IB Interview Guide, Module 4: Leveraged Buyouts and LBO Models

Table of Contents:

Overview & Key Rules of Thumb

Questions on leveraged buyouts and leveraged buyout (LBO) models are the **most advanced** ones you'll receive in entry-level investment banking interviews.

These questions are **less important** than the ones on Accounting, Equity Value and Enterprise Value, and Valuation/DCF Analysis for several reasons:

1) **The topic is more advanced**, so most questions on it will be fairly simple.

2) **LBO models are not relevant for all finance roles** – for example, you won't receive many questions on this topic in equity research or asset management interviews.

3) **This topic is more important for private equity (PE) interviews**, where you're *guaranteed* to get questions and case studies on leveraged buyouts.

The first few sections of this guide are, by far, the most important ones.

Even if you're interviewing for a role such as equity research, you still need to be familiar with the *concept* of leveraged buyouts.

The middle sections, which cover the walk-through of a real LBO model, are more relevant if you have previous IB/PE experience or you're interviewing for PE roles.

Finally, as with the other guides, the last section on More Advanced Features **is optional** – the topics there get into obscure territory.

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

You learned in the previous guide on M&A deals that one company might acquire another company if it believes it will be **better off** afterward.

For example, the Seller's "asking price" might be less than the Present Value of its Free Cash Flows, or the Buyer might expect to realize an IRR on the deal that exceeds its WACC.

Private equity firms, or "financial sponsors," acquire companies for similar reasons: They might acquire a company that's **undervalued** or one where the **potential IRR exceeds their targeted returns**.

But there's a key difference between a private equity firm's acquisition of a company and a normal company's acquisition of a company: **The private equity firm NEVER plans to hold the company forever**.

Instead, the firm's approach is like "home flipping" in real estate:

1) It searches for companies that might be **undervalued** and that could yield high returns if managed properly.

2) Then, just like a real estate investor might buy a house using a combination of a down payment and a mortgage, the PE firm uses **Cash** (Equity) and **Debt** to buy a company.

3) The private equity firm will **run the company** for several years and make "improvements," similar to the renovations that a real estate investor might make.

4) In the end, the PE firm will **sell the company**, ideally for a higher price, and use the proceeds to repay the Debt it borrowed. If all goes well, it will earn back a multiple of the Cash it invested and get a high internal rate of return (IRR).

Many sources use this home-buying analogy to explain leveraged buyouts.

The analogy is reasonable, but one point is important to clarify: **A leveraged buyout is like buying a house to RENT OUT and eventually SELL rather than buying a house to live in**.

The Math Behind an LBO

Once again, we go back to my favorite formula:

Company Value = Cash Flow / (Discount Rate – Cash Flow Growth Rate)

In an LBO scenario, the private equity firm isn't concerned with the "Company Value," *exactly* – it is concerned with the **potential IRR** and how that compares with its targeted returns, AKA the Discount Rate.

This formula still applies, but you're not using it to *solve for* "Company Value."

Instead, you **calculate the IRR** in a deal where the PE firm buys a company, runs it, and sells it, and you compare that IRR to the Discount Rate.

For example, if the deal produces an IRR in the 25-30% range, and the firm aims for at least a 20% IRR, the deal works.

But if the deal produces an IRR in the 10-15% range, it doesn't work.

In normal M&A deals, companies could use any combination of Cash, Debt, and Stock to acquire other companies.

But in leveraged buyouts, PE firms use **only** Cash and Debt to do it.

Private equity firms – even publicly traded ones – cannot use Stock to fund acquisitions because:

1) As you'll see below, they don't "own" the acquired companies directly; and

2) Unlike in normal M&A deals, they plan to *sell* the acquired companies eventually.

As you know from the IRR math, it's easier to earn a high IRR when you invest less upfront.

For example, if you bought an Asset for $100, earned $10 on it each year, and eventually sold it for $100, your IRR would be 10%.

But if you bought the Asset for $50, still earned $10 on it each year, and eventually sold it for $50, your IRR would be 20%.

As a result, private equity firms prefer to use as much Debt and as little of their own money as possible to fund deals.

Borrowing money from others – using Debt to fund deals – helps a PE firm in 2 ways:

1) It reduces the **upfront cost** of acquiring a company, which makes it easier for the PE firm to earn a high return.

2) It lets the PE firm use the company's cash flows to **repay the Debt** and make interest payments.

The PE firm still must repay the Debt when it sells the company, but the **benefits** of Debt far outweigh this drawback.

That's because **money today is worth more than money tomorrow**: The IRR increases by a greater amount if you can *reduce* the purchase price by $100 *today* than if you can *increase* the exit price by $100 *in 5 years*.

Consider this scenario where an investor buys a house for $500K, rents it out to earn $35K in rental income per year, and then sells it for $550K after 5 years have passed:

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:	-	-	-	-	-	-
Repay Remaining Debt Upon Exit:	-	-	-	-	-	-
Purchase or Sale of Property:	(500)	-	-	-	-	550
Net Cash Flow:	**$ (500)**	**$ 35**	**$ 35**	**$ 35**	**$ 35**	**$ 585**

Money-on-Money (MoM) Multiple:	**1.5 x**
Internal Rate of Return (IRR):	**8.7%**

This outcome is "OK."

It's normal when you buy a property with 100% Cash, run it without changing anything, and then sell it after home prices have increased over several years.

But let's say you use **30% Cash and 70% Debt** instead, with these assumptions:

House Value:	$ 500	Debt Interest Rate:	5.0%
Sale Value:	550	Debt Principal Repayment:	2.5%
		Annual Rental Income:	35

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)	(17)	(17)	(16)	(16)
Debt Principal Payments:	-	(9)	(9)	(9)	(9)	(9)
Repay Remaining Debt Upon Exit:	-	-	-	-	-	(306)
Purchase or Sale of Property:	(150)	-	-	-	-	550
Net Cash Flow:	**$ (150)**	**$ 9**	**$ 9**	**$ 10**	**$ 10**	**$ 254**

Money-on-Money (MoM) Multiple:	**1.9 x**
Internal Rate of Return (IRR):	**15.5%**

The IRR jumps from 9% to 16%, and the MoM multiple also increases from **1.5x to 1.9x**.

We get less cash flow in Years 1 – 5 and we receive less in net proceeds from selling the property, but **the lower purchase price more than makes up for those**.

Many guides and textbooks show these results and conclude by stating: "Leverage boosts returns in a leveraged buyout."

But that is incorrect. Leverage does NOT "boost returns" – it AMPLIFIES returns!

If a deal **performs well**, it will do **even better** when you pay less upfront. But if a deal does **poorly**, it will do **even worse** when you pay less upfront.

Here's what happens if the real estate market crashes, home prices fall by 20%, and we sell the house for $400K at the end:

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:	-	-	-	-	-	-
Repay Remaining Debt Upon Exit:	-	-	-	-	-	-
Purchase or Sale of Property:	(500)	-	-	-	-	400
Net Cash Flow:	**$ (500)**	**$ 35**	**$ 35**	**$ 35**	**$ 35**	**$ 435**

Money-on-Money (MoM) Multiple:	**1.2 x**
Internal Rate of Return (IRR):	**3.3%**

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)	(17)	(17)	(16)	(16)
Debt Principal Payments:	-	(9)	(9)	(9)	(9)	(9)
Repay Remaining Debt Upon Exit:	-	-	-	-	-	(306)
Purchase or Sale of Property:	(150)	-	-	-	-	400
Net Cash Flow:	**$ (150)**	**$ 9**	**$ 9**	**$ 10**	**$ 10**	**$ 104**

Money-on-Money (MoM) Multiple:	**0.9 x**
Internal Rate of Return (IRR):	**(1.3%)**

In this "Downside" scenario, leverage makes our returns even worse.

Private equity firms try to avoid these outcomes, but this is a major risk of using leverage to fund acquisitions: **Mediocre deals turn into disasters with enough leverage**.

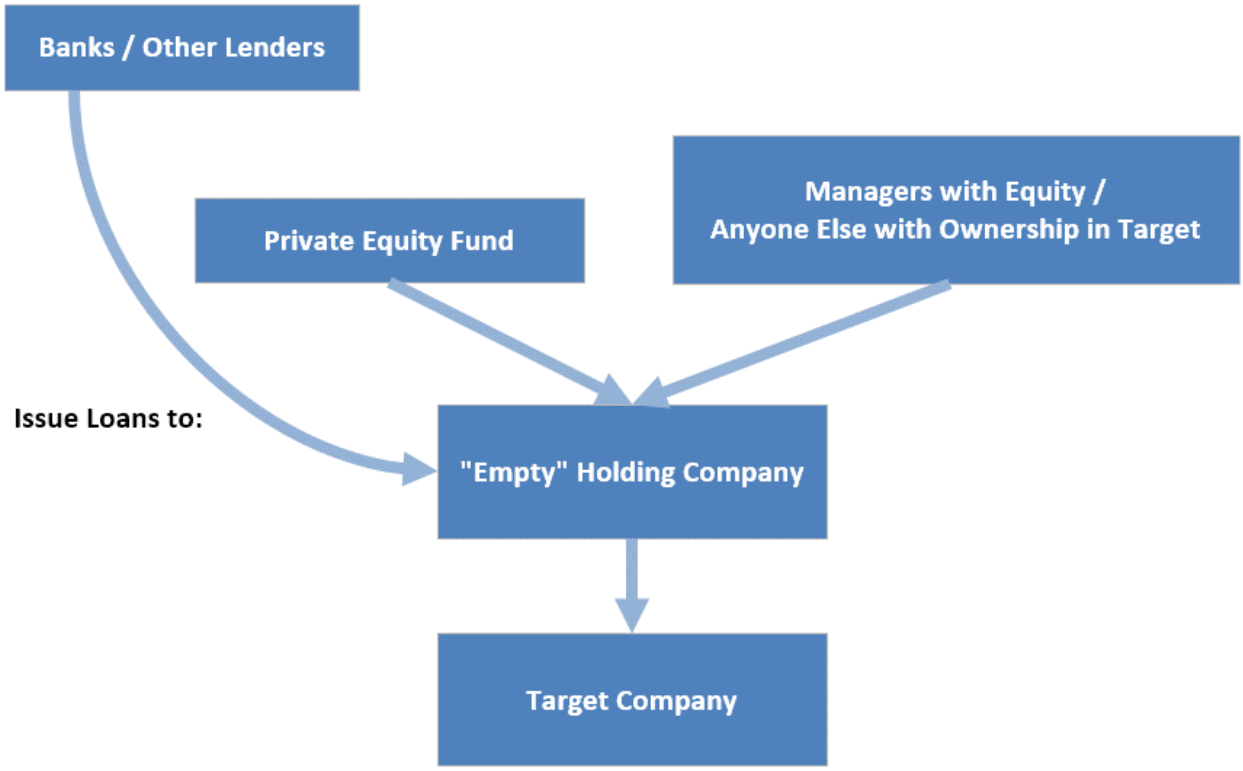
The Legal Structure That Makes LBOs Possible

Earlier, we mentioned that the PE firm doesn't truly "own" the acquired company in a leveraged buyout.

Instead, the PE firm typically forms a "holding company," which it owns, and this "holding company" acquires the real company.

The banks and other lenders that provide the Debt in the deal then 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 takes place also own 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.

If you sit back and think about what happens in an LBO, **it's a bit crazy**:

1. The company itself raises Debt to purchase a certain number of its own shares.

2. Then, the PE firm uses its own Cash (called "Investor Equity" in models) to purchase the *remaining* shares.

3. But the PE firm will own 100% of the company afterward! (This percentage is often lower than 100% because existing investors may "roll over" their shares.)

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

And then if something goes horrifically wrong, it's the company's fault.

One implication is that *most* leveraged buyouts are **friendly deals** where both sides agree on a price and deal terms: Otherwise, why would the company agree to raise Debt to purchase its own shares?

There are some famous exceptions, like KKR's ill-fated buyout of RJR Nabisco in 1988, but even in that deal, there was still *cooperation* between the company and the potential PE buyers.

Finally, note that private equity firms do have a **reputational risk** from this arrangement. A firm can't just go around buying companies, loading them up with Debt, and then abandoning them.

Not only would the PE firm's returns plummet, but companies would stop agreeing to do deals with the firm.

This legal structure makes deals more attractive and reduces the risk for PE firms, but it doesn't let them do whatever they want.

Ideal Leveraged Buyout Candidates

While there are hundreds of millions of companies in the world, only a few are **ideal leveraged buyout candidates**.

First off, 99% of companies are too small for leveraged buyouts – a family business with $500K in annual revenue and 10 employees is nice for that family, but it's too small for a PE firm.

Some boutique and middle-market PE firms do execute smaller leveraged buyouts, but even those "smaller" deals are worth at least $5-10 million in most cases.

Assuming the size is right, **the price must also be right**.

Almost any deal could work *at the right price*, but even the best company would be a terrible LBO candidate at a price that's too high.

High prices create significant risk for the PE firm because the higher the price, the greater the probability of the price falling over time; few companies trade at high multiples forever.

After size and price, an ideal LBO candidate must be able to service its Debt, so **stable cash flows** are extremely important.

A pre-revenue biotech or tech startup would be the **worst** possible leveraged buyout candidate because it's extremely risky and could not possibly afford to carry interest-bearing Debt.

It's harder to say what the **best** candidates look like, but here are some financial characteristics that PE firms seek:

Aspect of Company:	Ideal LBO Candidate:	Non-Ideal LBO Candidate:
Income Statement:	Low fixed costs, high recurring revenue, relatively high EBITDA margins; revenue *growth* not necessarily essential.	The opposite; a pre-revenue tech or biotech startup would be the single worst possible LBO candidate due to lack of revenue, extremely high risk, etc.
Balance Sheet:	Significant fixed assets such as PP&E for use as debt collateral.	Fewer fixed assets that can be used as debt collateral.
Cash Flow Statement:	**Stable cash flows** above all else! Need them for interest and debt principal repayment. Minimal CapEx is ideal (e.g., mature company with lots of assets, but not spending much on new assets). Minimal Working Capital requirements also help, but tend to matter less.	Unstable cash flows and a high amount of CapEx (20-30% of revenue is quite high for most industries), especially if it's Maintenance CapEx rather than Growth CapEx; companies that require a lot of cash outlays for Working Capital (e.g., retailers with inventory) are also not ideal.
Valuation:	Lower to mid-range EBITDA multiple (varies wildly based on the industry - need to look at comps to determine this).	Moderate to high EBITDA multiple - creates a lot of risk for the PE firm if that multiple declines.

Stability is the major theme. The *last* thing a PE firm wants is for a portfolio company's cash flow to drop by 80% in one quarter, causing the company to default on its Debt.

Revenue and cash flow growth help, but are not essential next to stability.

A PE firm could easily make money with a slow-growing company as long as the purchase price and exit price are favorable and the company repays significant Debt over time.

But it would be much harder to make money if the company's cash flows are spotty and it cannot service its Debt.

For the most part, a company's current capital structure does NOT affect its appeal as a leveraged buyout candidate.

However, it may still make *a bit* of a difference for a few reasons.

For example, Excess Cash may make a company look more appealing because the company can use some of its Cash balance to fund the deal (e.g., the Silver Lake / Dell LBO).

Of course, Excess Cash doesn't matter if you're looking at the company based on its Enterprise Value and basing the purchase price on it since EV already reflects Cash, Debt, and so on.

Existing Debt may make a small difference because there may be **penalty fees** associated with repaying it early.

For example, there are often "Call Premiums" that state the company must repay 105%, or 104%, or 103% of the principal if it repays the entire balance fairly soon after raising the Debt (e.g., in Year 3 or 4 of a 10-year term).

And sometimes it must pay more than that depending on how much interest the lenders lose.

Moving on, here are qualitative and financing-related factors that PE firms seek:

Aspect of Company:	Ideal LBO Candidate:	Non-Ideal LBO Candidate:
Management Team:	"Strong" CEO and CFO (What does that really mean?) - experienced and have worked together for a long time, ideally *participating* in the LBO by rolling over equity to get "skin in the game."	Constant management turnover / shuffling is a red flag; inexperienced C-level executives can also be trouble; if no one on the team is participating in the deal, that could also be a negative sign.
Industry / Market Factors:	High barriers to entry or "stickiness" (e.g., Facebook); strong competitive advantage; stable, growing industry; little risk of technological change (Warren Buffett and Coca-Cola); ideally a market leader in a relatively fragmented industry.	Lower barriers to entry and/or high rate of tech/industry change; already a highly consolidated market with only 2-3 players; declining industry or exceptionally speculative industry (e.g., asteroid mining) are both non-ideal.
Financing Method and Debt Capacity:	Can support many tranches of debt (e.g., 2-3x Term Loans, 1x Senior Notes, 1x Subordinated Notes…) as well as alternative debt structures depending on the company's needs. Relatively low % equity, perhaps around 20-30% depending on market conditions.	Can only support 1-2x more turns of debt, or can *only* use Term Loans or *only* Subordinated Notes due to the covenants (we'll get to this later on). Might need more like 40-50% or more equity.
Credit Stats and Ratios:	EBITDA / Net Interest Expense > 2.0x; (EBITDA - CapEx) > Net Interest Expense > 1.5x; Total Debt / EBITDA highly dependent on industry and market, but unusually to go above 5-6x and often far lower than that.	The opposite - coverage ratios below those levels and/or a Debt / EBITDA ratio at the end of the range for the industry and/or for companies overall.
Credit Rating:	Post-deal credit ratings don't take that much of a "hit" - that will cause interest rates to go up. Credit rating will *always* go down, but ideally more like an A to BB drop rather than AA to CCC.	Post-deal credit ratings take a massive hit, and the company's interest rates jump up by a massive amount (say, 8-10%) - deal could still work, but it's tougher.

It's tough to assess the "strength" of a management team, but you *can* measure their commitment to the deal by looking at how many shares they're rolling over.

The industry appeal is a bit easier to evaluate because you can find market data that indicate how fragmented it is.

An industry where the #1 company has 5% market share, with companies #2 – 99 all having market shares between 1% and 5%, is more appealing than one where the top 3 companies own 80% of the market.

That's because many PE firms pursue **add-on acquisitions** to make the companies they acquire bigger and more valuable, and such acquisitions are easier to execute in a fragmented market.

Finally, private equity firms must consider their **exit strategies** and **sources of returns** in deals.

They almost always:

- Prefer deals and markets where **M&A exits** are feasible (either selling the company to another normal company or another private equity firm).
- **Target IRRs of 20-25%**, though this varies based on region and investing style.
- Prefer to **avoid deals that are overly dependent on "Multiple Expansion"** (e.g., EV / EBITDA must increase from 10x to 15x for the IRR to be above 20%):

Aspect of Company:	Ideal LBO Candidate:	Non-Ideal LBO Candidate:
Exit Strategies:	Ideally, a sale to a "strategic" (normal company); sale to another private equity firm or an IPO could also work; dividend recap or leveraged recap less than ideal.	Unlikely to sell the company or take it public (e.g., a smaller private company in a niche market), so dividend recaps or leveraged recaps become more necessary.
Key Drivers of Returns:	Mostly from EBITDA growth and/or debt paydown.	Minimal EBITDA growth and debt paydown, so returns are highly dependent on multiple expansion.
Targeted IRR:	20-25% even in more pessimistic cases; growth equity funds may focus more on MoM multiple.	Tough to achieve 20-25% IRR unless assumptions are more optimistic; 10-15% often seen for less ideal candidates.

While all these criteria make a difference, one factor is most important: **Price**.

If a company is too expensive, nothing else matters because it will be almost impossible to realize an acceptable return.

And if a company is cheap, you can overlook many other flaws, such as a non-ideal industry or inability to support as much leverage as you would like.

To put these concepts together, let's say we wanted to buy a company in the **consumer/retail** industry.

We consider **Foot Locker**, **Finish Line**, **Burberry**, and **Michael Kors** in this analysis:

Foot Locker

- **EBITDA:** ~$950M; 13% margin
- **Cash Flows:** Grown steadily from ~$350M FCF to ~$500M FCF over 3 years
- **Valuation:** 18.0x P / E multiple, 9.5x EV / EBITDA

Foot Locker seems "decent": It has good FCF generation, margins, and growth, though its valuation multiples are a bit high.

Finish Line

- **EBITDA:** ~$160M; 9% margin
- **Cash Flows:** *Fallen* from ~$65M FCF to ~$14M FCF over 3 years
- **Valuation:** 11.0x P / E multiple, 5.0x EV / EBITDA

Finish Line is worse than Foot Locker because its EBITDA margins are lower and its FCF has **declined** in recent years. It's also much cheaper, but that's what you would expect for a company in decline.

Burberry

- **EBITDA:** ~$870M; 23% margin
- **Cash Flows:** Increased from $371M FCF to $491M over 3 years
- **Valuation:** 19.0x P / E multiple, 10.0x EV / EBITDA

Burberry is better than the companies above because it has even higher margins, it has also increased its cash flow significantly, and its valuation multiples are almost the same as Foot Locker's.

Michael Kors

- **EBITDA:** ~$1400M; 32% margin
- **Cash Flows:** Increased from $27M FCF to $473M over 3 years
- **Valuation:** 10.0x P / E multiple, 5.0x EV / EBITDA

Michael Kors is the clear winner because it has the **highest** margins, the **lowest** valuation multiples, and the **strongest FCF growth.**

Our ranking would be: Michael Kors > Burberry > Foot Locker > Finish Line.

Leveraged Buyouts vs. M&A Deals

While there are similarities between leveraged buyouts and "normal" M&A deals, there are also plenty of differences.

The main one is that in an LBO, you assume the PE firm **sells** the acquired company after 3-5 years (and sometimes a bit longer than that); as a result, you focus heavily on the internal rate of return (IRR) in the deal.

Others include:

- **The "Buyer":** In an LBO, the PE firm always forms a "shell corporation" to complete the acquisition; this might also happen in a normal M&A deal, but the company could become a direct subsidiary of the Buyer as well.

- **Purchase Price:** It's based on a per-share premium and the valuation methodologies in both, but in an LBO, you may also consider the purchase price required to achieve a certain IRR or MoM multiple.

- **Funding Sources:** In M&A deals, Buyers use Cash, Debt, and Stock, but in LBOs, PE firms can use only Cash (Investor Equity) and Debt. And they *have* to use a combination of both, or it's not a real LBO.

- **Financial Statement Projections:** In an M&A deal, you need projections for both the Buyer and the Seller; in an LBO, you project only the Seller's financials.

- **Synergies:** These can be very important in M&A deals, but they don't matter much in LBOs unless the PE firm is combining portfolio companies.

- **Relevant Analyses:** EPS accretion/dilution matters a lot in M&A deals but is irrelevant in LBOs; the same goes for Contribution Analysis. You'll look at Returns Attribution and LBO Valuation Analysis in LBOs, but not in M&A deals.

- **Value to Society:** Most M&A *and* LBO deals tend to destroy value, but *some* M&A deals do lead to positive outcomes (e.g., Google / YouTube). Many leveraged buyouts, by contrast, are based on "financial engineering" and don't improve the company or add much value to the world at large.

The *types of questions* you receive in interviews also differ: Many M&A interview questions focus on accretion/dilution math and how Equity Value and Enterprise Value change in deals, while LBO-related questions focus on the rationale, key drivers, model setup, and IRR math.

Return to Top.

Key Rule #2: How to Set Up a Simple LBO Model (Paper LBO)

As with merger models, you can make LBO models extremely complex – but complexity won't necessarily produce more useful information.

For **screening** and **case study/interview purposes**, simpler models tend to be the most useful.

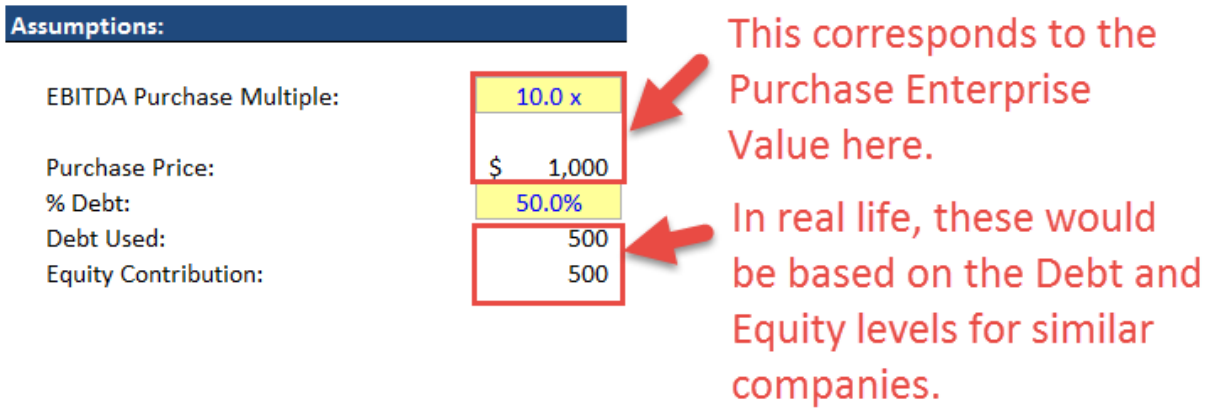
You can create and analyze a simple LBO model in 4 steps:

Step 1: Make Basic Transaction Assumptions

At the bare minimum, you need to know:

1) The **Purchase Price**.
2) The **% Debt and Equity Used**.

