The 200 Investment Banking Interview Questions & Answers You Need to Know – 2nd Edition Additions

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Discover How To Get Into Investment Banking

Production

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Introduction

We released the original version of this guide in December 2008, and since then we've received great feedback from everyone who's signed up for it.

But there's always room for improvement – so that's exactly what you'll see in this version.

I created this document to show you the new additions to the 2nd edition, just in case you already have the 1st edition of the guide. Here are the highlights:

- Dozens of more advanced technical questions in each section.
- 40 Restructuring / Distressed M&A questions – very important in today's market.
- How to discuss transactions and deal experience in interviews, with sample "good" responses for each question.
- More fit questions and answers that address important scenarios (explaining bad grades, gaps in your resume, etc.).

These new editions make the guide **twice the length** of the original version, but **you don't have to read everything.** Pick and choose which sections are most relevant to you.

I also recommend going through the entire, revamped, 400-question guide once again as well – just to see where the new questions fit in and to plug any gaps in your knowledge.

-Brian

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Breaking Into Wall Street

“Fit” Questions – Additions

There are a number of additions on the fit / qualitative side in this edition. Many interviewees told us they received many market and economy-related career questions (e.g. “What’s your Plan B if banking doesn’t work out?”) as well as many “curve ball” type questions (e.g. “What type of vegetable would you be?”), especially at firms like Goldman Sachs.

We also cover how to answer questions about more “random” backgrounds, gaps in your transcript and other blemishes.

There are also more questions and suggested answers on the “understanding banking” part of interviews.

"Failure" Questions & Answers – New Section

When the economy is bad and when banks aren't giving out many offers, "failure" is common. Maybe it's your greatest fear about banking, or your Plan B if things don't work out.

Or maybe it's just answering those awkward questions about why you didn't get an offer last year, or what you did over the past 6 months **besides** partying in Thailand.

1. What's your greatest fear about investment banking?

Do **not** give an actual, legitimate fear (losing your friends/significant other, gaining weight, working too much, hating your life, getting laid off, etc.).

Instead, it's best to go with something more innocuous like, "Doing a lot of work on deals and not always getting to see them through to the conclusion because anything could cause a large transaction to collapse" or having concerns about the deal flow if the market is poor.

2. What's your "Plan B" if you can't get into investment banking this year?

You'll do something finance-related, in a field like corporate finance / strategy or maybe something else at a bank / financial firm. **You also want to point any offers you have, especially if they're in finance or consulting**.

"If I have absolutely no way to get into banking at your firm this year, then I'd go work in the Valuations group at one of the Big 4 firms where I already have an offer – or to the 2 boutiques that keep inviting me in for interviews."

3. That guy over there has a 4.0 from Wharton/Harvard – why should I hire you over him, given that you're much less impressive?

Bankers hire people who 1) Are smart 2) Can do the work and 3) Are likeable. In addition to meeting all of those criteria, you've also done well in the real-world and have stellar recommendations to back you up – plus, since you *don't* come from a "blue-chip" background you're more motivated to succeed than the Harvard guy.

"He does have impressive credentials. But at a bank, you want someone who's smart, can do the work, and is easy to get along with. I've done well in school and am working on an Honors Thesis right now, and I have great recommendations from my 2 previous bosses in my Sales & Trading internships. And I spend most of my free time sky diving and going on adventures in different countries.

So while he may be qualified on paper, in banking it all comes down to real-world experience and what kind of camaraderie you have with everyone. I'm confident that I excel in both of those areas – and since I'm not from a privileged background, I'm even more motivated to succeed than someone who is."

4. Let's say your MD is meeting with a client and you have been invited. As he's presenting, you notice a mistake in the materials – do you point it out?

No – unless it happens to come up in the meeting, in which case you speak only if the MD asks you about it. In that case you should just briefly acknowledge it and then move to a different topic.

It's bad if you make a mistake like that, but it's even worse if you embarrass your MD by pointing it out in broad daylight – chances are that no one will notice anyway since they barely read pitch books in meetings.

5. I see you have a big gap in your work experience over the past few months / few years / I see you have a gap of 2-3 years a few years ago – what happened there?

The key here is to spin whatever you've done in a positive light. So don't just say you were out of work / laid off / looking for work at the time – just mention that briefly and then say that you were also doing something else constructive with your time, such as education, travel, volunteering, or a respectable hobby.

If you've had some other type of gap because of school, economic hardship, or something similar, you need to find the strength in whatever weakness you had – this is really just a disguised "weakness" question.

So if you had to wait tables for 1-2 years to pay for family expenses or support yourself / pay for tuition, talk about what that taught you in terms of work ethic and what you learned about yourself in the process.

As with any other "Why don't you have a blue-chip background?" question, you have to tie everything back to the "banker-like" qualities.

"The truth is, my family went through some financial hardships back then and I was forced to take a leave of absence from school for awhile, and spend most of my time working to help them pay the bills. Initially I was pretty upset, but I learned a lot about time management, work ethic, and how to juggle 5 different major responsibilities at once. I lost some time on my peers, but I came out more motivated than before, helped my family get back on their feet, and got started with independent study to help myself catch up."

6. Why did you get a C in accounting? (Or other bad grade in highly relevant class)

Don't even try to make up an excuse unless it's a REALLY good one (e.g. your parents both passed away that semester) – just admit it and then point out what you've learned and how you've improved since then.

Maybe you took it upon yourself to do additional self-study – or you changed your approach to studying and did much better in subsequent Accounting classes.

7. Why did you NOT receive a return offer from your internship?

For this one it sounds like you're making an excuse if you say something like, "The market was bad" or "They didn't give out any offers" – even if both of those are true.

It's a better bet to say something like, "I did well in my internship and got positive reviews, but I didn't fit in with the group's culture. From those I've spoken with so far at your firm, I think this is a much better fit for me."

It's hard to argue with doing the work well but just not fitting in with the group.

8. You graduated last year and don't have anything listed on your resume since then – what have you been doing, and did you participate in recruiting last year?

For this one, if it's a bank you have NOT interviewed with before it's best to say you haven't participated in recruiting so they don't see you as "damaged goods." But if you're on the record as having interviewed there before, you need to admit the truth.

You probably want to say something like, "I did some interviewing last year, but I was not focused 100% due to a family situation. I had to spend a few months after graduation attending to that, so I missed out on recruiting, but I did some independent study / additional research / [something else that sounds productive] and am now more focused than ever on banking."

Remember, almost anything could be a "family situation" and no one will call you on it if you say something like this. You also want to convey that your time since graduating has not been *unproductive* and that you're now better-prepared / more focused.

9. Why are we your first choice? Wouldn't you like London or New York more?

Even if you really do prefer New York or London, you can't say this in an interview with a regional office because your #1 goal has to be getting AN offer – not getting the perfect offer in the perfect location.

It's best to say something like, "I realize it is unusual and that are other places are sometimes more popular, but I'm most interested in [Location] because it's the best place for [Industry You Like], I have a lot of friends and family here, and on top of all that the cost of living also beats New York."

This way you **acknowledge** their "objection" upfront but also point out solid reasons for picking this location.

10. Why are you so old? (Stated more tactfully)

"I realize I don't fit the typical profile of someone applying to banking – but that also comes with some advantages. I've been around longer and explored different industries, so I have a better of what I want, and I'm going to be more committed than someone just out of school. I've also had a lot more leadership experience and understand how to get things done in a large company – and I've climbed up steep learning curves plenty of times over the years."

One of the interviewer's key concerns for older candidates is how well you can learn new things and work long hours – so you should have specific examples on-hand to address both of these "objections."

Commitment Questions & Answers – Additions

1. If I gave you an offer right now on the spot would you take it?

"Yes, show me the dotted line and I'd sign it right now."

Even if this is a lie, you still have to say it in an interview or you won't get an offer.

2. Let's say that we were to give you an offer – how long would you need to decide whether or not to accept it?

"Show it to me and I'll sign and accept it right now."

Some people think this is "unethical" if you're really not certain, but keep in mind that **until you've signed something in writing you can do whatever you want**.

No, they won't like you if you verbally accept and then renege, but it's not the end of the world – just the end of your relationship with that bank.

Understanding Banking Questions & Answers – Additions

1. What's in a pitch book?

It depends on the type of deal the bank is pitching for, but the most common structure is:

1. Bank "credentials" (similar deals they've done to "prove" their expertise).
2. Summary of a company's options ("strategic alternatives" in banker-speak).
3. Valuation and appropriate financial models (for example, if you're pitching for an IPO you might show where the IPO proceeds would go).
4. Potential acquisition targets (buy-side M&A deal) or potential buyers (sell-side M&A deal). This is not applicable for equity/debt deals.
5. Summary and key recommendations.

2. How do companies select the bankers they work with?

This is usually based on relationships – banks develop relationships with companies over the years *before* they need anything, and then when it comes time to do a deal, the company calls different banks it has spoken with and asks them to "pitch" for the business. This is called a "bake-off" and the company selects the "winner" afterward.

3. Walk me through the process of a typical sell-side M&A deal.

A typical sell-side M&A deal with many potential buyers would look like this:

1. Meet with company, create initial marketing materials like the Executive Summary and Offering Memorandum (OM), and decide on potential buyers.
2. Send out Executive Summary to potential buyers to gauge interest.
3. Send NDAs (Non-Disclosure Agreements) to interested buyers along with more detailed information like the Offering Memorandum, and respond to any follow-up due diligence requests from the buyers.
4. Set a "bid deadline" and solicit written Indications of Interest (IOIs) from buyers.
5. Select which buyers advance to the next round.
6. Continue responding to information requests and setting up due diligence meetings between the company and potential buyers.
7. Set another bid deadline and pick the "winner."
8. Negotiate terms of the Purchase Agreement with the winner and announce the deal.

4. Walk me through the process of a typical buy-side M&A deal.

1. Spend **a lot** of time upfront doing research on dozens or hundreds of potential acquisition targets, and go through multiple cycles of selection and filtering with the company you're representing.
2. Narrow down the list based on their feedback and decide which ones to approach.
3. Conduct meetings and gauge the receptivity of each potential seller.
4. As discussions with the most likely seller become more serious, conduct more in-depth due diligence and figure out your offer price.
5. Negotiate the price and key terms of the Purchase Agreement and then announce the transaction.

5. Walk me through a debt issuance deal.

It's similar to the IPO process:

1. Meet with the client and gather basic financial, industry, and customer information.
2. Work closely with DCM / Leveraged Finance to develop a debt financing or LBO model for the company and figure out what kind of leverage, coverage ratios, and covenants might be appropriate.
3. Create an investor memorandum describing all of this.
4. Go out to potential debt investors and win commitments from them to finance the deal.

The main differences vs. an IPO: there are fewer banks involved, and you don't need SEC approval to do any of this because debt is not sold to the "general public" but rather to sophisticated institutional investors and funds.

6. How are Equity Capital Markets (ECM) and Debt Capital Markets (DCM) different from M&A or industry groups?

ECM and DCM are both more "markets-based" than M&A. In M&A your job is to execute sell-side and buy-side transactions, whereas in ECM/DCM most of your tasks are related to staying on top of the market, following current trends, and making recommendations to industry and product groups for clients and pitch books.

In ECM/DCM you go more in-depth on certain parts of the deal process, but you don't get as broad a view as you might in other groups.

7. What's the difference between DCM and Leveraged Finance?

They're similar but Leveraged Finance is more "modeling-intensive" and does more of the deal execution with industry and M&A groups on LBOs and debt financings. DCM, by contrast, is more closely tied to the markets and tracks trends and relevant data.

But there's always overlap and some banks have just 1 of these groups, some have both, and some divide it differently altogether.

8. Explain what a divestiture is.

It's when a company (public or private) decides to sell off a specific division rather than sell the entire company. The process is very similar to the sell-side M&A process above, but it tends to be "messier" because you're dealing with a part of one company rather than the whole thing.

Creating a "standalone operating model" for the particular division they're selling is extremely important, and the transaction structure and valuation are more complex than they would be for a "plain-vanilla" M&A deal.

9. Imagine you want to draft a 1-slide company profile for an investor. What would you put there?

"Put the name of the company in the header, then divide the slide into 4 equal parts. The top-left is for the business description, headquarters, and key executives. Put a stock chart and the key historical and projected financial metrics and multiples on the top right. The bottom left can have descriptions of products and services, and the bottom right should have key geographies with a color-coded map to make it look pretty."

10. Let's say you're hired as the financial advisor for a company. What value could you add for them if they ask you about their suggested growth / M&A strategy?

At a high-level, first you'd want to see what their expansion goals are and how they can best achieve them – whether it's by partnering with another company, expanding with a merger or acquisition, or expanding organically with new products.

