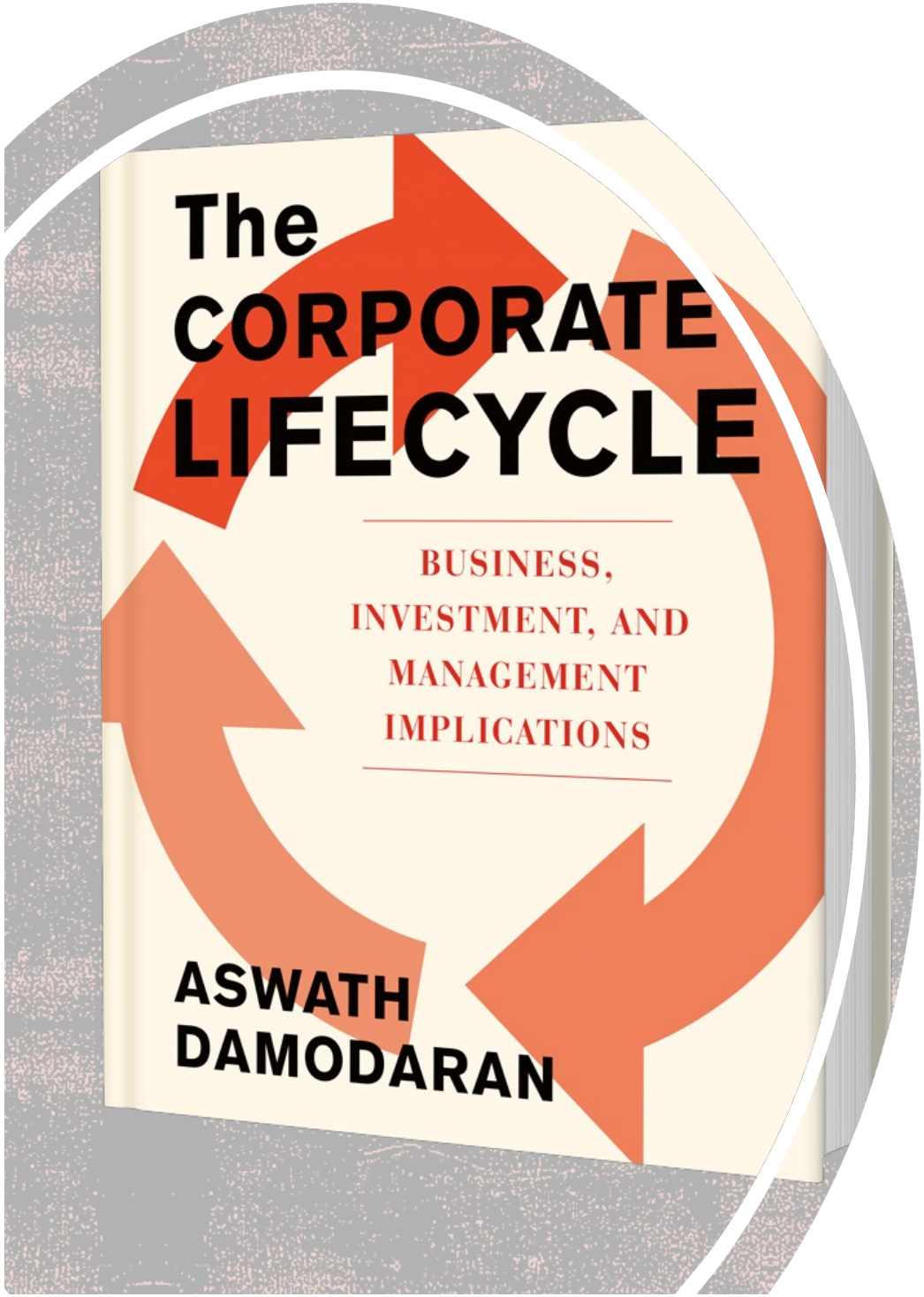
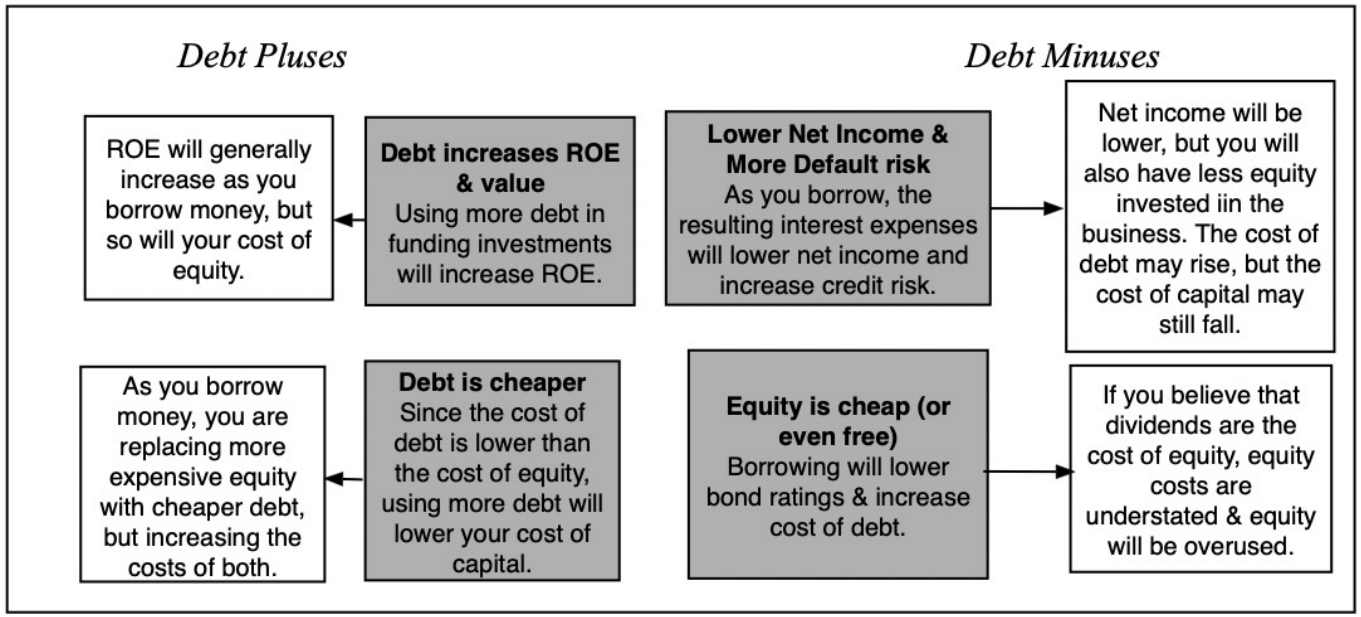


