



# Western Capital Markets

Official Technical Question Bank



## Accounting Section

**1. Assuming you purchase a company with \$1000 in fixed assets and \$800 in liabilities for \$1000 in cash (stock acquisition method). Assuming no asset write-ups, walk through the changes on your balance sheet.**

Cash decreases by \$1000, fixed assets increases by \$1000, goodwill increases by \$800. Liabilities increase by \$800. (Good to know: Company should only be worth \$200, hence \$800 of goodwill created).

**2. You acquire a company with \$1000 in fixed assets and \$800 in liabilities for \$100 in cash. Walk through the changes to your 3 statements immediately after this transaction takes place, assuming a 40% tax rate.**

REMEMBER: You have a capital gain of \$100 dollars. On the IS, extraordinary income increases by \$100 (after EBITDA), so pre-tax income increases by \$100 and net income by \$60. On the CF statement, net income increases by \$60, subtract \$100 in non-cash income, and cash decreases by \$40. CFFF goes down by \$100 due to the acquisition. Net cash change is \$140. On the BS, cash is down by \$140, assets are up by \$1000, liabilities are up by \$800, and retained earnings are up by \$60.

**3. You buy \$100 in capital assets for \$50 of debt and \$50 of cash. What happens to the 3 statements?**

No change on income statement. On CFS, CFFF is up by \$50 and CFFI is down by \$100, cash overall is down by \$50. On the BS, Cash is down by \$50, PP&E is up by \$100, and Debt is up by \$50 (net \$50 increase each side).

**4. What kind of items would you see on all 3 financial statements?**

Net income, depreciation / amortization, taxes, inventory, PIK interest.

**5. You have 2 balance sheets from the start and end of the year. How do you calculate EBITDA?**

You would take the difference in Retained Earnings to calculate Net Income, and adjust if necessary for Dividends using Dividends Payable. Then, add back the ending value of Income Tax Payable to get EBT, and calculate the interest paid using given interest rates and terms in the footnotes or in the line items to get EBIT. Finally, look at the difference in Accumulated Depreciation / Amortization for each of the capital assets and intangibles and add the difference back to get EBITDA.

**6. Deferred revenue decreases by \$100, how are the 3 statements affected? Assume 40% tax rate.**

**Assume 100% GM.**

Income Statement:	Cash Flow Statement:	Balance Sheet:
Rev +100	NI +60	Cash -40
GP +100	Unearned Revenue -100	Unearned Revenue -100
EBT +100	NCF -40	R/E +60
Tax -40		
NI +60		

**7. You have an asset with a gross value of \$1000 and a net book value of \$400. You sell the asset for \$600 cash. What happens to the 3 financial statements? Assume a 40% tax rate.**

<b>Income Statement:</b>	<b>Cash Flow Statement:</b>	<b>Balance Sheet:</b>
Gain on Sale +200 EBT +200 Tax -80 NI +120	NI +120 Gain on Sale -200 CFFO -80 CFFI +600 NCF +520	Cash +520 PP&E -400 R/E +120

**8. What are the effects on the 3 statements of a \$1000 debt write-down? Assume a 40% tax rate.**

<b>Income Statement:</b>	<b>Cash Flow Statement:</b>	<b>Balance Sheet:</b>
Debt Write-Down +1000 Tax -400 NI +600	NI +600 Debt Write-Down -1000 NCF -400	Cash -400 Debt -1000 R/E +600

**9. A company has \$30 in A/R, \$50 in Inventory and \$20 in A/P at the end of the year. In Q1 of the next year, the company makes \$90 in revenue with an 80% gross margin. The company's DSO is 90, DIO is 45 and DPO is 60. How much did cash flow change due to changes in working capital?**