The Purchase Price might be either the Purchase Equity Value or Purchase Enterprise Value, but in simplified models, you can assume it's the **Purchase Enterprise Value**:



A public company's Purchase Price would be based on a premium to its current share price, so you would calculate its Purchase Equity Value and then adjust for Cash and Debt to get its Purchase Enterprise Value.

You would still calculate the EBITDA Purchase Multiple to check this valuation, but you wouldn't *start with* this multiple.

Step 2: Project Cash Flow and Debt Repayment

To project cash flows, you need information on the company's Revenue, EBITDA, Taxes, and other key items such as Working Capital and Capital Expenditures.

You also need to know the Interest Rate on the Debt used in the leveraged buyout and its repayment terms (e.g., Must the company pay back 10% of the principal per year?).

Here are the assumptions we used in this simple model:

Assumptions:			
EBITDA Purchase Multiple:	10.0 x	EBITDA Exit Multiple:	11.0 x
Purchase Price:	$ 1,000	Year 0 Revenue:	$ 250
% Debt:	50.0%	Annual Revenue Growth Rate:	10.0%
Debt Used:	500	Annual EBITDA Margin:	40.0%
Equity Contribution:	500		
		D&A % Revenue:	3.0%
Initial Cash Balance:	$ 20	CapEx % Revenue:	4.5%
Interest Rate:	10.0%	Change in WC % Change in Revenue:	(15.0%)
Tax Rate:	40.0%		

And here are our Cash Flow Projections for the company, starting with its Income Statement:

Assumptions:			
EBITDA Purchase Multiple:	10.0 x	EBITDA Exit Multiple:	11.0 x
Purchase Price:	$ 1,000	Year 0 Revenue:	$ 250
% Debt:	50.0%	Annual Revenue Growth Rate:	10.0%
Debt Used:	500	Annual EBITDA Margin:	40.0%
Equity Contribution:	500		
		D&A % Revenue:	3.0%
Initial Cash Balance:	$ 20	CapEx % Revenue:	4.5%
Interest Rate:	10.0%	Change in WC % Change in Revenue:	(15.0%)
Tax Rate:	40.0%		

Income Statement:	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Revenue:	$ 250	$ 275	$ 303	$ 333	$ 366	$ 403
EBITDA:	100	110	121	133	146	161
(-) Depreciation & Amortization:		(8)	(9)	(10)	(11)	(12)
(-) Interest:						
Pre-Tax Income:		102	112	123	135	149
(-) Taxes:		(41)	(45)	(49)	(54)	(60)
Net Income:		**$ 61**	**$ 67**	**$ 74**	**$ 81**	**$ 89**

We leave the Interest Expense blank for now, since we have to project the Debt and Cash balances first.

Revenue starts at $250 and increases by 10% per year; EBITDA stays at 40% of Revenue.

We subtract D&A, which is 3% of Revenue, to get the company's Pre-Tax Income, and then we subtract Taxes, which are 40% of Pre-Tax Income, to calculate the Net Income.

We calculate **Free Cash Flow** by starting with Net Income, making non-cash adjustments, factoring in the Change in Working Capital, and subtracting CapEx:

Income Statement:	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Revenue:	$ 250	$ 275	$ 303	$ 333	$ 366	$ 403
EBITDA:	100	110	121	133	146	161
(-) Depreciation & Amortization:		(8)	(9)	(10)	(11)	(12)
(-) Interest:						
Pre-Tax Income:		102	112	123	135	149
(-) Taxes:		(41)	(45)	(49)	(54)	(60)
Net Income:		**$ 61**	**$ 67**	**$ 74**	**$ 81**	**$ 89**

Cash Flow Projections:	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Net Income:		$ 61	$ 67	$ 74	$ 81	$ 89
(+) Depreciation & Amortization:		8	9	10	11	12
(+/-) Change in Working Capital:		(4)	(4)	(5)	(5)	(5)
(-) CapEx:		(12)	(14)	(15)	(16)	(18)
Free Cash Flow:		53	58	64	71	78

Linked to the Change in Revenue each year; 15% of that here.

4.5% of Revenue each year in this projection.

Net Income + D&A +/- Change in Working Capital - CapEx; FCF tells us how much Debt the company can repay each year.

"Free Cash Flow" here is NEITHER Unlevered Free Cash Flow NOR Levered Free Cash Flow.

Instead, it's "Free Cash Flow" as most companies define it: Cash Flow from Operations – CapEx.

In our model, Cash Flow from Operations consists of Net Income, Depreciation & Amortization, and the Change in Working Capital, so it's the same definition.

At this point, we calculate the Debt and Cash balances each year:

Cash Flow Projections:	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Net Income:		$ 61	$ 67	$ 74	$ 81	$ 89
(+) Depreciation & Amortization:		8	9	10	11	12
(+/-) Change in Working Capital:		(4)	(4)	(5)	(5)	(5)
(-) CapEx:		(12)	(14)	(15)	(16)	(18)
Free Cash Flow:		53	58	64	71	78
Cash Flow Used for Debt Repayment:		53	58	64	71	78
Debt Balance:	500	447	388	324	253	175
Cash Balance:	20	20	20	20	20	20

The Minimum between FCF and the previous year's Debt balance.

Previous Balance minus CF used for Debt Repayment.

Previous Cash + Any FCF NOT used for Debt Repayment.

In this example, we have enough FCF to repay substantial Debt each year.

We don't "have" to use that FCF to repay Debt; we could let it accumulate to the Cash balance or distribute it in the form of Dividends.

Since we've now projected the Cash and Debt balances each year, we can go back to the Income Statement and fill in the Interest Expense:

						D&A % Revenue:				3.0%
		Initial Cash Balance:		$ 20		CapEx % Revenue:				4.5%
		Interest Rate:		10.0%		Change in WC % Change in Revenue:				(15.0%)
		Tax Rate:		40.0%						
	Income Statement:		**Year 0**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**		
		Revenue:	$ 250	$ 275	$ 303	$ 333	$ 366	$ 403		
		EBITDA:	100	110	121	133	146	161		
		(-) Depreciation & Amortization:		(8)	(9)	(10)	(11)	(12)		
		(-) Interest:		=-F71*F45		(45)	(41)	(36)		
		Pre-Tax Income:		52	64	78	94	113		
		(-) Taxes:		(21)	(26)	(31)	(38)	(45)		
		Net Income:		**$ 31**	**$ 39**	**$ 47**	**$ 57**	**$ 68**		
	Cash Flow Projections:		**Year 0**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**		
		Net Income:		$ 31	$ 39	$ 47	$ 57	$ 68		
		(+) Depreciation & Amortization:		8	9	10	11	12		
		(+/-) Change in Working Capital:		(4)	(4)	(5)	(5)	(5)		
		(-) CapEx:		(12)	(14)	(15)	(16)	(18)		
		Free Cash Flow:		23	30	38	46	56		
		Cash Flow Used for Debt Repayment:		23	30	38	46	56		
		Debt Balance:	500	477	447	409	363	307		
		Cash Balance:	20	20	20	20	20	20		

The Interest Expense decreases each year as the company repays more and more Debt, but it still dramatically reduces the company's Net Income and FCF.

FAR less Debt is repaid by the end with the Interest Expense factored in - company's FCF is much lower!

If the company generated significantly more Cash, we might put more time and effort into projecting the Interest Income.

But since its Cash balance starts out low and stays low, and since interest rates on Cash tend to be near-zero, we skipped it here.

Step 3: Make Exit Assumptions and Calculate the Returns

At the end of the projection period, you assume that the PE firm **sells the company** to a "strategic" (a normal company) or another private equity firm.

You could also assume that the PE firm takes the company public in an initial public offering (IPO) and gradually sells its stake over time, but it's more common to assume an Exit Multiple.

We used an **11x EBITDA Exit Multiple** here, and we assumed that the company generates $161.1 in EBITDA by Year 5, which produces an Exit Enterprise Value of $1,772:

Debt Balance:	500	477	447	409	363	307
Cash Balance:	20	20	20	20	20	20

Exit Calculations:		
Exit Enterprise Value:	$	1,772
(-) Debt:		(307)
(+) Cash:		20
Equity Proceeds:	**$**	**1,484**

Based on 11x * $161.

You assume the PE firm must repay the entire Debt balance upon exit, and that it can "take" the Cash for itself.

It's pretty safe to say that the PE firm must repay the company's remaining Debt balance upon exit: Just like when you sell a house and have to repay the mortgage, the PE firm must repay the company's Debt with its proceeds from the sale.

The assumption about Cash is murkier: If a company has significant Excess Cash, the PE firm might issue a Dividend to itself or otherwise claim the company's Cash.

In this case, the company has almost no Cash, so the PE firm might leave it alone.

However, the standard assumption in almost all LBO models is that you subtract Net Debt at the end to calculate the Proceeds to the PE Firm.

Since we invested $500 in Investor Equity in the beginning and received back $1,484 at the end, the Money-on-Money Multiple was approximately 3.0x here.

We can also calculate the **internal rate of return (IRR)**, which is 24.3% here.

Since there were no cash flows in between the purchase and sale, the IRR is simply: ($1,484 / $500) ^ (1 / 5) – 1, which equals 24.3%:

Exit Calculations:		
Exit Enterprise Value:	$	1,772
(-) Debt:		(307)
(+) Cash:		20
Equity Proceeds:	**$**	**1,484**
Money-on-Money (MoM) Multiple:		**3.0 x**
Internal Rate of Return (IRR):		**24.3%**

Equal to $1,484 / $500.

In this case, IRR = ($1,484 / $500) ^ (1/5) - 1 = ~24.3%.

If there were cash flows in between purchase and exit, we'd have to use Excel's IRR function to calculate this instead.

You look at both the IRR *and* the Money-on-Money (MoM) Multiple, also called the Multiple of Invested Capital (MOIC) or the Returns Multiple, **because deals can look good on an IRR basis but poor on a MoM basis or vice versa.**

For example, if a PE firm acquires a company for $1,000 and then sells it for $1,300 in one year, that's a 30% IRR but only a 1.3x multiple.

And if the PE firm acquires that same company for $1,000 and sells it for $3,000 in 9 years, the MoM of 3.0x is fine, but the IRR of 15% is not.

The question of whether the IRR or the MoM multiple is "more important" **depends completely on the holding period**.

If a PE firm does a "quick flip" in 1 year, the multiple is more important because the IRR is meaningless in such a short time frame.

But if it holds a company for 5, 6, or 7 years, the IRR is far more important.

Most firms have *specific targets* for both the IRR and the MoM multiple, and they aim to hold companies for a set number of years to make these targets more achievable.

For example, a middle-market private equity firm might plan to hold companies for **5 years**, on average, and aim for the following returns:

- **Downside Case:** Minimum of a 1.5x MoM multiple, with no specific minimum IRR
- **Base Case:** A 2.0x MoM multiple and a 15% IRR
- **Upside Case:** A 3.0x MoM multiple and a 25% IRR

Private equity funds are judged on their IRRs; funds' investors ("Limited Partners") allocate their money based on average annual returns.

If a PE firm consistently produces 20%+ IRRs over 5 or 10-year time frames, it will be able to raise capital more easily.

But if it returns LPs' money *too* quickly or it focuses on deals with high MoM multiples but poor IRRs, it will have difficulty raising capital.

PE firms must often earn above a "hurdle rate" to receive "carried interest," i.e. a performance fee, usually around 20% of the profits from investments.

This hurdle rate is based on IRR.

For example, if the hurdle rate is 8%, the PE firm needs its portfolio-wide IRR to be at least 8% before it can earn a performance fee from its investments.

For example, let's say the firm invests $100 into one deal and earns back $300.

Normally, the firm itself might receive 20% of the $200 in profits, or $40.

But if there's a "hurdle rate," **the firm will not receive 20% * $200 unless its portfolio-wide IRR is at least 8% first**.

As a result, you can think of this IRR vs. MoM multiple trade-off in the following way:

"PE firms always aim to exceed their hurdle rate, which is based on IRR. But above that minimum IRR threshold, they often optimize for the MoM multiple since *they get paid* based on a percentage of profits, and 'profits' are based on equity invested and earned back."

Rules of Thumb for Quickly Calculating IRR

Interviewers will often describe a deal and then ask you to approximate the IRR.

They might also give you the IRR and ask you to estimate the exit multiple or the purchase price, or other assumptions.

You can approximate IRR if you know the **Money-on-Money Multiple** and the **holding period:**

If you double your money in 1 year, that's a 100% IRR (e.g., invest $100 and get back $200 in 1 year → you've just earned 100% of what you put in).

If you double your money in 2 years, you need to earn *roughly* 50% per year to get there.

Due to compounding, it's less than 50%; it's closer to 40% if you calculate it in Excel.

For "double your money" scenarios, you take 100%, divide by the # of years, and then estimate the IRR as about 75-80% of that value.

For example, if you double your money in 3 years, 100% / 3 = 33%, and 75% * 33% = 25%.

In this case, 25% is the approximate IRR (the exact IRR is 26%).

The most important approximations are as follows:

- Double Your Money in 1 Year = 100% IRR
- Double Your Money in 2 Years = ~40% IRR
- **Double Your Money in 3 Years = ~25% IRR**
- Double Your Money in 4 Years = ~20% 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**

Note that we've rounded these numbers so that you can do the math more easily in your head. It's easier to work with 40% or 25% rather than 41% or 26%.

"Triple Your Money" scenarios are similar, but the compounding effect is greater there.

For example, in the "Triple Your Money in 3 Years" scenario above, 200% / 3 = 66.7%; the IRR of 45% is only about 2/3 of that number.

And for the 5-year scenario, 200% / 5 = 40%; the IRR of 25% is about 63% of that.

You can use the same trick but approximate the IRR as "around 65%" of 200% / # Years.

If you receive other information, such as the IRR or MoM Multiple, you can back into whatever the interviewer is asking for.

For example, if the interviewer says that the 3-year IRR is 35% and the Exit Equity Proceeds are $1,000 and asks you for the Initial Equity Invested:

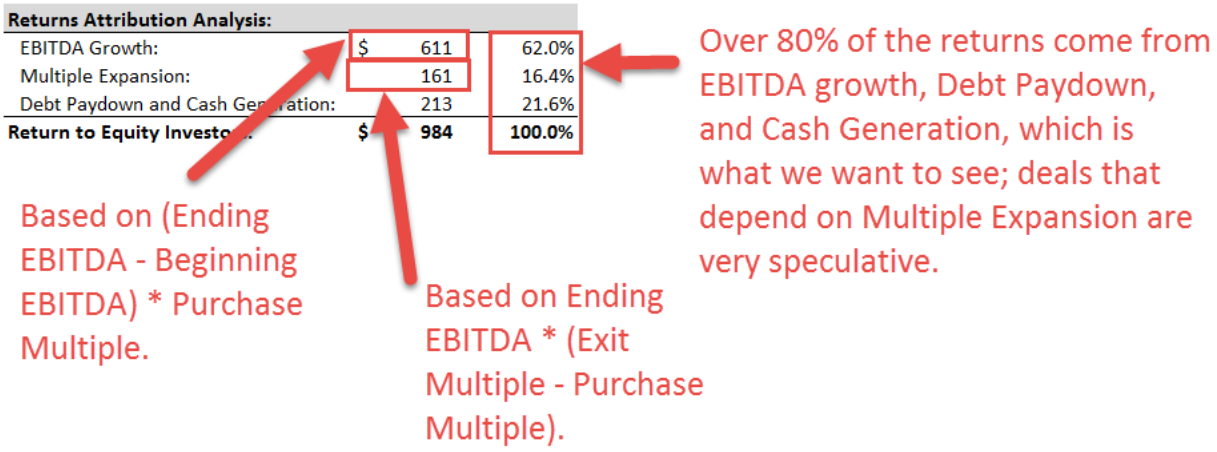
- 3x over 3 years is a ~45% IRR, and 2x over 3 years is a ~25% IRR, so a 35% IRR is around a 2.5x multiple.

- $1,000 / 2.5 = $400.

There are many examples like this one in the Interview Questions & Answers section.

Returns Attribution

You can also create a "Returns Attribution Analysis" to determine the **returns drivers:**



With the EBITDA Growth calculation, you're saying, "Let's imagine that the Purchase Multiple *stayed the same* – how much value would we get *solely* from the company's EBITDA growing?"

The Multiple Expansion calculation uses similar logic: "Let's imagine that the company's final year EBITDA stayed the same as its initial EBITDA – how much extra value could we get *solely* from the multiple increasing?"

The "Return to Equity Investors" line is based on the $1,484 in Equity Proceeds at the end minus the $500 Equity Contribution in the beginning.

And the "Debt Paydown and Cash" line is **the plug**: It equals $984 – $611 – $161.

You might wonder how this equals $213 since we repaid only $193 of Debt and did not generate any extra Cash.

The answer is that we're including the **$20 of Cash at the end**, which, as we mentioned above, is a bit questionable.

Some LBO models remove this and include only *additional Cash Generated* in the Returns Attribution Analysis.

If we did that here, the Return to Equity Investors would be $964 and the "Debt Paydown and Cash Generation" would equal $193 instead.

Step 4: Draw Conclusions

You might now look at sensitivity tables for the deal to assess it at different Purchase and Exit Multiples, different Debt levels, and different Revenue Growth and EBITDA Margin levels.

We'll cover an example of that later in this guide, but here's what we can say about this imaginary deal so far:

First, a 3.0x MoM multiple and a 24% IRR over 5 years are good results for most PE firms.

It's not a blowout success, but 95% of firms would do this deal if they were reasonably confident of these numbers.

Second, since EBITDA Growth and Debt Paydown drive the returns, this deal is not dependent on a "Greater Fool" paying a much higher multiple for the company.

Even if the Exit Multiple were *equal* to the Purchase Multiple, we'd still earn a 22% IRR and a 2.6x MoM multiple, which are "good enough" for most funds.

This deal is also not dependent on a high level of Debt; 50% Debt is on the *low side* for traditional leveraged buyouts.

All signs point to a relatively positive deal, but we'd have to see how the numbers hold up under lower growth rates and margins to gain **conviction**.

If we find out, for example, that the MoM multiple drops to 1.5x even in the most pessimistic case, we might decide to do the deal.

But if it drops to 0.5x, we might turn down the deal because we'd *lose money* in that case, which is a risk that PE firms avoid like the plague.

Return to Top.

Key Rule #3: The Purchase Price and Debt and Equity Assumptions

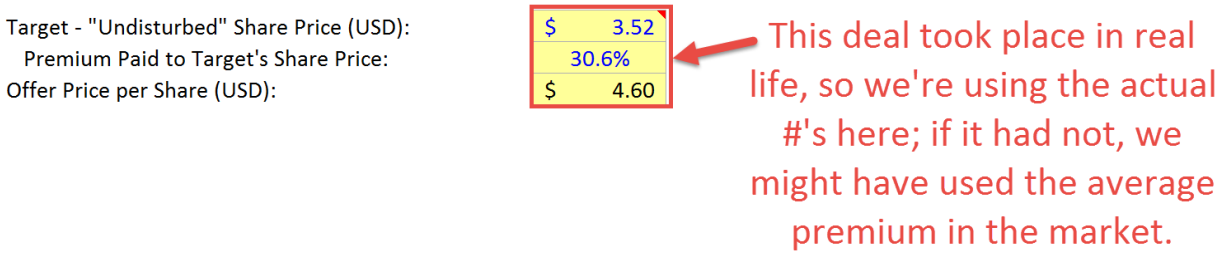
Starting with this Key Rule, we'll begin walking through a real LBO model for 7 Days Inn, a budget hotel chain in China that was listed in the U.S. before it was acquired by Carlyle (a large private equity firm).

Just like there's subtlety around the true "Purchase Price" in an M&A deal, there are also some shenanigans around the real "Purchase Price" in a leveraged buyout.

However, it gets even more confusing because existing investors and the management team might *participate* in the buyout, "rolling over" their shares in the process.

All the usual items – the Seller's existing Cash and Debt and the fees incurred in the transaction – will affect the true price, but this "rollover" will distort things even more.

As in an M&A deal, we **start** by basing the purchase price on a **premium** to the company's current share price, if it's public, or a multiple of its EBITDA or EBIT if it's private:



Then, we calculate the company's Current Equity Value, Current Enterprise Value, Purchase Equity Value, Purchase Enterprise Value, and all the relevant multiples:

Company Valuation @ Current Share Price:				Company Valuation @ Purchase Price:			
Diluted Shares (Millions) @ Current Share Price:	147.384			Diluted Shares (Millions) @ Offer Price:	149.271		
Options - Treasury Stock Method @ Current Share Price:				**Options - Treasury Stock Method @ Purchase Price:**			
Name:	**Number (Millions):**	**Exercise Price:**	**Dilution:**	**Name:**	**Number (Millions):**	**Exercise Price:**	**Dilution:**
Options A	1.858	$ 2.82	0.371	Options A	1.858	$ 2.82	0.719
Options B	6.636	$ 3.49	0.063	Options B	6.636	$ 3.49	1.601
Total:	**8.494**		**0.434**	**Total:**	**8.494**		**2.320**
Current Equity Value:			**¥ 3,262.2**	**Purchase Equity Value:**			**¥ 4,313.5**
(-) Cash & Cash-Equivalents:			(382.3)	(-) Cash & Cash-Equivalents:			(382.3)
(-) Equity Investments:			-	(-) Equity Investments:			-
(-) Other Non-Core Assets, Net:			-	(-) Other Non-Core Assets, Net:			-
(-) Net Operating Losses:			-	(-) Net Operating Losses:			-
(+) Total Debt:			251.4	(+) Total Debt:			251.4
(+) Preferred Stock:			-	(+) Preferred Stock:			-
(+) Noncontrolling Interests:			(22.9)	(+) Noncontrolling Interests:			(22.9)
(+) Unfunded Pension Obligations:			-	(+) Unfunded Pension Obligations:			-
(+) Capital Leases:			-	(+) Capital Leases:			-
(+) Restructuring & Other Liabilities:			-	(+) Restructuring & Other Liabilities:			-
Current Enterprise Value:			**¥ 3,108.4**	**Purchase Enterprise Value:**			**¥ 4,159.8**
Current Valuation of Target:	**$ in Millions**		**¥ in Millions**	**Valuation of Target at Purchase Price:**	**$ in Millions**		**¥ in Millions**
Current Equity Value:	$ 519.3		¥ 3,262.2	Purchase Equity Value:	$ 686.6		¥ 4,313.5
Current Enterprise Value:	494.8		3,108.4	Purchase Enterprise Value:	662.2		4,159.8
LTM EV / Revenue:			1.2 x	LTM EV / Revenue:			1.6 x
LTM EV / EBITDA:			5.5 x	LTM EV / EBITDA:			7.4 x
Forward EV / Revenue:			1.0 x	Forward EV / Revenue:			1.4 x
Forward EV / EBITDA:			4.2 x	Forward EV / EBITDA:			5.6 x

The true purchase price is **neither** the Purchase Equity Value **nor** the Purchase Enterprise Value.

However, we need to calculate both of these to determine the valuation multiples and to estimates the exit multiples.

At this stage, we can calculate the "Funds Required," the transaction and financing fees, and the Debt and Equity used to fund the deal:

Fees and Other Assumptions:	%:	$ in Millions	¥ in Millions
Advisory Fee %:	0.6%	$ 4.1	¥ 25.6
Debt Issuance Fee %:	3.0%	3.6	22.6
Legal and Other Fees:		9.9	62.4
Minimum Cash Balance:		20.0	125.6
Maximum Cash Available:		40.8	256.6

Funds Required:	$ in Millions	¥ in Millions
Equity Purchase Price:	$ 686.6	¥ 4,313.5
(+) Debt Refinanced:	40.0	251.4
(-) Excess Cash:	-	-
(-) Equity Rollover:	(311.1)	(1,954.6)
Total Funds Required (Excl. Fees):	**$ 415.5**	**¥ 2,610.4**

		Amounts Used:	
Transaction Funding:	% Used:	$ in Millions	¥ in Millions
Debt Used:	28.9%	$ 120.0	¥ 753.8
Equity Used:	71.1%	295.5	1,856.5

We're using the Debt and Equity percentages from the real-life deal; if we didn't have these, we might base the Debt on the median Debt / EBITDA of peer companies.

We always START with the company's Equity Purchase Price, and then add any Debt that's refinanced. If the company uses its own Cash to repurchase its shares, we subtract that. The "Equity Rollover" refers to how the existing investors / management are maintaining their 45-46% stake.

The "real price" here is *approximately* $415.5 million.

It's not *exactly* $415.5 million because we still need to account for the transaction and financing fees, which will add around $18 million to this figure.

This "real price" – whether it's $415 million or $433 million – is NOT only far from the Purchase Equity Value and the Purchase Enterprise Value, but it's NOT even between them!

Instead, it's *below* both of them because the management team and existing investors own ~46% of this company and maintain their ownership in the deal.

A 46% rollover is extremely high, but rollovers in the 5-10% range are common. Management tends to own a much smaller percentage of more established, mature companies.

Types of Debt and Debt Assumptions

In most deals, there are **multiple types or "tranches" of Debt**.

PE firms use multiple tranches of Debt because different investors have different risk appetites.

