

Free Cash Flow Overview



When you're valuing a company with a **DCF analysis**, you need to calculate their Free Cash Flow (FCF) to figure out what they're worth.

While "Free Cash Flow" is simple in theory, in practice it has generated more questions on the BIWS site than almost any other topic.

I'm going to cover **7 key points** about FCF here:

1. [What "Free Cash Flow" actually means, and why we use it rather than EBITDA, EPS, or other profitability metrics in a DCF.](#)
2. [An outline of how to transform a Cash Flow Statement into a Free Cash Flow calculation.](#)
3. [What you do with Working Capital line items, what you include and exclude, and why you add or subtract different items in those calculations.](#)
4. [Unlevered vs. Levered Free Cash Flow, and why we normally use Unlevered FCF in a DCF.](#)
5. [How to project Free Cash Flow over a 5-year period in a DCF.](#)
6. [How to put all these pieces together and calculate FCF via different formulas.](#)
7. [Lingering / common questions on how to calculate FCF in a DCF analysis.](#)

What "Free Cash Flow" Means and FCF vs. EBITDA vs. EPS

"Free Cash Flow" means: "How much cash is this company's core business generating, on a recurring, predictable basis?"

Many companies define Free Cash Flow as: **Cash Flow from Operations minus Capital Expenditures (CapEx)** (Yes, this is a simplified definition – we'll get into the more detailed ones in a bit).

We define it that way because those items:

1. Are related to the company's **core business** – Cash Flow from Operations reflects the cash they earn, and CapEx reflects how much cash they need to spend to grow that business.
2. **Recur** on a predictable basis – Unlike items related to acquisitions or equity/debt financing, for example, most mature companies earn a predictable amount in cash and spend a predictable amount on CapEx.

Free Cash Flow is different from EBITDA and Earnings Per Share (EPS) for the following reasons:

- **EBITDA** is an accounting metric and excludes Taxes, Capital Expenditures, and changes to items like Inventory, Accounts Receivable and Accounts Payable – so it is not the best representation of how much real cash a company generates.

- **Earnings Per Share (EPS)** includes non-cash charges such as Depreciation & Amortization, and excludes changes in balance sheet items like Inventory, Accounts Receivable, and Accounts Payable. It also excludes CapEx, so it's even less accurate for measuring cash flow than EBITDA.

EBITDA and EPS are useful for *comparing* different companies to one another, but they are less useful for establishing how much in **after-tax cash flow a company generates on its own**.

Here's a table that lays out how all these metrics stack up:

	FCF	EBITDA	EPS
Stands For:	Free Cash Flow	Earnings Before Interest, Taxes, Depreciation & Amortization	Earnings Per Share
How to Calculate It:	Varies based on whether Levered or Unlevered (see next sections); <i>basically</i> Cash Flow from Operations – CapEx	Operating Income (EBIT) + Depreciation & Amortization + Potentially Other Non-Cash and One-Time Charges	Net Income / Shares Outstanding
What Does It Mean?	How much real cash flow does this company generate from its business on a recurring, predictable basis?	How does this company's operating income, before taxes, interest, and (some) non-cash charges, compare to other companies'?	How does this company's after-tax earnings compare to other companies'?
Includes Interest Income / (Expense)?	Levered – Yes; Unlevered – No	No	Yes
Includes Taxes?	Yes	No	Yes
Includes Non-Cash Charges?	Only includes tax-impact of non-cash charges	No (Depending on the calculation)	Yes
Includes Changes in Working Capital?	Yes	No	No
Includes CapEx?	Yes	No	No
Includes Mandatory Debt Repayment?	Levered – Yes; Unlevered – No	No	No

EBITDA and EPS are useful when **comparing different companies** because EBITDA adjusts for different tax rates, different non-cash charges, capital structures, and so on, and gives you a more “normalized” metric, and EPS is useful because it is quick to calculate (that's one of its few redeeming qualities).

However, neither one is a particularly accurate measure of how much **cash** a company really generates because both metrics exclude major items like CapEx.

