in the example at the top for buying, renting out, and selling a house:

- The **equity** (cash) that the PE firm puts down at the beginning is a negative…

- Any **cash or dividends** issued to the PE firm throughout the period are positive (most of the time this is $0 because the PE firm uses all available cash flow to repay debt)…
- And the **sale proceeds minus the debt outstanding** at the end are also positive and represent what the PE firm "gets" when it sells the company.

You set all that up in Excel, as shown below, and use the IRR function to calculate the internal rate of return:

Investor Returns								
	Historical			Projections				
	Prior Year 2	Prior Year 1	Last Year	Year 1	Year 2	Year 3	Year 4	Year 5
EBITDA:			$ 624					$ 760
EBITDA Multiple:			9.7 x					10.0 x
Enterprise Value:			6,074					7,602
Investor Equity:			(1,613)	-	-	-	-	3,880
Cash-on-Cash Return (Returns Multiple):			2.4 x					
IRR:			19.2%					

What does this number – the "IRR" – actually mean?

It's telling us, "If we invested this initially amount of money and got **this specific interest rate, compounded each year**, we'd end up with the total amount of money shown in the final year at the end of the period."

So the **internal rate of return (IRR)** is just the **effective interest rate on this investment**.

If the PE firm receives cash or dividends from the company, those would **increase** the IRR because they'd boost the total amount of funds received by the firm.

Determining the Exit Assumptions

The "down payment" in the beginning is straightforward because it comes directly from the Sources & Uses schedule; cash and dividends received also come straight from the company's financial statements, so there is nothing complicated there.

But how do you determine **how much the company can be sold for**? We glossed over this part in the rental house example above and just assumed that its value increased 10% over 5 years.

In an LBO model, you assume an **exit EBITDA multiple** for the company, usually close to or below the **purchase EBITDA multiple**. For example, if the PE firm acquired the company for 10x EV / EBITDA, maybe you'll assume that they can sell it for 8 – 10x EV / EBITDA and show a range of different outcomes based on those numbers.

Once you calculate the Enterprise Value, you work backwards to calculate the Equity Value based on the company's Cash, Debt, Preferred Stock, and other Balance Sheet items that factor into the calculation.

Mental Math and Rules of Thumb

Especially in private equity interviews, they may ask you to calculate an approximate IRR in your head based on various assumptions. Here are a few rules of thumb you can apply to calculate IRR quickly:

- If a PE firm **doubles** its money in 5 years, that's a 15% IRR.
- If a PE firm **triples** its money in 5 years, that's a 25% IRR.
- If a PE firm **doubles** its money in 3 years, that's a 26% IRR.
- If a PE firm **triples** its money in 3 years, that's a 44% IRR.

Time plays a huge factor here and if a PE firm can get a good price for a company early on, it will almost always sell the company earlier rather than later.

Here's an example of how you can use these rules to approximate IRR:

- A PE firm buys a company with no existing cash or debt for $1 billion, at an EV / EBITDA multiple of 10x.
- They use 50% debt and 50% equity.

- At the end of a 5-year period, they sell the company for the same 10x EBITDA multiple, but its EBITDA has grown to $150 million.
- It has also paid off $100 million worth of debt.

Here, you can say that Enterprise Value roughly equals Equity Value equals $1 billion in the beginning. The PE firm therefore puts down $500 million in cash in the beginning and uses $500 million of debt. At the end, they sell it for $1.5 billion, and they must repay $400 million worth of debt, so their net proceeds are $1.1 billion.

They've **more than doubled** their money over a 5-year period ($1 billion in net proceeds would be doubling it), so you can estimate this IRR as "just over 15%" or guesstimate it as 16-18%. The actual IRR is 17.1%.

What Affects the IRR in an LBO?

These variables make the greatest impact on IRR in a leveraged buyout:

1. Purchase Price
2. % Debt and % Equity Used
3. Exit Price

Other factors include the revenue growth rate, EBITDA margins, interest rates, and anything else that affects **cash flow** on the financial statements.

- **Changes That Increase IRR:** *Lower* Purchase Price, *Less* Equity, *Higher* Revenue Growth, *Higher* EBITDA Margins, *Lower* Interest Rates, *Lower* CapEx
- **Changes That Reduce IRR:** *Higher* Purchase Price, *More* Equity, *Lower* Revenue Growth, *Lower* EBITDA Margins, *Higher* Interest Rates, *Higher* CapEx

Know these rules and you'll be able to answer all related questions effectively.

When in doubt, ask yourself: **will this change *boost* cash flow?** If the answer is "yes," then it will increase returns. Otherwise, it will decrease returns.

Here's what a few sensitivity tables based on these variables might look like:

Sensitivity Analysis - 5-Year IRR and Purchase Premium vs. Exit Multiple:

Purchase Premium / Per-Share Price			EBITDA Exit Multiple:								
			8.0 x	8.5 x	9.0 x	9.5 x	10.0 x	10.5 x	11.0 x	11.5 x	12.0 x
$	76.41	30.0%	(1.6%)	2.6%	6.1%	9.3%	12.1%	14.7%	17.0%	19.2%	21.2%
$	73.48	25.0%	2.1%	5.9%	9.2%	12.1%	14.8%	17.2%	19.4%	21.5%	23.5%
$	70.54	20.0%	5.6%	9.0%	12.1%	14.9%	17.4%	19.7%	21.8%	23.9%	25.7%
$	67.60	15.0%	8.9%	12.1%	15.0%	17.6%	20.0%	22.2%	24.3%	26.2%	28.0%
$	64.66	10.0%	12.1%	15.1%	17.8%	20.3%	22.6%	24.7%	26.7%	28.6%	30.4%
$	61.72	5.0%	15.2%	18.1%	20.6%	23.0%	25.2%	27.3%	29.2%	31.0%	32.7%
$	58.78	0.0%	18.1%	20.8%	23.2%	25.5%	27.6%	29.6%	31.5%	33.3%	35.0%

Sensitivity Analysis - 5-Year IRR and Purchase Premium vs. % Debt:

Purchase Premium / Per-Share Price			% Debt:								
			55.0%	60.0%	65.0%	70.0%	75.0%	80.0%	85.0%	90.0%	95.0%
$	76.41	30.0%	9.2%	9.7%	10.3%	11.0%	12.1%	13.6%	16.0%	20.1%	29.8%
$	73.48	25.0%	10.8%	11.5%	12.3%	13.4%	14.8%	16.7%	19.8%	25.0%	36.9%
$	70.54	20.0%	12.6%	13.4%	14.4%	15.7%	17.4%	19.8%	23.4%	29.6%	43.2%
$	67.60	15.0%	14.3%	15.3%	16.5%	18.0%	20.0%	22.8%	26.9%	33.9%	48.9%
$	64.66	10.0%	16.1%	17.2%	18.6%	20.3%	22.6%	25.7%	30.3%	38.0%	54.2%
$	61.72	5.0%	17.9%	19.2%	20.7%	22.7%	25.2%	28.7%	33.7%	42.0%	59.3%
$	58.78	0.0%	19.6%	21.0%	22.7%	24.9%	27.6%	31.4%	36.8%	45.6%	63.8%

Notice how the IRR **increases** with **lower** purchase prices, **higher** exit multiples, and **higher** percentages of debt used.