As the investment banker, you could provide value by making introductions to potential M&A targets and partners, and then advising on the best negotiation strategy, what companies would be most receptive, what type of price to expect, and how to manage the entire process.

"Outside the Box" Questions & Answers – New Section

You're likely to receive a number of "outside the box" questions in interviews, especially if your interviewer is the creative type or if you've given "boring" answers in your interview so far.

The main mistake you can make here is **taking yourself too seriously**. With these questions, the interviewer is trying to get at what makes you "cool" and sets you apart from other people.

So try to have some fun with these.

1. What type of animal / vegetable would you be?

Some interviewees take this as a cue to tie your choice back to being a team player, hard worker, or such but that's not the best approach.

For "creativity"-type questions, interviewers want you to be… creative. So think about your real personality and say something that matches that.

Example: Maybe you'd be a "hedgehog" because it looks like you have "spikes" on the outside to an observer, but you're actually warm and fuzzy on the inside.

2. Let's say that in the future your name turns up as the front page headline of a newspaper one day – what would the story be about?

With this type of question you can show more "banker-like" traits such as ambition and hard work – but you shouldn't take it *too* seriously.

So maybe the headline states that you climbed Mt. Everest, sold your company in an IPO, or became a best-selling author – you want "ambition + creativity / coolness" for this type of question.

Hopefully the headline wasn't about your indictment for insider trading.

3. Tell me a joke.

"**Q:** What was the best part of Playboy's IPO?
A: The pitch book."

If you have a female interviewer or someone else who might get offended, then try the following corny but impossible to offend joke instead:

"A dog goes into an investment banking job interview, and the banker says to him, 'You've got the job, but only if you can do three things. First, you have to be able complete an LBO model in 30 minutes.' So the dog runs to a computer and astoundingly creates a full model in 30 minutes.

That's very nice! Next, you must be able to spread 10 comps manually in under an hour. Immediately, the dog sits down at the computer and completes everything in only 30 minutes.

'That's perfect! Lastly, you must be bilingual.' So then the dog says, 'Meow!' "

4. What's your personal Beta?

"Beta" in the Capital Asset Pricing Model (CAPM) measures expected return and expected risk. Higher Beta means a higher potential return, but also more risk.

You probably want to say above 1.0, but not too much above it – you're much more ambitious than the average person, which causes you to try lots of new things and achieve quite a bit, so that inevitably carries some risk.

But you're not so reckless that you take **careless** risks – it's all about moderation. Don't go over 2.0.

Bankers like to think of themselves as "entrepreneurial" even though banking is extremely different from entrepreneurship, so you should take advantage of this line of thinking and indulge them.

5. What's the riskiest thing you've ever done?

Don't say "cocaine" or any other drug / porn-like / illegal activity (this **should** be common sense but you wouldn't believe the emails I get).

But you also can't say, "I sat next to the unpopular kid one day…" because that's not risky at all.

Try to discuss an internship or job experience you had that you never expected to get, or some type of extracurricular/leadership experience that was somewhat random and turned out to be great – and talk about how it was a calculated risk and that you got a lot out of the decision you made.

If you can point to something you had to be *proactive* to get, this is a good time to bring it up.

6. Let's say that you have $1 million, but you are NOT allowed to invest it or otherwise use it to create more money. What would you spend the capital on instead?

Don't say, "I would start my own business…" or "I would invest it in…" – many people completely ignore the actual question here.

It's best to tie this back to whatever your interests and passions are – so you might use the money to support volunteer work you've done, extended travel that you've always wanted to take, or maybe even to buy that race car you've always wanted.

Just make sure your answer is believable – if you have never worked at a non-profit or in a volunteer group in your life, don't suddenly try to be a saint. If you love cars, say you would think about buying a car you've always wanted… among other things.

Discussing Transaction Experience – New Section

Having transaction experience is a blessing and a curse. It's great because you sound more credible in your interviews, but it's an added challenge because you **need to know your stuff.**

If you've worked on deals before, your interviewer will spend a lot of time asking you about what you did, and will often "re-frame" the standard technical questions in the context of your deals instead.

The questions, explanations, and sample answers here focus on M&A deals because those are generally "better" to speak about in interviews, but you can tweak your answers and apply them to almost any kind of deal.

You should also review the "deal discussion" audio clips, transcripts, and analyses that are included with this interview guide right here:

http://breakingintowallstreet.com/biws/category/02-deal-discussions/

It's helpful to review these questions, but it's **far** more helpful to look at how you actually discuss transaction experience in context and see what the sample interviewees there did right and wrong in each case.

1. Walk me through one of the deals listed on your resume.

- Try to pick an M&A deal rather than an equity/debt financing and aim for more "unique" deal types like divestitures or distressed M&A; also try to pick something that's either "high-profile" or a deal where you contributed a lot.
- Don't go into *too* much detail for an "opening question" like this – just give a brief overview and then let them ask the questions.
- Describe the company, give approximate financial (revenue, EBITDA, market cap) figures, and say what they wanted to do.

Here's how you might describe a sell-side M&A deal you worked on:

"One of the deals I worked on was the sale of a $1 billion market cap consumer retail company. They specialized in food and beverages and sold to the US and European markets. Their revenue was around $800 million with $200 million EBITDA, growing at

around 5% per year. They were interested in selling because of a string of recent acquisitions in their market, and felt they could get a premium valuation. They engaged us to run a broad sell-side process with financial and strategic buyers."

Here's how you might describe an IPO:

"One deal I worked on was the $200 million IPO of a Chinese Internet company on the Hong Kong stock exchange. They had revenue of around $50 million, EBITDA of $10 million, and were growing very quickly, around 50% per year. They were going public to raise funds so that they could expand beyond China and get into other markets, and we were the lead underwriter on the deal."

After you finish your "introduction" the interviewer will start asking follow-up questions based on what you said.

2. Did you do anything quantitative for this deal? It looks like it just involved research.

This is a common scenario for summer interns or if you worked at a small boutique where financial modeling was not as common. Don't say that you did *nothing* quantitative, but also don't make it seem like you know everything there is to know about valuation or modeling. If you didn't build the model yourself, just point out how you contributed to it. Here's how you might respond:

"A lot of what I worked on was qualitative and involved researching potential buyers to see what the best fit might be. Our team did some valuation and financial modeling work as well, but since I was an intern I supported the other Analyst and Associate by finding relevant facts and figures and then going through their models, figuring out how they worked, and then making sure the information was correct."

3. Why did the company you were representing want to sell?

Maybe they received an unsolicited offer, maybe there were a string of recent acquisitions in their market, maybe the founder wanted to exit the business, or maybe the PE firm that owned the company wanted to exit its investment. You might say something like the following:

"They wanted to sell because larger companies in the market had recently acquired their closest competitors, and they felt that they could no longer thrive as a standalone entity.

Additionally, they had received informal offers from a few of the larger companies before, and felt that the timing was right to explore a sale once again."

4. Why did the company you were representing want to buy another company?

For this one you need to talk about what specific *type* of other company they wanted to buy. Did they want to expand into new geographies? Get into a new industry? Pursue a "hot" start-up that was receiving a lot of attention? Here's an example:

"Our client was interested in expanding from midstream oil & gas production and wanted to get into the upstream market as well, especially in North America. They had tried to do so before, but lacked the expertise and industry contacts – so they wanted to acquire a sizable company that had already done it so they could grow their top-line and also diversify their business."

5. Describe the deal process.

This one is completely dependent on what type of deal you worked on – but no matter what you say, don't go into an excruciating level of detail here. Focus on whether it was a broad or targeted process for M&A deals, and what kinds of buyers/sellers you approached; for debt and equity financings just go through the key points in the registration statements or investor memos, and what the investor reaction was.

"We ran a broad sell-side auction process for our client. They had in mind around 10-20 strategic buyers that might have been interested, and we added around 30 financial sponsors to their list. We got serious interest from about 5 of the companies we approached, which led to 1 strategic buyer and 1 financial sponsor ultimately competing to win the deal."

6. What were the major selling points of your client? What was attractive about it?

This one applies for both sell-side deals and equity/debt financings – good points to raise might include financial performance, market and industry trends, any competitive advantages it enjoyed, and anything positive about its customer base. Stay away from talking about the strength of the management team, because that is very difficult to "explain" in an interview.

"The Swedish healthcare company we were representing had been growing at around 15% year-over-year, vs. 5% average growth for the industry as a whole. It also had

higher margins than other companies in the industry because it focused on higher-end and more profitable medical care. The market as a whole was also very favorable because the Swedish population was aging and demand for healthcare could only rise in years to come."

7. What about its weaknesses? Why might investors be hesitant?

You could talk about unfavorable market trends, increased competition, uncertain financial projections, or the threat of new regulation harming the company.

"Although our client had performed well in the European healthcare market, its financial projections depended on expanding into the US and Asia, and it had no track record there. Also, massive healthcare reform in the US might make it significantly more difficult to enter that market in the future."

8. What were the major obstacles to getting the deal done? What happened?

These could be anything from disagreements on price to legal issues to problems with retaining the management team. **If you can point to any obstacles that you played a role in resolving, bring them up here**.

"We ran into issues because the private equity firm we were in discussions with wanted to make the deal contingent on the debt financing, which the CEO could not go along with. We also ran into problems with valuation, because the PE firm discounted our projections by about 20%. Eventually we compromised on both points, and on the second issue I helped create a more detailed revenue model for the company that validated some of our assumptions, so the PE firm agreed to meet us halfway."

9. What kind of standalone operating model did you create for your client?

For this one, you don't need to explain how to link the 3 statements together – focus on how you created the **revenue model** and the **expense model**. Usually you do this by looking at revenue in terms of units sold, factories, or production, and you analyze expenses by fixed costs and employees.

"On the revenue side, we looked at our client's existing, proven oil reserves and used their historical exploration & production figures to project how much they would be adding each year vs. what would be depleted. Then we combined that with projections for oil prices to estimate their yearly revenue. On the expense side, the majority of costs

were tied to how many oil fields were operational, so we linked numbers for transportation, technology, and drilling costs to those."

10. What was the status of this deal when you left your bank?

Don't feel "pressured" to say that the deal closed or that the IPO priced before you left. It's fine to say that it was still up in the air – and even if the deal actually fell apart, you're better off pretending that it's still pending and that there hasn't been an announcement yet (unless it was a huge deal that very publicly fell apart).

"When I left, both sides did not agree 100% on price. They were moving closer and had resolved management retention and had come to agreement on the reps and warranties, but they were still locking down the final details, so the deal is pending right now."

11. What did you look at in the due diligence process?

The most important items here are the company's financial statements, contracts (with customers, employees, and suppliers), and then tax, legal, environmental, IP, and regulatory issues. Note that as an investment banker you don't really "look at" much in the due diligence process for any deal – you just process requests.

For IPOs, this changes and you're responsible for conducting customer due diligence calls – so you need to talk about that and what customers told you directly.

"We looked at all the standard items, including the company's audit reports and financial statements, and then brought in specialists to look at the contracts, legal, and intellectual property issues. I came up with lists of questions for the customer due diligence calls we conducted, which was important because investors at the time were reluctant to invest in IPOs in emerging markets like Brazil – and by speaking with customers we were able to assess the risk for ourselves."

12. Tell me about the market your client was in.

Focus on the major trends and how the company you represented compared to the competition. Don't go into every single detail – just pick the 1-2 major points and focus on how it affected the deal and/or valuation.

"Our client was in the mainframe software market, which had existed for over 20 years and had consolidated significantly in recent years, with IBM acquiring many of the

smaller independent vendors. It was a slow-growing market and most of the sales came from existing customers upgrading – as a result, we couldn't find many interested strategic buyers, and most of the interest came from financial sponsors that were attracted to our company's high margins and recurring revenue."

13. How did you narrow down potential targets (or potential investors)?

For potential targets, focus on financial, industry, and geographical criteria; for potential investors, talk about what they've invested in before, how much synergy or "fit" there is, and whether or not they have complementary portfolio companies (for PE firms).

"We picked potential investors mostly based on size and acquisition activity in our market in the past. There were a lot of healthcare acquisitions recently, but we wanted to focus on firms that were active in the North American market specifically, and ones that had acquired firms worth over $500 million. We looked at some financial sponsors as well, but focused on ones that had sizable healthcare companies in their portfolios."

14. How did you value your client?

Just take the standard valuation methodologies and talk about how you applied them to the company you worked with. Note that for IPOs, you only care about public company comparables – for other types of deals you look at a wider range of methodologies.