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From the Cash Flow Statement to Free Cash Flow

If you're just sticking to a **basic** definition of Free Cash Flow, you can re-use the company's Cash Flow Statement to calculate it – here's an example from Steel Dynamics, a company in the industrials sector:

Operating activities:			
Net income (loss)	\$ 265,692	\$ 129,599	\$ (11,019)
Adjustments to reconcile net income (loss) to net cash provided by operating activities:			
Depreciation and amortization	222,607	224,698	221,426
Impairment charges	—	12,805	—
Equity-based compensation	17,283	14,688	17,589
Deferred income taxes	34,436	46,097	92,596
(Gain) loss on disposal of property, plant and equipment . . .	(3,925)	1,215	839
Changes in certain assets and liabilities:			
Accounts receivable	(100,602)	(196,556)	72,159
Inventories	(85,523)	(261,110)	175,183
Other assets	5,683	(15,335)	4,076
Accounts payable	56,551	71,169	(8,860)
Income taxes receivable/payable	26,242	99,276	1,611
Accrued expenses	47,911	42,761	(120,044)
Net cash provided by operating activities	486,355	169,307	445,556

Cash Flow from Operations is always your starting point because these items are all **related to the company's core business** and are **recurring and predictable**.

Here, we start with Net Income but in an Unlevered Free Cash Flow Calculation (keep reading) you would use Operating Income * (1 – Tax Rate) to exclude Interest Income and Interest Expense.

Next up is the Cash Flow from Investing Section:

Investing activities:			
Purchases of property, plant and equipment	(167,007)	(133,394)	(330,052)
Investments in short-term commercial paper	(84,838)		
Investment in direct financing lease			(27,267)
Other investing activities	16,000	(15,684)	(15,926)
Net cash used in investing activities	(235,837)	(149,078)	(373,945)

You **only** include Capital Expenditures here because they are the only item that's **recurring, predictable, and related to the company's core business**.

Acquisitions are certainly not predictable, and investing in commercial paper, financing leases, and so on, are not core business-related.

Even something like selling assets (the proceeds from the asset sales show up here) is also non-recurring, so you leave it out.



If you have **specific reason to believe** that one of these items IS going to be recurring (e.g. the company states explicitly that it plans to keep selling off \$100 of assets each year) then maybe you can leave it in. Otherwise, you only count CapEx from this section of the Cash Flow Statement.

Finally, the easy part – Cash Flow from Financing:

Financing activities:

Issuance of current and long-term debt	10,103	556,553	1,268,435
Repayments of current and long-term debt	(7,740)	(346,963)	(1,690,557)
Issuance of common stock (net of expenses) and proceeds from exercise of stock options, including related tax effect . .	13,396	14,014	420,930
Contributions from noncontrolling investors	27,389	5,348	5,000
Distributions to noncontrolling investor	(567)	—	—
Dividends paid	(81,882)	(64,969)	(68,672)
Debt issuance costs	(6,969)	(6,707)	(13,972)
Net cash provided by (used in) financing activities	(46,270)	157,276	(78,836)

In an **Unlevered Free Cash Flow** calculation, you *always* leave out all the items here because:

1. Dividends, issuing or paying off debt, issuing or repurchasing stock, and so on are **not related** to the company’s core business, but rather to its investors and/or capital structure.
2. These items are all **optional** – a company doesn’t technically “need” to issue dividends, but it certainly needs to keep spending on CapEx if it wants its business to grow.

In a **Levered Free Cash Flow** calculation, you would count **mandatory debt repayments** here because that’s a required, recurring use of cash and you *do* care about the company’s capital structure there.

Now that we’ve been through that sketch, let’s look at the most common questions on FCF and variations such as Unlevered and Levered FCF.

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What’s the Deal with Working Capital?

This point probably causes more confusion than anything else – specifically, what do you **include** in this section and what do you exclude?

The real **answer**: “Whatever the company you’re analyzing does in its filings.”

