

Valuation

1. What is Free Cash Flow to Firm?

FCFF or Free cash flow to the firm is used in DCF financial modeling. A company generates cash flows from its operations by selling goods or services. Some of its cash goes back into the business to renew fixed assets and for working capital requirement. Free cash flow to firm is the excess cash generated over and above these expenses. Free cash flow to firm goes to the debt holders and the equity holders.

Free Cash Flow to Firm or FCFF Calculation = EBIT x (1-tax rate) + Non-Cash Charges + Changes in Working capital – Capital Expenditure

2. What is the difference between Cash Flow and Free Cash Flow?

A corporation's cash flow from operations is available from the first section of the statement of cash flows. Usually the calculation begins with the accrual accounting net income followed by adding back depreciation expense and then adjusting for the changes in the balances of current assets and current liabilities.

3. What is Free Cash Flow to Equity?

FCFE or Free Cash Flow to Equity model is also one of the DCF approaches (along with FCFF) to calculate the Stock price. FCFE measure how much “cash” a firm can return to its shareholders and is calculated after taking care of the taxes, capital expenditure and debt cash flows.

FCFE model has certain limitations. For example, it is useful only in cases where the company's leverage is not volatile and it cannot be applied to companies with changing debt leverage.

Free cash flow is often defined as the cash flow from operations (or net cash flows from operating activities) minus the cash necessary for capital expenditures. Occasionally, dividends to stockholders are also deducted.

4. What is Dividend Discount Model?

Dividend Discount Model is based on the understanding that fair value of stock is the present value of all its future dividends.

$$Intrinsic_value_{stock} = \sum_{t=1}^{\infty} \frac{CF_t}{(1+k)^t}$$

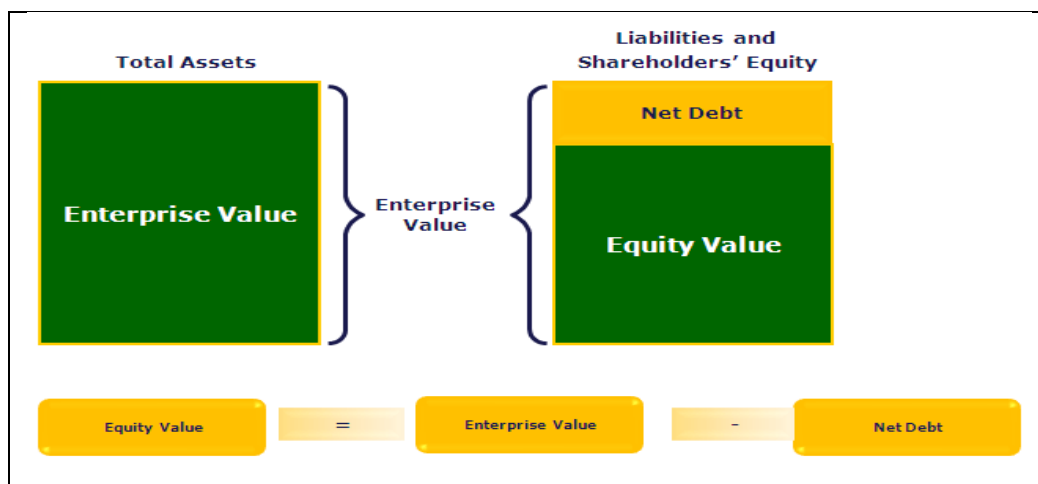
Here the CF = Dividends.

5. What is the Difference between Enterprise value and equity value?

This is one of the most basic interview questions on valuation. Straightforward answer –

Enterprise Value = Market value of operating assets

Equity Value = Market value of shareholders' equity



6. What is the difference between trailing PE and forward PE?

Trailing PE Ratio uses the Historical EPS, while Forward PE Ratio uses the Forecast EPS. Let us look at the below another example to calculate the Trailing PE vs Forward PE Ratio.

Name	Price (\$)	# shares	M Cap (US\$m)	EPS			P/E		
				TTM	2016E	2017E	TTM	2016E	2017E
AAA	234	141	841	10.0	11.0	12.0	23.4	21.3	19.5
BBB	93	248	584	12.0	13.0	15.0	7.8	7.2	6.2
CCC	183	89	413	8.0	9.0	8.5	22.9	20.3	21.5
DDD	115	258	749	5.0	4.0	3.0	23.0	28.7	38.3
Average							19.2	19.4	21.4

- Trailing Price Earnings Ratio formula = $\$234 / \$10 = \$23.4x$
- Forward Price Earnings Ratio formula = $\$234 / \$11 = \$21.3x$