For example, if a PE firm is acquiring a company using 6x Debt / EBITDA, a conservative bank will not lend that much to fund the deal.

The bank might go up to 2x or 3x Debt / EBITDA, but beyond that, the PE firm will have to find investors that are willing to accept higher risk in exchange for potentially higher returns.

These more aggressive investors might be hedge funds, merchant banks, or mezzanine funds; they could also be institutional investors that specialize in higher-risk Debt.

Broadly speaking, Debt is divided into **Secured Debt** and **Unsecured Debt**.

Sometimes people term these two categories "Bank Debt" and "High-Yield Debt"; other labels include "Junior Debt" and "Senior Debt," or "Junior Capital" and "Senior Capital."

The main differences are as follows:

- **Secured Debt (AKA "Bank Debt" or "Senior Debt" or "Senior Capital"):**
    - **Collateral:** Yes – if the company defaults, lenders can seize Assets used as collateral, such as Inventory and PP&E.
    - **Interest Rates:** Floating (e.g., LIBOR + 375 = LIBOR + 3.75%), so the rates may change over time.
    - **Amortization:** Possible, but it's often minimal (e.g., 1% per year; sometimes up to 20% per year).
    - **Covenants:** Maintenance covenants (e.g., Debt / EBITDA cannot exceed 5x or EBITDA / Interest must remain above 3x at all times).
    - **Prepayment:** Early repayment of principal **is** allowed.
    - **Tenor (Maturity Period):** 5-10 years.
    - **Investors:** Mostly banks and more conservative lenders.
- **Unsecured Debt (AKA "High-Yield Debt" or "Junior Debt" or "Junior Capital"):**
    - **Collateral:** No – if the company defaults, the lenders lose their money.
    - **Interest Rates:** Higher and Fixed (e.g., 10% or 12%); Interest may also be "Paid-in-Kind" or PIK and accrue to the principal rather than being paid in cash.
    - **Amortization:** None; the entire balance is due upon maturity ("bullet maturity").

- **Covenants:** Incurrence covenants (e.g., The company can't sell Assets or issue Dividends, or if it raises capital, it must use the funds to repay Debt).
- **Prepayment:** Early repayment of principal is **not** allowed; the entire balance might be repaid early, but typically there are penalty fees associated with it.
- **Tenor (Maturity Period):** 8-10 years, sometimes up to 20-30+ years, and sometimes indefinite (Preferred Stock).
- **Investors:** Hedge funds, merchant banks, and mezzanine funds.
- **Other:** Often has **equity options** attached so that the Debt investors may end up owning a portion of the company's equity upon exit.

Here's a tabular summary – note that **these are *general* rules, and there are exceptions:**

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		

In real life, PE firms make decisions on the best type of Debt based on what **comparable companies and deals have used**, as well as the company's circumstances.

If similar deals have used 100% Subordinated Notes at 5x Debt / EBITDA ratios, the PE firm might decide *against* Subordinated Notes in a *particular* deal if the covenants are too restrictive.

For example, maybe the company is planning to spend a huge amount on CapEx to build a factory in 2 years, and the covenants on Subordinated Note covenants would restrict that.

In that case, it might make more sense to go against the market and use an alternative Debt structure that better aligns with the company's plans.

For the most part, though, you look at similar deals for companies with similar credit ratings and base the Debt levels on those.

If hotel chains with BB+ credit ratings have been acquired using median Total Debt of 4x, with 2x Term Loans and 2x Senior Notes, you might assume the same combination for 7 Days Inn.

Here are our assumptions:

Debt Assumptions

Debt Amounts:	%:	$ in Millions	¥ in Millions
Total Debt Used:		$ 120.0	¥ 753.8
% Senior Notes:	75.0%	90.0	565.4
% Subordinated Notes:	25.0%	30.0	188.5
Initial LIBOR Rate:	0.30%		
Annual Step-Up:	25 bps		

Other Debt Information:	Interest:	Principal:
Senior Notes:	L + 375	20.0%
Subordinated Notes:	10.0%	0.0%

This means that LIBOR starts out at 0.30% and increases by 0.25% per year in the holding period, so the Senior Note interest rate increases by that much as well.

If this were **not** a real deal, we'd base these figures on the percentages or Debt / EBITDA levels from similar leveraged buyouts in the market at this time.

Senior Notes rarely, if ever, amortize; 20% amortization would be more common for a Term Loan A. So this example diverges from reality for illustrative purposes.

With the Debt and Equity assumptions in place, we're *almost* ready to project Free Cash Flow and the company's Debt Repayment each year.

But we still don't know *exactly* how much the PE firm is paying and how the ownership changes in the deal, so we need to create a Sources & Uses schedule to determine both of those.

Return to Top.

Key Rule #4: Sources & Uses and Purchase Price Allocation

The Sources & Uses schedule in a merger model tells you how much the Buyer is *really* paying, and it serves a similar function in a leveraged buyout model.

The "Purchase Price" can be almost anything, but what matters is how much in **cold, hard Cash (Investor Equity) the PE firm is using to buy the company.**

And that's often very different from the "Purchase Price" because of Assumed vs. Refinanced Debt, fees, and rollovers from existing investors.

In an LBO, the Sources & Uses schedule serves another purpose as well: **It tells you how the company's ownership changes after the deal takes place**.

Existing investors, managers, employees, and anyone else with a stake in the company may choose to *participate* in the deal, which reduces the PE firm's post-deal ownership.

By contrast, the ownership in M&A deals is a moot point unless the Buyer uses Stock – and even if Stock *is* involved, you track ownership with a Contribution Analysis instead.

Typical **Uses of Funds** in a leveraged buyout include:

- **Equity Purchase Price of Company** – How much it costs to buy 100% of the company's shares.
- **Advisory, Legal, and Financing Fees** – How much the company must pay bankers and lawyers to get the deal done and raise the Debt.
- **Assumed Debt** – If Debt is "assumed," it's kept in place or replaced with new Debt that's the same as, or very similar to, the existing Debt.
- **Refinanced Debt** – If Debt is "refinanced," the PE firm repays it using the Debt and Equity funding the deal.

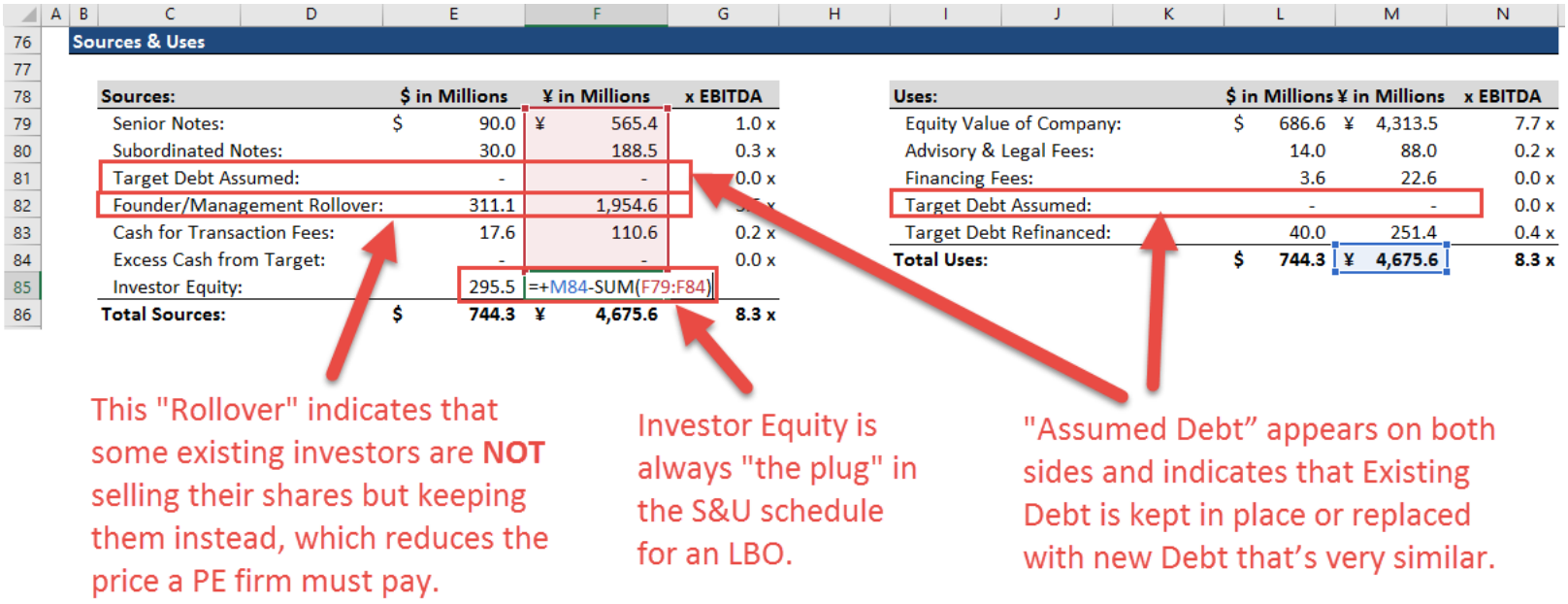
Typical **Sources of Funds** in a leveraged buyout include:

- **All Forms of Debt** – The Revolver, Term Loans, Senior Notes, Subordinated Notes, Mezzanine, Preferred Stock, and other Debt all count as funding sources.
- **Assumed Debt** – If Debt is "assumed," it's kept in place or replaced with new Debt that's the same as, or very similar to, the existing Debt.
- **Equity Rollover from Existing Investors** – If existing investors choose to *keep* their shares in the company rather than selling them to the PE firm, that reduces the purchase price. For example, the PE firm might have to pay for only 90% of the company's shares rather than 100%.

- **Excess Cash** – If the acquired company uses its Cash to fund the deal by repurchasing its own shares, that Cash shows up here. Like the Equity Rollover, it also reduces the "real price" the PE firm must pay.

- **Investor Equity** – This one is the *last* item on the Sources side, and it acts as "the plug." You calculate it by taking the Total Uses and subtracting all the Sources *above* this line, and it tells you **how much Cash** the PE firm must use to acquire the company.

Here's the Sources & Uses schedule for 7 Days Inn:



Sources & Uses

Sources:	$ in Millions	¥ in Millions	x EBITDA
Senior Notes:	$ 90.0	¥ 565.4	1.0 x
Subordinated Notes:	30.0	188.5	0.3 x
Target Debt Assumed:	-	-	0.0 x
Founder/Management Rollover:	311.1	1,954.6	
Cash for Transaction Fees:	17.6	110.6	0.2 x
Excess Cash from Target:	-	-	0.0 x
Investor Equity:	295.5	=+M84-SUM(F79:F84)	
Total Sources:	**$ 744.3**	**¥ 4,675.6**	**8.3 x**

Uses:	$ in Millions	¥ in Millions	x EBITDA
Equity Value of Company:	$ 686.6	¥ 4,313.5	7.7 x
Advisory & Legal Fees:	14.0	88.0	0.2 x
Financing Fees:	3.6	22.6	0.0 x
Target Debt Assumed:	-	-	0.0 x
Target Debt Refinanced:	40.0	251.4	0.4 x
Total Uses:	**$ 744.3**	**¥ 4,675.6**	**8.3 x**

This "Rollover" indicates that some existing investors are **NOT** selling their shares but keeping them instead, which reduces the price a PE firm must pay.

Investor Equity is always "the plug" in the S&U schedule for an LBO.

"Assumed Debt" appears on both sides and indicates that Existing Debt is kept in place or replaced with new Debt that's very similar.

The "Target Debt Assumed" line tends to cause confusion; here's how you can think about it:

On the Uses side, Existing Debt will always **add** to the funds required to acquire the company because it must be repaid upon "change of control."

But there are 2 ways a PE firm could "repay" this Existing Debt: It could do so using a *combination* of Debt and Equity, or it could simply *replace* the Existing Debt with New Debt that's largely the same.

You start on the Uses side to figure out exactly how much the deal will cost.

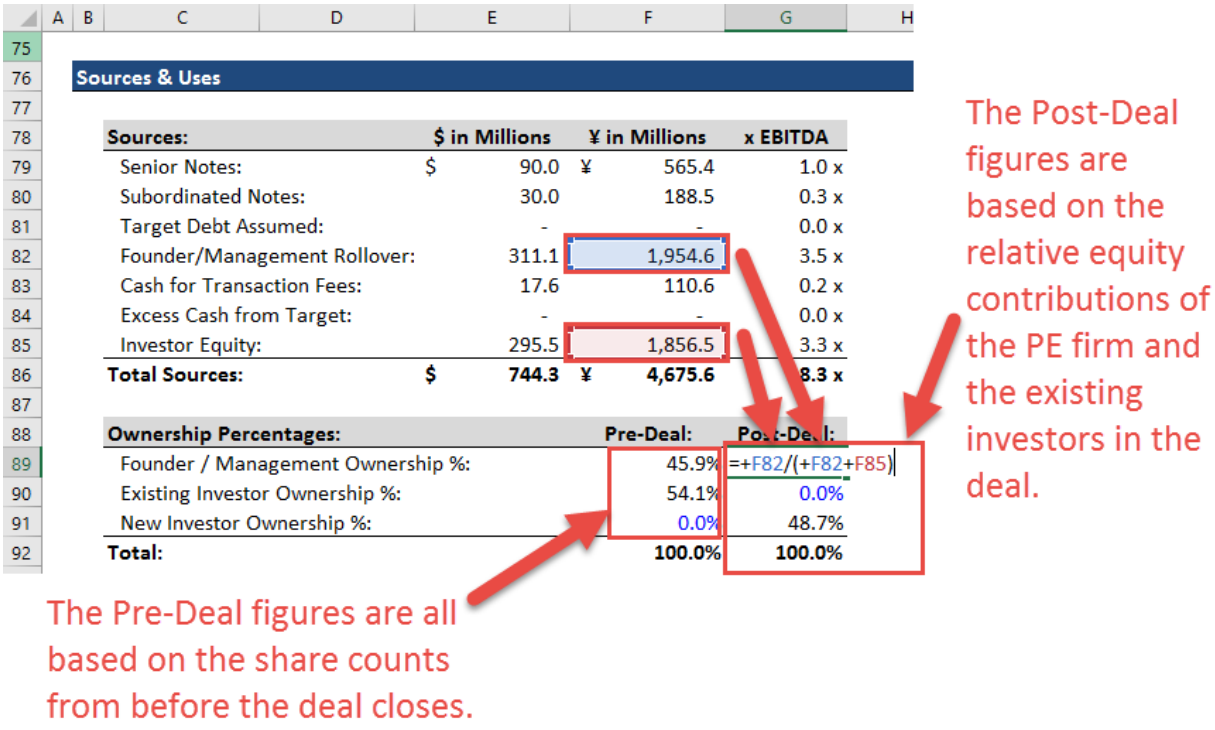
And then you move to the Sources side to determine *how* the PE firm will pay for it.

If you do NOT list "Assumed Debt" on the Sources side, you're saying, "We're going to repay this Existing Debt using a *combination* of Debt and Equity."

But if you **DO** list it on the Sources side, you're saying, "We keep the Existing Debt in place, or we replace it with New Debt that is (almost) the same."

Payment for advisory, legal, and financing fees may come from anything on the Sources side: Debt, Equity, or Excess Cash. In this case, it comes from the Seller's Cash balance.

The Sources & Uses schedule also tells us how the **company's ownership changes**:



The 49% ownership of the New Investors – the PE firm – is **far lower** than the typical percentage they own after an LBO takes place.

This low percentage could be positive: Management is on board and wants to make the deal work.

But it could also be negative: The PE firm doesn't have as much control if something goes wrong and needs to be fixed.

Purchase Price Allocation

You can also complete the Purchase Price Allocation (PPA) process for leveraged buyouts.

It works the same way as it does for M&A deals: Write down the Seller's Common Shareholders' Equity completely, write up Assets, write down existing Deferred Tax items, create a new DTL, and create Goodwill based on those changes.

But in LBO models, you often skip this process and the Balance Sheet adjustments because they don't make a big impact on the results.

Items such as the Depreciation & Amortization of Asset write-ups are **non-cash**, and, therefore, affect only the company's taxes.

But in most M&A and LBO deals, they don't even affect the company's taxes because they're not deductible for cash-tax purposes!

You pay more attention to these items in M&A deals because they *do* affect the company's EPS and, therefore, the EPS accretion/dilution, and you focus on those metrics in merger models.

But leveraged buyouts are all about **cash flow**, and so these items are far less important.

In more advanced models, you will create a Purchase Price Allocation Schedule – but these items still barely make an impact.

We skipped this entire process for 7 Days Inn, but here's the Purchase Price Allocation Schedule for a leveraged buyout of CEC Entertainment, AKA "Chuck E. Cheese's":

Goodwill Creation & Purchase Price Allocation:

Goodwill Calculation:	$ in Millions
Equity Purchase Price:	$ 946.7
(-) Seller's Common Shareholders' Equity:	(160.8)
(+) Write-Off of Existing Goodwill:	-
Total Allocable Purchase Premium:	**785.9**
(-) Write-Up of PP&E:	(27.7)
(-) Write-Up of Intangibles:	(414.1)
(-) Write-Down of Existing DTL:	(57.8)
(+) Write-Off of Existing DTA:	2.1
(+) New Deferred Tax Liability:	170.7
Total Goodwill Created:	**$ 459.1**

Fixed Asset Write-Up:	%:	$ in Millions
PP&E Write-Up:	4.0%	$ 27.7
Depreciation Period (Years):	12.5	
Yearly Depreciation Expense:		2.2

Intangible Asset Write-Up:	%:	$ in Millions
Excess Purchase Price to Allocate:		$ 785.9
Indefinite-Lived Intangibles:	50.9%	400.0
Definite-Lived Intangibles:	1.8%	14.1
Amortization Period (Years):	15	
Yearly Amortization Expense:		0.9
New Deferred Tax Liability:		170.7

Given the tiny amount of new D&A, this Purchase Price Allocation made almost no difference in the final output.

Return to Top.

Key Rule #5: Projecting the Cash Flows and Debt Repayment

Once you have the Purchase Price, Debt and Equity assumptions, and Sources & Uses schedule, you can project the company's **cash flows** and Debt repayment.

You do **NOT** need full 3-statement projections for the company: You just need its Income Statement and portions of its Cash Flow Statement.

But even if you use simplified or partial statements, you must reflect any **fundamental business shifts** in these forecasts.

For example, if the company is switching to a more capital-intensive or less capital-intensive business model or its margins are expanding or shrinking, you need to reflect those trends.

At the time of this deal, 7 Days Inn was moving away from "Leased & Operated Hotels" that it owned directly and into a franchised business model with "Managed Hotels."

It's the same way McDonald's makes money: The company licenses its name and systems to franchisees, who then start restaurants, run them, and pay McDonald's royalty fees.

Managed Hotels are much less capital-intensive than Leased & Operated ones, but they're also riskier because the parent company has less control.

We want to reflect this shift away from L&O Hotels, so we start by assuming relatively low growth in that segment:

		Historical			Projected				
Revenue Assumptions:	***Units***	**FY10**	**FY11**	**FY12**	**FY13**	**FY14**	**FY15**	**FY16**	**FY17**
Days in Year:	*# Days*	365	365	**366**	365	365	365	366	365
Total # of Hotels:	*# Hotels*	568	944	**1,345**	1,704	2,049	2,394	2,714	3,034
Leased & Operated Hotels:									
Leased and Operated (L&O) Hotels:	*# Hotels*	321	411	**492**	541	586	631	671	711
# New L&O Hotels:	*# Hotels*	85	90	**81**	49	45	45	40	40
Total L&O Hotel Rooms:	*# Rooms*	32,825	43,021	**51,725**	56,276	60,957	65,638	69,798	73,959
Rooms per L&O Hotel:	*# Rooms*	102	105	**105**	104	104	104	104	104
Average L&O Occupancy Rate:	*%*	91.0%	87.9%	**82.9%**	80.0%	78.0%	78.0%	76.0%	76.0%
L&O Average Daily Rate (ADR):	*¥ as Stated*	164.9	166.2	**167.0**	168.0	170.0	172.0	174.0	176.0
L&O Revenue per Available Room (RevPAR):	*¥ as Stated*	150.1	146.1	**138.4**	134.4	132.6	134.2	132.2	133.8
L&O Hotel Revenue:	*¥ M*	¥ 1,301.6	¥ 1,750.3	¥ 2,179.9	¥ 2,537.4	¥ 2,723.7	¥ 2,984.9	¥ 3,176.8	¥ 3,407.7
Non-Room Revenue:	*¥ M*	¥ 63.8	¥ 71.4	¥ 122.3	¥ 123.4	¥ 132.4	¥ 145.1	¥ 154.5	¥ 165.7
% L&O Hotel Revenue:	*%*	4.9%	4.1%	**5.6%**	4.9%	4.9%	4.9%	4.9%	4.9%

New L&O hotels per year is well below historical levels.

L&O revenue still grows, but comprises a smaller and smaller % of the total.

The company's Managed Hotels segment grows more quickly, but it also brings in far less in revenue because 7 Days Inn charges a royalty fee of only 9-10% of total sales:

Revenue Assumptions:	Units	Historical FY10	FY11	FY12	Projected FY13	FY14	FY15	FY16	FY17
Managed Hotels:									
Managed Hotels:	# Hotels	247	533	**853**	1,163	1,463	1,763	2,043	2,323
# New Managed Hotels:	# Hotels	146	286	**320**	310	300	300	280	280
Total Managed Hotel Rooms:	# Rooms	23,585	51,663	**81,772**	111,756	140,584	169,412	196,318	223,224
Rooms per Managed Hotel:	# Rooms	95	97	**96**	96	96	96	96	96
Average Managed Occupancy Rate:	%	84.0%	81.5%	**80.3%**	78.0%	78.0%	76.0%	76.0%	74.0%
Managed Average Daily Rate (ADR):	¥ as Stated	156.7	155.8	**158.0**	159.0	161.0	163.0	165.0	167.0
Managed Hotel RevPAR:	¥ as Stated	131.6	127.0	**126.9**	124.0	125.6	123.9	125.4	123.6
Managed Hotel Sales:	¥ M	435.9	1,093.1	**2,399.0**	3,701.6	5,122.5	6,356.7	7,775.4	8,855.2
Managed Hotel Net Revenue:	¥ M	¥ **89.7**	¥ **179.3**	¥ **262.1**	¥ **370.2**	¥ **512.3**	¥ **603.9**	¥ **699.8**	¥ **797.0**
% Total Managed Hotel Sales:	%	20.6%	16.4%	**10.9%**	10.0%	10.0%	9.5%	9.0%	9.0%

Managed Hotels are growing far more quickly than the L&O Hotels... but...

...With a franchise business model, 7 Days Inn gets only a small percentage of the hotel sales.

As a direct result of this shift, we assume slower expense growth and less CapEx spending on a per-hotel basis in the future:

Expense and Cash Flow Assumptions:	Units	Historical FY10	FY11	FY12	Projected FY13	FY14	FY15	FY16	FY17
Operating Costs per L&O Hotel:	¥ M / Hotel	¥ 3.69	¥ 3.88	¥ **4.13**	¥ 4.26	¥ 4.38	¥ 4.52	¥ 4.63	¥ 4.75
Operating Cost Growth:	%	(10.5%)	5.2%	**6.6%**	3.0%	3.0%	3.0%	2.5%	2.5%
SG&A % Revenue:	%	10.8%	12.9%	**11.1%**	11.5%	11.0%	11.0%	10.5%	10.5%
D&A per Hotel:	¥ M / Hotel	0.32	0.26	**0.24**	0.22	0.20	0.19	0.18	0.17
D&A per Hotel Growth Rate:	%		(18.3%)	**(7.5%)**	(10.0%)	(8.0%)	(6.0%)	(6.0%)	(5.0%)
Other Non-Cash Charges % Revenue:	%	(0.1%)	(0.2%)	**(0.3%)**	(0.3%)	(0.4%)	(0.4%)	(0.5%)	(0.5%)
Change in WC % Change in Revenue:	%	6.0%	11.5%	**12.6%**	12.0%	12.0%	13.0%	13.0%	14.0%
CapEx per Hotel:	¥ M / Hotel	0.75	0.60	**0.41**	0.32	0.23	0.18	0.15	0.12
CapEx per Hotel Growth Rate:	%		(19.9%)	**(32.4%)**	(20.0%)	(30.0%)	(20.0%)	(20.0%)	(20.0%)
Effective Cash Interest Rate:	%	0.8%	1.4%	**1.8%**	1.8%	1.8%	1.8%	1.8%	1.8%
Effective Interest Rate on Existing Debt:	%	3.8%	4.3%	**7.3%**	7.3%	7.3%	7.3%	7.3%	7.3%
Repayments of Existing Debt:	¥ M				(40.5)	(88.0)	(33.4)	(33.4)	(33.4)
Equity Income (Loss) in Affiliates:	¥ M				-	-	-	-	-

Declines due to the rise in Managed Hotel revenue.

These both decline sharply because the company stops *owning directly* most of its hotels. So if this business shift works as planned, its FCF will increase substantially.

In real life, we didn't sit down and create all these assumptions in one fell swoop.

It was an **iterative process**: We looked at the company's filings and investor presentations, tried different numbers, saw the results on the Income Statement and Cash Flow Statement, and then went back to tweak the assumptions.

