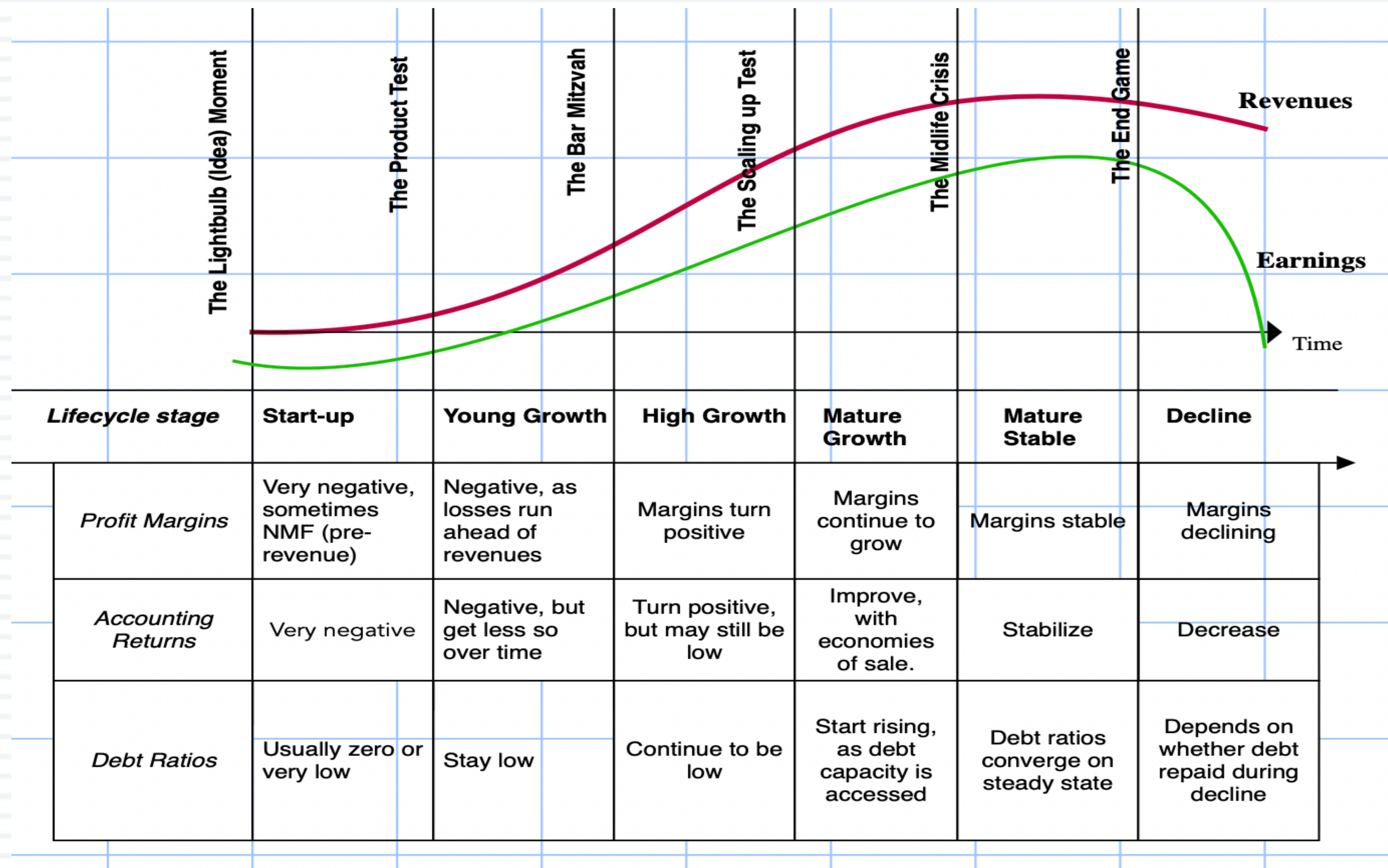
SESSION 6A: RATIO ANALYSIS

Accounting for Finance

Financial Ratios: A Life Cycle Perspective



Lifecycle stage	Start-up	Young Growth	High Growth	Mature Growth	Mature Stable	Decline
Profit Margins	Very negative, sometimes NMF (pre-revenue)	Negative, as losses run ahead of revenues	Margins turn positive	Margins continue to grow	Margins stable	Margins declining
Accounting Returns	Very negative	Negative, but get less so over time	Turn positive, but may still be low	Improve, with economies of sale.	Stabilize	Decrease
Debt Ratios	Usually zero or very low	Stay low	Continue to be low	Start rising, as debt capacity is accessed	Debt ratios converge on steady state	Depends on whether debt repaid during decline

