Access the Rest of the Fundamentals Course

Financial Modeling Fundamentals Module 6: Equity Value, Enterprise Value, and Valuation Metrics and Multiples – Interview Questions

Table of Contents:

Interview Questions 2
The Concepts of Equity Value and Enterprise Value 2
How Events Impact Equity Value and Enterprise Value 6
Valuation Multiples 11
Calculating Equity Value and Enterprise Value 21

Interview Questions

Questions on **valuation** are among the most common ones in investment banking interviews, second only to accounting.

While many valuation questions concern the DCF analysis and specific valuation methodologies, many are also about **the underlying concepts**: Equity Value, Enterprise Value, and valuation multiples.

Over time, these questions have also become significantly more difficult. You used to be able to memorize a few multiples and the Enterprise Value calculation and be fine, but now you need to **understand the concepts** at a deeper level.

The Concepts of Equity Value and Enterprise Value

---

1. What do Equity Value and Enterprise Value MEAN? Don't explain how you calculate them – tell me what they mean!

Equity Value represents the value of **EVERYTHING** the company has (i.e., **ALL** its Assets), but only to **COMMON EQUITY INVESTORS** (i.e., shareholders).

Enterprise Value represents the value of the company's **CORE BUSINESS OPERATIONS** (i.e., **ONLY** the Assets related to its core business), but to **ALL INVESTORS** (Equity, Debt, Preferred, and possibly others).

2. So why do you look at both of them? Isn't Enterprise Value always more accurate?

Neither one is "better" or "more accurate" – they represent different concepts, and they're important to different types of investors.

Enterprise Value and EV-based multiples have some advantages because they are not affected by changes in the company's capital structure *as much as* Equity Value and Equity Value-based multiples are affected.

However, common shareholders and institutional investors often focus on Equity Value because they care more about what a company's *shares* are worth. And if you're valuing a public company, you'll always have to "back into" its Implied Equity Value and its Implied Share Price so you can compare that to its current share price.

3. What's the difference between Current Enterprise Value and Implied Enterprise Value?

Current Enterprise Value is what "the market" as a whole thinks the company's core business operations are worth to all investors; Implied Enterprise Value is what *you* think it's worth based on *your* views and analysis.

You calculate Current Enterprise Value for public companies by starting with Current Equity Value, subtracting non-core-business Assets, and adding Liability and Equity line items that represent different investor groups.

But you calculate Implied Enterprise Value based on valuation methodologies such as the Discounted Cash Flow (DCF) analysis, comparable public companies, and precedent transactions.

4. Why might a company's Current Enterprise Value be different from its Implied Enterprise Value?

Remember that **Company Value** = Cash Flow / (Discount Rate – Cash Flow Growth Rate).

Everyone agrees on a company's current Cash Flow, but you might disagree with the market on the Discount Rate or Cash Flow Growth Rate.

In most cases, your view of a company's value will be different than the market's view because you believe its cash flow will grow at a faster or slower rate.

5. Everyone knows how you move from Equity Value to Enterprise Value.

But WHY do you subtract Cash, add Debt, add Preferred Stock, and so on?

You **subtract** Assets when they represent **non-core-business Assets**. Cash and Investments are examples, but Equity Investments (AKA Associate Companies), Assets Held for Sale, and Assets Associated with Discontinued Operations also count.

You **add** Liability & Equity line items when they represent **different investor groups** beyond the common shareholders. Debt and Preferred Stock are the most common examples, but Unfunded Pensions and Capital Leases (among others) also qualify.

6. Let's say you're about to buy a house using a $600K mortgage and a $200K down payment. What are the real-world analogies for Equity Value and Enterprise Value in this case?

The “Enterprise Value” here is the $800K total value of the house, and it corresponds to *just* the “core value” of the house: The land, the foundation, the walls, rooms, etc.

The “Equity Value” is the $200K down payment you’re making, and it corresponds to everything above PLUS any “non-core” Assets you get along with the house: Random tools and garden supplies, lawn chairs, or anything else that you’re planning to sell immediately.

7. Can a company's Equity Value ever be negative?

Trick question. A company’s *Current Equity Value* cannot be negative because it is based on Shares Outstanding * Current Share Price, and neither of those can be negative. It also can’t be negative for private companies.

However, its *Implied Equity Value* can be negative because you use *your* assumptions to calculate that. So if the company’s Implied Enterprise Value is $0, for example, and it has more Debt than Cash, its Implied Equity Value will be negative.

8. Can a company's Enterprise Value ever be negative?

Yes. Both Current and Implied Enterprise Value could easily be negative – for example, a company might have more Cash than its Market Cap (Current Equity Value) and no Debt. And perhaps your Implied Enterprise Value is the same as, or very close to, its Current Enterprise Value.

9. Why do financing-related events such as issuing Dividends or raising Debt not affect Enterprise Value?

Because Enterprise Value reflects the value of a company’s core business operations to ALL investors in the company.

That definition means that if something does **not** affect the company’s core business, it won’t affect Enterprise Value.