There’s little-to-no consistency in what you find in this section, and companies often include very different items depending on what they consider “related to their business.”



Generally you should include:

- **Current Assets** *except* for Cash & Cash-Equivalents (and Investments, Marketable Securities, etc.) – you keep those out because you calculate how they change at the bottom of the cash flow statement, so you’d be double-counting if you did it here as well.
- **Current Liabilities** *except* for Debt and debt-related items.

You should also exclude **Deferred Tax Assets** and **Deferred Tax Liabilities** from this section most of the time since companies track changes to those right above in the section with non-cash charge adjustments.

Additionally, you may also include *some* Long-Term Assets and *some* Long-Term Liabilities here **IF they are related to the company’s core business operations**.

Here’s an example for Steel Dynamics:

Operating activities:			
Net income (loss)	\$ 265,692	\$ 129,599	\$ (11,019)
Adjustments to reconcile net income (loss) to net cash provided by operating activities:			
Depreciation and amortization	222,607	224,698	221,426
Impairment charges	—	12,805	—
Equity-based compensation	17,283	14,688	17,589
Deferred income taxes	34,436	46,097	92,596
(Gain) loss on disposal of property, plant and equipment	(2,025)	1,215	820
Changes in certain assets and liabilities:			
Accounts receivable	(100,602)	(196,556)	72,159
Inventories	(85,523)	(261,110)	175,183
Other assets	5,683	(15,335)	4,076
Accounts payable	56,551	71,169	(8,860)
Income taxes receivable/payable	26,242	99,276	1,611
Accrued expenses	47,911	42,761	(120,044)
Net cash provided by operating activities	486,355	169,307	445,556

A few things to note here:

- They include **Income Taxes Receivable and Income Taxes Payable** but *not* Deferred Income Tax Assets or Liabilities... because those are not related to the **core business operations**. They arise from different Depreciation methods, M&A deals, net operating losses, and so on.
- They don’t explicitly include Long-Term Assets here but “Other Assets” could easily refer to Long-Term Assets – we have no way of knowing unless they clarify that in the filings.
- Aside from that, you see fairly standard items like Accounts Receivable, Inventory, Accounts Payable, Accrued Expenses, etc.
- As always, if an asset goes up it drains cash flow and if an asset goes down it increases cash flow – and vice versa for liabilities.

So, what should you say in an interview if you're asked about Working Capital when calculating Free Cash Flow?

"Generally, you include Current Assets except for Cash and Deferred Tax Assets, and Current Liabilities except for Debt and Deferred Tax Liabilities, and when an asset goes up, it increases cash flow, and when it goes down it reduces cash flow; the opposite applies for liabilities. Common examples for Current Assets are Accounts Receivable, Inventory and Prepaid Expenses; common examples of Current Liabilities are Accounts Payable and Accrued Expenses."

Don't even mention Long-Term Assets and Liabilities because it will lead to even more in-depth questions about what might go there – keep it simple unless they ask for more.

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Unlevered Free Cash Flow vs. Levered Free Cash Flow

Here's the difference between these two:

- **Unlevered Free Cash Flow:** *Excludes* the impact of interest income, interest expense, and mandatory debt repayments – and is therefore "capital-structure neutral." In other words, the company's value does **not** depend on how much cash and debt it has.
- **Levered Free Cash Flow:** *Includes* the impact of interest income, interest expense, and mandatory debt repayments. In other words, the company's value **does** depend on how much cash and debt it has.



Unlevered FCF is also known as **Free Cash Flow to Firm (FCFF)** and Levered Free Cash Flow is also known as **Free Cash Flow to Equity (FCFE)**.

Of these two metrics, **Levered Free Cash Flow** is closer to how much real cash a company generates... but normally in a DCF we use Unlevered Free Cash Flow anyway.

