# BANKING AT MICHIGAN: Investment Banking Recruitment Guide

## Decoding the Investment Banking Recruitment Process

Version 4.0 | 2021-22 Academic Year

BANKING AT MICHIGAN

# Disclaimer and Usage

This guide was created in the hopes of providing education and insight for any student interested in pursuing a career in investment banking.

This guide is non-exhaustive and should be used in conjunction with other resources. The author(s) do(es) not take responsibility for the accuracy of any information provided in this guide.

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# ABOUT BANKING AT MICHIGAN

# Banking at Michigan

Banking at Michigan is a student-led project at the University of Michigan aimed at providing education, guidance and resources to any student interested in investment banking. **Our mission is to help students navigate the recruitment process while making it more accessible and inclusive.**

# Team

Our leaders have successfully navigated the recruitment process and are headed to a number of the top firms across Wall St., but are also entering careers outside of financial services

# INVESTMENT BANKING OVERVIEW

# What are Investment Banks?

- Investment banks are **trusted advisors and financiers to a diverse client base** that can include large corporations, small businesses, governments, financial institutions, and financial sponsors
- Investments banks provide **advisory services** related to a number of financial transactions, such as Mergers & Acquisitions or Restructuring
- Investment banks help clients **raise capital** through debt or equity to take on new projects or strategic initiatives

# What are Investment Banks?

- Investment banks are **typically** split into **Product** and **Coverage** groups
- Products
    - Leveraged Finance (LevFin)/Restructuring
    - Equity Capital Markets/Debt Capital Markets
    - M&A
    - Corporate Derivatives
- Coverage
    - TMT (Technology, Media & Telecom)
    - FIG (Financial Institutions)
    - Consumer Retail & Healthcare
    - Industrials

# Investment Banks

Read about the differences here

## BULGE BRACKET

Goldman Sachs
J.P.Morgan
Morgan Stanley
citi

## MIDDLE MARKET

William Blair
Jefferies
Houlihan Lokey
Piper Jaffray®

## BOUTIQUE/INDEPENDENT ADVISORY

Evercore
Guggenheim
Moelis & Company
Centerview Partners

# Investment Banks

## INDUSTRY SPECIFIC

FINANCIAL TECHNOLOGY PARTNERS

M&A MARLIN & ASSOCIATES

Qatalyst PARTNERS

## REGIONAL

GREENWICH CAPITAL GROUP

CASCADE PARTNERS

ANGLE ADVISORS INVESTMENT BANKING

# Why start a career in Investment Banking?

- High responsibility and steep learning curve
- Financial modeling and valuation
- Work in a fast paced, collaborative environment
- Mix of quantitative, legal, and strategic thinking
- Exciting and diverse exit opportunities
- Competitive compensation
  - Standard: $85K base, $10K signing, 40-100+% bonus ($120-160K all-in compensation)
  - These figures are historically higher among the more prominent boutique investment banks (e.g. Evercore, Centerview, Moelis)

# Why start a career in Investment Banking?

- However, you need to find the right reason for **you**
- Maybe you want to pursue a...
  - Long-term career in investment banking
  - Long-term career in finance, but not necessarily investment banking
  - Career in…
    - Private Equity (TPG, KKR, GTCR)
    - Venture Capital (Insight Venture Partners, Sequoia)
    - Hedge Fund (Citadel, Bridgewater, Two Sigma)
    - Corporate Finance (Microsoft, Disney, Salesforce, Sports)
    - Technology / Startups (Google, Uber, Slack)
- Or maybe you have no idea (broad exposure that translates to other industries)

# Why start a career in Investment Banking?

*"Don't be the monkey who reaches the top of the tree only to realize it's the wrong tree."*

*Ross BBA Job Report: ~20% IB & 14% Consulting. This means that ⅔ of Ross pursue other career paths.*

TL;DR—it is okay <u>not</u> to pursue investment banking as a career.

# What does an Investment Banking analyst do?

- 4 major workstreams
  - Research
    - Bloomberg Terminal, Reuters, Equity Research Reports
  - Due Diligence
    - Ex. Manage communications between buyer and sellers in a Acquisition
  - Pitch Decks (Powerpoint)
    - Large portion of your time will be spent creating decks
  - Financial Modeling & Analysis (Excel)
    - Great technical experience once you gain trust as an intern / analyst
- ~60 to 100+ hour work weeks (variable by Bank / Industry / Group Culture)

# BREAKING INTO INVESTMENT BANKING

# General Advice

- Have conviction in your reasoning as to why you want to pursue investment banking
  - You do not need to know this reason during your "exploration phase", but certainly by the time you start recruiting
- Have faith in and be confident of yourself and your abilities
- Understand that luck plays a large role in the process
- Take others' advice with a grain of salt
  - Everyone will have a different perspective on certain topics
  - While it is a good idea to hear all these perspectives, certain advice may not be applicable to you/your professional interests
  - TL;DR—take everything in this guide with a grain of salt

# General Advice

- Freshmen
  - Enjoy your first year on campus and do not stress about recruitment
  - Work hard in your classes and shoot to maintain a GPA above 3.7/4.0
    - Obviously higher the better, but networking can make up for GPAs (up to a point)
  - Get involved on campus
    - Balance social and professional / career focused clubs and organizations
- Sophomores
  - If banks are coming to campus to recruit, attend their corporate presentations
    - This will help get your foot in the door and meet the people you will begin networking with
    - Realize that they want to recruit you and you are extremely lucky
  - Begin to network / have conversations with bankers that came on campus
  - Tailor your resume, story, and general preparation for interviews

# General Advice

Most importantly: trust that everything will work out in the end as it should

# Misconceptions about Recruitment

- It will not hurt you if you do not have...
    - Membership in a business fraternity, consulting club, investment club or investment banking club
        - Though these networks can help, don't worry if you are not a part of them
    - Prior internship experience in a finance-related role or company
        - Many instances of students with no finance background whatsoever breaking into Wall St.
    - Finance/Economics major
- You do want to have a...
    - Positive attitude (perhaps most important)
    - Solid understanding of and interest in investment banking
    - Strong work-ethic, leadership, teamwork and communication
        - Shown through various experiences (e.g. curriculum, extracurricular, work)

# How Banks Recruit

- Banks typically focus their recruitment efforts on core or “target schools”
  - These “targets” may differ from firm-to-firm
  - One school may be a target for one firm and a non-target for another
- If you are at a target school, most banks have school-specific recruitment teams that typically consist of alumni of your school
  - Often times these recruiting teams will come on campus and give a presentation about their bank
  - Most of your networking will be with these bankers

# Timeline

- Fall of Sophomore Year
    - Company presentations & networking sessions (almost purely educational; meant to be a resource for you to ask questions and learn more about careers in IB)
- February of Sophomore Year through October of Junior Year
    - First-round interviews, superdays
    - Certain firms are much more earlier than others
- No guarantee this is the set timeline, it is always moving—this is based on conversations with analysts at many firms

# The Recruitment Process

- Research
  - Understand what investment banking is, cultural differences between firms, and the types of transactions firms facilitate
- Networking
  - Have conversations with bankers from firms that are recruiting
    - Follow up / cold email bankers after initial introduction at corporate presentation
  - Opportunity for you to learn about the firm and for them to get to know you
- Preparation (Winter Break sophomore year is a good time to start looking at this)
  - Review and master BIWS and other technical interview guides
  - Prepare for behavioral questions regarding experiences, leadership, etc
- Interviews

# The Recruitment Process

- Interviews
  - **First-round interview(s)** can take place over phone, over video interview (bulge brackets may use HireVue), or on-campus
  - **Superdays** are the final step in the recruitment process (e.g. final interview) and typically take place at the firm's HQ
    - Firm's will generally fly you out to their HQ (typically in NYC)
    - Anywhere from 1 hour to 3+ hour process
    - Always includes multiple, back-to-back interviews to assess both fit + technical competency
    - Interviews are typically conducted by senior bankers (VPs, MDs)

# Research

- Vault is a great place to start your research
- Speak with as many seniors to get a variety of perspectives
- Define what is important to **you**
  - Location preference (e.g. NY, SF, Chicago)
  - Size of firm (e.g. Bulge Bracket vs. Boutique, this matters more for some than for others)
  - Product preference (e.g. product agnostic or specifically looking for M&A or Restructuring experience)
  - Industry preference (e.g. industry agnostic or Technology, Healthcare, FinTech)
  - Cultural fit (e.g. "highly ranked" doesn't necessarily mean best for you)

# Recommended Plan of Action

For sophomores

- Preparing for recruitment during school demands a high level of commitment and work-ethic
  - One method is to block out a set time each week for recruitment preparation
- Winter break offers a great time to prepare the technical section of the interview
  - You can find time to both relax and prepare
- Aim to start networking calls once company presentations begin
- Aim to start mock interviews as soon as you can (you don't need to know all your technicals to start mock interviewing, you can ask your mock interviewer just do focus on "Accounting" or just to focus on Behaviorals)

# NETWORKING

# Networking 101

- Various forms of networking
  - Personal Network
  - Cold Emailing/Networking Calls
  - Coffee Chats
    - Treks to major cities (ex. New York, Chicago) may be helpful, especially from Michigan
    - If interning in a major city, it's very helpful to meet face-to-face with existing connections
  - Company Networking Events
  - On-campus Company Presentations
    - Get Business Cards (many companies may just hand out a contact sheet) and follow-up shortly after presentations
    - Follow-up emails should be personalized with details from conversation

# Networking 101

- Cold emailing
  - LinkedIn & alumni directory
  - Subject lines
    - Michigan Ross BBA interested in Investment Banking (general)
    - MII/AKPsi Brother interested in Investment Banking (some form of connection)
  - Banks typically follow an "email format" such as first.last@firm.com
    - Use Hunter.io to find format for specific firms
- Attaching resume is considered optional and people will differ on their opinions on whether or not to send your resume in the initial outreach
  - e.g. "In case it's helpful to provide more context on my background, I have attached my resume below for your reference."

# Networking 101

- General structure of networking
  - Email to establish relationship
  - Maintain relationship over a few months and reach back out to contact when submitting formal application
- Networking is crucial
  - A strong network can make up for a GPA, up to a point
  - It is typically recommended you maintain a 3.7/4.0 GPA; however, there are certainly exceptions and networking is critical regardless of GPA

# Keeping Track of Connections

- It is recommended you have an excel sheet (or some form of a system) to keep track of your networking emails
    - Example: Organize by firm name, days since last contact/follow-up, whether they responded or not
- It is not just a numbers game — numbers + consistency = success
- If you do not receive a response in 5-7 days, it is appropriate to send a follow-up email
    - It is recommended to keep number of follow-ups below 3
    - Can experiment with sending emails at different times

# Email Etiquette

- Keep emails short and well structured
- Double check your email + avoid typos
- Be wary of copy & pasting your thank you + networking emails!
  - Use CMD + Shift + V to paste **without formatting** versus CMD + V
  - Remove formatting from all text, ensure it's all the same size + font color especially when copy/pasting
  - You will not be able to see formatting differences in your original email when sending out, but it will appear on the receiver's end and can appear unprofessional and reckless
- View the BAM Email Guide

# Networking Calls

- Be respectful of time, try to keep to ~20-30 minutes– can go longer or shorter as needed!
- Avoid forcing conversation - keep it conversational!
- Make sure to prepare intelligent questions just in case
  - Get some basic ideas from peer coaches, networking guides, business fraternities, student organizations, peers, etc.
- Try to be creative in the questions you ask, try to avoid the typical "How would you describe the firm's culture" or "Why did you join the firm?"
  - These are important questions to consider, but try to get the same information through different styles of questions
- Send a thank you email after each call, try to make it personalized

# How to Begin Networking Calls

- **Always introduce yourself–** *"Hi, my name is [YOUR_NAME]-- I am the Michigan Ross BBA who reached out to you last week. Is now still a good time to chat?"*
- Don't immediately dive into your questions unless the person on the other end of the phone mentions that they want to make this call quick. Don't be alarmed– some of these Analysts / Associates are extremely busy and last minute tasks come up all of the time. Maintain professionalism, ask some thoughtful questions, and ask to stay in touch.
- In the case that there is no rush, spend a few minutes making conversation. Ask them about how their week has been, if they have plans over the weekend (if the call is scheduled towards the end of the week), how it is like to be back in the office after holidays, etc. This shows your personality, while also allowing you to help drive the flow of the conversation.