Key Rule #5: More Advanced LBO Features

In addition to everything above, there are a few more advanced features that you should familiarize yourself with.

You can skip this section for entry-level investment banking interviews, but for PE interviews and anything more advanced it's good to review.

There's even more coverage in the Advanced Questions and Answers below, but this is a good introduction to the concepts.

Dividend Recapitalizations (Dividend Recaps)

A "dividend recap" means: "This PE firm forces the company to take on additional debt and issues a big cash dividend to itself with the proceeds from that debt."

Example: The PE firm has the company raise an additional $100 million in debt, and then it takes all $100 million in cash for itself while leaving the company with the obligation to repay it. No changes to the Income Statement, but on the Balance Sheet, Debt would go up by $100 million and Retained Earnings under Shareholders' Equity would decrease by $100 million to reflect this dividend.

Dividend recaps **boost returns** because they allow the PE firm to get some of its capital back earlier on rather than waiting for the official exit.

Many debt investors do not view dividend recaps positively because they reduce the credit quality of the company while saddling it with more debt and only helping a select few (the private equity owners).

Private Companies

LBOs of private companies are similar to leveraged buyouts of public companies – the main difference is that the Purchase Price in the beginning is based on the implied value for the company rather than the premium over the company's share price.

The mechanics, exit assumptions, and net proceeds calculations all work the same way. The biggest obstacles to completing a leveraged buyout of a private company are:

1) The company **may not want to sell**, especially if it's owned by one person, and unlike with public companies the PE firm cannot "force" a sale; and
2) **Information is more limited**, so you may not even be able to assess whether or not an LBO is feasible.

Other Types of Debt

There's a full treatment of this topic in the Advanced section, but for now you should be aware that there *are* other types of debt beyond just "Bank Debt" and "High-Yield Debt."

For example, "Bank Debt" is split into different types of "Term Loans," all of which carry different principal repayment terms, interest rates, covenants, and maturities.

"High-Yield Debt" is split into Senior Notes, Subordinated Notes, and Mezzanine, which all have different seniorities, interest rates, maturities, covenants, and more.

Some debt also has a Payment-in-Kind (PIK) option for interest, in addition to traditional cash interest.

With PIK, the interest **accrues to the debt principal** rather than being paid in cash. So if you have $100 million in debt and 10% PIK interest, after the end of the first year the debt balance will be $110 million due to the $10 million of interest that just accrued.

PIK is more common with riskier forms of debt such as Mezzanine.

Less Than 100% Acquisitions

This is very similar to what we saw in the Merger Model section: when you acquire between 50% and 100% of a company, it works the same way as a standard LBO model because you now control the company.

So you still go through the Goodwill calculation, Purchase Price Allocation, create the Noncontrolling Interest, and so on.

If you acquire **less than 50%** of a company, it is no longer a true LBO because you can't "force" a company to take on debt if you don't control it.

You would model that type of scenario as a simple cash acquisition of a percentage of the company, assume an exit multiple in a future period, and then work backwards to calculate the proceeds based on that multiple and your ownership percentage.

For Further Learning

The rules above are a great start, but sometimes you need more: if you're in this position, click here to check out our Financial Modeling Fundamentals course.

You receive a $50 discount as a *Breaking Into Wall Street* member, and you get 20 hours of video tutorials along with several **bonus case studies** on real M&A deals and leveraged buyouts.

It has been one of our most popular courses year after year, and it's a great way to extend your knowledge of merger models, practice with real case studies based on leveraged buyouts involving large companies, and prepare for interviews more intensively.

Leveraged Buyout (LBO) – Excel Model

This file will be *very* useful for understanding how different variables, such as purchase and exit multiples, % debt and % equity, revenue growth, and margins impact the IRR of a leveraged buyout.

This one is not quite as useful for understanding the concept and the step-by-step process behind it, but we've been through all of that above.

Play around with these assumptions, tweak the numbers, and see how everything changes as a result – and what the results tell you about what makes LBOs viable or not viable in real life.

You can get the full model and video tutorial right here:

- Kinetic Concepts – Leveraged Buyout Excel Model and Video Tutorial

LBO Model Interactive Quiz

The interactive quiz here focuses more on the **concepts** than the math, because the concepts are more likely to come up when you receive questions on LBOs in interviews.

As with everything else in this section, this quiz is **most relevant** if you're interviewing for private equity roles or more advanced investment banking / corporate finance roles.

Once again, this quiz is divided into sections on Basic and Advanced questions, and for entry-level interviews you should focus on the Basic questions.

The Advanced questions go into a lot of depth on leveraged buyouts, but it is probably overkill unless you are interviewing at mega-funds and need all this material.

- Basic LBO Model Quiz
- Advanced LBO Model Quiz

LBO Model Questions & Answers – Basic

The field is wide open when it comes to questions on leveraged buyouts and LBO models. You need to know the basics, but it's also important to understand **how different variables affect the output** and why and how a PE firm would structure a deal in a certain way.

The "Calculating Returns" category here is more useful for private equity interviews – they're very likely to ask you how to estimate IRR quickly.

If you're just preparing for entry-level investment banking interviews, focus on the "Concept and Overview Questions" here.

Spend more time on the other categories if you've had investment banking or private equity experience, or if you're interviewing for a group that's more closely linked to private equity, such as Leveraged Finance or Financial Sponsors.

Concept and Overview Questions

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** (cash), operates it for several years, possibly makes operational improvements, and then sells the company at the end of the period to realize a return on investment.

During the period of ownership, the PE firm uses the company's cash flows to pay interest expense from the debt and to pay off debt principal.

An LBO delivers higher returns than if the PE firm used 100% cash for the following reasons:

1. By using debt, the PE firm reduces the **up-front cash payment** for the company, which boosts returns.

2. Using the company's cash flows to **repay** debt principal and pay debt interest also produces a better return than keeping the cash flows.
3. The PE firm **sells the company** in the future, which allows it to regain the majority of the funds spent to acquire it in the first place.

2. Why do PE firms use leverage when buying a company?

They use leverage to **increase their returns**.

Any debt raised for an LBO is not "your money" – so if you're paying $5 billion for a company, it's easier to earn a high return on $2 billion of your own money and $3 billion borrowed from other people than it is on $5 billion of your own money.

A secondary benefit is that the firm also has more capital available to purchase other companies because they've used debt rather than their own funds.