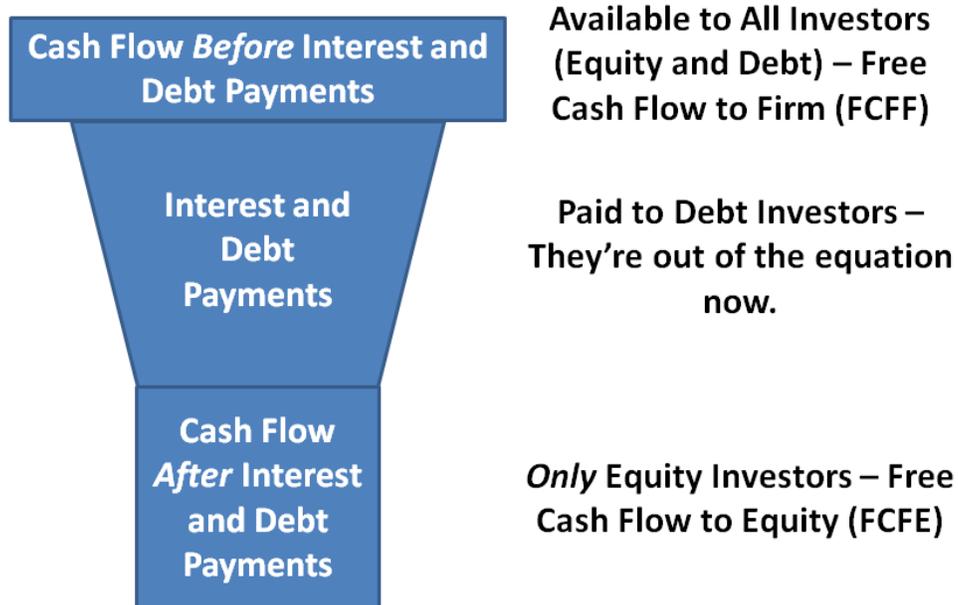
Why?

Because most of the time in investment banking / private equity / hedge funds / equity research / asset management we care about a company's **core business value**, not the value that comes from its cash and debt.

Running Unlevered DCF analyses also makes it far easier to compare the outputs between different companies and different industries, so in 99% of cases you will see Unlevered FCF used in the real world.

The other big difference is that if you use Unlevered FCF (or Free Cash Flow to Firm), you calculate the company's **Enterprise Value** but with Levered FCF (or Free Cash Flow to Equity), you calculate the company's **Equity Value**.

We have received A LOT of questions on this, so here's how you can think about it using a funnel structure:



Think of “cash flow” as a way to **pay investors in the company**. At the top, *before* you take out interest expense and debt repayments, that cash flow is available to **everyone** – both equity and debt investors.

What metric represents both **equity and debt investors**? That's right, **Enterprise Value**.

After you've got this “cash flow available to everyone,” you then pay debt investors by making the required interest payments and principal repayments to them.

Now that they've been paid, that remaining cash flow is **only** available to equity investors, and you can “pay” those equity investors by issuing dividends or repurchasing shares from them.

Since this cash flow is **only** available to equity investors, when you use it in a DCF you calculate the company's **Equity Value**.

Here's how the formulas for Unlevered FCF (FCFF) and Levered FCF (FCFE) differ:

- **Levered Free Cash Flow:** Net Income + Non-Cash Charges – Increase in Working Capital – CapEx – Mandatory Debt Repayments



- **Unlevered Free Cash Flow:** Operating Income * (1 – Tax Rate) + Non-Cash Charges – Increase in Working Capital – CapEx

We add back non-cash charges because we want to include the **tax effects of those charges, but not the charges themselves.**



What does “Increase in Working Capital” mean?

Working Capital in a DCF is (usually) defined as “Current Assets, Excluding Cash and Deferred Tax Assets, **minus** Current Liabilities, Excluding Debt and Deferred Tax Liabilities.”

So when Working Capital is *increasing*, that means that the Current Assets portion is growing more quickly than Current Liabilities... and remember from your basic accounting that if an asset goes **up**, cash flow goes **down**.

Therefore, if the company is **increasing its current assets more quickly than its current liabilities, it is spending cash** and this number will be a negative to reflect that.