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# How to Begin Networking Calls

- **After making a few minutes of small talk, proceed to thank them for their time & provide a quick background:** *"I know you must be very busy, but thank you again for taking the time to speak with me today– I really appreciate it. If it's alright with you, I'd love to provide you with a quick background, just to provide some context, and then hopefully learn more about your & your experience at [FIRM_NAME]?"*
- **Then, proceed to provide a quick background– should be no more than 45 to 60 seconds.** Many people forget to provide a background and this prevents the professional from actually knowing who you are. As a result, rather than having a conversation, the call turns into a Q&A with a stranger– this is not to your benefit!
- **After providing your background, transition to your questions:** *"With that being said, I'd love to learn more about you and how you found yourself in the industry?"*

# Sample Questions to Ask

- *"Really excited about the opportunity to learn, and you've been here for X years. Do you still feel like you are learning each day and how much have you grown in the past year?"*
- *"What are some of the main takeaways that you have from your banking experience?"*
- *"What was your career path like for banking?"*
  - *"Why did you choose to start your career in banking?"*
- *[IF TRANSITIONED FROM OTHER INDUSTRY] "Can you speak about your decision to leave X industry to start a career in Investment Banking?"*
- *"Can you speak to your decision to stay and build a career in investment banking versus pursuing any different career paths, within or outside of finance?"*
- *"In your eyes, what traits or behaviors make a top analyst?"*
- *"Can you tell me about the most interesting or challenging deal you worked on and what your responsibilities were in the process?"*

# INTERVIEW PREPARATION ADVICE

# Getting the Interview

- As you will likely experience, **getting an interview** is the **toughest part**
  - There is a large amount of randomness and luck involved in this process
  - Often broken into specific campus recruiting teams consisting of school alumni (though not always)
  - This is where your network plays a huge role
- Good thing: once you get the interview it is almost entirely based on meritocracy
  - Strong candidates who demonstrate a cultural, professional and technical fit will receive offers

# Advice for Interview Preparation

- Mock interviews
  - Ross students: take advantage of the Career Development Office and reach out to Juniors/Seniors who have gone through the process
  - Non-Ross: reach out to Juniors/Seniors who have gone through the process
  - Completing mock interviews before your first actual interview will go a long way in providing confidence in yourself (5+ recommended, though 10+ would be even better)
  - Make sure you are not mock interviewing with the same person over and over

# Advice for Interview Preparation

- A note on technicals
  - A strong technical performance is a “box checked” — no one is extended an offer solely based off of technicals
  - Know the fundamental concepts of each, do not expect all questions to be pulled directly from guides
  - Should be able to deal with changing tax rates and numbers
  - Should be able to apply concepts to new questions
  - Make sure you practice answering technical questions out loud, instead of only repeating answers in your head

# Advice for Interview Preparation

- When answering questions
  - For technical questions: only give the information that is asked for—over providing information increases your chances of slipping up and opens the door for further questioning
  - If you do not know the answer…
    - "I'm not entirely sure, but here is my thought process…"
    - Interviewers will guide you if they see you are struggling!
    - Not knowing the answer to one technical question does not mean you will not receive an offer
    - Make sure you are able to bounce back after not knowing the answer to a question

# Getting the Offer

*Preparation + Luck + Personal Network = Offer*

- The **only** part **fully** in your control is your **preparation**
    - Networking is largely in your control as well, but this is referring more to your network *coming into the recruitment process* (e.g. personal & family connections)
- Other people have seem to have a "stronger network" or "more luck", but at the end of the day you can only control how much work you put into your preparation

# INTERVIEW RESOURCES

# Resources for Preparation

Find all of our public resources at bankingatmichigan.org/resources

Please note that the **Breaking into Wall St. Guides** are the most important part of interview preparation (please reach out to the BAM Leadership Team if you'd like access to other resources to help you in this process at bankingatmichigan@umich.edu)

IB Vine is an additional, interactive resource created by BAM that includes hundreds of crowdsourced practice technical questions segmented by technical topic

# BEHAVIORAL/FIT QUESTIONS

# Behavioral Questions

- Tell me about yourself in 2-3 minutes.
- Why investment banking?
- Why investment banking **at our firm specifically**?
- What does our firm do?
- Where do you see yourself in 5-10 years?
- Which other firms are you interviewing with?
- What typically goes in an investment banking pitch deck?

# Behavioral Questions

- Tell me your three greatest strengths & weaknesses.
    - How would your friends describe you in three words?
    - How have your past experiences prepared you for investment banking?
    - Why are you a strong fit for investment banking?
    - Why should we accept you versus all the individuals who we have interviewed who said we should accept them?
    - *All of these are different ways of phrasing the "strengths" question.*

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# Behavioral Questions

- Have stories for the following “scenarios”
  - Success/Failure
  - Successfully lead a team
  - Overcame a challenge
  - Turned around a team/worked with a difficult teammate
  - Performed under pressure/struggled with a deadline
  - Ethical dilemma
  - Disagreed with someone senior
  - Incorporated diversity into a team or challenge
  - Solved a complex problem using data
  - Quick decision with imperfect information

# Behavioral Questions

- Tell me about a recent deal you have followed?
  - Overview of parties involved
  - Financial Details
  - Company Rationale
  - Personal Opinion
- It is recommended to have at least 2 recent deals (past year) in the news, with one being specific to the firm
- Be prepared for follow-up questions and make sure you have an informed opinion

# Behavioral Questions

- Deal Walkthrough Example #1
  - S&P Global's acquisition of Kensho in April 2018
  - Overview of parties involved
    - S&P Global is one of the largest, global financial data providers
    - Kensho is a machine learning analytics firm based out of Boston and backed by notable investors such as Goldman Sachs and Breyer Capital
  - Financial Details
    - $550 million in an undisclosed mix of cash and stock
  - Company Rationale
    - S&P Global able to offer more data-driven solutions to clients
    - Demonstrated commitment to innovation in financial services

# Behavioral Questions

- Deal Walkthrough Example #1 (cont.)
  - S&P Global's acquisition of Kensho in April 2018
  - Personal Opinion
    - Kensho is now able to reach a distribution & scale not previously possible, not to mention access to a wealth of data that will go a long way in improving its artificial intelligence capabilities
    - Speaks to a larger theme we are seeing in financial services of a two-way dialogue between incumbents and startups
    - On the one hand, startups excel at speed to market—but lack the brand and infrastructure to reach significant scale and distribution
    - On the other hand, large incumbents can offer brand, scale, capital, data and regulatory support—but need that speed to market

# Behavioral Questions

- Deal Walkthrough Example #2
  - Microsoft's Acquisition of Nuance Communications in 2021
  - Overview of parties involved
    - Nuance is a pioneer in providing conversational AI and cloud-based ambient clinical intelligence for healthcare providers
    - Microsoft is focusing on developing its cloud business by making strides to developing industry-specific cloud offerings—of these offerings, "Microsoft Cloud for Healthcare" is meaning to address the needs of the transforming healthcare industry
  - Financial Details
    - Transaction is all-cash valued at $19.7 billion, inclusive of Nuance's net debt (second largest acquisition after $26Bn purchase of LinkedIn)
    - Acquiring at $56.00 per share, implying ~23% premium to to closing price of Nuance on Friday, April 9th

# Behavioral Questions

- Deal Walkthrough Example #2
  - Microsoft's Acquisition of Nuance Communications in 2021
  - Company Rationale
    - Microsoft Cloud for Healthcare is meant to enhance patient engagement via care management workflows, virtual appointments, continuous patient monitoring, operational analytics, and support for 8 new languages
    - This deal seeks to augment Microsoft Cloud for Healthcare with Nuance's solutions, expertise, and relationships with EHR systems providers, building upon their prior 2019 partnership
      - Microsoft will double their TAM in the healthcare provider space to ~$500Bn
      - This deal will create a partner ecosystem where Nuance will provide the AI layer at the healthcare point of delivery and Microsoft will provide the interactive platform at scale

# Behavioral Questions

- Deal Walkthrough Example #2
  - Microsoft’s Acquisition of Nuance Communications in 2021
  - Personal Opinion
    - What is interesting about this transaction is how it represents a key step towards augmenting Microsoft's Cloud for Healthcare product with Nuances' solutions, expertise, and relationships with EHR systems providers, as both companies seek to enhance patient engagement through care management workflows, virtual appointments, operational analytics, and patient monitoring. While we can dive into the specifics of the deal, Nuance's conversational AI & cloud-based clinical intelligence products, combined with its robust customer base representing over 10,000 healthcare customers like AthenaHealth, John Hopkins, Mass Gen, and the Cleveland Clinic, justify the premium for Microsoft, as Microsoft is taking the necessary steps to improve its business offerings solutions. Additionally, Microsoft could be trying to get a headstart on augmenting its product portfolio with M&A given the recent potential Antitrust Bills that have been proposed by the Democratic Senate.

# ACCOUNTING QUESTIONS

Answers can be viewed here

# Accounting

- Recommended structure for “walk me through the 3 statements” questions
  - Starting on the Income Statement…
  - Moving on to the Statement of Cash Flows…
  - Finally, on the Balance Sheet…
  - … and both sides of the Balance Sheet balance

# Accounting

- Walk me through the 3 financial statements and how they are linked together.
- Name 2 scenarios that can cause Shareholders' Equity to be negative.
- How can a company with a positive EBITDA go bankrupt?
- Explain Operating Working Capital.
- Why is Deferred Revenue a liability if you are earning money?

# Accounting

Assume 30% tax rate

- Walk me through 3 statements with..
    - $120 decrease in depreciation
    - $50 increase in stock-based compensation
    - $100 interest expense (50% cash interest, 50% PIK interest) and $50 interest income
    - $20 decrease in Deferred Revenue
    - Debt write down of $100 with 5% interest attached

# Accounting

Assume 20% tax rate

- Multi-step
  - Year 0: Buy PP&E for $100 using Debt. Walk through the 3 statements.
  - Year 2: PP&E depreciates over 10-year period using straight-line depreciation. After two years, you sell the PP&E for $120. Assume depreciation has been accounted for on the financial statements. Walk through the 3 statements after the sale of PP&E.

# Accounting

Assume 20% tax rate

- Multi-step
  - Year 0: Buy Land for $90 using cash on hand. Walk through the 3 statements.
  - Year 2: Straight-line depreciation occurs over a 10-year period. After two years, you sell the land for $90. Walk through the 3 statements after the sale of land.

# Accounting

Assume 20% tax rate

- Multi-step
  - You raise $100 debt with 5% interest and 10% yearly principal repayment. You use that money to purchase $100 of short-term assets that have 10% yearly interest income attached.
  - Right when you raise the debt and purchase short term assets, walk me through the 3 statements.
  - After one year, walk me through the 3 statements.

# ENTERPRISE & EQUITY VALUE QUESTIONS

Answers can be viewed here

# Enterprise Value/Equity Value

- Formula for Enterprise Value?
- Why do you add NCI/subtract cash?
- Difference between Equity Value versus Shareholders' Equity?
- How does ____ affect Enterprise Value?
    - Raise $200m in Debt, use cash to buy a new piece of equipment.
    - Issue $200m in Equity for an IPO.
- Two companies are 100% comparable. Why might one trade at a premium (e.g. higher EV/EBITDA multiple)?
- Would you rather buy a company with a high or low P/E multiple?
- What are some multiples you could use for a company with a negative Net Income?

# Enterprise Value/Equity Value

- Company A and Company B have identical EV/EBITDA. Company A has a higher P/E multiple. Why might this be the case?
- You have a company with an EV/Revenue of 2x and an EV/EBITDA of 10x. What is the EBITDA margin?
- A company has a stock price of $20 a share and a P/E of 20x (so EPS is 1). The company has 10M shares outstanding. How does a 2-for-1 stock split affect EV?
- A company has 10,000 shares at $20 a share. There are 100 call options at an exercise price of $10, 50 restricted stock units (RSUs) and 100 convertible bonds at a price of $10 and par value of $100. What is the diluted equity value?

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# VALUATION QUESTIONS

Answers can be viewed here

# Valuation

- What are the 4 main valuation methodologies? Rank them from highest to lowest and explain.
- What are some flaws of comparable companies and precedent transactions?
- What metrics do you look at for comparable companies? What additional metric do you look at for precedent transactions?
- What would a situation be where precedent transactions is less than comparable companies?
- Why does a DCF *almost always* produce a higher valuation than an LBO?
- Is a company with a 50x P/E overvalued or undervalued? Why?

# Valuation

- What are some other valuation methodologies—other than the main 4?
- How would you value a peach tree?

# DCF QUESTIONS

Answers can be viewed here

# Discounted Cash Flow

- What is a DCF/can you walk me through a DCF in under 60 seconds?
- Why do you typically use 5-10 years for the projection period?
- How would you change a DCF to value a highly speculative technology company?
- Key assumptions/drivers of a DCF?
- Tell me 3 places where taxes affect a DCF.
- If you are valuing a coal mine company, would you use the Gordon Growth Method or the Multiples Method to calculate the TV? Explain.
- A company buys a factory for $100 in its 4th year. How would the DCF/Enterprise Value change for the company?
- Do you use planned or targeted capital structure in WACC?