3. Walk me through a basic LBO model.

"In an LBO Model, Step 1 is making assumptions about the Purchase Price, Debt/Equity ratio, Interest Rate on Debt, and other variables; you might also assume something about the company's operations, such as Revenue Growth or Margins, depending on how much information you have.

Step 2 is to create a Sources & Uses section, which shows how the transaction is financed and what the capital is used for; it also tells you how much Investor Equity (cash) is required.

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

In Step 4, you project out the company's Income Statement, Balance Sheet and Cash Flow Statement, and determine how much debt is paid off each year, based on the available Cash Flow and the required Interest Payments.

Finally, in Step 5, you make assumptions about the exit after several years, usually assuming an EBITDA Exit Multiple, and calculate the return based on how much equity is returned to the firm."

4. What variables impact a leveraged buyout the most?

Purchase and exit multiples (and therefore purchase and exit prices) have the greatest impact, followed by the amount of leverage (debt) used.

A lower purchase price equals a higher return, whereas a *higher* exit price results in a higher return; generally, more leverage also results in higher returns (as long as the company can still meet its debt obligations).

Revenue growth, EBITDA margins, interest rates and principal repayment on Debt all make an impact as well, but they are less significant than those first 3 variables.

5. How do you pick purchase multiples and exit multiples in an LBO model?

The same way you do it anywhere else: you look at what comparable companies are trading at, and what multiples similar LBO transactions have been completed at. As always, you show a range of purchase and exit multiples using sensitivity tables.

Sometimes you set purchase and exit multiples based on a specific IRR target that you're trying to achieve – but this is just for valuation purposes if you're using an LBO model to value the company.

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

Ideal candidates should:

- Have **stable** and predictable cash flows (so they can repay debt);
- Be **undervalued** relative to peers in the industry (lower purchase price);

- Be **low-risk** businesses (debt repayments);
- Not have much need for ongoing investments such as **CapEx**;
- Have an opportunity to **cut costs** and increase margins;
- Have a strong **management** team;
- Have a **solid base of assets** to use as collateral for debt.

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

7. How do you use an LBO model to value a company, and why do we sometimes say that it sets the "floor valuation" for the company?

You use it to value a company by setting a targeted IRR (for example, 25%) and then back-solving in Excel to determine what purchase price the PE firm could pay to achieve that IRR.

This is sometimes called a "floor valuation" because PE firms almost always pay less for a company than strategic acquirers would.

8. 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?

The difference is that in a DCF you're saying, "What *could* this company be worth, based on the present value of its near-future and far-future **cash flows**?"

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

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

9. Give me an example of a "real-life" LBO.

The most common example is taking out a mortgage when you buy a house. We think it's better to think of it as, "Buying a house that you *rent out* to other

people" because that situation is more similar to buying a company that generates cash flow.

Here's how the analogy works:

- **Down Payment:** Investor Equity in an LBO
- **Mortgage:** Debt in an LBO
- **Mortgage Interest Payments:** Debt Interest in an LBO
- **Mortgage Repayments:** Debt Principal Repayments in an LBO
- **Rental Income from Tenants:** Cash Flow to Pay Interest and Repay Debt in an LBO
- **Selling the House:** Selling the Company or Taking It Public in an LBO

10. 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 because:

1. The PE firm **does not hold the company for the long-term** – it sells it after a few years, so it is less concerned with the higher "expense" of debt over cash and is more concerned about using leverage to boost its returns by reducing the capital it contributes upfront.
2. In an LBO, the **company is responsible for repaying the debt**, so the company assumes much of the risk. Whereas in a strategic acquisition, the buyer "owns" the debt, so it is more risky for them.

11. Why would a private equity firm buy a company in a "risky" industry, such as technology?

Although technology is "riskier" than other markets, remember that there are mature, cash flow-stable companies in almost every industry. There are PE firms that specialize in very specific goals, such as:

- **Industry Consolidation** – Buying competitors in a market and combining them to increase efficiency and win more customers.

- **Turnarounds** – Taking struggling companies and improving their operations.
- **Divestitures** – Selling off divisions of a company or turning a division into a strong stand-alone entity.

So even if a company isn't doing well or even if it seems risky, the PE firm might buy it if it falls into one of the categories that the firm focuses on.

This whole issue of "risk" is more applicable in industries where companies truly have **unstable cash flows** – anything based on commodities, such as oil, gas, and mining, for example.

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

1. Reduce the Purchase Price.
2. Increase the Exit Multiple and Exit Price.
3. Increase the Leverage (debt) used.
4. Increase the company's growth rate (organically or via acquisitions).
5. Increase margins by reducing expenses (cutting employees, consolidating buildings, etc.).

These are all "theoretical" and refer to the model rather than reality – in practice it's hard to actually *implement* these changes.

Assumptions, Debt, and Sources & Uses

1. How could you determine how much debt can be raised in an LBO and how many tranches there would be?

Usually you would look at recent, similar LBOs and assess the debt terms and tranches that were used in each transaction.

You could also look at companies in a similar size range and industry, see how much debt outstanding they have, and base your own numbers on those.

2. Let's say we're analyzing how much debt a company can take on, and what the terms of the debt should be. What are reasonable leverage and coverage ratios?

This is completely dependent on the company, the industry, and the leverage and coverage ratios for comparable LBO transactions.

To figure out the numbers, you would look at "Debt Comps" showing the types, tranches, and terms of debt that similarly sized companies in the industry have used recently.

There are *some* general rules: for example, you would never lever a company at 50x EBITDA, and even during bubbles leverage rarely exceeds 10x EBITDA.

For interest coverage ratios (e.g. EBITDA / Interest), you want a number where the company can pay for its interest without much trouble, but also not so high that the company could clearly afford to take on *more* debt.

For example, a 20x coverage ratio would be far too high because the company could easily pay 2-3x more in interest. But a 2x coverage ratio would be too low because a small decrease in EBITDA might result in disaster at that level.

3. What is the difference between Bank Debt and High-Yield Debt?

This is a simplification, but broadly speaking there are 2 "types" of Debt: "Bank Debt" and "High-Yield Debt."

There are many differences, but here are a few of the most important ones:

- High-Yield Debt tends to have **higher interest rates** than Bank Debt (hence the name "high-yield") since it's riskier for investors.
- High-Yield Debt **interest rates** are usually fixed, whereas Bank Debt interest rates are "floating" – they change based on LIBOR (or the prevailing interest rates in the economy).

- High-Yield Debt has **incurrence covenants** while Bank Debt has **maintenance covenants**. The main difference is that incurrence covenants *prevent* you from doing something (such as selling an asset, buying a factory, etc.) while maintenance covenants *require* you to maintain a minimum financial performance (for example, the Total Debt / EBITDA ratio must be below 5x at all times).
- Bank Debt is usually **amortized** – the principal must be paid off over time – whereas with High-Yield Debt, the entire principal is due at the end (**bullet maturity**) and early principal repayments are not allowed.