For example, if CapEx fell to an unreasonably low level, then we would tweak our assumptions so that it ends up in a more reasonable range by the end.

Here's the preliminary Income Statement based on these assumptions:

Income Statement:	Units	Historical			Projected				
		FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17
Revenue:	¥ M	¥ 1,498.9	¥ 2,003.4	¥ 2,557.2	¥ 3,031.0	¥ 3,368.4	¥ 3,734.0	¥ 4,031.1	¥ 4,370.4
Revenue Growth:	%	*31.3%*	*33.7%*	***27.6%***	*18.5%*	*11.1%*	*10.9%*	*8.0%*	*8.4%*
(+) Hotel Operating Costs:	¥ M	1,182.9	1,593.3	**2,033.5**	2,303.1	2,569.5	2,849.8	3,106.3	3,373.7
(+) Selling, General & Administrative:	¥ M	161.9	259.0	**283.4**	348.6	370.5	410.7	423.3	458.9
Total Operating Expenses:	¥ M	**1,344.9**	**1,852.3**	**2,316.9**	**2,651.7**	**2,940.0**	**3,260.6**	**3,529.5**	**3,832.6**
Operating Income:	¥ M	**154.1**	**151.1**	**240.3**	**379.3**	**428.3**	**473.4**	**501.6**	**537.8**
(+) Interest Income:	¥ M	3.1	6.2	**7.9**					
(-) Interest Expense - Existing Debt:	¥ M	(2.1)	(7.2)	**(21.5)**					
(-) Interest Expense - New Debt:	¥ M	-	-	**-**					
(+) Equity Income / (-) Loss in Affiliates:	¥ M	(0.0)	0.1	**-**	-	-	-	-	-
Pre-Tax Income:	¥ M	**155.1**	**150.2**	**226.7**	**379.3**	**428.3**	**473.4**	**501.6**	**537.8**
(-) Income Tax Provision:	¥ M	(35.8)	(36.3)	**(67.5)**	(97.4)	(110.0)	(121.5)	(128.8)	(138.1)
Net Income:	¥ M	**119.2**	**114.0**	**159.2**	**281.9**	**318.3**	**351.8**	**372.8**	**399.7**

You should leave the **Interest Income / (Expense) section** blank initially.

This section depends on the Debt and Cash balances, and we need the company's cash flow projections to forecast both of them.

Here's the start of our cash flow projections:

Cash Flow Statement:	Units	Historical			Projected				
		FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17
Operating Activities:									
Net Income:	¥ M	¥ 119.2	¥ 114.0	¥ 159.2	¥ 281.9	¥ 318.3	¥ 351.8	¥ 372.8	¥ 399.7
(+) Depreciation & Amortization:	¥ M	180.8	245.4	**323.5**	368.9	408.1	448.2	477.6	507.2
(+/-) Other Non-Cash Charges:	¥ M	(1.8)	(3.7)	**(7.1)**	(9.1)	(13.5)	(14.9)	(20.2)	(21.9)
(+/-) Change in Working Capital:	¥ M	21.6	58.2	**69.8**	56.9	40.5	47.5	38.6	47.5
Cash Flow from Operations:	¥ M	**319.7**	**414.0**	**545.4**	**698.5**	**753.4**	**832.6**	**868.8**	**932.6**
Investing Activities:									
(-) Capital Expenditures:	¥ M	(425.6)	(566.8)	**(546.2)**	(553.6)	(466.0)	(435.6)	(395.0)	(353.3)
(+/-) One-Time and Other Items:	¥ M	268.7	(117.8)	**10.0**	-	-	-	-	-
Cash Flow from Investing:	¥ M	**(157.0)**	**(684.7)**	**(536.2)**	**(553.6)**	**(466.0)**	**(435.6)**	**(395.0)**	**(353.3)**
Free Cash Flow:	¥ M				**144.9**	**287.4**	**397.0**	**473.8**	**579.3**
Beginning Cash Balance:	¥ M				271.6	125.6	138.6	535.6	1,009.5
(+) Free Cash Flow:	¥ M				144.9	287.4	397.0	473.8	579.3
(-) Repayments of Existing Debt:	¥ M				-	-	-	-	-
(-) Minimum Cash Balance:	¥ M				(125.6)	(125.6)	(125.6)	(125.6)	(125.6)
Cash Available for New Debt Repayment:	¥ M				**290.9**	**287.4**	**410.0**	**883.8**	**1,463.1**

From the IS.

Both projected on a per-hotel basis; could also be percentages of Revenue.

These are percentages of Revenue or the Change in Revenue.

This is neither Levered FCF nor Unlevered FCF - since it includes Interest but no principal repayments!

$0 since the existing Debt was refinanced.

These projections are similar to the ones in a DCF, with a few differences:

- **Difference #1:** The *purpose* is different because we're estimating how much Debt the company can repay, not its Implied Value.

- **Difference #2:** You start with Net Income rather than NOPAT because you *want* to reflect the Net Interest Expense – it reduces how much Debt the company can repay.

- **Difference #3:** You don't "stop" at Free Cash Flow. You have to go beyond that because Debt repayment isn't necessarily the same as FCF in a leveraged buyout.

Just like in the DCF and merger model, we **ignore Stock-Based Compensation**: If we factored it in, we'd also have to estimate how the PE firm's ownership changes over time, which is tricky and not worth the effort.

The "Free Cash Flow" above is neither Unlevered nor Levered FCF: It's just Flow from Operations minus CapEx.

This metric approximates **how much Debt principal a company could repay each year**.

But it's not perfect.

For example, if a company starts out with Excess Cash, it can use some of that to repay Debt.

Also, if the company has a high Minimum Cash Balance, it can't use *all* its FCF for Debt repayment since it must maintain Cash above a certain level.

Finally, if the company's Existing Debt is *not* refinanced, repayments on that Existing Debt continue and take priority over repayment of the New Debt.

These reasons explain why the Cash Flow Available for Debt Repayment differs from Free Cash Flow in most of this model:

		Projected				
Cash Flow Statement:	***Units***	**FY13**	**FY14**	**FY15**	**FY16**	**FY17**
Free Cash Flow:	¥ *M*	**144.9**	**287.4**	**397.0**	**473.8**	**579.3**
Beginning Cash Balance:	¥ *M*	271.6	125.6	138.6	535.6	1,009.5
(+) Free Cash Flow:	¥ *M*	144.9	287.4	397.0	473.8	579.3
(-) Repayments of Existing Debt:	¥ *M*	-	-	-	-	-
(-) Minimum Cash Balance:	¥ *M*	(125.6)	(125.6)	(125.6)	(125.6)	(125.6)
Cash Available for New Debt Repayment:	¥ *M*	**290.9**	**287.4**	**410.0**	**883.8**	**1,463.1**

There's a difference here because the company's Beginning Cash balance far exceeds its Minimum, so the excess is available for Debt repayment.

These figures are the same because the Beginning Cash Balance = the Minimum Cash Balance.

In these years, the Beginning Cash Balance is always higher than the Minimum, so Cash Available exceeds FCF.

Once you have this item, you can track **how much Debt the company repays each year**:

Debt Schedule:	Units	Projected FY13	FY14	FY15	FY16	FY17
LIBOR:	%	0.55%	0.80%	1.05%	1.30%	1.55%
Senior Note Interest Rate:	%	4.30%	4.55%	4.80%	5.05%	5.30%
Subordinated Note Interest Rate:	%	10.00%	10.00%	10.00%	10.00%	10.00%
Beginning Senior Notes:	¥ M	¥ 565.4	¥ 274.5	¥ -	¥ -	¥ -
(-) Mandatory Repayment:	¥ M	(113.1)	(113.1)	-	-	-
(-) Optional Repayment:	¥ M	(177.8)	(161.4)	-	-	-
Ending Senior Notes:	¥ M	**274.5**	**-**	**-**	**-**	**-**
Beginning Subordinated Notes:	¥ M	188.5	188.5	188.5	188.5	188.5
(-) Mandatory Repayment:	¥ M	-	-	-	-	-
(-) Optional Repayment:	¥ M	-	-	-	-	-
Ending Subordinated Notes:	¥ M	**188.5**	**188.5**	**188.5**	**188.5**	**188.5**
(+) Interest Paid on New Debt:	¥ M	43.2	31.3	18.8	18.8	18.8
(+) Interest Paid on Existing Debt:	¥ M	-	-	-	-	-
(-) Interest Income on Cash:	¥ M	(4.8)	(2.2)	(2.4)	(9.4)	(17.8)
Net Interest Expense:	¥ M	**¥ 38.4**	**¥ 29.1**	**¥ 16.4**	**¥ 9.4**	**¥ 1.1**

LIBOR increases by 0.25% per year, and, therefore, so does the Senior Note Interest Rate. The Subordinated Note Rate is fixed.

The minimum between the set annual amount (20%) and the Beginning Balance.

The minimum between (Cash Available for Debt Repayment - Mandatory Repayment) and (Beginning Balance - Mandatory Repayment).

Subordinated Notes almost never change because they don't amortize, and "prepayments" (i.e., optional repayments) are not allowed.

The Interest figures could be based on the Average Debt and Cash Balances, or linked to the Beginning Balances each year to avoid "circular references."

This Debt schedule is simple because the Subordinated Notes stay constant the whole time and the Senior Notes amortize at an even 20% per year.

In real life, "Senior Notes" almost never amortize, or if they do, it's at a very low rate, such as 1% per year – we set up the schedule this way solely for *illustrative/teaching* purposes.

Term Loan A might amortize at 10% or 20% per year, but Term Loan B, C, and anything else beyond it would have minimal (~1%) amortization or no amortization at all.

In real life, optional repayments of Senior Notes are rarely allowed; we showed them here simply to illustrate the concept.

A company might be able to repay *the entire* Senior Note balance early, but it would often pay a penalty to do so.

Optional repayments *mostly* come up with Term Loans (A, B, and C). The "Senior Notes" in this schedule function more like a Term Loan A than true Senior Notes.

A few formulas here deserve explanation:

- **Senior Notes, Mandatory Repayment:** =-MIN(J237, G70*M70)
  - This formula compares the *Beginning* Senior Note balance in the year to the set annual amortization amount, which is 20% * ¥565.4 = ¥113.1 here.

We never want to amortize *more than* the remaining Debt on the company's Balance Sheet. If only ¥50.0 of Debt remained, we'd amortize that entire remaining amount. It would make no sense to amortize ¥113.1 because it exceeds the remaining amount of Debt.

- **Senior Notes, Optional Repayment:** =-MIN(+J208+J238, +J237+J238)
  - This formula compares (Cash Available for Debt Repayment minus the Mandatory Repayment) to (Beginning Senior Notes Balance minus the Mandatory Repayment).

    We never want to repay *more than* the remaining Debt on the company's Balance Sheet. If the Beginning balance were ¥50.0 and the Mandatory Repayment were ¥20.0, exactly ¥30.0 would be left.

    If the company had ¥40.0 in Cash Available for Debt Repayment, it would repay the remaining balance of ¥30.0.

    But if it had only ¥20.0 in Cash Available for Debt Repayment, it would repay only ¥20.0.

Interest is based on the average Debt and Cash balances or the beginning balances.

Using the average balances creates a "circular reference" because the Ending Balance depends on the company's FCF and Interest, but both of those also depend on the Ending balance.

Circular references make the model harder to modify, so many models use the Beginning Balances or use switches to toggle between the Beginning and Average Balances.

The Revolver

One possibility we did *not* consider in this Debt Schedule was **what happens if the company doesn't have enough Cash Flow to pay for its Mandatory Debt Repayments**.

It's an *incredibly* unlikely scenario, given 7 Days Inn's high Cash balance, substantial FCF generation, and low Mandatory Debt Repayments.

But if the company had much lower FCF – for example, only ¥100 million in the first 2 years rather than ¥145 million and then ¥287 million – then this would be a real possibility.

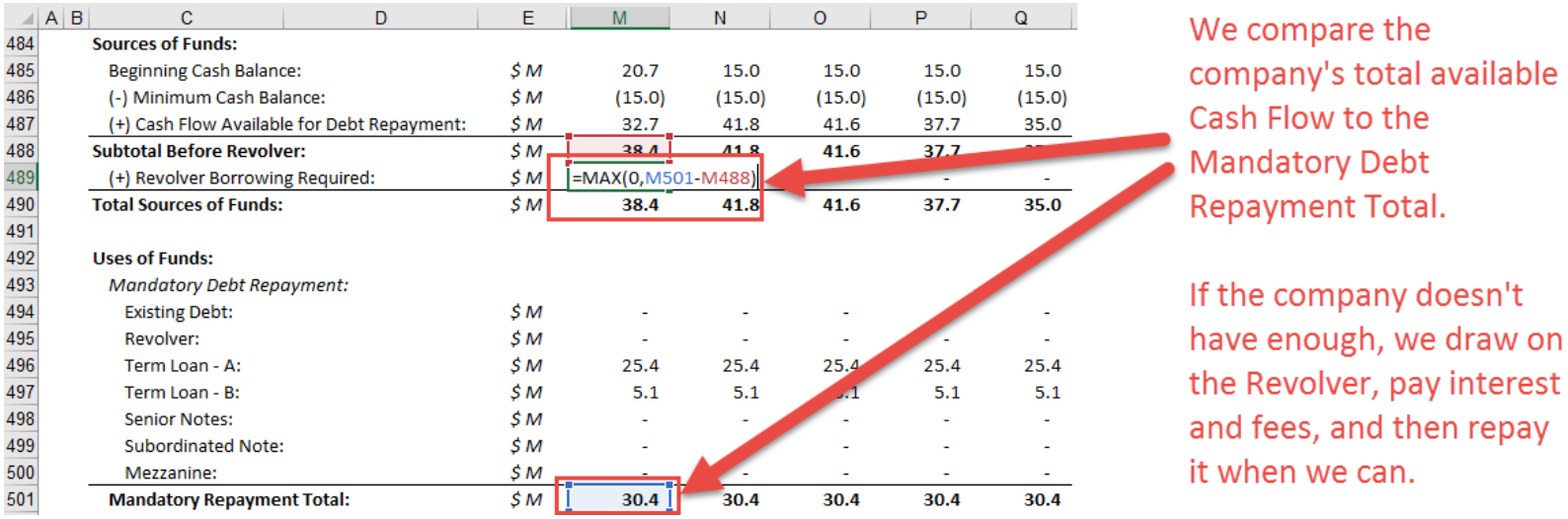
In that case, the company would have to set up a **Revolver** with its lenders that allows it to borrow extra to meet these repayment requirements.

Some sources describe the Revolver as a "credit card for companies," but it's better to think of it as a **personal overdraft account** at your bank.

If you suddenly need more in cash than what is available in your checking account, you can borrow extra with this overdraft account and pay interest and fees on this extra borrowing.

When you get your next paycheck, repay the extra borrowing and stop paying the extra interest and fees.

A **Revolver** works the same way for companies, and it's especially common in LBO scenarios. Here's an example from a more advanced LBO model:



484	**Sources of Funds:**						
485	Beginning Cash Balance:	$ M	20.7	15.0	15.0	15.0	15.0
486	(-) Minimum Cash Balance:	$ M	(15.0)	(15.0)	(15.0)	(15.0)	(15.0)
487	(+) Cash Flow Available for Debt Repayment:	$ M	32.7	41.8	41.6	37.7	35.0
488	**Subtotal Before Revolver:**	$ M	**38.4**	**41.8**	**41.6**	**37.7**	
489	(+) Revolver Borrowing Required:	$ M	=MAX(0,M501-M488)			-	-
490	**Total Sources of Funds:**	$ M	**38.4**	**41.8**	**41.6**	**37.7**	**35.0**
491							
492	**Uses of Funds:**						
493	*Mandatory Debt Repayment:*						
494	Existing Debt:	$ M	-	-	-		-
495	Revolver:	$ M	-	-	-	-	-
496	Term Loan - A:	$ M	25.4	25.4	25.4	25.4	25.4
497	Term Loan - B:	$ M	5.1	5.1	5.1	5.1	5.1
498	Senior Notes:	$ M	-	-	-	-	-
499	Subordinated Note:	$ M	-	-	-	-	-
500	Mezzanine:	$ M	-	-	-	-	-
501	**Mandatory Repayment Total:**	$ M	**30.4**	**30.4**	**30.4**	**30.4**	**30.4**

Banks charge companies an **Undrawn Revolver Commitment Fee** on the portion they're *not* using (e.g., $100 million of a $150 million Revolver if the company is using only $50 million).

And then the company pays a fairly low interest rate, usually based on LIBOR plus a small spread, as well as fees on the portion that it *is* using.

These fees discourage companies from taking on Revolvers "just in case."

Linking the Income Statement, Cash Flow Projections, and Debt Schedule

With the Debt schedule set up, we can return to the other financial statements and link everything:

Cash Flow Statement:	Units	Projected FY13	FY14	FY15	FY16	FY17
Cash Available for New Debt Repayment:	¥ *M*	**290.9**	**287.4**	**410.0**	**883.8**	**1,463.1**
Cash Used for New Debt Repayment:	¥ *M*	(290.9)	(274.5)	-	-	-
Beginning Cash Balance:	¥ *M*	271.6	125.6	138.6	535.6	1,009.5
(+/-) Net Change in Cash:	¥ *M*	(146.0)	13.0	397.0	473.8	579.3
Ending Cash Balance:	¥ *M*	**125.6**	**138.6**	**535.6**	**1,009.5**	**1,588.7**
Beginning Existing Debt Balance:	¥ *M*	-	-	-	-	-
(+/-) Repayments of Existing Debt:	¥ *M*	-	-	-	-	-
Ending Existing Debt Balance:	¥ *M*	**-**	**-**	**-**	**-**	**-**
New Debt - Ending Balance:	¥ *M*	**462.9**	**188.5**	**188.5**	**188.5**	**188.5**
Total Debt Balance:	¥ *M*	**¥ 462.9**	**¥ 188.5**	**¥ 188.5**	**¥ 188.5**	**¥ 188.5**
Net Debt:	¥ *M*	**¥ 337.3**	**¥ 49.9**	**¥ -347.2**	**¥ -821.0**	**¥ -1,400.3**
Beginning Shareholders' Equity:	¥ *M*	3,723.1	4,005.0	4,323.3	4,675.2	5,047.9
(+) Net Income:	¥ *M*	281.9	318.3	351.8	372.8	399.7
Ending Shareholders' Equity:	¥ *M*	**4,005.0**	**4,323.3**	**4,675.2**	**5,047.9**	**5,447.6**

Mandatory + Optional Repayments from the Debt Schedule. Use negatives for everything.

Equal to FCF Generated - Repayments of Existing Debt - Repayments of New Debt.

All 0 since the Existing Debt is refinanced in the deal.

Equal to the ending Senior Notes + Subordinated Notes each year.

Right after the deal, the Equity = PE Firm's Equity Contribution + Rollover - One-Time Transaction Fees. Net Income adds to it and Dividends reduce it each year.

Once we've projected the Debt, Cash, and Shareholders' Equity balances, we can return to the Income Statement and link the Interest Income and Interest Expense from the Debt Schedule:

Income Statement:	Units	Projected FY13	FY14	FY15	FY16	FY17
Revenue:	¥ *M*	**¥ 3,031.0**	**¥ 3,368.4**	**¥ 3,734.0**	**¥ 4,031.1**	**¥ 4,370.4**
Revenue Growth:	%	*18.5%*	*11.1%*	*10.9%*	*8.0%*	*8.4%*
(+) Hotel Operating Costs:	¥ *M*	2,303.1	2,569.5	2,849.8	3,106.3	3,373.7
(+) Selling, General & Administrative:	¥ *M*	348.6	370.5	410.7	423.3	458.9
Total Operating Expenses:	¥ *M*	**2,651.7**	**2,940.0**	**3,260.6**	**3,529.5**	**3,832.6**
Operating Income:	¥ *M*	**379.3**	**428.3**	**473.4**	**501.6**	**537.8**
(+) Interest Income:	¥ *M*	4.8	2.2	2.2	8.3	16.5
(-) Interest Expense - Existing Debt:	¥ *M*	-	-	-	-	-
(-) Interest Expense - New Debt:	¥ *M*	(43.2)	(32.6)	(20.7)	(18.8)	(18.8)
(+) Equity Income / (-) Loss in Affiliates:	¥ *M*	-	-	-	-	-
Pre-Tax Income:	¥ *M*	**340.9**	**397.9**	**454.9**	**491.0**	**535.4**
(-) Income Tax Provision:	¥ *M*	(87.5)	(102.2)	(116.8)	(126.1)	(137.5)
Net Income:	¥ *M*	**253.4**	**295.7**	**338.1**	**364.9**	**398.0**
EBITDA:	¥ *M*	**¥ 748.2**	**¥ 836.4**	**¥ 921.6**	**¥ 979.2**	**¥ 1,045.0**
EBITDA Margin:	%	*24.7%*	*24.8%*	*24.7%*	*24.3%*	*23.9%*

The Net Interest Expense isn't *that* high because the company hasn't raised that much Debt and because its Cash balance grows by a massive amount over 5 years.

Net Income is down in the early years, but not by as much as you might expect - for the reasons above.

After we link the Interest Expense properly, the company takes more time to repay the Senior Notes: 3 years rather than 2 years.

And it ends up with a *slightly* lower Cash balance of ¥1.5 billion rather than ¥1.6 billion.

In traditional leveraged buyouts with higher Debt levels (e.g., 5.0x Debt / EBITDA instead of 1.3x Debt / EBITDA), there would be *far* more of an impact from linking the Interest Expense.

But since the Debt level is low, and since the company generates a huge amount of Cash, there's little impact after linking the Net Interest Expense:

Cash Flow Statement:	Units	Projected FY13	FY14	FY15	FY16	FY17
Cash Available for New Debt Repayment:	¥ M	**262.4**	**264.8**	**383.3**	**811.1**	**1,388.7**
Cash Used for New Debt Repayment:	¥ M	(262.4)	(264.8)	(38.2)	-	-
Beginning Cash Balance:	¥ M	271.6	125.6	125.6	470.8	936.8
(+/-) Net Change in Cash:	¥ M	(146.0)	-	345.1	466.0	577.5
Ending Cash Balance:	¥ M	**125.6**	**125.6**	**470.8**	**936.8**	**1,514.3**
Beginning Existing Debt Balance:	¥ M	-	-	-	-	-
(+/-) Repayments of Existing Debt:	¥ M	-	-	-	-	-
Ending Existing Debt Balance:	¥ M	**-**	**-**	**-**	**-**	**-**
New Debt - Ending Balance:	¥ M	**491.5**	**226.6**	**188.5**	**188.5**	**188.5**
Total Debt Balance:	¥ M	**¥ 491.5**	**¥ 226.6**	**¥ 188.5**	**¥ 188.5**	**¥ 188.5**
Net Debt:	¥ M	**¥ 365.8**	**¥ 101.0**	**¥ -282.3**	**¥ -748.3**	**¥ -1,325.8**
Beginning Shareholders' Equity:	¥ M	3,723.1	3,976.5	4,272.2	4,610.3	4,975.2
(+) Net Income:	¥ M	253.4	295.7	338.1	364.9	398.0
Ending Shareholders' Equity:	¥ M	**3,976.5**	**4,272.2**	**4,610.3**	**4,975.2**	**5,373.2**

With the Net Interest Expense factored in, the company's Cash balance grows to a lower level, and it takes more time to pay off the Senior Notes.

Calculating Key Metrics and Ratios

We can also calculate **Key Metrics and Ratios** for this leveraged buyout model.

These metrics and ratios let us:

- See if the company could potentially take on *more* Debt or if it's using *too much* Debt;
- Determine if we might be able to use a different capital structure; and
- Evaluate the operating assumptions and see if they make sense.

In case studies and modeling tests, for example, interviewers might look at a big increase in margins over the next 3-5 years and ask questions such as:

"Why are you certain that the company's operating margin will increase by 5%? Is its business model changing? How?"

Here are some questions that interviewers might raise based on our projections:

Key Metrics and Ratios:	Units	Historical			Projected				
		FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17
Revenue Growth:	%	31.3%	33.7%	**27.6%**	18.5%	11.1%	10.9%	8.0%	8.4%
Operating Margin:	%	10.3%	7.5%	**9.4%**	12.5%	12.7%	12.7%	12.4%	12.3%
EBITDA Margin:	%	22.3%	19.8%	**22.0%**	24.7%	24.8%	24.7%	24.3%	23.9%
Net Margin:	%	8.0%	5.7%	**6.2%**	8.4%	8.8%	9.1%	9.1%	9.1%
Effective Tax Rate:	%	23.1%	24.1%	**29.8%**	25.7%	25.7%	25.7%	25.7%	25.7%
D&A % Revenue:	%	12.1%	12.3%	**12.7%**	12.2%	12.1%	12.0%	11.8%	11.6%
CapEx % Revenue:	%	28.4%	28.3%	**21.4%**	18.3%	13.8%	11.7%	9.8%	8.1%

These margins are all increasing a modest amount - will the switch to Managed Hotels *really* result in this much of an increase?

CapEx as a % of Revenue is decreasing quite dramatically - do the hotel counts in each segment justify that? And why isn't D&A falling even close to as rapidly?

