Investment Banking Interview Questions

Wall Street Prep

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For general information on our products and services or technical support, please visit our website at wallstreetprep.com, or contact our office at (617) 314-7685.

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And most importantly, we want to thank Justin Kim, who toiled to bring this guide to life, working with our faculty and clients to make sure that the interview questions not only reflect what interviewees should expect to face, but that the answers reflect the level of detail expected by interviewers.

Thank you,

Matan Feldman

Founder and Chief Executive Officer,
Wall Street Prep

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Wall Street Prep

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Technical Section Introduction

Dear Reader,

This interview guide was designed with a single goal in mind: To give you the tools to land a job in investment banking and other related financial services sectors.

There is much material to cover in this guide, so let's just dive right in. For virtually every technical interview question, there are some general principles to govern your approach:

Keep Answers Concise

One of the most frequently asked interview questions for investment banking is, "How do you value a company?" I could easily take an hour to explain how to value a company and I would barely scratch the surface. That's not what we're going for in an interview.

When asked an expansive technical question where you're unsure about the appropriate level of detail, it's reasonable to finish a succinct answer with, "Would you like a little more detail on any of this?"

However, while most candidates struggle with keeping answers brief, others have the opposite problem of not giving sufficient details.

The interviewer just needs to understand that you can articulate concepts at a high level. In most cases, answers should be no longer than 2-3 minutes.

As a rough guideline for questions without clear numerical or concrete answers, the answers ***should last at least 1 minute***. This shows the interviewer you're actually taking the time to think and come up with thoughtful responses.

For example, answering the question, "Walk me through the cash flow statement," by saying, "You start with net income, and then make non-cash adjustments to net income to arrive at cash for the year" would not be enough to show your understanding.

Avoid Rambling into Tangents

The longer your response goes on, the risk of being asked to elaborate on a topic you don't fully understand increases in tandem. That being said, ***don't extend beyond your comfort zone*** and keep answers short to avoid giving the interviewer extra reasons to probe deeper.

Upon responding to a question, a momentary pause from the interviewer is normal, so don't misconstrue it as meaning that further explanation is required on your end.

The more tangents in your answer, the more likely a difficult counter-point could be brought up.

To be able to wait patiently after giving your initial answer shows that you recognized the concept the interviewer was testing for, and have confidence that an adequate response was provided.

Handle Difficult Questions Effectively

It's a near certainty that you'll be asked a question to which you don't know the answer.

Just remember to remain calm and not let the interviewer see you sweat. Firms want to hire individuals who are presentable to clients, so remaining calm while under pressure is essential.

The most important thing is that if the interview takes a turn in the wrong direction: ***don't fall into a downward spiral*** because it's rarely as bad as you might think.

There are three types of approach you can take when you're unsure how to answer a question:

1

If you kind of know something related to what is being asked

First and foremost: avoid guessing. Instead, look for a way to describe the parts of the question you understand and then be upfront about where you're unsure.

For example, if you're unsure how to answer: "How would you value a bank?" You might say, "Well, I know that banks are different from traditional companies in that their main source of revenue comes from interest on loans, but I don't think I understand bank valuation that well and this is definitely something I plan to look into after this interview."

2

If you think you know the subject matter but don't understand the question

When a question is asked in an unclear or vague manner, you'll want to reformulate the question back to the interviewer for some clarification.

For example, if an interviewer asks: "Is EBITDA usually lower or higher than cash flow?" You could begin by asking, "Just to confirm I'm understanding the question correctly, are you defining cash flow here as unlevered free cash flows or as operating cash flows?"

3

If you just flat out don't know the answer

In this situation, it's preferable to say, "Honestly, I would need to think about that more and would rather not guess because I don't think I'll be able to give a sufficient answer."

Here, it's necessary to come off as humble as you don't want to appear indifferent to the fact that you don't know the answer. An important part of damage control is using the opportunity to show the interviewer your professionalism under stress. While not a technical skill, this is a key interpersonal skill that firms look for.

Accounting Questions

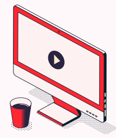
Financial Statements & Accrual Concepts

What is the primary purpose of US GAAP?

In the US, the Securities and Exchange Commission ("SEC") authorizes the Financial Accounting Standards Board ("FASB") to determine the set of accounting rules followed by publicly traded companies.

Under FASB, financial statements are required to be prepared in accordance with US Generally Accepted Accounting Principles ("US GAAP").

Through the standardization of financial reporting and ensuring all financials are presented on a fair, consistent basis – the interests of investors and lenders are protected.



Watch Video →
Basic Accounting

What are the main sections of a 10-K?

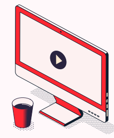
In a 10-K, you'll find the three core financial statements, which are the income statement, cash flow statement, and balance sheet. There'll also be a statement of shareholders' equity, a statement of comprehensive income, and supplementary data and disclosures to accompany the financials.

Main Sections of a 10-K	
Business Overview	Overview of the company's business divisions, strategy, product or service offerings, seasonality, geographical footprint, and key risks.
Management's Discussion & Analysis ("MD&A")	Commentary and summarized analysis of the company's fiscal year result from the perspective of the management team.
Financial Statements	The "Core 3": Income Statement, Balance Sheet, Cash Flow Statement The "Other 2": Statement of Comprehensive Income, Statement of Shareholders' Equity
Notes	Supplementary disclosures to the financial statements that provide more details about a company's recent financial performance.

What is the difference between the 10-K and 10-Q?

- **10-K:** A 10-K is the annual report required to be filed with the SEC for any public company in the U.S. The report is comprehensive and includes a full overview of the business operations, commentary on recent performance by management, risk factors, disclosures on changes in accounting policies – and most importantly, the three core financial statements with supplementary data.
- **10-Q:** A 10-Q refers to the quarterly report required to be filed with the SEC. Compared to the 10-K, this report is far more condensed in length and depth, with the focus being on the quarterly financials with brief sections for MD&A and supplementary disclosures.
- **Additional Differences:** A few more differences are 10-Ks are required to be audited by an independent accounting firm, but 10-Qs are only reviewed by CPAs and left unaudited. 10-Ks must also be filed ~60-90 days after the fiscal year ends, whereas 10-Qs must be submitted ~40-45 days after the quarter ends.

Walk me through the three financial statements.



Watch Video → The 3 Financial Statements

1. **Income Statement ("IS"):** The income statement shows a company's profitability over a specified period, typically quarterly and annually. The beginning line item is revenue and upon deducting various costs and expenses, the ending line item is net income.
2. **Balance Sheet ("BS"):** The balance sheet is a snapshot of a company's resources (assets) and sources of funding (liabilities and shareholders' equity) at a specific point in time, such as the end of a quarter or fiscal year.
3. **Cash Flow Statement ("CFS"):** Under the indirect approach, the starting line item is net income, which will be adjusted for non-cash items such as D&A and changes in working capital to arrive at cash from operations. Cash from investing and financing activities are then added to cash from operations to arrive at the net change in cash, which represents the actual cash inflows/(outflows) in a given period.

Walk me through the income statement.

Watch Video → The Income Statement

The income statement shows a company's accrual-based profitability over a specified time period and facilitates the analysis of its historical growth and operational performance. The table below lists the major income and expense components of the income statement:

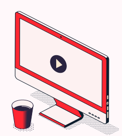
Income Statement Typical Components	
Net Revenue (or Sales)	The income statement begins with revenue (often called the "top line"), which represents the total value of all sales of goods and delivery of services throughout a specified period.
Less: Cost of Goods Sold	COGS represents the costs directly tied to producing revenue, such as the costs of materials and direct labor.
Gross Profit	Revenues – Cost of Goods Sold = Gross Profit
Less: Selling, General & Administrative ("SG&A")	Operating expenses that are not directly associated with the good or service being sold (e.g., payroll, wages, overhead, advertising, and marketing).
Less: Research & Development ("R&D")	R&D refers to developing new products or procedures to improve their existing product/service offering mix.
EBITDA	Gross Profit – SG&A – R&D = EBITDA EBITDA stands for: Earnings Before Interest, Taxes, Depreciation & Amortization.
Less: Depreciation & Amortization ("D&A")	D&A is a non-cash expense that estimates the annual reduction in the value of fixed and intangible assets
Operating Income ("EBIT")	EBITDA – D&A = Operating Income (or EBIT) EBIT stands for: Earnings Before Interest and Taxes.
Less: Interest Expense, net	Interest expense from debt, net of interest income generated from investments.
Pre-Tax Income ("EBT")	EBIT – Interest Expense, net = Pre-Tax Income (or "Earnings Before Tax")
Less: Tax Expense	Tax liability recorded by a company for book purposes.
Net Income	EBT – Tax Expense = Net Income (referred to as the "bottom line")

Apple Inc. | Historical Income Statement (Snapshot from Financial Statement Modeling Course)

Apple Income Statement	**2016A**	**2017A**	**2018A**	**2019A**
($ in millions)	*9/30/16*	*9/30/17*	*9/29/18*	*12/31/19*
Revenue	$215,639	$229,234	$265,595	$260,174
Less: Cost of Revenue	(131,376)	(141,048)	(163,756)	(161,782)
Gross Profit	**$84,263**	**$88,186**	**$101,839**	**$98,392**
Less: Research & Development (R&D)	(10,045)	(11,581)	(14,236)	(16,217)
Less: Selling, General & Administrative (SG&A)	(14,194)	(15,261)	(16,705)	(18,245)
Operating Income (EBIT)	**$60,024**	**$61,344**	**$70,898**	**$63,930**
Plus: Interest Income	3,999	5,201	5,686	4,961
Less: Interest Expense	(1,456)	(2,323)	(3,240)	(3,576)
Less: Other Expense, net	(1,195)	(133)	(441)	422
Pre-Tax Income (EBT)	**$61,372**	**$64,089**	**$72,903**	**$65,737**
Less: Taxes	(15,685)	(15,738)	(13,372)	(10,481)
Net Income	**$45,687**	**$48,351**	**$59,531**	**$55,256**

Walk me through the balance sheet.

The balance sheet shows a company's assets, liabilities, and equity sections at a specific point in time. The fundamental accounting equation is: Assets = Liabilities + Shareholders' Equity. The assets belonging to a company must have been funded somehow, so assets will always be equal to the sum of liabilities and equity.



Watch Video →
Balance Sheet

- **Assets Section:** Assets are organized in the order of liquidity, with "Current Assets" being assets that can be converted into cash within a year, such as cash itself, along with marketable securities, accounts receivable, prepaid expenses, and inventories. "Long-Term Assets" include property, plant, and equipment (PP&E), intangible assets, goodwill, and long-term investments.
- **Liabilities Section:** Liabilities are listed in the order of how close they're to coming due. "Current Liabilities" include accounts payable, accrued expenses, and short-term debt, while "Long-Term Liabilities" include items such as long-term debt, deferred revenue, and deferred income taxes.
- **Shareholders' Equity Section:** The equity section consists of common stock, additional paid-in capital (APIC), treasury stock, and retained earnings.

Could you give further context on what assets, liabilities, and equity each represent?