Issuing Dividends, issuing Stock, repurchasing Stock, issuing/repaying Debt, etc. do **not** impact a company’s core business, so they do not affect Enterprise Value.

Note that in reality, there will still be a small impact on Enterprise Value; this is just the theory.

10. Let's say you determine a company's Implied Value with the cash flow formula: Company Value = Cash Flow / (Discount Rate – Cash Flow Growth Rate).

Will this give you a company's Implied Equity Value or Implied Enterprise Value?

It depends on the type of Cash Flow and the Discount Rate you are using. If you're using Cash Flow that's available to **ALL** investors (i.e., Unlevered FCF or Free Cash Flow to Firm), and WACC for the Discount Rate, this formula will produce the Implied Enterprise Value.

If you're using Cash Flow that's available **ONLY** to equity investors (i.e., Levered FCF or Free Cash Flow to Equity), and Cost of Equity for the Discount Rate, this formula will produce the Implied Equity Value.

11. If financing-related events do not affect Enterprise Value, what DOES affect it?

Only changes to a company's core business will affect Enterprise Value. For example, the company wins a major new customer contract, or it announces higher-than-expected sales, or it closes a factory, or it announces positive results from an expansion strategy into Africa.

But remember that this is all *in theory*. In reality, financing changes will still make a small impact on Enterprise Value.

12. If a company wins a major contract with a new customer, will ONLY Enterprise Value change? Or will Equity Value also change?

Equity Value will change as well. The whole point of Equity Value is that it is affected by **BOTH** operational and financial changes, whereas Enterprise Value is affected by **ONLY** operational changes (in theory).

13. Why does Enterprise Value NOT necessarily represent the "true cost" to acquire a company?

First, because the buyer may not necessarily have to repay the seller's Debt – in 99% of cases, they do, or they have to "refinance it" by replacing it with new Debt, but there are exceptions.

Second, the buyer may not "get" the seller's entire Cash balance. The seller needs a certain minimum amount of Cash to continue operating, and so the seller's Cash may not reduce the effective purchase price 1-for-1.

Finally, the buyer has to pay additional fees for M&A advisory, accounting, legal services, and financing to acquire another company, and none of those is reflected in Enterprise Value.

14. In theory, if Companies A and B are the same in all respects, but Company A is financed with 100% Equity, and Company B is financed with 50% Equity and 50% Debt, their Enterprise Values will be the same.

Why is this NOT true in reality?

Because a company's capital structure, whether current, optimal, or targeted, impacts the Discount Rate you use to calculate the Implied Enterprise Value (and by extension, the Discount Rate "the market as a whole" uses to value a company for its Current Enterprise Value).

Not only do the *percentages* of Equity, Debt, and Preferred Stock change WACC, but the *Costs* of all these items also change as the company's capital structure changes.

For example, more Debt will initially reduce WACC because Debt is cheaper than Equity. But past a certain point, additional Debt will start to increase WACC because the risk to *all* investors starts increasing at that stage.

Enterprise Value will be **LESS** affected by capital structure changes than Equity Value, but there will still be *some* impact even from relatively small changes.

Return to Top.

How Events Impact Equity Value and Enterprise Value

These questions can be **surprisingly tricky** even if you understand the definitions of Equity Value and Enterprise Value and all the common scenarios.

But that's why you signed up for this guide – to get practice with the trickiest questions!

1. A company issues $200 million in new shares. How do Equity Value, Enterprise Value, EV / EBITDA, and P / E change?

Equity Value increases by $200 million because of the new shares, but Enterprise Value stays the same because the $200 million of extra Cash offsets the higher Equity Value.

The P / E multiple increases, but EV / EBITDA stays the same.

2. A company issues $200 million in new shares, but it will use $100 million from the proceeds to issue Dividends to shareholders. How does everything change?

In this case, Equity Value increases by $200 million but then falls by $100 million because Dividends reduce Equity Value, so Equity Value is up by only $100 million.

The company ends up with $100 million in cash. Enterprise Value stays the same because, once again, the extra Cash offsets the higher Equity value.

The P / E multiple increases, but by less than in the previous question, and EV / EBITDA stays the same.

3. The company decides to use the $200 million to acquire another business for $100 million instead. How does everything change?

Once again, Equity Value increases by $200 million initially, and Enterprise Value does not change. However, after the company spends $100 million of Cash to acquire another company – **a core-business Asset** – its Enterprise Value will increase by $100 million.

Its Equity Value will **NOT** change in this step because Equity Value does not distinguish between core and non-core Assets; it includes the values of *all* Assets.

So the company's Equity Value increases by $200 million, its Enterprise Value increases by $100 million, and both the P / E multiple and the EV / EBITDA multiple increase.

4. What if the company uses the $100 million to acquire an Asset rather than an entire company?

Once again, Equity Value increases by $200 million initially and does not change after the Asset acquisition because the *type* of Asset acquired is irrelevant to Equity Value.

If this acquired Asset is a **core-business Asset** – for example, a factory – then the company's Enterprise Value will increase by $100 million. If it is **not** – for example, a short-term investment – then the company's Enterprise Value will not change.