"We used public company comparables, precedent transactions, and a DCF. For public comps, we picked a set of software companies with over $1 billion revenue, for precedent transactions, we looked at software deals worth over $500 million, and we used the standard DCF but looked at a few different scenarios because our client's projections were aggressive. We didn't look at other methodologies because this was a standard M&A deal and they were almost certainly going to sell to a strategic buyer."

15. How did you personally contribute to this deal?

One of the most difficult and most important questions you can get. For this one, you have to be careful to not exaggerate too much and claim that you generated millions of dollars for your bank – but you should also try to say something more than, "I made these graphs look pretty in PowerPoint." Here's an example:

"As the intern, I helped some of the Analysts track down hard-to-find numbers to use for assumptions in our models. This played an important role in the deal, because

buyers analyzed our operating model of the company and found everything more believable since we had laid out such detailed assumptions behind all the numbers."

Restructuring / Distressed M&A Questions & Answers – New Section

Interviews for Restructuring / Special Situations / Distressed M&A groups tend to be highly technical and specific to distressed companies.

But most guides have ignored the fact that Restructuring even exists as a division of investment banks. We're going to fix that.

The questions here cover a broad range of topics, ranging from what Restructuring bankers do to the more technical aspects of debt and transactions with distressed companies.

1. How much do you know about what you actually do in Restructuring?

Restructuring bankers advised distressed companies – businesses going bankrupt, in the midst of bankruptcy, or getting out of bankruptcy – and help them change their capital structure to get out of bankruptcy, avoid it in the first place, or assist with a sale of the company depending on the scenario.

2. What are the 2 different "sides" of a Restructuring deal? Do you know which one we usually advise?

Bankers can advise either the **debtor** (the company itself) or the **creditors** (anyone that has lent the company) money. It's similar to sell-side vs. buy-side M&A – in one you're advising the company trying to sell or get out of the mess it's in, and in the other you're advising buyers and lenders that are trying to take what they can from the company.

Note that the "creditors" are often multiple parties since it's anyone who loaned the company money. There are also "operational advisors" that help with the actual turnaround.

You need to research which bank does what, but typically Blackstone and Lazard advise the debtor and Houlihan Lokey advises the creditors (these 3 are commonly as the top groups in the field).

3. Why are you interested in Restructuring besides the fact that it's a "hot" area currently?

You gain a very specialized skill set (and therefore become more valuable / employable) and much of the work is actually *more* technical / interesting than M&A, for example.

You also get broader exposure because you see both the bright sides and not-so-bright sides of companies.

If you're coming in with any legal background or have aspirations of doing that in the future, there's a ton of overlap with Restructuring because you have to operate within a legal framework and attorneys are involved at every step of the process – so that can be one of your selling points as well.

4. How are you going to use your experience in Restructuring for your future career goals?

See above. In addition to the legal and "better technical skills" angles, you can also use the experience to work at a Distressed Investments or Special Situations Fund, which most people outside Restructuring don't have access to.

Or you could just go back to M&A or normal investing too, and still have superior technical knowledge to other bankers.

There's no "wrong" answer as long as you don't say you have no interest in it in the future.

5. How would a distressed company select its Restructuring bankers?

More so than M&A or IPO processes, Restructuring / Distressed M&A requires extremely specialized knowledge and relationships. There are only a few banks with good practices, and they are selected on the basis of their experience doing similar deals in the industry as well as their relationships with all the other parties that will be involved in the deal process.

Remember that a Restructuring involves many more parties than a normal M&A or financing deal does – there are lawyers, shareholders, debt investors, suppliers, directors, management, and crisis managers, and managing everyone can be like herding cats.

Lawyers can also be a major source of business, since they're heavily involved with any type of Restructuring / Distressed scenario.

6. Why would company go bankrupt in the first place?

Here are a few of the more common ones:

- A company cannot meet its debt obligations / interest payments.
- Creditors can accelerate debt payments and force the company into bankruptcy.
- An acquisition has gone poorly or a company has just written down the value of its assets steeply and needs extra capital to stay afloat (see: investment banking industry).
- There is a liquidity crunch and the company cannot afford to pay its vendors or suppliers.

7. What options are available to a distressed company that can't meet debt obligations?

1. Refinance and obtain fresh debt / equity.
2. Sell the company (either as a whole or in pieces in an asset sale).
3. Restructure its financial obligations to lower interest payments / debt repayments, or issue debt with PIK interest to reduce the cash interest expense.
4. File for bankruptcy and use that opportunity to obtain additional financing, restructure its obligations, and be freed of onerous contracts.

8. What are the advantages and disadvantages of each option?

1. **Refinance –** Advantages: Least disruptive to company and would help revive confidence; Disadvantages: Difficult to attract investors to a company on the verge of going bankrupt.
2. **Sale –** Advantages: Shareholders could get some value and creditors would be less infuriated, knowing that funds are coming; Disadvantages: Unlikely to obtain a good valuation in a distressed sale, so company might sell for a fraction of its true worth
3. **Restructuring –** Advantages: Could resolve problems quickly without 3rd party involvement; Disadvantages: Lenders are often reluctant to increase their exposure to the company and management/lenders usually don't see eye-to-eye
4. **Bankruptcy –** Advantages: Could be the best way to negotiate with lenders, reduce obligations, and get additional financing; Disadvantages: Significant business disruptions and lack of confidence from customers, and equity investors would likely lose all their money

9. From the perspective of the creditors, what different strategies do they have available to recover their capital in a distressed situation?

These mirror the options that are available to the company itself in a distressed scenario:

1. Lend additional capital / grant equity to company.
2. Conditional financing – Only agree to invest if the company cuts expenses, stops losing money, and agrees to other terms and covenants.
3. Sale – Force the company to hire an investment bank to sell itself, or parts of itself.
4. Foreclosure – Bank seizes collateral and forces a bankruptcy filing.

10. How are Restructuring deals different from other types of transactions?

They are more complex, involve more parties, require more specialized/technical skills, and have to follow the Bankruptcy legal code – unlike most other types of deals bankers work on. The debtor advisor, for example, might have to work with creditors during a forbearance period and then work with lawyers to determine collateral recoveries for each tranche of debt.

Also, unlike most standard M&A deals the negotiation extends beyond two "sides" – it's not just the creditors negotiating with the debtors, but also the different creditors negotiating with each other.

Distressed sales can happen very quickly if the company is on the brink of bankruptcy, but those are different from Bankruptcy scenarios.

11. What's the difference between Chapter 7 and Chapter 11 bankruptcy?

A Chapter 7 bankruptcy is also known as a "liquidation bankruptcy" – the company is too far past the point of reorganization and must instead sell off its assets and pay off creditors. A trustee ensures that all this happens according to plan.

Chapter 11 is more of a "reorganization" – the company doesn't die, but instead changes the terms on its debt and renegotiates everything to lower interest payments and the dollar value of debt repayments.

If we pretend a distressed company is a cocaine addict, Chapter 7 would be like a heart attack and Chapter 11 would be like rehab.

12. What is debtor-in-possession (DIP) financing and how is it used with distressed companies?

It is money borrowed by the distressed company that has repayment priority over all other existing secured/unsecured debt, equity, and other claims, and is considered "safe" by lenders because it is subject to stricter terms than other forms of financing.

Theoretically, this makes it easier for distressed companies to emerge from the bankruptcy process – though some argue that DIP financing is actually harmful on an empirical basis. Some DIP lending firms are known for trying to take over companies at a significant discount due to the huge amount of collateral they have.

One reason companies might choose to file for (Chapter 11) bankruptcy is to get access to DIP financing.

13. How would you adjust the 3 financial statements for a distressed company when you're doing valuation or modeling work?

Here are the most common adjustments:

- Adjust Cost of Goods Sold for higher vendor costs due to lack of trust from suppliers.
- Add back non-recurring legal / other professional fees associated with the restructuring and/or distressed sale process.
- Add back excess lease expenses (again due to lack of trust) to Operating Income as well as excess salaries (often done so private company owners can save on taxes).
- Working Capital needs to be adjusted for receivables unlikely to turn into cash, overvalued/insufficient inventory, and insufficient payables.
- CapEx spending is often off (if it's too high that might be why they're going bankrupt, if it's too low they might be doing that artificially to save money).

14. Would those adjustments differ for public companies vs. private companies?

Most of the above would apply to public companies as well, but the point about excess salaries does not hold true – it's much tougher for public companies to manipulate the system like that and pay abnormal salaries.

15. If the market value of a distressed company's debt is greater than the company's assets, what happens to its equity?

The **SHAREHOLDERS' EQUITY** goes negative (which is actually not that uncommon and happens all the time in LBOs and when a company is unprofitable). A company's

EQUITY MARKET CAP (which is different – that's just shares outstanding * share price) would remain positive, though, as that can never be negative.

16. In a bankruptcy, what is the order of claims on a company's assets?

1. New debtor-in-possession (DIP) lenders (see explanation above)
2. Secured creditors (revolvers and "bank debt")
3. Unsecured creditors ("high-yield" bonds)
4. Subordinated debt investors (similar to high-yield bonds)
5. Mezzanine investors (convertibles, convertible preferred stock, preferred stock, PIK)
6. Shareholders (equity investors)

"Secured" means that the lender's claims are protected by specific assets or collateral; unsecured means anyone who has loaned the company money without collateral.

For more on the different types of debt, see the LBO section where we have a chart showing the differences between everything.

17. How do you measure the cost of debt for a company if it is too distressed to issue additional debt (i.e. investors won't buy any debt from them)?

You'd have to look at the yields of bonds or the spreads of credit default swaps of comparable companies to get a sense of this. You could also just use the current yields on a company's existing debt to estimate this, though it may be difficult if the existing debt is illiquid.

18. How would valuation change for a distressed company?

- You use the same methodologies most of the time (public company comparables, precedent transactions, DCF)…
- Except you look more at the lower range of the multiples and make all the accounting adjustments we went through above.
- You also use lower projections for a DCF and anything else that needs projections because you assume a turnaround period is required.
- You might pay more attention to revenue multiples if the company is EBIT/EBITDA/EPS-negative.
- You also look at a liquidation valuation under the assumption that the company's assets will be sold off and used to pay its obligations.

- Sometimes you look at valuations on both an assets-only basis and a current liabilities-assumed basis. This distinction exists because you need to make big adjustments to liabilities with distressed companies.

19. How would a DCF analysis be different in a distressed scenario?

Even more of the value would come from the terminal value since you normally assume a few years of cash flow-negative turnaround. You might also do a sensitivity table on hitting or missing earnings projections, and also add a premium to WACC to make it higher and account for operating distress.

20. Let's say a distressed company approaches you and wants to hire your bank to sell it in a distressed sale – how would the M&A process be different than it would for a healthy company?

1. Timing is often **quick** since the company needs to sell or else they'll go bankrupt.
2. Sometimes you'll produce fewer "upfront" marketing materials (Information Memoranda, Management Presentations, etc.) in the interest of speed.
3. Creditors often initiate the process rather than the company itself.
4. Unlike normal M&A deals, distressed sales can't "fail" – they result in a sale, a bankruptcy or sometimes a restructuring.

21. Normally in a sell-side M&A process, you always want to have multiple bidders to increase competition. Is there any reason they'd be especially important in a distressed sale?

Yes – in a distressed sale you have almost no negotiating leverage because you represent a company that's about to die. The only real way to improve price for your client is to have multiple bidders.

22. The 2 basic ways you can buy a company are through a stock purchase and an asset purchase. What's the difference, and what would a buyer in a distressed sale prefer? What about the seller?

In a stock purchase, you acquire 100% of a company's shares as well as all its assets and liabilities (on and off-balance sheet). In an asset purchase, you acquire only certain assets of a company and assume only certain liabilities – so you can pick and choose exactly what you're getting.

Companies typically use asset purchases for divestitures, distressed M&A, and smaller private companies; anything large, public, and healthy generally needs to be acquired via a stock purchase.

A buyer almost always prefers an asset purchase so it can avoid assumption of unknown liabilities (there are also tax advantages for the buyer).

A (distressed) seller almost always prefers a stock purchase so it can be rid of all its liabilities and because it gets taxed more heavily when selling assets vs. selling the entire business.

23. Sometimes a distressed sale does not end in a conventional stock/asset purchase – what are some other possible outcomes?

Other possible outcomes:

- Foreclosure (either official or unofficial)
- General assignment (faster alternative to bankruptcy)
- Section 363 asset sale (a faster, less risky version of a normal asset sale)
- Chapter 11 bankruptcy
- Chapter 7 bankruptcy

24. Normally M&A processes are kept confidential – is there any reason why a distressed company would *want* to announce the involvement of a banker in a sale process?

