



EARNINGS AND CASH FLOWS: A PRIMER ON FREE CASH FLOWS

Who put the free in free cash flow?

The Cleansing Effects of a Market Correction

2

- It is never pleasant to be in the midst of a market correction, but a market correction does operate as a cleanser for excesses that enter into even the most disciplined investors' playbooks in the good times.
- This correction has been no exception, as the threat of losing investment capital has focused the minds of investors, and led many to reexamine practices adopted during the last decade.
 - There has been more talk of earnings than of revenue or user growth this year, and the notion of cashflows driving value seems to be back in vogue.
 - I find that development welcome, but I find myself doing double takes I see concoctions of free cash flow that violate first financial principles.

Free Cash Flow: The Most Dangerous Term in Finance

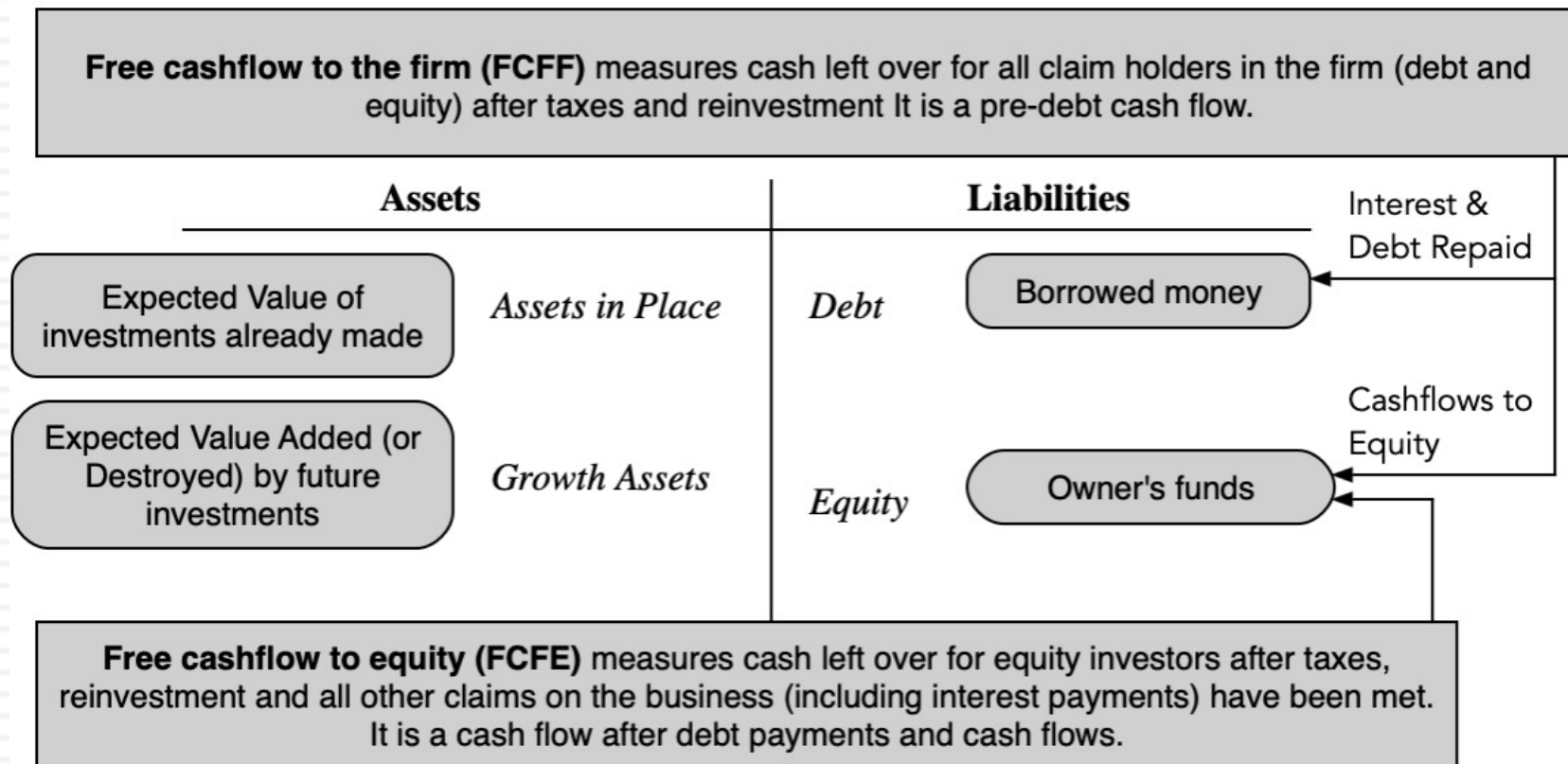
3

- Free cash flow is one of the most dangerous terms in finance, and I am astonished by how it can be bent to mean whatever investors or managers want it to, and used to advance their sales pitches.
- I have seen analysts and managers argue that adding back depreciation to earnings gives you free cash flow, an intermediate stop, at best, if you truly are intent on computing free cash flow.
- In the last two decades, I have seen free cash flow measures stretched to cover adjusted EBITDA, where stock-based compensation is added back to EBITDA, and with WeWork, to community-adjusted EBITDA, where almost all expenses get added back to get to the adjusted value.

Free Cash Flows to whom?