# Discounted Cash Flow

- What is FCF? Why do we use it in a DCF?
- Walk me from Revenue to FCF for Unlevered and Levered FCF.
- What is WACC, conceptually? How do you calculate it?
  - How do you calculate Cost of Equity? Cost of Debt? Cost of Preferred Stock?
  - What would you use as your discount rate if you are using Levered FCF? Why?
- What is Beta, and why do you have to unlever and relever it?
- When would you rather use the Multiples Method vs. the Gordon Growth Method (GGM)?
- How would you calculate the long-term growth rate for the GGM?

# LBO (LEVERAGED BUYOUT) QUESTIONS

Answers can be viewed here

# LBOs

- What is an LBO/can you walk me through an LBO?
- What makes a strong LBO candidate? (should know at least 5, and know which one is the most important one & why)
- 3 main drivers of IRR? (should know at least 5, but know the main 3)
- Why do financial sponsors pay less than a strategic buyer?
- Different types of debt you could raise in an LBO?
- What is a dividend recapitalization? What is its effect on IRR?
- What is PIK interest? Why may a distressed company prefer PIK interest?

# LBOs

- What happens to the Balance Sheet and IS after an LBO?
- What is a revolver and why is it the cheapest form of debt?
- Paper LBOs may come up during an interview
  - Go through the “Street of Walls Paper LBO” here (should only take 1-2 hours)
  - Going through one of these will go a long way in helping you understand the mechanics of a LBO

# MERGER MODELS QUESTIONS

Answers can be viewed here

# Merger Models

- Walk me through a merger model.
- What are the two types of buyers?
- Why would a company buy another company? How would this reasoning differ for the two types of buyers?
- 3 main financing methods and why use one over another?
- When would you prefer revenue synergies over cost synergies, and when would you be indifferent? (think of the two types of revenue synergies)
- Why do we look at EPS & accretion/dilution?
- Difference between Mergers vs. Acquisitions?

# Merger Models

- What are the 5 main acquisition affects?
- What happens to the Balance Sheet and Income Statement after M&A?
- Company A buys Company B. Company A has a higher P/E ratio than Company B. Would the deal be accretive or dilutive if:
  - The deal is all stock
  - The deal is all debt/all cash
- What is the combined equity value of a company if the deal is not financed with any stock?
- What are Deferred Tax Liabilities and Deferred Tax Assets? Why do they sometimes get created in M&A transactions?

# PAST INTERVIEW QUESTIONS

Answers can be viewed here

# Interview Questions Related to Accounting

- What is a Deferred Tax Asset? Deferred Tax Liability?
- What are the differences in impact on the financial statements when you compare the Write-Down of an Asset vs. the Write-Down of a Liability?
- If I give you two balance sheets, one at the beginning of the year and one at the end of the year, how would you be able to calculate the EBITDA for that fiscal year?
- Company A's current Revenue is $100. It has an EBITDA margin of 20%. The ratio of variable costs to fixed costs is 60:40. How does EBITDA change if volume increases by 10%?
- Days Payable Outstanding goes from 30 days to 90 days, is that a source or use of cash?

# Interview Questions Related to Accounting

- A company has $100 million in sales with a 10% EBITDA. Do you prefer a 10% increase in Quantity, 5% increase in price, or a 5% decrease in cost?
- What could a CEO do with an influx of cash to create value? List in order of least discretionary to most discretionary.

# Interview Questions Related to Multiples

- Why do we use EBITDA?
- What are the differences between EBITDA and FCF?
- Why would you use EBITDA instead of FCF or EBIT?
- What happens in a 2-1 stock split?
- Would you pay more for a company with Operating Assets or Operating Leases?
- Would you pay a higher multiple for a business where you owned the machines and they depreciated normally, or where you leased the machines?
- How can you decrease a company's Equity Value?
- Can Equity Value ever be negative?
- Company has $30M in EBITDA with a multiple of 10x. It has $250M in senior debt and $100M in subordinated debt. What are these trading at in dollar terms?

# Interview Questions Related to Multiples

- What is the relationship between P/E, EPS, Price/Share, Market Cap, Net Income, Share Count?
- If two companies are in the same industry, explain why one multiple might be higher than the other.

# Interview Questions Related to DCFs

- What is the relationship between Debt and the Cost of Equity?
- What is cheaper– debt or equity?
- How do you calculate WACC for a private company?
- Within the context of calculating WACC, can the cost of debt ever be higher than the cost of equity?
- Explain why we use the mid-year convention in a DCF?
- How does the Terminal Value calculation change with the mid-year convention?
- When you're calculating WACC, let's say the company has convertible debt. Do you count this as debt when calculating levered beta for the company?
- We're creating a DCF for a company that is planning to buy a factory for $100 in cash in year 4. How would the change in DCF account for the factory purchase?

# Interview Questions Related to DCFs

- How does changing an Asset affect the DCF?
- Calculate stub year discount factor with mid year convention for the end of Q1, end of Q2, end of Q3, and end of Q4.
- If a company has 11% NWC/Sales and company B has 12% NWC/sales, which company is valued higher?
- Can you describe a company with a beta close to zero?
- Rank these assets' betas from lowest to highest: a utilities company, a technology company, a 1 dollar slot machine with the chance to win 5 dollars.
- How do you get from Unlevered FCF to Levered FCF?
- If debt of a company is going down, explain how that affects the cost of equity and explain how it affects the cost of capital.

# Interview Questions Related to DCFs

- Rank these three changes from biggest to smallest impact on FCF: 10% increase in Revenue, 10% decrease in COGS, 10% decrease in Working Capital.
- What are three questions that you would ask the CEO of a company to do a DCF?
- What ways could you have negative free cash flow in a DCF?
- How can you calculate the Equity Value of a company using a DCF?
- I have WACC on the y-axis and debt/equity ratio on the axis, what does the graph look like?
- You are valuing a company. How do you increase the valuation only using NWC?

# Interview Questions Related to Merger Models

- Company A has an Equity Value of $1000 and Net Income of $100. Company B has an Equity Value of $2000 and Net Income of $50. How would this all stock deal be accretive?
- What factors can lead to dilution of EPS in an acquisition?
- How can a merger be accretive on paper, but value destructive?
- Why do Goodwill and other Intangibles get created in an acquisition?
- A buyer pays $100 million for the seller in an all-stock deal, but a day later the market decides it is only worth $50 million. What happens?
- Company A has a P/E of 30x, company B has a P/E of 25x, will the deal be accretive or dilutive?

# Interview Questions Related to Merger Models

- Company A is currently trading at $20/share and has $100 of Net Income. Company is trading at $5/share and has $50 of Net Income. Both companies have 100 shares outstanding. Company A buys Company B with 60% stock & 40% cash. What is the pro-forma ownership of the new company? Is the deal accretive? If so, how accretive is the deal?
- Part I: Company A has a P/E ratio of 10x, Company B has a P/E ratio of 5x. Will this deal be accretive? Part II: Now, company A has a market cap of 100 million and a share price of $10 per share. Company B has a market cap of 50 million. If there are $10 million in cost synergies. How accretive or dilutive will the deal be?

# Interview Questions Related to LBOs

- A company has 30 million in EBITDA and the purchase multiple is 10x. Assuming free cash flow is 30 million per year and you use 100 million of debt to buy the company. What is your break even EBITDA multiple after 2 years  assuming EBITDA remains constant over the years?
- What variable impacts an LBO model the most?
- How could a PE firm boost its returns in an LBO?
- How would you determine how much debt can be raised in an LBO and how many tranches there would be?
- What is the difference between PIK, bond, and a loan?
- What is a cash flow sweep?
- What is the circularity in an LBO Model?

# Interview Questions Related to LBOs

- What are common Leverage amounts? Why?
- How much equity contribution do you usually see in LBOS?
- What is the difference between a Levered DCF and an LBO?
- Why is IRR greater than cost of equity (besides the fact that private equity investors expect a higher return)?
- You are performing an LBO on two companies with Debt and Cash Management. They are bought for the same price, sold for the same price, and have the same EBITDA. Why would one have a higher IRR?
- Give me 8 ways to increase IRR in an LBO

# Interview Questions Related to LBOs

- Part I: You purchase a company at Year 0 with $100M EBITDA at a purchase multiple of 10x, using 4x leverage. You sell the company at the end of 5 years for 11x and the EBITDA has grown to $200M. You also have $200M Net Cash at the end of your investment. Calculate the cash-on-cash multiple and estimate your IRR. Part II: Next, rank the change in operating improvements, multiple expansion, and paying down debt from greatest impact to lowest impact.
- Part I: Company A has $200M in Revenue, a 50% EBITDA margin, and free cash flow constant at $40M each year. A PE firm purchases it at 5x with 3x Leverage and the holding period is 5 years. They sell it at 5x. What is the MOIC and IRR assuming all debt is paid down with free cash flow at the end of the holding period. Part II: Based on the information you have, is this a good investment?

# Interview Questions Related to Restructuring

- What is a Fulcrum Security?
- What is the difference between Chapter 11 and Chapter 7 bankruptcy?
- Why might a company declare bankruptcy?
- Describe some of the options that are available for companies that cannot meet their debt obligations.
- What is the option value of equity?
- What do you actually do in a Restructuring Advisory practice?
- How would a decline in a company's share price cause it to go bankrupt?
- What is DIP Financing?
- How does collateral work within the context of debt financing?

# Interview Questions Related to Restructuring

- How would you value a distressed company?
- What is the difference between a bond and a loan?
- What is Strict Priority?
- What is the difference between a dividend and a share repurchase?
- What is the difference between yield and the rate of return on a bond?

# MISC.

Answers can be viewed here

# Miscellaneous

- Would you rather us hand you $1,000 today or $100 every year into perpetuity?
- What is the Beta of a gambling ring?
- What is the P/E of cash?
- 5 things a company can do with cash?
- 2 ways you can return cash to shareholders? Why would you prefer one over the other?
- Explain the concept behind the time value of money to a 5 year old without talking about money.

# Miscellaneous

- You are evaluating two laundromat companies. One owns the equipment, while the other leases the equipment. Which one would you rather buy and why?
- How do you value a company with no financials or comparables?
- A company has
  - $2bn in assets
  - 3x Debt to Equity
  - 2x P / BV…
  - What is its market cap?

# Miscellaneous

The following are rare in IB interviews, but capital markets groups may be more likely to ask these

- What are the following?
  - Firm’s current stock price, market cap, P/E and EPS?
  - DOW, NASDAQ, S&P and RUSSELL 2000 indexes?
  - 10-year and 30-year U.S. treasury yields?
  - Federal funds rate and impact on economy?
  - U.S. GDP/growth, inflation and unemployment?
  - U.S. corporate tax rate?
  - Price of commodities (gold, silver, oil)?

# Miscellaneous

- Pitch me a stock (very rare in IB, though not unheard of)
    - More relevant to those who have past experience with valuation
    - If no prior experience, can prepare a general “buy” recommendation—but no need for a specific “price target”

# FORMULAS

BANKING AT MICHIGAN

# Formulas

- EV and Equity Value
  - Equity Value = Price per share * # Shares
    - Also known as "market cap"; cannot be negative
  - Enterprise Value = Equity Value + Debt + Preferred Stock + Noncontrolling Interests - Cash
  - Per Share Value = Equity Value/# Shares
  - Convertible Bonds (in the money)
    - Value of Convertible Bonds/Par Value = # of convertible bonds
    - Par Value/Price = # of shares per convertible bond
    - # of shares per convertible bond * # of convertible bonds = new shares created

# Formulas

- Valuation
  - EBIT = Operating Income = Revenue - COGS - Operating Expenses
  - P/E = Price per Share/EPS = Equity Value/Net Income
  - EPS = Net Income/Shares Outstanding
- DCF
  - Unlevered FCF = EBIT(1 - tax rate) + Non-Cash expenses - Change in NWC - CapEx
    - Excludes interest and debt
  - Levered FCF = Net Income + Non-cash expenses - Change in NWC - CapEx - Mandatory Debt Repayments
    - Alternatively, Levered FCF = CFO - CapEx
    - Includes interest and debt

# Formulas

- DCF
  - Terminal Value (PV of company's FCF from final year into infinity, as of final year)
    - Multiples Method: Apply exit multiple to the company's Year 5 EBITDA, EBIT or Free Cash Flow
    - Gordon Growth: TV = Final Year FCF * (1 + g)/(r - g)
  - Unlevered Beta = Levered Beta/(1 + (1 - tax rate) * (Debt/Equity))