Usually in a sizable leveraged buyout, the PE firm uses both types of debt.

4. Wait a minute. If High-Yield Debt is "riskier," why are early principal repayments not allowed? Shouldn't investors want to reduce their risk?

This isn't the right way to think about it – remember that investors need to be **compensated** for the risk they take. And now think about what happens if early repayment is allowed:

- Initially, the investors might earn **$100 million** in interest on $1 billion worth of debt, at a 10% interest rate.
- *Without* early repayment, the investors keep getting that **$100 million** in interest each year paid directly to them.
- *With* early repayment, this **interest payment drops each year** and the investors receive increasingly less each year – and that drops their effective return.

All else being equal, debt investors want companies to keep debt on their Balance Sheets for as long as possible.

5. Why might you use Bank Debt rather than High-Yield Debt in an LBO?

If the PE firm is concerned about the company meeting interest payments and wants a lower-cost option, they might use Bank Debt.

They might also use Bank Debt if they are planning on a major expansion or Capital Expenditures and don't want to be restricted by incurrence covenants.

6. Why would a PE firm prefer High-Yield Debt instead?

If the PE firm intends to refinance the debt at some point or they don't believe their returns are too sensitive to interest payments, they might use High-Yield Debt.

They might also use High-Yield Debt if they don't have plans for a major expansion effort or acquisitions, or if they don't plan to sell off the company's assets.

7. How does refinancing vs. assuming existing debt work in an LBO model?

If the PE firm **assumes** debt when acquiring a company, that debt remains on the Balance Sheet and must be paid off (both interest and principal) over time. And it has no net effect on the funds required to acquire the company. In this case, the existing debt shows up in **both** the Sources and Uses columns.

If the PE firm **refinances** debt, it pays it off, usually replacing it with new debt that it raises to acquire the company. Refinancing debt means that **additional funds** are required, so the effective purchase price goes up. In this case, the existing debt shows up **only** in the Uses column.

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

You pay for **all** of these fees upfront in cash (legal, advisory, and financing fees paid on the debt), but the accounting treatment is different:

- **Legal & Advisory Fees:** These come out of Cash and Retained Earnings immediately as the transaction closes.
- **Financing Fees:** These are **amortized** over time (for as long as the Debt remains outstanding), very similar to how CapEx and PP&E work: you

pay for them upfront in cash, create a new Asset on the Balance Sheet, and then reduce that Asset over time as the fees are recognized on the Income Statement.

9. What's the point of assuming a minimum cash balance in an LBO?

The point is that a company *cannot* use 100% of its cash flow to repay Debt each year – it always needs to maintain a minimum amount of cash to pay employees, pay for general and administrative expenses, and so on.

So you normally set up assumptions such that any extra cash flow *beyond* this minimum cash balance is used to repay debt.

Projecting and Adjusting the Financial Statements

1. Can you explain how the Balance Sheet is adjusted in an LBO model?

First, the Liabilities & Equity side is adjusted – the new debt is added, and the Shareholders' Equity is "wiped out" and replaced by however much Investor Equity the private equity firm is contributing (i.e. how much cash it's paying for the company).

On the Assets side, Cash is adjusted for any cash used to finance the transaction and for transaction fees, and then Goodwill & Other Intangibles are used as a "plug" to make the Balance Sheet balance.

There will also be all the usual effects that you see in transactions: Asset Write-Ups and Write-Downs, DTLs, DTAs, Capitalized Financing Fees, and so on.

2. Why are Goodwill & Other Intangibles created in an LBO?

These both represent the premium paid to the Shareholders' Equity of the company. In an LBO, they act as a "plug" and ensure that the changes to the Liabilities & Equity side are balanced by changes to the Assets side.

So if the company's Shareholders' Equity was originally worth $1 billion and the PE firm pays $1.5 billion to acquire the company, roughly $500 million in Goodwill & Other Intangibles will be created.

3. How do you project the financial statements and determine how much debt the company can pay off each year?

The same way you project the financial statements anywhere else: assume a revenue growth rate, make key expenses a percentage of revenue, and then tie Balance Sheet and Cash Flow Statement items to revenue and expenses on the Income Statement – and to historical trends.

To project the cash flow available to repay debt each year, you take Cash Flow from Operations and subtract CapEx.

Just as in the DCF analysis, you assume that other items in the Investing and Financing sections are non-recurring and therefore do not impact future cash flows.

Note that this calculation only determines how much in **debt principal** the company could potentially repay – interest expense has already been factored in on the Income Statement, and its impact is already reflected in the Cash Flow from Operations number.

4. Is it really accurate to use *Levered* Free Cash Flow to determine how much debt can be repaid? Can't you reduce CapEx spending after a leveraged buyout?

First off, this metric of Cash Flow from Operations – CapEx is not *exactly* Levered Free Cash Flow: normally with Levered FCF you subtract mandatory debt repayments as well.

Assuming that CapEx (or any other big expenses) can be reduced post-LBO is dangerous because CapEx, in theory, drives **revenue growth**.

So if you reduce CapEx and claim that it's not truly necessary, can you still make the same assumptions about the company's revenue growth?

5. What if the company has existing debt? How does that affect the projections?

If the company has existing debt and the PE firm **refinances** it (pays it off), it's a non-factor because it goes away. If the PE firm **assumes** the debt instead, you need to factor in interest and principal repayments on that debt over future years.

Normally you do this by assuming that *existing* debt principal is paid off first after you've calculated Cash Flow from Operations minus CapEx. Then, you can use any remaining cash flow after that to pay off debt principal for new debt raised in the LBO.

6. What's the proper repayment order if there are multiple tranches of debt?

As mentioned above, normally you assume that **existing debt** on the Balance Sheet gets repaid first.

After that, it depends on the **seniority** of the debt and also whether or not the debt *can* even be repaid early. For example, typically you are not allowed to repay High-Yield Debt before its maturity date.

So if you have a Revolver (sort of like a "credit card" for a company) and then multiple Term Loans (Bank Debt), normally you'll repay the Revolver first, followed by the most senior Term Loan, and then the more junior Term Loans.

In theory you should *want* to repay the most expensive form of Debt first – but unlike with student loans, car loans, or mortgages, it's not always allowed.

7. Do you need to project all 3 statements in an LBO model? Are there any shortcuts?

Yes, there are shortcuts and you don't necessarily *need* to project all 3 statements.

For example, you do not need to create a full Balance Sheet – bankers sometimes skip this if they are in a rush. You *do* need some form of Income Statement, something to track how the Debt balances change and some type of Cash Flow Statement to show how much cash is available to repay debt.

