Miscategorized Financing Expenses as Operating Expenses

To correct the accounting mistake

To correct operating (net) income: Stated Operating income + Current year's Lease expense - Amortization of Lease Asset

To correct financial expenses: Stated interest expense + imputed interest expense on lease debt

Amortize the lease asset over the commitment lifetime.

To correct debt & assets: Take the present value of future financing commitments, using the cost of debt as your discount and show as both an asset (lease asset) and debt (lease debt).

Income Statement

	Item	Explanation
Start with	Revenues	Accountant's estimate of the revenues/sales generated by any transactions made the business during the period.
Net out	Cost of Goods Sold	Estimated costs that are directly associated with producing the product/service sold by the company.
To get	**Gross Profit**	Unit profitability, before covering other indirect costs and financial expenses
Net out	Operating Expenses	Include all expenses associated with operations this year, with no benefits spilling over into future years.
To get	**Operating Profit**	Profitability of business/ operations
Net out	Financial Expenses	Expenses associated with non-equity financing (debt, for instance)
Add in	Financial Income	Income earned on cash balance and on financial investments (in companies and securties)
To get	**Pretax Profit**	Income to equity investors, prior to taxes
Net out	Taxes	Taxes, based upon taxable income. (May not equate to cash taxes paid)
To get	**Net Profit**	Income to equity investors, after taxes

Balance Sheet

Assets		Liabilities	
Long Lived Physical Assets	Fixed Assets	Current Liabilties	Short term obligations
Short Lived Assets	Current Assets	Debt	Long term debt
Investments in Securities & other business	Financial Assets	Other Liabilities	Other long term obligations
Assets which are not physical	Intangible Assets	Equity	Shareholders' Equity

When accountants treat a financing expense (like lease payment) as an operating expense.

Operating income will be misstated, with financing expenses showing up as operating expenses. Net income will be unaffected.

Book debt and assets will be understated, as you miss the present value of commitments associated with the financing on both sides of the balance sheet.

Effects on Ratios/Statistics

Ratio/Statistic	*Before correction*	*After correction*	*Effect of correction*
Operating Margin	Operating income/Sales	Corrected Operating income/Sales	Increase
Net Margin	Net Income/Sales	Net Income/Sales	No change
Return on invested capital	Operating income/ (Book value of equity + Book value of debt - cash)	Corrected Operating income/ (Book value of equity + Book value of debt + Lease debt - cash)	Decrease
Return on equity	Net Income/Book Equity	Net Income/ Book Equity	No change
Debt Ratio (Book)	Book Debt/(Book Debt + Book Equity)	(Book Debt + Lease Debt)/ (Book Debt + Lease Debt + Equity)	Increase
Debt Ratio (Market)	Mkt Debt/(Mkt Debt + Mkt Equity)	(Mkt Debt + Lease Debt)/ (Mkt Debt + Lease Debt + Mkt Equity)	Increase

Accounting comes to its senses on operating leases

- In 2019, both IFRS and GAAP made a major shift on operating leases, requiring companies to capitalize leases and show the resulting debt (and counter asset) on the balance sheets.
- That said, the accounting rules for capitalizing leases are far more complex than the simple calculations that I have used, for two reasons:
  - Accounting has to balance its desire to do the right thing with maintaining some connection to its legacy rules.
  - Companies have lobbied to modify rules in their sectors to cushion the impact.

Checking on Accountants…. My lease estimate vs Accountants' Estimate

Region	My Estimate	Accounting	Accounting as % of my estimate
Australia, NZ & Canada	$ 13,578.86	$ 8,412.39	61.95%
United States	$ 1,152,869.85	$ 947,989.30	82.23%
Europe	$ 52,172.26	$ 24,336.94	46.65%
Emerging Markets	$ 109,415.47	$ 18,426.24	16.84%
Japan	$ 156,071.83	$ 1,719.90	1.10%
Global	$ 1,484,108.27	$ 1,000,884.77	67.44%