This happens even outside distressed sales – generally the company does it if they want more bids / want to increase competition and drive a higher purchase price.

25. Are shareholders likely to receive any compensation in a distressed sale or bankruptcy?

Technically, the answer is "it depends" but practically speaking most of the time the answer is "no."

If a company is truly distressed, the value of its debts and obligations most likely exceed the value of its assets – so equity investors rarely get much out of a bankruptcy or distressed sale, especially when it ends in liquidation.

26. Let's say a company wants to sell itself or simply restructure its obligations – why might it be forced into a Chapter 11 bankruptcy?

In a lot of cases, aggressive creditors force this to happen – if they won't agree to the restructuring of its obligations or they can't finalize a sale outside court, they might force a company into Chapter 11 by accelerating debt payments.

27. Recently, there has been news of distressed companies like GM "buying back" their debt for 50 cents on the dollar. What's the motivation for doing this and how does it work accounting-wise?

The motivation is simple: use excess balance sheet cash to buy back debt on-the-cheap and sharply reduce interest expense and obligations going forward. It works because the foregone interest on cash is lower than whatever interest rate they're paying on debt – so they reduce their net interest expense no matter what.

Many companies are faced with huge debt obligations that have declined significantly in value but which still have relatively high interest rates, so they're using the opportunity to rid themselves of excess cash and cancel out their existing debt.

Accounting-wise, it's simple: Balance Sheet cash goes down and debt on the Liabilities & Equity side goes down by the same amount to make it balance.

28. What kind of companies would most likely enact debt buy-backs?

Most likely over-levered companies – ones with too much debt – that were acquired by PE firms in leveraged buyouts during the boom years, and now face interest payments they have trouble meeting, along with excess cash.

29. Why might a creditor might have to take a loss on the debt it loaned to a distressed company?

This happens to lower-priority creditors all the time. Remember, secured creditors always come first and get first claim to all the proceeds from a sale or series of asset sales; if a creditor is lower on the totem pole, they only get what's left of the proceeds so they have to take a loss on their loans / obligations.

30. What is the end goal of a given financial restructuring?

A restructuring does not **change the amount of debt outstanding** in and of itself – instead, it changes the terms of the debt, such as interest payments, monthly/quarterly principal repayment requirements, and the covenants.

31. What's the difference between a Distressed M&A deal and a Restructuring deal?

"Restructuring" is one possible *outcome* of a Distressed M&A deal. A company can be "distressed" for many reasons, but the solution is not always to restructure its debt obligations – it might declare bankruptcy, it might liquidate and sell off its assets, or it might sell 100% of itself to another company.

"Restructuring" just refers to what happens when the distressed company in question decides it wants to change around its debt obligations so that it can better repay them in the future.

32. What's the difference between acquiring just the assets of a company and acquiring it on a "current liabilities assumed" basis?

When you acquire the assets of a distressed company, you get literally just the assets. But when you acquire the current liabilities as well, you need to make adjustments to account for the fact that a distressed company's working capital can be extremely skewed.

Specifically, "owed expense" line items like Accounts Payable and Accrued Expenses are often much higher than they would be for a healthy company, so you need to subtract the difference if you're assuming the current liabilities.

This results in a deduction to your valuation – so in most cases the valuation is lower if you're assuming current liabilities.

33. How could a decline in a company's share price cause it to go bankrupt?

Trick question. Remember, **MARKET CAP DOES NOT EQUAL SHAREHOLDERS' EQUITY**. You might be tempted to say something like, "Shareholders' equity falls!" but the share price of the company does not affect shareholders' equity, which is a book value.

What actually happens: as a result of the share price drop, customers, vendors, suppliers, and lenders would be more reluctant to do business with the distressed company – so its

revenue might fall and its Accounts Payable and Accrued Expenses line items might climb to unhealthy levels.

All of that might cause the company to fail or require more capital, but the share price decline itself does not lead to bankruptcy.

In the case of Bear Stearns in 2008, overnight lenders lost confidence as a result of the sudden share price declines and it completely ran out of liquidity as a result – which is a big problem when your entire business depends on overnight lending.

34. What happens to Accounts Payable Days with a distressed company?

They rise and the average AP Days might go well beyond what's "normal" for the industry – this is because a distressed company has trouble paying its vendors and suppliers.

35. Let's say a distressed company wants to raise debt or equity to fix its financial problems rather than selling or declaring bankruptcy. Why might it not be able to do this?

- **Debt:** Sometimes if the company is too small or if investors don't believe it has a credible turnaround plan, they will simply refuse to lend it any sort of capital.
- **Equity:** Same as above, but worse – since equity investors have lower priority than debt investors. Plus, for a distressed company getting "enough" equity can mean selling 100% or near 100% of the company due to its depressed market cap.

36. Will the adjusted EBITDA of a distressed company be higher or lower than the value you would get from its financial statements?

In most cases it will be higher because you're adjusting for higher-than-normal salaries, one-time legal and restructuring charges, and more.

37. Would you use Levered Cash Flow for a distressed company in a DCF since it might be encumbered with debt?

No. In fact, with distressed companies it's really important to analyze cash flows on a debt-free basis precisely *because* they might have higher-than-normal debt expenses.

38. Let's say we're doing a Liquidation Valuation for a distressed company. Why can't we just use the Shareholders' Equity number for its value? Isn't that equal to Assets minus Liabilities?

In a Liquidation Valuation you need to **adjust the values of the assets** to reflect how much you could get if you sold them off separately. You might assume, for example, that you can only recover 50% of the book value of a company's inventory if you tried to sell it off separately.

Shareholders' Equity **is** equal to Assets minus Liabilities, but in a Liquidation Valuation we change the values of all the Assets so we can't just use the Shareholders' Equity number.

39. What kind of recovery can you expect for different assets in a Liquidation Valuation?

This varies A LOT by industry, company and the specific assets, but some rough guidelines:

- **Cash**: Probably close to 100% because it's the most liquid asset.
- **Investments**: Varies a lot by what they are and how liquid they are – you might get close to 100% for the ones closest to cash, but significantly less than that for equity investments in other companies.
- **Accounts Receivable:** Less than what you'd get for cash because many customers might just not "pay" a distressed company.
- **Inventory:** Less than Cash or AR because inventory is of little use to a different company.
- **PP&E:** Similar to cash for land and buildings, and less than that for equipment.
- **Intangible Assets:** 0%. No one will pay you anything for Goodwill or the value of a brand name – or if they will, it's near-impossible to quantify.

40. How would an LBO model for a distressed company be different?

The purpose of an LBO model here is not to determine the private equity firm's IRR, but rather to figure out how quickly the company can pay off its debt obligations as well as what kind of IRR any new debt/equity investors can expect.

Other than that, it's not much different from the "standard" LBO model – the mechanics are the same, but you have different kinds of debt (e.g. Debtor-in-Possession), possibly

more tranches, and the returns will probably be lower because it's a distressed company, though occasionally "bargain" deals can turn out to be very profitable.

One **structural difference** is that a distressed company LBO is more likely to take the form of an asset purchase rather than a stock purchase.

Technical Questions & Answers – Additions

The main additions in this version of the guide include more advanced questions and answers on each of these topics.

In this document I've listed everything together, because I'm assuming you've already learned the "basic" questions in the first edition of the guide.

If you want the full breakout of basic vs. advanced by section, you should read the revamped version of the full guide ("The 400 Investment Banking Interview Questions & Answers You Need to Know") which is available right here:

http://breakingintowallstreet.com/biws/category/04-interview-guide/

There are some extremely advanced questions here – **you don't need to memorize all of these**.

The advanced questions are more important if you've had full-time experience in finance or you're going for higher-level jobs, private equity, or anything beyond the standard entry-level investment banking interviews.

If you want to learn all the topics here in-depth, you can check out the Financial Modeling Program at a special, members-only discounted rate on the site right here:

http://breakingintowallstreet.com/biws/financial-modeling-members-discount/

You must be logged into the site to view this page.

Accounting Questions & Answers – Additions

1. What's the difference between accounts receivable and deferred revenue?

Accounts receivable has not yet been collected in cash from customers, whereas deferred revenue has been. Accounts receivable represents how much revenue the company is waiting on, whereas deferred revenue represents how much it is waiting to *record* as revenue.

2. How is GAAP accounting different from tax accounting?

1. GAAP is accrual-based but tax is cash-based.
2. GAAP uses straight-line depreciation or a few other methods whereas tax accounting is different (accelerated depreciation).
3. GAAP is more complex and more accurately tracks assets/liabilities whereas tax accounting is only concerned with revenue/expenses in the current period and what income tax you owe.

3. What are deferred tax assets/liabilities and how do they arise?

They arise because of temporary differences between what a company can deduct for cash tax purposes vs. what they can deduct for book tax purposes.

Deferred Tax Liabilities arise when you have a tax expense on the Income Statement but haven't actually paid that tax in cold, hard cash yet; Deferred Tax Assets arise when you pay taxes in cash but haven't expensed them on the Income Statement yet.

The most common way they occur is with asset write-ups and write-downs in M&A deals – an asset write-up will produce a deferred tax liability while a write-down will produce a deferred tax asset (see the Merger Model section for more on this).

4. What is working capital? How is it used?

Working Capital = Current Assets – Current Liabilities.

If it's positive, it means a company can pay off its short-term liabilities with its short-term assets. It is often presented as a financial metric and its magnitude and sign (negative or positive) tells you whether or not the company is "sound."

Bankers look at **Operating Working Capital** more commonly in models, and that is defined as (Current Assets – Cash & Cash Equivalents) – (Current Liabilities – Debt).

5. What does negative Working Capital mean? Is that a bad sign?

Not necessarily. It depends on the type of company and the specific situation – here are a few different things it could mean:

1. Some companies with subscriptions or longer-term contracts often have negative Working Capital because of high Deferred Revenue balances.
2. Retail and restaurant companies like Amazon, Wal-Mart, and McDonald's often have negative Working Capital because customers pay upfront – so they can use the cash generated to pay off their Accounts Payable rather than keeping a large cash balance on-hand. This can be a sign of business efficiency.
3. In other cases, negative Working Capital could point to financial trouble or possible bankruptcy (for example, when customers *don't* pay quickly and upfront and the company is carrying a high debt balance).

6. Can you give examples of major line items on each of the financial statements?

Income Statement: Revenue; Cost of Goods Sold; SG&A (Selling, General & Administrative Expenses); Operating Income; Pretax Income; Net Income.

Balance Sheet: Cash; Accounts Receivable; Inventory; Plants, Property & Equipment (PP&E); Accounts Payable; Accrued Expenses; Debt; Shareholders' Equity.

Cash Flow Statement: Net Income; Depreciation & Amortization; Stock-Based Compensation; Changes in Operating Assets & Liabilities; Cash Flow From Operations; Capital Expenditures; Cash Flow From Investing; Sale/Purchase of Securities; Dividends Issued; Cash Flow From Financing.

7. How long does it usually take for a company to collect its accounts receivable balance?

Generally the **accounts receivable days** are in the 40-50 day range, though it's higher for companies selling high-end items and it might be lower for smaller, lower transaction-value companies.

8. Walk me through how you create a revenue model for a company.

There are 2 ways you could do this: a **bottoms-up build** and a **tops-down build**.

- **Bottoms-Up:** Start with individual products / customers, estimate the average sale value or customer value, and then the growth rate in sales and sale values to tie everything together.
- **Tops-Down:** Start with "big-picture" metrics like overall market size, then estimate the company's market share and how that will change in coming years, and multiply to get to their revenue.

Of these two methods, **bottoms-up** is more common and is taken more seriously because estimating "big-picture" numbers is almost impossible.

9. Walk me through how you create an expense model for a company.

To do a true bottoms-up build, you start with each different department of a company, the # of employees in each, the average salary, bonuses, and benefits, and then make assumptions on those going forward.

Usually you assume that the number of employees is tied to revenue, and then you assume growth rates for salary, bonuses, benefits, and other metrics.

Cost of Goods Sold should be tied directly to Revenue and each "unit" produced should incur an expense.

Other items such as rent, Capital Expenditures, and miscellaneous expenses are either linked to the company's internal plans for building expansion plans (if they have them), or to Revenue for a more simple model.

10. Let's say we're trying to create these models but don't have enough information or the company doesn't tell us enough in its filings – what do we do?

Use estimates. For the revenue if you don't have enough information to look at separate product lines or divisions of the company, you can just assume a simple growth rate into future years.

For the expenses, if you don't have employee-level information then you can just assume that major expenses like SG&A are a percent of revenue and carry that assumption forward.