If, on the other hand, it's increasing its current liabilities more quickly, this number will be a positive to show that its Working Capital is actually **generating** cash.

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Projecting Unlevered Free Cash Flow Over a 5-Year Period

If you already have a 3-statement projection model for the company you're analyzing, this part's easy – just pull in all the data from there.

If not, normally you start with **revenue growth** and **operating margin** (or, COGS as a % of revenue and Operating Expenses as a % of revenue and subtract those to calculate Operating Income and the margin) and make everything else in the analysis flow from those.

Generally, you assume that a company's revenue growth will slow over time and that as it grows bigger, it also needs to spend more to sell more products, support its customers, hire employees, and so on.

Here are the assumptions we've used for Steel Dynamics:

- **Revenue** grows at 20% the first year, declines by 5% each year for 2 years, then declines by 2%, and then declines by 3% in the final year. This is based on historical revenue growth of 50%+ and 25%+. Large companies simply do not grow at those rates forever, and growth declines over time.



- **Operating Margin** is 5.4% each year, based on the 3-year historical average. You could make an argument for decreasing this percentage over time due to greater economies of scale, but it's better to be conservative in a DCF and use historical averages.

One of the most common mistakes in a DCF is to assume inflated growth numbers, or overly optimistic expense ratios – which is why we recommend a conservative approach.

Here's what the Revenue and Operating Income look like:

Steel Dynamics - Free Cash Flow Projection:		Historical					Projected			
		Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	
Revenue:		\$ 3,959	\$ 6,301	\$ 7,998	\$ 9,597	\$ 11,037	\$ 12,140	\$ 13,111	\$ 13,767	
<i>Revenue Growth Rate:</i>		N/A	59.2%	26.9%	20.0%	15.0%	10.0%	8.0%	5.0%	
Operating Income:		120	365	585	516	593	652	705	740	
<i>Operating Margin:</i>		3.0%	5.8%	7.3%	5.4%	5.4%	5.4%	5.4%	5.4%	

Then, assuming that you're calculating Unlevered Free Cash Flow, you apply the company's **standard, effective tax rate** to that Operating Income number. Do not just subtract their normal taxes – take the standard tax rate (30%? 35%? 40%?) and apply it the Operating Income numbers.

In this case, we know from their historical statements that Steel Dynamics has an effective tax rate of 38%:

Steel Dynamics - Free Cash Flow Projection:		Historical					Projected			
		Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	
Revenue:		\$ 3,959	\$ 6,301	\$ 7,998	\$ 9,597	\$ 11,037	\$ 12,140	\$ 13,111	\$ 13,767	
<i>Revenue Growth Rate:</i>		N/A	59.2%	26.9%	20.0%	15.0%	10.0%	8.0%	5.0%	
Operating Income:		120	365	585	516	593	652	705	740	
<i>Operating Margin:</i>		3.0%	5.8%	7.3%	5.4%	5.4%	5.4%	5.4%	5.4%	
Less: Taxes, Excluding Effect of Interest:		(45)	(139)	(222)	(196)	(225)	(248)	(268)	(281)	
Net Operating Profit After Tax (NOPAT):		74	226	363	320	368	404	437	459	

After you subtract taxes from Operating Income, you arrive at NOPAT (Net Operating Profit After Tax), which is similar to Net Income but **excludes Interest Income and Interest Expense** – because we're projecting **Unlevered Free Cash Flow** here.