B. The Magnitude of R&D Expenses

Highest R&D spenders			*Lowest R&D spenders*		
Industry Name	*R&D - LTM (in $ millions)*	*Current R&D as % of Revenue*	*Industry Name*	*R&D - LTM (in $ millions)*	*Current R&D as % of Revenue*
Drugs (Biotechnology)	$ 75,091.63	39.62%	Beverage (Alcoholic)	$	0.00%
Drugs (Pharmaceutical)	$ 80,658.49	23.08%	Food Wholesalers	$ 0.88	0.00%
Software (Internet)	$ 4,177.58	18.98%	Homebuilding	-	0.00%
Semiconductor	$ 50,321.60	17.40%	Hospitals/Healthcare Facilities	$ 9.72	0.00%
Software (System & Applica	$ 72,267.59	16.70%	Insurance (Life)	-	0.00%
Software (Entertainment)	$ 58,245.69	15.15%	Insurance (Prop/Cas.)	-	0.00%
Telecom. Equipment	$ 13,613.55	13.27%	Oil/Gas Distribution	-	0.00%
Retail (Online)	$ 54,214.00	10.09%	Real Estate (Development)	$ -	0.00%
Semiconductor Equip	$ 6,707.74	9.38%	Real Estate (General/Diversified)	-	0.00%
Healthcare Products	$ 14,934.42	8.01%	Restaurant/Dining	$ 8.82	0.00%

R&D Expenses: Operating or Capital Expenses

- Accounting standards require us to consider R&D as an operating expense even though it is designed to generate future growth. It is more logical to treat it as capital expenditures.
- To capitalize R&D,
  - Specify an amortizable life for R&D (2 - 10 years)
  - Collect past R&D expenses for as long as the amortizable life
  - Sum up the unamortized R&D over the period. (Thus, if the amortizable life is 5 years, the research asset can be obtained by adding up 1/5th of the R&D expense from five years ago, 2/5th of the R&D expense from four years ago...:

Capitalizing R&D Expenses: SAP

- R & D was assumed to have a 5-year life.

Year	R&D Expense	Unamortized		Amortization this year
Current	1020.02	1.00	1020.02	
-1	993.99	0.80	795.19	€ 198.80
-2	909.39	0.60	545.63	€ 181.88
-3	898.25	0.40	359.30	€ 179.65
-4	969.38	0.20	193.88	€ 193.88
-5	744.67	0.00	0.00	€ 148.93

Value of research asset = € 2,914 million

Amortization of research asset in 2004 = € 903 million

Increase in Operating Income = 1020 - 903 = € 117 million

The Effect of Capitalizing R&D at SAP

Conventional Accounting	*R&D treated as capital expenditure*
Income Statement EBIT& R&D = 3045 - R&D = 1020 EBIT = 2025 EBIT (1-t) = 1285 m	*Income Statement* EBIT& R&D = 3045 - Amort: R&D = 903 EBIT = 2142 (Increase of 117 m) EBIT (1-t) = 1359 m Ignored tax benefit = (1020-903)(.3654) = 43 Adjusted EBIT (1-t) = 1359+43 = 1402 m (Increase of 117 million) Net Income will also increase by 117 million
Balance Sheet Off balance sheet asset. Book value of equity at 3,768 million Euros is understated because biggest asset is off the books.	*Balance Sheet* Asset Liability R&D Asset 2914 Book Equity +2914 Total Book Equity = 3768+2914= 6782 mil
Capital Expenditures Conventional net cap ex of 2 million Euros	*Capital Expenditures* Net Cap ex = 2+ 1020 – 903 = 119 mil
Cash Flows EBIT (1-t) = 1285 - Net Cap Ex = 2 FCFF = 1283	*Cash Flows* EBIT (1-t) = 1402 - Net Cap Ex = 119 FCFF = 1283 m
Return on capital = 1285/(3768+530)	Return on capital = 1402/(6782+530)

Miscategorized Capital Expenses as Operating Expenses

To correct the accounting mistake

To correct operating (net) income: Stated Operating (Net) income + Current year's R&D expense - Amortization of R&D Asset

Amortize the R&D asset over amortizable life.

To correct debt & assets: Capitalize past R&D expenses and incorporate that amount into assets (as an R&D asset) and increase book equity by an equal amount.