Previous Operating WC = $\$30 + \$50 - \$20 = \$60$ Revenue = \$90 $\text{COGS} = (1 - 0.8) * \$90 =$ \$18	$\text{New A/R} = \$90 * 90 / 90 =$ \$90 $\text{New Inv} = \$18 * 45 / 90 =$ \$9 $\text{New A/P} = \$18 * 60 / 90 =$ \$12 New Operating Working Cap = \$87	Change in Working Capital $= \$87 - \$60 = \$27$ Therefore, cash flow decreased by \$27 due to working capital.
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## Valuation (DCF, Multiples) Section

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**1. When would increasing WACC increase your EV?**

If your cash flows for your projection period are mostly negative, then increasing WACC reduces the effect of these negative cash flows on the PV of your UFCFs (even though your PV of your Terminal Value will be reduced somewhat).

**2. What is the impact on COGS of switching from FIFO to LIFO in an inflationary environment?**

This would increase COGS as with LIFO you expense the most recently purchased items in COGS, which were more expensive.

**2.5. What is the impact on your DCF of switching from FIFO to LIFO in an inflationary environment?**

COGS will increase, lowering the taxes paid in cash. While there will be a smaller change in NWC proportional to the increase in COGS, the impact of taxes means that using LIFO will actually increase UFCF and thus increase the valuation.

**3. If one company uses cashiers and another uses vending machines, which has the lower EV/EBITDA multiple?**

The vending machine company will have greater depreciation (not factored into EBITDA) but lower wages, therefore increasing its EBITDA. Therefore, assuming EV stays the same, the multiple is lower.

**4. If your company gambles \$1000 a day and reports its winnings as earnings, what is its beta?**

0. Any price movements are completely uncorrelated with the market.

**5. As an investor, would you rather have a \$10 increase in revenue, a \$10 increase in gross profit, or a \$10 decrease in CapEx?**

Best would be decrease in CapEx (doesn't affect tax), then increase in gross profit, then increase in revenue (as this will also increase COGS).

**6. What are the differences between Cash Flow from Operations and Unlevered Free Cash Flow?**

1. One-time expenses / income that CFFO includes but UFCF does not
2. Capital Expenditures that UFCF includes by CFFO does not
3. Interest Expense & Corresponding Tax Savings that CFFO accounts for but UFCF does not
4. \*\*Tax Treatment: in UFCF, it is assumed all tax expense is immediately paid in cash (\*\*depending on the interpretation of NWC in the FCF calculation), whereas CFFO only reflects the amount of tax that the company actually pays

**6.5. What are the differences between EBITDA and Cash Flow from Operations?**

1. One-time expenses (normalized for in EBITDA)
2. Interest expense (uncounted in EBITDA)
3. Working capital changes (uncounted in EBITDA)
4. Tax payments (uncounted in EBITDA)

**7. If the EV/Sales multiple is 2x and the EV/EBITDA multiple is 8x, what is the EBITDA margin?**  
25%.

**7.5. If the EV/EBIT multiple for the same company is 16x, what industry could this be a part of?**

Some sort of capital-intensive industry with considerable CapEx and D&A, like manufacturing.

**8. Which of the following has a greater impact in a DCF valuation? A \$1 increase in revenue, a \$1 increase in cash OpEx, or a \$1 increase in changes in NWC? Rank them.**

NWC > OpEx > revenue. NWC is the highest as it has no bearing on tax (it follows tax in the model). OpEx will have a greater impact than revenue because an increase in revenue increases COGS as well.

**9. Name 3 ways lowering tax rate affects your DCF valuation. What is the overall impact of lowering the tax rate on your valuation?**

- 1) Lowers cash tax, increasing cash flow
  - 2) Increases cost of debt as it lessens the tax shield, decreasing cash flow due to increased WACC
  - 3) Increases cost of equity because leveraged beta is higher, increasing WACC and decreasing cash flow
- Overall effect: uncertain.