Next, you need to add back non-cash expenses. The most common ones are Depreciation & Amortization and Stock-Based Compensation, but you see plenty of other ones in this section as well:

- Impairment Charges – Often set to \$0 in future periods since they're non-recurring
- Deferred Income Taxes – % of revenue or average historical numbers
- Gains / (Losses) on Asset Sales – Often set to \$0 in future periods since they're non-recurring



- Amortization of Intangibles – You should pull these from the company’s filings, since they always include longer-term projections (do a search for “amortization”)
- Goodwill Impairment – Often set to \$0 in future periods since it’s non-recurring

Here’s what this section looks like for Steel Dynamics:

Steel Dynamics - Free Cash Flow Projections:	Historical			Projected				
	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
Adjustments for Non-Cash Charges:								
Depreciation & Amortization:	221	225	223	382	439	483	522	548
% Revenue:	5.6%	3.6%	2.8%	4.0%	4.0%	4.0%	4.0%	4.0%
Impairment Charges:	-	13	-	-	-	-	-	-
Equity-Based Compensation:	18	15	17	29	33	36	39	41
% Revenue:	0.4%	0.2%	0.2%	0.3%	0.3%	0.3%	0.3%	0.3%
Deferred Income Taxes:	93	46	34	112	129	142	153	161
% Revenue:	2.3%	0.7%	0.4%	1.2%	1.2%	1.2%	1.2%	1.2%
(Gain) / Loss on PP&E Disposal:	1	1	(4)	-	-	-	-	-

Note that Depreciation & Amortization, Equity-Based Compensation, and Deferred Income Taxes are all projected as **percentages of revenue**. In a more complex model you might have separate schedules for these, but in a quick DCF this approach is fine.

Next, we need to subtract the Increase in Working Capital and Capital Expenditures.

If a company needs more Working Capital – funds to run its business and to pay for items like Inventory – that drains its cash flow. When we need more money to run the business, we have **less cash** overall.

Capital Expenditures (CapEx) refer to investments in factories, equipment, land, and anything else that lasts for over a year.

We subtract CapEx because it doesn’t show up on the Income Statement but it is a **real expense that reduces the cash balance**:

Steel Dynamics - Free Cash Flow Projection:	Historical			Projected				
	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
Changes in Working Capital:								
Decrease / (Increase) in AR:	72	(197)	(101)					
Decrease / (Increase) in Inventory:	175	(261)	(86)					
Decrease / (Increase) in Other Assets:	4	(15)	6					
Increase / (Decrease) in AP:	(9)	71	57					
Increase / (Decrease) in Inc. Tax Payable:	2	99	26					
Increase / (Decrease) in Accrued Expenses:	(120)	43	48					
Net Decrease / (Increase):	124	(260)	(50)	(51)	(59)	(65)	(70)	(74)
% Revenue:	3.1%	(4.1%)	(0.6%)	(0.5%)	(0.5%)	(0.5%)	(0.5%)	(0.5%)
Less: Capital Expenditures	(330)	(133)	(167)	(288)	(331)	(364)	(393)	(413)
% Revenue:	(8.3%)	(2.1%)	(2.1%)	(3.0%)	(3.0%)	(3.0%)	(3.0%)	(3.0%)



I've broken out the Changes in Working Capital section line-by-line, which is unusual – I did that mainly for **teaching purposes** here.

Normally in a DCF, you would just show the Net Decrease / (Increase) in Working Capital line at the bottom.

Both of these numbers are, once again, percentages of revenue. I used the historical average for Working Capital, but for **CapEx** I chose 3% rather than using an average. Why?

Historically, it jumped around and was significantly higher in Year 0 than in Years 1 and 2. If we just averaged CapEx as a % of Revenue there, it might have been too high due to the higher percentage in Year 0 (we probably should have done the same thing for Deferred Income Taxes, but skipped it here).

Here's what the entire 5-year projected period looks like:

Steel Dynamics - Free Cash Flow Projection		Historical					Projected			
		Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	
Revenue:		\$ 3,959	\$ 6,301	\$ 7,998	\$ 9,597	\$ 11,037	\$ 12,140	\$ 13,111	\$ 13,767	
Revenue Growth Rate:		N/A	59.2%	26.9%	20.0%	15.0%	10.0%	8.0%	5.0%	
Operating Income:		120	365	585	516	593	652	705	740	
Operating Margin:		3.0%	5.8%	7.3%	5.4%	5.4%	5.4%	5.4%	5.4%	
Less: Taxes, Excluding Effect of Interest:		(45)	(139)	(222)	(196)	(225)	(248)	(268)	(281)	
Net Operating Profit After Tax (NOPAT):		74	226	363	320	368	404	437	459	
Adjustments for Non-Cash Charges:										
Depreciation & Amortization:		221	225	223	382	439	483	522	548	
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Impairment Charges:		-	13	-	-	-	-	-	-	
Equity-Based Compensation:		18	15	17	29	33	36	39	41	
% Revenue:		0.4%	0.2%	0.2%	0.3%	0.3%	0.3%	0.3%	0.3%	
Deferred Income Taxes:		93	46	34	112	129	142	153	161	
% Revenue:		2.3%	0.7%	0.4%	1.2%	1.2%	1.2%	1.2%	1.2%	
(Gain) / Loss on PP&E Disposal:		1	1	(4)	-	-	-	-	-	
Changes in Working Capital:										
Decrease / (Increase) in AR:		72	(197)	(101)						
Decrease / (Increase) in Inventory:		175	(261)	(86)						
Decrease / (Increase) in Other Assets:		4	(15)	6						
Increase / (Decrease) in AP:		(9)	71	57						
Increase / (Decrease) in Inc. Tax Payable:		2	99	26						
Increase / (Decrease) in Accrued Expense		(120)	43	48						
Net Decrease / (Increase):		124	(260)	(50)	(51)	(59)	(65)	(70)	(74)	
% Revenue:		3.1%	(4.1%)	(0.6%)	(0.5%)	(0.5%)	(0.5%)	(0.5%)	(0.5%)	
Less: Capital Expenditures		(330)	(133)	(167)	(288)	(331)	(364)	(393)	(413)	
% Revenue:		(8.3%)	(2.1%)	(2.1%)	(3.0%)	(3.0%)	(3.0%)	(3.0%)	(3.0%)	
Unlevered Free Cash Flow					\$ 503	\$ 578	\$ 636	\$ 687	\$ 722	



In this case, Unlevered Free Cash Flow = Operating Income * (1 – Tax Rate) + Non-Cash Charges – Increase in Working Capital – CapEx.

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Formulas for Calculating Free Cash Flow

Since we began teaching these courses, we've probably gotten 200+ questions on various formulas floating around to calculate Free Cash Flow.

Most of these “formulas” are equivalent but they may look different initially... you just have to think through them and see what they really mean.

For example: “I’ve heard this formula for **Levered Free Cash Flow** before: Net Income + Non-Cash Charges – Increase in Working Capital – CapEx – Mandatory Debt Repayment. But then some people say that it’s just Cash Flow from Operations – CapEx – Mandatory Debt Repayment. Which one is right?”

They’re the same, because Cash Flow from Operations *is* Net Income + Non-Cash Charges – Increase in Working Capital.

For your reference, here are several common formulas for both types of Free Cash Flow.

Unlevered Free Cash Flow (Free Cash Flow to Firm):

- Operating Income * (1 – Tax Rate) + Non-Cash Charges – Increase in Working Capital – CapEx
- NOPAT + Non-Cash Charges – Increase in Working Capital – CapEx
- (Revenue – COGS – Operating Expenses) * (1 – Tax Rate) + Non-Cash Charges – Increase in Working Capital – CapEx (**NOTE: For this to work you must include those non-cash charges in COGS and Operating Expenses**)
- Cash Flow from Operations + Interest Expense * (1 – Tax Rate) – Interest Income * (1 – Tax Rate) – CapEx

You’ll see some definitions that start with **EBITDA** but I prefer not to do that because it complicates how you calculate Taxes and Non-Cash Charges.