7. What are the most common multiples used in valuation?

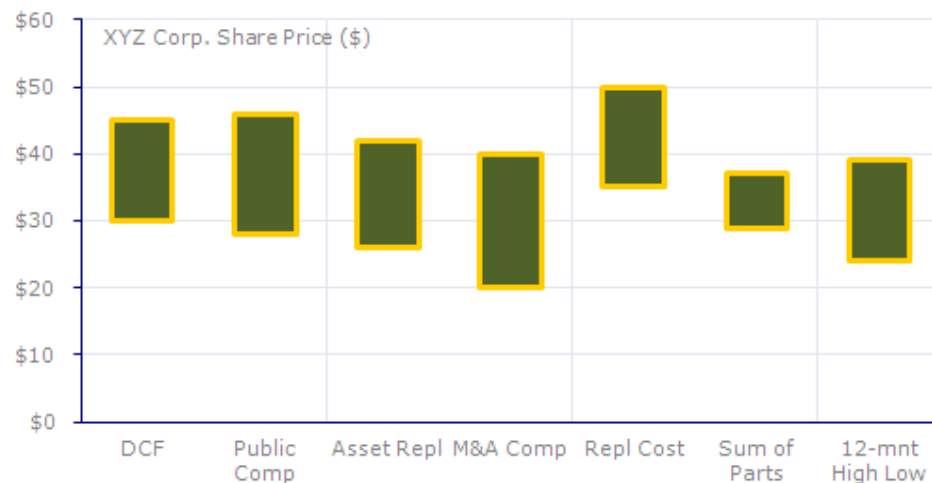
This is another basic valuation interview question. There are few common valuation multiples which are frequently used in valuation –

- EV to EBIT
- Price to Cash Flow
- Enterprise Value to Sales
- EV to EBITDA
- PEG Ratio
- Price to Book Value
- PE Ratio

8. How would you present these valuation methodologies to investors?

The best way to approach this is to do your homework first. If possible, find out the valuation of the firm using each methodology and then show it to the investors as “football field” chart. One thing you need to remember is you should always show a

range instead of a specific number as one needs to estimate many factors before coming to the conclusions.



9. What are the three most used methodologies of valuation and how you would rank them?

This is a pretty common question, but it's often asked. You would say – discounted cash flow analysis (DCF) Valuation, comparable comp analysis, and precedent transactions are the three most used methodologies for valuation. The question about ranking is tricky. Usually, precedent transactions are higher than the comparable companies as control premium is built into it. In the case of DCF, it can go both ways (highest or lowest) depending on the assumptions you make during the computation.

Other than these three, what are the other methodologies? Give a brief.

Other than the above 3, you can talk about the following methodologies –

LBO Analysis: LBO Analysis helps a firm determine how much PE a firm would be able to pay to hit the “target IRR” (generally, the “target IRR” happens to be in the range of 15-25%).

Sum of the Parts: This has two steps. Firstly, each part is valued separately. And then, they are added together.

Liquidation Valuation: The whole idea of Liquidation Valuation is to imagine that all the assets of the company are sold off. And then once the figure comes up, the liabilities are subtracted from the figure. This is the capital (if at all) equity investors receive.

M&A Premiums Analysis: First M&A deals are analyzed to figure out how much premium each buyer paid and then utilizing the information to find out how much the company is worth.

Replacement Value: The valuation of replacing the assets of the company would be the replacement value.

10. What is precedent transactional analysis?

In simple words, the precedent transactional analysis is a valuation method which takes the past transactions of similar companies to value a company.

If we break down this method in few steps, here are they –

Firstly, the similar companies are chosen based on the similar features or being in the similar industry.

Secondly, the size of the transactions should be similar.

Thirdly, the type of transaction and the features of buyers would be same.

Fourthly, transactions which happened more recently have been considered more valuable.

Fifthly, the estimate is being made on the basis of above factors.

11. Are there any factors through which you can choose comparable companies?

This valuation interview question should be easy to answer. There are exactly three factors that are used to choose comparable companies.

Firstly, the most important factor is the industry classification. This is most important because, on the basis of this, the companies can be easily compared at a high level.

Secondly, you need to consider the financial criteria if you want to go more specific. Under financial criteria, you would look at revenue, EBITDA, EBITDAR, EBIT, etc.

Thirdly, the last you should consider is geography.

Usually, the first factor (industry classification) is used most and the least used factor is geography.