11. Walk me through the major items in Shareholders' Equity.

Common items include:

- **Common Stock** – Simply the par value of however much stock the company has issued.
- **Retained Earnings** – How much of the company's Net Income it has "saved up" over time.
- **Additional Paid in Capital** – This keeps track of how much stock-based compensation has been issued and how much new stock employees exercising options have created. It also includes how much over par value a company raises in an IPO or other equity offering.
- **Treasury Stock** – The dollar amount of shares that the company has bought back.
- **Accumulated Other Comprehensive Income** – This is a "catch-all" that includes other items that don't fit anywhere else, like the effect of foreign currency exchange rates changing.

12. Walk me through what flows into Retained Earnings.

Retained Earnings = Old Retained Earnings Balance + Net Income – Dividends Issued

If you're calculating Retained Earnings for the current year, take last year's Retained Earnings number, add this year's Net Income, and subtract however much the company paid out in dividends.

13. Walk me through what flows into Additional Paid-In Capital (APIC).

APIC = Old APIC + Stock-Based Compensation + Stock Created by Option Exercises

If you're calculating it, take the balance from last year, add this year's stock-based compensation number, and then add in however much new stock was created by employees exercising options this year.

14. What is the Statement of Shareholders' Equity and why do we use it?

This statement shows everything we went through above – the major items that comprise Shareholders' Equity, and how we arrive at each of them using the numbers elsewhere in the statement.

You don't use it too much, but it can be helpful for analyzing companies with unusual stock-based compensation and stock option situations.

15. What are examples of non-recurring charges we need to add back to a company's EBIT / EBITDA when looking at its financial statements?

- Restructuring Charges
- Goodwill Impairment
- Asset Write-Downs
- Bad Debt Expenses
- Legal Expenses
- Disaster Expenses
- Change in Accounting Procedures

Note that to be an "add-back" or "non-recurring" charge for EBITDA / EBIT purposes, it **needs to affect Operating Income on the Income Statement**. So if you have one of these charges "below the line" then you do not add it back for the EBITDA / EBIT calculation.

Also note that you do add back Depreciation, Amortization, and sometimes Stock-Based Compensation for EBITDA / EBIT, but that these are not "non-recurring charges" because all companies have them every year – these are just **non-cash charges**.

16. How do you project Balance Sheet items like Accounts Receivable and Accrued Expenses in a 3-statement model?

Normally you make very simple assumptions here and assume these are percentages of revenue, operating expenses, or cost of goods sold. Examples:

- **Accounts Receivable:** % of revenue.
- **Deferred Revenue:** % of revenue.
- **Accounts Payable:** % of COGS.
- **Accrued Expenses:** % of operating expenses or SG&A.

Then you either carry the same percentages across in future years or assume slight changes depending on the company.

17. How should you project Depreciation & Capital Expenditures?

The simple way: project each one as a % of revenue or previous PP&E balance.

The more complex way: create a PP&E schedule that splits out different assets by their useful lives, assumes straight-line depreciation over each asset's useful life, and then assumes capital expenditures based on what the company has invested historically.

18. How do Net Operating Losses (NOLs) affect a company's 3 statements?

The "quick and dirty" way to do this: reduce the Taxable Income by the portion of the NOLs that you can use each year, apply the same tax rate, and then subtract that new Tax number from your old Pretax Income number (which should stay the same).

The way you **should** do this: create a book vs. cash tax schedule where you calculate the Taxable Income based on NOLs, and then look at what you would pay in taxes **without** the NOLs. Then you book the difference as an increase to the Deferred Tax Liability on the Balance Sheet.

This method reflects the fact that you're saving on cash flow – since the DTL, a liability, is rising – but correctly separates the NOL impact into book vs. cash taxes.

19. What's the difference between capital leases and operating leases?

Operating leases are used for short-term leasing of equipment and property, and do not involve ownership of anything. Operating lease expenses show up as operating expenses on the Income Statement.

Capital leases are used for longer-term items and give the lessee ownership rights; they depreciate and incur interest payments, and are counted as debt.

A lease is a capital lease if any one of the following 4 conditions is true:

1. If there's a transfer of ownership at the end of the term.
2. If there's an option to purchase the asset at a bargain price at the end of the term.
3. If the term of the lease is greater than 75% of the useful life of the asset.
4. If the present value of the lease payments is greater than 90% of the asset's fair market value.

20. Where does Depreciation usually show up on the Income Statement?

It could be in a separate line item, or it could be embedded in Cost of Goods Sold or Operating Expenses – every company does it differently. Note that the end result for accounting questions is the same: Depreciation always reduces Pre-Tax Income.

21. Why would the Depreciation & Amortization number on the Income Statement be different from what's on the Cash Flow Statement?

This happens if D&A is embedded in other Income Statement line items. When this happens, you need to use the Cash Flow Statement number to arrive at EBITDA because otherwise you're undercounting D&A.

22. Walk me through a $100 "bailout" of a company and how it affects the 3 statements.

First, confirm what type of "bailout" this is – Debt? Equity? A combination? The most common scenario here is an equity investment from the government, so here's what happens:

No changes to the Income Statement. On the Cash Flow Statement, Cash Flow from Financing goes up by $100 to reflect the government's investment, so the Net Change in Cash is up by $100.

On the Balance Sheet, Cash is up by $100 so Assets are up by $100; on the other side, Shareholders' Equity would go up by $100 to make it balance.

23. Walk me through a $100 write-down of debt – as in OWED debt, a liability – on a company's balance sheet and how it affects the 3 statements.

This is counter-intuitive. When a **liability is written down** you record it as a **gain** on the Income Statement (with an asset write-down, it's a **loss**) – so Pre-Tax Income goes **up** by $100 due to this write-down. Assuming a 40% tax rate, Net Income is up by $60.

On the Cash Flow Statement, Net Income is up by $60, but we need to **subtract** that debt write-down – so Cash Flow from Operations is down by $40, and Net Change in Cash is down by $40.

On the Balance Sheet, Cash is down by $40 so Assets are down by $40. On the other side, Debt is down by $100 but Shareholders' Equity is up by $60 because the Net Income was up by $60 – so Liabilities & Shareholders' Equity is down by $40 and it balances.

If this seems strange to you, you're not alone – see this Forbes article for more on why writing down debt actually benefits companies accounting-wise:

http://www.forbes.com/2009/07/31/fair-value-accounting-markets-equities-fasb.html

Enterprise / Equity Value Questions & Answers – Additions

1. Are there any problems with the Enterprise Value formula you just gave me?

Yes – it's too simple. There are lots of other things you need to add into the formula with real companies:

- Net Operating Losses – Should be valued and arguably added in, similar to cash.
- Long-Term Investments – These should be counted, similar to cash.
- Equity Investments – Any investments in other companies should also be added in, similar to cash (though they might be discounted).
- Capital Leases – Like debt, these have interest payments – so they should be added in like debt.
- (Some) Operating Leases – Sometimes you need to convert operating leases to capital leases and add them as well.
- Pension Obligations – Sometimes these are counted as debt as well.

So a more "correct" formula would be Enterprise Value = Equity Value – Cash + Debt + Preferred Stock + Minority Interest – NOLs – Investments + Capital Leases + Pension Obligations…

In interviews, usually you can get away with saying "Enterprise Value = Equity Value – Cash + Debt + Preferred Stock + Minority Interest"

I mention this here because in more advanced interviews you might get questions on this topic.

2. Should you use the book value or market value of each item when calculating Enterprise Value?

Technically, you should use market value for everything. In practice, however, you usually use market value only for the Equity Value portion, because it's almost impossible to establish market values for the rest of the items in the formula – so you just take the numbers from the company's Balance Sheet.

3. How do you account for convertible bonds in the Enterprise Value formula?

If the convertible bonds are **in-the-money**, meaning that the conversion price of the bonds is below the current share price, then you count them as additional dilution to the

Equity Value; if they're out-of-the-money then you count the face value of the convertibles as part of the company's Debt.

4. A company has 1 million shares outstanding at a value of $100 per share. It also has $10 million of convertible bonds, with par value of $1,000 and a conversion price of $50. How do I calculate diluted shares outstanding?

This gets confusing because of the different units involved. First, note that these convertible bonds are **in-the-money** because the company's share price is $100, but the conversion price is $50. So we count them as additional shares rather than debt.

Next, we need to divide the value of the convertible bonds – $10 million – by the par value – $1,000 – to figure out how many individual bonds we get:

$10 million / $1,000 = 10,000 convertible bonds.

Next, we need to figure out how many shares this number represents. The number of shares per bond is the par value divided by the conversion price:

$1,000 / $50 = 20 shares per bond.

So we have 200,000 new shares (20 * 10,000) created by the convertibles, giving us 1.2 million diluted shares outstanding.

We do not use the Treasury Stock Method with convertibles because the company is not "receiving" any cash from us.

5. What's the difference between Equity Value and Shareholders' Equity?

Equity Value is the **market value** and Shareholders' Equity is the **book value**. Equity Value can never be negative because shares outstanding and share prices can never be negative, whereas Shareholders' Equity could be any value. For healthy companies, Equity Value usually far exceeds Shareholders' Equity.

6. What percentage dilution in Equity Value is "too high?"

There's no strict "rule" here but most bankers would say that anything over 10% is odd. If your basic Equity Value is $100 million and the diluted Equity Value is $115 million,

you might want to check your calculations – it's not necessarily wrong, but over 10% dilution is unusual for most companies.

Valuation Questions & Answers – Additions

1. When you're looking at an industry-specific multiple like EV / Scientists or EV / Subscribers, why do you use Enterprise Value rather than Equity Value?

You use Enterprise Value because those scientists or subscribers are "available" to all the investors (both debt and equity) in a company. The same logic doesn't apply to everything, though – you need to think through the multiple and see which investors the particular metric is "available" to.

2. How do you value a private company?

You use the same methodologies as with public companies: public company comparables, precedent transactions, and DCF. But there are some differences:

- You might apply a 10-15% (or more) **discount** to the public company comparable multiples because the private company you're valuing is not as "liquid" as the public comps.
- You can't use a **premiums analysis** or **future share price analysis** because a private company doesn't have a share price.
- Your valuation shows the **Enterprise Value** for the company as opposed to the **implied per-share price** as with public companies.
- A DCF gets tricky because a private company doesn't have a market capitalization or Beta – you would probably just **estimate WACC** based on the public comps' WACC rather than trying to calculate it.

3. Let's say we're valuing a private company. Why might we discount the public company comparable multiples but not the precedent transaction multiples?

There's no discount because with precedent transactions, you're acquiring the entire company – and once it's acquired, the shares immediately become illiquid.

But **shares** – the ability to buy individual "pieces" of a company rather than the whole thing – can be either liquid (if it's public) or illiquid (if it's private).

Since shares of public companies are always more liquid, you would discount public company comparable multiples to account for this.

4. Can you use private companies as part of your valuation?

Only in the context of precedent transactions – it would make no sense to include them for public company comparables or as part of the Cost of Equity / WACC calculation in a DCF because they are not public and therefore have no values for market cap or Beta.

5. How do you take into account a company's competitive advantage in a valuation?

1. Look at the 75th percentile or higher for the multiples rather than the Medians.
2. Add in a premium to some of the multiples.
3. Use more aggressive projections for the company.

In practice you rarely do all of the above – these are just possibilities.

6. If you were buying a vending machine business, would you pay a higher multiple for a business where you owned the machines and they depreciated normally, or one in which you leased the machines? The cost of depreciation and lease are the same dollar amounts and everything else is held constant.

You would pay more for the one where you lease the machines. Enterprise Value would be the same for both companies, but with the depreciated situation the charge is not reflected in EBITDA – so EBITDA is higher, and the EV / EBITDA multiple is lower as a result. For the leased situation, the lease would show up in SG&A so it would be reflected in EBITDA, making EBITDA lower and the EV / EBITDA multiple higher.

7. What do you actually use a valuation for?

Usually you use it in pitch books and in client presentations when you're providing updates and telling them what they should expect for their own valuation.

It's also used right before a deal closes in a Fairness Opinion, a document a bank creates that "proves" the value their client is paying or receiving is "fair" from a financial point of view.

Valuations can also be used in defense analyses, merger models, LBO models, DCFs (because terminal multiples are based off of comps), and pretty much anything else in finance.

8. Two companies have the exact same financial profile and are bought by the same acquirer, but the EBITDA multiple for one transaction is twice the multiple of the other transaction – how could this happen?

Possible reasons:

1. One process was more competitive and had a lot more companies bidding on the target.
2. One company had recent bad news or a depressed stock price so it was acquired at a discount.
3. They were in industries with different median multiples.