- **Assets:** Assets are resources with economic value that can be sold for money or bring positive monetary benefits in the future. For example, cash and marketable securities are a store of monetary value that can be invested to earn interest/returns, accounts receivable are payments due from customers, and PP&E is used to generate cash flows in the future – all representing inflows of cash.
- **Liabilities:** Liabilities are unsettled obligations to another party in the future and represent the external sources of capital from third-parties, which help fund the company's assets (e.g., debt capital, payments owed to suppliers/vendors). Unlike assets, liabilities represent future outflows of cash.
- **Equity:** Equity is the capital invested in the business and represents the internal sources of capital that helped fund its assets. The providers of capital could range from being self-funded to outside institutional investors. In addition, the accumulated net profits over time will be shown here as "Retained Earnings."

What are the typical line items you might find on the balance sheet?

Assets Section	
Current Assets *(Listed in Order of Liquidity)*	
Cash & Cash Equivalents	This line item includes cash itself and highly liquid, cash-like investments, such as commercial paper and short-term government bonds.
Marketable Securities	Marketable securities are short-term debt or equity securities held by the company that can be liquidated to cash relatively quickly.
Accounts Receivable	A/R refers to payments owed to a business by its customers for products and services already delivered to them (i.e., an "IOU" from the customer).
Inventories	Inventories are raw materials, unfinished goods, and finished goods waiting to be sold and the direct costs associated with producing those goods.
Prepaid Expenses	Prepaid expenses are payments made in advance for goods or services expected to be provided on a later date, such as utilities, insurance, and rent.
Non-Current Assets	
Property, Plant & Equipment ("PP&E")	Fixed assets such as land, buildings, vehicles, and machinery used to manufacture or provide the company's services and products.
Intangible Assets	Intangible assets are non-physical, acquired assets such as patents, trademarks, and intellectual property ("IP").
Goodwill	An intangible asset created to capture the excess of the purchase price over the fair market value ("FMV") of an acquired asset.

Liabilities Section	
Current Liabilities *(Listed in Order of Liquidity)*	
Accounts Payable	A/P represents unpaid bills to suppliers and vendors for services/products already received but were paid for on credit.
Accrued Expenses	Accrued expenses are incurred expenses such as employee compensation or utilities that have not been paid, often due to the invoice not being received.
Short-Term Debt	Debt payments coming due within twelve months, with the current portion of long-term debt also included.
Non-Current Liabilities	
Deferred Revenue	Unearned revenue received in advance for goods or services not yet delivered to the customer (can be either current or non-current).
Deferred Taxes	Tax expense recognized under GAAP but not yet paid because of temporary timing differences between book and tax accounting.
Long-Term Debt	Long-term debt is any debt capital with a maturity exceeding twelve months.
Lease Obligations	Leases are long-term contractual agreements, allowing a company to lease PP&E for a specific time period in exchange for regular payments.

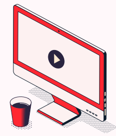
Valuation Questions

Corporate Finance Theory

Could you explain the concept of present value and how it relates to company valuations?

The present value concept is based on the premise that "a dollar in the present is worth more than a dollar in the future" due to the time value of money. The reason being money currently in possession has the potential to earn interest by being invested today.

$$\text{Present Value}_{t=0} = \frac{\text{Cash Flow}_{t=1}}{(1+r)^{t=1}}$$



Watch Video → Present Value Basics

For intrinsic valuation methods, the value of a company will be equal to the sum of the present value of all the future cash flows it generates. Therefore, a company with a high valuation would imply it receives high returns on its invested capital by investing in positive net present value ("NPV") projects consistently while having low risk associated with its cash flows.

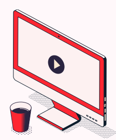
What is equity value and how is it calculated?

Often used interchangeably with the term market capitalization ("market cap"), equity value represents a company's value to its equity shareholders. A company's equity value is calculated by multiplying its latest closing share price by its total diluted shares outstanding, as shown below:

$$\text{Equity Value} = \text{Latest Closing Share Price} \times \text{Total Diluted Shares Outstanding}$$

How do you calculate the fully diluted number of shares outstanding?

The treasury stock method ("TSM") is used to calculate the fully diluted number of shares outstanding based on the options, warrants, and other dilutive securities that are currently "in-the-money" (i.e., profitable to exercise).



Watch Video → Diluted Share Count

The TSM involves summing up the number of in-the-money ("ITM") options and warrants and then adding that figure to the number of basic shares outstanding.

In the proceeding step, the TSM assumes the proceeds from exercising those dilutive options will go towards repurchasing stock at the current share price to reduce the net dilutive impact.

What is enterprise value and how do you calculate it?

Conceptually, enterprise value ("EV") represents the value of the operations of a company to all stakeholders including common shareholders, preferred shareholders, and debt lenders.

Equity value represents just the residual value to equity holders, whereas enterprise value pertains to all providers of capital.

Thus, enterprise value is considered capital structure neutral, unlike equity value, which is affected by financing decisions.

Enterprise value is calculated by taking the company's equity value and adding net debt, preferred stock, and minority interest.

$$\text{Enterprise Value} = \text{Equity Value} + \text{Net Debt} + \text{Preferred Stock} + \text{Minority Interest}$$

How do you calculate equity value from enterprise value?

To get to equity value from enterprise value, you would first subtract net debt, where net debt equals the company's gross debt and debt-like claims (e.g., preferred stock), net of cash, and non-operating assets.

$$\text{Equity Value} = \text{Enterprise Value} - \text{Net Debt} - \text{Preferred Stock} - \text{Minority Interest}$$

Which line items are included in the calculation of net debt?

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Net Debt

The calculation of net debt accounts for all interest-bearing debt, such as short-term and long-term loans and bonds, as well as non-equity financial claims such as preferred stock and non-controlling interests. From this gross debt amount, cash and other non-operating assets such as short-term investments and equity investments are subtracted to arrive at net debt.

$$\text{Net Debt} = \text{Total Debt} - \text{Cash \& Equivalents}$$

When calculating enterprise value, why do we add net debt?

The underlying idea of net debt is that the cash on a company's balance sheet could pay down the outstanding debt if needed. For this reason, cash and cash equivalents are netted against the company's debt, and many leverage ratios use net debt rather than the gross amount.

What is the difference between enterprise value and equity value?

Watch Video →
Enterprise Value vs Equity Value

Enterprise value represents all stakeholders in a business, including equity shareholders, debt lenders, and preferred stock owners. Therefore, it's independent of the capital structure. In addition, enterprise value is closer to the actual value of the business since it accounts for all ownership stakes (as opposed to just equity owners).

To tie this to a recent example, many investors were astonished that Zoom, a video conferencing platform, had a higher market capitalization than seven of the largest airlines combined at one point. The points being neglected were:

- The equity values of the airline companies were temporarily deflated given the travel restrictions, and the government bailout had not yet been announced.
- The airlines are significantly more mature and have far more debt on their balance sheet (i.e., more non-equity stakeholders).

Could a company have a negative net debt balance and have an enterprise value lower than its equity value?

Yes, negative net debt just means that a company has more cash than debt. For example, both Apple and Microsoft have massive negative net debt balances because they hoard cash. In these cases, companies will have enterprise values lower than their equity value.

If it seems counter-intuitive that enterprise value can be lower than equity value, remember that enterprise value represents the value of a company's operations, which excludes any non-operating assets. When you think about it this way, it should come as no surprise that companies with much cash (which is treated as a non-operating asset) will have a higher equity value than enterprise value.

Can the enterprise value of a company turn negative?

While negative enterprise values are a rare occurrence, it does happen from time to time . A negative enterprise value means a company has a net cash balance (total cash less total debt) that exceeds its equity value. Imagine a company with $1,000 in cash, no other assets and $500 in debt and $200 in accounts payable. There is $300 in equity in this business, while the enterprise value is -$200.

If a company raises $250 million in additional debt, how would its enterprise value change?

Theoretically, there should be no impact as enterprise value is capital structure neutral. The new debt raised shouldn't impact the enterprise value, as the cash and debt balance would increase and offset the other entry.

However, the cost of financing (i.e., through financing fees and interest expense) could negatively impact the company's profitability and lead to a lower valuation from the higher cost of debt.

Why do we add minority interest to equity value in the calculation of enterprise value?

Minority interest represents the portion of a subsidiary in which the parent company doesn't own. Under US GAAP, if a company has ownership over 50% of another company but below 100% (called a “minority interest” or “non-controlling investment”), it must include 100% of the subsidiary’s financials in their financial statements despite not owning 100%.

When calculating multiples using EV, the numerator will be the consolidated metric, thus minority interest must be added to enterprise value for the multiple to be compatible (i.e., no mismatch between the numerator and denominator).

How are convertible bonds and preferred equity with a convertible feature accounted for when calculating enterprise value?

If the convertible bonds and the preferred equities are “in-the-money” as of the valuation date (i.e., the current stock price is greater than their strike price), then the treatment will be the same as additional dilution from equity. However, if they're “out-of-the-money,” they would be treated as a financial liability (similar to debt).

What are the two main approaches to valuation?

Watch Video →
Valuation Methods

1. **Intrinsic Valuation:** For an intrinsic valuation, the value of a business is arrived at by looking at the business's ability to generate cash flows. The discounted cash flow method is the most common type of intrinsic valuation and is based on the notion that a business's value equals the present value of its future free cash flows.
2. **Relative Valuation:** In relative valuation, a business's value is arrived at by looking at comparable companies and applying the average or median multiples derived from the peer group – often EV/EBITDA, P/E, or some other relevant multiple to value the target. This valuation can be done by looking at the multiples of comparable public companies using their current market values, which is called "trading comps," or by looking at the multiples of comparable companies recently acquired, which is called "transaction comps."

What are the most common valuation methods used in finance?

Valuation Methods	
Comparable Company Analysis ("Trading Comps")	Trading comps value a company based on how similar publicly-traded companies are currently being valued at by the market.
Comparable Transactions Analysis ("Transaction Comps")	Transaction comps value a company based on the amount buyers paid to acquire similar companies in recent years.
Discounted Cash Flow Analysis ("DCF")	DCFs value a company based on the premise that its value is a function of its projected cash flows, discounted at an appropriate rate that reflects the risk of those cash flows.
Leveraged Buyout Analysis ("LBO")	An LBO will look at a potential acquisition target under a highly leveraged scenario to determine the maximum purchase price the firm would be willing to pay.
Liquidation Analysis	Liquidation analysis is used for companies under (or near) distress and values the assets of the company under a hypothetical, worst-case scenario liquidation.

Among the DCF, comparable companies analysis, and transaction comps, which approach yields the highest valuation?

Transaction comps analysis often yields the highest valuation because it looks at valuations for companies that have been acquired, which factor in control premiums. Control premiums can often be quite significant and as high as 25% to 50% above market prices. Thus, the multiples derived from this analysis and the resulting valuation are usually higher than a straight trading comps valuation or a standalone DCF valuation.

Which of the valuation methodologies is the most variable in terms of output?

Because of its reliance on forward-looking projections and discretionary assumptions, the DCF is the most variable out of the different valuation methodologies. Relative valuation methodologies such as trading and transaction comps are based on the actual prices paid for similar companies. While there'll be some discretion involved, the valuations derived from comps deviate to a lesser extent than DCF models.

Contrast the discounted cash flow (DCF) approach to the trading comps approach.