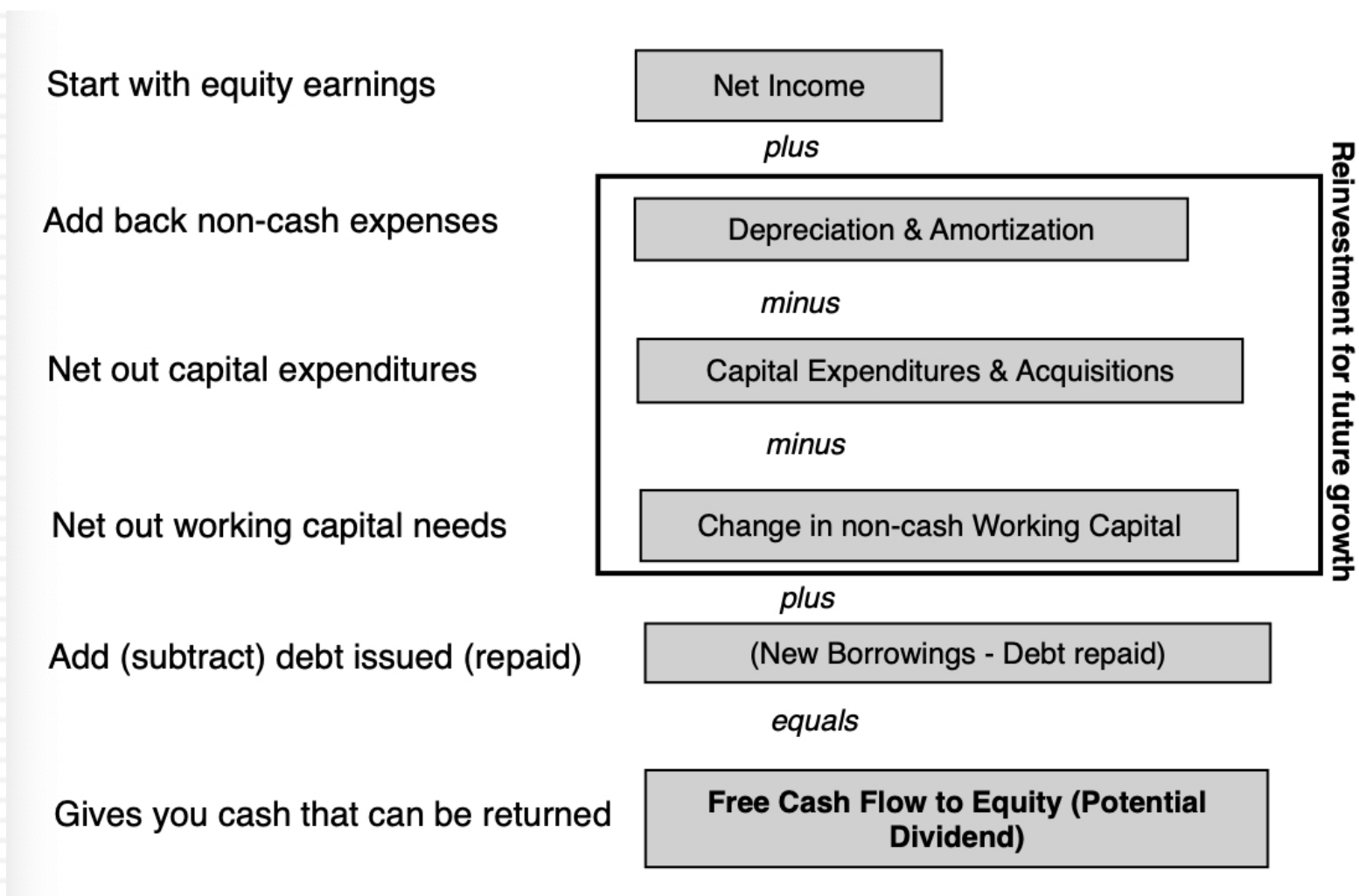
4

FCFF versus FCFE



Free Cash Flows to Equity

5



Free Cash Flow to Firm

6

Free Cash Flow to Firm

Start with operating
income (EBIT)

Operating Income

minus

Net out taxes

Taxes payable on Operating Income

Add back non-
cash expenses

plus

Depreciation & Amortization

minus

Net out capital
expenditures

Capital Expenditures & Acquisitions

minus

Net out working
capital needs

Change in non-cash Working Capital

equals

Gives you cash
available to all claim
holders

Free Cash Flow to Firm

FCFE and FCFF: Microsoft

CASH FLOWS STATEMENTS				
(In millions)				
Year Ended June 30,	2021	2020	2019	
Operations				
Net income	\$ 61,271	\$ 44,281	\$ 39,240	
Adjustments to reconcile net income to net cash from operations:				
Depreciation, amortization, and other	11,686	12,796	11,682	
Stock-based compensation expense	6,118	5,289	4,652	
Net recognized gains on investments and derivatives	(1,249)	(219)	(792)	
Deferred income taxes	(150)	11	(6,463)	
Changes in operating assets and liabilities:				
Accounts receivable	(6,481)	(2,577)	(2,812)	
Inventories	(737)	168	597	
Other current assets	(932)	(2,330)	(1,718)	
Other long-term assets	(3,459)	(1,037)	(1,834)	
Accounts payable	2,798	3,018	232	
Unearned revenue	4,633	2,212	4,462	
Income taxes	(2,309)	(3,631)	2,929	
Other current liabilities	4,149	1,346	1,419	
Other long-term liabilities	1,402	1,348	591	
Net cash from operations	76,740	60,675	52,185	
Financing				
Cash premium on debt exchange	(1,754)	(3,417)	0	
Repayments of debt	(3,750)	(5,518)	(4,000)	
Common stock issued	1,693	1,343	1,142	
Common stock repurchased	(27,385)	(22,968)	(19,543)	
Common stock cash dividends paid	(16,521)	(15,137)	(13,811)	
Other, net	(769)	(334)	(875)	
Net cash used in financing	(48,486)	(46,031)	(36,887)	
Investing				
Additions to property and equipment	(20,622)	(15,441)	(13,925)	
Acquisition of companies, net of cash acquired, and purchases of intangible and other assets	(8,909)	(2,521)	(2,388)	
Purchases of investments	(62,924)	(77,190)	(57,697)	
Maturities of investments	51,792	66,449	20,043	
Sales of investments	14,008	17,721	38,194	
Other, net	(922)	(1,241)	0	
Net cash used in investing	(27,577)	(12,223)	(15,773)	
Effect of foreign exchange rates on cash and cash equivalents	(29)	(201)	(115)	
Net change in cash and cash equivalents	648	2,220	(590)	
Cash and cash equivalents, beginning of period	13,576	11,356	11,946	
Cash and cash equivalents, end of period	\$ 14,224	\$ 13,576	\$ 11,356	

Refer to accompanying notes.