Income Statement

	Item	Explanation
Start with	Revenues	Accountant's estimate of the revenues/sales generated by any transactions made the business during the period.
Net out	Cost of Goods Sold	Estimated costs that are directly associated with producing the product/service sold by the company.
To get	**Gross Profit**	Unit profitability, before covering other indirect costs and financial expenses
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Balance Sheet

Assets		Liabilities	
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Investments in Securities & other business	Financial Assets	Other Liabilities	Other long term obligations
Assets which are not physical	Intangible Assets	Equity	Shareholders' Equity

When accountants treat a capital expenditure (like R&D) as an operating expense.

Operating income and net income will be misstated and will be too low (high) for companies with growing (declining) R&D expenses.

Book equity and assets will be understated, as you miss the capitalized effects of past R&D expenses in both items.

Effects on Ratios/Statistics

Ratio/Statistic	*Before correction*	*After correction*	*Effect of correction*
Operating Margin	Operating income/Sales	Corrected Operating income/Sales	Increase (decrease) for companies with rising R&D expenses.
Net Margin	Net Income/Sales	Corrected Net Income/Sales	Increase (decrease) for companies with rising R&D expenses.
Return on invested capital	Operating income/ (Book value of equity + Book value of debt - cash)	Corrected Operating income/ (Book value of equity + R&D asset + Book value of debt - cash)	Decrease
Return on equity	Net Income/Book Equity	Corrected Net Income/ (Book Equity + R&D asset)	Decrease
Debt Ratio (Book)	Book Debt/(Book Debt + Book Equity)	Book Debt / (Book Debt + Equity + R&D assset)	Decrease
Debt Ratio (Market)	Mkt Debt/(Mkt Debt + Mkt Equity)	Mkt Debt/(Mkt Debt + Mkt Equity)	No change (The market value already incorporates R&D)

3. One-Time and Non-recurring Charges

- Assume that you are valuing a firm that is reporting a loss of $ 500 million, due to a one-time charge of $ 1 billion. What is the earnings you would use in your valuation?
    a. A loss of $ 500 million
    b. A profit of $ 500 million
- Would your answer be any different if the firm had reported one-time losses like these once every five years?
    a. Yes
    b. No

4. Accounting Malfeasance….

- Though all firms may be governed by the same accounting standards, the fidelity that they show to these standards can vary. More aggressive firms will show higher earnings than more conservative firms.
- While you will not be able to catch outright fraud, you should look for warning signals in financial statements and correct for them:
  - Income from unspecified sources - holdings in other businesses that are not revealed or from special purpose entities.
  - Income from asset sales or financial transactions (for a non-financial firm)
  - Sudden changes in standard expense items - a big drop in S,G &A or R&D expenses as a percent of revenues, for instance.
  - Frequent accounting restatements
  - Accrual earnings that run ahead of cash earnings consistently
  - Big differences between tax income and reported income

5. Dealing with Negative or Abnormally Low Earnings

	Reason for losses/low earnings	Valuation Response
Quick fixes	One-time or extraordinary charge	Add back the one-time expense to get corrected earnings
	Macro factor (commodity price drop or recession)	Use earnings across the commodity or economic cycle as normalized earnings.
Long term fixes	Young company working on business model	Estimate the profit margin that mature companies in the business earn and target that margin in the long term.
	Structural problems at company	Use an industry average margin as a target and move towards that margin over time, as structural problems are fixed.

Cash Flows II

Taxes and Reinvestment

1. What tax rate?

- The tax rate that you should use in computing the after-tax operating income should be
  a. The effective tax rate in the financial statements (taxes paid/Taxable income)
  b. The tax rate based upon taxes paid and EBIT (taxes paid/EBIT)
  c. The marginal tax rate for the country in which the company operates
  d. The weighted average marginal tax rate across the countries in which the company operates
  e. None of the above
  f. Any of the above, as long as you compute your after-tax cost of debt using the same tax rate.

The Right Tax Rate to Use

- The free cash flow to the firm starts with after-tax operating income, where:
  - After-tax Operating Income = Operating Income (1- tax rate)
- In computing free cash flow to the firm, the choice really is between the effective and the marginal tax rate.
  - By using the marginal tax rate, we tend to understate the after-tax operating income in the earlier years, but the after-tax tax operating income is more accurate in later years.
  - By using the effective tax rate, we tend to overstate the after-tax operating income in the later years, as effective tax rates move toward the marginal tax rate.
- You can have your cake and eat it too, by starting with the effective tax rate, and adjusting towards the marginal tax rate over time.