But a full-blown Balance Sheet is not strictly required because you can make an assumption for the overall Change in Operating Assets and Liabilities rather than projecting each one separately.

8. What is meant by the "tax shield" in an LBO?

This means that the interest a firm pays on debt is **tax-deductible** – so they save money on taxes and therefore increase their cash flow as a result of the debt from the LBO.

Note, however, that the firm's cash flow is still **lower** than it would have been without the debt – saving on taxes helps, but the added interest expense still reduces Net Income by **more** than the reduced taxes helps the firm.

A lot of people get confused about this point and think that this "tax shield" is a really big deal in an LBO, but it makes a marginal difference compared to all the other variables.

Calculating Returns

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

You calculate the IRR by making the amount of Investor Equity (cash) that a PE firm contributes in the beginning a negative, and then making cash flows or dividends *to* the PE firm, as well as the net sale proceeds (basically the Equity Value) at the end, positives.

And then you can 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. You can calculate IRR manually, but it's very time-consuming.

Technically, the IRR is defined as "the discount rate at which the net present value of cash flows from the investment equals 0."

It's easier to think of it as the **effective interest rate:** If you invested that cash in the beginning and earned an interest rate of X% on it, compounded each year, you would earn the positive cash flows shown in the model.

2. What IRR do private equity firms usually aim for?

It depends on the economy and fundraising climate for PE firms, but an IRR in the 20-25% range, or higher, would be "good." It far exceeds the average annual return of the stock market, and is significantly above the yields on corporate and municipal bonds.

Sometimes PE firms will go lower and accept a 15-20% IRR, but usually they target at least 20%. Remember that private equity is a riskier and less liquid asset class than equities or bonds, so the investors *in* the private equity fund need to be compensated for that in the form of higher returns.

3. How can you estimate the IRR in an LBO? Are there any rules of thumb?

Yes, you can use these rules of thumb to come up with a quick estimate:

- If a PE firm **doubles** its money in 5 years, that's a 15% IRR.
- If a PE firm **triples** its money in 5 years, that's a 25% IRR.
- If a PE firm **doubles** its money in 3 years, that's a 26% IRR.
- If a PE firm **triples** its money in 3 years, that's a 44% IRR.

Remember that "money" here refers to **investor equity**, i.e. the amount of cash the PE firm invests and receives back, *not* to the total purchase price or exit price.

4. So can the PE firm earn a solid return if it buys a company for $1 billion and sells it for $1 billion 5 years later?

Sure – because the PE firm uses a certain percentage of Debt to buy this company in the beginning. So if they raise $500 million of Debt and only pay with $500 million of cash, and then the company pays off that $500 million of Debt over 5 years and the firm receives back $1 billion in cash at the end, that's a 15% IRR.

5. What if the *equity contributed* (investor equity) in the beginning is the same as the net proceeds to the PE firm at the end, when it sells the company?

In this case it's much tougher to earn a high IRR because the major cash inflow at the end is the same as the major cash outflow at the beginning.

If nothing else happens, the IRR would be 0% in this case. If the company issues dividends to the firm or the PE firm does a dividend recap (see the next section), then the IRR will be higher than 0%.

6. How do dividends issued to the PE firm affect the IRR?

Any dividends issued, either in the normal course of business or as part of a dividend recap, **increase IRR** because they result in the PE firm receiving more cash back.

Usually dividends make less of an impact than the 3 key variables in an LBO: purchase price, exit price, and leverage.

7. Wait, don't you need to factor in interest payments and debt principal repayments somewhere in these IRR calculations? How can you just ignore them?

You ignore them because the company uses its own cash flow to pay interest and pay off debt principal. Since the private equity firm itself is not paying for these, neither one affects its IRR.

8. Let's say that a PE firm borrows $10 million of debt to buy out a company, and then sells the company in 5 years at the same EBITDA multiple it purchased it for. If the PE firm does not pay off any debt during those 5 years, what's the IRR?

This is a trick question because you **need more information to answer it**.

If the *purchase price* were the same as the *exit price* here, the IRR would be 0%. But the question only says that the purchase *multiple* is the same as the exit *multiple*.

Most companies **grow** over a 5-year period, so EBITDA in the exit year will almost always be higher than EBITDA when the company was initially purchased.

Unless you know what the EBITDA was in both years, it's impossible to say what the IRR was. If EBITDA was initially $100 million but only grew to $110 million, that's a very low IRR… but if it grew to $200 million or $300 million, the exit price was 2-3x the purchase price and that implies a much higher IRR.

More Advanced Topics

1. What is a dividend recapitalization ("dividend recap")?

In a dividend recap, the company takes on new debt solely to pay a special dividend out to the PE firm that bought it.

It would be like if you made your friend take out a personal loan just so he/she could pay you a lump sum of cash with the loan proceeds.

Dividend recaps **boost** the IRR in a leveraged buyout because they help the PE firm to recover some of its initial investment early. They have developed a bad reputation among some lenders because the debt in this case does not actually benefit the company itself.

2. Why would a PE firm choose to do a dividend recap of one of its portfolio companies?

Primarily to boost returns. Remember, all else being equal, more leverage means a higher return to the firm.

With a dividend recap, the PE firm is "recovering" some of its equity investment in the company – and as we saw earlier, the lower the equity investment, the better, since it's easier to earn a higher return on a smaller amount of capital.

3. How would a dividend recap impact the 3 financial statements in an LBO?

No changes to the Income Statement. On the Balance Sheet, Debt goes up and Shareholders' Equity goes down, canceling each other out, so that everything remains in balance.

On the Cash Flow Statement, there would be no changes to Cash Flow from Operations or Investing, but under Cash Flow from Financing the additional Debt raised would cancel out the Dividend paid out to investors, so there would be no net change in cash.

4. How would an LBO of a private company be different?

The mechanics are the same. The only difference is that you think of the purchase price as a lump sum number rather than as a premium to the company's share price times the number of shares outstanding.

Evaluating LBOs of private companies can also be trickier because information is limited.

5. What about a buyout of a company where you only acquire a 30% stake?

This scenario is not a true leveraged buyout because a PE firm cannot "make" a company take on Debt unless it actually controls the company.

So in this case, you would model it as a simple equity investment for 30% of the company, assume that the company operates for several years, and then assume that the PE firm sells its 30% stake at the end of that period.

You would base the company's "ending" value on an EBITDA (or other) multiple, and usually you assume that it's less than or equal to the initial multiple in the beginning to be conservative.

LBO Model Questions & Answers – Advanced

This section is most applicable if you're interviewing for private equity jobs, or if you have a lot of LBO experience on your resume and you really need to know the in's and out's of LBO models.

Do not even think about this section for entry-level investment banking interviews – it's overkill and there's no way you will get questions this advanced.