	Advantages	Disadvantages
Discounted Cash Flow (DCF)	▪ The DCF values a company based on the company's forecasted cash flows. ▪ This approach is viewed as the most direct and academically rigorous way to measure value. ▪ Considered to be independent of the market and instead based on the fundamentals of the company.	▪ The DCF suffers from several drawbacks; most notably, it's very sensitive to assumptions. ▪ Forecasting the financial performance of a company is challenging, especially if the forecast period is extended. ▪ Many criticize the use of beta in the calculation of WACC, as well as how the terminal value comprises around three-quarters of the implied valuation.
Trading Comps	▪ Trading comps value a company by looking at how the market values similar businesses. ▪ Thus, comps relies much more heavily on market pricing to determine the value of a company (i.e., the most recent, actual prices paid in the public markets). ▪ In reality, there are very few truly comparable companies, so in effect, it's always an "apples and oranges" comparison.	▪ While the value derived from a comps analysis is viewed by many as a more realistic assessment of how a company could expect to be priced, it's vulnerable to how the market is not always right. ▪ Therefore, a comps analysis is simply pricing, as opposed to a valuation based on the company's fundamentals. ▪ Comps make just as many assumptions as a DCF, but they are made implicitly (as opposed to being explicitly chosen assumptions like in a DCF).

How can you determine which valuation method to use?

Each valuation method has its shortcomings; therefore, a combination of different valuation techniques should be used to arrive at a range of valuation estimates. Using various methods allows you to arrive at a more defensible approximation and sanity-check your assumptions.

The DCF and trading comps are often used in concert such that the comps provide a market-based sanity-check to intrinsic DCF valuation (and vice versa).

For example, an analyst valuing an acquisition target may look at the past premiums and values paid on comparable transactions to determine what the acquirer must realistically expect to pay. The analyst may also value the company using a DCF to help show how far market prices are from intrinsic value estimates.

Another example of when the DCF and comps approaches can be used together is when an investor considers investing in a business – the analyst may identify investing opportunities where comps-derived market values for companies are significantly lower than valuations derived using a DCF (although it bears repeating that the DCF's sensitivity to assumptions is a frequent criticism).

Would you agree with the statement that relative valuation relies less on the discretionary assumptions of individuals?

That could be argued as an inaccurate statement. While a comps analysis often yields different valuations from a DCF, that's only because of inconsistent implicit assumptions across both approaches. If the implicit assumptions of the comps analysis were entirely consistent with the explicit assumptions of the DCF analysis, the valuations using both approaches would theoretically be equal.

All valuation methods contain some degree of inherent bias; thus, various methods should be used in conjunction.

When you apply a peer-derived multiple to value a business, you're still implicitly making assumptions about future cash flows, cost of capital, and returns that you would make explicitly when building a DCF. The difference is, you're relying on the assumptions used by others in the market.

So when you perform relative valuation, you assume the market consensus to be accurate or at least close to the right value of a company and that those investors in the market are rational.

What does free cash flow (FCF) represent?

Free cash flow ("FCF") represents a company's discretionary cash flow, meaning the cash flow remaining after accounting for the recurring expenditures to continue operating.

The simplest calculation of FCF is shown below:

$$\text{Free Cash Flow (FCF)} = \text{Cash from Operations} - \text{Capex}$$

The cash from investing section, other than capex, and the financing section are excluded because these activities are optional and discretionary decisions up to management.

Why are periodic acquisitions excluded from the calculation of FCF?

The calculation of free cash flow should include only inflows/(outflows) of cash from the core, recurring operations. That said, a periodic acquisition is a one-time, unforeseeable event, whereas capex is recurring and a normal part of operations (i.e., capex is required for a business to continue operating).

Explain the importance of excluding non-operating income/(expenses) for valuations.

For both DCF analysis or comps analysis, the intent is to value the operations of the business, which requires you to set apart the core operations to normalize the figures.

- When performing a DCF analysis, the cash flows projected should be strictly from the business's recurring operations, which would come from the sale of goods and services provided. A few examples of non-operating income to exclude would be income from investments, dividends, or an asset sale. Each example represents income that's non-recurring and from a discretionary decision unrelated to the core operations.
- When performing comps, the core operations of the target and its comparables are benchmarked. To make the comparison as close to "apples to apples" as possible, non-core operating income/(expenses) and any non-recurring items should be excluded.

Mergers & Acquisitions Questions

M&A Concepts

Can you define M&A and explain the difference between a merger and an acquisition?

Mergers and acquisitions (M&A) is an umbrella term that refers to the combination of two businesses. To buyers, M&A serves as an alternative to organic growth, whereas for sellers, M&A provides an opportunity to cash out or share in the newly formed entity's risk/reward.

The two terms are often used interchangeably but have some minor differences:

- **Merger:** A merger suggests the combination of two similarly sized companies (i.e., "merger of equals"), where the form of consideration is at least partially with stock, so shareholders from both entities remain. In most cases, the two companies will operate under a combined name (e.g., ExxonMobil, Kraft Heinz, Citigroup), whereas sometimes the new combined entity will be renamed.
- **Acquisition:** An acquisition typically implies the target was of smaller-size than the purchaser. The target's name will usually slowly dissipate over time as the target becomes integrated with the acquirer. In other cases (e.g., Salesforce's acquisition of Slack, Google's acquisition of Fitbit), the target will operate as a subsidiary to take advantage of its established branding.

What are some potential reasons that a company might acquire another company?

- Value Creation from Revenue and Cost Synergies
- Ownership of Technology Assets (IP, Patents, Proprietary Technology)
- Talent Acquisitions (New Skilled Employees)
- Expansion in Geographic Reach or into New Product/Service Markets
- Diversification in Revenue Sources (Less Risk, Lower Cost of Capital)
- Reduce Time to Market with New Product Launches
- Increased Number of Channels to Sell Products/Services
- Market Leadership and Decreased Competition (if Horizontal Integration)
- Achieve Supply Chain Efficiencies (if Vertical Integration)
- Tax Benefits (if Target has NOLs)

What are the differences among vertical, horizontal, and conglomerate mergers?

- **Vertical Merger:** A vertical merger involves two or more companies that serve different value chain functions. From the increased control over the supply chain, the combined entity should theoretically eliminate inefficiencies.
- **Horizontal Merger:** A horizontal merger comprises a merger amongst companies directly competing in the same (or very similar) market. Thus, following a horizontal merger, competition in the market decreases (e.g., Sprint & T-Mobile merger). Notable benefits that stem from a horizontal merger are the increased geographical coverage to sell products/services and an increase in pricing power.
- **Conglomerate:** A conglomerate refers to the combination of multiple business entities operating in unrelated industries for diversification purposes – an example would be Berkshire Hathaway.

In terms of vertical integration, what is the difference between forward and backward integration?

- **Backward Integration:** When an acquirer moves upstream, it means they're purchasing suppliers or manufacturers of the product the company sells – this is known as backward integration.
- **Forward Integration:** When an acquirer moves downstream, it means they're purchasing a company that moves them closer to the end customer such as a distributor or technical support – this is known as forward integration.

Describe a recent M&A deal.

For M&A interviews, come prepared to discuss at least one recent transaction in-detail. To understand the rationale behind an M&A deal and the market's perception of the proposed (or closed) transaction, review press releases and articles with commentary on the deal from reliable sources. Also, look at the current competitive dynamics within the industries relevant to the deal and the ongoing trends that could further explain why the transaction was completed.

The specific details regarding the deal which should be included in your response include:

- Name of Acquirer and Target Company (along with a business profiles of each)
- Merger or Acquisition Strategic Rationale (can be found in the Form S-4 or publicly announced)
- Approximate Transaction Size, Premium Offered, and Form of Consideration (if publicly disclosed)
- Acquirer and Target's Share Price Movement Post-Announcement
- Personal Perspective on the Transaction – "In your opinion, was this a good deal?"

For an example of how to review an M&A transaction, see our analysis on the acquisition of LinkedIn.

Read More → Ultimate Guide to M&A + Breakdown of Microsoft's Acquisition of LinkedIn

What are synergies and why are they important in a deal?

Synergies are the expected cost savings or incremental revenues arising from an acquisition. They're important because if an acquirer believes synergies can be realized, a higher premium would be paid.

1. **Revenue Synergies:** Cross-selling, upselling, product bundling, new distribution channels, geographic expansion, access to new end markets, reduced competition leads to more pricing power
2. **Cost Synergies:** Eliminate overlapping workforces (reduce headcount), closure or consolidation of redundant facilities, streamlined processes, purchasing power over suppliers, tax savings (NOLs)

Why should companies acquired by strategic acquirers expect to fetch higher premiums than those selling to private equity buyers?

Strategic buyers can often benefit from synergies, which enables them to offer a higher price. However, the recent trend of financial buyers making add-on acquisitions has enabled them to fare better in auctions and place higher bids since the platform company can benefit from synergies similar to a strategic buyer.

How do you perform premiums paid analysis in M&A?

Premiums paid analysis is a type of analysis prepared by investment bankers when advising a public target, in which the average premium paid in comparable transactions serves as a reference point for an active deal. The presumption being the average of the historical premiums paid in those comparables deals should be a proxy (or sanity check) for the premium to be received in the current deal.

Read More → Premiums Paid Analysis in M&A

Tell me about the two main types of auction structures in M&A.

1. **Broad Auction:** In a broad auction, the sell-side bank will reach out to as many prospective buyers as possible to maximize the number of interested buyers. Since competition directly correlates with the valuation, the goal is to cast a wide net to intensify an auction's competitiveness and increase the likelihood of finding the highest possible offer (i.e., removing the risk of "leaving money on the table")
2. **Targeted Auction:** In a targeted auction, the sell-side bank (usually under the client's direction) will have a shortlist of buyers contacted. These contacted buyers may already have a strong strategic fit with the client or a pre-existing relationship with the seller.

Read More → Sell-Side Process

What is a negotiated sale?

A negotiated sale involves only a handful of potential buyers and is most appropriate when there's a specific buyer the seller has in mind. A potential reason for this type of sale approach could be the seller intends to stay on and strongly values the partnership and growth opportunities.

Under this approach, the speed of close and confidentiality are two distinct benefits. These deals are negotiated "behind-closed-doors" and generally on friendlier terms based on the best interests of the client.

What are some of the most common reasons that M&A deals fail to create value?

- **Overpaying/Overestimating Synergies:** Nearly all M&A deals involve a premium in the purchase price. Even if the deal results in positive results, it might not be enough to justify the premium. Overpaying for an asset goes hand-in-hand with overestimating synergies. Synergies are challenging to achieve in practice and should be estimated conservatively, but doing so would result in missing out on acquisition opportunities and being out-bid. An acquirer often has to accept that the expected synergies used to justify the premium paid may not be met for the sake of completing the deal.
- **Inadequate Due Diligence:** An acquirer will often fail to perform sufficient diligence before acquiring a company. The decision may have been made while overly-focused on the target's positives and the potential post-integration benefits while neglecting the risks. A competitive auction with a short timeline can lead to this type of poor judgment, in which the other buyers become a distraction.
- **Lack of Strategic Plan:** For an M&A deal, when an acquirer becomes fixated on pursuing more resources and achieving greater scale without an actual strategy, this can lead to synergies not being realized despite an abundance of resources on-hand and potential growth opportunities.
- **Poor Execution/Integration:** Post-closing, the acquirer's management team may exhibit poor leadership and an inability to integrate the new acquisition. This poor integration can lead to diminished employee morale, cultural mismatches, and a noticeable drop in product/service quality. Of all the reasons M&A deals can fail, cultural compatibility can be the trickiest risk to assess.

Studies have repeatedly shown a high percentage of deals destroy shareholder value. If that's the case, why do companies still engage in M&A?