A Tax Rate for a Money Losing Firm

- Assume that you are trying to estimate the after-tax operating income for a firm **with $ 1 billion in net operating losses** carried forward.
- This firm is **expected to have operating income of $ 500 million each year for the next 3 years**, and the marginal tax rate on income for all firms that make money is 40%. Estimate the after-tax operating income each year for the next 3 years.

	Year 1	Year 2	Year 3
EBIT	500	500	500
Taxes			
EBIT (1-t)			
Tax rate			

2. Net Capital Expenditures

- Net capital expenditures represent the difference between capital expenditures and depreciation.
  Net Cap Ex = Capital Expenditures - Depreciation
  Depreciation is a cash inflow that pays for some or a lot (or sometimes all of) the capital expenditures.
- In general, the net capital expenditures will be a function of how fast a firm is growing or expecting to grow.
  - High growth firms will usually have much higher net capital expenditures than low growth firms.
  - Assumptions about net capital expenditures can therefore never be made independently of assumptions about growth in the future.

Capital expenditures should include

- Research and development expenses, once they have been re-categorized as capital expenses. The adjusted net cap ex will be
  - Adjusted Net Capital Expenditures = Net Capital Expenditures + Current year's R&D expenses - Amortization of Research Asset
- Acquisitions of other firms, since these are like capital expenditures. The adjusted net cap ex will be
  - Adjusted Net Cap Ex = Net Capital Expenditures + Acquisitions of other firms - Amortization of such acquisitions
- Two caveats:

1. Most firms do not do acquisitions every year. Hence, a normalized measure of acquisitions (looking at an average over time) should be used
2. The best place to find acquisitions is in the statement of cash flows, usually categorized under other investment activities

Cisco's Acquisitions: 1999

Acquired	Method of Acquisition	Price Paid
GeoTel	Pooling	$1,344
Fibex	Pooling	$318
Sentient	Pooling	$103
American Internet	Purchase	$58
Summa Four	Purchase	$129
Clarity Wireless	Purchase	$153
Selsius Systems	Purchase	$134
PipeLinks	Purchase	$118
Amteva Tech	Purchase	$159
		$2,516

Cisco's Net Capital Expenditures in 1999

Cap Expenditures (from statement of CF)	= $ 584 mil
- Depreciation (from statement of CF)	= $ 486 mil
Net Cap Ex (from statement of CF)	= $ 98 mil
+ R & D expense	= $ 1,594 mil
- Amortization of R&D	= $ 485 mil
+ Acquisitions	= $ 2,516 mil
Adjusted Net Capital Expenditures	= $3,723 mil

- (Amortization was included in the depreciation number)

3. Working Capital Investments

- **Accounting definition**: Working capital is the difference between current assets (inventory, cash and accounts receivable) and current liabilities (accounts payables, short term debt and debt due within the next year).
- **Valuation definition**: A cleaner definition of working capital from a cash flow perspective is the difference between non-cash current assets (inventory and accounts receivable) and non-debt current liabilities (accounts payable).

Working Capital: General Propositions

1. Working Capital Detail: While some analysts break down working capital into detail, it is a pointless exercise unless you feel that you can bring some specific information that lets you forecast the details.
2. Working Capital Volatility: Changes in non-cash working capital from year to year tend to be volatile. It is better to either estimate the change based on working capital as a percent of sales, while keeping an eye on industry averages.
3. Negative Working Capital: Some firms have negative non-cash working capital. Assuming that this will continue into the future will generate positive cash flows for the firm and will get more positive as growth increases.

Cash Flows III

From the firm to equity

Dividends and Cash Flows to Equity

- In the strictest sense, the only cash flow from an equity investment in a publicly traded firm is the **dividend that will be paid on the stock**.
- Actual dividends, however, are set by the managers of the firm and may be much lower than **the potential dividends (that could have been paid out)**
  - managers are conservative and try to smooth out dividends
  - managers like to hold on to cash to meet unforeseen future contingencies and investment opportunities
- When actual dividends are less (more) than potential dividends, using a model that focuses only on dividends will under (over) state the true value of the equity in a firm.