Stock-based compensation is not added back. It is an in-kind item, not a non-cash item.

Microsoft's FCFE in 2021

	In 2021
Net Income	\$ 61,271
+ Depreciation & Amortization	\$ 11,686
+ Non-cash losses (gains) on investments	\$ (1,249)
- Change in non-cash WC	\$ 1,086
- Cap ex	\$ 20,622
- Cash Acquisitions	\$ 8,099
FCFE prior to debt	\$ 41,901
+ Debt Raised	\$ -
- Debt Repaid (including exchange premium)	\$ 5,504
FCFE after debt	\$ 36,397

A Simplified Variant of FCFE

	In 2021
Net Income	\$ 61,271
- Reinvestment	\$ 19,370
FCFE prior to debt	\$ 41,901
+ Net Debt Cash Flows	\$ (5,504)
FCFE after debt	\$ 36,397

Effect of exchange rate changes can be incorporated in free cash flows, if it is a recurrent & significant item. It is neither in Microsoft.

Microsoft's FCFF

Operating Income	\$ 69,916
Effective tax rate	13.83%
Taxes on Operating Income	\$ 9,667
After-tax Operating Income	\$ 60,249
- Reinvestment	\$ 19,370
FCFF	\$ 40,879

Another way to present free cash flow



Using Free Cash Flows

9

- there are facile reasons that you can give for computing free cash flows, including the usual “we don’t trust accounting earnings” and “cash is king”, but there are three places free cash flows can be used
 - ▣ The first is that is that computing free cash flows for a past period helps in explaining what happened at a business during that period, in operating, investing and financing terms.
 - ▣ The second is that it is that the free cash flows that you compute for a past period can be used as the basis for forecasting expected free cash flows in the future, a key ingredient if you are doing intrinsic valuation.
 - ▣ The third is to compute the free cash flow as a base to be used to compare pricing across companies, where the market price is scaled to free cash flow, rather than to earnings.
- Since each of these missions has a different end game, there can be consequences for how we estimate free cash flows in each one.

1. Explain the past

10

Statement of Cash Flows

Net cash flow from operations, after taxes and interest expenses

Cash Flows From Operations

Includes divestiture and acquisition of real assets (capital expenditures), disposal and purchase of financial assets and cash spent on acquisition of other firms.

+ Cash Flows From Investing

Net cash flow from the issue and repurchase of equity, from the issue and repayment of debt and after dividend payments.