# Formulas

- DCF
  - WACC = (Cost of Equity * % Equity) + (Cost of Debt * % Debt * (1-Tax Rate)) + (Cost of Preferred Stock * % Preferred Stock)
  - Cost of Equity (using CAPM) = RFR + Levered Beta * ERP
    - RFR = Risk-free rate (usually 10-year or 30-year U.S. Treasury Yield)
    - ERP = Equity-risk premium
  - Cost of Equity (without CAPM) = (Dividends per Share/Share Price) + Growth Rate of Dividends
  - Cost of Debt = Interest Rate on Debt
  - Cost of Preferred Stock = Effective Yield on Preferred Stock

# Formulas

- LBO
  - Purchase Price = EBITDA * Multiple
  - Initial Investor Equity = Acquisition Price  * EBITDA Multiple * % Equity
  - Exit Enterprise Value = Exit EBITDA * exit multiple
  - Debt Remaining on Exit = Beginning Debt - Total FCF
  - Exit Equity Proceeds = Exit Enterprise Value - Debt Remaining on Exit
  - Rules of thumb
    - If a PE firm doubles its money in 5 years, that's a 15% IRR
    - If a PE firm triples its money in 5 years, that's a 25% IRR
    - If a PE firm doubles its money in 3 years, that's a 26% IRR
    - If a PE firm triples its money in 3 years, that's a 44% IRR

# Formulas

- Merger Models
  - Cost of Cash = Foregone Interest Rate on Cash * (1-Buyer Tax Rate)
    - Buyer giving up interest on cash in future… can no longer earn interest on cash
    - Pay taxes on interest income
  - Cost of Debt = Interest Rate on Debt * (1 - Buyer Tax Rate)
    - Interest on debt is tax-deductible
  - Cost of Stock = Reciprocal of buyer's P/E multiple = E/P, or Net Income/Equity Value
    - Buyer's after-tax yield
  - Yield of Seller = Reciprocal of seller's P/E multiple (using purchase price, not current share price = Net Income/Equity Purchase Price)

# Formulas

- Merger Models
  - Combined Net Income$_{actual}$ = Combined Net Income - (Price Paid * % Debt * Interest on Debt * (1-Buyer's Tax Rate)) - (Price Paid * % Cash * Foregone Interest on Cash * (1-Buyer's Tax Rate))
    - Adjusting for additional interest on debt and/or foregone interest on cash
    - In an all stock deal, this will just be the combined Net Income
  - Combined Equity Value = Buyer's Equity Value + Value of Stock Issued in Deal
  - Combined Enterprise Value = Buyer's Enterprise Value + Purchase Enterprise Value of Seller
  - Deferred Tax Liabilities = (PP&E & Fixed-Asset Write Ups & Newly Created Intangibles) * Buyer's Tax Rate

# ACCOUNTING ANSWERS

# Accounting Answers

- Walk me through the 3 financial statements and how they are linked together.
  - Income Statement (IS), Balance Sheet (BS) and Statement of Cash Flows (SCF)
  - Linking the 3
    - NI from IS flows into Shareholder's Equity on BS AND into top line of SCF
    - Changes to BS items appear as working capital changes on SCF
    - Investing / Financing activities affect BS items such as PP&E / Debt / Shareholder's Equity
    - Cash & Shareholder's Equity items on BS act as "plug" with cash flowing in from final line on the SCF
- Name 2 scenarios that can cause Shareholders' Equity to be negative.
  - LBOs w/ dividend recaps
  - If company losing money consistently, Retained Earnings—which is a portion of Shareholder's Equity—would be declining

# Accounting Answers

- How can a company with a positive EBITDA go bankrupt?
  - Too much CapEx expenditures → not reflected in EBITDA, but could still make company cash-flow negative
  - High interest expense & no longer able to afford debt
  - Debt all matures on one date / unable to refi due to "credit crunch" → runs out of cash paying it back
  - Significant one-time charges (e.g. lawsuits)
- Explain Operating Working Capital.
  - (Current Assets - Cash / Cash Equivalents) - (Current Liabilities - Debt)
  - Cash usually invested in T-bills / gov't securities / commercial paper → unlike other current assets, cash earns a fair return / should not be included
  - Debt considered in cost of capital → don't count twice

# Accounting Answers

- Why is Deferred Revenue a liability if you are earning money?
  - Since you have received cash but have yet to perform the services
  - Over time, as services are performed, Deferred Revenue "turns into" real revenue on the IS

# Accounting Answers

Assume 30% tax rate

- Walk me through 3 statements with
  - $120 decrease in depreciation
    - Starting on the IS…
      - Pre-tax income up $120, NI up 84
    - Moving onto the SCF…
      - NI up 84, back out depreciation as non-cash, net change in cash is down 36
    - Finally, on the BS…
      - A: Assets up 84; Cash down 36, PP&E up 120
      - L: No Change
      - SE: Shareholder’s Equity up 84; NI up by 84
    - …and the Balance Sheet balances

# Accounting Answers

Assume 30% tax rate

- Walk me through 3 statements with
  - $50 increase in stock-based compensation
    - Starting on the IS...
      - Pre-tax income down by 50, NI down by 35
    - Moving onto the SCF...
      - NI down by 35, add back 50 in CFO since stock-based compensation is non-cash expense, net change in cash is up 15
    - Finally, on the BS...
      - A: Assets up by 15; cash up 15
      - L: No change in liabilities
      - SE: Shareholder's Equity up by 15; Stock-based compensation up 50 and NI down 35
    - ...and the Balance Sheet balances

# Accounting Answers

Assume 30% tax rate

- Walk me through 3 statements with
  - $100 interest expense (50% cash interest / 50% PIK interest) and $50 interest income
    - Starting on the IS...
      - Net interest expense down 50, pre-tax income down by 50, NI down by 35
    - Moving onto the SCF...
      - NI down by 35, add back 50 from PIK interest in CFO, so cash at bottom is up by 15
    - Finally, on the BS...
      - A: Assets up 15, Cash up 15
      - L: Liabilities up 50, Long-term debt up 50
      - SE: Equity down 35, Retained earnings down 35
    - ...and the Balance Sheet balances

# Accounting Answers

Assume 30% tax rate

- Walk me through 3 statements with
  - $20 decrease in Deferred Revenue
    - Starting on the IS...
      - Revenue up by 20; assuming no additional expenses, pre-tax income up by 20, NI up by 14
    - Moving onto the SCF...
      - NI up by 14, subtract 20 from Deferred Revenue decrease under CFO, so cash at bottom is down by 6
    - Finally, on the BS...
      - A: Assets down 6, Cash down 6
      - L: Liabilities down 20, Deferred Revenue down 20
      - SE: Equity up 14, Retained Earnings up 14
    - ...and the Balance Sheet balances

# Accounting Answers

Assume 30% tax rate

- Walk me through 3 statements with
    - Debt write down of $100 with 5% interest attached
        - Starting on the IS...
            - Pre-tax income up by $100, NI up by $70
        - Moving onto the SCF...
            - NI up by $70, subtract $100 since non-cash revenue
            - Net change in cash = down by 30
        - Finally, on the BS...
            - A: Assets down by 30, cash down by 30
            - L: Debt down by 100
            - SE: NI up by 70
        - ...and the Balance Sheet balances

# Accounting Answers

Assume 20% tax rate

- Year 0: Buy PP&E for $100 using Debt. Walk through the 3 statements.
    - Starting on the IS...
        - No change
    - Moving onto the SCF...
        - In CFI, outflow of cash $100 to purchase PP&E.
        - In CFF, inflow of cash $100 because debt was raised.
        - So, net change in cash is $0.
    - Finally, on the BS...
        - A: Assets up by 100, PP&E up $100
        - L: Debt up $100
        - SE: No change
    - ...and the Balance Sheet balances

# Accounting Answers

Assume 20% tax rate

- Year 2: PP&E depreciates over 10-year period using straight-line depreciation. After two years, you sell the PP&E for $120. Assume depreciation has been accounted for on the financial statements. Walk through the 3 statements after the sale of PP&E.
  - Starting on the IS...
    - Gain on sale recorded positively as 40, pre-tax income up 40, NI up 32
  - Moving onto the SCF...
    - NI up 32, subtract 40 from gain on sale under CFO, add 120 under CFI, so cash at bottom is up 112
  - Finally, on the BS...
    - A: Assets up 32, cash up 112, PP&E down 80
    - L: no change in liabilities
    - SE: Equity up 32, retained earnings up 32
  - ...and the Balance Sheet balances

# Accounting Answers

Assume 20% tax rate

- Year 0: Buy Land for $90 using cash on hand. Walk through the 3 statements.
  - Starting on the IS...
    - No change
  - Moving onto the SCF...
    - In CFI outflow of $90 for purchase of land, so net change in cash is $90
  - Finally, on the BS...
    - A: Assets unchanged, Land up $90, cash down $90
    - L: No change
    - SE: No change
  - ...and the Balance Sheet balances

# Accounting Answers

Assume 20% tax rate

- Year 2: Straight-line depreciation occurs over a 10-year period. After two years, you sell the land for $90. Walk through the 3 statements after the sale of land.
  - Starting on the IS...
    - Gain on sale recorded as 0, pre-tax income up 0, NI up 0 / unchanged
  - Moving onto the SCF...
    - NI unchanged
    - Add 90 from sale of land under CFI, cash up by 90
  - Finally, on the BS...
    - A: Assets unchanged,, cash up 90, land down 90
    - L: no changes under liabilities
    - SE: NI unchanged
  - ...and the Balance Sheet balances

# Accounting Answers

Assume 20% tax rate

- You raise $100 debt with 5% interest and 10% yearly principal repayment. You use that money to purchase $100 of short-term assets that have 10% yearly interest income attached. Right when you raise the debt and purchase short term assets, walk me through the 3 statements.
  - Starting on the IS...
    - No change
  - Moving onto the SCF...
    - In CFI, outflow of $100 for short term assets
    - In CFF, increase of $100 because of debt raised
    - So, net change in cash is $0
  - Finally, on the BS...
    - A: Short-term assets up $100
    - L: Debt up $100
    - SE: No change
  - ...and the Balance Sheet balances

# Accounting Answers

Assume 20% tax rate

- You raise $100 debt with 5% interest and 10% yearly principal repayment. You use that money to purchase $100 of short-term assets that have 10% yearly interest income attached. After one year, walk me through the 3 statements.
    - Starting on the IS...
        - Interest income is $10 and interest expense is $5
        - Pretax income increases by $5, Net Income increases by $4
    - Moving onto the SCF...
        - Net Income up by $4, in CFF repay $10 of debt, so net change in cash is down $6
    - Finally, on the BS...
        - A: cash down $6
        - L: debt down $10
        - SE: Retained Earnings from Net Income up $4
    - ...and the Balance Sheet balances

# ENTERPRISE & EQUITY VALUE ANSWERS

# Enterprise Value/Equity Value

- Formula for Enterprise Value?
  - Enterprise Value = Equity Value + Debt + Preferred Stock + Non controlling interests - Cash and Cash Equivalents
- Why do you add NCI/subtract cash?
  - Own over 50% of company → need to consolidate 100% of its financial statements with your own
  - ...but Equity Value only reflects the value of the percentage that you own (which is not 100%), so you need to reflect 100% of that other company in Enterprise Value → if you did not add NCI, you would only be reflecting 60%, or 70%, or however much you own
  - You subtract cash because you are receiving this when you purchase a company (technically you should only subtract away excess cash / cash excess of what you need to operate the company, but this is fine for entry-level interviews)

# Enterprise Value/Equity Value

- Difference between Equity Value versus Shareholders' Equity?
  - Equity Value is the **market** value and Shareholders' Equity is the **book** value
  - Equity Value could never be negative because shares outstanding and share prices can never be negative, whereas Shareholders' Equity could be positive, negative, or 0
- How does ____ affect Enterprise Value?
  - Raise $200m in Debt, use cash to buy a new piece of equipment.
    - EV +200m
    - +200m Debt
    - -200m Cash (borrowing in form of debt)
    - +200m Cash (purchase is a decrease in cash, which is subtracted from EV thereby boosting it)
  - Issue $200m in Equity for an IPO.
    - EV unchanged
    - +200m Equity Value
    - -200m Cash (increase is subtracted)

# Enterprise Value/Equity Value

- Two companies are 100% comparable. Why might one trade at a premium (e.g. higher EV/EBITDA multiple)?
  - One company may have high revenue growth rates or high EBITDA margins
- Would you rather buy a company with a high or low P/E multiple?
  - Generally, would rather buy low and sell high, so would want to buy one with a low P / E multiple that increases over time
  - Remember, P / E signifies how much investors are willing to pay per $1 of earnings
- What are some multiples you could use for a company with a negative Net Income?
  - Revenue-based multiples (e.g. EV / Revenue)
  - Cash-flow multiples (e.g. EV / FCF)
  - Industry-specific multiples (e.g. EV / Unique Users for internet companies)