Measuring Potential Dividends

- Some analysts assume that the earnings of a firm represent its potential dividends. This cannot be true for several reasons:
  - Earnings are not cash flows, since there are both non-cash revenues and expenses in the earnings calculation
  - Even if earnings were cash flows, a firm that paid its earnings out as dividends would not be investing in new assets and thus could not grow
  - Valuation models, where earnings are discounted back to the present, will over estimate the value of the equity in the firm
- The potential dividends of a firm are the cash flows left over after the firm has made any "investments" it needs to make to create future growth and net debt repayments (debt repayments - new debt issues)
  - The common categorization of capital expenditures into discretionary and non-discretionary loses its basis when there is future growth built into the valuation.

Estimating Cash Flows: FCFE

- Cash flows to Equity for a Levered Firm

  Net Income

  - (Capital Expenditures - Depreciation)

  - Changes in non-cash Working Capital

  + (New Debt Issues – Debt Repaid)

  = Free Cash flow to Equity

- Cash flows to equity represent residual cash flows for equity investors, i.e., cash flows left over after every conceivable need has been met.
- That cash flow can be paid out without damaging the operating business of the company and its growth potential. It is thus a potential dividend.

FCFE from the statement of cash flows

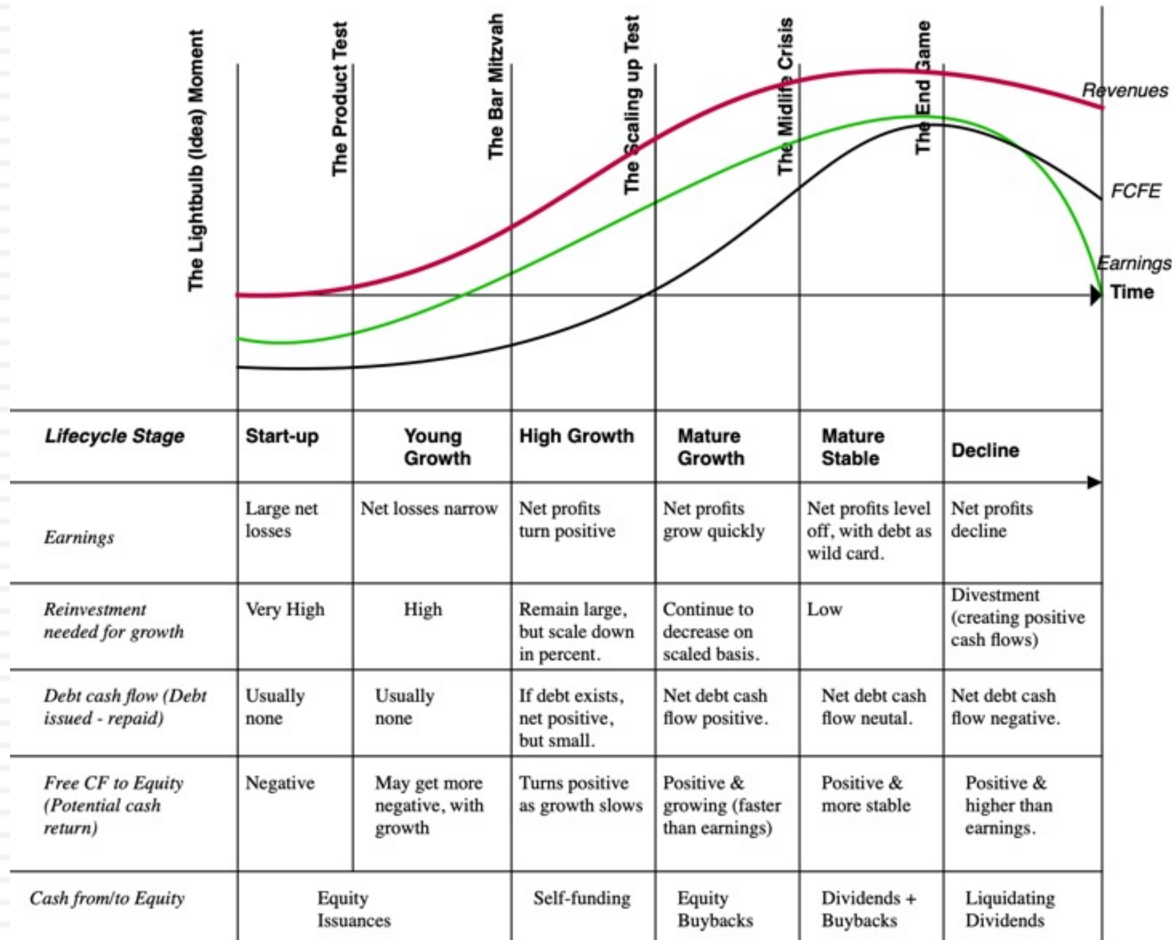
- The statement of cash flows can be used to back into a FCFE, if you are willing to navigate your way through it and not trust it fully.
- FCFE