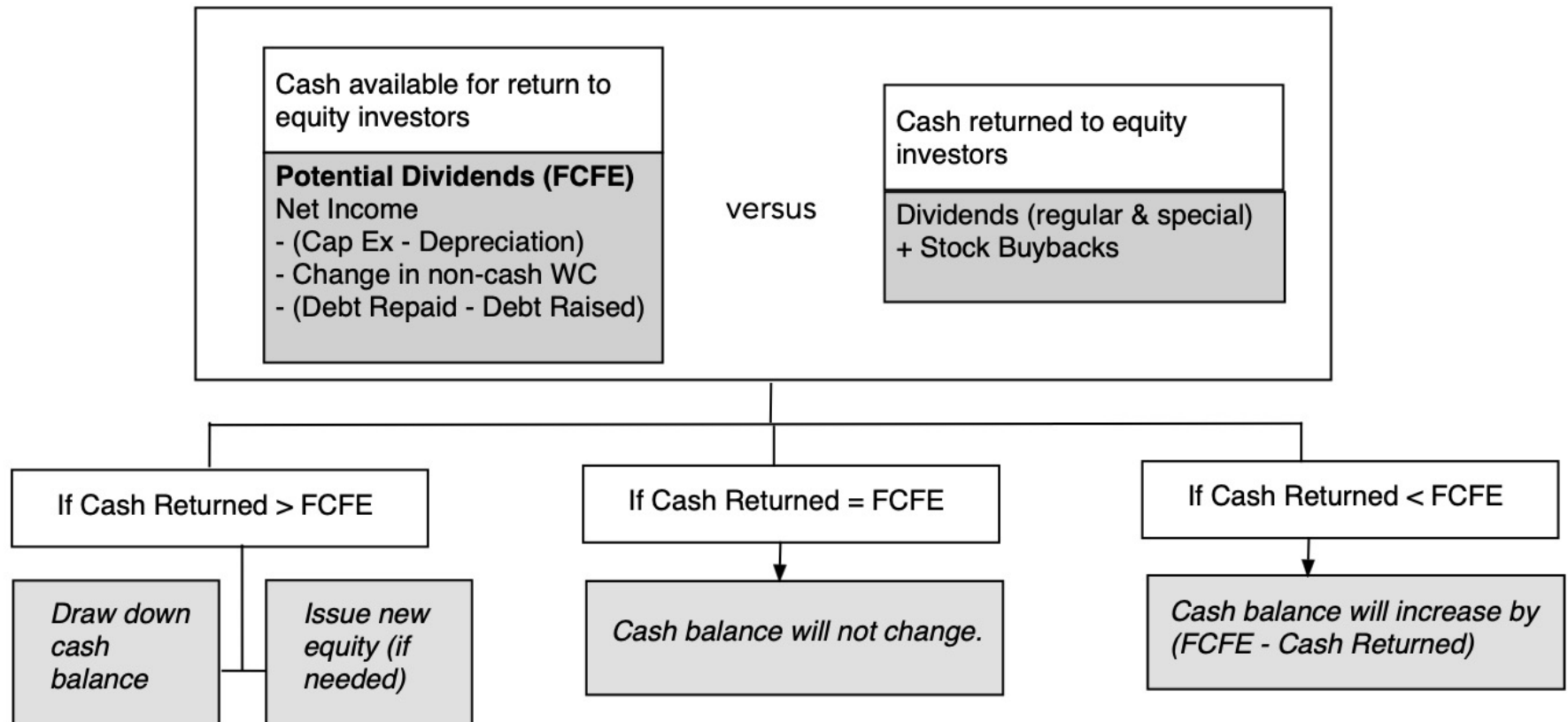
+ Cash Flows from Financing

Net cash flow, after investing and financing

= Net Change in Cash Balance

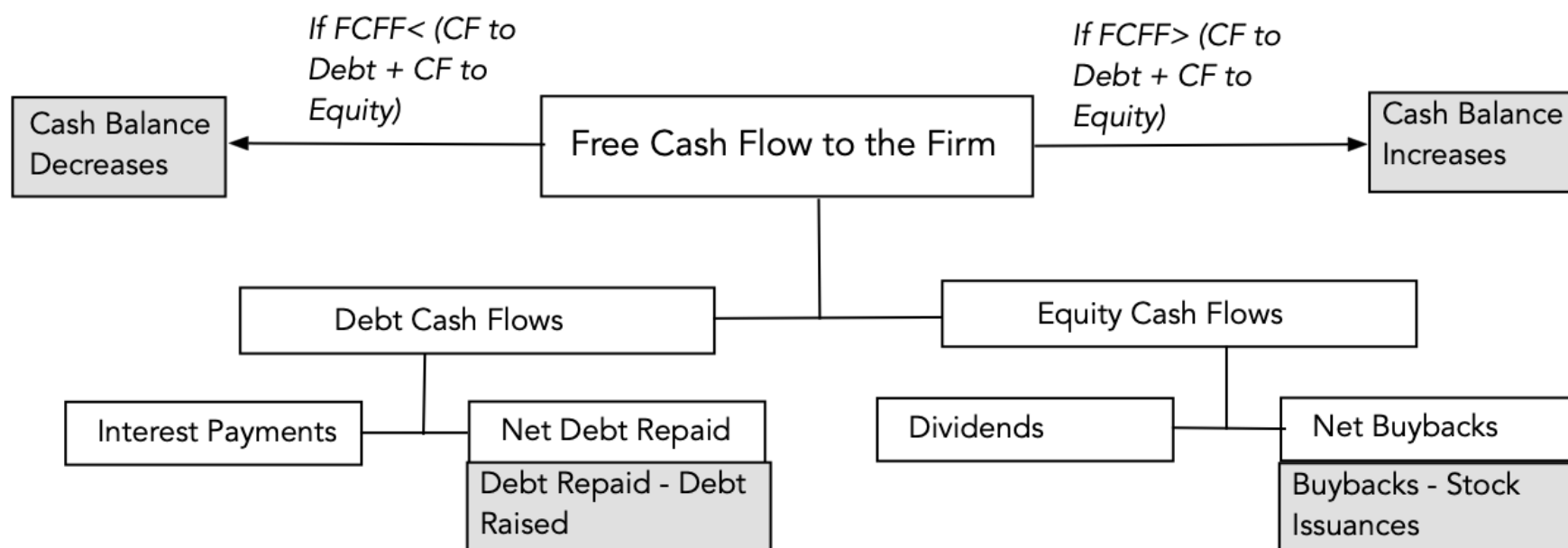
FCFE and Cash Balances

11



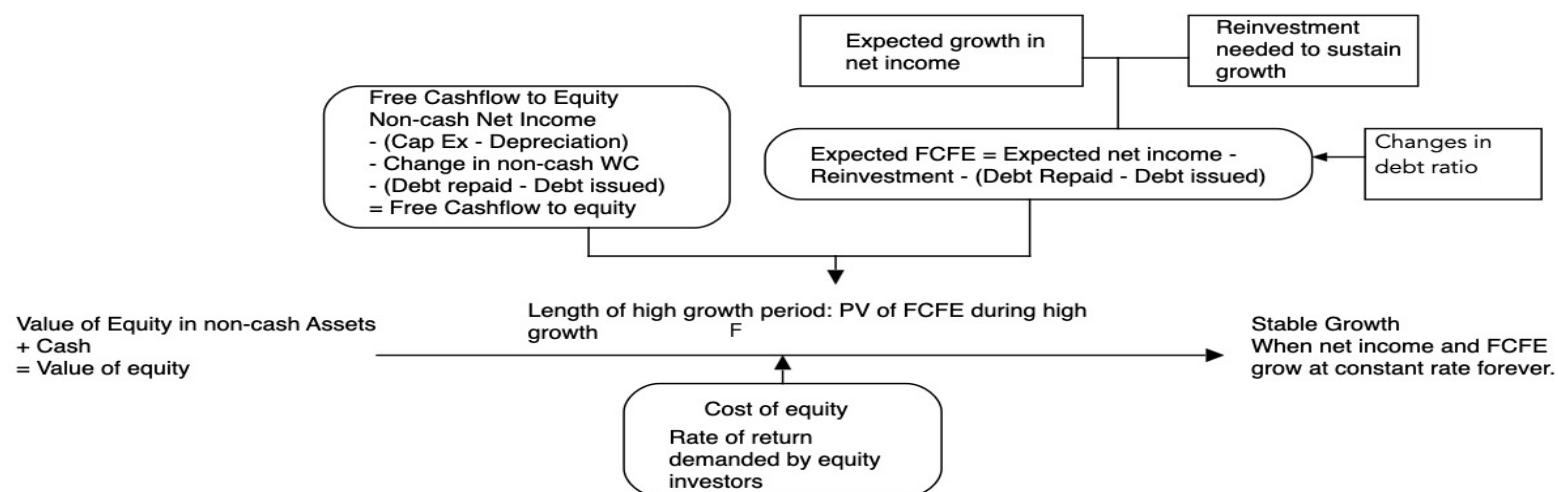
Reading FCFF

12

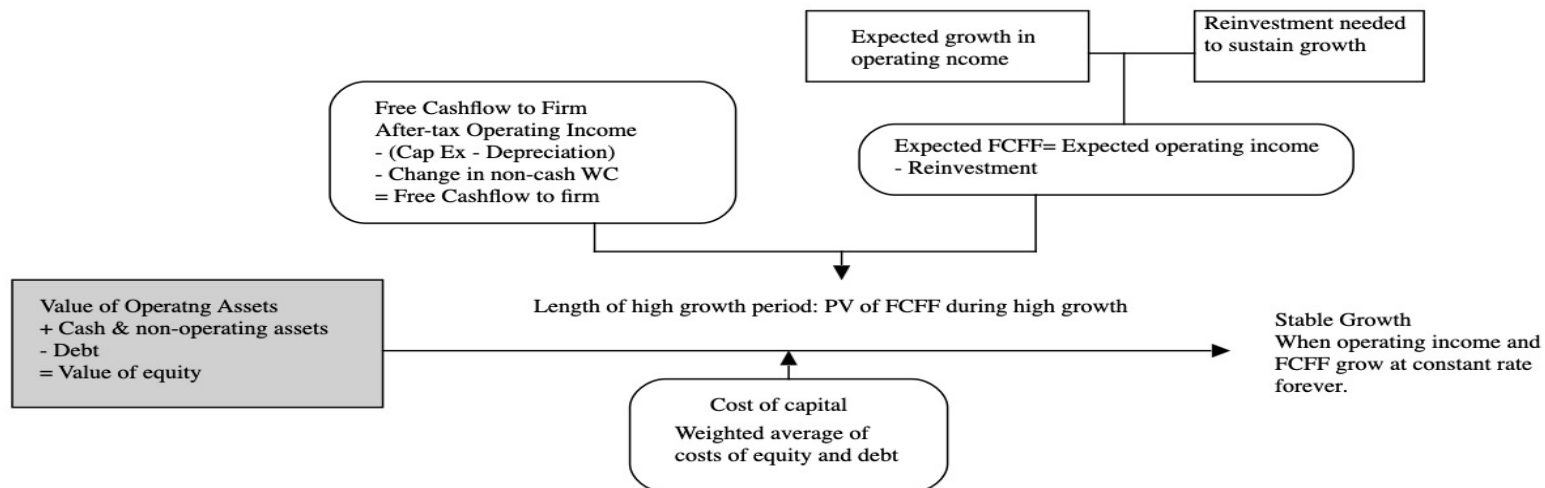


2. Intrinsic Valuation

A FCFE Valuation of Equity



A FCFF Valuation of the Firm



Free Cash Flow in Valuation: Base Year

14

1. Unusual or Extraordinary items: If you are computing cash flows as a base for forecasting the future, you should eliminate any items that you don't expect to recur in the future.
2. Normalized vs Actual numbers: For items that are recurring, but volatile, there is a good case to be made that while you will use the actual values, if computing free cash flows for the most recent year, you *should be normalizing them*, though the methods you use for normalization can vary across items. With the change in non-cash working capital, a notoriously volatile item on a year-to-year basis,
 - Change in working capital replaced by working capital computed using WC as % of revenues
 - Actual acquisition with average over time.
3. Stock-based Compensation and Acquisitions: Stock-based compensation is more of an in-kind expense, where you give away shares of equity in the company instead of paying cash. If you are estimate free cash flows (to the firm or to equity), with the intent of valuing that firm, adding back stock-based compensation is equivalent to arguing that you can either stop paying employees in the future (and still hold on to them) or that you can keep giving away equity stakes in your company with no consequences for value per share. Using the logic that paying for something with shares, instead of cash, still has an effect on free cash flows, we would argue that a company that plans to grow through acquisitions, using its own stock as currency, is reinvesting, and that this reinvestment should reduce expected free cash flows to equity, to existing shareholders.