Here's what we can conclude from the credit stats and ratios:

Key Metrics and Ratios:	Units	Projected				
		FY13	FY14	FY15	FY16	FY17
Total Debt / EBITDA:	x	0.7 x	0.3 x	0.2 x	0.2 x	0.2 x
Total Debt / (EBITDA - CapEx):	x	2.5 x	0.6 x	0.4 x	0.3 x	0.3 x
Total Debt / (EBITDA - CapEx +/- Change in WC):	x	2.0 x	0.6 x	0.4 x	0.3 x	0.3 x
Net Debt / EBITDA:	x	0.5 x	0.1 x	(0.3 x)	(0.8 x)	(1.3 x)
Net Debt / (EBITDA - CapEx):	x	1.9 x	0.3 x	(0.6 x)	(1.3 x)	(1.9 x)
Net Debt / (EBITDA - CapEx +/- Change in WC):	x	1.5 x	0.2 x	(0.5 x)	(1.2 x)	(1.8 x)
EBITDA / Net Interest Expense:	x	19.5 x	27.5 x	49.9 x	92.8 x	446.1 x
(EBITDA - CapEx) / Net Interest Expense:	x	5.1 x	12.2 x	26.3 x	55.4 x	295.3 x
(EBITDA - CapEx +/- Change in WC) / Net Interest E	x	6.6 x	13.5 x	28.9 x	59.0 x	315.5 x
Total Debt / Equity:	x	0.1 x	0.1 x	0.0 x	0.0 x	0.0 x
Total Debt / Capital:	%	11.0%	5.0%	3.9%	3.6%	3.4%
Net Debt / Equity:	x	0.1 x	0.0 x	(0.1 x)	(0.2 x)	(0.2 x)
Net Debt / Net Capital:	%	8.4%	2.3%	(6.5%)	(17.7%)	(32.8%)
Debt Service Coverage Ratio:	x	1.0 x	2.0 x	6.8 x	25.3 x	30.8 x
Cumulative Debt Paydown:	¥ M	262.4	527.2	565.4	565.4	565.4
Cumulative Debt Paydown % of Initial Debt:	%	34.8%	69.9%	75.0%	75.0%	75.0%

The company pays off what little Debt it used in the deal *very* quickly, and it starts accumulating a huge Cash balance. It's never in any real danger of not making its interest payments.

These stats suggest that the company could *easily* use more Debt in the deal, or, at the very least that it could issue some of its Excess Cash to the PE firm in the form of a Special Dividend.

Free Cash Flow Conversion Analysis:						
EBITDA:	¥ M	¥ 748.2	¥ 836.4	¥ 921.6	¥ 979.2	¥ 1,045.0
(-) CapEx:	¥ M	(553.6)	(466.0)	(435.6)	(395.0)	(353.3)
(-) Net Interest Expense:	¥ M	(38.4)	(30.4)	(18.5)	(10.6)	(2.3)
(-) Taxes:	¥ M	(87.5)	(102.2)	(116.8)	(126.1)	(137.5)
(+/-) Other Non-Cash Items:	¥ M	(9.1)	(13.5)	(14.9)	(20.2)	(21.9)
(+/-) Change in WC:	¥ M	56.9	40.5	47.5	38.6	47.5
Free Cash Flow:	¥ M	**¥ 116.4**	**¥ 264.8**	**¥ 383.3**	**¥ 466.0**	**¥ 577.5**
FCF Conversion %:	%	15.6%	31.7%	41.6%	47.6%	55.3%
FCF Yield %:	%	3.1%	6.9%	10.1%	12.2%	15.2%

The key driver behind these results is that the company's FCF generation improves significantly, since it transitions into a less capital-intensive business model.

Return to Top.

Key Rule #6: Exit Strategies and Exit Assumptions

"You can check-out any time you like,

But you can never leave!"

-"Hotel California" by The Eagles

PE firms want the **opposite** of what The Eagles describe in their famous song: They want to be able to **leave** – to **exit** – an investment whenever they want.

A company might be the best in the world, but if there's no way to **sell** your stake in it, there's no way to make money with it.

The 3 main exit strategies in leveraged buyouts are:

1) **M&A** – Sell the company to another company or a different private equity firm within the next 3-7 years.

2) **IPO** – Take the company public and sell off the stake gradually over time.

3) **Dividend Recap AKA "Hotel California"** – The PE firm never "sells" the company, but instead asks the company to issue Dividends continually. *Eventually*, if these Dividends get big enough – quickly enough – the firm might realize acceptable returns.

Of these strategies, PE firms overwhelmingly prefer method #1: The M&A Exit.

This strategy tends to produce the **highest IRR**: The firm sells its entire stake all at once and doesn't have to wait for years to sell its shares.

The PE firm also removes all legal risk and potential "contaminants" because it stops owning the company completely at this stage.

An M&A exit is like a clean break-up where you move out and never talk to your ex again, while the IPO and Dividend Recap options are more like messy divorces where it takes years to work through alimony.

Just as in real life, while an M&A exit (or clean break-up) is *ideal*, the PE firm may not always be able to execute it.

For example, the company might be **too big** to be sold: If it's already the biggest company in its industry, then another company is unlikely to acquire it.

Another problem is that **there may not be any interested acquirers**, at least at the price the PE firm wants.

This problem often comes up in "dying industries," such as mainframe software or newspaper publishing, where the company has strong cash flows from legacy customers but where no *new* companies want to enter the industry.

If an M&A exit is not plausible, the private equity firm will have to consider an **IPO exit**, where it takes the company public and sells off its stake over time.

The advantage of an IPO is that almost any company above a certain size could, theoretically, go public, but the disadvantage is that the PE firm can't sell its entire stake at once.

If the PE firm sold its entire stake in the transaction, it would send a **strong negative signal to the market**: "We like this company… really, we like it, and you should buy its shares. But, oh, by the way, we're selling *all* our shares in the company. But don't worry, its prospects are great!"

The PE firm might be able to sell a portion of its stake – say, 20% or 30% – in the immediate deal, but it will have to sell the remaining 70% or 80% quietly over time.

Here's what the **M&A exit strategy** looks like in terms of MoM multiples and IRR (using the Chuck E. Cheese's LBO for the cash flow and EBITDA figures):

			Projected									
Returns Calculations:	***Units***	**FY13**	**FY14**	**FY15**	**FY16**	**FY17**	**FY18**	**FY19**	**FY20**	**FY21**	**FY22**	**FY23**
EBITDA Exit Multiple:	*x*						7.9x					
EBITDA:	*$ M*	$ 165.6					211.0					
Exit Enterprise Value:	*$ M*						**$ 1,668.3**					
(-) Net Debt:	*$ M*						(921.1)					
Equity Value on Exit:	*$ M*						**$ 747.2**					
Investor Equity:	*$ M*						747.2					
Returns to Investors:												
Sponsor Common Equity:												
Initial Investment:	*$ M*	$ (356.4)										
Dividends:	*$ M*		-	-	-	-	-					
Investor Equity:	*$ M*						747.2					
Total Cash Flows:	*$ M*	**$ (356.4)**	$ -	$ -	$ -	$ -	**$ 747.2**	$ -	$ -	$ -	$ -	$ -
Money-on-Money (MoM) Multiple:	*x*	**2.1 x**										
Internal Rate of Return (IRR):	*%*	**16.0%**										

Simple, clean exit where the PE firm sells its *entire* stake after 5 years.

PE firm does slightly better than doubling its money over 5 years, so the IRR is slightly above 15%.

In an IPO exit, the IRR will almost always be lower unless the company's share price increases significantly in the few years after it goes public.

Often, IPO exits result in *similar* or *higher* MoM multiples, but lower IRRs since the PE firm receives the proceeds over several years (at least).

Here's **the math for an IPO exit:**

Returns Calculations:	Units	FY13	Projected FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23
EBITDA Exit Multiple:	x						7.9x					
EBITDA:	$ M	$ 165.6					211.0					
Exit Enterprise Value:	$ M						**$ 1,668.3**					
(-) Net Debt:	$ M						(921.1)					
Equity Value on Exit:	$ M						**$ 747.2**					
Investor Equity:	$ M						747.2					
Share Price Increase Over IPO Price:	%						0.0%	10.0%	20.0%	30.0%		
% Stake Sold by PE Firm:	%						20.0%	35.0%	30.0%	15.0%		
Returns to Investors:												
Sponsor Common Equity:												
Initial Investment:	$ M	$ (356.4)										
Dividends:	$ M		-	-	-	-	-					
Investor Equity:	$ M						149.4	287.7	269.0	145.7		
Total Cash Flows:	$ M	**$ (356.4)**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 149.4**	**$ 287.7**	**$ 269.0**	**$ 145.7**	**$ -**	**$ -**
Money-on-Money (MoM) Multiple:	x	**2.4 x**										
Internal Rate of Return (IRR):	%	**14.5%**										

The fact that we're not selling the entire stake at once hurts us, but the assumed share price increases help a bit.

So despite a higher MoM multiple, the IRR is **LOWER** because of the time value of money.

An IPO exit is especially risky because **the company's share price might decrease!** Take a look at the numbers if that happens:

Returns Calculations:	Units	FY13	Projected FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23
EBITDA Exit Multiple:	x						7.9x					
EBITDA:	$ M	$ 165.6					211.0					
Exit Enterprise Value:	$ M						**$ 1,668.3**					
(-) Net Debt:	$ M						(921.1)					
Equity Value on Exit:	$ M						**$ 747.2**					
Investor Equity:	$ M						747.2					
Share Price Increase Over IPO Price:	%						0.0%	(10.0%)	(20.0%)	(30.0%)		
% Stake Sold by PE Firm:	%						20.0%	35.0%	30.0%	15.0%		
Returns to Investors:												
Sponsor Common Equity:												
Initial Investment:	$ M	$ (356.4)										
Dividends:	$ M		-	-	-	-	-					
Investor Equity:	$ M						149.4	235.4	179.3	78.5		
Total Cash Flows:	$ M	**$ (356.4)**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 149.4**	**$ 235.4**	**$ 179.3**	**$ 78.5**	**$ -**	**$ -**
Money-on-Money (MoM) Multiple:	x	**1.8 x**										
Internal Rate of Return (IRR):	%	**9.9%**										

This outcome is why PE firms always prefer M&A exits as long as they're plausible.

In some cases, it might **not** be possible to sell the company *or* to take it public. This happens frequently in:

- **Emerging and Frontier Markets** – If the capital markets in the country are small and undeveloped, it's probably not feasible to take a large company public there. And even if you try to take it public in the U.S. or Europe, investors might not be interested.

- **Cases Where the Company is Too Small to Go Public** – For example, it would be difficult for a $50 million revenue company to go public in the U.S., and even if it did, it might not get the valuation the PE firm desires.

- **Cases Where Regulatory or PR Obstacles Prevent the Company from Going Public or Being Acquired** – For example, if the company operates in an industry with a "bad reputation," such as tobacco or adult entertainment, it might not be able to go public, and potential acquirers might not be interested.

In these cases, the private equity firm will have to consider "partial exits": The real-life analogy would be breaking up with someone but still inviting him/her over for occasional booty calls.

The main "partial exit" strategy is the **dividend recapitalization** or **dividend recap**.

In a dividend recap, the company issues dividends to the private equity firm using its Cash and FCF each year, or by raising new Debt and using the proceeds for dividends.

The first strategy is called a **non-leveraged dividend recapitalization**, and the second one is a **leveraged dividend recapitalization**.

The first strategy works well for high-growth companies whose Free Cash Flow is growing rapidly.

But it's tough to make the math work unless FCF grows **a lot** – if it takes 10 years to recoup the initial investment, this method will never yield a great IRR.

The leveraged dividend recapitalization can work well when the company repays significant Debt or never raises much Debt.

For example, it would work well in this leveraged buyout of 7 Days Inn because:

- The company repays 75% of the initial Debt;
- It doesn't raise much Debt in the beginning; and
- It's clearly able to service leverage above 1.3x Debt / EBITDA.

Here's the math for the non-leveraged dividend recapitalization:

Returns Calculations:	Units	FY13	Projected FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23
EBITDA Exit Multiple:	x						7.9x					
EBITDA:	$ M	$ 165.6					211.0					
Exit Enterprise Value:	$ M											
(-) Net Debt:	$ M											
Equity Value on Exit:	$ M											
Investor Equity:	$ M											
Returns to Investors:												
Sponsor Common Equity:												
Initial Investment:	$ M	$ (356.4)										
Dividends:	$ M		40.0	50.0	60.0	70.0	80.0	90.0	100.0	110.0	120.0	130.0
Investor Equity:	$ M											
Total Cash Flows:	$ M	$ (356.4)	$ 40.0	$ 50.0	$ 60.0	$ 70.0	$ 80.0	$ 90.0	$ 100.0	$ 110.0	$ 120.0	$ 130.0
Money-on-Money (MoM) Multiple:	x	2.4 x										
Internal Rate of Return (IRR):	%	15.8%										

The "Exit Assumptions" are irrelevant here because there is no real exit.

These are VERY aggressive assumptions... how many companies have 11% Dividend Yields that increase each year?

The multiple is the same as in the IPO , and the IRR is even higher... but are the Dividend assumptions realistic?

The main problem with this scenario is that **these Dividend assumptions are wildly unrealistic**.

Even companies that issue Dividends tend to have Dividend Yields below 5%; an initial yield of 11% in Year 1 of a leveraged buyout is unheard of.

More realistic assumptions might be the following:

Returns Calculations:	Units	FY13	Projected FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23
EBITDA Exit Multiple:	x						7.9x					
EBITDA:	$ M	$ 165.6					211.0					
Exit Enterprise Value:	$ M											
(-) Net Debt:	$ M											
Equity Value on Exit:	$ M											
Investor Equity:	$ M											
Returns to Investors:												
Sponsor Common Equity:												
Initial Investment:	$ M	$ (356.4)										
Dividends:	$ M		10.0	15.0	20.0	25.0	30.0	35.0	40.0	45.0	50.0	55.0
Investor Equity:	$ M											
Total Cash Flows:	$ M	$ (356.4)	$ 10.0	$ 15.0	$ 20.0	$ 25.0	$ 30.0	$ 35.0	$ 40.0	$ 45.0	$ 50.0	$ 55.0
Money-on-Money (MoM) Multiple:	x	0.9 x										
Internal Rate of Return (IRR):	%	(1.3%)										

These more realistic assumptions also show why PE firms prefer to avoid this "exit strategy" if at all possible.

In our model for 7 Days Inn, we used the most common exit assumption: **An M&A exit at an exit multiple close to the purchase multiple**.

You'll often set the exit multiple equal to the purchase multiple, and then look at a range of outcomes around that, based on the multiples of peer companies and how this company's FCF growth and ROIC change over time:

Investor Returns:	Units	Historical FY10	Historical FY11	Historical FY12	Projected FY13	Projected FY14	Projected FY15	Projected FY16	Projected FY17
EBITDA:	¥ M			¥ 563.8					¥ 1,045.0
EBITDA Multiple:	x			7.4 x					7.4 x
Enterprise Value:	¥ M			4,159.8					7,710.0
Equity Value:	¥ M			4,313.5					9,035.8
Investor Equity:	¥ M			(1,856.5)	-	-	-	-	4,401.7
Money-on-Money (MoM) Multiple:	x			2.4 x					
Internal Rate of Return (IRR):	%			18.8%					

Returns Attribution Analysis:		Amount:	%:
EBITDA Growth:	¥ M	¥ 1,729.5	68.0%
Multiple Expansion:	¥ M	0.0	0.0%
Debt Paydown and Cash Generation:	¥ M	815.7	32.0%
Total Return to Equity Investors:	¥ M	¥ 2,545.2	100.0%

You'll usually start with an initial exit multiple around the same as the purchase multiple.

Subtract Net Debt to move from Exit Enterprise Value to Exit Equity Value, and then multiply by the PE firm's ownership % to get the Investor Equity.

You must hard-code 0's here in the middle or IRR won't work!

In theory, the company's exit multiple might increase, which is called "Multiple Expansion."

However, you shouldn't necessarily assume multiple expansion in your baseline model because it's tough to predict and rarely happens in real life.

In this model, for example, 7 Days Inn' Return on Invested Capital (ROIC) barely changes over the 5-year holding period: It stays in the 7-10% range, rising slightly by the end.

Its FCF growth also decreases from 100%+ to 20-25% by the end of the period.

A higher multiple *might* be justified because the company is switching to a less capital-intensive business model, but this franchise model also presents risks.

With these numbers, it would be tough to justify Multiple Expansion assumptions.

When you move to the Exit Equity Value at the end, the standard assumption is to **subtract Net Debt**, i.e. to subtract all Debt and add all Cash, to calculate it.

That is **not** necessarily what happens in real life because a private equity firm can't "take" an entire company's Cash balance at the end (e.g., because of the Minimum Cash Balance).

And while a PE firm usually has to repay the remaining Debt balance upon exit, there are cases – especially in IPO scenarios – where some of the Debt may stay in place.

In this model, it's reasonable to add the company's entire Cash balance upon exit because it generates a massive amount of Excess Cash in the holding period.

No PE firm would look at that Cash balance and say, "Well, let's just leave it alone and let the company have it. It's a gift!"

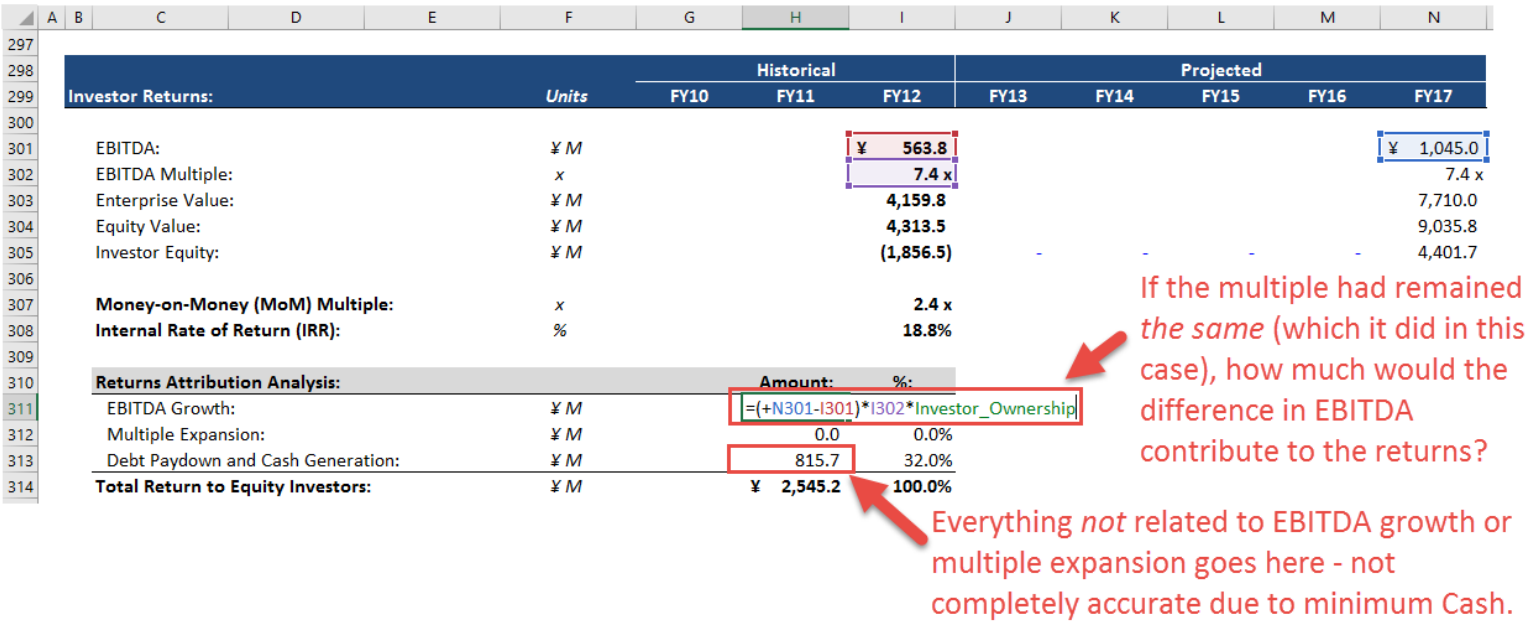
Instead, they would have the company issue a "Special Dividend" or otherwise distribute the Cash upon exit.

Calculating *both* the MoM multiple and the IRR is useful because it tells us how a deal looks based on both criteria.

Also, if the MoM multiple looks acceptable but the IRR does not, we might be able to make the math work by assuming an earlier exit or a dividend recap in between purchase and exit.

Returns Attribution Analysis

As discussed earlier, we can assess the returns drivers via a Returns Attribution Analysis:



Investor Returns:	Units	Historical FY10	Historical FY11	Historical FY12	Projected FY13	Projected FY14	Projected FY15	Projected FY16	Projected FY17
EBITDA:	¥ *M*			¥ 563.8					¥ 1,045.0
EBITDA Multiple:	*x*			7.4 x					7.4 x
Enterprise Value:	¥ *M*			4,159.8					7,710.0
Equity Value:	¥ *M*			4,313.5					9,035.8
Investor Equity:	¥ *M*			(1,856.5)	-	-	-	-	4,401.7
Money-on-Money (MoM) Multiple:	*x*			2.4 x					
Internal Rate of Return (IRR):	*%*			18.8%					

Returns Attribution Analysis:		Amount:	%:
EBITDA Growth:	¥ *M*	=(+N301-I301)*I302*Investor_Ownership	
Multiple Expansion:	¥ *M*	0.0	0.0%
Debt Paydown and Cash Generation:	¥ *M*	815.7	32.0%
Total Return to Equity Investors:	¥ *M*	¥ 2,545.2	100.0%

If the multiple had remained *the same* (which it did in this case), how much would the difference in EBITDA contribute to the returns?

Everything *not* related to EBITDA growth or multiple expansion goes here - not completely accurate due to minimum Cash.

For the returns from EBITDA Growth, we subtract the Initial EBITDA from the Final Year EBITDA, multiply by the Purchase Multiple, and then multiply by the PE firm's ownership %.

For the returns from Multiple Expansion, we subtract the Initial Multiple from the Exit Multiple, multiply by the Final Year EBITDA, and then multiply by the PE firm's ownership %.

And then we back into the "Debt Paydown and Cash Generation" figure by taking the Total Return to Equity Investors and subtracting the returns sources above.

In this case, Total Return to Equity Investors = ¥4,401.7 – ¥1,856.5 = ¥2,545.2.

Since there is no Multiple Expansion, the Returns from Debt Paydown and Cash Generation = Total Return to Equity Investors – Return from EBITDA Growth = ¥2,545.2 – ¥1,729.5 = ¥815.7.

Since roughly 2/3 of the returns come from EBITDA growth and 1/3 come from Debt Paydown and Cash Generation (*mostly* Cash Generation), this deal looks plausible.

If a high percentage of the returns came from Multiple Expansion, we'd be a lot more skeptical because multiples are tough to predict.

It's best to bet on **EBITDA growth** because it means the company's core business is growing.

We can also create sensitivity tables that show the impact of different assumptions on the IRR:

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

			EBITDA Exit Multiple:								
			5.0 x	5.5 x	6.0 x	6.5 x	7.0 x	7.4 x	8.0 x	8.5 x	9.0 x
Purchase Premium and Per Share Offer Price in USD:	$ 3.88	10.0%	15.8%	17.5%	19.2%	20.7%	22.2%	23.3%	25.0%	26.3%	27.6%
	4.05	15.0%	14.6%	16.4%	18.0%	19.6%	21.1%	22.2%	23.8%	25.1%	26.4%
	4.23	20.0%	13.6%	15.3%	16.9%	18.5%	20.0%	21.0%	22.7%	24.0%	25.2%
	4.40	25.0%	12.5%	14.3%	15.9%	17.4%	18.9%	20.0%	21.6%	22.9%	24.2%
	4.60	30.6%	11.4%	13.2%	14.8%	16.3%	17.8%	18.8%	20.5%	21.8%	23.0%
	4.76	35.0%	10.6%	12.3%	13.9%	15.5%	16.9%	18.0%	19.6%	20.9%	22.1%
	4.93	40.0%	9.7%	11.4%	13.0%	14.5%	16.0%	17.0%	18.7%	20.0%	21.2%

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

			% Debt:								
			10.0%	15.0%	20.0%	25.0%	28.9%	35.0%	40.0%	45.0%	50.0%
Purchase Premium and Per Share Offer Price in USD:	$ 3.88	10.0%	21.6%	22.1%	22.5%	22.9%	23.3%	23.9%	24.5%	25.0%	25.6%
	4.05	15.0%	20.5%	20.9%	21.4%	21.8%	22.1%	22.7%	23.2%	23.8%	24.3%
	4.23	20.0%	19.5%	19.9%	20.3%	20.7%	21.0%	21.6%	22.1%	22.6%	23.1%
	4.40	25.0%	18.5%	18.9%	19.3%	19.7%	20.0%	20.5%	21.0%	21.4%	22.0%
	4.60	30.6%	17.5%	17.8%	18.2%	18.5%	18.8%	19.3%	19.8%	20.2%	20.7%
	4.76	35.0%	16.7%	17.0%	17.3%	17.7%	18.0%	18.5%	18.9%	19.3%	19.8%
	4.93	40.0%	15.8%	16.1%	16.4%	16.8%	17.0%	17.5%	17.9%	18.3%	18.7%

The conclusion here is that even if the exit multiple falls substantially (~50% – down to 5.0x), the deal is still not a *disaster*.