12. How do you value a bank?

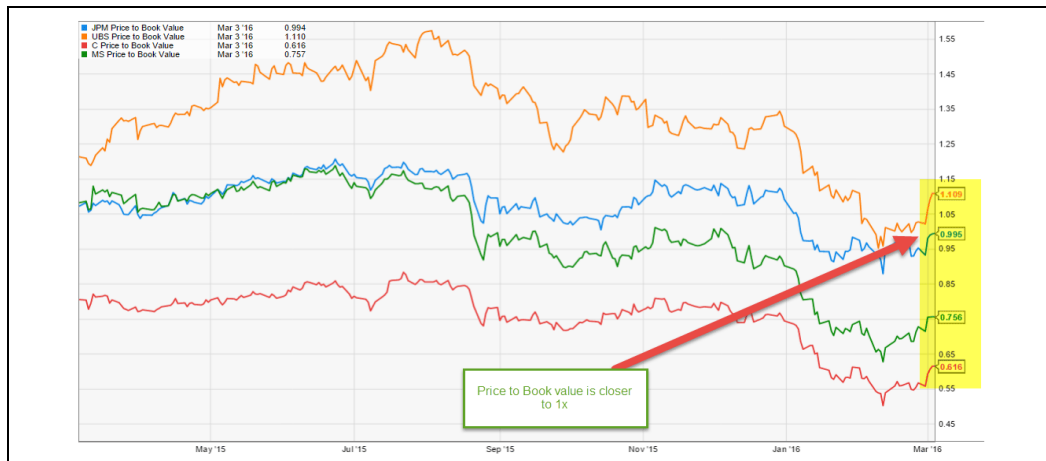
This one is an expected valuation interview question. Be sure to answer this correctly.

Banks are primarily valued using Price to Book Value multiple. This is because of the following reasons –

Banks have assets and liabilities which are periodically marked to market, as it is mandatory under regulations. So, the Balance Sheet value represents the market Value, unlike other industries where the Balance Sheet represents the historical cost of the assets/liabilities.

Bank assets include investments in government bonds, high-grade corporate bonds or municipal bonds, along with commercial, mortgage, or personal loans that are generally expected to be collectible.

Below graph shows a quick comparison of Historical Book values of JPMorgan, UBS, Citigroup, and Morgan Stanley.



13. What are some examples of industry-specific multiples?

This one is another important valuation interview question. Industry-specific multiples vary as per the industrial factors. Let's look at four examples –

Real Estate Investment Trusts (REITs): Price / Funds from operations (FFO); Price / Adjusted Funds from operations (AFFO)

Retail or Airlines: Enterprise Value (EV) / Earnings before interests, taxes, depreciation, amortization and rent (EBITDAR)

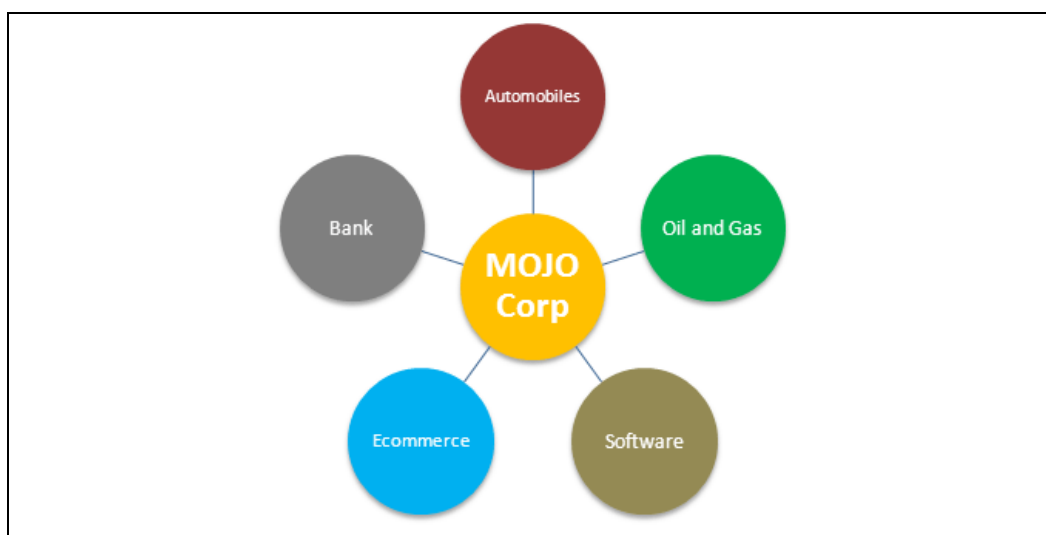
Technology: EV / Unique Visitors; EV / Page-views

Energy: Price (P) / Net Asset Value (NAV); P / 1 million cubic foot equivalent (MCFE); P / 1 million cubic foot equivalent per day (MCFE / D)

14. When would you use the sum of the parts?

The sum of the parts is mostly useful for companies that have several divisions unrelated to each other. For example, if a company has an energy division, consumer finance division, technology division, and media division; the sum of the parts would be pretty useful.