So regardless of the classification, the P / E multiple increases. But the EV / EBITDA multiple may or may not increase, depending on the type of Asset acquired.

5. What changes with everything above if the company raises $200 million in Debt to do this instead?

The main difference is that **Equity Value no longer changes**, and so the P / E multiple no longer changes. Enterprise Value also doesn't change because the extra Cash and extra Debt cancel each other out.

However, as in the previous questions, if the company uses the Cash to acquire another company or other core-business Assets, Enterprise Value and EV / EBITDA both increase.

If the company raises $200 million of Debt to issue $100 million in Dividends, Enterprise Value and EV / EBITDA will stay the same through all of that, but Equity Value will decrease by $100 million because of the Dividends, and so the P/E multiple will also decrease.

6. Let's say the company raises $200 million in Debt to acquire another company for a purchase price of $200 million. The other company's Common Shareholders' Equity is exactly $200 million. How does everything change?

In the first step – a $200 million Debt issuance – neither Equity Value nor Enterprise Value will change.

In the second step – an acquisition of another company for $200 million when its CSE is also $200 million – the company's Enterprise Value will increase by $200 million because this other company counts as a core-business Asset.

So the P / E multiple stays the same and the EV / EBITDA multiple increases.

7. How is this scenario different if the purchase price is still $200 million, but the other company has only $100 million in Common Shareholders' Equity?

The only difference is that now the company has to record $100 million of Goodwill (or Other Intangible Assets, or a combination of both) on its Balance Sheet.

However, both of those are core-business Assets, so Enterprise Value still increases by $200 million, and everything else is the same as in the previous question.

8. What happens to everything if a company issues $100 in Dividends?

Equity Value decreases by $100 million, but Enterprise Value stays the same because the lower Equity Value and lower Cash balance cancel each other out. Also, the Cash used to issue these Dividends is a non-core-business Asset.

As a result, the P / E multiple falls, but the EV / EBITDA multiple stays the same.

9. A company has a Current Equity Value of $200, $50 in Cash, and $100 in Debt. If the company spends $25 of its Cash balance to purchase PP&E, how does everything change?

The company's Current Enterprise Value is: $200 + $100 – $50 = $250.

Its Equity Value won't change when it uses $25 of Cash to purchase PP&E because Cash and PP&E are the same – just Assets – from the perspective of Equity Value.

Its Enterprise Value will increase by $25 because the company has converted a non-core-business Asset into a core-business Asset. $200 + $100 – $25 = $275, so its Enterprise Value is now $275.

As a result, its P / E multiple stays the same, but its EV / EBITDA multiple increases.

10. A company has excess Cash. What are the valuation implications if it uses that Cash to repurchase shares vs. repay Debt?

Enterprise Value won't change for either one. The reduced Cash balance offsets the reduced Equity Value, and the reduced Cash Balance also offsets the reduced Debt balance.

However, Equity Value will decrease if the company repurchases shares.

So in a share repurchase, Equity Value and the P / E multiple will fall, but in a Debt repayment, they'll stay the same. And Enterprise Value and EV / EBITDA will stay the same for everything.

11. A CEO finds $100 of Cash on the street and adds it to the company's bank account. How do Equity Value and Enterprise Value change?

Equity Value will increase by $100 because you have to attribute this "free Cash" to *some* investor group, and Equity investors make the most sense because Equity on the Balance Sheet also represents what the company has saved up internally from its operations.

Enterprise Value will not change because Cash is a non-core-business Asset, and the extra Cash offsets the higher Equity Value in the calculation.

12. A company issues a press release indicating that it expects its revenue to grow at 20% rather than its previous estimate of 10%. How does everything change?

This represents a difference in the company's **core business**: It expects higher sales growth.

As a result, both its Enterprise Value and Equity Value will increase. Its Equity Value will increase because the company's Total Assets are more valuable if they are expected to generate higher growth.

And the Enterprise Value will increase because its *core-business Assets* are certainly more valuable if they're expected to generate higher growth.

The Intuition: If a company announces higher-than-expected growth, its share price almost always jumps up, reflecting a higher Equity Value and a higher Enterprise Value.

13. When there's an operational change, how can you determine whether Equity Value or Enterprise Value will change by more?

Generally, Enterprise Value will change by more because it is affected **only** by these operational changes. Since Equity Value is affected by both financial and operational changes, operational changes tend to make less of an impact.

14. Will operational changes impact a company's Current or Implied Enterprise Value by more?

Operational changes will tend to impact a company's **Implied Enterprise Value** – your estimate of the company's value based on your views – by more because you can *immediately* reflect your views by revising your calculations.

On the other hand, sometimes it takes time for "the market" to reflect these operational changes fully, and so the Current Enterprise Value will take more time to change.

15. You've explained that Equity Value represents the value of ALL assets.

If that's the case, why doesn't a Debt issuance boost Equity Value? After all, if a company raises $100 in Debt, it gets $100 in extra Cash.

This is a trick question because the interviewer doesn't state the **LAST PART** of the definition: "The value of **ALL** assets but only to **EQUITY INVESTORS**."