**10. What kind of company or asset would have a negative beta?**

Gold! Gold has intrinsic value, so investors pursue gold when the equity markets are down. When equity markets rise and the intrinsic value of companies looks stronger, gold moves down. Other potential candidates include bankruptcy firms and low-cost consumer staples businesses. A negative  $K_e$  is created, meaning investments in these assets or companies can be used as insurance.

**11. What are the pros and cons of EBITDA as the proxy to value EV?**

Pros: Easily comparable across various capital structures (capital structure neutral), neutralizes impact of varying tax schemes, neutralizes impact of different accounting standards (impacting depreciation)

Cons: Does not account for D&A and therefore inappropriate for asset-heavy business models like manufacturing, not applicable for early-stage companies (without earnings), not applicable for balance-sheet centric business models; does not account for reinvestment (CapEx and WC investment) and therefore does not factor in higher ROIC metrics

**12. If two companies are trading at 8X EBITDA, one 100% Equity, one 50% Debt and 50% Equity... which has a higher P/E?**

The company financed by 100% equity will have a higher P/E because the Equity Value is double that of the company funded partially by debt, and the impact of interest will not likely impact the valuation as heavily.

**13. Imagine I flip a coin. If it lands on heads, I pay you \$2. If it lands on tails, I continue flipping until it lands on heads. I pay you  $\$2^n$ , with n the number of flips. How much would you pay for this "instrument"?**

Looking at this mathematically, any financial instrument is priced given the probability of each return. In the event of this:

$$\$2(1/2) + \$2^2(1/4) + \$2^3(1/8) + \dots = 1 + 1 + 1 + \dots = \text{infinity}$$

However, logically speaking this does not make sense as infinite returns are impossible in the real world.

Essentially, you would cap the potential return at a certain number x, and then pay n in the event where  $x = 2^n$ .

**14. You have an instrument that pays \$100 in year 1, \$200 in year 2, \$300 in year 3, and so on. How much would you pay for this instrument, assuming a discount rate of 5%? (Perpetuity of a perpetuity)**

Year 0	Year 1	Year 2	Year 3	Year 4
PV = \$100/0.05 = \$2000	\$100	\$100	\$100	\$100
	PV = \$2000	\$100	\$100	\$100
		PV = \$2000	\$100	\$100

The initial perpetuity (\$100 per year, starting in year 1) is worth  $\$100/0.05 = \$2000$ . In the future, each year, the perpetuity that begins in that year is worth \$2000 at that time. Therefore, these annuities form one large perpetuity of \$2000 in PV per year, which when discounted using 5%, becomes  $\$2000/0.05 = \$40000$ .  $\$40000 + \$2000 = \$42000$ .

**15. A company's share price is \$50 and it has 200 shares outstanding. There are 50 options outstanding with a strike price of \$20, 30 RSUs, and \$6000 in convertibles with a \$1000 par value and conversion price of \$40. What is the fully diluted equity value?**

- 1) The options are in the money ( $\$20 < \$50$ ), so they will be exercised. 50 options are exercised at the price of \$20, generating \$1000 for the company, which repurchases  $\$1000 / \$50 = 20$  shares. Net 30 new shares are created.
- 2) 30 new shares are created from the RSUs.
- 3)  $\$1000$  par value /  $\$40$  conversion price = 25 new shares per convertible.  $\$6000 / \$1000 * 25 = 150$  new shares created.
- 4)  $200 + 30 + 30 + 150 = 410$  total shares outstanding.  $410 * \$50 = \$20500$  is the diluted equity value.