Let us understand the Sum of the Parts valuation using an example of a large conglomerate company (ticker MOJO) operates the following business segments



Automobile Segment Valuation – Automobile Segment could be best valued using EV/EBITDA or PE ratios.

Oil and Gas Segment Valuation – For Oil and Gas companies, the best approach is to use EV/EBITDA or P/CF or EV/boe (EV/barrels of oil equivalent).

Software Segment Valuation – We use PE or EV/EBIT multiple to value Software Segment. Bank Segment Valuation – We generally use P/BV or Residual Income Method to value Banking Sector. E-commerce Segment – We use EV/Sales to value E-commerce segment (if the segment is not profitable) or EV/Subscriber or PE multiple.

15. When would you use a liquidation valuation & when liquidation valuation will produce the highest value?

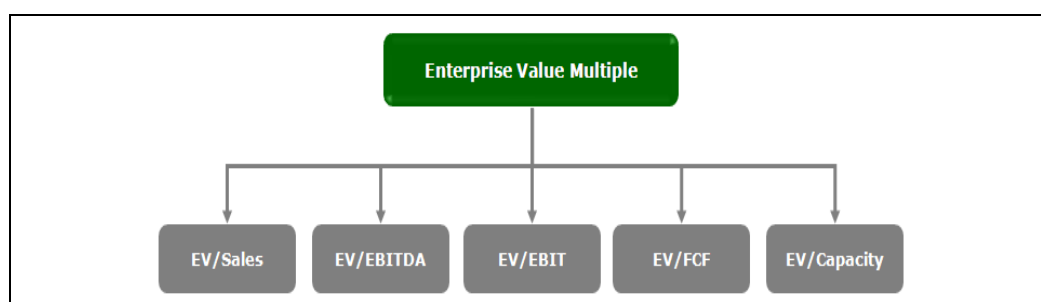
Liquidation valuation is useful when there are any bankruptcy situations. If a company has a chance to go belly up, liquidation valuation will help to understand how much capital equity investors will get after the debts have been paid off.

Liquidation valuation producing high value is highly unlikely. But if the market is severely undervaluing assets for a particular reason and the firm has substantial hard assets, it could be possible. Due to this, the company's comparable companies and precedent transactions would generate lower values and as assets are valued pretty highly, liquidation valuation will produce a higher value.

16. In the case of free cash flow multiples, what would you use – equity value or enterprise value?

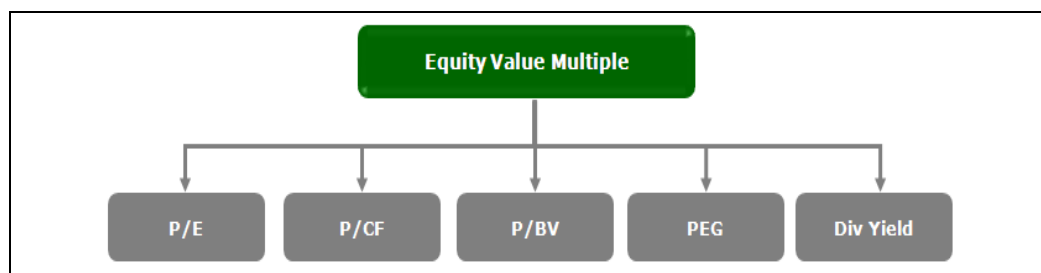
There are two things to remember here. First, in the case of unlevered free cash flow, you need to use enterprise value.

Below are the **enterprise value multiples** –



And, in the case of levered free cash flow, you should use equity value. Here's why. In unlevered free cash flow, interest is excluded. Thus, the money is available to investors. But in the case of levered free cash flow, interest is included; thus, it is only available to equity holders.

Below is the list of **Equity Value Multiples** –



17. Which is Better PE or EV To EBITDA

This one is a tricky valuation interview question. Most people use the PE ratio as the primary valuation tool. However, there are several limitations of PE Ratio due to which EV to EBITDA is considered to be a better valuation multiple.

- PE Ratio does not take balance sheet risk into consideration. The fundamental position of the company is not reflected correctly in PE Multiple.
- Different debt to equity structure can have a significant effect on the company's earnings. Earnings can vary widely for companies that have debt due to a component of Interest Payments affecting the Earnings Per Share.
- It cannot be used when earnings are negative. For example, Box Inc. You cannot simply find PE Multiple for such unprofitable companies. One must use normalized earnings or forward multiples in such cases.
- Earnings are subject to different accounting policies. It can be easily manipulated by management.