Many studies have concluded that most M&A deals destroy shareholder value. Yet, many companies continue to pursue growth through M&A.

One reason companies choose to engage in M&A is that many deals are done out of necessity, meaning they were defensive measures taken to protect their market share or to maintain competitive parity. Once a company owns a sizeable percentage of a market, its focus shifts towards protecting its existing market share as opposed to growth and stealing more market share (i.e., the company is now the target incumbent to steal market share from).

M&A is often a defensive response to structural sector disruption that presents a threat to an existing business model.

Therefore, the company must always be on the look-out for developing trends or companies that could someday become a threat, which is closely related to technological adaptation and staying innovative as industries continuously develop. M&A is a method for companies to fend off outside threats and gain new technological capabilities.

What is the purpose of a teaser?

A teaser is a one to two-page marketing document that's usually put together by a sell-side banker on behalf of their client. The teaser is the first marketing document presented to potential buyers and is used to gauge their initial interest in formally taking part in the sale process. The intent is to generate enough interest for a buyer to sign an NDA to receive the confidential information memorandum ("CIM").

The content found in a teaser will be limited, and the name of the company is never revealed in the document (instead "Project [Placeholder Name]"), and the teaser only provides the basic background/financial information of the company to hide the identity of the client and protect confidentiality. The information provided is a brief description of the business operations, investment highlights, and summary financials (e.g., revenue, operating income, EBITDA over the past two or three years) – just enough details for the buyer to understand what the business does, assess recent performance and determine whether to proceed or pass.

What does a confidential information memorandum (CIM) consist of?

A confidential information memorandum ("CIM") provides potential buyers with an in-depth overview of the business being offered for sale. Once a buyer has executed an NDA, the sell-side investment bank will distribute the CIM to the private equity firm or strategic buyer for review.

The format of the CIM can range from being a 20 to 50-page document with the specific contents being a detailed company profile, market overview, industry trends, investment highlights, business segments, product or service offerings, past summary financials, performance projections (called the "Management Case"), management biographies, and the transaction details/timing.

Read More → Confidential Information Memorandum (CIM)

What are the typical components found in a letter of intent (LOI)?

Once a buyer has proceeded with the next steps in making a potential acquisition, the next step is to provide the seller with a formal letter of intent ("LOI"). An LOI is a letter stating the proposed initial terms, including the purchase price, the form of consideration, and planned financing sources. Usually non-binding, an LOI represents what a definitive agreement could look like, but there's still room for negotiation and revisions to be made in submitted LOIs (i.e., this is not a final document).

Read More → Letter of Intent (LOI)

What are "no-shop" provisions in M&A deals?

In most M&A deal agreements, there'll be a dedicated section called the "no solicitation" provision, or more commonly known as the "no-shop" provision. No-shop provisions protect the buyer and give exclusivity during negotiations. The sell-side representative is prevented from looking for higher bids and leveraging the buyer's current bid with other buyers. Violating the no-shop would trigger a significant breakup fee by the seller, and an investigation would be made into the sell-side bank to see if they were contacting potential buyers when legally restricted from doing so. On the other side, a seller can protect themselves using reverse termination fees ("RTFs"), which allow the seller to collect a fee if the buyer were to walk away from the deal.

Read More → Breakup Fees and Reverse Termination Fees in M&A

What is a material adverse change (MAC), and could you provide some examples?

In an M&A transaction, a material adverse change ("MAC") is a highly negotiated, legal mechanism intended to reduce the risk of buying and selling parties from the merger agreement date to the deal closure date. MACs are legal clauses included in virtually all merger agreements that list out the conditions that allow the buyer the right to walk away from a deal without facing legal repercussions or significant fines.

Common Examples of MACs

- Significant Changes in Economic Conditions, Financial Markets, Credit Markets, or Capital Markets
- Relevant Changes such as New Regulations, GAAP Standards, Transaction Litigation (e.g., Anti-Trust)
- Natural Disasters or Geopolitical Changes (e.g., Outbreak of Hostilities, Risk of War, Acts of Terrorism)
- Failure to Meet an Agreed-Upon Revenue, Earnings, or Other Financial Performance Target

Read More → Material Adverse Change: The ABCs of MACs

Contrast asset sales vs. 338(h)(10) election vs. stock sales.

Sale Type	Description	Tax Implications
Asset Sales	▪ In an asset sale, the seller will sell the assets to the buyer with each asset contractually sold. ▪ Once the buyer holds all the assets, it controls the business by having everything that made the seller's equity worth something.	▪ In the asset sale, the buyer gets the incremental D&A tax benefits – meaning, the tax basis of assets is stepped up, which creates tax-deductible D&A and future cash tax savings. ▪ But the seller potentially faces double taxation – first on the corporate level and then on the shareholder level.
Stock Sales	▪ In a stock sale, the seller gives the buyer shares. ▪ Once the buyer holds all the target shares, it controls the business from being its new owner.	▪ In a stock sale, the buyer doesn't get a stepped-up basis in the seller's assets, which means the buyer cannot benefit from lower future taxes due to incremental deal-related D&A. ▪ The seller is taxed only at the shareholder level (as opposed to the corporate level).
338(h)(10) Election	▪ A 338(h)(10) is something both buyer and seller can jointly elect to do, which gives you the tax treatment of an asset sale without the hassle of actually exchanging individual assets. ▪ This applies to acquisitions of corporate subsidiaries or S-corps, and most applicable when the target has a high amount of NOLs.	▪ A 338(h)(10) offers the benefits of stock sales along with the tax savings of an asset sale. ▪ Legally, a 338(h)(10) is considered a stock sale but treated as an asset sale for tax purposes. ▪ The seller is still subject to double-taxation, but the buyer can benefit from the tax advantages of the step-up of assets and the NOLs – leading to a higher purchase price.

Read More → Asset Sale vs. Stock Sale

Contrast a friendly acquisition and hostile takeover attempt.

- **Friendly Acquisition:** A friendly acquisition is when the takeover bid was made with the consent of both companies' management teams and boards of directors. The two had previously agreed to come to the table and negotiated on good terms. The target's board will notify their shareholders of the bid and decision, and in most cases, the shareholders will follow the lead of the board.
- **Hostile Takeover:** Conversely, a hostile takeover usually comes after a failed friendly negotiation. The target's management and board of directors have expressed their objection to the acquisition, but the acquirer has continued pursuing a majority stake by going directly to the shareholders.

What are the two most common ways that hostile takeovers are pursued?

1. **Tender Offer:** In a tender offer, the acquirer will publicly announce an offer to purchase shares from existing shareholders for a premium. The intent is to acquire enough voting shares to have a controlling stake in the target's equity that enables them to push the deal through.
2. **Proxy Fight:** Alternatively, a proxy fight involves a hostile acquirer attempting to persuade existing shareholders to vote out the existing management team to take over the company. Convincing existing shareholders to turn against the existing management team and board of directors to initiate a proxy fight is the hostile acquirer's objective, as the acquirer needs these shareholders' votes, which it does by trying to convince the company is being mismanaged.

Leveraged Buyout Questions

Private Equity Investing

For private equity interviews, getting an interview in the first place is the toughest part for most candidates. So if you received an interview, most interviewers will assume you already possess the technical knowledge.

First round interviews are closer to discussions regarding your interest in investing and past deal experience, in addition to questions about your investment thought process. These discussions, while seemingly behavioral, are actually very technical and it'll soon become apparent whether you know what you're talking about or not.

A few examples of these discussion-type questions would be:

- Tell me about a portfolio company of ours that you would (or would not) have invested in and give me your prediction on how the investment has performed so far.
- Which industry are you most interested in pursuing an investment within?
- Tell me about an investment theme you have in mind and why you think it's an interesting opportunity?
- If our firm was looking at a new investment opportunity in [specific sub-industry], how would you approach diligence to determine if it's an investment worth looking further into or not?

In general, standard technical questions come up less common during private equity recruiting. But to speak competently during deal walk-throughs and investment rationale discussions, as well as to perform well on LBO modeling tests, an understanding of the fundamentals behind private equity investing and leveraged buyouts in required – which we'll cover in detail in this section.

Each year, Bain publishes a Global Private Equity Report we suggest reading to learn more about how the industry has been performing as a whole, as well as recent trends in exit valuations and the number of exits by type.

What is a leveraged buyout (LBO)?

In a leveraged buyout, a private equity firm (often called the financial sponsor) acquires a company with most of the purchase price being funded through the use of various debt instruments such as loans, bonds. The financial sponsor will secure the financing package ahead of the closing of the transaction and then contribute the remaining amount.

Watch Video →
Introduction to LBOs

Once the sponsors gain majority control of the company, they get to work on streamlining the business – which usually means operational improvements, restructuring, and asset sales intending to make the company more efficient at generating cash flow so that the large debt burden can be quickly paid down.

The investment horizon for sponsors is 5-7 years, at which point the firm hopes to exit by either:

- Selling the company to another private equity firm or strategic acquirer
- Taking the company public via an initial public offering (IPO)

Financial sponsors usually target returns of ~20-25% when considering an investment.

Explain the basic concept of an LBO to me using a real-life example.

One metaphor to explain an LBO is "house flipping," using mostly borrowed money. Imagine you found a house on the market selling for a low price, in which you see an opportunity to sell it later for a higher price at a profit. You end up purchasing the house, but much of the purchase price was financed by a mortgage lender, with a small down payment that came out of your pocket. In return for the lender financing the home, you have a contractual obligation to repay the full loan amount plus interest.

But instead of purchasing the house to live there, the house was bought as a property investment with the plan to put the house back on the market in five years. Therefore, each room is rented out to tenants to generate monthly cash flow. The mortgage principal will gradually be paid off and the periodic interest payments are paid down using the rental income from the tenants. Home renovations are completed with the remaining amount and any existing property damages are fixed – again, using the rental income.

After around five years, the house is sold for a price higher than the initial purchase due to the improvements made to the house and because the house is located in an area where home values have been increasing. The remaining mortgage balance will have to be paid in full, but you pocket a greater percentage of the proceeds from the sale of the house because you consistently paid down the principal.

Read More → LBO Analysis on a Cocktail Napkin

What is the intuition underlying the usage of debt in an LBO?

The typical transaction structure in an LBO is financed using a high percentage of borrowed funds, with a relatively small equity contribution from the financial sponsor. As the debt principal is paid down throughout the holding period, the sponsor will realize greater returns at exit. Therefore, private equity firms attempt to maximize the amount of leverage while keeping the debt level manageable to avoid bankruptcy risk.

The logic behind why it's beneficial for sponsors to contribute minimal equity is due to debt having a lower cost of capital than equity. One reason the cost of debt is lower is that debt is higher on the capital structure – as well as the interest expense being tax-deductible, which creates a “tax shield.” Thus, the increased leverage enables the firm to reach its returns threshold easier.

What is the typical capital structure prevalent in LBO transactions?

LBO capital structures are cyclical and fluctuate depending on the financing environment, but there has been a structural shift from D/E ratios of 80/20 in the 1980s to around 60/40 in more recent years.

The different debt tranches include leveraged loans (revolver, term loans), senior notes, subordinated notes, high-yield bonds, and mezzanine financing. The majority of the debt raised will be senior, secured loans by banks and institutional investors before riskier types of debt are used. In terms of equity, the contribution from the financial sponsor represents the largest source of LBO equity. Sometimes, the existing management team will rollover a portion of their equity to participate in the potential upside alongside the sponsor.