  = Cashflow from Operations

  - Capital Expenditures (from the cash flow from investments)
  - Cash Acquisitions (from the cash flow from investments)
  - (Debt Repaid – Debt Issued) (from financing cash flows)

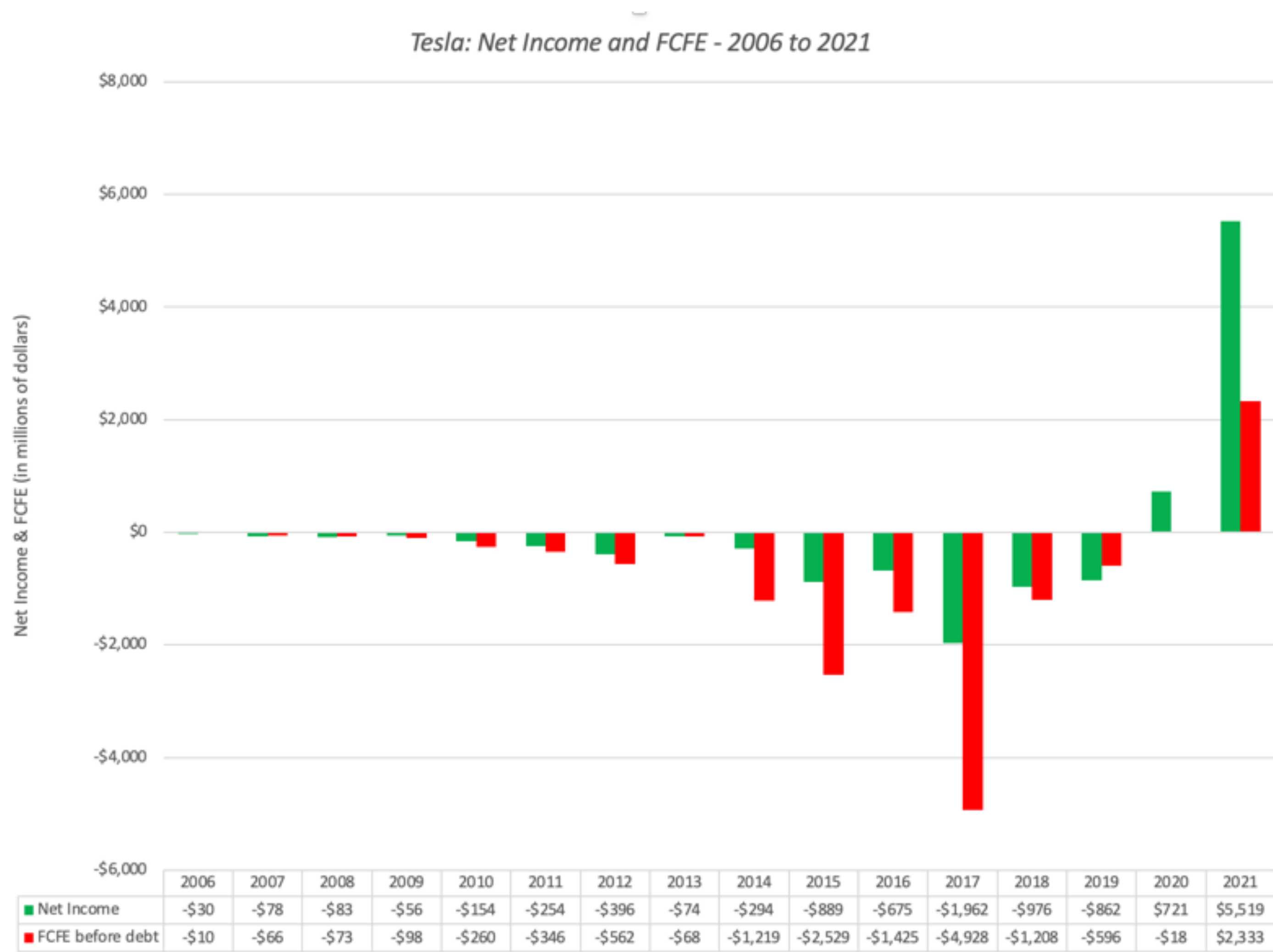
  = FCFE
- Alternatively, you can also do the following:
  - FCFE – Dividends + Stock Buybacks – Stock Issuances + Change in Cash Balance