And that last part explains this effect: When a company's Assets increase, if that increase **is funded by Debt** (or any other non-equity investor), then **Equity Value will not increase**.

Return to Top.

Valuation Multiples

Questions on valuation multiples seem easy at first glance, but they can be surprisingly tricky if you don't understand the **fundamental concepts** at a deep level.

For example, do you understand how a valuation multiple is both shorthand for a cash flow-based valuation, and also a way to compare different companies?

Do you understand the trade-offs of different metrics and multiples? What about the exceptions and special cases?

Test yourself with the full set of questions below:

1. What IS a valuation multiple?

A valuation multiple is **shorthand** for a company's value based on its cash flows, cash flow growth rate, and Discount Rate. Normally, you value a company with this formula:

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

Instead of providing all that information, you can use a number like "10x" and express it in a condensed way.

You can also think of valuation multiples as "per-square-foot" or "per-square-meter" values when buying a house: They help you **compare** houses, or companies, of different sizes and see how expensive or cheap similar houses, or companies, are.

2. A company trades at a valuation multiple of 13x EV/EBITDA (based on its Current Enterprise Value). What does that mean?

By itself, this number means nothing at all. It means something **only in relation to other companies and their multiples**.

For example, if other, similar companies in the industry with similar growth profiles are trading at multiples of 10x EV/EBITDA, then this company might be overvalued.

But if those other companies are trading at multiples of 16x EV/EBITDA, then perhaps this company is undervalued.

A discrepancy in multiples is like a clue in a murder mystery: It points your investigation in the right direction, but it doesn't solve the mystery by itself.

3. How can you use valuation multiples in real life?

The most common usage is to calculate valuation multiples for similar companies ("Comparable Company Analysis" or "Public Company Comparable Analysis") and see how the company you're analyzing stacks up (see the previous question).

But you can also use valuation multiples to determine a company's **yield**. For example, if a company has a P/E multiple of 10x, that means you earn 1/10, or 10%, for each dollar you invest in its Equity.

So if you buy a share of the company for $10.00, you "get" $1.00 of Net Income (though the company won't necessarily *distribute* that much in cash).

This same concept applies to Enterprise Value-based multiples, but you have to assume that you purchase $1.00 of the company's *entire capital structure* instead of just its shares.

Finally, you can use multiples to determine a company's *implied* FCF growth rate – the rate at which *the market* expects it to grow.

Let's say a company's EV / EBITDA is 12x. Its Current Enterprise Value is $12,000, and its EBITDA is $1,000. Its Unlevered Free Cash Flow is $500, and the appropriate Discount Rate is 10%.

Since Company Value = Cash Flow / (Discount Rate – Cash Flow Growth Rate), you can say:

$12,000 = $500 / (10% – FCF Growth Rate)

$12,000 * (10% – FCF Growth Rate) = $500

$12,000 * 10% – $12,000 * FCF Growth Rate = $500

$1,200 – $12,000 * FCF Growth Rate = $500

$12,000 * FCF Growth Rate = $700

FCF Growth Rate = 5.8%

This result tells you that **the market expects this company's cash flows to grow at around 5.8% per year into the future**.

You might then compare that to your views of the company's growth to see if this company might be overvalued or undervalued.

4. Suppose that you graph the EV / EBITDA multiples for a set of similar companies along with the revenue growth rates, EBITDA margins, and EBITDA growth rates.

Which operational metric will MOST LIKELY have the strongest correlation with the EV / EBITDA multiples?

Since a company's value depends on its cash flow, cash flow growth rate, and Discount Rate, the EV/EBITDA multiples are most likely to be correlated with the **EBITDA growth rates**.

While EBITDA, Cash Flow, and Free Cash Flow are very different metrics, EBITDA growth is still closer to cash flow growth than revenue growth is.

EBITDA margins don't make much of an impact unless they are *changing* – only changing margins will produce different growth rates.

There might be some correlation between revenue growth rates and EV/EBITDA multiples, but the correlation will be stronger for revenue growth and EV / Revenue multiples.

5. Despite this principle, why do valuation multiples and growth rates often NOT display as much correlation as you might expect?

First, EBITDA growth and FCF growth are very different since FCF includes taxes, the Change in Working Capital, and the full CapEx amount, whereas EBITDA excludes these.

Company valuation is ultimately based on cash flow growth, so growth rates in revenue, EBITDA, EBIT, and Net Income are, at best, rough approximations of cash flow growth.

Also, not every comparable company necessarily has the same Discount Rate; perhaps the company you're analyzing is a lot riskier, or a lot less risky than the others.

Finally, non-financial factors could easily affect multiples. For example, if the company reported recent legal troubles, announced the development of a new product, or recruited a key executive, all those changes could affect its stock price and therefore its multiples.

6. You're valuing a mid-sized manufacturing company, and you're comparing it to peer companies in the same industry.

This company's EV / EBITDA multiple is 15x, and the median EV / EBITDA for the comparable companies is 10x. What's the MOST likely explanation?

The most likely explanation is that the market expects the company's cash flows to grow more quickly than those of other companies. For example, other companies might be expected to grow at 5%, but this company might be expected to grow at 10%.