Watch Video → LBO Capital Structure

Since most LBOs retain the existing management team, sponsors will usually reserve anywhere between 3% to 20% of the total equity to incentive the management team to meet financial targets.

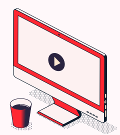
What are the main levers in an LBO that drive returns?

1. **Debt Paydown (Deleveraging):** Through deleveraging, the value of the private equity firm's equity grows over time as more debt principal is paid down using the acquired company's free cash flows.

2. **EBITDA Growth:** Growth in EBITDA can be achieved by making operational improvements to the business's margin profile (e.g., cost-cutting, raising prices), implementing new growth strategies, and making accretive add-on acquisitions.
3. **Multiple Expansion:** In the ideal scenario, the financial sponsor hopes to exit an investment at a higher multiple than entry. The exit multiple can increase from improved investor sentiment, better economic conditions, increased scale or diversification, and favorable transaction dynamics (e.g., competitive auction led by strategics).

What attributes make a business an ideal LBO candidate?

- **Strong Free Cash Flow Generation:** The ideal LBO candidate must have predictable, FCF generation with high margins given the amount of debt that would be put on the business. To make the interest payments and debt paydown, consistent FCF generation year-after-year is essential and should be reflected in the target's historical performance.
- **Recurring Revenue:** Revenue with a recurring component implies there's less risk associated with the cash flows of the company. Examples of factors that make revenue more recurring include long-term customer contracts and selling high-value products or services required by customers, meaning the product/service is necessary for business continuity (as opposed to being a discretionary, non-essential spend).



Watch Video →
Ideal LBO Target Characteristics

- **"Economic Moat":** When a company has a "moat," it has a differentiating factor that enables a sustainable competitive advantage, which leads to market share and profit protection from outside threats. This effectively creates a barrier against competition. Examples of deterrents include branding, patents, proprietary technology, economies of scale, network effects, and switching costs.
- **Favorable Unit Economics:** High margins are a byproduct of good unit economics, a well-managed cost structure, low capital expenditures, and minimal working capital requirements. These factors all lead to more FCFs being available to make interest payments, paydown debt principal (required and optional), and re-invest more into operations of the business. In addition, when a company's unit economics is consistently better than the rest of the market, this is oftentimes an indication of a competitive advantage.
- **Strong, Committed Management Team:** Qualified management teams will have a proven track record, which can be proxied by the number of years working with one another and their past achievements. The importance of the management team cannot be overstated, as they're the ones executing the strategic plan.
- **Undervalued (Low Purchase Multiple):** While finding undervalued companies has become increasingly difficult as more capital has flooded the private capital markets, many private equity firms pursue opportunistic buyouts where the company can be acquired for a lower price due to external factors. For example, an industry may have fallen out of favor temporarily or come under pressure due to macro or industry-related trends, which could allow a firm to complete the purchase at a discount. Since a lower entry multiple was paid, the opportunity for value creation through exiting at a higher multiple (i.e., multiple expansion) is greater while the risk of having overpaid is reduced.
- **Value-Add Opportunities:** For traditional LBO firms, the ideal target will be very well-run, but there should be some areas of inefficiencies that can be improved upon. These represent opportunities for value creation such as selling non-core business assets, taking cost-cutting measures, and implementing more effective sales & marketing strategies.

What types of industries attract more deal flow from financial buyers?

- **Non-Cyclical/Low-Growth:** Industries with stagnant to low growth tend to attract higher amounts of interest from private equity investors, as many companies will turn to inorganic growth once organic growth opportunities seem to have diminished. In an effort to continue growing and increase margins, companies will turn to M&A and start acquiring smaller companies. Therefore, these strategics represent potential buyers, which means there'll be a viable exit plan from the perspective of a private equity firm. Usually, these industries are non-cyclical and mature with minimal disruption risk, making them the ideal industry for private equity firms that specialize in add-ons (i.e., "buy-and-build") and pursue fragmented markets where the consolidation strategy is more viable.

- **Subscription-Based/Contractual**: Industries with business models based around long-term customer contracts are viewed favorably by private equity firms, especially if the business model is based around subscription models, as these companies are known for having recurring, stable revenue from reliable commercial customers. B2B enterprise software companies are valued at such high multiples consistently and sought after by private equity firms for this very reason.
- **High R&D Requirements:** Industries involving technical products will usually have a lot of deal flow because incumbents will prefer to acquire companies with proven technologies rather than building them in-house, which would require significant amounts of time and resources. For that reason, many private equity firms will pursue smaller niche players and grow them, knowing there will be strategic buyers later on interested in acquiring the company for their technology. These companies will often have significant pricing power and an established niche, making them ideal targets for PE investors.
- **Potential Synergies:** Certain industries will have more opportunities for synergies to be realized. This can come in the form of revenue synergies such as upselling, cross-selling, and product bundling, as well as in the form of cost synergies, such as benefiting from economies of scale and reducing redundant costs. For example, industrial technology and software is known for being two of the best industries for upselling and cross-selling to existing customers, while healthcare services such as dental clinics and psychiatry treatment centers are known for having inefficient cost-structures that can benefit significantly from cost synergies through increased scale, operational improvements, and streamlining processes.
- **Favorable Industry Trends:** The potential investment should be well-positioned to benefit from ongoing industry tailwinds. This means that incremental improvements are going on in the industry that could be potential add-ons that provide more value to their customers, as opposed to industry-disrupting developments that would create the need for significant investments to adjust to the changing landscape.

What would be the ideal type of products/services of a potential LBO target?

- **Mission-Critical:** The ideal product or service should be essential to the end markets being served and the discontinuance of the product or service's usage should be detrimental to business continuity. In other words, the customer should be unable to function without this product/service due to how deeply embedded it has become in its operations.
- **Recurring/Contract-Based:** Revenue from long-term, contractual-agreements is highly regarded by private equity investors. For instance, enterprise software companies are known for having predictable revenue due to their subscription-based business models and long-term contracts with commercial customers.
- **High-Switching Costs:** The decision to switch to another provider should come with high switching costs that make customers reluctant to move to a competitor. This would mean the costs should outweigh the benefits of moving to a lower-cost provider.
- **High-Tech:** The more technical the product, the higher the barrier to entry and more pricing power over its end markets due to the lack of competition. In effect, this leads to more stable, low-risk cash flows, with the optionality to increase prices if necessary. The proxy for finding companies selling technical products is high R&D expenditures, patents/IP, and industry reputation.

The quality of a company's revenue is determined by its predictability, defensibility, and certainty of being recurring.

- **Location-Based Competition:** Certain private equity firms will pursue companies where competition is location-specific. This is more prevalent for service-oriented industries such as landscaping and commercial cleaning. The primary benefit is that these are fragmented markets with less competition and often involve long-term, contract-based customer relationships.

What is the relationship between debt and purchase price?

The relationship between debt and purchase price is another reason such large amounts of debt are being used in LBOs. The usage of debt enables a private equity firm to purchase companies of a particular size it could otherwise not purchase using equity alone or with a minimal amount of borrowed funds.

In addition, the usage of high debt leaves the firm with more unused capital (called "dry powder") for other investments or add-on acquisitions for their existing portfolio companies.

How is the maximum leverage used in an LBO typically determined?

The debt-to-equity mix in private equity deals has hovered around 60% debt/40% equity as M&A activity stabilized since the 2008 financial crisis. However, leverage varies significantly across industries, besides being specific to the target company's fundamental qualities.

Debt/EBITDA has hovered in the 5.0x to 7.0x range and is pressured upward as overall valuations increase. When LBOs emerged as a type of M&A transaction in the 1980s, debt represented as much as 90% of the capital structure. But this has come down because of the risks inherent to high debt burdens.

Watch Video →
Introduction to LBO Debt

Why might a private equity firm not raise leverage to the maximum leverage, even if it had the option to do so?

Generally, a private equity firm will want to maximize the amount of debt without endangering the company and putting it at risk of default. The reason being more leverage means less required equity and the greater the potential returns. But there are several reasons a private firm might intentionally raise less leverage than the maximum amount that can be raised from lenders:

- **Increased Default Risk:** The firm may have doubts regarding whether the acquired company could support the additional debt. Even if the company is in a stable industry and has healthy credit ratios, it's a judgment call by the firm on how much debt to use as a percentage of its total debt capacity.
- **Negative Perception:** The firm doesn't want to appear to be using excessive leverage at the company's expense. Nowadays, private equity firms pitch themselves as value-add partners and avoid having a reputation for extracting as much value as they can from a business for their benefit.
- **Decreased Fund Returns/Fundraising Implications:** If a firm's portfolio company declares bankruptcy, this would not only ruin the current fund's returns, but it would make future fundraising efforts more challenging. Lenders would also be less willing to fund the private equity firm in the future and companies (potential investments) would be reluctant to partner with them.
- **Planned Dividend Recap:** The firm might be planning to do a dividend recapitalization later on, especially if it forecasts lower interest rates than the present day. Therefore, there would be remaining debt capacity, and the additional debt capital would be raised under better terms.

Capital Markets Questions

Debt & Leveraged Finance

What is the difference between a bond and a leveraged loan?

While some features of leveraged loans and bonds can overlap, the key difference is that that a loan is a private transaction between a borrower and a lender. The lender is a single bank or a small syndicate of banks or institutional investors. The interest cost is often LIBOR plus a spread, and the loan is often secured by collateral with strict covenants, while the repayment of principal can happen over time or as a bullet payment at the end. Given the collateral, earlier principal repayments, and covenants, loans are less risky and carry lower interest rates than bonds.

Corporate bonds, in contrast, must be registered with the SEC and are public transactions. Bonds are issued to institutional investors and traded freely on the secondary bond market, leading to a broader investor base. Bonds are usually priced at a fixed rate with semi-annual payments, have longer terms than loans, and have a balloon payment at maturity. Since bonds come with less restrictive covenants and are usually unsecured, they're riskier for investors and therefore command higher interest rates than loans.

Putting it all together, below is a table outlining the typical features of debt used in leveraged finance:

	Leveraged loans		Bonds		
Debt Type	**Revolver**	**Term Loan A (Bank Debt); Term Loan B/C/D (Institutional)**	**Senior secured**	**Senior unsecured**	**Subordinated**
Lender	Institutional investors & banks		Institutional investors		
Coupon	Floating, i.e. LIBOR + 300 bps		Fixed, i.e. 8.00% coupon paid semi-annual		
Cash/PIK interest	Cash interest				Cash or PIK
Interest rate	Lowest <-----> Highest				
Principal repayment schedule	None	Some principal amortization	Bullet at end of term		
Secured/ unsecured	Secured (1st and 2nd liens)			Unsecured	
Priority in bankruptcy	Highest<----->Lowest				
Term	3-5 years	5-7 years	5-10 years		
Covenants	Mostly incurrence ("covenant lite"); Some maintenance (strictest)		Incurrence		
Call protection	No			Yes	

Read More → Ultimate Guide to Debt & Leveraged Finance

What is the difference between investment-grade and speculative-grade debt?

- **Investment-Grade Debt:** Investment-grade debt (often called high-grade debt) has a credit rating above BBB/Baa. This category of debt is issued by companies with a strong credit profile. Investment-grade debt is considered safe, given the low risk of default.
- **Speculative-Grade Debt:** Speculative-grade debt has a credit rating below BB/Ba. These types of debt are issued by more leveraged companies with a riskier credit profile. Given this increased risk of default and bankruptcy, the interest rates on these riskier debts will be significantly higher to compensate investors for taking on the additional risk.