Most PE firms aim to **avoid losing money** in these Downside scenarios, so a 1.5x multiple is a good outcome if things go horribly wrong.

And with modest Multiple Expansion, the IRR would exceed 20%.

With the second table, the main conclusion is that more Debt would increase the IRR modestly, but additional *upfront* Debt is unlikely to make a huge impact.

Going from 28.9% Debt to 50.0% Debt increases the IRR by only ~2%, so this is not the best way to improve the deal metrics.

We get this result because 2/3 of the returns come from EBITDA Growth, not Debt Paydown, and even the 1/3 of the returns from "Debt Paydown" *actually* come from Cash Generation.

It would make more sense to raise additional Debt during the holding period to fund a **Dividend Recap** instead.

How to Quickly Estimate the IRR

If the PE firm exits an LBO via an IPO or a dividend recapitalization, it's tough to estimate the IRR because the proceeds are distributed over time.

In those cases, you're better off using Excel to run the numbers. If you get pressed on how to calculate the IRR, think of it using the rules presented earlier:

- **"Double Your Money" Scenarios:** Take 100%, divide by the # of years, and then multiply by ~75% to approximate the IRR.

- **"Triple Your Money" Scenarios:** Take 200%, divide by the # of years, and then multiply by ~65% to approximate the IRR.

You can adjust the IRR up or down depending on how long it takes to sell off the PE firm's stake.

For this baseline scenario with 7 Days Inn, the MoM multiple is 2.4x, which is right between doubling our money and tripling our money.

If we double our money over 5 years, the IRR is roughly 100% / 5 * 75% = 20% * ~75% = ~15%.

If we triple our money over 5 years, the IRR is roughly 200% / 5 * 65% = 40% * ~65% = ~25%.

Since 2.4x is a *bit closer* to the "Double Our Money" case, we could approximate this IRR as "Just below 20%." The real IRR is 19%.

If the firm sold off its stake in an IPO over 3 years instead, with 1/3 sold per year starting in Year 5, we could approximate the IRR with this logic:

- It takes an average of **6 years** for the firm to sell its entire stake (1/3 in Year 5, 1/3 in Year 6, and 1/3 in Year 7).

- 100% / 6 = 16.7%, and 16.7% * ~75% = ~12.5%. And 200% / 6 = 33.3%, and 33.3% * 75% = ~25%. The IRR must be between ~12.5% and ~25%.

- We'd estimate the IRR as "Between 12.5% and 25%, and likely closer to 12.5% because 2.4x is closer to 2.0x than 3.0x; it might be around 16-17%."

The actual IRR in this IPO scenario where the stake is sold off over 3 years, and the company's share price doesn't change, is **16%**:

Investor Returns:	Units	Historical FY10	Historical FY11	Historical FY12	Projected FY13	Projected FY14	Projected FY15	Projected FY16	Projected FY17		
EBITDA:	¥ M			¥ 563.8					¥ 1,045.0		
EBITDA Multiple:	x			7.4 x					7.4 x		
Enterprise Value:	¥ M			4,159.8					7,710.0		
Equity Value:	¥ M			4,313.5					9,035.8		
Investor Equity:	¥ M			(1,856.5)	-	-	-	-	1,467.2	1,467.2	1,467.2
Money-on-Money (MoM) Multiple:	x			2.4 x							
Internal Rate of Return (IRR):	%			15.6%							

Average of 6 years to sell the entire stake, so the IRR is lower than we'd normally expect.

This trick stops working as well over longer time frames, but it's useful for answering these types of interview questions.

The most important IRR approximations are as follows:

- Double Your Money in 1 Year = 100% IRR
- Double Your Money in 2 Years = ~40% IRR
- **Double Your Money in 3 Years = ~25% IRR**
- Double Your Money in 4 Years = ~20% 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**

Please see the Interview Questions & Answers section for **many** examples of "IRR Calculation" questions, including questions where you're given the IRR or MoM multiple and must solve for something else, such as the purchase multiple.

Return to Top.

Key Rule #7: Using an LBO Model in Real Life

Once you have the final LBO model, can **use it in real life**.

In investment banking, you use the output of an LBO model to **pitch deals** to clients and prospective clients, and sometimes to negotiate with private equity firms as deals progress.

For example, if you're trying to sell your client to a private equity firm in an LBO, and the PE firm tries to negotiate a lower price, you might use the output from your LBO model as part of the argument for a higher price:

"Even with a 5% higher price, you could still realize a 22% 5-year IRR, even with more pessimistic operating assumptions."

The PE firm will disagree with your analysis, but you'll still do what you can to win a better price for your client.

You often use LBO models much earlier in the process as well: If you're speaking with a company that's interested in selling or raising capital, you might present a hypothetical leveraged buyout to management and say:

"You've previously been considering only 'strategic buyers' (normal companies), but if you're interested in selling, you should consider private equity firms as well. They could realize solid returns with your firm, and you could continue to operate independently."

And then you might present a summary of the financial figures backing up your claims.

The **mechanics** of the LBO model aren't much different in investment banking and private equity: You still make assumptions for the Purchase Price, the Equity and Debt levels, the Sources & Uses schedule, the financial statements, the Debt repayment, the exit, and so on.

But the difference is that **you're far more critical of the numbers** in private equity.

If the CFO forecasts revenue growth of 10% per year for 5 years with EBITDA margins rising from 15% to 20%, bankers will accept those projections and incorporate them into the model.

They might create Upside, Base, and Downside Cases, but they won't seriously challenge the client.

But in private equity, you **take the opposite approach** and scrutinize the numbers in-depth.

For example, you might pick apart an assumption like "10% revenue growth" and say:

- "OK, but how much of that comes from price vs. volume growth?"
- "If most of it comes from pricing growth, is that sustainable, or will the company start to lose customers?"
- "If most of it comes from volume growth, is the market big enough to support it?"

You might then interview customers, suppliers, and other market participants to see if these assumptions are realistic.

You approach the process differently because in private equity, you use LBO models to **screen for deals** and **recommend for or against deals**.

If the numbers don't work – e.g., the IRR never goes above 15% even in very optimistic cases – you won't spend any additional time working on the deal.

But if the numbers *do* work in your initial model – e.g., the IRR is 25% in the Base Case and 15% with a 1.5x MoM Multiple in the Downside Case – then you'll stress test them further:

- **Market Research and Channel Checks:** You might look at similar products on the market, see what customers are paying, and see how prices have trended historically. You might also get a sense of what other companies are spending to see how your company's margins might change.

- **Industry Trends:** If you're in a cyclical market, such as real estate, you'll take a look at historical pricing trends to see where you might be in the cycle for prices, occupancy rates, and other key factors, and how much these numbers could rise and fall over time.

- **New Numbers:** Based on this work, you'll refine your initial numbers and create **different scenarios** to represent more optimistic and pessimistic outcomes.

  If the deal still holds up across the different cases, then you might recommend it; if it doesn't, or there's too much risk, then you might recommend against the deal.

In private equity, you'll turn down ~99% of the deal you see.

It's completely different from investment banking, where banks accept almost any client – **PE firms do not get paid when they complete deals, but only when they *make money* with deals**.

The overall process for making a private equity investment recommendation looks like this:

Step 1: Determine Your Investment Criteria

For example, many private equity firms target a 20% IRR and plan to hold companies for 3-7 years; some growth equity firms target money-on-money multiples, such as 3x in the Base Case and 1.5x in the Downside Case.

Your specific numbers matter less than *setting* numbers and sticking to them.

Step 2: Create and Examine the Numbers in the Base Case

If the company or asset continues to operate "as is," what are the IRRs and multiples?

You might use management's projections for this case, but you should usually think of those figures as the "Upside Case."

If there's **no way** to achieve your targeted IRR and multiple in this Base Case, then your work is done: It's an easy "No" recommendation.

Step 3: Test the Downside Cases

Unlike venture capital firms that invest in high-risk startups, private equity firms **cannot** afford to lose money on deals.

A reasonable minimum for a Downside Case might be a **1.0x multiple**, though some firms aim for 1.2x – 1.5x multiples.

To come up with the numbers for this case, you might look at similar-but-worse-performing companies, assume a reversion to the mean for key stats like the occupancy rate or price increases, or find numbers from the last downturn or recession.

If the multiple drops to 0.5x with plausible Downside figures, the deal is probably a "No"; but if the multiple drops to 1.3x or 1.1x, the deal might still be feasible.

Step 4: Make a Decision and Back It Up with Qualitative Factors

Once you've made a decision, you need to go back to the market data and qualitative factors and use them to justify that decision.

For example, many PE firms look for companies with high switching costs, a high percentage of recurring revenue, a strong "moat," and relatively low CapEx requirements.

In case studies and modeling tests, you won't have time to investigate these points fully. Complete your analysis *first*, and then spin the qualitative side to support your decision.

In real life, you'll pay far more attention to these factors, and you might say "No" to an otherwise good deal if the qualitative/market points are not positive.

Your Final Recommendation

Your final recommendation should look something like this:

"Since we could realize an IRR of 20% and a MoM multiple of 2.5x in our Base Case and a 1.2x multiple even in more pessimistic scenarios, we recommend doing the deal and acquiring Company X for an EV / EBITDA multiple of 10.0x.

The company has been spending progressively less on CapEx as a % of revenue over time, even as it has grown its revenue, and we expect its capital efficiency to improve even more.

Even if its growth rate or margins decline to the levels from the last recession, the math still works. For the deal not *to work, the company's revenue growth would have to decline to (10%), which is well below even the worst-performing company in the industry."*

Why We Said "Yes" to 7 Days Inn

We followed a similar process with 7 Days Inn, and in the Downside Case, we focused on **much lower occupancy rates:** A possible decline from 80% to 65-70% over 5 years.

This much lower rate turned the IRR negative, but it wasn't **plausible** because it was well below industry-wide occupancy rates in the region and far below those of its closest peer company (Home Inns, which had 80-90% rates).

In pessimistic but *plausible* cases, we always avoided losing money.

The Base Case IRR was around **19%**, which is below what many PE firms target – why would we say yes, given this result?

A few factors explain our decision:

Factor #1: The Company Can and Should Distribute Its Excess Cash as Dividends Earlier On

This change would boost the IRR almost immediately because the PE firm loses out by waiting until the very end to distribute the cash.

The company also has no reason to make "optional" Debt repayments here: Distributing that cash in the form of Dividends would almost certainly boost the IRR.

Factor #2: We Could Change the Timing to Realize a Higher IRR

Since the MoM multiple is fine, while the IRR is a bit low, we could likely realize a higher IRR by selling earlier.

For example, an exit in Year 4 would produce a 20.3% IRR.

Factor #3: We Could Also Boost Returns via a Leveraged Dividend Recap

Since the company pays off 75% of its new Debt by Year 3, we could raise additional Debt in Year 3 and easily boost the IRR over 20% – even if the new Debt is still only 1-2x EBITDA.

Factor #4: There May, In Fact, Be a Bit of Multiple Expansion

We assumed that the Exit Multiple = the Purchase Multiple in our analysis, but the company *could* command a higher multiple if its business truly becomes less capital-intensive over time.

The ROIC doesn't improve by much in the Base Case, but you don't necessarily *need* a higher ROIC for the multiple expand.

Given these factors, we think the ~19% IRR is on the low end.

Finally, *even if* the PE firm is targeting at least a 20% IRR, it won't necessarily say "No" to a deal that yields an IRR in the high teens.

If the firm is **very certain** of that IRR, it might agree to this type of deal with a more-certain-but-lower return.

Presenting Your Investment Recommendation

The presentation method depends on what you're asked to do: A 2-3-page Word document is quite a bit different from a 20-slide or 40-slide presentation with graphs and charts.

If you're drafting a **short written document**, you might include the following:

- **Page 1:** Your recommendation (Yes/No and why), the Sources & Uses schedule, and a summary of the IRRs and MoM multiples.

- **Page 2:** The operational scenarios and revenue, expense, and cash flow assumptions; if the Excel part is too big to paste in, you can summarize the scenarios in bullet form.

- **Page 3:** The projected FCF numbers, Debt repayment schedule, and the 1-2 most important sensitivity tables. Skip the full Income Statement, Cash Flow Statement, and Balance Sheet projections.

If you create a 20-slide presentation instead, you might use this structure for 7 Days Inn:

- **Slide 1 – Recommendation**
    - Explain that you recommend doing the deal because you can achieve the targeted IRR and MoM multiple in the Base and Downside scenarios.

    - The qualitative factors, shift to a less capital-intensive business model, and the highly fragmented market all support the deal.

    - The deal fails *only* if the occupancy rates or ADRs come in below expectations and drop far below industry averages, which seems unlikely.

- **Slides 2 – 6: Qualitative Factors**

- Explain how the budget hotel market in China is growing quickly but still highly fragmented, how 7 Days Inn is the #2 player, how it beats its competition, and how most of its growth will come from Managed Hotels in the future.

- There are some risks from falling occupancy rates and high fixed costs from its legacy businesses, but those are manageable.

- **Slides 7 – 16: The Numbers**
  - Here, you would point out that the 7.4x EBITDA purchase multiple is reasonable next to the public comps, summarize the revenue, expense, and cash flow assumptions, and show the LBO model output under different scenarios.

  - You'd also explain that even in more pessimistic cases, the numbers still work, and you would paste in the output from those cases.

- **Slides 17 – 19: The Counter-Factual**
  - You explain what might cause you to change your mind, including risks like the falling occupancy rate, and then you explain how you might mitigate those risks (e.g., sell off Assets to raise more cash, switch to Managed Hotels more rapidly, and so on).

- **Slide 20: Conclusion**
  - Restate the first slide but incorporate the numbers and specific details from the preceding slides. You can emphasize how the new business model more than offsets the possible decline in occupancy rates.

And that's it. You may not be an expert on LBO models (yet), but you should have a good grasp of the most common topics in interviews and case studies.

Return to Top.

Key Rule #8: More Advanced LBO Features [OPTIONAL]

As with the "More Advanced" sections of the other guides, this part is **optional**.

These concepts could come up in IB interviews, but they're *far* more likely to come up in private equity, growth equity, and other buy-side interviews.

They are **NOT** as likely to come up in investment banking interviews because interviewers focus more on accounting, valuation/DCF analysis, and merger models there.

You need to be familiar with LBO models; you don't need to know every last detail.

Here are the more advanced features of LBO models:

Dividend Recaps

As we mentioned in the section on Exit Strategies, **Dividend Recapitalizations** can act as alternatives to IPO and M&A exits in leveraged buyouts.

They may be either **leveraged** (funded with additional Debt) or **unleveraged** (funded with the company's Cash Flows).

However, a Dividend Recap is not *just* an exit strategy: Many PE firms execute Dividend Recaps midway through the holding period **to boost returns even further**.

They still plan to sell the company in an M&A deal or take it public, but if the company can afford to raise more Debt, this **Leveraged Dividend Recap** can boost returns.

Here's what it looks like:

Credit Statistics & Ratio Analysis	Historical		Transaction Adjustments		Projected				Dividend Recap		Projected		
	Year 1	Year 2	Debit	Credit	Year 2	Year 3	Year 4	Year 5	Debit	Credit	Year 5	Year 6	Year 7
Leverage Ratios:													
Total Debt / EBITDA:					4.01 x	2.92 x	2.26 x	2.22 x			2.62 x	2.09 x	2.00 x
Senior Debt / EBITDA:					2.40 x	1.37 x	0.68 x	0.62 x			1.02 x	0.56 x	0.51 x
Net Debt / EBITDA:					3.36 x	2.34 x	1.72 x	1.49 x			1.89 x	1.23 x	0.61 x
Total Debt / (EBITDA - CapEx):					5.83 x	4.30 x	3.41 x	3.39 x			4.00 x	3.22 x	3.08 x
Senior Debt / (EBITDA - CapEx):					3.49 x	2.01 x	1.02 x	0.94 x			1.55 x	0.86 x	0.79 x
Net Debt / (EBITDA - CapEx):					4.88 x	3.45 x	2.59 x	2.28 x			2.89 x	1.90 x	0.94 x

The company de-levers significantly after the first 3 years, so it then raises additional Debt in the 3rd year to fund a Dividend.

And on the Balance Sheet:

	Historical		Transaction Adjustments			Projected			Dividend Recap			Projected	
	Year 1	Year 2	Debit	Credit	Year 2	Year 3	Year 4	Year 5	Debit	Credit	Year 5	Year 6	Year 7
Revolver:			$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Term Loan A:			$0	$1,927	$1,927	$381	$0	$0	$0	$0	$0	$0	$0
New Term Loan A - Recap:			$0	$0	$0	$0	$0	$0	$20	$1,000	$980	$0	$0
Term Loan B:			$0	$1,156	$1,156	$1,041	$30	$0	$0	$0	$0	$0	$0
Senior Note:			$0	$1,542	$1,542	$1,542	$1,542	$1,542	$0	$0	$1,542	$1,542	$1,542
Subordinated Note:			$0	$1,156	$1,156	$1,156	$1,156	$1,156	$0	$0	$1,156	$1,156	$1,156
Mezzanine:			$0	$1,156	$1,156	$1,304	$1,470	$1,658	$0	$0	$1,658	$1,870	$2,108
Shareholders' Equity:													
Common Stock:	$1.493	$1.527	$1.527	$0.000	$0.000	$0.000	$0.000	$0.000	$0.000	$0.000	$0.000	$0.000	$0.000
Additional Paid-In Capital:	$8,616	$9,937	$9,937	$0	$0	$630	$1,341	$2,136	$0	$0	$2,136	$3,018	$3,978
Treasury Stock:	($3,325)	($5,161)	($5,161)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Retained Earnings:	$3,718	$4,424	$4,515	$0	($91)	($781)	($1,326)	($1,812)	$1,000	$0	($2,812)	($3,261)	($3,604)
Accumulated Other Comprehensive Income:	$151	$331	$331	$0	$0	$40	$79	$119	$0	$0	$119	$159	$198
Preferred Stock:			$0	$771	$771	$887	$1,020	$1,174	$0	$0	$1,174	$1,174	$1,174
Sponsor Common Equity:			$0	$24,801	$24,801	$24,801	$24,801	$24,801	$0	$0	$24,801	$24,801	$24,801
Management Rollover:			$0	$100	$100	$100	$100	$100	$0	$0	$100	$100	$100
Total Shareholders' Equity:	**$9,161**	**$9,533**	**$9,624**	**$25,672**	**$25,581**	**$25,677**	**$26,016**	**$26,518**	**$1,000**	**$0**	**$25,518**	**$25,991**	**$26,647**
Total Liabilities & Shareholders' Equity:	**$11,514**	**$12,230**	**$10,634**	**$34,837**	**$36,433**	**$35,732**	**$35,088**	**$36,016**	**$1,020**	**$1,000**	**$35,996**	**$35,992**	**$37,152**

You adjust the Balance Sheet to reflect the new Debt, deduct the financing fee, and reduce Retained Earnings by the $1,000 Dividend that the company issues to the PE firm. On the other side, Cash is down by $20 because of the financing fees.

And then you include this Dividend at the end when you calculate the IRR and multiple:

Returns to Equity & Debt Investors:					
Sponsor Common Equity:					
Initial Investment:	($24,801)				
Dividends:		$0	$0	$1,000	$0	$0
Equity Value at Exit:						$37,389
Total Cash Flows:	**($24,801)**	**$0**	**$0**	**$1,000**	**$0**	**$37,389**
IRR:						*9.2%*

The Dividends appear in Year 3, boosting the IRR from 8.6% (without Dividends) to 9.2%.

It didn't make a big difference in this case because it was fairly small and the IRR was already terrible (8.6%).

A Dividend Recap can't boost an 8% IRR to 20%, but it can increase the IRR by small percentages.

For example, if a deal generates an 18% IRR, and you're confident that the acquired company could support a Dividend Recap, your recommendation might change from "No" to "Yes" if the Recap boosts the IRR to 20%.

Waterfall Returns and Performance Incentives

Often, the PE firm in a leveraged buyout ends up owning close to 100% of the company, but it lets management and existing investors roll over their shares.

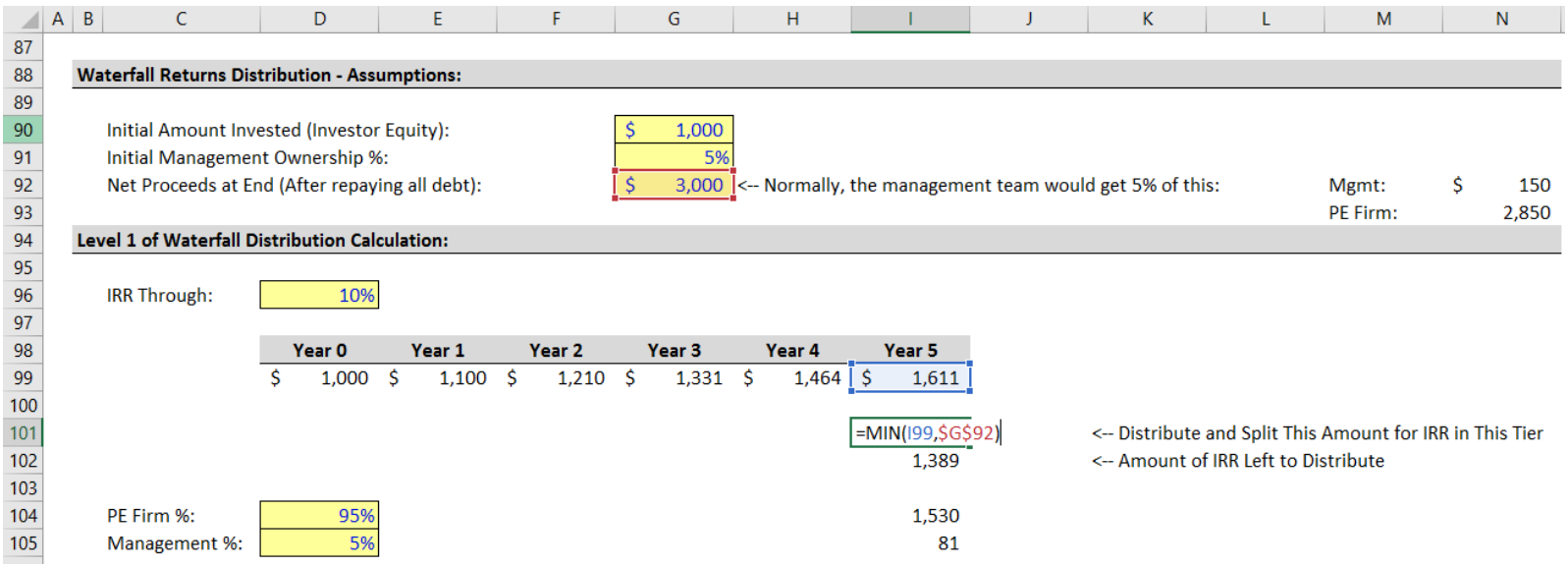
While this Equity Rollover alone should incentivize the management team to keep increasing the company's value, some firms give management teams an **ADDED** incentive beyond that.

For example, if the management team owns 5% of the company after the leveraged buyout, the PE firm would receive 95% of the proceeds and the management team would receive 5% of the proceeds up to a 10% IRR.

But the management team might receive **10%** of the proceeds up to, say, a 15% IRR; and then 15% up to a 20% IRR; and then 20% of the proceeds above that 20% IRR.

These numbers could also be based on MoM multiples, and the calculations are easier if the proceeds are based on multiples instead.