The Discount Rate is unlikely to differ by a huge amount because these companies are all about the same size and are in the same industry, which means the risk should be similar.

Non-financial factors could also affect the multiple – for example, recent positive news about strategy, product, executives, intellectual property, or competitive performance might also explain why this company trades at a higher multiple than the others.

7. Would you rather buy a company trading at a 15x EV / EBITDA multiple, or one trading at a 10x multiple?

It's completely dependent on what peer companies are trading at and how this company compares.

If every company in the sector is trading at multiples of 20-25x, then 15x might be cheap; if other companies are trading at multiples of 6-8x, then 10x might be expensive.

When you're *buying* companies, you always try to find ones that are undervalued so that you can sell the stock for a higher price in the future.

8. Could a valuation multiple such as P / E or EV / EBITDA ever be negative? What would it mean?

Yes, it's possible for any valuation multiple to be negative (except for ones based on Revenue, which could be $0 but couldn't be negative).

If a company has a negative Net Income or negative EBITDA, the multiples will turn negative.

It means that this particular multiple is not meaningful for valuing the company, so you'll have to use other multiples or methodologies to value it.

9. If a company has both Debt and Preferred Stock, why is it NOT valid to use Net Income rather than Net Income to Common when calculating its P / E multiple?

You can use Equity Value or Enterprise Value in multiples, but you shouldn't create "half-pregnant" multiples that are based on metrics *in between* Equity Value and Enterprise Value.

Also remember that if you do **not** include an expense in the denominator of a multiple, you **have to** include the Balance Sheet item corresponding to that expense in the numerator (and vice versa).

So if you use Net Income rather than Net Income to Common in this case, you'll have to use a modified version of Equity Value that adds Preferred Stock, but none of the other items that you typically add when calculating Enterprise Value.

This numerator will confuse anyone looking at your analysis, so you should stick with the standard Equity Value calculation and pair it with Net Income to Common.

10. If a company's cash flow matters most, why do you use metrics like EBIT and EBITDA in valuation multiples rather than CFO or FCF?

Mostly for **convenience** and **comparability**. CFO and FCF measure a company's cash flows more accurately, but they also take more time to calculate since you need a full or partial Cash Flow Statement for them.

Also, the individual items *within* CFO and FCF vary a lot between companies, and vastly different figures for Deferred Taxes, Stock-Based Compensation, and the Change in Working Capital make it difficult to create meaningful comparisons.

11. What are the advantages and disadvantages of EV / EBITDA vs. EV / EBIT vs. P / E?

First, you should note that you *never* look at just one multiple when valuing companies. Valuation is about the big picture, and you want to evaluate the company across a variety of multiples and methodologies.

But the interviewer will probably be annoying and press you on this point, so you can say that with EV / EBITDA vs. EV / EBIT, EV / EBITDA is better in cases when you want to *completely exclude* the company's CapEx, Depreciation, and capital structure.

EV / EBIT is better when you want to exclude capital structure, but partially factor in CapEx and Depreciation. It is common in industries, such as manufacturing, where those items are key value drivers for companies.

The P / E multiple is not terribly useful in most cases because it's affected by different tax rates, capital structures, non-core business activities, and more – so you use it primarily to be "complete" and ensure that you've covered all the common multiples.

Also, sometimes it is more relevant and important in certain industries, such as commercial banks and insurance firms, where you *do* want to factor in the interest income and expense.

12. What are the advantages and disadvantages of FCF vs. Unlevered FCF vs. Levered FCF?

The main advantage of Unlevered FCF is that it's capital structure-neutral, so a company's cash flow will be the same regardless of its Cash, Debt, and Preferred Stock. It's also easier and faster to calculate than the others.

You'd use FCF or Levered FCF if you *want* to take into account the company's capital structure, and you'd use Levered FCF to be slightly more accurate since it includes (Mandatory?) Debt Principal Repayments.

You almost always use Unlevered FCF in a **DCF analysis** to value a company; FCF is more common for **standalone** financial statement analysis; and Levered FCF is rare, partially because no one agrees on how to calculate it.

You can create a DCF analysis based on Levered FCF as well, but we strongly recommend against doing this because it's less reliable and harder to set up.

13. When you use EBITDAR in the EV / EBITDAR multiple, how must you adjust Enterprise Value?

If the denominator of a valuation multiple **excludes** an expense, then the numerator should **include** the Balance Sheet item corresponding to that expense (and vice versa).

EBITDAR is EBITDA + Rental Expense, so it **excludes** this annual Rental Expense by adding it back.

So with EBITDAR and EV / EBITDAR, you have to capitalize the company's operating leases, usually by multiplying the annual lease expense by 7x or 8x, and then add the capitalized leases to Enterprise Value.

There is no existing Balance Sheet item since operating leases are off-BS, so you must *create* a new Balance Sheet item by capitalizing these leases.

14. Could Levered FCF ever be higher than Unlevered FCF?

Yes. Levered FCF includes Net Interest Expense, so if the company had a *negative value* for that figure, i.e. it earned more in Interest Income than it spent on Interest Expense, and it also had minimal Debt principal repayments, then Levered FCF might be higher than Unlevered FCF.