# Enterprise Value/Equity Value

- Company A and Company B have identical EV/EBITDA. Company A has a higher P/E multiple. Why might this be the case?
  - Pay attention to the "ITDA" in EBITDA
    - Different capital structures (e.g. one has more debt and thus more interest expense)
    - Different Depreciation / Amortization
    - Different tax rates
- You have a company with an EV/Revenue of 2x and an EV/EBITDA of 10x. What is the EBITDA margin?
  - 20% (EBITDA margin = EBITDA / Revenue)
- A company has a stock price of $20 a share and a P/E of 20x (so EPS is 1). The company has 10M shares outstanding. How does a 2-for-1 stock split affect EV?
  - Does not affect EV, there are now 20m shares outstanding and EPS is now 0.5

# Enterprise Value/Equity Value

- A company has 10,000 shares at $20 a share. There are 100 call options at an exercise price of $10, 50 restricted stock units (RSUs) and 100 convertible bonds at a price of $10 and par value of $100. What is the diluted equity value?
  - Options: Company receives $1000, 100 new shares created, company able to buy back 50 shares (50 new shares)
  - Add 50 restricted stock units (so far 100 new shares)
  - Convertible Bonds
    - Par Value / Price = # of shares per convertible bond → $100/10 = 10 shares per convertible bond * 100 convertible bonds = 1000 new shares
    - 1000 + 100 (from prev. steps) = 1,100 → diluted share count is 11,100
  - Diluted Equity Value = 11,100 * 20 = 222,000

# VALUATION ANSWERS

# Valuation Answers

- What are the 4 main valuation methodologies? Rank them from highest to lowest and explain.
  - Comparable Companies Analysis, Precedent Transactions, Discounted Cash Flow (DCF), & Leveraged Buyout Analysis (LBO)
  - No steady rule as to which will produce the highest valuation
  - Growthy and optimistic assumptions in a DCF might make it highest
  - On average, precedent transactions is almost always higher than comparable companies because of the control premium paid in acquisition scenarios
  - LBO is seen as a floor valuation, what a financial sponsor would shell out to realize a target IRR → typically the lowest

# Valuation Answers

- What are some flaws of comparable companies & precedent transactions?
  - Comparable Compaines
    - No two companies are 100% comparable
    - Stock market is “emotional” (multiples may be much higher / lower on certain dates based on market movements)
    - Share prices for small companies w/ thinly-traded stocks may not reflect full value
  - Precedent Transactions
    - Past transactions rarely 100% comparable (transaction structure / size of companies / market sentiment varies greatly)
    - Data on precedents generally more difficult to find than it is for public comps., especially for acquisitions of small / private companies

# Valuation Answers

- What metrics do you look at for comparable companies? What additional metric do you look at for precedent transactions?
  - FIG → Financials, Industry, and Geography
  - Precedent → Time frame (e.g. past 2 years)
- What would a situation be where precedent transactions is less than comparable companies?
  - If there are no good M&A transactions in recent years that accurately represent the current deal, you may have to extend the time range even further back and that could ultimately end up with a lower valuation
  - Similarly, if recent M&A market is poor, may lead to depressed valuations

# Valuation Answers

- Why does a DCF *almost always* produce a higher valuation than an LBO?
  - LBO = only valued based on TV no value from cash flows in holding period)
  - DCF = takes into account both cash flows in projection period and terminal value
- What are some other valuation methods we could use?
  - Other valuation methods include Sum of Parts (such as for a conglomerate like GE), Liquidation Valuation, and the Dividend Discount Model (used in FIG for banks / insurance)
- Is a company with a 50x P/E overvalued or undervalued? Why?
  - A P/E multiple alone does not tell us if it is over or undervalued… we would need to look at the industry average, the expectations for the company's growth and forward performance, and other qualitative and quantitative considerations
  - Maybe the industry average is 40x and this company seems overvalued relative to its performance, or maybe it is lagging behind and this multiple is "cheap"
  - In the REAL WORLD, that multiple may be high relative to the S&P 500's P/E, but from that number alone we can't say conclusively if it is over or undervalued

# DCF ANSWERS

# DCF Answers

- What is a DCF/can you walk me through a DCF in under 60 seconds?
    - A DCF values a company with the Present Value of its Free Cash Flows plus the Present Value of its Terminal Value
    - You can divide the process into 6 steps
        - 1. Project a company's Free Cash Flows over a 5-10 year period
        - 2. Calculate the company's Discount Rate, usually using WACC (Weighted Average Cost of Capital)
        - 3. Discount and sum up the company's Free Cash Flows.
        - 4. Calculate the company's Terminal Value
        - 5. Discount the Terminal Value to its Present Value
        - 6. Add the discounted Free Cash Flows to the discounted Terminal Value."

# DCF Answers

- Why do you typically use 5-10 years for the projection period?
  - Need to project cash flows until they reach a "steady state"
  - Also, that's about as far as you can reasonably predict for most companies
    - Less than 5 years would be too short to be useful; more than 10 years is too difficult to project for most companies
- How would you change a DCF to value a highly speculative technology company?
  - May employ a longer projection period (may take longer for company to reach "steady state" of cash flows)
  - May use a much higher Discount Rate
  - You may also adjust management's growth or profit expectations
- Key assumptions/drivers of a DCF?
  - Discount Rate
  - Terminal Value
  - Revenue growth rate / margins

# DCF Answers

- Tell me 3 places where taxes affect a DCF.
  - Calculating FCF (NOPAT)
  - Calculating Beta (conversion from Unlevered to Levered)
  - Calculating Cost of Debt (interest on debt is tax deductible)
- If you are valuing a coal mine company, would you use the Gordon Growth Method or the Multiples Method to calculate the TV? Explain.
  - Multiples Method
    - Gordon Growth assumes cash flows exist into perpetuity and coal is a depleting resource

BANKING AT MICHIGAN

# DCF Answers

- A company buys a factory for $100 in its 4th year. How would the DCF/Enterprise Value change for the company?
    - Include additional CapEx spending of $100 in Year 4 of the DCF, which would reduce Free Cash Flow for that year by $100
    - The Enterprise Value, in turn, would decrease by the present value of $100 in Year 4
    - You would calculate the difference by dividing $100 by ((1 + Discount Rate)^4). Then you would subtract this amount from the Enterprise Value
- Do you use planned or targeted capital structure in WACC?
    - If you know for sure that the company's capital structure will change in the (near) future, sure, you can use the new Debt and Equity values in all these calculations
    - In real life this almost never comes up because no one "knows" how a company's capital structure will change far in advance

BANKING AT MICHIGAN

# DCF Answers

- What is FCF? Why do we use it in a DCF?
    - “Free Cash Flow” means how much after-tax cash flow the company generates on a recurring basis, after you’ve taken into account non- cash charges, changes in Operating Assets and Liabilities, and required Capital Expenditures
    - You calculate and use Free Cash Flow in a DCF because that closely corresponds to the actual cash flow that you, as the investor, would receive each year if you bought the entire company
- Walk me from Revenue to FCF for Unlevered and Levered FCF.
    - Unlevered FCF: Revenue - COGS - Operating Expenses= EBIT *(1 - tax rate) + Non-Cash expenses - Change in NWC - CapEx
        - Excludes interest and debt
    - Levered FCF: Net Income + Non-cash expenses - Change in NWC - CapEx - Mandatory Debt Repayments
        - Includes interest and debt

# DCF Answers

- What is WACC, conceptually? How do you calculate it?
  - Minimum return a company needs to earn to satisfy all of its investors (equity, debt, preferred stock holders)
  - Firm's overall cost of capital (combination of cost of equity and cost of debt)
  - You're determining the "cost" of each part of a company's capital structure, and then calculating a weighted average based on how much Equity, Debt, and Preferred Stock it has
  - WACC = Cost of Equity * % Equity + Cost of Debt * % Debt * (1 – Tax Rate) + Cost of Preferred Stock * % Preferred Stock
  - How do you calculate Cost of Equity? Cost of Debt? Cost of Preferred Stock?
    - Cost of Equity = Risk-Free Rate + Equity Risk Premium * Levered Beta
    - Cost of Debt = Interest Rate on Debt
    - Cost of Preferred Stock = Effective Yield on Preferred Stock

# DCF Answers

- What would you use as your discount rate if you are using Levered FCF? Why?
    - You would use Cost of Equity as the Discount Rate because you only care about Equity investors there, and you're calculating Equity Value rather than Enterprise Value
- What is Beta, and why do you have to unlever and relever it?
    - Beta is the "riskiness" of this company relative to all other companies in the stock market
        - Ultimately a measure of the volatility, or systematic risk, of a security or a portfolio in comparison to the market as a whole
        - If Beta = 1, that means that the company is just as risky as the overall index (f the market goes up by 10%, this company's stock will go up by 10%)
    - Since each company's capital structure is different, unlever to look at riskiness of company regardless of capital structure
    - Re-lever at end to reflect true risk of company, taking into account capital structure when calculating Cost of Equity

# DCF Answers

- When would you rather use the Multiples Method vs. the Gordon Growth Method (GGM)?
  - If the industry is cyclical or multiples are hard to predict, the Gordon Growth method may be better; if multiples are easier to estimate, the Multiples Method may be better
  - Can't use GGM in industries with depleting resources (e.g. coal mine company) since it assumes cash flows exist into perpetuity
- How would you calculate the long-term growth rate for the GGM?
  - Normally you use the country's long-term GDP growth rate, the rate of inflation, or something similarly conservative
  - For companies in developed countries, a long-term growth rate over 5% would be quite aggressive since most developed economies are growing at less than 5% per year

# LBO ANSWERS

# LBO Answers

- What is an LBO/can you walk me through an LBO?
    - Financial sponsors / Private Equity firms buy a company using a combo of debt / equity then sell it after holding period (typically 3-5 years) to realize a return
    - 5 Steps
        - 1) Make assumptions about Purchase Price, Debt/Equity ratio, Interest Rate on Debt and other variables such as Revenue Growth / Margins
        - 2) Create a Sources & Uses section, which shows how you finance the transaction / what you use the capital for / how much Investor Equity is required
        - 3) Adjust the company's BS for new Debt / Equity figures + add in Goodwill & Other Intangibles on the Assets side to make everything balance
        - 4) Project out the company's 3 statements  and determine how much debt is paid off each year, based on the available Cash Flow and the required Interest Payments
        - 5) Make assumptions about the exit after several years, usually assuming an EBITDA Exit Multiple, and calculate the return based on how much equity is returned to the firm

# LBO Answers

- What makes a strong LBO candidate? (should know at least 5, and know which one is the most important one & why)
    - A number of factors, but **stable and predictable cash flows** (so they can repay debt) is the most important (explains why LBOs rarely happen in industries like oil, gas and mining where commodity prices can fluctuate and drastically affect cash flows)
    - Other factors include:
        - Co. is undervalued relative to peers (lower purchase price)
        - Low-risk biz (helps w/ debt repayment certainty)
        - Low CapEx requirements
        - Opportunities to cut costs / increase margins
        - Strong management teams
        - Solid asset base (used as collateral for debt)

# LBO Answers

- 3 main drivers of IRR? (should know at least 5, but know the main 3)
  - Main 3
    - Lower purchase price (reduces cash investment)
    - Larger exit multiple (increases funds received)
    - Increased leverage (reduces amount of upfront equity required)
  - Others
    - Dividend Recaps (recoup equity investment)
    - Time frame (shorter = better, TV of money)
    - Accelerating the company's growth (increase EBITDA / exit multiple)
    - Improving margins (increase EBITDA / exit multiple)
    - Realizing synergies with other portfolio companies or rolling in new acquisitions

# LBO Answers

- Why do financial sponsors pay less than a strategic buyer?
    - Strategic buyers can realize synergies that private equity firm cannot unless it combines co. w/ complementary portfolio co.
    - Synergies boost effective valuation of target
- Different types of debt you could raise in an LBO?
    - At a high-level, bank debt and high-yield debt
    - At a deeper-level,
        - Bank debt split into different types of "Term Loans," all of which carry different principal repayment terms, interest rates, covenants, and maturities
        - High-yield debt split into Senior Notes, Subordinated Notes, and Mezzanine, which all have different seniorities, interest rates, maturities, covenants, and more
        - Some debt also has a Payment-in-Kind (PIK) option for interest, in addition to traditional cash interest (PIK interest accrues to debt principal)

# LBO Answers

- What is a dividend recapitalization? What is its effect on IRR?
  - LBO candidate is forced to take on additional debt in order to pay out special dividend to financial sponsors
  - Allows financial sponsor to recoup equity investment earlier on, increasing IRR due to the TV of money
- What is PIK interest? Why may a distressed company prefer PIK interest?
  - PIK interest is a non-cash interest expense that accrues to the debt principal
  - Distressed companies may prefer to issue debt with PIK interest to reduce the cash interest expense

# LBO Answers

- What happens to the Balance Sheet after an LBO?
  - Liabilities & Equity side
    - New debt is added
    - Shareholders' Equity "wiped out" / replaced by however much Investor Equity the private equity firm is contributing
  - Assets side
    - Cash adjusted for any cash used to finance the transaction / transaction fees
    - Goodwill & Other Intangibles → "plug" to make the BS balance
    - Also may see Asset Write Ups and Write-Downs, DTLs, DTAs, Capitalized Financing Fees, etc...