4. Taxes: When your objective is to forecast future free cash flows. I would suggest looking at an average effective tax rate over a longer period, in computing the base year free cash flow, and then also targeting the marginal tax rate, as you forecast taxes for the future. In the Microsoft FCFF calculation, this would imply replacing the effective tax rate of 13.83% with an average effective tax rate of 22%, using the 2017-2021 time period, which would lower free cash flows to the firm.
5. Accounting Inconsistencies: While R&D remains a cash outflow, whether you treat it as an operating or a capital expenditure, moving it from operating to capital expenditures can alter your perception of a company's operations. In the case of Microsoft, for instance, capitalizing the \$20,716 million that the company spent on R&D in 2021, will increase the net income for the company, while also raising the reinvestment by an equivalent amount.

Microsoft: FCFE for the past versus FCFE as a basis for the future

15

<i>Microsoft: FCFE from FY 2021 Statement</i>		<i>Microsoft: Normalized FCFE (for valuation)</i>		<i>Rationale</i>
	<i>In 2021</i>		<i>In 2021</i>	
Net Income	\$ 61,271	Net Income	\$82,087	Capitalized R&D
+ Depreciation & Amortization	\$ 11,686	+ Depreciation & Amortization	\$ 11,686	
+ Non-cash losses (gains) on investments	\$ (1,249)	+ Non-cash losses (gains) on investments	\$ -	Non-recurring
- Change in non-cash WC	\$ 1,086	- Change in non-cash WC	\$ (2,552)	Average non-cash WC/Revenue
- Cap ex	\$ 20,622	- Cap ex	\$41,338	
- Cash Acquisitions	\$ 8,099	- Cash Acquisitions	\$27,859	Includes stock-based acquisition
FCFE prior to debt	\$ 41,901	FCFE prior to debt	\$27,128	
+ Debt Raised	\$ -	+ Debt Raised	\$ -	
- Debt Repaid (including exchange premium)	\$ 5,504	- Debt Repaid (including exchange premium)	\$ 5,504	
FCFE after debt	\$ 36,397	FCFE after debt	\$21,624	