This scenario is *highly unusual*, but it is possible.

15. If EBITDA decreases, how do Unlevered and Levered FCF change?

Think of what EBITDA includes: Only Revenue, COGS, and Operating Expenses. Unlevered FCF and Levered FCF also include all those items, *plus more*.

So if EBITDA decreases, it means that Revenue has decreased, or that COGS or Operating Expenses have increased.

If any of those happens, then **both Levered FCF and Unlevered FCF should also decrease** since the Operating Income that flows into both of them will also be lower.

Technically, the FCF figures might stay the same if the D&A, Working Capital, or CapEx change in such a way that the change offsets the drop in Operating Income.

But that's not the main point of the question; it's just an edge case.

16. What are some different ways you can calculate Unlevered FCF?

The main methods are:

- **Method #1:** EBIT * (1 – Tax Rate) + Non-Cash Adjustments and Changes in Working Capital from CFS – CapEx.

- **Method #2:** (EBITDA – D&A) * (1 – Tax Rate) + Non-Cash Adjustments and Changes in Working Capital from CFS – CapEx.

- **Method #3:** CFO – (Net Interest Expense and Other Items Between Operating Income and Pre-Tax Income) * (1 – Tax Rate) – CapEx.

Note that in Method #3, you're **reversing the interest expense**, which is why we used a negative sign for that term. The Interest Expense is a negative on the Income Statement, so if you use a negative sign in front of it, you turn it into a positive.

17. When you calculate Unlevered FCF starting with EBIT * (1 – Tax Rate), or NOPAT, you're not counting the tax shield from the interest expense. Isn't that incorrect?

No, it's correct.

If you're **excluding** the impact of a company's capital structure, you have to exclude **EVERYTHING** related to its capital structure. You can't say, "Well, let's exclude interest… but let's still include the tax benefits from that interest."

The tax savings from the interest expense do not exist if there is no interest expense.

If you counted the tax benefits from the interest expense, you'd have to include the entire interest expense as well, which would turn it into Free Cash Flow rather than Unlevered FCF.

18. Could a company's EV / EBITDA multiple ever equal its P / E multiple?

Yes, it's possible because Enterprise Value, EBITDA, Equity Value, and Net Income could be almost any values.

For example, if Enterprise Value = $100, EBITDA = $10, Equity Value = $50, and Net Income = $5, then EV / EBITDA = 10x and P / E = 10x as well.

In practice, P / E multiples tend to be higher than EV / EBITDA multiples because Net Income is usually smaller than EBITDA by a greater percentage than Equity Value is smaller than Enterprise Value.

19. Two companies have the same P / E multiples but different EV / EBITDA multiples. How can you tell which one has more Debt?

You might be tempted to say, "The one with the higher EV / EBITDA multiple," but that's **wrong**. **You can't answer this question because the companies could be very different sizes.**

For example, if they both have P / E multiples of 15x, but one company has Net Income of $10 and one has Net Income of $100, the one with Net Income of $100 is likely to have more Debt – even if its EV / EBITDA multiple is lower.

If you assume that both companies have *the same* Net Income and *the same* EBITDA, then you can "kind of" answer this question.

In that case, the companies have the same Equity Value, so the company with the higher EV / EBITDA multiple must have a higher Enterprise Value.

Most likely, that means that it has more Debt.

HOWEVER, remember that other items factor into the calculation. Perhaps both companies have the same amount of Debt, but the one with the higher EV / EBITDA multiple has less Cash.

Or the company with the higher multiple has a higher Unfunded Pension or Preferred Stock balance.

But as originally stated, this question is too vague to answer unless you get more information.

20. How do you decide whether to use Equity Value or Enterprise Value when you create valuation multiples?

You have to look at **which group of investors** this operational metric is available to: *All* the investor in the company (Equity, Debt, Preferred, and others), or just common Equity investors?

If it's all the investors, use Enterprise Value; if it's just equity investors, use Equity Value.

One easy rule of thumb is to look at whether the metric includes **Net Interest Expense**. If it does, it pairs with Equity Value; if it does not, it pairs with Enterprise Value.

If you're creating a valuation multiple based on a non-financial metric, such as Unique Users or Subscribers, you almost always use Enterprise Value since those metrics are available to and benefit all the investors in the company.

21. Should you use Equity Value or Enterprise Value with Free Cash Flow?

It depends on the type of Free Cash Flow. If it includes Net Interest Expense, i.e. it is just "Free Cash Flow" or Levered FCF, you use Equity Value.

If it does **not** include the Net Interest Expense, i.e. it is Unlevered FCF, you use Enterprise Value.

22. Two companies have the same amount of Debt, but one company has Convertible Debt, and the other has traditional Debt.

Both companies have the same Operating Income, Tax Rate, and Equity Value. Which company will have a higher P / E multiple?

Since the interest rates on Convertible Debt are lower than the rates on traditional Debt, the company with Convertible Debt will have a lower interest expense and therefore a higher Net Income.