Levered Free Cash Flow (Free Cash Flow to Equity):

- Pre-Tax Income * (1 – Tax Rate) + Non-Cash Charges – Increase in Working Capital – CapEx – Mandatory Debt Repayments
- Cash Flow from Operations – CapEx – Mandatory Debt Repayments



- $\text{Net Income} + \text{Non-Cash Charges} - \text{Increase in Working Capital} - \text{CapEx} - \text{Mandatory Debt Repayments}$
- $\text{Unlevered Free Cash Flow} - \text{Interest Expense} * (1 - \text{Tax Rate}) + \text{Interest Income} * (1 - \text{Tax Rate}) - \text{Mandatory Debt Repayments}$

It's not a great idea to memorize all these formulas because you could calculate both metrics in many ways – focus on **understanding the concept** and you'll be able to walk them through everything above easily.

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Lingering Questions on Free Cash Flow

Q: Wait, so why isn't Levered Free Cash Flow used as frequently?

A: Because we mostly care about a company's **Enterprise Value** and Levered FCF gives us Equity Value – plus, Levered DCF analyses tend to place too much emphasis on a company's capital structure in determining its value.

Plus, you have the problem of having to project interest expense and debt repayments going forward, which can be difficult depending on the company.

So overall it is both easier and more useful to use Unlevered FCF.

Q: How can I tell whether a non-cash charge should be added back in the non-cash charge add-back section?

A: It depends on whether or not it has already been included in Operating Income (for an Unlevered DCF) or in Net Income (for a Levered DCF).

If it *has* been included in those, it will impact Cash Flow from Operations and so you need to add it back.

If it has *not* been included in those, you do not add it back (for example, something like a one-time charge that is included between Operating Income and Pre-Tax Income when you're calculating Unlevered FCF).

Q: How can I tell whether or not something goes in the Working Capital section?

A: When in doubt, always go by what a company has done historically in its filings. You can follow the general rules above if it is for a fictitious company or something without filings (e.g. a case study in an interview).

Q: What's the difference between EBIT and Operating Income? Do we add back different items to calculate each of those?



A: They should be the same... in theory. But some people will add back items like stock-based compensation to one or both of them, so you need to be careful when looking at the figures.

For purposes of a DCF analysis, you want both EBIT and Operating Income to **include** the impact of non-cash charges such as Depreciation & Amortization because they reduce the company's taxes.

Q: What if Free Cash Flow is negative? Or Operating Income?

A: Then you really shouldn't be using a DCF to value the company – or you need to project the company over a much longer period until it starts generating positive Operating Income or Free Cash Flow (i.e. for a pharmaceuticals company where it might take 10-20 years to generate revenue).

Q: What about additional debt that the company borrows? How does that factor in?

A: If you have reason to believe that they will **definitely** borrow a certain amount on a recurring basis each year in the future, then you should count that and **add** it when calculating Levered FCF, but still exclude it from Unlevered FCF.

I did not mention this point above because most of the time you don't know what a company's plans are with respect to additional debt – so it can be dangerous to include it in the calculation.

Q: Why do you exclude cash and debt from Working Capital?

A: Because neither one is related to the company's business operations – they're just financing choices. Also, you calculate the ending cash number at the bottom of the Cash Flow Statement so if you also counted it in Changes in Working Capital you'd be double-counting.

Changes in debt belong in the Cash Flow from Financing section, not Changes in Working Capital, so that is why you exclude debt from the calculation.

Q: What about deferred tax assets and liabilities?

A: Generally you leave these out of the Working Capital section because they're accounted for elsewhere in Cash Flow from Operations, namely in the section above for non-cash adjustments.

The logic is similar to excluding cash and debt: these items relate to a company's chosen method of depreciation, M&A activity, and use of net operating losses, so they are not part of their core business operations.

Q: Wait a minute, why do you add back Deferred Income Taxes in Unlevered FCF? Operating Income and Pre-Tax Income are much different, so how can you assume that the deferred tax portion will be the same?



A: This is a good point, and in a more complex DCF you would adjust for this – here, we’ve skipped over it because it’s a quick analysis. Most likely we would **lower** the percentage above since Year 0 seemed unusually high, percentage-wise.

Anything Else?

Ask away! We have a few hundred questions just on the DCF analysis within the *Breaking Into Wall Street* lessons already, and the more the merrier.

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