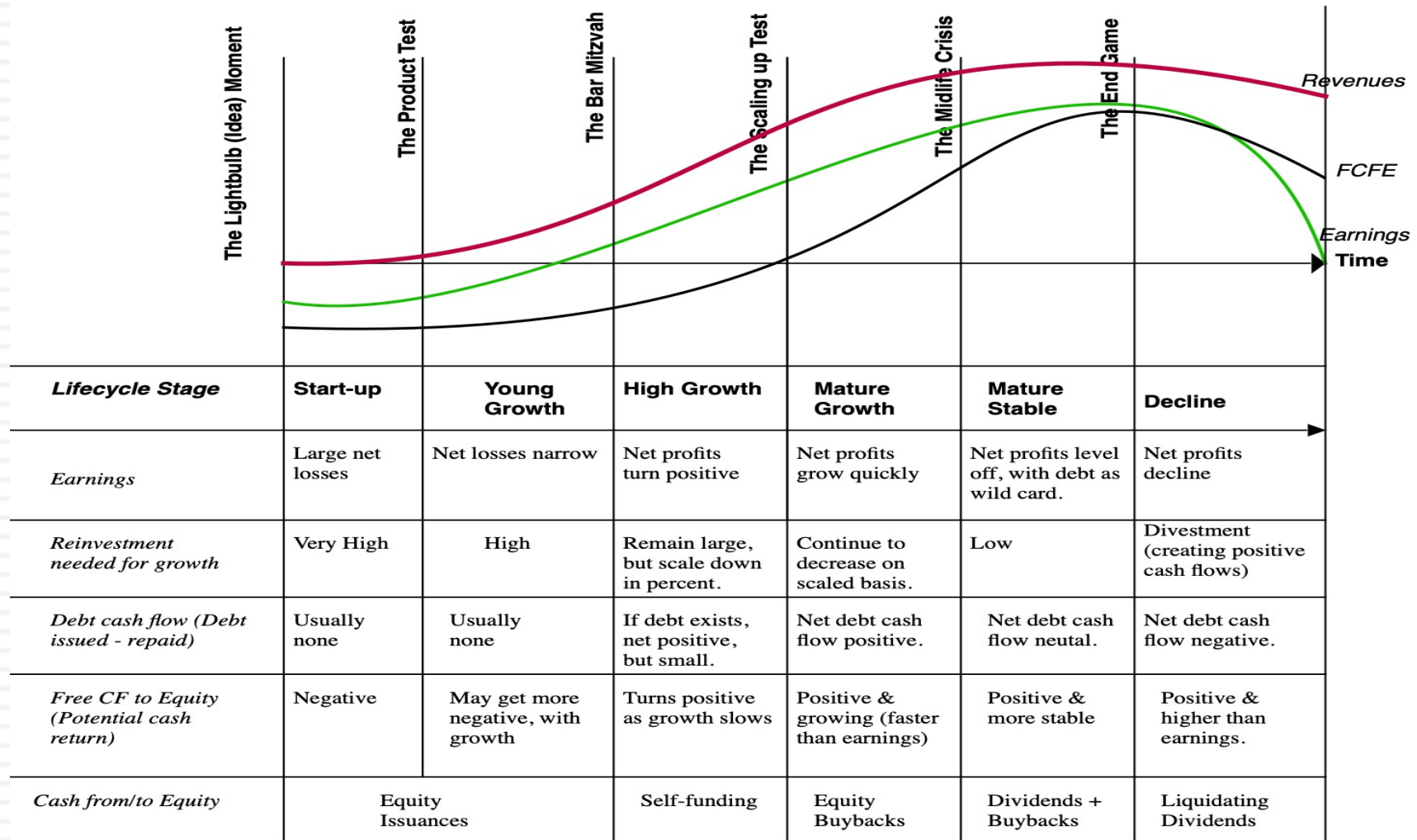
3. Pricing

16

- The question of which variants (FCFE or FCFF) can be used depends on whether you are using an equity pricing multiple (where the market cap or share price is in the numerator) or an enterprise value multiple (where it is the market value of operating assets in the numerator):
 - With equity multiples, you can scale the market value of equity (or market capitalization) of a company to its free cash flow to equity, to estimate a Price to FCFE multiple, and offer it as an alternative to the much more widely used PE ratio, where market capitalization is scaled to net income.
 - With enterprise value multiples, you can scale enterprise value to FCFF, instead of using EBITDA or revenues as your scalar. Again, you could argue for the benefits of a more complete measure of cash flow, but as with FCFE, FCFF will be more volatile than revenues or EBITDA, making it difficult to pass pricing judgment.
- The logic that analysts use for the use of free cash flows is simple and seems compelling. If the value of a business is the present value of its expected cash flows, as we argue in intrinsic valuation, it seems reasonable to also argue that the free cash flow that a business generates is a better measure of its value than the accounting earnings.

A Life Cycle Perspective on Free Cash Flows

17



And how it played out at Tesla...

18



And across companies...

19

Corporate Age and FCFE: US Companies in 2022

All US publicly traded companies, broken down by age (since founding)

Young firms are more likely to lose money than older firms, in absolute and relative terms.

The percent of companies with negative FCFE is highest at the youngest companies and lowest at older companies.

Age Decile	# firms	Average Age	\$ Value				In relative terms				% with Negative	
			Net Income	Reinvestment	Net Debt CF	FCFE	Net Income as % of Mkt Cap	Reinvestment as % of Revenue	Net Debt CF as % of Mkt Cap	FCFE as % of Mkt Cap	Net Income	FCFE
Youngest	499	5.04	\$ (55.13)	\$ 31,688	\$ 2,773	\$ (31,743)	0.00%	2.81%	0.25%	-9.92%	73.15%	76.15%
2nd decile	522	9.43	\$ (7,107)	\$ 22,373	\$ 33,309	\$ (29,480)	-0.50%	1.58%	2.36%	-12.58%	70.11%	72.99%
3rd decile	577	13.58	\$ (13,783)	\$ 24,918	\$ 18,863	\$ (38,702)	-0.82%	1.49%	1.13%	-13.53%	58.23%	61.53%
4th decile	718	18.12	\$ 45,637	\$ 70,116	\$ 10,115	\$ (24,478)	1.25%	1.92%	0.28%	-3.51%	51.81%	55.99%
5th decile	488	23.49	\$ 237,085	\$ 110,271	\$ 54,691	\$ 126,814	4.44%	2.07%	1.03%	11.28%	38.93%	45.08%
6th decile	652	29.49	\$ 141,129	\$ 128,053	\$ 46,597	\$ 13,077	2.71%	2.46%	0.90%	0.95%	33.59%	43.87%
7th decile	578	38.19	\$ 168,379	\$ 134,027	\$ 50,318	\$ 34,352	3.91%	3.11%	1.17%	1.82%	28.89%	44.64%
8th decile	606	52.48	\$ 441,970	\$ 203,044	\$ 40,744	\$ 238,926	3.46%	1.59%	0.32%	6.50%	19.47%	37.95%
9th decile	581	86.88	\$ 272,575	\$ 142,882	\$ (97,915)	\$ 129,693	4.30%	2.25%	-1.54%	3.82%	16.87%	35.46%
Oldest	584	140.22	\$ 443,447	\$ 211,298	\$ (160,317)	\$ 232,149	5.00%	2.38%	-1.81%	5.03%	8.73%	27.05%
All firms	6,542	42.24	\$ 1,746,044	\$ 1,097,842	\$ (1,071)	\$ 648,201	3.38%	2.13%	0.00%	3.60%	39.73%	48.98%