# LBO Answers

- What happens to the Income Statement after an LBO?
  - Cost Savings (may assume PE firm cuts costs by laying off employees, which could affect COGS, OpEx, or both)
  - New Depreciation Expense (from any PP&E write-ups)
  - New Amortization Expense (from written-up intangibles / capitalized financing fees)
  - Interest Expense on LBO Debt (include both cash / PIK interest)
  - Sponsor Management Fees

# LBO Answers

- What is a revolver and why is it the cheapest form of debt?
  - Analogous to a “credit card” for a company
    - Starts off “undrawn,” meaning that co. doesn’t borrow money and doesn’t accrue a balance unless it needs it
  - Highest seniority (senior secured) in capital structure
  - Typically lowest interest rates; earliest to get repaid (e.g. gets payed off before Term Loans)

# MERGER MODEL ANSWERS

# Merger Model Answers

- Walk me through a merger model.
    - Used to analyze the financial profiles of 2 companies, the purchase price and how the purchase is made, and determines whether the buyer's EPS increases or decreases
    - 1) Make assumptions about acquisition (price / financing methods)
    - 2) Determine Valuation / shares outstanding of buyer + seller and project out IS for each party
    - 3) Combine IS, adding line items such as Revenue / OpEx + adjusting for Foregone Interest on Cash and Interest Paid on Debt in the Combined Pre-Tax Income line
    - 4) Apply buyer's tax rate to get combined Net Income, then divide by new share count to determine combined EPS

# Merger Model Answers

- What are the two types of buyers?
  - Financial buyers and strategic buyers
- Why would a company buy another company? How would this reasoning differ for the two types of buyers?
  - Several reasons
    - Gain market share / grow quickly
    - Seller is undervalued
    - Acquire seller's customers
    - Acquire key technology / IP from seller
    - Acquire talent from seller ("acquihire")
    - Possibility of significant revenue / cost synergies
  - Generally, financial sponsors motivated more by returns / IRR versus strategic buyers are willing to take larger bets / longer-term view on potential success

# Merger Model Answers

- 3 main financing methods and why use one over another?
  - Stock, Cash and Debt
  - Assuming buyer has unlimited resources, almost always prefers cash
    - Cheaper than debt (IR on cash < 5% whereas IR on debt usually higher)
    - Cheaper than stock (most P /E multiples are in 10-20x range, which equals a 5-10% “Cost of Stock”)
    - Less risky than debt (no chance buyer may default)
    - Less risky than stock (share price can plummet)
  - However, typically see a mix since it may be saving cash for something else or its stock max be trading at an all-time high (which would mean a higher P /E multiple and lower “Cost of Stock”)

# Merger Model Answers

- When would you prefer revenue synergies over cost synergies, and when would you be indifferent? (think of the two types of revenue synergies)
    - If revenue synergies coming from cross-selling to new customers, and thus selling MORE products, would prefer cost synergies
        - Increase in units sold would come with an associated increase in COGS, whereas cost synergies are realized in isolation
    - If revenue synergies coming from selling same number of products at higher cost (e.g. no associated increase in COGS), would be indifferent between revenue and cost synergies

# Merger Model Answers

- Why do we look at EPS & accretion/dilution?
  - Essentially because shareholders care about this metric
  - Can provide "hard" or financial rationale in addition to more "fuzzy" reasons
- Difference between Mergers vs. Acquisitions?
  - Merger: companies are close to same same
  - Acquisition: buyer is significantly larger

# Merger Model Answers

- What are the 5 main acquisition affects?
    - Foregone Interest on Cash (buyer loses interest income it would have otherwise earned if it uses cash for the acquisition)
    - Additional Interest on Debt (buyer pays additional interest expense if debt is used)
    - Additional Shares Outstanding (if buyer pays w/ stock, must issue additional shares)
    - Combined Financial Statements (seller's financials are added to buyer's post-acquisition)
    - Creation of Goodwill & Other Intangibles (BS items that represent a "premium" paid to a company over it's "fair value")

# Merger Model Answers

- What happens to the Balance Sheet after M&A?
  - Current Assets → add most, but subtract any Cash used by buyer to acquire seller
  - LT Assets → adjust PP&E value up / down, adjust values of Goodwill & Other Intangibles
  - Current Liabilities → add everything here, perhaps adding or subtracting Debt if the buyer uses Debt to acquire the seller or pays off the seller's Debt
  - LT Liabilities → add most items here,  but you add or subtract Debt if the buyer uses Debt to acquire the seller or pays off the seller's Debt; you may also adjust the Deferred Tax Liability
  - Shareholders' Equity →  wipe out the seller's Shareholders' Equity, but add the dollar value of new shares issued by the buyer

# Merger Model Answers

- What happens to the Income Statement after M&A?
    - Synergies → reflect any assumed revenue / expense synergies
    - Depreciation & Amortization → reflect new D&A expense from any changes to PP&E / Other Intangible Assets
    - Foregone Interest on Cash → if buyer used cash, this equals Cash Used * Interest Rate
    - Interest Paid on New Debt → if buyer used debt, this equals Debt Used * Interest Rate
    - Shares Outstanding → if buyer issued shares / used stock, this equals Old Buyer Shares Outstanding + Number of Shares Issued in Deal

# Merger Model Answers

- Company A buys Company B. Company A has a higher P/E ratio than Company B. Would the deal be accretive or dilutive if:
  - The deal is all stock
    - Deal would be accretive
    - Buyer "gets" more in earnings for each $1.00 used to acquire the other company than it does from its own operations (remember P /E = how much investors are willing to pay per $1 of earnings)
  - The deal is all debt / all cash
    - P / E multiple of the buyer doesn't matter because no stock is being issued

# Merger Model Answers

- What is the combined equity value of a company if the deal is not financed with any stock?
  - Combined Equity Value = Buyer's Equity Value + Value of Stock Issued in Deal
  - Thus, if no stock is issued in the deal, the Combined Equity Value would simply be the Buyer’s Equity Value

# Merger Model Answers

- What are Deferred Tax Liabilities and Deferred Tax Assets? Why do they sometimes get created in M&A transactions?
  - Normally write down most of the seller's existing DTLs and DTAs to "reset" its tax basis, since it's now part of another entity
  - May create new DTLs or DTAs if there are Asset Write-Ups or Write-Downs and the book and tax Depreciation and Amortization numbers differ
    - Write-ups → Deferred Tax Liability will be created in most deals since the Depreciation on the write-ups is not tax-deductible, which means that the company will pay more in cash taxes
    - Write-downs → Deferred Tax Asset will be created (opposite of above applies)

# PAST INTERVIEW QUESTIONS ANSWERS

# Answers to Past Interview Questions: Accounting

- **What is a Deferred Tax Asset? Deferred Tax Liability?**
  - Deferred Tax Assets are created when a company pays more in cash taxes than book taxes during a certain year. This usually happens if assets are written down and/or when depreciation is lower before
  - Deferred tax liabilities are created when a company pays less in cash taxes than book taxes during a certain year. DTLs are usually created if, during a merger, value of assets and intangibles is written up and/or depreciation is recorded as a higher expense than of what was actually incurred by the asset

# Answers to Past Interview Questions: Accounting

- **What are the differences in impact on the financial statements when you compare the Write-Down of an Asset vs. the Write-Down of a Liability?**
  - Asset Write down is impairment on IS that gets added back on CFS
  - Liability (i.e., debt) Write Down is cash inflow on IS that gets subtracted out on CFS (under Cash Flow from Financing Activities)
- **Days Payable Outstanding goes from 30 days to 90 days, is that a source or use of cash?**
  - This is a source of cash because you are delaying the time needed to pay of the Payables Balance.
  - By delaying the time for repaying third-parties, businesses will have more time to instead reinvest that capital into themselves, hence, creating a source of cash

# Answers to Past Interview Questions: Accounting

- **If I give you two balance sheets, one at the beginning of the year and one at the end of the year, how would you be able to calculate the EBITDA for that fiscal year?**
  - We know Net Income links to R/E on the balance sheet, but we'd have to assume no dividends were issued over the time period. If this assumption is true, we know that Net Income = Change in R/E. To get to Pre-Tax Income, we do Net Income / (1 – Tax Rate)— typically we'd use the corporate tax rate. Then to add back Interest, we'd look at the interest on Debt from the beginning of the year. Next, to add back D&A, we'd look at the change in PP&E and change in Intangible Assets, but we'd have to assume no write-downs, no write-ups, no impairments, no selling, and no CapEx. This yields EBITDA.

# Answers to Past Interview Questions: Accounting

- **You have Revenue 100, margin 20%, VC/FC 60/40. How does EBITDA change if volume increases 10%?**
  - $100 Revenue * 20% EBITDA Margin = $20 = EBITDA
  - Ratio of Fixed Costs to Variable Costs is 60/40
    - Total Costs = Fixed Costs + Variable Costs
    - Total Costs = Revenue - EBITDA = $100 - $20 = $80
    - So, Variable Costs = 60% * $80 = $48 & Fixed Costs = 40% * 80 = $32
    - Fixed Costs remain constant at $32, however, assume that Variable Costs increase as revenue increases due to correlative increase in COGS
  - Variable Costs would increase by the same 10% as Revenue
    - $100 + (10% * 100) = $110 = New Revenue
    - $48 + (10% * $48) = $52.80 New Total Variable Costs
  - New EBITDA = $110 - $52.80 - $32 = $25.20 → EBITDA increases by $5.20

# Answers to Past Interview Questions: Accounting

- **A company has $100 million in sales with a 10% EBITDA. Do you prefer a 10% increase in Quantity, 5% increase in price, or a 5% decrease in cost?**
  - 10% EBITDA * $100M Revenue = $10M = EBITDA
  - Revenue - EBITDA = COGS (assuming no significant OpEx) = $90M
  - 10% Increase in Quantity would increase revenue by $10M and COGS by $9M. Results in +$1M of EBITDA.
  - 5% increase in Price would increases revenue by $5 million, which would flow down through your margins. Results in +$5M of EBITDA.
  - 5% decrease in Cost reduce COGS by $4.5M. Results in +$4.5M of EBITDA.
  - Thus, would prefer in the following order, from most attractive to least attractive: Price Increase, Cost Decrease, Quantity Increase

# Answers to Past Interview Questions: Accounting

- **What could a CEO do with an influx of cash to create value? List in order of least discretionary to most discretionary.**
  - "Discretionary Spending" described spending that is irrelevant / not necessary to maintain a business's core operations
  - CapEx is generally non-discretionary (especially if it is Maintenance CapEx) and it creates value for a business
  - R&D is generally non-discretionary, especially for industries like healthcare & technology, and it creates value for a business
  - Actions like deciding to increase a company's Marketing Budget is more discretionary because its not as vital to business operations (depending on its stage in the corporate life cycle)

# Answers to Past Interview Questions: Multiples

- **Why do we use EBITDA?**
  - We use EBITDA because it eliminates the effects of financing, capital expenditures, and capital structure on earnings. As a result, it also serves as a useful proxy for Cash Flow from Operations
- **What are the differences between EBITDA and FCF?**
  - EBITDA is exclusive of financing and investing activity such as Capital Expenditures, Interest, and doesn't include changes in Net Working Capital
- **What happens in a 2-1 stock split?**
  - P/E and Equity Value don't change
  - If Price is halved, number of shares doubles so earnings is halved too
  - Does not affect EV, double shares outstanding, cuts EPS in half

# Answers to Past Interview Questions: Multiples

- **Why would you use EBITDA instead of FCF or EBIT?**
  - Use EBITDA instead of EBIT when comparing companies with different CapEx and D&A standards (and that are within the same industry)
  - Use EBIT for industries where D&A represents a larger, more meaningful portion of costs, such as like manufacturing, airlines, etc.
  - FCF includes the effects of different company's capital-structures and CapEx, which makes it harder to evaluate a company's business model holistically without the effects of leverage
- **Would you pay more for a co. with Operating Assets or Operating Leases?**
  - Assume both companies have the same Enterprise Value. Pay more for a company with operating leases, because they are expensed on the IS, creating a lower EBITDA, which will make their multiple higher.