As a result, its P / E multiple will be lower. So the company with Convertible Debt will have a lower P / E multiple, and the company with traditional Debt will have a higher P / E multiple.

Advanced Note: Technically, you may have to reflect on the Income Statement the "Amortization of the Convertible Bond Discount," which is a number that reflects how the Liability component of a Convertible Bond is worth less than a normal Bond because of the lower interest rate. If you do this, then the Net Incomes of both companies will be much closer, and the P / E multiples may be almost the same.

23. A company is currently trading at 10x EV / EBITDA. It wants to sell an Asset for 2x the Asset's EBITDA. Will that sale increase or decrease the company's Enterprise Value?

It depends on what type of Asset it is. Assuming that it is a *core-business Asset*, then the sale will reduce the company's Enterprise Value because the company is trading away the Asset for Cash, which is a non-core-business Asset.

If it's *not* a core-business Asset, then the company's Enterprise Value won't change.

Even though the company's Enterprise Value decreases in the first case, its EV / EBITDA multiple **increases** because the Asset's multiple was lower than the multiple for the entire company.

Pretend that the company's total EBITDA was $100, and this Asset contributed $20 of that EBITDA. The company's Enterprise Value before the sale was, therefore, $1,000.

The company now sells the Asset for $40. After the sale, the company's Enterprise Value falls by $40, and its EBITDA falls by $20. So its new EV / EBITDA is $960 / $80, or 12x.

This is why companies often sell under-performing divisions: To boost their valuation multiples and increase their stock prices.

Return to Top.

Calculating Equity Value and Enterprise Value

1. Is it accurate to subtract 100% of the Cash balance when moving from Equity Value to Enterprise Value?

No, but everyone does it anyway. The reasoning is that a portion of any company's Cash balance *is* a "core-business Asset" because the company needs a certain minimum amount of Cash to continue running its business.

So technically, you should subtract *only* the Excess Cash, i.e. the portion of the Cash balance above this number. For example, if the company has $1,000 in Cash but needs only $200 to run its business, you should subtract $800 rather than $1,000 when calculating Enterprise Value.

However, companies rarely disclose this number, and it is almost impossible to determine on your own, so in practice, everyone just subtracts the entire Cash balance.

2. Why do you NOT subtract Goodwill when moving from Equity Value to Enterprise Value? The company doesn't need it to continue operating its business.

Goodwill **is** a core-business Asset, so you should **NOT** subtract it when moving to Enterprise Value.

Remember that Goodwill reflects the premiums paid for companies that the company previously acquired – if you subtracted it, you'd be saying, "Those previous acquisitions are **not** a part of this company's core business anymore."

And that's true only if the company has shut down or sold those companies, in which case it removes all Assets and Liabilities associated with them.

3. Why might you subtract only part of a company's Deferred Tax Assets (DTAs) when calculating Enterprise Value?

Deferred Tax Assets can contain many different items, some of which are related to simple timing differences or tax credits for operational items.

But you should subtract **ONLY** the Net Operating Losses (NOLs) that are in the DTA because those are non-operational in nature.

There is some controversy on exactly *which figure* to subtract since NOLs are off-Balance Sheet Assets with a small presence (roughly, NOLs * Tax Rate) within the DTA.

So some people argue that you should use the off-BS figure, some argue that it should be the on-BS figure, and some argue for other approaches, such as calculating the PV of tax savings from the NOL and subtracting that.

Don't mention all of this in interviews – just acknowledge that you subtract NOLs when moving from Equity Value to Enterprise Value.

4. Why might someone argue that you should NOT add capital leases when moving from Equity Value to Enterprise Value?

Some people argue that capital leases are **operational items** since owning vs. renting buildings (or planes, stores, etc.) is an operational decision, not a financial one.

If capital leases are "operational liabilities" and they do not represent another investor group, you should not add them in this calculation.

We disagree with this view because, in our opinion, all leases are **financial** in nature – they're similar to Debt since they require fixed payments for many years under non-cancelable contracts.

So we treat capital leases as a Debt-like item, and we recommend capitalizing operating leases, especially in industries where some companies rent and others own property.

5. How do you factor in Working Capital when moving from Equity Value to Enterprise Value?

You don't. Remember that Equity Value represents the value of **ALL** the company's Assets but **only** to equity investors.

So you subtract items only if they're non-core-business Assets, and you add Liability and Equity line items only if they represent different investor groups.

The Assets that comprise Working Capital all count as core-business Assets (e.g., Inventory, Accounts Receivable, Prepaid Expenses, etc.), and the Liabilities in Working Capital are all operational items that do **not** represent other investor groups (e.g., Accrued Expenses, Deferred Revenue, etc.).

So there's no reason to add or subtract Working Capital, as both Equity Value and Enterprise Value reflect it implicitly.

6. Why do you subtract Equity Investments, AKA Associate Companies, when moving from Equity Value to Enterprise Value?

Two reasons. First, they're *non-core-business Assets* since the company could operate fine without them. You should, therefore, exclude them from Enterprise Value.