Playing out in dividends & buybacks

20

			<i>Cash Returners</i>		<i>Dividend Payers</i>		<i>Stock Buybacks</i>	
<i>Age Decile</i>	<i># firms</i>	<i>Average Age</i>	<i>% Returning Cash</i>	<i>% Not Returning Cash</i>	<i>% of Dividend Payers</i>	<i>% of Non-dividend Payers</i>	<i>% Buying Back</i>	<i>% Not Buying Back</i>
Youngest	499	5.04	30.66%	69.34%	15.03%	84.97%	23.05%	76.95%
2nd decile	522	9.43	30.27%	69.73%	11.49%	88.51%	26.44%	73.56%
3rd decile	577	13.58	30.85%	69.15%	12.31%	87.69%	27.38%	72.62%
4th decile	718	18.12	32.31%	67.69%	11.56%	88.44%	28.41%	71.59%
5th decile	488	23.49	43.24%	56.76%	15.98%	84.02%	38.52%	61.48%
6th decile	652	29.49	48.16%	51.84%	22.39%	77.61%	41.87%	58.13%
7th decile	578	38.19	56.92%	43.08%	25.61%	74.39%	49.13%	50.87%
8th decile	606	52.48	68.15%	31.85%	42.74%	57.26%	57.92%	42.08%
9th decile	581	86.88	79.69%	20.31%	62.13%	37.87%	63.86%	36.14%
Oldest	584	140.22	84.42%	15.58%	74.83%	25.17%	64.38%	35.62%
All firms	6,542	42.24	46.90%	53.10%	27.10%	72.90%	39.15%	60.85%