18. How do you value Box?

Box IPO Annual Income Statement								
(\$ in Million Except Per Share Amounts)	Historicals			Forecasts				
	Dec-11	Jan-13	Jan-14	Jan-15	Jan-16	Jan-17	Jan-18	Jan-19
Revenue	21,084	58,797	124,192	248,384	471,930	873,070	1,571,526	2,750,170
Cost of revenue	(6,873)	(14,280)	(25,974)	(49,677)	(94,386)	(174,614)	(314,305)	(550,034)
Gross profit	14,211	44,517	98,218	198,707	377,544	698,456	1,257,220	2,200,136
Operating expenses:								
Research and development	(14,396)	(28,996)	(45,967)	(74,515)	(117,982)	(174,614)	(235,729)	(275,017)
Sales and marketing	(36,189)	(99,221)	(171,188)	(298,061)	(519,123)	(873,070)	(1,414,373)	(2,200,136)
General and administrative	(13,480)	(25,429)	(39,843)	(74,515)	(132,140)	(226,998)	(377,166)	(605,037)
Total operating expenses	(64,065)	(153,646)	(256,998)	(447,091)	(769,245)	(1,274,682)	(2,027,268)	(3,080,190)
Per Month Operating Expense	(5,339)	(12,804)	(21,417)	(37,258)	(64,104)	(106,223)	(168,939)	(256,683)
Per Month Operating Expense (ex R&D)	(4,139)	(10,388)	(17,586)	(31,048)	(54,272)	(91,672)	(149,295)	(233,764)
Loss from operations (EBIT)	(49,854)	(109,129)	(158,780)	(248,384)	(391,702)	(576,226)	(770,048)	(880,054)
Remeasurement of redeemable convertible preferred stock	(356)	(1,727)	(8,477)					
Interest income (expense), net	(109)	(1,764)	(3,705)	(1,986)	1,352	10,766	23,512	35,448
Other income (expense), net	49	116	(26)					
Loss before provision (benefit) for income taxes	(50,270)	(112,504)	(170,988)	(250,370)	(390,350)	(565,460)	(746,535)	(844,606)
Provision (benefit) for income taxes	1	59	(2,431)	-	0	0	0	-
Net loss	(50,271)	(112,563)	(168,557)	(250,370)	(390,350)	(565,460)	(746,535)	(844,606)

Have look at the above Box IPO Financial model with forecasts. What we note is that BOX is making losses not only at the Operating but also at the Net Income Level. How do you value such companies that grow fast but are free cash flow negative?

In such cases, we cannot apply valuation multiples like PE ratio (due to negative earnings), EV to EBITDA (if EBITDA is negative) or DCF approach (when FCFF is negative). The valuation tool that comes to our rescue is EV to Sales!

19. Can Terminal Value be Negative?

This is another tricky valuation interview question. The answer is theoretically YES, Practically NO!

Theoretically, this can happen when the Terminal value is calculated using the perpetuity growth method

$$\text{Terminal Value} = \frac{FCFF_5 \times (1 + \text{Growth Rate})}{(WACC - \text{Growth Rate})}$$

In the formula above, if we assume $WACC < \text{growth rate}$, then the Terminal Value derived from the formula will be Negative. This is very difficult to digest as a high growth company is now showing a negative terminal value just because of the formula used. However, this high growth rate assumption is incorrect. We cannot assume that a company is going to grow at a very high rate until infinite.

20. When would you not use a DCF in valuation?

In two particular situations, you should never use DCF –

Firstly, if the firm has unpredictable or unsteady cash flows.

Secondly, when debt and working capital serve a completely different role altogether. For example, DCF is not used to value banks as banks and financial institutions don't reinvest their debt and working capital.

21. Would an LBO or DCF give higher valuation? Why?

Usually, DCF will give a higher valuation. Unlike DCF, in LBO analysis, you won't get any cash flow between year 1 and final year. So the analysis is done the basis of terminal value only. In the case of DCF, the valuation is done both on the basis of cash flows and the terminal values; thus it tends to be higher.

Moreover, in LBO, an expected IRR (Internal Rate of Return) is set up and then the valuation is done.

Let's say that a company has no profit and no revenue. How would you value that company?

The simplest way to look at it is to answer that is to say that the valuation of the company would be done by using other metrics. As there is no profit and no revenue, there won't be any cash flow. Thus, using creative multiples that will go with the inherent nature of the business will do the trick.