9. Do you ALWAYS use the median multiple of a set of public company comparables or precedent transactions?

There's no "rule" that you have to do this, but in most cases you do because you want to use values from the middle range of the set. But if the company you're valuing is distressed, is not performing well, or is at a competitive disadvantage, you might use the 25th percentile or something in the lower range instead – and vice versa if it's doing well.

10. How do you value banks and financial institutions differently from other companies?

You mostly use the same methodologies, **except:**

- You look at **P / E** and **P / BV** (Book Value) multiples rather than EV / Revenue, EV / EBITDA, and other "normal" multiples, since banks have unique capital structures.
- You pay more attention to bank-specific metrics like **NAV** (Net Asset Value) and you might screen companies and precedent transactions based on those instead.
- Rather than a DCF, you use a **Dividend Discount Model** (DDM) which is similar but is based on the present value of the company's dividends rather than its free cash flows.

You need to use these methodologies and multiples because interest is a critical component of a bank's revenue and because debt is part of its business model rather than just a way to finance acquisitions or expand the business.

11. Walk me through an IPO valuation for a company that's about to go public.

1. Unlike normal valuations, for an IPO valuation we **only care about public company comparables**.
2. After picking the public company comparables we decide on the most relevant multiple to use and then estimate our company's Enterprise Value based on that.
3. Once we have the Enterprise Value, we work backward to get to Equity Value **and also subtract the IPO proceeds because this is "new" cash**.
4. Then we divide by the total number of shares (old and newly created) to get its per-share price. When people say "An IPO *priced* at…" this is what they're referring to.

If you were using P / E or any other "Equity Value-based multiple" for the multiple in step #2 here, then you would get to Equity Value instead and then subtract the IPO proceeds from there.

12. I'm looking at financial data for a public company comparable, and it's April (Q2) right now. Walk me through how you would "calendarize" this company's financial statements to show the Trailing Twelve Months as opposed to just the last Fiscal Year.

The "formula" to calendarize financial statements is as follows:

TTM = Most Recent Fiscal Year + New Partial Period – Old Partial Period

So in the example above, we would take the company's Q1 numbers, add the most recent fiscal year's numbers, and then *subtract* the Q1 numbers from that most recent fiscal year.

For US companies you can find these quarterly numbers in the 10-Q; for international companies they're in the "interim" reports.

13. Walk me through an M&A premiums analysis.

The purpose of this analysis is to look at similar transactions and see the **premiums** that buyers have paid to sellers' share prices when acquiring them. For example, if a company is trading at $10.00/share and the buyer acquires it for $15.00/share, that's a 50% premium.

1. First, select the precedent transactions based on industry, date (past 2-3 years for example), and size (example: over $1 billion market cap).

2. For each transaction, get the seller's share price 1 day, 20 days, and 60 days before the transaction was announced (you can also look at even longer intervals, or 30 days, 45 days, etc.).
3. Then, calculate the 1-day premium, 20-day premium, etc. by dividing the per-share purchase price by the appropriate share prices on each day.
4. Get the medians for each set, and then apply them to your company's current share price, share price 20 days ago, etc. to estimate how much of a premium a buyer might pay for it.

Note that you **only** use this analysis when valuing public companies because private companies don't have share prices. Sometimes the set of companies here is exactly the same as your set of precedent transactions but typically it is **broader.**

14. Walk me through a future share price analysis.

The purpose of this analysis is to **project** what a company's share price might be 1 or 2 years from now and then **discount it back to its present value**.

1. Get the median historical (usually TTM) P / E of your public company comparables.
2. Apply this P / E multiple to your company's 1-year forward or 2-year forward projected EPS to get its implied future share price.
3. Then, discount this back to its present value by using a discount rate in-line with the company's Cost of Equity figures.

You normally look at a range of P / E multiples as well as a range of discount rates for this type of analysis, and make a sensitivity table with these as inputs.

15. The EV / EBIT, EV / EBITDA, and P / E multiples all measure a company's profitability. What's the difference between them, and when do you use each one?

P / E depends on the company's **capital structure** whereas EV / EBIT and EV / EBITDA are **capital structure-neutral**. Therefore, you use P / E for banks, financial institutions, and other companies where interest payments / expenses are critical.

EV / EBIT includes Depreciation & Amortization whereas EV / EBITDA excludes it – you're more likely to use EV / EBIT in industries where D&A is large and where capital expenditures and fixed assets are important (e.g. manufacturing), and EV / EBITDA in

industries where fixed assets are less important and where D&A is comparatively smaller (e.g. Internet companies).

16. Both M&A premiums analysis and precedent transactions involve looking at previous M&A transactions. What's the difference in how we select them?

- All the sellers in the M&A premiums analysis must be public.
- Usually we use a **broader** set of transactions for M&A premiums – we might use fewer than 10 precedent transactions but we might have dozens of M&A premiums. The industry and financial screens are usually less stringent.
- Aside from those, the screening criteria is similar – financial, industry, geography, and date.

17. Walk me through a Sum-of-the-Parts analysis.

In a Sum-of-the-Parts analysis, you value each division of a company using separate comparables and transactions, get to separate multiples, and then add up each division's value to get the total for the company. Example:

We have a manufacturing division with $100 million EBITDA, an entertainment division with $50 million EBITDA and a consumer goods division with $75 million EBITDA. We've selected comparable companies and transactions for each division, and the median multiples come out to 5x EBITDA for manufacturing, 8x EBITDA for entertainment, and 4x EBITDA for consumer goods.

Our calculation would be $100 * 5x + $50 * 8x + $75 * 4x = $1.2 billion for the company's total value.

18. What are some flaws with precedent transactions?

- Past transactions are rarely 100% comparable – the transaction structure, size of the company, and market sentiment all have huge effects.
- Data on precedent transactions is generally more difficult to find than it is for public company comparables, especially for acquisitions of small private companies .

19. What are the flaws with public company comparables?

- No company is 100% comparable to another company.

- The stock market is "emotional" – your multiples might be dramatically higher or lower on certain dates depending on the market's movements.
- Share prices for small companies with thinly-traded stocks may not reflect their full value.

20. How do you value Net Operating Losses and take them into account in a valuation?

You value NOLs based on how much they'll save the company in taxes in future years, and then take the present value of the sum of tax savings in future years. Two ways to assess the tax savings in future years:

1. Assume that a company can use its NOLs to completely offset its taxable income until the NOLs run out.
2. In an acquisition scenario, use Section 382 and multiply the adjusted long-term rate (http://pmstax.com/afr/exemptAFR.shtml) by the equity purchase price of the seller to determine the maximum allowed NOL usage in each year – and then use that to figure out the offset to taxable income.

You might *look* at NOLs in a valuation but you rarely add them in – if you did, they would be similar to cash and you would subtract NOLs to go from Equity Value to Enterprise Value, and vice versa.

21. I have a set of public company comparables and need to get the projections from equity research. How do I select which report to use?

This varies by bank and group, but two common methods:

1. You pick the report with the most detailed information.
2. You pick the report with numbers in the middle of the range.

Note that you **do not** pick reports based on which bank they're coming from. So if you're at Goldman Sachs, you would not pick all Goldman Sachs equity research – in fact that would be bad because then your valuation would not be objective.

22. I have a set of precedent transactions but I'm missing information like EBITDA for a lot of the companies – how can I find it if it's not available via public sources?

1. Search online and see if you can find press releases or articles in the financial press with these numbers.

2. Failing that, look in equity research for the **buyer** around the time of the transaction and see if any of the analysts estimate the seller's numbers.
3. Also look on online sources like Capital IQ and Factset and see if any of them disclose numbers or give estimates.

23. How far back and forward do we usually go for public company comparable and precedent transaction multiples?

Usually you look at the TTM (Trailing Twelve Months) period for both sets, and then you look forward either 1 or 2 years. You're more likely to look backward more than 1 year and go forward more than 2 years for public company comparables; for precedent transactions it's odd to go forward more than 1 year because your information is more limited.

24. I have one company with a 40% EBITDA margin trading at 8x EBITDA, and another company with a 10% EBITDA margin trading at 16x EBITDA. What's the problem with comparing these two valuations directly?

There's no "rule" that says this is wrong or not allowed, but it can be misleading to compare companies with dramatically different margins. Due to basic arithmetic, the 40% margin company will usually have a lower multiple – whether or not its actual value is lower.

In this situation, we might consider screening based on margins and remove the outliers – you would never try to "normalize" the EBITDA multiples based on margins.

25. Walk me through how we might value an oil & gas company and how it's different from a "standard" company.

You use the same methodologies, except:

- You look at industry-specific multiples like P / MCFE and P / NAV in addition to the more standard ones.
- You need to project the prices of commodities like oil and natural gas, and also the company's reserves to determine its revenue and cash flows in future years.
- Rather than a DCF, you use a **NAV (Net Asset Value)** model – it's similar, but everything flows from the company's **reserves** rather than simple revenue growth / EBITDA margin projections.

In addition to all of the above, there are also some accounting complications with energy companies and you need to think about what a "proven" reserve is vs. what is more speculative.

26. Walk me through how we would value a REIT (Real Estate Investment Trust) and how it differs from a "normal" company.

Similar to energy, real estate is asset-intensive and a company's value depends on how much cash flow specific properties generate.

- You look at Price / FFO (Funds From Operations) and Price / AFFO (Adjusted Funds From Operations), which add back Depreciation and subtract gains on property sales; NAV (Net Asset Value) is also important.
- You **value properties** by dividing **Net Operating Income (NOI)** (Property's Gross Income – Operating Expenses) by the **capitalization rate** (based on market data).
- **Replacement Valuation** is more common because you can actually estimate the cost of buying new land and building new properties.
- A DCF is still a DCF, but it flows from specific properties and it might be useless depending on what kind of company you're valuing.

Discounted Cash Flow Questions & Answers – Additions

1. What's an alternate way to calculate Free Cash Flow aside from taking Net Income, adding back Depreciation, and subtracting Changes in Operating Assets / Liabilities and CapEx?

Take Cash Flow From Operations and subtract CapEx – that gets you to Levered Cash Flow. To get to Unlevered Cash Flow, you then need to add back the tax-adjusted Interest Expense and subtract the tax-adjusted Interest Income.

2. Why do you use 5 or 10 years for DCF projections?

That's usually about as far as you can reasonably predict into the future. Less than 5 years would be too short to be useful, and over 10 years is too difficult to predict for most companies.

3. What's the flaw with basing terminal multiples on what public company comparables are trading at?

The median multiples may change greatly in the next 5-10 years so it may no longer be accurate by the end of the period you're looking at. This is why you normally look at a wide range of multiples and do a sensitivity to see how the valuation changes over that range.

This method is particularly problematic with cyclical industries (e.g. semiconductors).

4. What's the relationship between debt and Cost of Equity?

More debt means that the company is more risky, so the company's Levered Beta will be higher – all else being equal, additional debt would raise the Cost of Equity, and less debt would lower the Cost of Equity.

5. Would you expect a manufacturing company or a technology company to have a higher Beta?

A technology company, because technology is viewed as a "riskier" industry than manufacturing.

6. Which has a greater impact on a company's DCF valuation – a 10% change in revenue or a 1% change in the discount rate?

You should start by saying, "it depends" but most of the time the 10% difference in revenue will have more of an impact. That change in revenue doesn't affect only the current year's revenue, but also the revenue/EBITDA far into the future and even the terminal value.

7. What about a 1% change in revenue vs. a 1% change in the discount rate?

In this case the discount rate is likely to have a bigger impact on the valuation, though the correct answer should start with, "It could go either way, but most of the time…"

8. How do you calculate WACC for a private company?

This is problematic because private companies don't have market caps or Betas. In this case you would most likely just estimate WACC based on work done by auditors or valuation specialists, or based on what WACC for comparable public companies is.

9. Explain why we would use the mid-year convention in a DCF.

You use it to represent the fact that a company's cash flow does not come 100% at the end of each year – instead, it comes in evenly throughout each year.

In a DCF *without* mid-year convention, we would use discount period numbers of 1 for the first year, 2 for the second year, 3 for the third year, and so on.

With mid-year convention, we would instead use 0.5 for the first year, 1.5 for the second year, 2.5 for the third year, and so on.

10. What discount period numbers would I use for the mid-year convention if I have a stub period – e.g. Q4 of Year 1 – in my DCF?