# Answers to Past Interview Questions: Multiples

- **Would you pay a higher multiple for a business where you owned the machines and they depreciated normally, or where you leased the machines?**
  - Assume that the Enterprise Value for both businesses are the same. Pay higher multiple for business where you leased the machines because those lease payments are not added back to EBITDA. This results in a lower EBITDA, which creates a higher / more inflated multiple
- **How can you decrease a company's Equity Value?**
  - Pay out dividends, buy back shares, large investments in cash, increase net debt
- **Can Equity Value ever be negative?**
  - Actual / Current Equity Value, or Market Capitalization, can never be negative
  - Shareholders' equity is the book value of equity, which can be negative

# Answers to Past Interview Questions: Multiples

- **Co. A has $30M in EBITDA with a multiple of 10x. It has $250M in senior debt and $100M in subordinated debt. What are these trading at in dollar terms?**
  - Enterprise Value (EV) = $30M EBITDA * 10x = $300M
  - From $300M of EV, it is possible to pay of all $250M of senior debt, so…
    - Senior trading at 100% or $250M
  - Theoretically, after paying off $250M of senior debt, only $50M of EV remains ($300M EV - $250M Senior Debt = $50 EV), so…
    - Only $50M of subordinated debt can be repaid before theoretically reaching an EV of $0
    - Because of this, Subordinated Debt trading at 50% or $50M

# Answers to Past Interview Questions: Multiples

- **What is the relationship between P/E, EPS, Price per Share, Market Cap, Net Income, Share Count?**
    - P/E = Equity Value / Net Income = Market Cap. / Net Income
    - Earnings per Share = Net Income / Share Count
    - Market Cap. = Share Count * Price per Share
- **If two companies are in the same industry, explain why one multiple might be higher than the other.**
    - Possible Reasons: Both companies have different margins, one company experiencing a higher growth rate, more attractive market sentiment for one company, a difference in management team's capabilities, or differences in capital expenditures, working capital requirements, capital structures etc.

# Answers to Past Interview Questions: DCFs

- **What is the relationship between Debt and the Cost of Equity?**
  - More debt means that the company is more risky, company's levered beta will be higher and will therefore raise the cost of equity
- **What is cheaper– debt or equity?**
  - Debt is cheaper than equity because interest is tax-deductible, and debt is senior to equity in a company's capital structure - debt holders always paid first when a company is in distress
- **How do you calculate WACC for a private company?**
  - Estimate WACC based on comparables
  - Equity value can be based on TEV of comparables as well for a private company

# Answers to Past Interview Questions: DCFs

- **Within the context of calculating WACC, can the cost of debt ever be higher than the cost of equity?**
  - No debt is higher than equity on the capital structure
- **Explain why we use the mid-year convention in a DCF?**
  - Use mid year convention to present the fact that a company's cash flow does not come 100% at the end of each year - instead, it comes evenly throughout the year
  - Smooths out cash flows by assuming they come at a midpoint each year
- **How does the Terminal Value calculation change with the mid-year convention?**
  - Perpetuity growth method: use the final year discount number as is because you're assuming the cash flow numbers grow into perpetuity
  - Multiples method: round to whole year to the final year discount number to reflect the fact that you're assuming the company gets sold at the end of the year and need to include the full years cash flows

# Answers to Past Interview Questions: DCFs

- **When you're calculating WACC, let's say the company has convertible debt. Do you count this as debt when calculating levered beta for the company?**
  - If the convertible debt is in the money then you do not count it as debt but instead assume that it contributes to dilution, so the company's equity value is higher. If it's out of the money, then you count it as debt.

# Answers to Past Interview Questions: DCFs

- **We're creating a DCF for a company that is planning to buy a factory for $100 in cash in year 4. How would the change in DCF account for the factory purchase?**
  - Decrease because capex spending would reduce fcf for that year by $100
- **How does changing an Asset affect the DCF?**
  - If asset decreases, the change in net working capital for that year decreases which increases FCF for that year
  - If asset increases, the change in net working capital for that year increases which decreases FCF for that year
- **Calculate stub year discount factor with mid year convention for the end of Q1, end of Q2, end of Q3, and end of Q4.**

# Answers to Past Interview Questions: DCFs

- END Q1 (February, January, March)
  - First = 0.375
  - Second = 1.25
- END Q2 (April, May June)
  - First = 0.25
  - Second = 1
- END Q3 (July, August September)
  - First = 0.125
  - Second = 0.75
- END Q4 (October, November, December)
  - First = 0.5
  - Second = 1.5

# Answers to Past Interview Questions: DCFs

- **If a company has 11% NWC/Sales and company B has 12% NWC/sales, which company is valued higher?**
  - If sales are increasing, company A will have a higher valuation because the quantity change in NWC will be less than Company B
  - If sales are decreasing, Company B will have a higher valuation because the change in NWC will be negative which means addition, and you will have a larger quantity
- **Can you describe a company with a beta close to zero?**
  - Government Utilities Company
- **Rank these assets' betas from lowest to highest: a utilities company, a technology company, a 1 dollar slot machine with the chance to win 5 dollars.**

# Answers to Past Interview Questions: DCFs

  - A technology company will have the highest beta because it is volatile in relation to the market. Higher risk, higher expected returns.
  - A utilities company will have a beta less than 1 because they tend to move more slowly than market averages
  - A slot machine will have a beta of zero because there is no correlation to the markets
- **How do you get from Unlevered FCF to Levered FCF?**
  - Unlevered = revenue - cogs and other operating expenses to get EBIT. Then EBIT x 1-t add back depreciation, subtract capex, and subtract nwc
  - Levered free cash flow takes into account debt interest expense and mandatory debt repayments

# Answers to Past Interview Questions: DCFs

- **If debt of a company is going down, explain how that affects the cost of equity and explain how it affects the cost of capital.**
  - If the debt of a company is going down, then the cost of equity will also change because leverage is factored into the beta calculation which factors into the capm equation. The overall cost of equity will most likely increase because the cost of equity is higher than the cost of debt, but we cannot say for certain because it depends on the overall capital structure of the company, not just one change.
- **Rank these three changes from biggest to smallest impact on FCF: 10% increase in Revenue, 10% decrease in COGS, 10% decrease in Working Capital.**

# Answers to Past Interview Questions: DCFs

- ○ Working capital changes will have the largest impact on Free cash flow because they are not tax affected
- ○ COGS will have the second biggest impact on Free cash flow because they have less changes after them to COGS and a change in cost usually has a bigger impact then a change in revenue because of the Quantity change
- ○ Revenue will have the least impact on Free cash flow because assuming that the change is due to volume, an increase in revenue will also increase the variable costs.

- **What are three questions that you would ask the CEO of a company to do a DCF?**
  - ○ Business outlook, Business model, Competition

# Answers to Past Interview Questions: DCFs

- **What ways could you have negative free cash flow in a DCF?**
  - High capex spending
  - High change in net working capital
  - No sales
- **How can you calculate the Equity Value of a company using a DCF?**
  - Levered DCF
  - Or work back from implied EV (subtract debt, add cash, divide by fully diluted share count)
- **I have WACC on the y-axis and debt/equity ratio on the axis, what does the graph look like?**
  - Parabola

# Answers to Past Interview Questions: DCFs

- **You are valuing a company. How do you increase the valuation only using NWC?**
    - Increase current liabilities

# Answers to Past Interview Questions: Merger Models

- **Company A has an Equity Value of $1000 and Net Income of $100. Company B has an Equity Value of $2000 and Net Income of $50. How would this all stock deal be accretive?**
  - Need to recognize after-tax synergies
  - P/E of A is 10x, P/E of B is 40x
  - The sellers yield needs to be at least 10%
  - 10% of 2000 is 200, so you need an additional $150 of after tax synergies for the deal to be accretive
- **What factors can lead to dilution of EPS in an acquisition?**
  - Target has negative net income
  - Target has P/E ratio that is greater than the acquirer's

# Answers to Past Interview Questions: Merger Models

    - Deal creates significant amount of intangibles that must be amortized over time
    - Increase interest expense from new debt used in the deal
    - Decrease interest income due to less cash on the balance sheet
    - Low or negative synergies
- **How can a merger be accretive on paper, but value destructive?**
    - Cash mergers are almost always accretive, but you could overpay significantly. Also, if value is derived from synergies that never realize, value may be destroyed.
    - Takes a really high P/E ratio of the seller to make it dilutive because the interest rate on cash (opportunity cost of holding cash) is extremely low

# Answers to Past Interview Questions: Merger Models

- **Why do Goodwill and other Intangibles get created in an acquisition?**
  - Represent premium over fair market value of the seller that the buyer has paid
  - Goodwill typically stays the same over many years
  - Intangibles are amortized over years to come
- **A buyer pays $100 million for the seller in an all-stock deal, but a day later the market decides it is only worth $50 million. What happens?**
  - Buyer's share price would fall by whatever the per-share dollar amount corresponds to the $50 million loss in value
  - The seller would effectively be receiving half of what it had originally negotiated
  - One of the major risks of all stock deals

# Answers to Past Interview Questions: Merger Models

- **Company A has a P/E of 30x, company B has a P/E of 25x, will the deal be accretive or dilutive?**
  - All stock transaction, the deal will be accretive
- **Now, Company A acquires company B with 100% of debt at a tax rate of 20% with the cost of debt being 5%, will the deal be accretive or dilutive?**
  - 20% of 5% is 4%
  - 1/25 is 4%
  - Deal will be neutral

# Answers to Past Interview Questions: Merger Models

- **Company A is currently trading at $20/share and has $100 of Net Income. Company B is trading at $5/share and has $50 of Net Income. Both companies have 100 shares outstanding. Company A buys Company B with 60% stock & 40% cash. What is the pro-forma ownership of the new company? Is the deal accretive? If so, how accretive is the deal?**
  - Company B Eq. Value is 500 -> 60% of that paid with stock
  - Company B shareholders own 300/2300 ~ 13% of combined company
  - Company A must have used $200 in debt to pay for other 40% of company B
  - New EV: Combined Equity Value + New Debt for combined company -> $2300 + $200 = $2500

# Answers to Past Interview Questions: Merger Models

- Add net incomes: \$100 + \$50 = \$150
- Subtract tax-effected interest expense (20% Tax Rate)Add net incomes: \$100 + \$50 = \$150
  - \$16
- \$134 is new combined Net Income
- 15 new company A shares created through merger
- 134/115 = 1.17
- Old Company A EPS: 1/1 = 1
- % Accretive = (1.17 - 1) / 1 = .17 = 17%

- **Part I: Company A has a P/E ratio of 10x, Company B has a P/E ratio of 5x. Will this deal be accretive?**
  - In an all stock transaction, yes the deal will be accretive

# Answers to Past Interview Questions: Merger Models

- **<u>Part II:</u> Now, company A has a market cap of 100 million and a share price of $10 per share. Company B has a market cap of 50 million. If there are $10 million in cost synergies. How accretive or dilutive will the deal be?**
  - Company has 10 million current shares outstanding and a net income of 10 million
    - Company A has a current EPS of 1
  - Company A will issue 5 million shares to acquire company B
  - Company B has a net income of 10 million
  - The two companies now have a combined Net Income of 30 million (with the cost synergies) with 15 million shares outstanding
    - The new EPS is 2 and the deal is 100% accretive

# Answers to Past Interview Questions: LBOs

- **A company has $30M in EBITDA and the purchase multiple is 10x. Assume that free cash flow is $30M per year and you use $100M of debt to buy the company. What is your breakeven Exit EBITDA multiple after 2 years, assuming that EBITDA remains constant over the years?**
    - Purchase EV = 10x * $30M EBITDA = $300M
    - $300M EV - $100M Debt = $200M Equity used to finance transaction
    - $30M FCF per year * 2 years = $60M FCF generated over 2 years
    - Use FCF to pay down debt, therefore $100M - $60M = $40M Debt remaining
    - "Breakeven" implies that Total Proceeds / Investor's Equity = 1x
    - So, Total Proceeds = Exit Value - Repay Remaining Debt = $200M, which means Exit Value - $40M Debt = $200M, so Exit Value = $240M
    - Exit Multiple = EV / EBITDA = $240M / $30M = 8x

# Answers to Past Interview Questions: LBOs

- **What variable impacts an LBO model the most?**
  - Purchase and Exit multiples
  - Amount of Leverage Used
  - Operating Model Assumptions (Revenue Growth, Margins, CapEx, NWC, etc.)
- **How could a PE firm boost its returns in an LBO?**
  - Increase Leverage
  - Multiple expansion (lower purchase multiple, raise exit multiple)
  - Operational improvements (improve margins, grow revenues, etc.)
  - Shorten holding period
  - Pay down debt over the period
  - Dividend recapitalization
  - Recognize synergies between portfolio companies

# Answers to Past Interview Questions: LBOs

- **How would you determine how much debt can be raised in an LBO and how many tranches there would be?**
  - Look at comparable LBOs - debt comps
  - Recently D/E ratios of LBO transactions are approx. 60/40 to 65/35, and Debt/EBITDA ranges from approx. 5x to 7x
- **What is a cash flow sweep?**
  - Taking excess cash above mandatory debt repayment and using it pay down outstanding debt rather than distribute it to shareholders; typically done when covenants are broken, but usually have to negotiate terms between the Borrower and the Lender

# Answers to Past Interview Questions: LBOs

- **What is the difference between PIK, bond, and a loan?**
  - PIK– interest accrues to the debt principal payment at the end of each year rather than being paid up front; leads to higher interest payments in the future
  - Bond– trades on markets & its price on the market fluctuates compared to par value; can be bullet or amortized depending on type of bond
  - Loan– price is fixed and does not trade on the markets; is typically issued by banks and not high-yield so much be amortized yearly
- **What is the circularity in an LBO Model?**
  - Interest expense– need it to calculate Net Income, but will then need Net Income to calculate ability to pay down Debt, which then decreases how much interest you pay. This creates a circular relationship.