## Mergers & Acquisitions (M&A) Section

**1. Company A has a 20x P/E multiple. Company B has a 10x P/E multiple. Company A acquires Company B with 50% stock and 50% debt. What is the after-tax interest rate required to make this deal neither accretive nor dilutive (breakeven)?**

Equate earnings yield of B to weighted cost of equity and debt issued.	$0.10 = 0.5K_e + 0.5(1-t)K_d$ $0.10 = 0.5(0.05) + (0.5)(1-t)K_d$ $0.075 = 0.5(1-t)K_d$	$(1-t)K_d = 0.15$
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**2. Company A has a P/E of 10x and Company B has a P/E of 20x. Company A buys Company B for 50% in debt and 50% in equity, and the interest rate is 10%. What must the tax rate be to breakeven?**

$0.05 = 0.5(1-t)K_d + 0.5K_e$ $K_d = 0.10, K_e = 0.1$	$0.05 = 0.5(1-t)(0.1) + (0.5)(0.1)$ $0 = 0.5(1-t)(0.1)$	$t = 1$ Therefore, tax rate must be 100%.
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**3. Company C has Net Income of \$200, a share price of \$6 and 10 shares outstanding. Company D has Net Income of \$200, a share price of \$5, and 6 shares outstanding. Company C buys D in an all-stock deal at a 20% premium. No synergies. How accretive or dilutive is this acquisition?**

Current EPS for C: $\$200/10 = \$20$ New Market Cap for D: \$5 $* 6 * 1.2 = \$36$	New shares issued: $\$36/\$6 = 6$ New EPS for C: $(\$200 + \$200)/(10+6) = \$25$	$\$25/\$20 - 1 = 25\%$ accretive
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**4. What are the 4 types of M&A synergies?**

- Revenue Synergies (Cross-selling, etc.)
- Cost Synergies (Reduce redundant costs, economies of scale)
- Tax Synergies (relocate HQ to take advantage of tax rate)
- Financing / Leverage Synergies (refinance debt of target with lower interest rate debt)

**5. If an acquisition is announced for \$10, and the stock currently trades at \$5, why would it only rise to \$8?**

Execution Risk: It would not rise to the full value of the announced price because of investor skepticism that the deal will not go through. Additionally, if paid in stock, investors may not have confidence in the acquiring company (of which they will become shareholders).

**6. Why might the share price rise above \$10?**

The price might rise further if investors believe there may be other bidders that may attempt to outbid the existing price. It could also vary with differences in transaction structure.

**7. Why might an acquirer purchase another company?**

Financial / Strategic Reasons	Fuzzy Reasons
<ul style="list-style-type: none"> <li>• Consolidation / economies of scale</li> <li>• Gain market share</li> <li>• Seller is undervalued</li> <li>• Acquire customers</li> <li>• Product expansion or diversification</li> </ul>	<ul style="list-style-type: none"> <li>• Intellectual property</li> <li>• Eliminate competition</li> <li>• Hiring talent</li> <li>• Ego &amp; pride (specifically for C-suite, as compensation may be tied to performance metrics)</li> </ul>

## Leveraged Buyouts (LBO) and Private Equity Section

**1. PAPER LBO: You buy a company (LTM EBITDA of \$100) for 5x LTM EBITDA, levered up 3x. EBITDA grows by \$10 per year. You sell after a 5-year holding period for 5x. There is a 20% LFCF margin from EBITDA. Assume bullet maturity. What is the IRR?**

Purchase Price: \$500 Sources: Debt - \$300, Equity - \$200

Holding Period Year	1	2	3	4	5
EBITDA	110	120	130	140	150
LFCF	22	24	26	28	30

Ending Equity Value: \$150 EBITDA \* 5x EBITDA - \$300 (Debt Principal) + \$30 + \$28 + \$26 + \$24 + \$22 = \$580

$\$580/\$200 = \sim 2.9$  MOIC

Use rule of 114:  $IRR = 114/5 = 22.8\%$

**2. PAPER LBO: You buy a company with \$50 EBITDA for 6x EBITDA with 4x leverage, hold it for 6 years, and sell at 6x with no EBITDA growth. 5% interest rate (paid as a percent of the starting principal at the time of the transaction), 20% tax rate, \$20 in D&A, \$3 in CapEx per year, and \$15 in increased Working Cap efficiencies per year. All FCF is used to pay off principal. What is the IRR?**