The rule is that you divide the stub discount period by 2, and then you simply subtract 0.5 from the "normal" discount periods for the future years. Example for a Q4 stub:

	Q4	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Normal Discount Periods with Stub:	0.25	1.25	2.25	3.25	4.25	5.25
Mid-Year Discount Periods with Stub:	0.125	0.75	1.75	2.75	3.75	4.75

11. How does the terminal value calculation change when we use the mid-year convention?

When you're discounting the terminal value back to the present value, you use different numbers for the discount period depending on whether you're using the Multiples Method or Gordon Growth Method:

- **Multiples Method:** You **add** 0.5 to the final year discount number to reflect the fact that you're assuming the company gets sold at the **end** of the year.
- **Gordon Growth Method:** You use the final year discount number as is, because you're assuming the cash flows grow into perpetuity and that they are still received throughout the year rather than just at the end.

12. If I'm working with a public company in a DCF, how do I calculate its per-share value?

Once you get to Enterprise Value, ADD cash and then subtract debt, preferred stock, and minority interest (and any other debt-like items) to get to Equity Value.

Then, you need to use a circular calculation that takes into account the basic shares outstanding, options, warrants, convertibles, and other dilutive securities. It's circular because the dilution from these depends on the per-share price – but the per-share price depends on number of shares outstanding, which depends on the per-share price.

To resolve this, you need to enable iterative calculations in Excel so that it can cycle through to find an approximate per-share price.

13. Walk me through a Dividend Discount Model (DDM) that you would use in place of a normal DCF for financial institutions.

The mechanics are the same as a DCF, but we use dividends rather than free cash flows:

1. Project out the company's earnings, down to earnings per share (EPS).
2. Assume a dividend payout ratio – what percentage of the EPS actually gets paid out to shareholders in the form of dividends – based on what the firm has done historically and how much regulatory capital it needs.
3. Use this to calculate dividends over the next 5-10 years.

4. Discount each dividend to its present value based on **Cost of Equity – NOT WACC –** and then sum these up.
5. Calculate terminal value based on P / E and EPS in the final year, and then discount this to its present value based on **Cost of Equity**.
6. Sum the present value of the terminal value and the present values of the dividends to get the company's net present per-share value.

14. What types of sensitivity analyses would we look at in a DCF?

Example sensitivities:

- Revenue Growth vs. Terminal Multiple
- EBITDA Margin vs. Terminal Multiple
- Terminal Multiple vs. Discount Rate
- Long-Term Growth Rate vs. Discount Rate

And any combination of these (except Terminal Multiple vs. Long-Term Growth Rate, which would make no sense).

15. When you're calculating WACC, let's say that the company has convertible debt. Do you count this as debt when calculating Levered Beta for the company?

Trick question. If the convertible debt is **in-the-money** then you do not count it as debt but instead assume that it contributes to dilution, so the company's Equity Value is higher. If it's **out-of-the-money** then you count it as debt and use the interest rate on the convertible for Cost of Debt.

16. A company has a high debt load and is paying off a significant portion of its principal each year. How do you account for this in a DCF?

Trick question. You don't account for this at all in a DCF, because paying off debt principal shows up in Cash Flow from Financing on the Cash Flow Statement – but we only go down to Cash Flow from Operations and then subtract Capital Expenditures to get to Free Cash Flow.

If we were looking at Levered Free Cash Flow, then our interest expense would decline in future years due to the principal being paid off – but we still wouldn't count the principal repayments themselves anywhere.

17. Cost of Equity tells us what kind of return an equity investor can expect for investing in a given company – but what about dividends? Shouldn't we factor dividend yield into the formula?

Trick question. Dividend yields are already factored into Beta, because Beta describes returns in excess of the market as a whole – and those returns include dividends.

18. How can we calculate Cost of Equity WITHOUT using CAPM?

There is an alternate formula:

Cost of Equity = (Dividends per Share / Share Price) + Growth Rate of Dividends

This is less common than the "standard" formula but sometimes you use it for companies where dividends are more important or when you lack proper information on Beta and the other variables that go into calculating Cost of Equity with CAPM.

19. We're creating a DCF for a company that is planning to buy a factory for $100 in cash (no debt or other financing) in Year 4. Currently the present value of its Enterprise Value according to the DCF is $200. How would we change the DCF to account for the factory purchase, and what would our new Enterprise Value be?

In this scenario, you would add CapEx spending of $100 in year 4 of the DCF, which would reduce Free Cash Flow for that year by $100. The Enterprise Value, in turn, would fall by the present value of that $100 decrease in Free Cash Flow.

The actual math here is messy but you would calculate the present value by dividing $100 by ((1 + Discount Rate)^4) – the "4" just represents year 4 here. Then you would subtract this amount from the Enterprise Value.

Merger Model Questions & Answers – Additions

1. What's the difference between a merger and an acquisition?

There's always a buyer and a seller in any M&A deal – the difference between "merger" and "acquisition" is more semantic than anything. In a merger the companies are close to the same size, whereas in an acquisition the buyer is significantly larger.

2. If a company were capable of paying 100% in cash for another company, why would it choose NOT to do so?

It might be saving its cash for something else or it might be concerned about running low if business takes a turn for the worst; its stock may also be trading at an all-time high and it might be eager to use that instead (in finance terms this would be "more expensive" but a lot of executives value having a safety cushion in the form of a large cash balance).

3. Why would a strategic acquirer typically be willing to pay more for a company than a private equity firm would?

Because the strategic acquirer can realize revenue and cost synergies that the private equity firm cannot unless it combines the company with a complementary portfolio company. Those synergies boost the effective valuation for the target company.

4. What's the difference between Purchase Accounting and Pooling Accounting in an M&A deal?

In purchase accounting the seller's shareholders' equity number is wiped out and the premium paid over that value is recorded as Goodwill on the combined balance sheet post-acquisition. In pooling accounting, you simply combine the 2 shareholders' equity numbers rather than worrying about Goodwill and the related items that get created.

There are specific requirements for using pooling accounting, so in 99% of M&A deals you will use purchase accounting.

5. Walk me through a concrete example of how to calculate revenue synergies.

"Let's say that Microsoft is going to acquire Yahoo. Yahoo makes money from search advertising online, and they make a certain amount of revenue per search (RPS). Let's

say this RPS is $0.10 right now. If Microsoft acquired it, we might assume that they could boost this RPS by $0.01 or $0.02 because of their superior monetization. So to calculate the additional revenue from this synergy, we would multiply this $0.01 or $0.02 by Yahoo's total # of searches, get the total additional revenue, and then select a margin on it to determine how much flows through to the combined company's Operating Income."

6. Walk me through an example of how to calculate expense synergies.

"Let's say that Microsoft still wants to acquire Yahoo!. Microsoft has 5,000 SG&A-related employees, whereas Yahoo has around 1,000. Microsoft calculates that post-transaction, it will only need about 200 of Yahoo's SG&A employees, and its existing employees can take over the rest of the work. To calculate the Operating Expenses the combined company would save, we would multiply these 800 employees Microsoft is going to fire post-transaction by their average salary."

7. How do you take into account NOLs in an M&A deal?

You apply Section 382 to determine how much of the seller's NOLs are usable each year.

Allowable NOLs = Equity Purchase Price * Highest of Past 3 Months' Adjusted Long Term Rates

So if our equity purchase price were $1 billion and the highest adjusted long-term rate were 5%, then we could use $1 billion * 5% = $50 million of NOLs each year.

If the seller had $250 million in NOLs, then the combined company could use $50 million of them each year for 5 years to offset its taxable income.

You can look at long-term rates right here: http://pmstax.com/afr/exemptAFR.shtml

8. Why do deferred tax liabilities (DTLs) and deferred tax assets (DTAs) get created in M&A deals?

These get created when you write up assets – both tangible and intangible – and when you write down assets in a transaction. An asset write-up creates a deferred tax liability, and an asset write-down creates a deferred tax asset.

You write down and write up assets because their book value – what's on the balance sheet – often differs substantially from their "fair market value."

An asset write-up creates a deferred tax *liability* because you'll have a higher depreciation expense on the new asset, which means you save on taxes in the short-term – but eventually you'll have to pay them back, hence the liability. The opposite applies for an asset write-down and a deferred tax *asset*.

9. How do DTLs and DTAs affect the Balance Sheet Adjustment in an M&A deal?

You take them into account with everything else when calculating the amount of Goodwill & Other Intangibles to create on your pro-forma balance sheet. The formulas are as follows:

Deferred Tax Asset = Asset Write-Down * Tax Rate
Deferred Tax Liability = Asset Write-Up * Tax Rate

So let's say you were buying a company for $1 billion with half-cash and half-debt, and you had a $100 million asset write-up and a tax rate of 40%. In addition, the seller has total assets of $200 million, total liabilities of $150 million, and shareholders' equity of $50 million.

Here's what would happen to the combined company's balance sheet (ignoring transaction/financing fees):

- First, you simply add the seller's Assets and Liabilities (but NOT Shareholders' Equity – it is wiped out) to the buyer's to get your "initial" balance sheet. Assets are up by $200 million and Liabilities are down by $150 million.
- Then, Cash on the Assets side goes down by $500 million.
- Debt on the Liabilities & Equity side goes up by $500 million.
- You get a new Deferred Tax Liability of $40 million ($100 million * 40%) on the Liabilities & Equity side.
- Assets are down by $300 million total and Liabilities & Shareholders' Equity are up by $690 million ($500 + $40 + $150).
- So you need Goodwill & Intangibles of $990 million on the Assets side to make both sides balance.

10. Could you get DTLs or DTAs in an asset purchase?

No, because in an asset purchase the book basis of assets always matches the tax basis. They get created in a stock purchase because the **book values** of assets are written up or written down, but the **tax values** are not.

11. How do you account for DTLs in forward projections in a merger model?

You create a book vs. cash tax schedule and figure out what the company owes in taxes based on the Pretax Income on its books, and then you determine what it actually pays in cash taxes based on its NOLs and newly created amortization and depreciation expenses (from any asset write-ups).

Anytime the "cash" tax expense exceeds the "book" tax expense you record this as an decrease to the Deferred Tax Liability on the Balance Sheet; if the "book" expense is higher, then you record that as an increase to the DTL.

12. Explain the complete formula for how to calculate Goodwill in an M&A deal.

Goodwill = Equity Purchase Price – Seller Book Value + Seller's Existing Goodwill – Asset Write-Ups – Seller's Existing Deferred Tax Liability + Write-Down of Seller's Existing Deferred Tax Asset + Newly Created Deferred Tax Liability

A couple notes here:

- Seller Book Value is just the Shareholders' Equity number.
- You **add** the Seller's Existing Goodwill because it gets written down to $0 in an M&A deal.
- You subtract the Asset Write-Ups because these are **additions** to the Assets side of the Balance Sheet – Goodwill is also an asset, so effectively you need less Goodwill to "plug the hole."
- Normally you assume 100% of the Seller's existing DTL is written down.
- The seller's existing DTA may or may not be written down completely (see the next question).

13. Explain why we would write down the seller's existing Deferred Tax Asset in an M&A deal.

You write it down to reflect the fact that Deferred Tax Assets include NOLs, and that you might use these NOLs post-transaction to offset the combined entity's taxable income.

In an asset or 338(h)(10) purchase you assume that the entire NOL balance goes to $0 in the transaction, and then you write down the existing Deferred Tax Asset by this NOL write-down.

In a stock purchase the formula is:

DTA Write-Down = Buyer Tax Rate * MAX(0, NOL Balance – Allowed Annual NOL Usage * Expiration Period in Years)

This formula is saying, "If we're going to use up **all** these NOLs post transaction, let's not write anything down. Otherwise, let's write down the portion that we **cannot** actually use post-transaction, i.e. whatever our existing NOL balance is minus the amount we can use per year times the number of years."

14. What's a Section 338(h)(10) election and why might a company want to use it in an M&A deal?

A Section 338(h)(10) election blends the benefits of a stock purchase and an asset purchase:

- Legally it is a stock purchase, but accounting-wise it's treated like an asset purchase.
- The seller is still subject to double-taxation – on its assets that have appreciated and on the proceeds from the sale.
- But the buyer receives a step-up tax basis on the new assets it acquires, and it can depreciate/amortize them so it saves on taxes.

Even though the seller still gets taxed twice, buyers will often pay more in a 338(h)(10) deal because of the **tax-savings potential**. It's particularly helpful for:

- Sellers with high NOL balances (more tax-savings for the buyer because this NOL balance will be written down completely – and so more of the excess purchase price can be allocated to asset write-ups).
- If the company has been an S-corporation for over 10 years – in this case it doesn't have to pay a tax on the appreciation of its assets.

The requirements to use 338(h)(10) are complex and bankers don't deal with this – that is the role of lawyers and tax accountants.

15. What is an exchange ratio and when would companies use it in an M&A deal?

An exchange ratio is an alternate way of structuring a 100% stock M&A deal, or any M&A deal with a portion of stock involved.