What does it mean when a debt tranche is denoted as 1st lien or 2nd lien?

Lien is defined as the seniority and the priority of payment to a debt holder relative to the other tranches. A lien is a legal claim against the assets of a borrowing company (i.e., used as collateral) and the right to seize those assets first in forced liquidation/bankruptcy scenarios.

- **1st Lien Debt:** The highest seniority, 1st lien, is fully secured by the company's assets and has the first claim to collateral in a liquidation/bankruptcy scenario (e.g., revolver, term loans).
- **2nd Lien Debt:** Right below 1st lien loans sits 2nd lien where compensation is provided only if there's collateral value remaining once 1st lien lenders are repaid in full. These debt types are riskier and more expensive for borrowers (e.g., high-yield bonds, mezzanine financing).

Tell me about the different classifications of term loans.

Watch Video →
Term Loans and Revolvers

- **Term Loan "A":** TLAs refer to secured loans syndicated to banks and are typically packaged alongside a revolving credit facility. TLAs have shorter terms (~5 years), carry higher amortization levels than other term loans, and are amortized evenly over their tenor (i.e., "straight-lined").
- **Term Loan "B," "C," or "D":** An institutional term loan (B/C/D) is a loan facility syndicated to institutional, non-bank investors such as hedge funds, CLOs, mutual funds, and insurance companies. These term loans differ from TLAs in having longer terms while requiring no principal amortization before maturity – instead, they involve nominal amortization with a bullet payment due at maturity. TL B/C/Ds are more prevalent in LBOs than TLAs, as B/C/Ds have less strict covenants, longer terms, and require less principal amortization each year. The "B," "C," or "D" designation is more indicative of the investor base than the priority rank.

What is the difference between a secured and unsecured loan?

- **Secured Loans:** If a debt instrument is secured, that means the debt is backed by collateral. The assets of the borrower were pledged as collateral to get favorable financing terms. If the company were to go bankrupt, the lenders have a legal claim on the pledged collateral. Leveraged loans are secured by collateral and are the safest security class for a lender. Most term loans and revolvers in the leveraged loan market are syndicated to institutional investors such as hedge funds, CLOs, and mutual funds.
- **Unsecured Loans:** For unsecured loans, pension funds, mutual funds, insurance companies, hedge funds, and some banks are typically willing to invest in this relatively riskier type of debt for the higher yield.

How are leveraged loans usually priced?

Leveraged loans are usually priced off LIBOR plus a spread. In addition, loans often include a LIBOR floor, so an example would be a pricing of "LIBOR + 3%" (300 basis points) with a LIBOR floor of 2%, so the interest rate can never dip below 5%.

What does LIBOR stand for?

LIBOR stands for "London Interbank Offered Rate," representing the global standard benchmark used to set lending rates. LIBOR is the rate at which banks lend amongst each other. For lenders of debt instruments with floating rates, the debt pricing will be based on LIBOR, the standard interest rate. However, LIBOR is expected to fade away in use as UK regulators have voiced a desire for LIBOR to be phased out by the end of 2021.

What is SOFR, the expected replacement of LIBOR?

Coming up on the horizon and expected to replace LIBOR eventually, the Secured Overnight Funding Rate (SOFR) is a measure of the borrowing costs of cash collateralized by Treasury securities. Said another way, the SOFR is a Repo-based funding rate of the observed transactions overnight.

In terms of debt terminology, what does the coupon rate mean?

The coupon rate simply refers to the annual interest rate ("pricing") paid on a debt obligation. The interest expense is based on the outstanding principal amount and is modeled as a percentage of the beginning and ending balance of the relevant debt tranche. In terms of payment dates, senior bank debt pays interest each quarter, whereas most bonds pay interest on a semi-annual basis.

How does the coupon on a bond differ from the yield?

The coupon represents the annual interest rate paid based on the notional principal of the bond, while the yield is the annual return on the bond, including the coupon payment adjusted for the premium or discount of the purchase price when held to maturity. One difference is coupons are fixed for the bond's term, whereas yields move with the markets.

What does it mean when a bond is trading at a discount, par, or premium?

- **Discount:** Price < 100, Yield is Greater than Coupon
- **Par:** Price = 100, Yield is Equal to Coupon
- **Premium:** Price > 100, Yield Less Than Coupon

What is the difference between a fixed and floating interest rate?

- **Fixed Interest Rate:** A fixed interest rate means the interest expense to be paid is the same regardless of changes to the lending environment. A fixed interest rate is more common for riskier types of debt, such as high-yield bonds and mezzanine financing.
- **Floating Interest Rate:** A floating interest rate is tied to LIBOR plus a specified spread (i.e., LIBOR + 2-4%). This pricing type is seen more often for senior debt tranches (e.g., term loans, revolvers).

When would an investor prefer fixed rates over floating rates (and vice versa)?

If interest rates are expected to fall in the near-term future, investors would prefer fixed rates. However, if interest rates are expected to increase, investors would prefer floating rates.

What are some different debt amortization schedules?

The debt amortization schedule refers to the amount of principal the borrower must repay annually. Compliance with this payment schedule is mandatory and not optional for the borrower.

<u>Types of Debt Amortization Schedules:</u>

- **Bullet Maturity**: The entire loan payment is due at the end of the loan's lifespan.
- **Straight-Line Amortization**: Principal payments must be repaid in equal installments until maturity.
- **Minimum Amortization**: Entails lesser amounts of annual payments (e.g., ~5-10% per year) – therefore, the entire principal will not have been paid off at maturity.

What is a callable bond and how does it benefit the issuer or borrower?

A callable bond can be redeemed by the issuer prior to its maturity, with the decision being at the issuer's discretion. A callable bond enables the issuing company to pay off the debt earlier if they have more free cash flow remaining in the period and can refinance at lower interest rates.

From the investor's perspective, a callable bond gives more optionality to the issuer, so the debt holders are compensated with higher interest rates (compared to non-callable bonds).

When would the prepayment optionality of certain debt tranches be unattractive to lenders?

Some debt instruments include provisions that enable the borrower to repay some principal ahead of the payment schedule without the incurrence of any financial penalties. However, other lenders may include a call protection feature that prohibits borrowers from prepayment until a pre-specified duration has passed. The reason being that certain lenders prefer to disallow prepayment as it implies the receipt of more interest payments in the future.

For instance, if the borrower pays more principal off early, the annual interest payments (inflows to the lender) in the future are reduced since interest is based on the beginning and ending balance of the debt outstanding.

A bond has a call protection clause of NC/2. What does this mean?

Many HYBs will have call protection clauses that last two or three years (denoted as NC/2 and NC/3, respectively). Some are often NC/L, which means the bond is not callable for the term's entire duration. Once a bond becomes callable, the borrower may repay some (or all) of the debt balance and pay less interest. The caveat is that the prepayment penalties could offset those savings on interest – thus, HYB’s classification as an expensive financing source.

Therefore, NC/2 means the bond has call protection for two years. Once this two-year period has passed, the borrower can repay the debt along with the prepayment penalty fee.

What is a revolving credit facility and what purpose does it serve to the borrower?

The revolver refers to a company’s revolving line of credit drawn down when the free cash flow being generated is insufficient. The revolver acts as a “corporate credit card” for urgent situations. The borrower typically draws from the revolver to meet its short-term working capital requirements after an unexpected, temporary shortage in liquidity. Ideally, the lender doesn't want the revolver fully drawn frequently as it signals a deterioration in cash flows.

The revolver provides the borrower with the optionality to drawdown, repay, and reborrow on an "as-needed" basis.

What is the undrawn commitment fee associated with revolvers?

A revolver typically comes with a small < 1% fee, which is an annual fee paid out to the lender. The borrower is charged an annual fee on the unused amounts, called the undrawn commitment fee.

What is the difference between an asset-based loan and a cash flow revolver?

The maximum amount that can be drawn from an ABL revolver is based on the company’s liquid assets. Thus, the amount is tied to borrowing-base lending formulas to limit borrowing to a certain percentage of the collateral – most often inventory and accounts receivable (e.g., 80% of A/R + 65% of Inventory)

The maximum amount that can be borrowed for cash flow revolvers is tied to the borrower's historical and projected cash flow generation. Therefore, covenants are more restrictive due to the uncertainty around future cash flows. Unlike physical assets such as inventory, a company's future cash flows cannot be pledged as collateral or seized in bankruptcy, hence its less favorable terms.

Why do revolvers normally not have a leverage test?

In most cases, revolvers will only have an interest coverage ratio test (e.g., > 2.0x EBITDA/Cash Interest) and have the simplest covenant structure relative to other tranches of debt. This is because the revolver has the highest priority in the capital structure and has a priority claim to the borrower's assets.

Therefore, the lender that provided the revolving credit line is unconcerned if the borrower raises additional debt, since this means the company has more cash available (on which the revolver has the first claim). In the scenario that the borrower undergoes bankruptcy, the revolver will almost certainly be made whole.

What is unitranche debt and its benefits?

Unitranche debt financing is a blended hybrid of senior debt and subordinated debt. The distinct characteristics of unitranche debt are that it's just one tranche of debt instead of two (as the name suggests), and the debt is priced at a blended interest rate. Traditionally, there would be 1st and 2nd lien debt, and the borrower would have to get financing from two (or more) different lenders, which could make securing financing packages a time-consuming process. But in recent years, non-bank institutional lenders began to provide the entire package and customize it based on negotiations.

The main advantage to borrowers over traditional credit facilities is that it enables borrowers to have "one-stop-shop" financing (i.e., the convenience factor). The borrowers would have only one set of loan documents, one set of covenants, and a much simpler and faster process to close.

What is the difference between a bond's coupon rate and the bond's current yield?

The coupon rate ("nominal yield") represents a bond's annual coupon divided by its face (par) value. The current yield on a bond equals the bond's coupon payment divided by the bond's price.

For example, a bond trading at 90 with a $100 face value and a $6 coupon has a 6% coupon rate and a current yield of 6.7% ($6/90). While the coupon rate is always the same, the current yield fluctuates based on the market price of a bond.

What is the difference between current yield and yield to maturity?

The current yield on a bond equals the bond's coupon payment divided by the bond's price. The current yield is a way to discuss coupon rates when the bond price deviates from par. For example, a bond trading at 90 with a $100 face value and a $6 coupon has a 6% coupon rate and a current yield of 6.7% ($6/90).

Unlike YTM, the current yield is not the true yield of a bond as it doesn't capture any yield associated with principal recovery, nor does it assume the reinvestment of coupon payments. The YTM is the internal rate of return of a bond. YTM considers coupon payments, principal recovery, assumes reinvestment at the same rate (an iterative process), and time to maturity.

Could you define fixed income and name a few examples?

Fixed-income securities provide their investors with a stream of fixed periodic interest payments and then the return of principal at the end of its term. The fixed amount of interest is paid in the form of coupon payments, usually semi-annually. While all bonds technically fall under fixed income, fixed income usually refers to low-return, low-risk bonds (as opposed to mezzanine financing and HYBs). Examples include treasury notes, treasury bonds, treasury bills, municipal bonds, money markets, and certificates of deposits (CDs).

What does the money market refer to and what is the typical maturity range?