Types of Debt and Financing Methods

1. Tell me about the different types of debt you could use in an LBO.

Debt Type	Revolver	Term Loan A	Term Loan B	Senior Notes	Subordinated Notes	Mezzanine
Interest Rate:	Lowest	Low	Higher	Higher	Higher	Highest
Floating / Fixed?	Floating			Fixed		
Cash Interest?	Yes					Cash / PIK
Tenor:	3-5 years	4-6 years	4-8 years	7-10 years	8-10 years	8-12 years
Amortization:	None	Straight Line	Minimal	Bullet		
Prepayment?	Yes			No		
Investors:	Conservative Banks			HFs, Merchant Banks, Mezzanine Funds		
Seniority	Senior Secured			Senior Unsecured	Senior Subordinated	Equity
Secured?	Yes			Sometimes	No	
Call Protection?	No	Sometimes		Yes		
Covenants:	Maintenance			Incurrence		

"Tenor" is just a fancy word for "How many years will this loan be outstanding? What is its **maturity** period?"

Each type of debt is arranged in order of rising interest rates – so the Revolver has the lowest interest rates, Term Loan A is slightly higher, B is slightly higher, Senior Notes are higher than Term Loan B, and so on.

"Seniority" refers to the order of claims on a company's assets in a bankruptcy – the Senior Secured holders are first in line, followed by Senior Unsecured, Senior Subordinated, and then Equity Investors.

"Floating" or "Fixed" Interest Rates: A "floating" interest rate is tied to LIBOR. For example, L + 100 means that the interest rate of the loan is whatever LIBOR is at currently, plus 100 basis points (1.0%). A fixed interest rate, on the other hand, would be 11%. It doesn't "float" with LIBOR or any other rate.

Amortization: "Straight line" means the company pays off the principal in equal installments each year, while "bullet" means that the entire principal is due at the end of the loan's lifecycle. "Minimal" just means a low percentage of the principal each year, usually in the 1-5% range.

Call Protection: Is the company prohibited from "calling back" – paying off or redeeming – the security for a certain period? This is beneficial for investors because they are guaranteed a certain number of interest payments.

2. Wait a minute, how are Call Protection and "Prepayment" different? Don't they refer to the same concept?

Call Protection refers to paying off the **entire** debt balance, whereas "Prepayment" refers to repaying *part* of the principal early, before the official maturity date.

3. What are some examples of incurrence covenants? Maintenance covenants?

Incurrence Covenants:

- Company cannot take on more than $2 billion of total debt.
- Proceeds from any asset sales must be earmarked to repay debt.
- Company cannot make acquisitions of over $200 million in size.
- Company cannot spend more than $100 million on CapEx each year.

Maintenance Covenants:

- Total Debt / EBITDA cannot exceed 3.0 x
- Senior Debt / EBITDA cannot exceed 2.0 x
- (Total Cash Payable Debt + Capitalized Leases) / EBITDAR cannot exceed 4.0 x
- EBITDA / Interest Expense cannot fall below 5.0 x
- EBITDA / Cash Interest Expense cannot fall below 3.0 x
- (EBITDA – CapEx) / Interest Expense cannot fall below 2.0 x

4. Why you would you use PIK (Payment In Kind) debt rather than other types of debt, and how does it affect the debt schedules and the other statements?

Unlike "normal" debt, a PIK loan does not require the borrower to make cash interest payments – instead, the interest accrues to the loan principal, which keeps going up over time. A PIK "toggle" allows the company to choose whether to pay the interest in cash or have it accrue to the principal.

PIK is riskier than other forms of debt and carries with it a higher interest rate than traditional Bank Debt or High-Yield Debt.

Adding it to the debt schedules is similar to adding High-Yield Debt with a bullet maturity – except instead of assuming cash interest payments, you assume that the interest accrues to the principal.

You include this interest on the Income Statement, but you need to add back any PIK interest on the Cash Flow Statement because it's a non-cash expense.

5. How does Preferred Stock fit into these different financing methods? Isn't it a type of Debt as well?

Preferred Stock is similar to Debt and it would match the "Mezzanine" column in the table above most closely. Just like with Mezzanine, Preferred Stock has the lowest seniority in the capital structure and tends to have higher interest rates than other types of Debt. It's not included in the table above due to space constraints.

6. How do you treat Noncontrolling Interests (AKA Minority Interests) and Investments in Equity Interests (AKA Associate Companies) in an LBO model?

Normally you leave these alone and assume that nothing happens – so they show up in **both** the Sources and Uses columns when you make assumptions in the beginning.

You could assume that the private equity firm acquires one or both of these, in which case they would **only** show up in the Uses column – similar to refinancing Debt.

7. What about "Excess Cash"? Why do you sometimes see that in a Sources & Uses table?

This represents the scenario where the company itself uses its excess cash (i.e. if it only requires $10 million in cash but has $50 million on its Balance Sheet, $40 million is the excess cash) to fund the transaction. This always shows up in the Sources column.

It's just like how you subtract Cash when calculating Enterprise Value: an acquirer would "receive" that Cash upon buying the company.

You do not always see this item – it's more common when the company has a huge amount of excess cash and has no real reason for having it.

8. Can you give a complete list of items that you might see in the Sources & Uses section and explain the less common ones?

Sources Column:	Uses Column:
• Debt and Preferred Stock (All types) • Investor Equity (PE firm's cash) • Debt Assumed • Noncontrolling Interests Assumed • Management Rollover	• Equity Value of Company • Advisory and Legal Fees • Capitalized Financing Fees • Debt Assumed • Noncontrolling Interests Assumed • Debt Refinanced • Noncontrolling Interests Purchased

We have already explained most of these items above. Debt and Debt-like items such as existing Preferred Stock and Noncontrolling Interests can always be either **assumed** (remain on the Balance Sheet) or **refinanced / purchased** (paid off and disappear).

The "Management Rollover" refers to the option to let the management team re-invest their shares and options into the deal.

For example, if the team currently owns 5% of the company, the PE firm might say, "We'll acquire 95% of the shares, and then let you keep the 5% you own to incentivize you to perform well over these next few years and reap the rewards."

Financial Statement Adjustments and Debt Schedules

1. Walk me through how you adjust the Balance Sheet in an LBO model.

This is very similar to what you see in a merger model – you calculate Goodwill, Other Intangible Assets, and the rest of the Write-Ups in the same way, and then the Balance Sheet adjustments (e.g. subtracting Cash, adding in Capitalized

Financing Fees, writing up Assets, wiping out Goodwill, adjusting the Deferred Tax Assets / Liabilities, adding in new Debt, etc.) are almost the same.

The key differences:

- In an LBO model you assume that the **existing Shareholders' Equity** is wiped out and replaced by the **value of the cash the private equity firm contributes** to buy the company; you may also add in Preferred Stock, Management Rollover, or Rollover from Option Holders to this number as well depending on your assumptions.
- In an LBO model you'll usually add **more tranches of debt** compared to what you would see in a merger model.
- In an LBO model you're **not** combining two companies' Balance Sheets.