Here's what it looks like if we use those IRR splits to divide the proceeds at each level, assuming that the initial Investor Equity is $1,000 and the Net Proceeds at the end are $3,000 (a 3x multiple, or a ~25% IRR over 5 years):

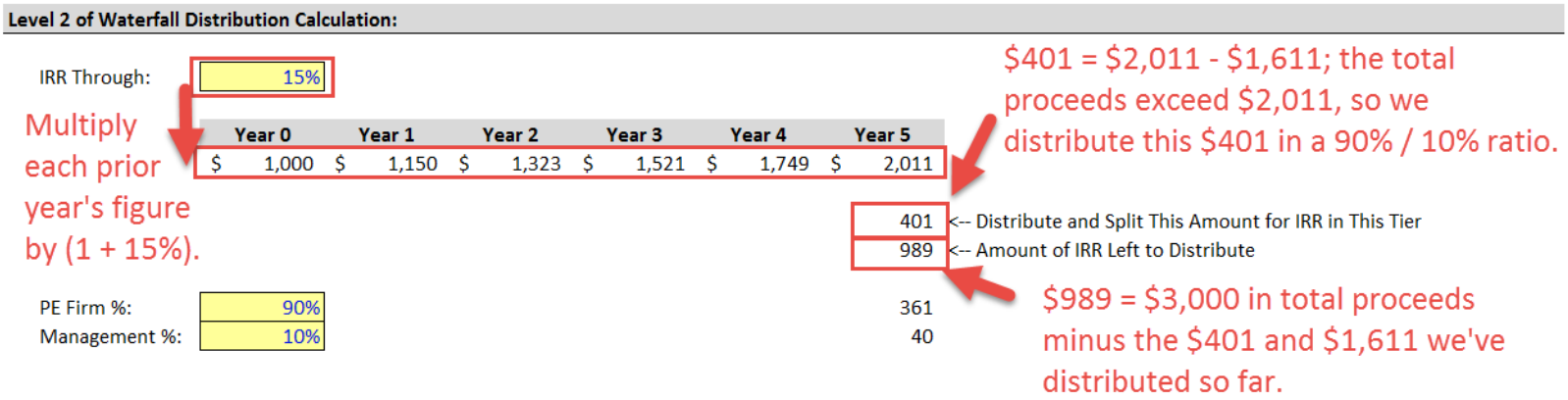


87													
88	**Waterfall Returns Distribution - Assumptions:**												
89													
90	Initial Amount Invested (Investor Equity):				$ 1,000								
91	Initial Management Ownership %:				5%								
92	Net Proceeds at End (After repaying all debt):				$ 3,000	<-- Normally, the management team would get 5% of this:					Mgmt:	$	150
93											PE Firm:		2,850
94	**Level 1 of Waterfall Distribution Calculation:**												
95													
96	IRR Through:			10%									
97													
98			**Year 0**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**					
99			$ 1,000	$ 1,100	$ 1,210	$ 1,331	$ 1,464	$ 1,611					
100													
101								=MIN(I99,G92)	<-- Distribute and Split This Amount for IRR in This Tier				
102								1,389	<-- Amount of IRR Left to Distribute				
103													
104	PE Firm %:			95%				1,530					
105	Management %:			5%				81					

In the first tier, up to a 10% IRR, things proceed normally: We apply a 10% compounded growth rate to that $1,000 initial investment to determine that a 10% IRR corresponds to $1,611 in proceeds in Year 5.

We then divide that $1,611 and distribute 95% to the PE firm and 5% to the management team.

Here's what Tier 2 looks like:



We keep going like this through each tier, calculating the Exit Proceeds that *correspond to* specific IRRs such as 15% or 20%.

In each tier, we distribute **the proceeds that correspond to this IRR range – $401, which corresponds to 10% to 15% in the screenshot above.**

Since the split is 90% / 10% in this tier, we distribute 90% * $401, or $361, to the PE firm, and 10% * $401, or $40, to the management team.

We stop when the Net Proceeds of $3,000 are **less than** the proceeds that correspond to the IRR tier we're in, or when there are no more tiers left to calculate.

For example, an IRR Tier of 30% here corresponds to $3,713 in Year 5 Proceeds.

But there were only $3,000 in Net Proceeds in this deal, so we wouldn't distribute anything in that tier.

In this setup, the last IRR tier is 20%; above a 20% IRR, the PE firm gets 80%, and the management team gets 20%.

At that stage, there are $512 in remaining proceeds, so we split them 80% / 20% between the PE firm and management.

***If* the deal performs well, these management incentives *reduce* the IRR to the PE firm and greatly increase the IRR to the management team:**

IRR Calculations:

Overall Deal IRR:

Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
$ (1,000)	$ -	$ -	$ -	$ -	$ 3,000
5-Year IRR:					**24.6%**

IRR Only to PE Firm:

Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
$ (950)	$ -	$ -	$ -	$ -	$ 2,706
5-Year IRR:					**23.3%**

IRR Only to Management Team:

Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
$ (50)	$ -	$ -	$ -	$ -	$ 294
5-Year IRR:					**42.6%**

Private equity firms offer this structure because a ~1% IRR difference doesn't impact them, but helping management nearly *double* their IRR makes a huge impact on management.

This structure is a great incentive for the executives at the company to perform well and aim for a solid exit, which is why it's used in deals.

Management Options

A PE firm can also incentivize a management team by offering them **stock options** in the company.

Normally, stock options let employees pay an "exercise price" to the company and then receive new shares.

Then, the employees could hold onto these shares or sell them for an immediate profit.

But if the company is already **private** as a result of a leveraged buyout, the employees can't just exercise the options whenever they want.

Instead, they can exercise the options **only upon exit** in an M&A deal or an IPO.

When the employees exercise their options, the **PE firm receives Cash** but also **awards some of the Equity Proceeds** to the employees.

The Equity Proceeds to the PE firm will be lower, but not *as much lower* as if the management team had a higher percentage ownership from the start.

Here's a simple example of how it works:

- **Initial Investor Equity:** $100 million.
- **Management Option Pool:** 5%.
- **Exit Equity Value:** $250 million.

We don't know the exercise price for the options, but the usual assumption is that the exercise price equals the **per-share purchase price**.

Therefore, if the Exit Equity Value exceeds the Initial Investor Equity, these options are in-the-money and will result in proceeds to the management team at the end.

We can estimate the cash payment at the end like this:

- **Cash Payment to PE Firm for Option Exercise** = 5% * $100 million = $5 million.

And we can estimate the proceeds to management upon exit with:

- **Proceeds to Management from Option Exercise** = (5% / (100% + 5%)) * ($250 million + $5 million) = ~4.8% * $255 million = ~$12.1 million.

The PE firm receives: $250 million Exit Equity Value + $5 million in Cash – $12.1 million in Proceeds to Management = $242.9 million.

The ~$12.1 million in proceeds to the management team is 5% of this number.

Private equity firms often use option pools when there's **more uncertainty** around the company's performance.

If the options are out-of-the-money upon exit, the PE firm loses nothing.

If they're in-the-money, the PE firm loses a bit, but the deal must have performed *somewhat* decently since the Exit Equity Value exceeds the Initial Investor Equity.

And in that case, the PE firm is fine paying the management team a bit more: **It's a great way to incentivize the executives to perform well**.

Add-On Acquisitions

Some private equity firms pursue a strategy of "Add-On Acquisitions," where they acquire one company and then use additional Debt and Equity to acquire other, smaller companies and combine everything into one big company.

It's extremely unlikely that these scenarios will come up in modeling tests or case studies because it's complex and time-consuming to include even a single acquisition in an LBO model.

But the basic idea is simple:

- **Step 1:** Assume that the PE firm uses additional Equity and Debt to fund each deal; the percentages would be tied to the original company's leverage and coverage ratios.

  For example, if the acquired company already has 5x Debt / EBITDA, the PE firm might have to use minimal Debt and mostly Equity to fund a deal. But if it has only 3x Debt / EBITDA, the PE firm could use more Debt to fund the deal.

- **Step 2:** Modify the Balance Sheet for these new companies, and factor in their revenue, expense, and cash flow contributions in future periods.

Post-Buyout Acquisition Assumptions		
Acquisition 1 (Year 2) Assumptions	**Percent:**	**Amount:**
Purchase Price:		$ 1,500
% Cash Used (Equity from Silver Lake):	50%	750
% Debt Used:	50%	750
Goodwill % Purchase Price:	70%	$ 1,050
Intangibles % Purchase Price:	40%	600
Cash % Purchase Price:	10%	150
Accounts Receivable % Purchase Price:	5%	75
Long-Term DR % Purchase Price:	(10%)	(150)
Other LT Liabilities % Purchase Price:	(15%)	(225)
Acquisition 1 Debt:		
Interest Rate:	L + 600	
LIBOR Floor:	1.00%	
Principal Repayment %:	5.0%	38
Revenue and Operating Income Contributions:		
Operating Income Yield on Purchase Price:	4.0%	60
Operating Margin:	14.0%	
Revenue Contribution:		429
Revenue Growth Rate:	10.0%	

These adjustments will all show up on the company's Balance Sheet after the add-on acquisition takes place.

The Debt to fund this acquisition will appear in the Debt schedule and affect interest and principal repayments.

You'll add the revenue and operating income contributions from the acquired company to this company's financials.

Here are the adjustments on portions of the Income Statement and Balance Sheet:

Income Statement							
	Projected		Year 2 Acquisition			Projected	
FY Ending February 1,	2014	2015	Debit	Credit	2015	2016	2017
Dell Inc. - Standalone Revenue:	$ 56,783	$ 58,313				$ 58,031	$ 59,179
Revenue Contribution from Acquisition 1:	-	-				429	471
Revenue Contribution from Acquisition 2:	-	-				-	-
Total Revenue:	**56,783**	**58,313**				**58,459**	**59,650**

You literally add the revenue, expenses, and cash flow items from the acquired company.

Balance Sheet					
	Projected		Year 2 Acquisition		
FY Ending February 1,	2014	2015	Debit	Credit	2015
Assets:					
Current Assets:					
Cash & Cash-Equivalents:	$ 3,033	$ 3,033	$ 150	$ -	$ 3,183
Short-Term Investments:	208	208	-	-	208
Accounts Receivable:	6,199	6,366	75	-	6,441
Short-Term Financing Receivables:	3,129	3,213	-	-	3,213
Allowances for Losses / Doubtful Accounts:	(321)	(651)	-	-	(651)
Inventories, Net:	1,223	1,251	-	-	1,251
Prepaid Expenses & Other:	4,018	4,001	-	-	4,001
Total Current Assets:	**17,489**	**17,421**			**17,646**
Long-Term Assets:					
Net PP&E:	2,374	2,412	-	-	2,412
Long-Term Investments:	2,897	3,230	-	-	3,230
Long-Term Financing Receivable, Net:	1,328	1,307	-	-	1,307
Other Non-Current Assets:	812	770	-	-	770
Goodwill:	19,389	19,389	1,050	-	20,439
Intangible Assets:	6,319	4,708	600	-	5,308

You reflect all the new items from this add-on acquisition on the company's Balance Sheet.

On the other side, you reflect the new Debt and new Equity used to fund the acquisition as well as any Liabilities assumed.

- **Step 3:** Make sure the Exit Year EBITDA includes the full EBITDA contributions from these acquired companies, and that the Exit Equity Proceeds calculation reflects the Cash and Debt from the acquired companies as well.

- **Step 4:** In the IRR and MoM multiple calculations, reflect the additional Investor Equity the PE firm used to fund these add-on acquisitions.

Investor Returns						
FY Ending February 1,	2013	2014	2015	2016	2017	2018
EBITDA:	$ 4,156					$ 5,464
EBITDA Multiple:	5.1 x					4 x
Enterprise Value:	21,129					1,858
Equity Value:	24,592					22,580
Investor Equity:	(1,258)	-	(750)	-	(1,000)	9,050
IRR:	35.8%					

You show the Investor Equity used to make the acquisitions here; for sizable deals, it makes a big impact on the IRR and the MoM multiple.

In this case, the add-on acquisitions end up boosting the IRR because the Exit Year EBITDA is $5,464 rather than $5,301 without the acquisitions.

That, combined with the differences in Cash and Debt and the PE firm's ownership percentage, outweighs the additional Investor Equity contributed in Years 2 and 4.

Add-on acquisitions that have higher yields (e.g., EBITDA / Purchase Enterprise Value = 15% rather than 2%) will tend to boost the IRR and MoM multiple more than ones with lower yields.

But to determine the exact impact, you'd have to run the numbers and see how everything changes – particularly when the ownership percentages also change.

Stub Periods

Many leveraged buyouts close not at the *end* of a fiscal year, but at the end of a quarter, a month, or in the middle of a month.

When this happens, you create a "stub period" that shows the financial results in between transaction close date and the end of the fiscal year.

For example, if a deal closes on September 30th, the "stub period" would show the results in between October 1st and December 31st if the company's fiscal years on December 31st.

As in merger models, stub periods tend to create a lot of extra work without necessarily making models much more accurate.

Think of everything you have to change or add because of this stub period:

- **Balance Sheet:** All the adjustments must be based on the September 30th Balance Sheet instead, which you may or may not have; if you don't have it, you'll have to create it.

- **Income Statement and Cash Flow Statement:** You'll need to create projections for these 3 months or take your full-year projections and multiply by 25%.

- **Debt Schedules:** You'll have to track Debt Repaid, Cash Generated, Interest Income, and Interest Expense in this 3-month period.

- **IRR Calculation:** You'll have to use the XIRR function in Excel to calculate the IRR in the deal because the initial Investor Equity contribution comes at the start of this 3-month stub period, not at the end of a full fiscal year.

In rare cases, stub periods can make a significant difference in models (e.g., if the company's cash flows differ dramatically over a quarter or two), but the impact is usually small.

If you have the time, and your deal closes midway through the year, sure, you can include a stub period, but this concept is not terribly important for interviews or case studies.

Shareholder Loans

The "Shareholder Loan" is an LBO feature more common in **Europe** than North America.

The basic idea is that a PE firm can label some of its Investor Equity used to acquire the company a "Shareholder Loan," and then record "Interest" on it each year.

This Interest is almost always **Paid-in-Kind (PIK)**, so it accrues to the Shareholder Loan principal and doesn't cost the company anything in Cash.

In the end, the Shareholder Loan is "repaid" with the Equity Proceeds remaining after you've calculated the Exit Enterprise Value and subtracted Net Debt.

Here's how a Shareholder Loan might work in our **simple LBO model:**

Assumptions:			
EBITDA Purchase Multiple:	10.0 x	EBITDA Exit Multiple:	11.0 x
Purchase Price:	$ 1,000	Year 0 Revenue:	$ 250
% Debt:	50.0%	Annual Revenue Growth Rate:	10.0%
Debt Used:	500	Annual EBITDA Margin:	40.0%
Equity Contribution:	500		
Shareholder Loan Portion:	400	Shareholder Loan Portion:	80.0%
Normal Sponsor Equity Portion:	100	Normal Sponsor Equity Portion:	20.0%
Shareholder Loan Interest (PIK):	10.0%		
		D&A % Revenue:	3.0%
Initial Cash Balance:	$ 20	CapEx % Revenue:	4.5%
Interest Rate:	10.0%	Change in WC % Change in Revenue:	(15.0%)
Tax Rate:	40.0%		

You assume this Shareholder Loan represents a fairly high percentage of the Investor Equity used to fund the deal. The interest is almost always PIK, and the interest rate is similar to the coupons on Preferred Stock.

And then you record the Interest on this Shareholder Loan on the Income Statement:

Income Statement:	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Revenue:	$ 250	$ 275	$ 303	$ 333	$ 366	$ 403
EBITDA:	100	110	121	133	146	161
(-) Depreciation & Amortization:		(8)	(9)	(10)	(11)	(12)
(-) Interest:		(50)	(46)	(41)	(35)	(28)
(-) Shareholder Loan Interest:		(40)	(44)	(48)	(53)	(59)
Pre-Tax Income:		12	22	33	47	62
(-) Taxes:		(5)	(9)	(13)	(19)	(25)
Net Income:		**$ 7**	**$ 13**	**$ 20**	**$ 28**	**$ 37**

On the IS, the company can deduct the Interest on this "Shareholder Loan," even though it's non-cash.

On the Cash Flow Statement, you add back this non-cash interest expense, which increases the company's FCF and Cash Flow Available for Debt Repayment:

Cash Flow Projections:	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Net Income:		$ 7	$ 13	$ 20	$ 28	$ 37
(+) Shareholder Loan Interest (PIK):		40	44	48	53	59
(+) Depreciation & Amortization:		8	9	10	11	12
(+/-) Change in Working Capital:		(4)	(4)	(5)	(5)	(5)
(-) CapEx:		(12)	(14)	(15)	(16)	(18)
Free Cash Flow:		39	48	59	71	84
Cash Flow Used for Debt Repayment:		39	48	59	71	84
Debt Balance:	500	461	412	353	283	198
Cash Balance:	20	20	20	20	20	20
Shareholder Loan Balance:	400	440	484	532	586	644

And on the CFS, you add back the Shareholder Loan Interest since it's non-cash; as a result, the company's FCF increases due to the tax savings.

And the interest accrues to the Shareholder Loan balance each year.

PE firms use this structure for **tax savings**: By setting up the capital structure this way, the firm effectively "deducts" part of its IRR each year (10% here).

But Shareholder Loans are still treated like Equity, so the Exit Calculations are the same.

The only difference is that you may break out the "Shareholder Loan Proceeds" separately from the other proceeds:

Returns Attribution Analysis:		
EBITDA Growth:	$	611
Multiple Expansion:		161
Debt Paydown and Cash Generation:		322
Return to Equity Investors:	**$**	**1,093**

The Shareholder Loan is still treated like Equity at the end; however, you often show the proceeds separately.

Exit Calculations:		
Exit Enterprise Value:	$	1,772
(-) Debt:		(198)
(+) Cash:		20
Equity Proceeds:	**$**	**1,593**
Shareholder Loan Proceeds:		644
Other Equity Proceeds:		949
Money-on-Money (MoM) Multiple:		**3.2 x**
Internal Rate of Return (IRR):		**26.1%**

The end result of this Shareholder Loan is that the MoM Multiple and IRR increase *slightly* because of the tax savings.

Without this Shareholder Loan structure, the MoM Multiple was 3.0x and the IRR was 24.3%, so it improved the numbers a bit.

This concept is simple, but you should be familiar with it in case you encounter it in a case study, modeling test, or on the job.

Paid-in-Kind (PIK) Interest

Many forms of Debt, especially Subordinated Notes, Mezzanine, and Preferred Stock, offer "Paid-in-Kind" or PIK options on the Interest.

This option allows the Interest to accrue to the loan principal instead of being paid out in Cash.

Mechanically, it's similar to what happens with the Shareholder Loan above: The company still records the Interest Expense on the Income Statement, and, therefore, pays lower taxes, but it adds back the PIK Interest on the Cash Flow Statement as a non-cash expense.

But there's one important difference: This Debt STILL counts as Debt, and it MUST, therefore, be repaid upon exit – unlike Shareholder Loans, it doesn't go in the "Equity" category.

This difference is important because it changes the risk/return profile: Investors in PIK-based Debt are *far* more likely to recover their principal at the end.

Here are the assumptions you might see in an LBO with multiple tranches of Debt, where the Mezzanine has a PIK Interest option:

Debt Tranche:	%:	$ in Millions	x EBITDA	Interest Rate:	LIBOR Floor:	Prepay Allowed:	Principal Repayment:	Undrawn Fee:	Years PIK:
Revolver:	14.8%	-	0.0 x	L + 325	1.00%	Yes	0.0%	0.50%	
Term Loan - A:	25.0%	253.6	1.5 x	L + 350	0.00%	Yes	10.0%		
Term Loan - B:	25.0%	253.6	1.5 x	L + 450	0.00%	Yes	2.0%		
Senior Notes:	20.0%	202.9	1.2 x	L + 675	1.00%	No	0.0%		
Subordinated Note:	15.0%	152.2	0.9 x	10.0%	0.00%	No	0.0%		
Mezzanine:	15.0%	152.2	0.9 x	12.0%	0.00%	No	0.0%		5
Total:	**114.8%**	**$ 1,014.5**	**6.1 x**						

PIK Interest is most common on Mezzanine, Preferred Stock, and Subordinated Notes; It might last only a few years, start after a few years, or be toggled off and on.

PIK Interest still shows up on the Income Statement, reducing the company's Pre-Tax Income, Taxes, and Net Income, but the company adds it back on the Cash Flow Statement:

		Historical				Projected				
Cash Flow Statement:	*Units*	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18
CASH FLOWS FROM OPERATING ACTIVITIES:										
Net Income:	*$ M*	**$ 54.0**	**$ 55.0**	**$ 43.6**	**$ 47.8**	**$ 12.1**	**$ 12.2**	**$ 13.1**	**$ 11.8**	**$ 8.8**
Adjustments for Non-Cash Charges:										
Depreciation & Amortization:	*$ M*	80.7	81.6	79.5	79.0	79.0	83.9	89.4	95.7	102.7
Depreciation of PP&E Write-Up:	*$ M*	-	-	-	-	2.2	2.2	2.2	2.2	2.2
New Intangibles Amortization:	*$ M*	-	-	-	-	0.9	0.9	0.9	0.9	0.9
Accrual of PIK Interest:	*$ M*	-	-	-	-	18.3	20.5	22.9	25.7	28.7
Change in Deferred Tax Liability:	*$ M*	7.2	20.3	(0.8)	(3.0)	(1.2)	(1.2)	(1.2)	(1.2)	(1.2)
Change in Deferred Tax Asset:	*$ M*	-	-	-	-	-	-	-	-	-

You add back the PIK Interest here as a standard non-cash expense (so the net effect is that it just reduces the company's taxes).

LIABILITIES AND EQUITY:										
Current Liabilities, Excluding Debt:										
Accounts Payable:	$ M	$ 42.8	$ 32.9	$ 32.7	$ 35.8	$ 35.2	$ 35.6	$ 36.1	$ 36.8	$ 37.6
Accrued Expenses:	$ M	33.0	34.6	35.5	34.0	35.9	37.0	38.1	39.2	40.3
Unearned Revenues:	$ M	9.4	9.9	11.8	14.5	16.0	18.2	20.5	22.9	25.4
Other Current Liabilities:	$ M	2.9	5.5	2.1	1.4	3.2	3.3	3.3	3.4	3.5
Total Current Liabilities, Excl. Debt:	$ M	**88.1**	**82.9**	**82.1**	**85.7**	**90.3**	**94.1**	**98.0**	**102.4**	**106.8**
Noncurrent Liabilities, Including All Debt:										
Existing Debt:	$ M	377.0	389.6	389.5	361.5	-	-	-	-	-
Total Capital Leases:	$ M	11.3	10.9	22.7	21.4	19.9	18.4	17.0	15.5	13.9
Other Noncurrent Liabilities:	$ M	100.5	100.6	101.3	104.4	106.6	109.9	113.0	116.4	119.5
Deferred Tax Liability:	$ M	43.0	64.4	62.9	57.8	169.5	168.3	167.1	165.9	164.7
Revolver:	$ M	-	-	-	-	30.4	28.0	26.4	29.1	35.4
Term Loan - A:	$ M	-	-	-	-	228.3	202.9	177.5	152.2	126.8
Term Loan - B:	$ M	-	-	-	-	248.6	243.5	238.4	233.3	228.3
Senior Notes:	$ M	-	-	-	-	202.9	202.9	202.9	202.9	202.9
Subordinated Note:	$ M	-	-	-	-	152.2	152.2	152.2	152.2	152.2
Mezzanine:	$ M	-	-	-	-	170.4	190.9	213.8	239.4	268.2
Total Noncurrent Liabilities + Debt:	$ M	**531.8**	**565.4**	**576.5**	**545.2**	**1,328.7**	**1,316.9**	**1,308.3**	**1,306.9**	**1,311.8**

While PIK loans offer some advantages, they also create "ballooning" Debt balances that increase credit risk and make repayment less likely.

The IRR to the Mezzanine investors here is the same as it would be with Cash Interest: 12%, the interest rate on the Mezzanine.

Cash vs. PIK Interest does not affect the IRR to Debt investors – only equity participation, early repayments, and the inability to fully repay the Debt upon exit could result in the IRR being *different* from the interest rate.

Preferred Stock and "Equity Kickers"

Often, private equity firms will grant some "equity participation" to investors in the company's more junior Debt to compensate them for the additional risk they take.

Equity participation happens most often with **Preferred Stock**, and the tend to be very low – ~2-3% or less.

These equity options might be used to **negotiate** with lenders as well: For example, the lenders might agree to a lower interest rate in exchange for a greater percentage of equity.

Similar to the Option Pool and the Equity Rollover, the PE firm receives less in Equity Proceeds upon exit, and the other investor group (the lenders) receives more.

Equity participation almost always benefits the Preferred Stock investors unless the deal is a total disaster.

For it to *hurt* these investors, the Exit Equity Proceeds would have to be so low that they represent an IRR less than the interest rate differential.

For example, if the Preferred Stock investors get a 14% rate with no equity or a 12% rate with 1% equity, the Equity Proceeds at the end must represent *less than* this 2% IRR difference for the investors to be worse off.

As a result, Preferred investors almost always benefit from equity participation in deals that perform decently, but they do lose out with this option in disastrous deals.

Net Operating Losses (NOLs)

NOLs work the same way as always: They affect a company's cash taxes and its Deferred Tax Asset (DTA) on the Balance Sheet.

If the company records negative Pre-Tax Income in one year, it will *increase* its NOL balance by that Negative Pre-Tax Income and increase its DTA by Negative Pre-Tax Income * Tax Rate.

On the Income Statement, the company still records its normal Pre-Tax Income, Taxes, and Net Income; you see the impact of this loss and the new DTA only on the Cash Flow Statement.

As with M&A deals, the company may have to write down a portion of the DTA and NOL balance when the transaction takes place because Stock Purchases are subject to limited NOL use (and in Asset Purchases, the entire balance is written down).

Here's a sample schedule from an LBO:

		Historical				Projected				
Deferred Tax and NOL Schedule:	***Units***	**FY10**	**FY11**	**FY12**	**FY13**	**FY14**	**FY15**	**FY16**	**FY17**	**FY18**
Initial Net Operating Losses (NOLs):	*$ M*				$ 50.0					
Pre-Tax Income:	*$ M*					**19.7**	**20.3**	**(30.0)**	**19.6**	**15.4**
(+) Depreciation of PP&E Write-Up:	*$ M*					2.2	2.2	2.2	2.2	2.2
(+) New Intangibles Amortization:	*$ M*					0.9	0.9	0.9	0.9	0.9
Pre-NOL Taxable Income:	*$ M*					**22.8**	**23.4**	**(26.8)**	**22.8**	**18.6**
Beginning NOL Balance:	*$ M*					50.0	27.2	3.7	30.6	7.8
(+) NOLs Created:	*$ M*					-	-	26.8	-	-
(-) NOLs Used:	*$ M*					(22.8)	(23.4)	-	(22.8)	(7.8)
Ending NOL Balance:	*$ M*					**27.2**	**3.7**	**30.6**	**7.8**	-
NOL-Adjusted Taxable Income:	*$ M*					-	-	**(26.8)**	-	**10.8**
Cash Taxes Payable:	*$ M*					-	-	-	-	**4.2**
Increase / (Decrease) in DTA:	*$ M*					(8.8)	(9.1)	10.4	(8.8)	(3.0)

NOLs get created when Taxable Income is negative, and used up when Taxable Income is positive.