The money market refers to the purchase and sale of large quantities of short-term bonds and other debt instruments overnight. The maximum maturity of these short-term bonds is 397 days (~13 months), and the investors are usually risk-averse with limited risk appetite.

Industry Specific Questions

Industry Specific Section Introduction

Before we begin the industry specific section, we wanted to give some words of advice.

It is rare to encounter industry related questions unless you're interviewing with a sector focused firm or for a specific group placement. Alternatively, you may encounter industry related questions if you bring up your personal interest in an industry on your own accord.

Each industry covered in this section contains questions related to:

- The recent trends and ongoing developments within the specific industry
- The unit economics of companies (revenue and cost drivers) within the specific vertical for financial modeling purposes

The ability to demonstrate an interest in an industry is one of the best ways to differentiate yourself.

Instead of expecting to be asked these questions word-for-word, identify an sub-industry or two that's of interest to you and strive to understand the underlying concepts, and then try to bring them up yourself when you're discussing your interest.

In addition, we have included questions on:

- Company-specific details on the industry’s key players
- Historical events that helped shape the industry to how it operates today
- Technical terminology that you're not expected to know (especially if you're an undergraduate student); instead you'll learn this while on the job

If constrained on time, you should feel no obligation to review these extra questions. Instead, just ensure that you're aware of a few key industry trends.

Technology, Media & Telecommunications (TMT)

For our section on the TMT industry, we'll focus more on telecom and media as we have a separate section on the SaaS industry right afterward – albeit, there's a fair amount of overlap.

The two sections were separated as SaaS tends to involve metrics specific to early stage startups, whereas M&T interview questions are generally more about industry trends and the competitive landscape. Relative to SaaS companies, most telecom and media companies are valued in more traditional methods due to the industries being more mature and established.

SaaS companies, particularly those in the early-stages of growth, have their own set of metrics to evaluate their performance and use operational KPI based valuation multiples.

When it comes to following the technology news, sources such as TechCrunch, The Verge, and Gizmodo are great resources to stay up-to-date. But for more insightful commentary on the business side of technology and media, we suggest following Ben Thompson's blog, Stratechery.

What are the most common types of business models in the telecom and media industry?

- **Traditional Equipment Sales/Wireless Services:** The first category comprises the traditional range of telecommunications equipment, networking products, and wireless services (e.g., Wi-Fi plans, cable television). As the oldest segment in TMT, recent revenue growth has been very low because this type of revenue is related to one-time equipment sales and then monthly plans, making revenue growth a function of geographic expansion (which has begun to stall). However, companies in this space tend to benefit from high operating leverage, barriers to entry, and lack of competition; hence, the anti-trust concerns. The incumbents are few and include companies such as AT&T, Verizon, and T-Mobile.
- **Subscription-Based Streaming:** The next category would include companies such as Netflix, Hulu, Spotify, in which business models are built around new customer acquisitions, minimizing churn, and increasing pricing by offering more value than their competitors. For companies in this segment, user count growth is the priority and many have no clear pathway towards becoming profitable without first achieving significant scale. Streaming has quickly become one of the most competitive spaces across all industries as traditional industries such as cable television and radio have been completely disrupted and new developments appear (e.g., cloud gaming, Esports)
- **Advertising:** This category would include companies such as Facebook, Twitter, and Google, which are companies that focus primarily on metrics such as MAU and DAU. Given their reliance on advertising, user engagement a key measure when assessing these companies' recent performance. While industry growth has been very strong for years now, particularly for the leading companies, the greatest hurdle looking ahead appears to be increased efforts by regulatory bodies to restrict user data collection and attempts to break-up these tech monopolies (citing anti-trust regulations).
- **Media Networks/Diversified Entertainment:** This category involves companies that create, acquire, and distribute programming content such as movies, films, theater events, and other media content. Through their broad reach, these companies can produce revenue from various segments such as advertising, affiliate fees, subscriptions, product sales, and licensing. Companies under this category could be best described as "media conglomerates" and examples include ViacomCBS, Disney, and NBCUniversal.

What are a few notable trends going on in the TMT industry right now?

- **Convergence of Business Models:** More companies are increasingly stepping outside into different segments either organically or through M&A. For instance, Google has countless subscription-based services, such as YouTube Music and Google Play Pass, as well as new ventures into communication services through Google Voice, home devices through Google Home, streaming through Chromecast, and fitness through its acquisition of Fitbit. Facebook has also been active by entering social commerce through Facebook Shops, music and video content creation through Creator Studio, and livestreaming through Facebook Pages and Facebook Watch Party. While this should come as no surprise for FAANG companies, this trend includes companies in low-growth segments as well, such as AT&T, which has continued its efforts to establish itself in streaming through AT&T TV, DIRECTV, U-Verse, and WatchTV. ViacomCBS is also planning to release its new streaming service Paramount+ in 2021.
- **Scale-Oriented M&A:** There have been many mergers of equals in recent years such as the merger between CBS/Viacom, Time Warner/AT&T, and T-Mobile/Sprint, which were all significant industry-changing mergers that raised regulatory concerns. Growth opportunities have run out in these areas, thus the pursuit of market leadership through consolidation of these low-growth industries has become more common due to the benefits from cost synergies, operating leverage, and diversification.
- **"Streaming Wars":** 2020 was a transformative year for the streaming video industry, as COVID-19 accelerated the adoption of video streaming with consumers streaming unprecedented amounts of video content through providers such as Netflix and Hulu. The competition has intensified as of late as more companies are increasingly moving into the streaming market, with some of the most notable entrants being Disney+, Apple TV+, HBO Max, Peacock, and Quibi just to name a few.
- **Hosted Online Events:** As lockdowns and social distancing measures prevented large social gatherings and events, many events have shifted to digital means. This has benefited media segments such as e-sports and livestreaming in particular. The number of major live musical or cinematic events hosted in real-time online has also increased with positive reception from consumers. The trend is expected to pick up and become more frequent in 2021 after a slow start following the initial outbreak in early 2020.
- **5G & Edge Computing:** 5G and edge computing are forecasted to be two of the highest growth segments, with adoption being led by large enterprises and increased B2B collaborations such as AT&T and Microsoft's multi-year alliance to work on the cloud, AI, and 5G. This trend is cited as being a central catalyst before 5G can reach mass adoption since 5G requires edge computing for its full capabilities to become more widely accessible given its reliance on the edge-computing infrastructure (likewise, edge computing requires more applications with 5G capabilities, particularly for mobile).
- **Consumer Usage of AI Assistants:** Sales in artificial intelligence (AI) assistants have increased amongst consumers and adoption is expected to increase, despite the security concerns. Many attribute this to work-from-home (WFM), which has led to consumers increasingly spending more on their homes (and thereby benefiting the "smart home" trend). This trend concurs with consumers' changed spending habits where more money is spent on their homes as seen in the record spending on gardening, home renovations, and various home-improvement projects.

Which valuation metrics are common to see for traditional telecom companies?

The category of traditional telecom companies would include mobile telecom service providers, convergent telecom service providers, cable operators, and data centers/infrastructure providers.

The traditional telecom industry is capital-intensive with high fixed costs, which are typically financed using debt as these companies operate in a highly concentrated, mature industry with minimal cyclicality. Because of the large amount of debt in their capital structure, telecom companies will incur substantial debt-related expenses. In addition, high amounts of depreciation will be recognized each year given their large fixed asset base. Another notable consideration is the tax incentives from the government provided for research & development (R&D), especially as the US attempts to build out its 5G infrastructure.

For the reasons stated above, accrual-based earnings are volatile year-over-year (YoY), making equity value based multiples like P/E less useful. Instead, the most commonly used valuation multiple is EV/EBITDA, but often EBITDA is on a run-rate basis or normalized over several years to account for inconsistencies.

EV/(EBITDA – Capex) is also common to see, as many consider it a better approximation of operating free cash flow given the capital intensive nature of the telecom industry and the need to adjust for capex. Telecom would be an example of an industry where trailing (LTM) and forward (NTM) multiples would be truly necessary to fully understand the valuation trends.

Unique to telecom companies, other multiples include EV/Data Centers, EV/Net PP&E, EV/Route Miles, EV/Fiber Miles, and EV/Access Lines in Service, EV/Broadband Subscribers, and EV/Broadcast Revenue.

As a side note, considering how diversified many of the traditional telecom companies have become, it may be necessary to perform a sum-of-the-parts valuation (SOTP).

What metrics would you use to measure user engagement?

In the context of media companies, user engagement is the level of involvement a customer has with a particular product, such as a website, application, or online platform. Higher user engagement rates imply users derive value from the product (leading to continued usage). This is of high importance for media companies because user engagement leads to customer retention and more recurring revenue.

<u>User Engagement KPIs</u>

- Daily Active Users (DAU) and Monthly Active Users (MAU)
- Active Subscriber Count
- Time Spent In-App Per Day or Week
- Pageviews/Website Hits
- Churn Rate (Retention %)
- Conversion Rate (Free → Paid Plan)

Which multiples are most commonly used to value modern media companies?

For high-growth media companies, operational KPI-based multiples are very common due to many of them being unprofitable or barely profitable. Traditional cash flow based metrics fail to capture the true value of many of these companies. By virtue of many of these companies having the objective of acquiring new customers, large losses will inevitably be incurred. Therefore, it would be unreasonable to assess a growth-oriented company based on profitability-based cash flow metrics.

EV/Revenue is often looked at, but it may not be the ideal multiple to look at if user growth is currently being prioritized over monetization. Instead, user count, growth in new customers, and the churn rate are the key value drivers used to assess performance. And multiples such as EV/MAU, EV/DAU, and EV/Monthly Subscriber Count may provide a better indication of the company's value.

For a company with a product meant for high frequency in usage, what is one way to assess user engagement?

A popular metric for measuring the level of user engagement ("stickiness") is the ratio between daily active users (DAU) and monthly active users (MAU). The DAU/MAU ratio, expressed as a percentage, is the proportion of monthly active users that engage with an application in a single day.

$$\text{DAU: MAU} = \frac{\text{Daily Active Users}}{\text{Monthly Active Users}} \times 100$$

For example, if the company's app has 500 DAU and 1,000 MAU, then the DAU/MAU ratio is 50%. This can be interpreted as the average user engaging with the app roughly 15 days in a 30 day month.

According to Sequoia, the standard DAU/MAU is between 10% and 20%, but certain apps such as WhatsApp can easily top 50%. Note, this metric would only be useful for products with daily use (e.g., social media, messaging platforms, mobile applications). It wouldn't be useful for products that don't require daily use. For example, this metric would be useful for companies such as Facebook, Twitter, and Snapchat, but not applicable for Airbnb, Uber, and Lyft.

What are economies of scale and could you give me an example?

Economies of scale occur when the per-unit costs of production decrease as output increases. These cost savings from greater scale will result in higher margins. The cost per unit decreases as more output units are produced because the costs are being spread over the increased number of goods. An example of a company benefiting from economies of scale would be Apple. Because Apple sells millions of iPhones each quarter, it can commit to component purchases at a massive scale with significant negotiating leverage that results in volume discounts (and a lower average cost per unit).

What effect does having high operating leverage have on the scalability of a business?

The operating leverage represents the proportion of a company's cost structure that consists of fixed costs, as opposed to variable costs. Thus, companies with a higher proportion of fixed costs in their costs structure have greater operating leverage.