1. Profitability Ratios

	Peloton	*Netflix*	*Coca Cola*	*Toyota*	*Total*	*Dr. Reddy's*
In Income Statement						
Revenues	$ 219	$ 20,156	$ 37,266	¥30,225,681	$ 200,316	₹ 125,936
Gross Profit	$ 74	$ 7,716	$ 22,647	¥6,836,186	$ 60,028	₹ 100,371
Operating Income	$ (71)	$ 2,605	$ 10,086	¥2,467,545	$ 16,257	₹ 28,216
Net Income	$ (71)	$ 1,866	$ 8,985	¥1,985,587	$ 11,438	₹ 29,377
Gross Margin	33.81%	38.28%	60.77%	22.62%	29.97%	79.70%
Operating Margin	-32.34%	12.92%	27.06%	8.16%	8.12%	22.41%
After-tax Operating Margin	-32.34%	11.70%	22.55%	5.81%	5.29%	23.71%
Net Margin	-32.53%	9.26%	24.11%	6.57%	5.71%	23.33%
Effective Tax Rate	0.00%	9.47%	16.70%	28.88%	34.76%	-5.83%

And analysis…

- Young to old: *Young companies often have negative or very low margins*, for two reasons:
  - They are still building up their revenues
  - Some of their operating expenses are associated with future growth, not current operations.
- Business Differences: *High gross margin businesses have the advantage*: Companies like Coca Cola (brand name consumer product) and Dr. Reddy's Labs (pharmaceutical) start with sky-high gross margins, which then feed into high operating and net margins.
- Leverage Effects: *Companies with high debt ratios* can have low net margins, while operating margins stay high.

2. Accounting Returns

	Peloton	*Netflix*	*Coca Cola*	*Toyota*	*Total*	*Dr. Reddy's*
Earnings						
Operating Income	$ (71)	$ 2,605	$ 10,086	¥2,467,545	$ 16,257	₹ 28,216
After-tax Operating Income	$ (71)	$ 2,358	$ 8,402	¥1,755,024	$ 10,607	₹ 29,862
Net Income	$ (71)	$ 1,866	$ 8,985	¥1,985,587	$ 11,438	₹ 29,377
Invested Capital (end of previous year)						
Book Equity	$ 90	$ 5,239	$ 19,058	¥20,067,137	$ 118,114	₹ 126,841
Total Debt	$ -	$ 10,360	$ 44,214	¥15,895,918	$ 53,435	₹ 8,917
Cash	$ 151	$ 3,794	$ 11,102	¥3,570,704	$ 27,907	₹ 1,132
Invested Capital	$ (61)	$ 11,805	$ 52,170	¥32,392,351	$ 143,642	₹ 134,626
Accounting Returns						
Return on Equity	-79.00%	35.62%	47.15%	9.89%	9.68%	23.16%
ROIC	NA	22.07%	19.33%	7.62%	11.32%	20.96%
After-tax ROIC	NA	19.98%	16.10%	5.42%	7.38%	22.18%

Reflections of…

- Competitive Advantages: If accounting returns are fair measure of true returns, they are the repository for competitive advantages.
  - Industries where barriers to entry are high or other competitive advantages prevail should have higher returns on capital than companies without these advantages.
  - Companies with strong competitive advantages within an industry should earn higher returns than their peer group.
- Accounting choices and inconsistencies: Accounting can affect and sometimes skew returns:
  - By misclassifying capital, operating and financial expenses
  - By taking write offs to reflect mistakes made in the past.

3. Efficiency Ratios

	Peloton	*Netflix*	*Coca Cola*	*Toyota*	*Total*	*Dr. Reddy's*
Operating Metrics						
Revenues	$ 219	$ 20,156	$ 37,266	¥30,225,681	$ 200,316	₹ 125,936
Total Assets (prior year)	$ 271	$ 25,974	$ 83,216	¥51,936,949	$ 256,762	₹ 162,475
Invested Capital (prior year)	$ (61)	$ 11,805	$ 52,170	¥32,392,351	$ 143,642	₹ 134,626
Turnover Ratios						
Asset Turnover Ratio	0.81	0.78	0.45	0.58	0.78	0.78
Sales to Invested Capital	NA	1.71	0.71	0.93	1.39	0.94

The dark side of growth

- The growth trade off: Growth has a good side, insofar as it lets a company scale up its operations, but it has a dark side, which is that companies have to reinvest to deliver that growth.
- Scaling up measure: Turnover ratios look at the link between what a company has to reinvest, and how much its revenues grow over time. Companies that are more efficient on this measure will be able to grow revenues, with less reinvestment.
  - Young to old: The link between company age and turnover ratios will vary across different business types, with older companies becoming more efficient in some, and less in others.
  - Accounting effects: The problems associated with accounting choices and inconsistencies will affect turnover ratios as well.