2. Wait a second, why are Capitalized Financing Fees an Asset?

There are a couple ways to think about this:

- It's just like the **Prepaid Expenses** item on the Assets side: paid for in cash up-front, and then recognized as an expense over many years. Since the company has already paid for it in cash, it's not going to cost them anything more in future periods.
- An Asset represents **potential future income** or **potential future savings**; Capitalized Financing Fees have already been paid in cash, so when the expense is recognized on the Income Statement over several years it reduces the company's taxes (similar to Prepaid Expenses).

3. How would you adjust the Income Statement in an LBO model?

The most common adjustments:

- **Cost Savings** – Often you assume the PE firm cuts costs by laying off employees, which could affect COGS, Operating Expenses, or both.
- **New Depreciation Expense** – This comes from any PP&E write-ups in the transaction.

- **New Amortization Expense** – This includes both the amortization from written-up intangibles and from capitalized financing fees.
- **Interest Expense on LBO Debt** – You need to include both cash and PIK interest here.
- **Sponsor Management Fees** – Sometimes PE firms charge a "management fee" to a company to account for the time they spend managing it.

Cost Savings and new Depreciation / Amortization hit the Operating Income line; Interest Expense and Sponsor Management Fees affect Pre-Tax Income.

Common and Preferred Stock Dividends (e.g. from a dividend recap, or just a normal preferred stock issuance) are not on this list because theoretically, Dividends should always be listed on the Cash Flow Statement.

In many cases, however, they will actually be shown *on* the Income Statement in an LBO and will impact the Net Income line item only (no tax impact – they get subtracted after you've calculated Pre-Tax Income * (1 – Tax Rate)). Just be aware of this because you will see it from time to time, and remember that neither one is tax-deductible.

4. Can you walk me through how a Debt Schedule works in an LBO model when you have multiple tranches of Debt? For example, what happens when you have Existing Debt, a Revolver, Term Loans, and Senior Notes?

Let's break this down by category and do a quick overview before jumping into more detailed explanations.

First off, note that you **must** make all mandatory debt repayments on each tranche of debt before anything else. So there is no real "order" there – you simply have to repay what is required. The "order" applies only when you have extra cash flow beyond what is needed to meet these mandatory debt repayments:

- **Revolver:** You borrow *additional* funds here and add them to the balance if you don't have enough cash flow to meet the mandatory debt repayments

each year; you use any *extra* cash flow each year to repay this Revolver first, before any other debt.

- **Existing Debt:** This comes first, before the new debt raised in the LBO, when setting aside extra cash flow to make optional repayments.
- **Term Loans:** Payments on these come *after* paying off the Revolver and any existing debt.
- **Senior Notes:** These come last in the hierarchy, and typically optional repayment is limited or not allowed at all.

To track this in an LBO model, you need to separate out the Revolver from the mandatory repayments from the optional repayments, and keep track of the cash flow that's available after each stage of the process.

5. Explain how a Revolver is used in an LBO model.

You use a Revolver when the cash required for Mandatory Debt Repayments exceeds the cash flow you have available to repay them.

- Revolver Borrowing = MAX(0, Total Mandatory Debt Repayment – Cash Flow Available to Repay Debt)

The Revolver starts off "undrawn," meaning that you don't borrow money and don't accrue a balance unless you need it – similar to how credit cards work.

You add any required Revolver Borrowing to your running total for cash flow available for debt repayment before you calculate Mandatory and Optional Debt Repayments.

Within the debt repayments themselves, you assume that any Revolver Borrowing from previous years is paid off first with excess cash flow before you pay off any Term Loans.

6. Walk me through how you calculate optional debt repayments in an LBO model.

First, note that you **only** look at optional repayments for Revolvers and Term Loans – High-Yield Debt doesn't have a prepayment option, so effectively it's always $0.

You start by checking how much cash flow is available based on your Beginning Cash Balance, Minimum Cash Balance, Cash Flow Available for Debt Repayment from the Cash Flow Statement, and how much you've spent on Mandatory Debt Repayments so far.

Then, if you've used your Revolver at all, you pay off the maximum amount that you can with the cash flow you have available.

Next, for Term Loan A you assume that you pay off the maximum possible amount, taking into account the fact that you have less cash flow from having paid down the Revolver. You also need to take into account the fact that you might have paid off some of Term Loan A's principal as part of the Mandatory Repayments.

Finally, you do the same thing for Term Loan B, subtracting from the "cash flow available for debt repayment" what you've already used for the Revolver and Term Loan A.

Just like with Term Loan A, you need to take into account any Mandatory Repayments you've made so that you don't pay off **more** than the entire Term Loan B balance.

The formulas here get very messy and depend on how your model is set up, but this is the basic idea for optional debt repayments.

7. Let's walk through a real-life example of debt modeling now… let's say that we have $100 million of debt with 5% cash interest, 5% PIK interest, and amortization of 10% per year. How do you reflect this on the financial statements?

To simplify this scenario, we'll assume that interest is based on the **beginning** debt balance rather than the average balance over the course of the year.

- **Income Statement:** There's $5 million of cash interest and $5 million of PIK interest, for a total of $10 million in interest expense, which reduces Pre-Tax Income by $10 million and Net Income by $6 million assuming a 40% tax rate.
- **Cash Flow Statement:** Net Income is $6 million lower, but you add back the $5 million in PIK interest because it was a non-cash charge. Cash Flow from Operations is down by $1 million. Since there's 10% amortization per year, you repay $10 million of debt each year (and presumably the entire remaining amount at the end of the period) in the Cash Flow from Financing section – so cash at the bottom is down by $11 million.
- **Balance Sheet:** Cash is down by $11 million on the Assets side, so that entire side is down by $11 million. On the other side, Debt is up by $5 million due to the PIK interest but down by $10 million due to the principal repayment, for a net reduction of $5 million. Shareholders' Equity is down by $6 million due to the reduced Net Income, so both sides are down by $11 million and balance.

Each year after this, you base the cash and PIK interest on the new debt principal number and adjust the rest of the numbers accordingly.

8. Wait a minute – why do we show PIK interest in the Cash Flow from Operations section? Isn't it a financing activity?

First, note that interest expense **never** shows up in the Cash Flow from Financing section because it is tax-deductible and it always appears on the Income Statement. So showing anything in that section for interest expense would be double-counting.

You show PIK interest in the CFO section because it is a **non-cash expense** – we're adding it back because it's just like Depreciation or Amortization. It reduces taxes but is not actually paid out in cash.

9. What if there's a stub period in a leveraged buyout? Normally you assume full years, but what happens if the PE firm acquires a company halfway through the year instead?