The company pays cash taxes only if it CANNOT offset some of its Taxable Income using NOLs.

Equals (NOLs Created - NOLs Used) * Tax Rate; boosts cash flow when NOLs are used.

When a company ***applies*** **NOLs**, **its Cash Flow increases** because its tax burden is reduced.

When a company ***accumulates*** **NOLs, its Cash Flow decreases** because it doesn't receive any "tax benefit" from taking the loss, contrary to what the Income Statement indicates.

Think about the math for a simple example:

- **Pre-Tax Income:** Negative $100 million.
- **Book Taxes:** *Positive* $40 million at a 40% Tax Rate, i.e. the company *gets* money.
- **What Really Happens:** The company does **not** "get a refund" from the government just because it records negative Pre-Tax Income – instead, it simply pays no cash taxes.
- **Cash Flow Statement:** You reverse this $40 million tax benefit since it wasn't real, and the company pays no cash taxes instead.
- **NOL:** Increases by the $100 million loss, and the DTA increases by $40 million.

NOLs rarely make a big difference in leveraged buyouts unless the company has a massive balance.

If the company does have this massive balance, a PE firm might view it as a better LBO candidate.

In theory, accumulating NOLs in a leveraged buyout would help improve returns, but if a company's Pre-Tax Income is negative, chances are that its cash flow **is not great**.

And since stable cash flow is one of the most important qualities of ideal leveraged buyout candidates, negative Pre-Tax Income is almost always a negative sign.

Cost Savings and Sponsor Fees

In some leveraged buyouts, financial sponsors attempt to realize the same types of synergies that strategic acquirers target in normal M&A deals.

For example, they might look at an underperforming business division, conclude that it generates no revenue but still costs the company a fair amount, and decide to shut it down.

As a result, you might see items like "Cost Savings" or "Operating Cost Reductions" on a company's financial statements following a leveraged buyout.

You would almost certainly **NOT** see anything for "Revenue Synergies" because two normal companies must combine to realize revenue synergies.

Even Cost Savings are speculative because a company, as a standalone entity, can rarely cut expenses to the same degree that it can when it's part of another company.

Some private equity firms also charge acquired companies a "Management Fee" or "Sponsor Fee," which could be a few million USD up to $10 million or more per year.

The purpose of this fee is to get the company to take the deal seriously and put time and effort into working with the PE firm to grow the business.

It's a simple expense on the company's Income Statement, so it reduces Pre-Tax Income, Net Income, and EBITDA.

Some PE firms like to market their portfolio companies' "Pro-Forma EBITDA" figures, which typically exclude this fee.

You're unlikely to encounter this fee in a case study, but you could easily see it in a CIM or other real-life document, so you have to be careful to calculate the EBITDA on the same basis.

Call Premiums and Prepayment Penalties

In a previous section of this guide, we pointed out that "early repayment" or "optional repayment" or "prepayment" is allowed on only certain types of Debt.

For example, companies can typically repay the principal of Term Loans whenever they want.

But Subordinated Notes and Mezzanine don't allow for optional repayments, so even if the company has enough cash flow to repay some of the principal early, it cannot do so.

However, this explanation is a simplification.

In reality, companies *can* sometimes repay Subordinated Notes, Mezzanine, and other Unsecured Debt early **if they're willing to pay a penalty to do so**.

In almost all cases, the company must repay *the entire balance* early as well.

These penalties go by various names: "Prepayment Premiums," "Prepayment Penalties," "Take-Out Premiums," and "Call Premiums" are a few examples.

A typical Subordinated Note with a 10-year maturity might use this structure:

- **First 2 Years:** No early repayments are allowed.

- **Year 3:** Early repayment of the entire Bond is allowed, but the company must pay 105% of its principal.
- **Year 4:** This drops to 104%.
- **Year 5:** This drops to 103%.
- **Year 6:** This drops to 102%.
- **Year 7:** This drops to 101%.
- **Years 8 – 10:** The company can now repay the entire Bond without penalty.

These percentages are **Call Premiums**, and they reduce the risk of early repayment for lenders.

They come up most often in leveraged buyouts when the PE firm goes for an **early exit** (e.g., selling the company after 3 years instead of holding it for 6-7 years).

If the company still has Term Loans or a Revolver outstanding at that point, it's fine; the PE firm simply uses the proceeds from the sale to repay that Debt.

But if the company has Subordinated Notes, Mezzanine, or other Debt with **Call Premiums** attached, it will have to **pay extra** to repay this Debt early.

Here's a simple example of how **Call Premiums** might work:

Exit Year:	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Remaining Debt:		461	412	353	283	198
Call Premium:		104	103	102	101	100
Call Fee:		18	12	7	3	-
EBITDA:		$ 110	$ 121	$ 133	$ 146	$ 161
(x) EBITDA Multiple:		11.0 x	11.0 x	11.0 x	11.0 x	11.0 x
Exit Enterprise Value:		**1,210**	**1,331**	**1,464**	**1,611**	**1,772**
(-) Debt:		(461)	(412)	(353)	(283)	(198)
(-) Call Fee:		(18)	(12)	(7)	(3)	-
(+) Cash:		20	20	20	20	20
Equity Proceeds:		**751**	**926**	**1,124**	**1,345**	**1,593**
Money-on-Money (MoM) Multiple:		**1.50 x**	**1.85 x**	**2.25 x**	**2.69 x**	**3.19 x**
Internal Rate of Return (IRR):		**50.1%**	**36.1%**	**31.0%**	**28.1%**	**26.1%**
Equity Proceeds:		751	926	1,124	1,345	1,593
(+) Call Fee:		18	12	7	3	-
Pre-Call Fee Equity Proceed:		**769**	**939**	**1,131**	**1,348**	**1,593**
Pre-Call Money-on-Money (MoM) Multiple:		**1.54 x**	**1.88 x**	**2.26 x**	**2.70 x**	**3.19 x**
Pre-Call Internal Rate of Return (IRR):		**53.8%**	**37.0%**	**31.3%**	**28.1%**	**26.1%**

A Call Premium of "104" means the company must repay 104% of the principal, so the Call Fee = 4%.

The Call Fee adds to the total cost of Debt Repayment upon Exit...

And as a result, the IRR and MoM Multiples are lower, though they equalize by the end when the Call Premium goes away.

This example is contrived because Call Premiums rarely, if ever, apply to Debt that has both mandatory and optional repayments (i.e., Term Loans).

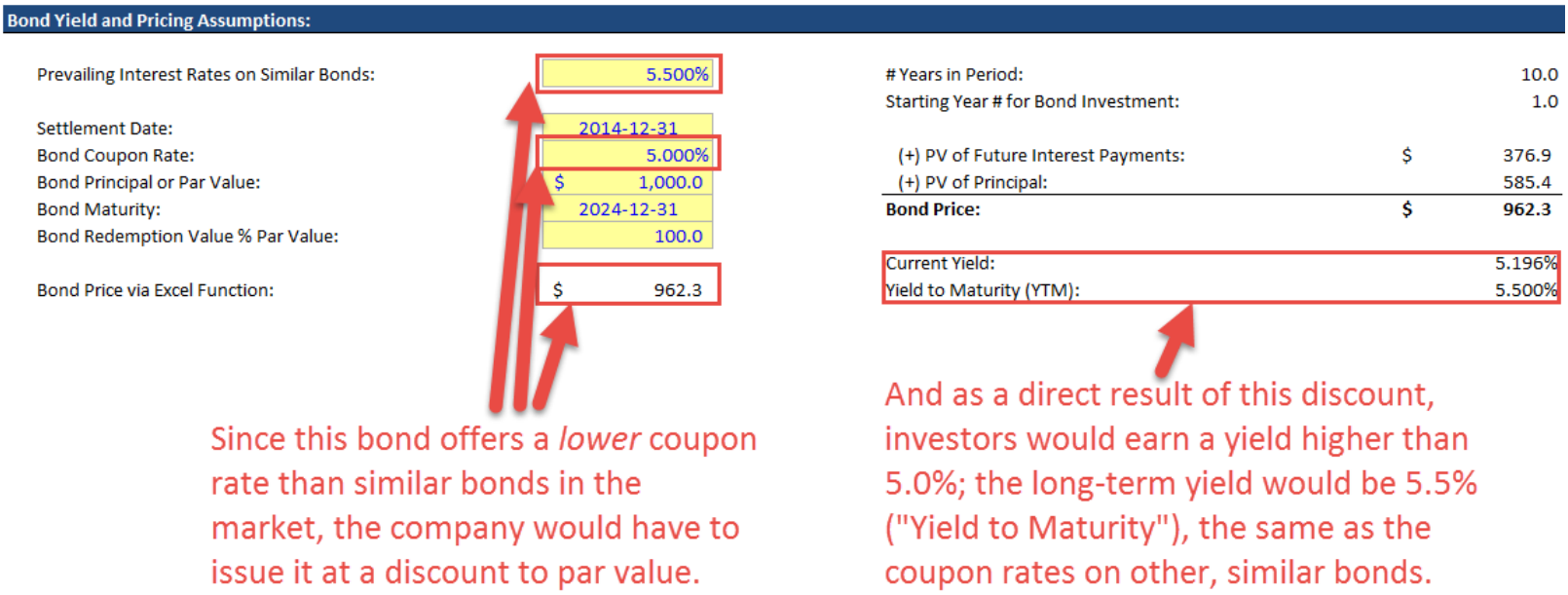
In real life, you'd expect to see Call Premiums with the Subordinated Notes and Mezzanine tranches that stay constant over time and have fixed interest rates (and possibly with Senior Notes as well).

Original Issue Discount (OID)

Some Debt may be issued at a **discount** to its par value.

This happens mostly when a bond's **coupon rate** is below the rates of other, similar bonds, and the company needs to offer an incentive to investors.

Here's a simple example of a 5.0% coupon rate bond that might be issued at a discount:



Since prevailing rates on similar bonds are 5.5%, investors would be unlikely to buy this bond at its par value of $1,000: Why would they when they could get higher-yielding bonds elsewhere?

Instead, investors might buy the bond at a price that makes their long-term yield, or "Yield to Maturity," equal to 5.5%.

The price required to do that is $962.3, which means 96.23% of the bond's par value.

When a company issues Debt at this type of discount, it has to **amortize** the discount over the life of the Debt.

As this discount amortizes, the book value of the Debt on the Balance Sheet increases each year until it finally reaches par value upon maturity (or upon full repayment).

If there are **no mandatory or optional repayments**, OID is straightforward to model: You use straight-line amortization for the OID over the term of the Debt, record it as Interest Expense on the Income Statement, and add it back as a non-cash expense on the CFS.

The *book value* of the Debt will **increase** each year to reflect this amortization, but the *face value* – what the company pays Interest Expense based on – stays the same.

Here's a simple example of how to model an Original Issue Discount (OID) where there's no principal repayment:

OID Example:	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Par Value of Debt:	$ 100					
Issued At:	$ 90					
Annual Amortization:	0.0%					
Years to Amortize:	5					
Interest Rate:	10.0%					
OID Amortization Period Remaining:	5	4	3	2	1	0
OID Beginning Balance:		$ 10	$ 8	$ 6	$ 4	$ 2
(-) Amortization of OID:		(2)	(2)	(2)	(2)	(2)
(-) Loss on Unamortized OID on Repayment:		-	-	-	-	-
OID Ending Balance:	**10**	**8**	**6**	**4**	**2**	**-**
Face Value of Debt Beginning Balance:		**100**	**100**	**100**	**100**	**100**
(-) Repayment:		-	-	-	-	-
Face Value of Debt Ending Balance:	**100**	**100**	**100**	**100**	**100**	**100**
Book Value of Debt Beginning Balance:		**90**	**92**	**94**	**96**	**98**
(+) Amortization of OID:		2	2	2	2	2
(+) Loss on Unamortized OID on Repayment:		-	-	-	-	-
(-) Repayment:		-	-	-	-	-
Book Value of Debt Ending Balance:	**90**	**92**	**94**	**96**	**98**	**100**

Income Statement with OID:	Year 1	Year 2	Year 3	Year 4	Year 5
Interest Expense on Debt:	10	10	10	10	10
(+) Amortization of OID:	2	2	2	2	2
Interest Expense on Income Statement:	**12**	**12**	**12**	**12**	**12**

So we need to amortize a $10 OID.

The Debt's tenor is 5 years, so we amortize the OID over 5 years.

The company always pays Interest on the $100 Face Value of Debt, but *on the Balance Sheet*, the Debt increases from $90 to $100 over 5 years.

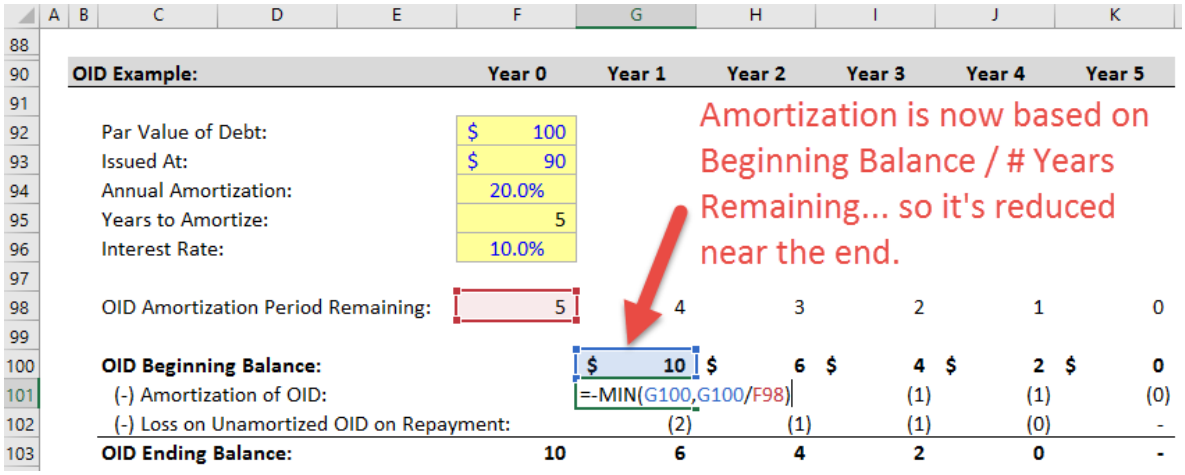
The Amortization of OID counts as non-cash Interest, so you add it back on the CFS.

It gets more complicated when there are mandatory or optional repayments because **you need to amortize the OID more rapidly**.

But rather than calling this extra amortization "amortization," companies label it "Loss on Unamortized OID Upon Repayment" or something similar.

In reality, it's just a way to *distribute* the amortization differently and amortize more when the company repays Debt principal.

Here's a simple example using the same numbers, but this time assuming that 20% of the principal amortizes each year so that the Debt is repaid in full by the end of Year 5:

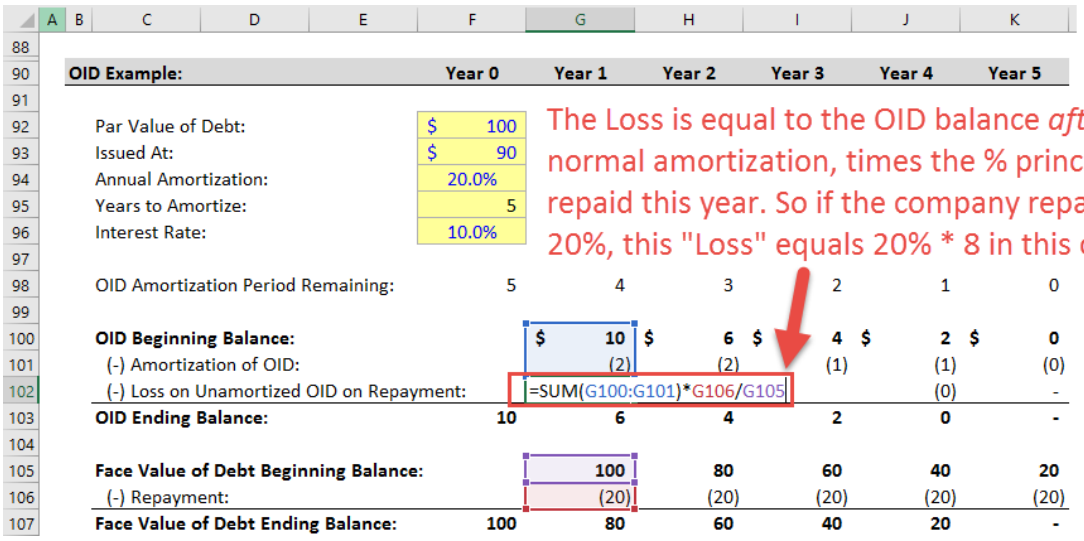


	OID Example:	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
	Par Value of Debt:	$ 100					
	Issued At:	$ 90					
	Annual Amortization:	20.0%					
	Years to Amortize:	5					
	Interest Rate:	10.0%					
	OID Amortization Period Remaining:	5	4	3	2	1	0
	OID Beginning Balance:		**$ 10**	**$ 6**	**$ 4**	**$ 2**	**$ 0**
	(-) Amortization of OID:		=-MIN(G100,G100/F98)		(1)	(1)	(0)
	(-) Loss on Unamortized OID on Repayment:		(2)	(1)	(1)	(0)	-
	OID Ending Balance:	**10**	**6**	**4**	**2**	**0**	**-**

Amortization is now based on Beginning Balance / # Years Remaining... so it's reduced near the end.

You base the "Loss" on the % of the Debt principal repaid this year times the OID balance after the normal amortization.

In this case, 20% of the Debt principal is repaid, and the OID balance after the normal amortization is $10 – $2 = $8. Therefore, we record a Loss of 20% * $8 = $1.6:



	OID Example:	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
	Par Value of Debt:	$ 100					
	Issued At:	$ 90					
	Annual Amortization:	20.0%					
	Years to Amortize:	5					
	Interest Rate:	10.0%					
	OID Amortization Period Remaining:	5	4	3	2	1	0
	OID Beginning Balance:		**$ 10**	**$ 6**	**$ 4**	**$ 2**	**$ 0**
	(-) Amortization of OID:		(2)	(2)	(1)	(1)	(0)
	(-) Loss on Unamortized OID on Repayment:		=SUM(G100:G101)*G106/G105			(0)	-
	OID Ending Balance:	**10**	**6**	**4**	**2**	**0**	**-**
	Face Value of Debt Beginning Balance:		**100**	**80**	**60**	**40**	**20**
	(-) Repayment:		(20)	(20)	(20)	(20)	(20)
	Face Value of Debt Ending Balance:	**100**	**80**	**60**	**40**	**20**	**-**

The Loss is equal to the OID balance *after* normal amortization, times the % principal repaid this year. So if the company repays 20%, this "Loss" equals 20% * 8 in this case.

On the Balance Sheet, you still record $90 for the Debt issued and subtract the principal repayments of $20 per year.

You also still increase the Balance Sheet value of the Debt by the Amortization of OID, but you *also* have to increase it by this "Loss" from the repayment each year.

With principal repayments, you're amortizing the OID **on an accelerated basis**:

OID Example:	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Par Value of Debt:	$ 100					
Issued At:	$ 90					
Annual Amortization:	20.0%					
Years to Amortize:	5					
Interest Rate:	10.0%					
OID Amortization Period Remaining:	5	4	3	2	1	0
OID Beginning Balance:		**$ 10**	**$ 6**	**$ 4**	**$ 2**	**$ 0**
(-) Amortization of OID:		(2)	(2)	(1)	(1)	(0)
(-) Loss on Unamortized OID on Repayment:		(2)	(1)	(1)	(0)	-
OID Ending Balance:	**10**	**6**	**4**	**2**	**0**	**-**
Face Value of Debt Beginning Balance:		**100**	**80**	**60**	**40**	**20**
(-) Repayment:		(20)	(20)	(20)	(20)	(20)
Face Value of Debt Ending Balance:	**100**	**80**	**60**	**40**	**20**	**-**
Book Value of Debt Beginning Balance:		**90**	**74**	**56**	**38**	**20**
(+) Amortization of OID:		2	2	1	1	0
(+) Loss on Unamortized OID on Repayment:		2	1	1	0	-
(-) Repayment:		(20)	(20)	(20)	(20)	(20)
Book Value of Debt Ending Balance:	**90**	**74**	**56**	**38**	**20**	**-**

Basically, principal repayments on the Debt mean that you have to amortize the OID in an accelerated fashion. Here, we're effectively amortizing $4, $3, $2, etc. rather than $2, $2, $2 *without* the repayments.

On the Income Statement, the Loss on Unamortized OID on Repayment is another component of Interest.

As a result, both this Loss and the normal Amortization of OID reduce a company's Pre-Tax Income, Taxes, and Net Income.

You also add back both components as non-cash expenses on the Cash Flow Statement:

Income Statement with OID:	Year 1	Year 2	Year 3	Year 4	Year 5
Interest Expense on Debt:	10	8	6	4	2
(+) Amortization of OID:	2	2	1	1	0
Interest Expense on Income Statement:	**12**	**10**	**7**	**5**	**2**
EBITDA:	**$ 110**	**$ 121**	**$ 133**	**$ 146**	**$ 161**
(-) Depreciation & Amortization:	(8)	(9)	(10)	(11)	(12)
(-) Interest:	(12)	(10)	(7)	(5)	(2)
(-) Loss on Unamortized OID on Repayment:	(2)	(1)	(1)	(0)	-
Pre-Tax Income:	**88**	**101**	**115**	**130**	**147**
(-) Taxes:	(35)	(40)	(46)	(52)	(59)
Net Income:	**$ 53**	**$ 61**	**$ 69**	**$ 78**	**$ 88**

Cash Flow with OID:	Year 1	Year 2	Year 3	Year 4	Year 5
Net Income:	$ 53	$ 61	$ 69	$ 78	$ 88
(+) Depreciation & Amortization:	8	9	10	11	12
(+) Amortization of OID:	2	2	1	1	0
(+) Loss on Unamortized OID on Repayment:	2	1	1	0	-
(+/-) Change in Working Capital:	(4)	(4)	(5)	(5)	(5)
(-) CapEx:	(12)	(14)	(15)	(16)	(18)
Free Cash Flow:	49	55	62	69	77

Both items related to the Amortization of OID reduce the company's Pre-Tax Income, but get added back as non-cash expenses on the CFS, boosting the company's FCF due to the tax savings.

Much Ado About Something?

In most of our models and case studies, **we completely ignore OID** because it makes a difference of about 0.1% on the IRR in LBO models.

Some case studies and interview guides make a big deal about this concept, but it barely makes a difference because:

1) In most cases, Debt is *not* issued at a huge discount to par value, so the OID is very small. The discount is often ~1-3%.

2) The result is that the company saves a *tiny* amount on its Taxes because the Amortization of OID is a non-cash expense, similar to Depreciation.

3) It creates a lot of extra work for almost no gain. Imagine tracking everything above for *each* tranche of Debt in an LBO model with 8 tranches of Debt.

It's good to be familiar with the concept of Original Issue Discounts (OID), but they are **far** from "key value drivers" in leveraged buyouts.

Cash Flow Sweep Percentages

We assumed earlier on that if a company has sufficient Cash Flow Available for Debt Repayment, it will always use 100% of that cash flow to repay Debt.

For example, if it has $200 in Cash Flow Available for Debt Repayment, a $500 Term Loan, and $100 in mandatory repayments per year, it has to repay $100 of the Term Loan's principal first.

After that, the firm will use its remaining $100 in Cash Flow Available for Debt Repayment to repaying an *additional* $100 of the Term Loan.

However, in some cases, the terms of the Debt will *require* a company to use a certain percentage of its excess cash flow to repay the principal.

This is called a "Cash Flow Sweep" or "Cash Sweep," and values ranging from 50% to 100% are common on Revolvers and Term Loans.

If the Cash Flow Sweep were 50% in the example above, the company would **be required** to use $50, or 50% of its $100 in Available Cash Flow, to repay the Term Loan principal.

After that, it might still choose to repay an additional $50 with its remaining cash flow, but it doesn't have to do so.

When there are Cash Flow Sweeps, you need to perform an additional check in the model and repay, optionally, only the percentages specified by these terms.

You normally assume that anything remaining *after* these sweeps accumulates to the company's Cash balance, though you could set up very complicated formulas to assume even more optional repayment after the sweeps.

We usually skip such logic in our models and examples because:

1) It falls into the "High effort but minimal difference on the model output" category.

2) We've rarely seen this term come up in modeling tests. Most tests state that you should apply *all* excess cash flow to the Revolver and Term Loans. Even OID is more common!

Return to Top.

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.