Second, you need to do this for comparability purposes. Metrics like EBITDA, EBIT, and Revenue include 0% of these Equity Investments' financial contributions, but Equity Value implicitly includes the value of the stake.

So if a Parent Company owns 30% of an Associate Company, the Parent Company's Equity Value will include the value of that 30% stake. However, its Revenue, EBIT, and EBITDA include **nothing** from it.

Therefore, you have to subtract this 30% stake when moving from Equity Value to Enterprise Value to ensure that all Enterprise Value-based valuation multiples exclude Equity Investments in both the numerator and the denominator.

7. Why do you add Noncontrolling Interests when moving from Equity Value to Enterprise Value?

First, these Noncontrolling Interests represent another investor group: Another company that the Parent Company owns a majority stake in. Enterprise Value reflects **all** the investor groups in a company, so you must add Noncontrolling Interests.

Second, you need to do this for comparability purposes. Since the financial statements are consolidated 100% when the Parent Company owns a majority stake in the Other Company, metrics like Revenue, EBIT, and EBITDA include 100% of the Other Company's financials.

Equity Value, however, includes only the value of the actual percentage the Parent owns.

So if a Parent Company owns 70% of the Other Company, the Parent Company's Equity Value will include the value of that 70% stake. But its Revenue, EBIT, and EBITDA reflect *100%* of the Other Company's Revenue, EBIT, and EBITDA.

Therefore, you have to add the 30% the Parent Company **does not own** – the Noncontrolling Interest – when you move from Equity Value to Enterprise Value, so that Enterprise Value reflects 100% of that Other Company's value.

Doing so ensures that metrics such as EV / Revenue and EV / EBITDA include 100% of the Other Company's value and financial contributions so that the multiples are consistent.

8. If a company has $10,000 in convertible bonds with a par value of $2,000 and a conversion price of $20.00, how many diluted shares will there be?

There is not enough information to answer the question. You also need to know the current stock price of the company to see if the convertible bonds could convert and create additional shares.

9. A company has 100 shares outstanding, and its current share price is $10.00. It also has 10 options outstanding at an exercise price of $5.00 each. What is its Diluted Equity Value?

Its Basic Equity Value is $1,000, or 100 * $10.00. To calculate the diluted shares, note that the options are all "in-the-money" – their exercise price is less than the current share price.

When these options are exercised, 10 new shares get created – so the share count is now 110 rather than 100.

The investors paid the company $5.00 to exercise the options, so the company gets $50 in cash. It uses that cash to buy back 5 of the new shares, so the diluted share count is 105, and the Diluted Equity Value is $1,050.

10. A company has 100 shares outstanding, and its current share price is $10.00. It also has 10 options outstanding at an exercise price of $15.00. What is its Diluted Equity Value?

$1,000. The options' exercise price is above the current share price, so they have no dilutive effect.

11. A company has 1 million shares outstanding, and its current share price is $100.00. It also has $10 million of convertible bonds, with a par value of $1,000 and a conversion price of $50.00.

What are its diluted shares outstanding?

First, note that these convertible bonds are convertible because the company's share price is above the conversion price. So you count them as additional shares rather than Debt.

Next, you divide the value of the convertible bonds – $10 million – by the par value – $1,000 – to figure out how many individual bonds there are:

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

Next, the number of shares per bond is the par value divided by the conversion price:

$1,000 / $50.00 = 20 shares per bond.

So the convertibles create 20 * 10,000, or 200,000 new shares, and the diluted share count is 1.2 million.

You don't use the Treasury Stock Method with convertibles because the investors don't pay the company anything to convert the bonds into shares.

12. A company has 10,000 shares outstanding and a current share price of $20.00. It has 100 options outstanding at an exercise price of $10.00.

It also has 50 Restricted Stock Units (RSUs) outstanding.

Finally, it also has 100 convertible bonds outstanding at a conversion price of $10.00 and par value of $100.

What is its Diluted Equity Value?

Since the options are in-the-money, you assume that they get exercised, so 100 new shares are created.

The company receives 100 * $10.00, or $1,000, in proceeds. Its share price is $20.00, so it can repurchase 50 shares with these proceeds. There are now 50 additional shares outstanding (100 new shares – 50 repurchased).

You add the 50 RSUs as if they were common shares, so now there's a total of 100 additional shares outstanding.

The company's share price of $20.00 exceeds the conversion price of $10.00, so the convertible bonds can convert into shares.

Divide the par value by the conversion price to determine the shares per bond:

$100 / $10.00 = 10 new shares per bond

There are 100 convertible bonds outstanding, so you get 1,000 new shares (100 convertible bonds * 10 new shares per bond).

All of these changes create 1,100 additional shares outstanding, so the diluted share count is now 11,100, and the Diluted Equity Value is 11,100 * $20.00, or $222,000.

13. This same company also has Cash of $10,000, Debt of $30,000, and Noncontrolling Interests of $15,000. What is its Enterprise Value?

You subtract the Cash, add the Debt, and then add Noncontrolling Interests:

Enterprise Value = $222,000 – $10,000 + $30,000 + $15,000 = $257,000.

Return to Top.