4. Debt Ratios

	Peloton	*Netflix*	*Coca Cola*	*Toyota*	*Total*	*Dr. Reddy's*
Operating Metrics						
Long Term Debt	$ -	$ 14,759	$ 27,516	¥10,692,898	$ 47,773	₹ 193
Total Debt	$ -	$ 14,759	$ 42,763	¥20,552,969	$ 62,592	₹ 10,629
Net Debt	$ (162)	$ 9,741	$ 34,816	¥16,362,451	$ 35,240	₹ 10,237
Book Equity	$ 402	$ 7,582	$ 52,170	¥19,348,152	$119,305	₹ 151,919
Market Equity	$ 8,100	$ 216,350	$205,790	¥19,753,000	$104,610	₹ 746,383
EBITDA	$ (181)	$ 11,924	$ 11,451	¥4,259,920	$ 32,658	₹ 36,108
Turnover Ratios						
Debt to Equity (Book)	0.00%	194.66%	81.97%	106.23%	52.46%	7.00%
Debt to Equity (Market)	0.00%	6.82%	20.78%	104.05%	59.83%	1.42%
Debt to Capital (Book)	0.00%	66.06%	45.05%	51.51%	34.41%	6.54%
Debt to Capital (Market)	0.00%	6.39%	17.20%	50.99%	37.43%	1.40%
Debt to EBITDA	NA	1.24	3.73	4.82	1.92	0.29
Net Debt to EBITDA	NA	0.82	3.04	3.84	1.08	0.28

Debt, the double edged sword

- Source of capital: Debt is a source of capital for a business, just as equity is. There is nothing inherently good or bad about it, but in most parts of the world, it is a trade off between tax benefits that accrue to borrowing and distress risk.
- Measurement choices: When comparing across companies, you have to measure debt consistently across companies. However, it is usually better to focus on
  - Total debt, rather than a subset of debt
  - Market value, rather than book value
- Gross vs Net Debt: While the rationale for netting cash out from debt is impeccable, cash is a transient asset, here today and can be gone tomorrow.

5. Coverage & Liquidity Ratios

	Peloton	*Netflix*	*Coca Cola*	*Toyota*	*Total*	*Dr. Reddy's*
Operating Metrics						
Interest Expenses	$ -	$ 626	$ 946	¥32,217	$ 2,333	₹ 527
Debt Repayments	$ -	$ -	$ 24,850	¥4,442,332	$ 5,829	₹ 1,805
Operating income	$ (71)	$ 2,605	$ 10,086	¥2,467,545	$ 16,257	₹ 28,216
Turnover Ratios						
Inerest Coverage Ratio	NA	4.16	10.66	76.59	6.97	53.54
Fixed Charge Coverage	NA	5.16	1.39	1.55	2.99	13.10
Current Assets	$ 582	$ 6,178	$ 20,411	¥18,642,531	$ 85,265	₹ 101,067
Current Liabilities	$ 291	$ 6,856	$ 26,973	¥17,902,377	$ 70,244	₹ 41,805
Current Ratio	2.00	0.90	0.76	1.04	1.21	2.42
Current Assets without inventory	$ 445	$ 6,178	$ 17,032	¥16,207,613	$ 68,133	₹ 79,163
Current Liabilities	$ 291.00	$ 6,856	$ 26,973	¥17,902,377	₹ 70,244	₹ 41,805
Quick Ratio	1.53	0.90	0.63	0.91	0.97	1.89

And analysis…

- Safety in numbers: All else held equal, companies that score higher on interest and fixed charge coverage ratios should have more buffer than companies that score lower.
- Normalization? That said, the ratios can be skewed by year-to-year changes, especially in operating income and debt repayments.
  - For companies in volatile businesses, this can translate into big swings in coverage ratios from good to bad years. The solution is to use an average across time.
  - For young companies, the coverage ratios can look bad, at least as they start the growth process, but these companies can grow operating income quickly to gain buffers.

Final Thoughts

- Less is more: If you decide to use financial ratios, less is more. Choose the ratios that you want, rather than create noise by computing multiple ratios.
- A means to an end: Ratios, by themselves, are just numbers and mean nothing, unless you use them to make judgments about what your company does well or badly, and how this affects your perspective for the company.
- Past versus future: While your ratios are in the past, investing and corporate finance are about the future.