In this case, you have to project the financial statements for this "stub period," which is easier than it sounds because it is usually a matter of multiplying the full-year statements by 1/4, 1/2, 3/4, and so on. If you have quarterly projections you could use those and avoid the need for extra math.

Example: If the PE firm buys the company on March 31, you would multiply the line items on the full-year Income Statement and Cash Flow Statement by 3/4 to determine the numbers from April 1 to December 31, which is three-quarters of the year. You would also have to project the Balance Sheet to the March 31 close date and use those numbers when adjusting the Balance Sheet and allocating the purchase price.

The IRR calculation will also be different in this case (see the next section).

This concept is not difficult, but it creates extra work without a huge benefit so most LBO models are built based on full calendar years instead.

Calculating Returns

1. Normally we care about the IRR for the equity investors in an LBO – the PE firm that buys the company – but how do we calculate the IRR for the debt investors?

For the debt investors, you need to calculate the interest and principal payments that they receive from the company each year.

Then you simply use the IRR function in Excel and start with the **negative** amount of the original debt for "Year 0," assume that the interest and principal payments each year are your "cash flows" and then assume that the remaining debt balance in the final year is your "exit value."

Most of the time, returns for debt investors will be lower than returns for the equity investors – but if the deal goes poorly or the PE firm can't sell the company for a good price, the reverse could easily be true.

2. How would you model a "waterfall return" structure where different equity investors in an LBO receive different percentages of the returns, depending 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 for doing this get tricky, but here is the basic idea with simple numbers to make it easier to understand:

- First, you do a **check** to see what the IRR is with the amount of net sale proceeds you've assumed. For example, let's say you get back $500 million at the end and calculate that $500 million equates to an 18% IRR.
- Next, you determine *what amount of those proceeds equals a 15% IRR*. So let's say you run the numbers and find that $450 million would equal a 15% IRR.
- You allocate 10% of this $450 million to Investor Group A and 90% 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.

This scenario is common in real estate development, where multiple groups of equity investors are commonplace, but you do see it in some LBOs as well.

3. In an LBO model, is it possible for debt investors to earn a higher return than the PE firm? What does it tell us about the company we're modeling?

Yes, and it happens more often than you'd think. Remember, High-Yield Debt investors often get interest rates of 10-15% or more – which effectively guarantees an IRR in that range for them.

So no matter what happens to the company or the market, that debt gets repaid and the debt investors receive their interest payments.

But let's say that the median EBITDA multiples contract, or that the company fails to grow or actually shrinks – in these cases the PE firm could easily get an IRR lower than what the debt investors get.

4. Most of the time, increased leverage means an increased IRR. Explain how increasing the leverage could *reduce* the IRR.

Increased leverage, past a certain point, could easily reduce IRR:

- If interest payments and principal repayments exceed the company's cash flow, the IRR will drop.
- If there's declining growth or margins, you could also get a scenario where increasing debt past a certain point results in a lower IRR.

Most of the time increasing the Debt balance increases the IRR – but not always. The trick with an LBO is to find the "sweet spot" that maximizes the IRR for the PE firm but which also doesn't make it difficult for the company to repay debt.

5. How do different types of Debt and interest options affect the IRR? For example, does it benefit the PE firm to use a higher percentage of Term Loans or a higher percentage of Senior or Subordinated Notes? What about cash vs. PIK interest?

It is almost always better to use Debt with **lower** interest rates and Debt that **can be repaid early**. Otherwise, the company's cash flows are being "wasted" because it's generating cash but the PE firm is not using this cash in any way.

So all else being equal, having Term Loans rather than Senior or Subordinated Notes or Mezzanine will boost IRR; cash interest will boost IRR over PIK interest because the debt principal doesn't "balloon" over time; and lower interest rates will also boost IRR.

However, this doesn't tell the whole story: sometimes a PE firm will use High-Yield Debt or debt with PIK interest anyway if the company is having cash flow issues or if it's too difficult to raise the funds via Term Loans.

6. Let's say that we have a stub period in an LBO, and that the PE firm initially acquires the company midway through the year (assume June 30th). How does that impact the returns calculation?

In this case you have to use the XIRR function in Excel rather than the IRR function, and you enter the **dates** of all the cash flows in addition to the amounts.

The impact on IRR depends on the length of the holding period. If this "stub period" results in a **longer** holding period (5.5 years or 5.75 years rather than 5 years), IRR will **decrease** because a longer time period means a lower effective interest rate.

If this "stub period" results in a **shorter** holding period (4.5 years or 4.75 years rather than 5 years), IRR will **increase** because a shorter time period = a higher effective interest rate.

Advanced LBO Features

1. Just like a normal M&A deal, you can structure an LBO either as a stock purchase or as an asset purchase. Can you also use a Section 338(h)(10) election?

In most cases, no – because one of the requirements for Section 338(h)(10) is that the **buyer** must be a C corporation. Most private equity firms are organized as LLCs or Limited Partnerships, and when they acquire companies in an LBO, they create an LLC shell company that "acquires" the company on paper.

2. Why might a private equity firm allot some of a company's new equity in an LBO to a management option pool, and how would this affect the model?

This is done for the same reason that buyers use Earnouts in M&A deals: the PE firm wants to incentivize the management team and keep everyone on-board until they exit the investment.

The difference is that there's no technical limit on how much management might receive from such an option pool: their proceeds will be a percentage of the company's final sale value.

In your LBO model, you would need to calculate a per-share purchase price when the PE firm exits the investment, and then calculate how much of the proceeds go to the management team based on the Treasury Stock Method.

An option pool by itself would reduce the PE firm's return, but this is offset by the fact that the company should perform better with this incentive in place.

3. What if there's an option for the management team to "roll over" its existing Equity rather than receive new shares or options?

An Equity Rollover would show up in the Sources column in the Sources & Uses table and it would reduce the amount of Equity and Debt the PE firm needs to use to acquire the company – because now the PE firm only needs to acquire 90%, or 95%, or some number less than 100%, rather than the entire company.

At the end, you would also subtract some of the proceeds and allocate them to the management team rather than the PE firm when calculating returns.

If nothing else changes, this reduces the PE firm's IRR – but the idea is that it also **incentivizes** the management team to perform well and deliver greater results, which helps everyone.

4. Let's say that a PE firm buys a company that's currently 20% owned by management, and the firm wants to maintain this 20% management ownership percentage afterward. Does the PE firm need to use a certain amount of Debt to maintain this ownership percentage, or does it not impact the model?

No. All this business with management ownership has nothing to do with the exact percentage of Debt and Equity used.

All that changes is that if the management team owns *more*, the PE firm can use less Debt and Equity (cash) overall to acquire the company.

Using 80% Debt vs. 60% Debt (or any other percentage) has no impact on the management ownership percentage, which is a separate issue entirely.