Purchase Price: \$300 Sources: Debt - \$200, Equity - \$100

Holding Year	1	2	3	4	5	6
EBITDA	50	50	50	50	50	50
D&A	-20	-20	-20	-20	-20	-20
Interest	-10	-10	-10	-10	-10	-10

Pre-Tax Inc.	20	20	20	20	20	20
Net Income	16	16	16	16	16	16
+D&A	20	20	20	20	20	20
CapEx	-3	-3	-3	-3	-3	-3
-ΔNWC	-15	-15	-15	-15	-15	-15
FCF	48	48	48	48	48	48

Ending Equity Value:  $\$50 * 6 + \$48 * 6 - \$200 = \$388$

$\$388/\$100 = 3.88$  MOIC

Use rule of 144:  $IRR = 144/6 = \sim 24\%$

**3. As a private equity buyer, would you rather purchase a company with \$5mm in CapEx or \$10mm in CapEx, if the first has \$4mm in maintenance CapEx and the second has \$1mm in maintenance CapEx?**  
 Buy the company with \$10mm in CapEx (\$1mm of which is maintenance), as you can optimize the business' growth and reduce the amount of growth expenditure needed.

**4. What are 3 ways to increase IRR?**

1. Decrease the purchase price, increase exit, change timing of exit
2. Increase leverage
3. Improve operating metrics (revenue growth, EBITDA margin, LFCF margin, etc.)

**5. Should IRR be higher, or WACC?**

IRR represents the Cost of Equity of the target (the expected return of the financial sponsor), and as the company will be highly levered with debt that is less expensive than equity, the WACC should be lower.

**6. A company has \$300mm of EBITDA. You purchase the company at 10x EBITDA with 40% equity stake. It generates LFCF of \$400mm. EBITDA does not grow, and after a period of time you sell for 10x EBITDA. Your MOIC is 3.0x. How many years did you hold the company for?**

MOIC = (Final Equity Stake) / (Initial Equity Stake). Let t be the time in years.

$$3 = (400t + 1200)/1200$$

$$t = 6$$

**7. What is more important – MoM multiple, or IRR?**

Both metrics are important – MoM is useful for quickly determining the equity value at the exit, and IRR demonstrates the annualized return and can be benchmarked against the market return. However, IRR is the more important metric because it considers the length of the holding period (something that MoM does not) and is therefore a more comparable return for reference against other asset classes.



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## Restructuring (RX) Section

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### 1. Why would a company prefer to negotiate in an out-of-court restructuring?

In an out-of-court restructuring, there are greatly reduced legal fees, greater flexibility in negotiating strategy and ability, and the process is generally quicker. However, if a company has a complex capital structure with many tranches of debt, it may not be possible to settle all creditor relationships out-of-court.

### 2. What are the differences in work and strategy in approaching a debtor engagement and a creditor engagement?

The strategy of a debtor engagement is more reactive in its analysis compared to a creditor, and provides a more holistic look at the company's capital structure in all aspects, and also takes into consideration the ability of the firm to become a going concern moving forward. In working for a creditor, the analysis is more proactive and there is additional strategy in terms of capital recovery. Both involve examining and working within the legal framework.

### 3. You buy a bond for \$0.70 on the dollar, with a 14% coupon and a 5-year maturity. What is the YTM on the bond?

There are 2 components to the yield to maturity: the coupon yield and the principal yield.

Coupon Yield:  $\$0.14 / \$0.70 = 0.20 = 20\%$

Principal Yield:  $\$1.00 / \$0.70 - 1 = 0.4286 / 5 = 0.0857 = 8.57\%$  annually (dividing by 5 to approximate)

Total Yield =  $20\% + 8.57\% = 28.57\%$

### 4. There are two tranches of debt with the same interest rate: one is convertible, one is not. Which would you rather invest in?