# Answers to Past Interview Questions: LBOs

- **How much equity contribution do you usually see in LBOS?**
  - Anywhere from 35 to 40%, though this can vary from deal to deal
- **What is the difference between a Levered DCF and an LBO?**
  - Levered DCF has cost of equity as the discount rate
    - Projecting out cash flows and then working into it's implied EV
    - Asking yourself the question, "What is the intrinsic value of this company based on the present value of its future cash flows?"
  - LBO has IRR
    - Setting target IRR and then backing into valuation
    - Asking yourself the question, "What do we need to pay for this company if we aim to achieve a certain IRR within a specific holding period?"

# Answers to Past Interview Questions: LBOs

- **Why is IRR greater than Cost of Equity (besides the fact that private equity investors expect a higher return)?**
    - Higher Liquidity Risk; since LBOs are conducted on private companies (or take public targets private), there is risk in not being able to liquidate the asset in comparable ways to a public company, like selling shares in public markets
- **You are performing an LBO on two companies with Debt and Cash Management. They are bought for the same price, sold for the same price, and have the same EBITDA. Why would one have a higher IRR?**
    - Differences in Net Working Capital, CapEx, D&A, etc.
    - Differences in Taxes, Debt Terms, Equity Contribution, etc.
    - Differences in Holding Period
        - Tip: Walk through the steps of an LBO / Paper LBO

# Answers to Past Interview Questions: LBOs

- **Give me 8 ways to increase IRR in an LBO**
  - Lower purchase multiple
  - Raise exit multiple
  - Boost margins (operational improvements)
  - Use more leverage
  - Dividend recapitalization
  - Pay down debt of the holding period
  - Exit in a shorter time period
  - Recognize synergies between portfolio companies
    - Any action that increases FCF or the certainty in retrieving FCF will increase IRR

# Answers to Past Interview Questions: LBOs

- **Part I: You purchase a company at Year 0 with $100M EBITDA at a purchase multiple of 10x, using 4x leverage. You sell the company at the end of 5 years for 11x and the EBITDA has grown to $200M. You also have $200M Net Cash at the end of your investment. Calculate the cash-on-cash multiple and estimate your IRR. Part II: Next, rank the change in operating improvements, multiple expansion, and debt paydown from greatest impact to lowest impact.**
  - Purchase Price = 10x * $100M EBITDA = $1B; Total Debt Used = 4x Leverage * $100M EBITDA = $400M Debt; Total Equity Contributed = $1B - $400M = $600M Equity
  - Exit Value = 11x * $200M EBITDA = $2.2B
  - You have $200M in Net Cash, which implies that all Debt has been paid off, so your Total Proceeds upon exit is $2.2B + $200M Cash = $2.4B = Total Proceeds = Exit Equity Value
  - Cash-on-Cash Multiple = MoM Multiple = $2.4B / $600M Initial Equity = 4x
  - 4x multiple over 5 years approximates to ~33% IRR

# Answers to Past Interview Questions: LBOs

- **<u>Part I:</u> You purchase a company at Year 0 with $100M EBITDA at a purchase multiple of 10x, using 4x leverage. You sell the company at the end of 5 years for 11x and the EBITDA has grown to $200M. You also have $200M Net Cash at the end of your investment. Calculate the cash-on-cash multiple and estimate your IRR. <u>Part II:</u> Next, rank the change in operating improvements, multiple expansion, and debt paydown from greatest impact to lowest impact.**
  - Returns Attribution Analysis - Operational Improvements = $1B
    - (Y5 EBITDA - Y0 EBITDA) * EBITDA Purchase Multiple = ($200M - $100M) * 10x = $1B Returns from EBITDA Growth
  - Returns Attribution Analysis - Multiple Expansion = $200M
    - (EBITDA Exit Multiple - EBITDA Purchase Multiple) * Year 5 EBITDA = (10x - 11x) * $200M = $200M Returns from Multiple Expansion
  - Returns Attribution Analysis - Debt Paydown = $600M
    - Total Proceeds - Returns from EBITDA Growth - Returns from Multiple Expansion = $2.4B - $600M - $1B - $200M = $600M

# Answers to Past Interview Questions: LBOs

- **<u>Part I:</u> Company A has $200M in Revenue, a 50% EBITDA margin, and free cash flow constant at $40M each year. A PE firm purchases it at 5x with 3x Leverage and the holding period is 5 years. They sell it at 5x. What is the MOIC and IRR assuming all debt is paid down with free cash flow at the end of the holding period. <u>Part II:</u> Based on the information you have, is this a good investment?**
  - Purchase Price = 5x * 50% EBITDA Margin * $200M Revenue = $500M; Debt Used = 3x * $100M EBITDA = $300M Debt; Initial Equity = $500M - $300M = $200M Initial Equity
  - Total FCF Generated over 5 years = $40M * 5 years = $200M Total FCF
  - Exit at 5x * $100M EBITDA = $500M; Taking into account Total FCF & the debt that needs to be paid down → $500M + $200M FCF - $300M Debt = $400M Total Proceeds
  - MOIC = $400M / $200M = 2x
  - 2x over 5 years approximates to ~15% IRR
  - Depending on the firm's target returns, this may or may not be a good investment. Most PE firms target 20-25% IRR at least, however, and this co. might not be a good fit

# Answers to Past Interview Questions: Restructuring

- **What is a Fulcrum Security?**
  - The fulcrum security is the highest (most senior) tranche of securities on the capital structure that does not receive full compensation in a bankruptcy
    - Receive ownership control of the business after bankruptcy
- **What is the difference between Chapter 11 and Chapter 7 bankruptcy?**
  - Chapter 7: Liquidation Bankruptcy
    - Distressed company sells off all of its assets to compensate debt holders and creditors → proceeds from asset sales go to secured creditors first, and leftovers go to other creditors
  - Chapter 11: Reorganization Bankruptcy
    - Distressed companies reorganize their debt and emerge as healthier. → firm will contact its creditors and renegotiate current interest rates and dollar amounts of debt outstanding

# Answers to Past Interview Questions: Restructuring

- **Describe some of the options that are available for companies that cannot meet their debt obligations.**
  - Refinance - obtain fresh debt and equity
  - Sell the company (as a whole or in pieces through asset sale)
  - Restructure financial obligations to lower interest payments / debt repayments, or issue debt with PIK interest to reduce the cash interest expense
  - File for bankruptcy and use that opportunity to obtain additional financing, restructure its obligations, and be freed of onerous contracts
- **What is DIP Financing?**
  - Debtor in Possession financing is a special credit line that allows for distressed companies undergoing Chapter 11 Bankruptcy to continue with operations
    - It sits all the way at the top of the capital structure

# Answers to Past Interview Questions: Restructuring

- **Why might a company declare bankruptcy?**
  - Liquidity crunch - company cannot afford to pay its vendors
  - Creditors accelerate interest payments
  - Cannot meet debt obligations / interest payments
  - Acquisition gone poorly or a company has written down value of an asset steeply and needs extra capital to stay afloat
- **How would a decline in a company's share price cause it to go bankrupt?**
  - It wouldn't; the share price does not affect shareholders' equity / the book value of equity

# Answers to Past Interview Questions: Restructuring

- **What is the option value of equity?**
  - Option value of equity is representative of the equity holders option to hold on to equity and make high returns if the company recovers from distress/bankruptcy
    - Method of valuing the equity of a distressed company whose equity value is at or close to 0 based on the potential for the company's share price to recover after a successful restructuring / other distressed advisory
    - Equity of distressed companies is very similar to an out of the money option
      - You would value it like you value an out of money option
      - Either gonna be 0 or they'll hit big if the company recovers

# Answers to Past Interview Questions: Restructuring

- **What do you actually do in a Restructuring Advisory practice?**
  - RX bankers advised distressed companies - businesses going bankrupt, in the midst of bankruptcy, or getting out of bankruptcy - and help them modify their capital structure to get out of distress through a variety of methods
    - RX typically entails negotiation with creditors regarding the terms of current debt obligations
- **How does collateral work within the context of debt financing?**
  - Collateral functions as a measure of security for securitized lenders to receive a higher guarantee of return on investment
    - Collateralized securities are backed by the guarantee that, if lenders are not paid in full, they will receive a companies asset as “collateral”

# Answers to Past Interview Questions: Restructuring

- **How would you value a distressed company?**
  - Typically, you'd want to use the same valuation methodologies (DCF, Comparables, and Precedent Transactions) as normal valuation but look at the lower range of multiples and make different accounting adjustments
  - You would also use lower projections as the growth prospects of distressed companies differ significantly compared to healthier ones
  - Liquidation Valuation if you assume that a company's assets will be used to pay off its creditors - total worth of a company's physical assets
- **What is Strict Priority?**
  - Order of how investors are paid out in a liquidation

# Answers to Past Interview Questions: Restructuring

- **What is the difference between a dividend and a share repurchase?**
  - Both are methods of returning value back to equity holders
  - Shareholders must pay taxes on dividends immediately
  - Shareholders do not pay taxes on capital gains from repurchases until after they sell their shares
- **What is the difference between yield and the rate of return on a bond?**
  - Return refers to what an investor has earned in the past - backward looking
  - Yield is forward looking as it measures the income that an investment earns while ignoring capital gains
    - Used to measure bond or debt performance and most never equals the returns

# MISC. ANSWERS

BANKING AT MICHIGAN

# Misc. Answers

- Would you rather us hand you $1,000 today or $100 every year into perpetuity?
    - Depends on the discount rate r
    - PV of Perpetuity = X / r
        - If r < 10%, would rather take 100 every year
        - If r > 10%, would rather take $1,000 today.
- What is the Beta of a gambling ring?
    - 0 - no correlation to the market

# Misc. Answers

- What is the P / E of cash?
  - If the price is $1, and at the minimum you can earn an ordinary yield between 1-3% on risk-free assets, the P/E could potentially range btwn 33x to 100x
- 5 things a company can do with cash?
  - Finance future project / CapEx
  - Pay back debt
  - Acquisitions
  - Stock buybacks
  - Issue cash dividends

# Misc. Answers

- 2 ways you can return cash to shareholders? Why would you prefer one over the other?
  - Dividends → taxed twice, shareholders have to pay taxes immediately
  - Company buys back shares → signal to shareholders that the company thinks it is undervalued, and shareholders don't need to pay taxes right away (capital gains)
- Explain the concept behind the time value of money to a 5 year old without talking about money.
  - Would you rather have 1 apple seed now or later? Now is worth more since you can plant a tree and get more apples.

# Misc. Answers

- You are evaluating two laundry mat companies. One owns the equipment, while the other leases the equipment. Which one would you rather buy and why?
    - For owning, save money on depreciation since its a non-cash expense (tax shield)
    - For leasing, annual expense incurred in form of rent expense, so EBITDA is lower (and thus EV / EBITDA is higher)
        - For owning, annual expenses incurred in form of D&A and interest → EBITDA includes neither, so EBITDA is higher and EV / EBITDA is lower
- How do you value a company with no financials or comparables?
    - Could assign value from network or users
    - e.g. Put a value to each user, could look at how much time each user spends using the service or the website

# Misc. Answers

- A company has
  - $2bn in assets
  - 3x Debt to Equity
  - 2x P / BV…
  - What is its market cap?
    - Answer: 1bn
    - A = L + SE
    - If A = 2bn, we know L + SE = 2bn since A = L + SE
    - Thus, since Debt is 3x Equity, we know that Liabilities are 1.5bn and Equity is .5bn or 500mm (add up to 2bn)
    - BV (Book Value) is essentially shareholder's equity, and since the P / BV is 2x, we know that the market cap of the company is 1bn (2 * 500mm)

# AUTHORS / CONTRIBUTORS

# Authors

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*"If you light a lamp for someone it will also brighten your own path."*

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