Let's say you were going to buy a company for $100 million in an all-stock deal. Normally you would determine how much stock to issue by dividing the $100 million by the buyer's stock price, and using that to get the new share count.

With an exchange ratio, by contrast, you would tie the number of new shares to the buyer's own shares – so the seller might receive 1.5 shares of the buyer's shares for each of its shares, rather than shares worth a specific dollar amount.

Buyers might prefer to do this if they believe their stock price is going to decline post-transaction – sellers, on the other hand, would prefer a fixed dollar amount in stock unless they believe the buyer's share price will rise after the transaction.

16. Walk me through the most important terms of a Purchase Agreement in an M&A deal.

There are dozens, but here are the most important ones:

- **Purchase Price:** Stated as a per-share amount for public companies.
- **Form of Consideration:** Cash, Stock, Debt…
- **Transaction Structure:** Stock, Asset, or 338(h)(10)
- **Treatment of Options:** Assumed by the buyer? Cashed out? Ignored?
- **Employee Retention:** Do employees have to sign non-solicit or non-compete agreements? What about management?
- **Reps & Warranties:** What must the buyer and seller claim is true about their respective businesses?
- **No-Shop / Go-Shop:** Can the seller "shop" this offer around and try to get a better deal, or must it stay exclusive to this buyer?

17. What's an Earnout and why would a buyer offer it to a seller in an M&A deal?

An Earnout is a form of "deferred payment" in an M&A deal – it's most common with private companies and start-ups, and is **highly** unusual with public sellers.

It is usually contingent on financial performance or other goals – for example, the buyer might say, "We'll give you an additional $10 million in 3 years if you can hit $100 million in revenue by then."

Buyers use it to incentivize sellers to continue to perform well and to discourage management teams from taking the money and running off to an island in the South Pacific once the deal is done.

18. How would an accretion / dilution model be different for a private seller?

The mechanics are the same, but the transaction structure is more likely to be an asset purchase or 338(h)(10) election; private sellers also don't have Earnings Per Share so you would only project down to Net Income on the seller's Income Statement.

Note that accretion / dilution makes no sense if you have a private *buyer* because private companies do not have Earnings Per Share.

19. How would I calculate "break-even synergies" in an M&A deal and what does the number mean?

To do this, you would set the EPS accretion / dilution to $0.00 and then back-solve in Excel to get the required synergies to make the deal neutral to EPS.

It's important because you want an idea of whether or not a deal "works" mathematically, and a high number for the break-even synergies tells you that you're going to need **a lot** of cost savings or revenue synergies to make it work.

20. Normally in an accretion / dilution model you care most about combining both companies' Income Statements. But let's say I want to combine all 3 financial statements – how would I do this?

You combine the Income Statements like you normally would (see the previous question on this), and then you do the following:

1. Combine the buyer's and seller's balance sheets (except for the seller's Shareholders' Equity number).
2. Make the necessary Pro-Forma Adjustments (cash, debt, goodwill/intangibles, etc.).

3. Project the combined Balance Sheet using standard assumptions for each item (see the Accounting section).
4. Then project the Cash Flow Statement and link everything together as you normally would with any other 3-statement model.

21. How do you handle options, convertible debt, and other dilutive securities in a merger model?

The exact treatment depends on the terms of the Purchase Agreement – the buyer might *assume* them or it might allow the seller to "cash them out" assuming that the per-share purchase price is above the exercise prices of these dilutive securities.

If you assume they're exercised, then you calculate dilution to the equity purchase price in the same way you normally would – Treasury Stock Method for options, and assume that convertibles convert into normal shares using the conversion price.

22. What are the main 3 transaction structures you could use to acquire another company?

Stock Purchase, Asset Purchase, and 338(h)(10) Election. The basic differences:

Stock Purchase:

- Buyer acquires *all* asset and liabilities of the seller as well as off-balance sheet items.
- The seller is taxed at the capital gains tax rate.
- The buyer receives no step-up tax basis for the newly acquired assets, and it can't depreciate/amortize them for tax purposes.
- A Deferred Tax Liability gets created as a result of the above.
- Most common for public companies and larger private companies.

Asset Purchase:

- Buyer acquires only *certain* assets and assumes only *certain* liabilities of the seller and gets nothing else.
- Seller is taxed on the amount its assets have appreciated (what the buyer is paying for each one minus its book value) and also pays a capital gains tax on the proceeds.

- The buyer receives a step-up tax basis for the newly acquired assets, and it can depreciate/amortize them for tax purposes.
- No Deferred Tax Liability is created as a result of the above.
- Most common for private companies, divestitures, and distressed public companies.

Section 338(h)(10) Election:

- Buyer acquires *all* asset and liabilities of the seller as well as off-balance sheet items.
- Seller is taxed on the amount its assets have appreciated (what the buyer is paying for each one minus its book value) and also pays a capital gains tax on the proceeds.
- The buyer receives a step-up tax basis for the newly acquired assets, and it can depreciate/amortize them for tax purposes.
- No Deferred Tax Liability is created as a result of the above.
- Most common for private companies, divestitures, and distressed public companies.
- To compensate for the buyer's favorable tax treatment, the buyer usually agrees to pay more than it would in an Asset Purchase.

23. Would a seller prefer a stock purchase or an asset purchase? What about the buyer?

A seller almost always prefers a stock purchase to avoid double taxation and to get rid of all its liabilities. The buyer almost always prefers an asset deal so it can be more careful about what it acquires and to get the tax benefit from being able to deduct depreciation and amortization of asset write-ups for tax purposes.

24. Explain what a contribution analysis is and why we might look at it in a merger model.

A contribution analysis compares how much revenue, EBITDA, Pre-Tax Income, cash, and possibly other items the buyer and seller are "contributing" to estimate what the ownership of the combined company should be.

For example, let's say that the buyer is set to own 50% of the new company and the seller is set to own 50%. But the buyer has $100 million of revenue and the seller has $50 million of revenue – a contribution analysis would tell us that the buyer "should" own 66% instead because it's contributing 2/3 of the combined revenue.

It’s most common to look at this with **merger of equals** scenarios, and less common when the buyer is significantly larger than the seller.

25. How do you account for transaction costs, financing fees, and miscellaneous expenses in a merger model?

In the “old days” you used to capitalize these expenses and then amortize them; with the new accounting rules, you’re supposed to expense transaction and miscellaneous fees upfront, but capitalize the financing fees and amortize them over the life of the debt.

Expensed transaction fees come out of Retained Earnings when you adjust the Balance Sheet, while capitalized financing fees appear as a new Asset on the Balance Sheet and are amortized each year according to the tenor of the debt.

26. What types of sensitivities would you look at in a merger model? What variables would you look at?

The most common variables to look at are **Purchase Price**, **% Stock/Cash/Debt**, **Revenue Synergies**, and **Expense Synergies**. Sometimes you also look at different operating sensitivities, like Revenue Growth or EBITDA Margin, but it’s more common to build these into your model as different scenarios instead.

You might look at sensitivity tables showing the EPS accretion/dilution at different ranges for the **Purchase Price vs. Cost Synergies**, **Purchase Price vs. Revenue Synergies**, or **Purchase Price vs. % Cash** (and so on).

LBO Questions & Answers – Additions

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

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

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

2. How would an asset write-up or write-down affect an LBO model? / Walk me through how you adjust the Balance Sheet in an LBO model.

All of this is very similar to what you would see in a merger model – you calculate Goodwill, Other Intangibles, and the rest of the write-ups in the same way, and then the Balance Sheet adjustments (e.g. subtracting cash, adding in capitalized financing fees, writing up assets, wiping out goodwill, adjusting the deferred tax assets / liabilities, adding in new debt, etc.) are almost the same.

The key differences:

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

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

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

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

4. Give an example of a "real-life" LBO.

The most common example is taking out a mortgage when you buy a house. Here's how the analogy works:

- **Down Payment:** Investor Equity in an LBO
- **Mortgage:** Debt in an LBO
- **Mortgage Interest Payments:** Debt Interest in an LBO
- **Mortgage Repayments:** Debt Principal Repayments in an LBO
- **Selling the House:** Selling the Company / Taking It Public in an LBO

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

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

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

There are *some* general rules: for example, you would never lever a company at 50x EBITDA, and even during the bubble leverage rarely exceeded 5-10x EBITDA.

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

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

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

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

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

This is done for the same reason you have an Earnout in an M&A deal: the PE firm wants to incentivize the management team and keep everyone on-board until they exit the investment.

The difference is that there's no technical limit on how much management might receive from such an option pool: if they hit it out of the park, maybe they'll all become millionaires.

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

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

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

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

PIK is more risky than other forms of debt and carries with it a higher interest rate than traditional bank debt or high yield debt.

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

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

9. Tell me about all the different kinds of debt you could use in an LBO and the differences between everything.

Here's a handy chart to explain all of this. Note that this chart does not cover every single feature or every single type of debt in the universe – just the most important ones, and what you're likely to be asked about in finance interviews:

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 Pay?	Yes					Cash / PIK
Tenor:	3-5 years	4-6 years	4-8 years	7-10 years	8-10 years	8-12 years
Amortization:	None	Straight Line	Minimal	Bullet		
Prepayment?	Yes			No		
Investors:	Conservative Banks			HFs, Merchant Banks, Mezzanine Funds		
Seniority	Senior Secured			Senior Unsecured	Senior Subordinated	Equity
Secured?	Yes			Sometimes	No	
Call Protection?	No	Sometimes		Yes		
Covenants:	Maintenance			Incurrence		

"Tenor" is just the fancy word for "How many years will this loan be outstanding?"

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

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

"Floating" or "Fixed" Interest Rates: A "floating" interest rate is tied to LIBOR. For example, L + 100 means that the interest rate of the loan is whatever LIBOR is at

currently, plus 100 basis points (1.0%). A fixed interest rate, on the other hand, would be 11%. It doesn't "float" with LIBOR or any other rate.

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

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

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

Incurrence Covenants:

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

Maintenance Covenants:

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

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

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

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

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

Note, however, that their cash flow is still **lower** than it would be without the debt – saving on taxes helps, but the added interest expenses still reduces Net Income over what it would be for a debt-free company.

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

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

First, you check how much cash flow you have available based on your Beginning Cash Balance, Minimum Cash Balance, Cash Flow Available for Debt Repayment from the Cash Flow Statement, and how much you use to make Mandatory Debt Repayments.

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

Next, for Term Loan A you assume that you pay off the maximum you can, taking into account that you've lost any cash flow you used to pay down the Revolver. You also need to take into account that you might have paid off some of Term Loan A's principal as part of the Mandatory Repayments.

Finally, you do the same thing for Term Loan B, subtracting from the "cash flow available for debt repayment" what you've already used up on the Revolver and Term Loan A. And just like Term Loan A, you need to take into account any Mandatory Repayments you've made so that you don't pay off **more** than the entire Term Loan B balance.

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

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

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

The formula is: Revolver Borrowing = MAX(0, Total Mandatory Debt Repayment – Cash Flow Available to Repay Debt).

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

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

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

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

The most common adjustments:

- **Cost Savings** – Often you assume the PE firm cuts costs by laying off employees, which could affect COGS, Operating Expenses, or both.
- **New Depreciation Expense** – This comes from any PP&E write-ups in the transaction.
- **New Amortization Expense** – This includes both the amortization from written-up intangibles and from capitalized financing fees.
- **Interest Expense on LBO Debt** – You need to include both cash and PIK interest here.
- **Sponsor Management Fees** – Sometimes PE firms charge a "management fee" to a company to account for the time and effort they spend managing it.
- **Common Stock Dividend** – Although private companies don't pay dividends to shareholders, they *could* pay out a dividend recap to the PE investors.
- **Preferred Stock Dividend** – If Preferred Stock is used as a form of financing in the transaction, you need to account for Preferred Stock Dividends on the Income Statement.

Cost Savings and new Depreciation / Amortization hit the Operating Income line; Interest Expense and Sponsor Management Fees hit Pre-Tax Income; and you need to subtract the dividend items from your Net Income number.

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

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

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

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

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

This scenario is admittedly rare, but it could happen if the increase leverage increases interest payments or debt repayments to very high levels, preventing the company from using its cash flow for other purposes.

Sometimes in LBO models, increasing the leverage increases the IRR up to a certain point – but then after that the IRR starts falling as the interest payments or principal repayments become "too big."

For this scenario to happen you would need a "perfect storm" of:

1. Relative lack of cash flow / EBITDA growth.
2. High interest payments and principal repayments relative to cash flow.
3. Relatively high purchase premium or purchase multiple to make it more difficult to get a high IRR in the first place.