It depends on the situation. If the company (and economy) is healthy, then you would take the convertible option as it provides the optionality of taking an equity ownership stake in the company. However, if the company is in distress, you would rather take the non-convertible option as it is often more senior in the capital stack and is seen as less risky.

### 5. What are some common transactions seen in a corporate restructuring?

- Could involve either paying out existing debt holders for their principal or renegotiating better terms on debt repayments and interest
- Could involve an asset sale to raise funds
- The exchange of debt obligations for equity for some creditors in the fulcrum security tranche

### 6. What are 2 reasons why a bond would trade below its face value?

1. The market rate is higher than the bond's coupon
2. The company is in distress and repayment is unlikely

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## General Business Knowledge Section

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### 1. What distinguishes a good business from a good investment?

You need to be able to buy into a good business at an attractive price for it to be a good investment.

### 2. Company A can produce oil at \$50 / barrel. Company B can produce oil at \$30 / barrel. Oil sells for \$70 today, and will sell for \$100 in a year. Which company would you rather invest in?

Invest in Company A --> margins will expand from \$20 to \$50 (versus \$40 to \$70 for Company B), a far greater relative margin expansion.

### 3. Why would a company stay private?

- Not at the whims of public shareholders that want strong quarterly results – makes you freer to optimize operations and not worry about short-term gains
- Less strict reporting requirements – get to keep financials private
- Less intense accounting standards
- Save on the costs of reporting and releasing financials

### 4. A company sells two types of chairs. In two years, it sells the same total number of chairs and the same volume of chairs, but its gross margin increases. How could this happen?

1. The company sells more of the chair that is cheaper to produce.
2. The input prices for the chairs decrease.
3. The prices of the chairs rise.
4. Accounting standards change.

### 5. If there are two companies in the same industry, what qualitative factors would cause one to trade at a higher price point than another?

It all comes down to risk and growth prospects. Major news points, competitive advantages, management, future growth prospects, etc., could all be valued into the company with a higher price point.

### 6. What are some common uses of cash on a company's balance sheet?

*Returning Money to Investors*

1. Dividends
2. Debt Repayments
3. Stock Buybacks

*Investments*

4. M&A (external – growth through acquisition)
5. Capital Expenditures (investments into the company)

### 7. A holding company and operating company both have debt on their balance sheets. Which debt is likely to be more senior?

The debt of the operating company is likely to be more senior as (1) it has more assets available for collateral, and can therefore secure its debt, and (2) it generates its own internal operational cash flow, whereas a holding company simply holds other assets that generate cash flow.

**8. If your hurdle rate is 10% and all of your investment opportunities return only 8%, what do you do?**

You return capital to your stakeholders. This can mean repaying debt, repurchasing shares or issuing dividends.

**9. What are some ways a company can go public, and what are the advantages / disadvantages of each?**

1. Initial Public Offering (IPO) – issuing new shares to the public market
  - a. Pros: Raises capital, typically generates public interest, locks up prior investors for price stability (arguably a con depending on stakeholder)
  - b. Cons: Significant underwriting fees, several intermediaries and advisors, lengthy negotiations
2. Direct Listing / Direct Public Offering (DPO) – listing existing shares for trade
  - a. Pros: Lower fees (no underwriting / financing fees)
  - b. Cons: No new capital raised
3. Reverse Merger – acquiring control of a publicly listed company
  - a. Pros: Enables a company to go public and acquire a competitor in one step
  - b. Cons: Only applicable in certain scenarios (where an acquisition makes sense) & requires capital outflow
4. Acquisition by a SPAC
  - a. Pros: Negotiations are simpler (no dealing with volatile markets, investors and underwriters), no SEC document reviews
  - b. Cons: Limited number of SPACs, investors in SPACs don't get a say in target business

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**Good Luck!**

Please contact us with any questions at [communications@westerncapitalmarkets.com](mailto:communications@westerncapitalmarkets.com).

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