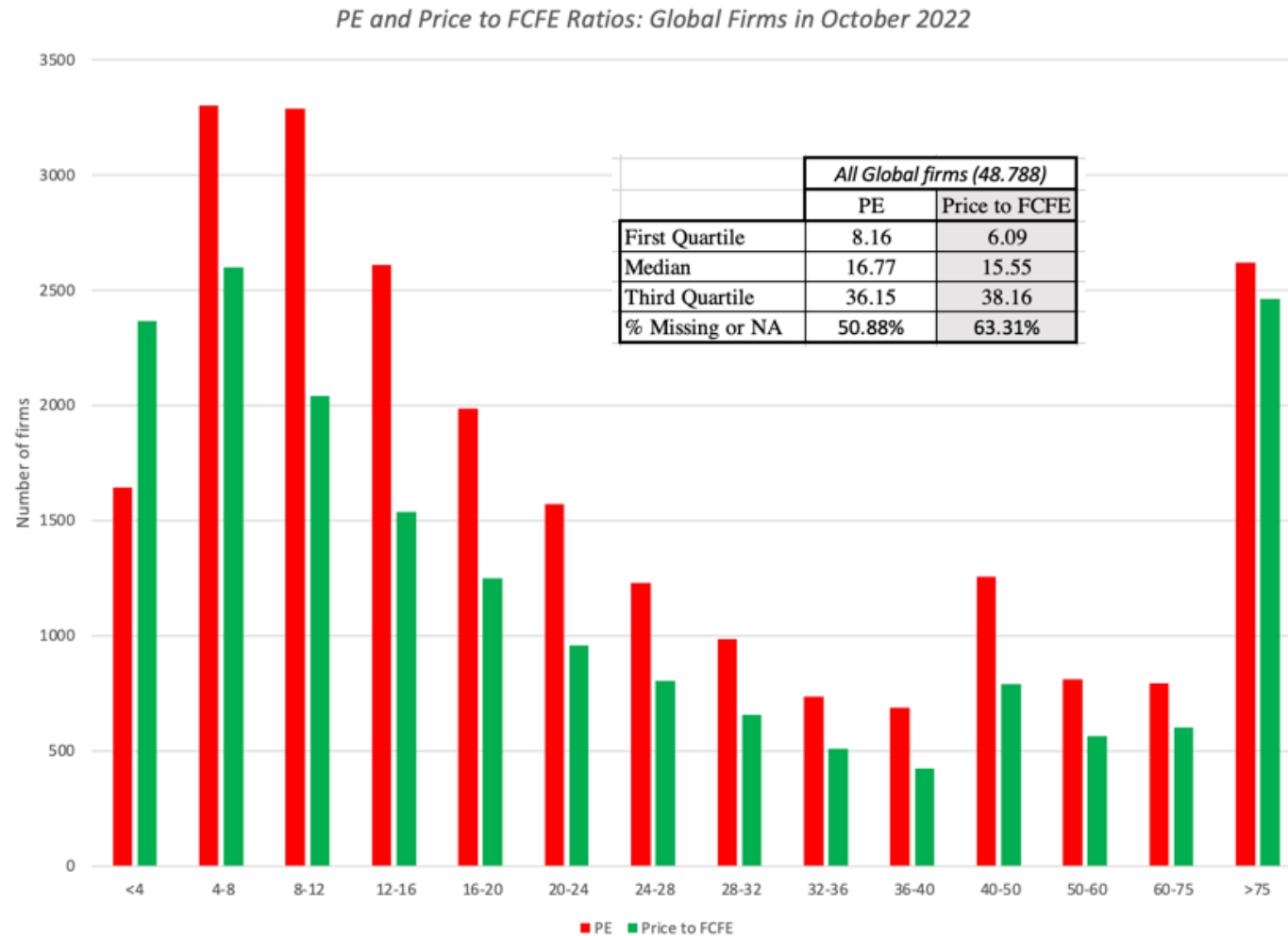
Pricing: Cash Flows versus Earnings

21

- While there are some cash flow purists who prefer cash flow multiples to earnings multiples, they will never be widely used for two reasons.
 - No frame of reference: The reason that investors like to price companies, using multiples, is because they have frames of reference on these multiples, i.e., a sense of what a typical number should like in a sector. With PE ratios, their long history of usage has left investors with frames of reference that they can use, rightfully or wrongfully, in pricing stocks, but with Price to FCFE ratios, there is no such reference frame.
 - Noise in estimates: As you can see from how FCFE is computed, with the netting out of reinvestment and incorporating debt cash flows, it will always be a more volatile number than earnings, with much of the additional volatility telling you little about current earnings power.

Perspective on Equity Pricing

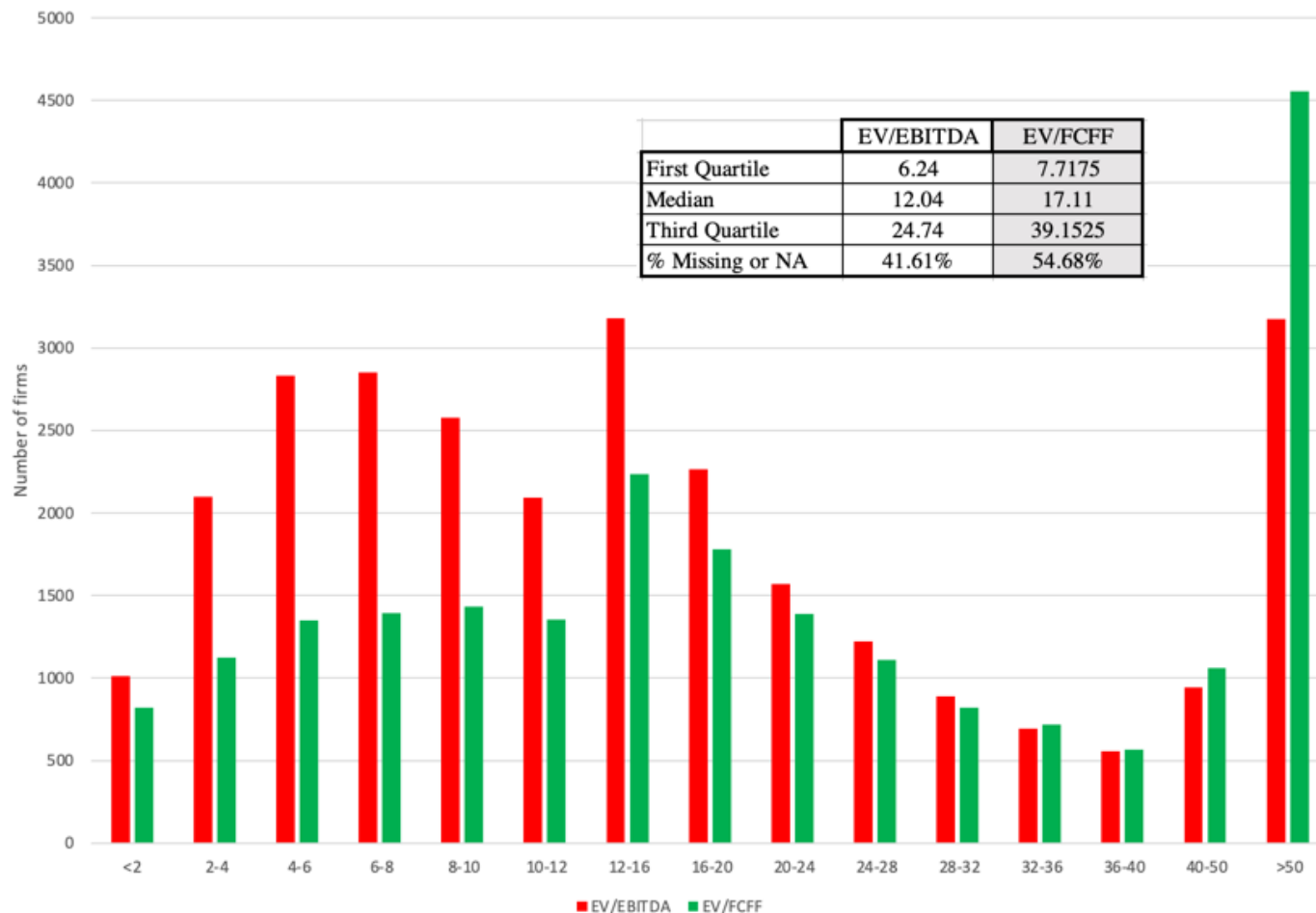
22



Perspective on EV pricing

23

EV Multiples of EBITDA and FCFF: Global Firms in 2022



A Bottom Line on Pricing

24

- As a cash flow advocate, it pains me to say this, but if your game is pricing stocks, I see little benefit from replacing traditional multiples (like PE and EV to EBITDA) with free cash flow scaled pricing measures.
- That is because a single year's free cash flow (to equity or the firm) has more noise in it, and is less informative about a company's operating health, than a single year's earnings (net income or EBITDA).
- However, you can augment your PE or EV to EBITDA pricing by bringing in insights that you get from computing and calculating free cash flows including:
 - ▣ How much a company pays in taxes
 - ▣ How much it reinvests to deliver its growth
 - ▣ How much it is adding to or reducing debt