- **High Operating Leverage:** If the company has high operating leverage, each additional dollar of revenue can be brought in at higher profits once the fixed operating costs are paid. Thus, each marginal unit is sold at a lesser cost, creating the potential for greater profitability since fixed costs such as rent and utilities remain the same regardless of output.
- **Low Operating Leverage:** If a company has high variable costs, each additional dollar of revenue may generate less profit as costs proportionally increase alongside increased revenue (i.e., the variable costs offset the additional revenue). If revenue were to increase, these costs would rise in tandem (or vice versa).

If a company has high operating leverage, earning outsized profits on each incremental sale is plausible.

Can you give me an example of a company benefiting from operating leverage?

An example would be a telecom business that has finished building out its network infrastructure. Initially, the business will incur substantial upfront capex to enable connectivity and network capabilities (e.g., equipment purchases, construction, security implementations).

But once the network has been built out and operations are running, each new customer acquisition comes at a low incremental cost, as the cost of adding one customer to an existing network is inexpensive. Most of the expenses incurred are mostly maintenance-related later on. The initial investment will eventually be earned back and what remains is a high margin business with recurring revenue.

Behavioral Questions

Behavioral Section Introduction

While the focus of this guide is on the technical portion of the interview, we wanted to leave you with some guidance on how to navigate behavioral questions.

A candidate can possess all the technical knowledge in the world yet still fail to receive an offer if they neglected the qualitative requirements when firms give out offers. These non-technical questions are where you have an opportunity to demonstrate that you're someone who possesses the self-awareness and emotional intelligence to handle the rigors of investment banking.

Broadly, there are four categories of behavioral questions:

Personal | **Firm Specific** | **Experience** | **Elevator Test**

1. **Personal Background Questions**

The first category entails questions regarding your "story." These questions are received right at the beginning of an interview and are an opportunity for you to introduce yourself formally. These types of questions are predictable, yet arguably, the most important part of the interview, as your answers to these questions will set the tone for the rest of the interview.

What interviewers are looking for are candidates that appear hardworking and more importantly, have a track record of success. This is the purpose of your resume and why it's so important for recruiting.

Your resume should highlight your list of past accomplishments because they're proof that you're capable of doing the job and have been committed to working towards this goal for a long period.

2. **Firm Specific Questions**

The next category of questions should convey your interest in joining the specific firm. The interviewer wants to assess how much you know about the firm and what they do and understand why you want to join this firm.

There are two types of candidates: those that understand the role they're applying for (and the firm's background) and those who applied to every firm they could find.

It should go without saying which type you need to be. Not understanding the tasks you'll be responsible for on a day-to-day basis and not even knowing the firm's basic background is one of the fastest ways to remove yourself from the list of potential candidates.

3. Past Experiences & Situational Questions

Considering the interviewer will have your resume on hand, expect to be asked to expand upon your past work and leadership experiences.

However, you're not being asked to regurgitate the bullet points on your resume. The interviewer knows how to read. Instead, this series of questions is based on two core questions:

- How have your experiences prepared you for this position?
- Does this candidate have the right personality and decision-making skills required to perform well?

The interviewer doesn't want a laundry list of tasks you have done, as he/she can already see the type of work involved in your internships/leadership experience. Instead, the question is asked to understand better why you believe that your past experiences apply to the position you're interviewing for and how this will make you a more suitable candidate.

Included in this section are situational questions, which are an extension of the questions regarding your experiences. But rather than asking what you did in the past, these questions are asked in a more hypothetical format to see how you would react in specific situations. However, you should still try your best to tie your responses back to a past (or similar) experience.

For example, if you're asked how you would react to a rude, passive-aggressive employee – most likely, you'll not have a direct experience that you can bring up as an example. Instead, you can talk about non-work related past interactions with these people and how you reacted and connect the similarities. These types of questions allow the interviewer to gain insight into how you would react in specific circumstances on the job (e.g., stress, workplace conflict) and how you approach problem-solving.

4. Elevator Test Questions

The last category of questions refers to your interviewer trying to determine whether you're someone they could see themselves working alongside for 60+ hours each week.

These types of questions test your soft skills more than anything and your ability to find a mutual connection or interest with the interviewer, or at the very least, casually converse with them.

From the perspective of the interviewer, they're asking themselves:

- If I ran into this person on the elevator, would it be a conversational or an awkward encounter?
- Would I want to grab a drink with this person outside of work hours?
- Does this person have an interesting life outside of work?

Behavioral Interview Advice

But before we dig deeper into each section of behavioral questions, we would like to provide some more guidance on how to approach answering these questions to increase the odds of leaving a good impression and receiving an offer. This section is a continuation of the interview advice provided at the beginning of the guide, but pertains more to the interview's social aspect rather than the technical portion.

Relax, and Just Be Conversational

Right from the onset of an interview, your goal should be to ***turn the interview into a casual conversation*** with friendly back-and-forth dialogue. For this reason, the initial impression you leave while shaking the interviewer's hand and answering the first question (i.e., "Tell me about yourself") is essential because it conveys your ability to fit into the culture. You must begin the interview on the right foot and immediately come across as someone personable, as it's very difficult to recover from a bad first impression.

Firms are not only looking for intelligent, hardworking candidates. They're also searching for candidates that are easy to communicate with and fit in well with the firm's culture.

For starters, avoid stepping into an interview room under the mindset that you're about to get interrogated, as your nervousness will unquestionably be visible in your body language and speech. Instead, view this as a conversation between two professionals: a young professional and a more experienced professional that could become a potential mentor. Doing so will put you in the right mentality – this interview is an opportunity to progress in your career, take some pressure off yourself.

Remember, the person sitting across from you was once a college student (maybe even just a few years ago) and understands exactly what it was like to be in your shoes. However, we'll emphasize that you must strike the right balance between sounding professional without coming across as overly casual.

Structure Your Answers

While this may come across as common sense, ***take the time to think before you speak***.

All of your responses should be well-thought-out and reflect that you can speak in coherent sentences and in a professional manner. There is no rush to get your words out. If you need to, take the time to pause and think before answering the question. A brief moment of silence is far better than saying something that you'll regret later.

Not being rushed in your speech or fumbling over words shows the interviewer that you can handle pressure, which positively affects their perception of you as a viable candidate.

If you feel yourself becoming tense or panicking, take a moment to calm your breath down and remind yourself to articulate your words clearly, as it's common for interviewees to unknowingly mumble and lower the volume of their voice when nervous. As you face the questioning, appear patient and relaxed.

And always remember the rule of ***"show, don't tell."*** Let your past achievements and experiences speak for themselves. The interviewer wants anecdotal evidence from your past in your responses and to hear some exciting stories, not a list of adjectives.

The most commonly referenced approach to answering interview questions is the "STAR" method. We recommend following a similar approach to give a well-rounded, effective answer that touches all bases.

- **Situation:** Provide a contextual overview for the interviewer
- **Task:** Explain what responsibility you were tasked with (or the problem you had to solve)

- **Action:** Describe the specific thought-process behind the action you took (i.e., consideration factors)
- **Result:** Discuss the outcome and how everything panned out in the end

But when you follow a framework such as the one above, it's very easy to sound "robotic" and sound like you're just reciting what you remembered. Respond to questions in a professional, concise manner – but avoid sounding overly-rehearsed.

Therefore, when you can – try your best to throw in some comments to make your answers flow better.

- **Original:** "The firm I interned with over the summer specializes in the TMT sector, and our client was a managed service IT consulting company."
- **Revised:** "The firm I interned with over the summer specializes in the TMT sector, and our client was a managed service IT consulting company – which was interesting because I noticed your firm recently closed a transaction involving one of its closest competitors."

These types of concise comments just make the conversation much more fluid. But just be aware that it can start a side conversation and make sure you don't lose track of where you're in your answer. In addition, avoid rambling in a completely different direction.

Finally, when you explain the "Result," rather than just stating the positive outcome and numbers as evidence – you should mention the lessons you learned from this experience and why this is relevant.

Focus on the Positive Aspects

For all of your responses, ***frame your answers in a positive light***. This entails focusing only on the positive aspects without ever mentioning negative comments about a past employer, university, or work experience. There is always a way to spin something in a positive direction if one thinks hard enough. Many interviewers will intentionally attempt to trick you into saying something negative.

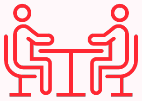
A few examples of these "baiting" questions include:

- The school you're attending is a non-target for us. Do other investment banks even recruit there?
- I see you majored in History. You regret that decision, right?
- I have a friend that worked at [firm] in the past. I heard the office culture at [firm] is terrible – how did you manage?

Recognize the interviewer is attempting to get you to agree with them and add something negative – don't fall for it. People want to spend time with and be around those that are optimistic and high energy. You would not want to work with someone that's negative all the time and constantly complaining, and the interviewer doesn't either.

Every question can be reframed as more positive. For example, if you're asked a bland question such as "What do you know about our firm?" – answer the question as if you were asked, "What particular attributes stood out to you about our firm?"

"Roll with the Punches"



Mike Tyson once said, “Everybody’s got a plan until they get punched in the face.” That’s what a confrontational question feels like the first time you get it, and you'll almost certainly get one.

The most important part of handling these tough questions is ***not to appear rattled and remain composed***. Many interviewees fall into a spiral after a tough question and never recover for the rest of the interview, which is exactly what your interviewer is trying to screen for. This advice is similar to our recommendation on navigating questions when you don't know the answer; the difference is that these questions are intentionally phrased to assess how you respond to being provoked with negative criticism.

A few examples of these “Mike Tyson Questions” are:

- Why did you not land an internship offer last summer?
- Do you not have any other offers on the table right now? Would I be correct in assuming we are one of the few firms that even gave you an interview?
- I see that you have a 2.8 GPA. Typically, we hire 3.5 and above. What’s going on?
- To be candid, this is not the strongest resume, and there are far more qualified candidates. Why should we even consider hiring you?

These questions serve two primary purposes:

1. They test whether you'll fold under pressure or handle your emotions without being offended – the interviewer knows their question was asked in an impolite manner.
2. Their comment, the minor insult they just threw at you, usually has some validity behind it – this is not just a test to see how you react. Instead, it's an opportunity to address a real concern.

The ability to not be offended and instead provide a strong, defensible answer in response is actually a great opportunity to differentiate yourself and be memorable as a candidate. The interviewer is doing you a favor by pointing out their concerns about your qualifications.

You can view these confrontational questions as "low downside, high upside" questions because the truth is: what they're questioning can often be the actual reason you're rejected (e.g., low GPA, no relevant experience, less qualified). On the bright side, an enthusiastic response that shows confidence has the potential for the firm to see past this.

Try to Differentiate Yourself

When a candidate has put in the time and effort to prepare for the interview and researched the firm and the role, it becomes very apparent to the interviewer that they're serious about joining this firm. Understand that genuine interest and desire cannot be faked, and it shows not only in the depth of your answers but in the hours you spent preparing when nobody was watching.

There should be no reason for you to be memorizing your responses to the behavioral questions if you're speaking the truth about your experiences and personal ambitions.

If you want to see this in play, the next time you have a phone interview – close your laptop. You'll be surprised by how much better the conversation will flow when you're not distracted by a screen and trying to scroll to the right page while speaking.

When you come up with or figure out something on your own, you tend to remember it more easily. For this reason, if you're struggling with behavioral questions, you've likely spent inadequate time reflecting on your past decisions or you're attempting to recite a sample response you read in an interview guide.