FCFE across the life cycle



Lifecycle Stage	Start-up	Young Growth	High Growth	Mature Growth	Mature Stable	Decline
Earnings	Large net losses	Net losses narrow	Net profits turn positive	Net profits grow quickly	Net profits level off, with debt as wild card.	Net profits decline
Reinvestment needed for growth	Very High	High	Remain large, but scale down in percent.	Continue to decrease on scaled basis.	Low	Divestment (creating positive cash flows)
Debt cash flow (Debt issued - repaid)	Usually none	Usually none	If debt exists, net positive, but small.	Net debt cash flow positive.	Net debt cash flow neutal.	Net debt cash flow negative.
Free CF to Equity (Potential cash return)	Negative	May get more negative, with growth	Turns positive as growth slows	Positive & growing (faster than earnings)	Positive & more stable	Positive & higher than earnings.
Cash from/to Equity	Equity Issuances		Self-funding	Equity Buybacks	Dividends + Buybacks	Liquidating Dividends

FCFE over time: Tesla



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Net Income	-$30	-$78	-$83	-$56	-$154	-$254	-$396	-$74	-$294	-$889	-$675	-$1,962	-$976	-$862	$721	$5,519
FCFE before debt	-$10	-$66	-$73	-$98	-$260	-$346	-$562	-$68	-$1,219	-$2,529	-$1,425	-$4,928	-$1,208	-$596	-$18	$2,333

Dividends versus FCFE: Across the globe

Sub Group	Number of firms	Net Income	FCFE	Dividends	Buybacks	% from Buybacks	Dividends & Buybacks
Africa and Middle East	1,836	$287,726	$166,013	$135,838	$6,294	4.43%	$142,132
Australia & NZ	1,747	$87,050	$42,589	$46,335	$9,618	17.19%	$55,953
Canada	2,722	$108,466	$51,038	$41,972	$49,568	54.15%	$91,540
China	6,955	$547,342	-$104,496	$385,863	$52,207	11.92%	$438,070
EU & Environs	5,243	$729,059	$222,602	$288,933	$167,055	36.64%	$455,988
Eastern Europe & Russia	287	$11,231	$1,046	$2,820	$260	8.44%	$3,080
India	3,574	$91,378	$40,753	$39,666	$4,812	10.82%	$44,478
Japan	3,787	$308,343	-$39,819	$98,210	$47,168	32.45%	$145,377
Latin America & Caribbean	821	$118,737	$27,418	$51,888	$19,092	26.90%	$70,981
Small Asia	8,792	$353,996	-$33,074	$148,951	$14,853	9.07%	$163,804
UK	1,052	$174,809	$3,715	$86,273	$62,727	42.10%	$149,001
United States	5,593	$1,447,102	$231,847	$523,330	$956,190	64.63%	$1,479,520
Global	42,409	$4,265,236	$609,631	$1,850,079	$1,389,844	42.90%	$3,239,922.83

Estimating FCFE when Leverage is Stable

Net Income

- (1- DR) (Capital Expenditures - Depreciation)

- (1- DR) Working Capital Needs

= Free Cash flow to Equity

DR = Debt/Capital Ratio

For this firm,

- Proceeds from new debt issues = Principal Repayments + (Capital Expenditures - Depreciation + Working Capital Needs)

- In computing FCFE, the book value debt to capital ratio should be used when looking back in time but can be replaced with the market value debt to capital ratio, looking forward.