THE FINANCING DECISION ACROSS THE LIFE CYCLE

THE DEBT-EQUITY TRADE OFF

- If the choice that businesses face is between using equity and debt, the way to determine which funding source will benefit them more is to weigh the costs and benefits of borrowing money, relative to using equity.
  - We will start by arguing that many businesses are drawn to debt for what we will term *illusory reasons*,.
  - We will then move to the other end of the spectrum, and consider *just the financial tradeoffs*, i.e., the fundamental costs and benefits of borrowing.
  - We will end by *looking at market frictions*, mispricing and distortions that can lead some businesses to borrow more or less than they should, given fundamentals, and how these deviations vary across the life cycle.

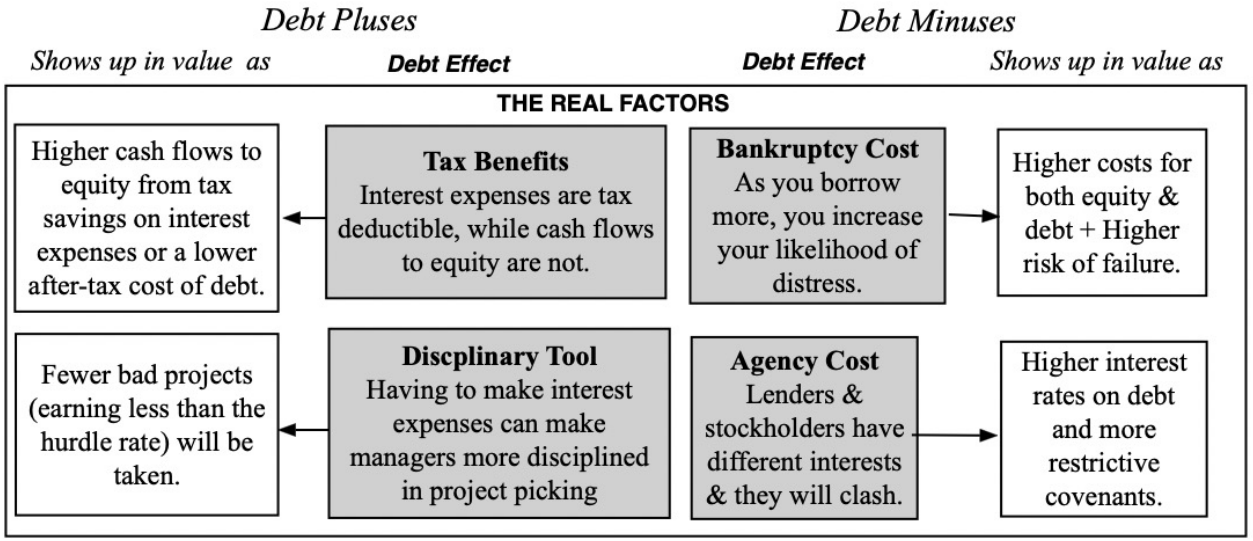
THE ILLUSORY TRADE OFF



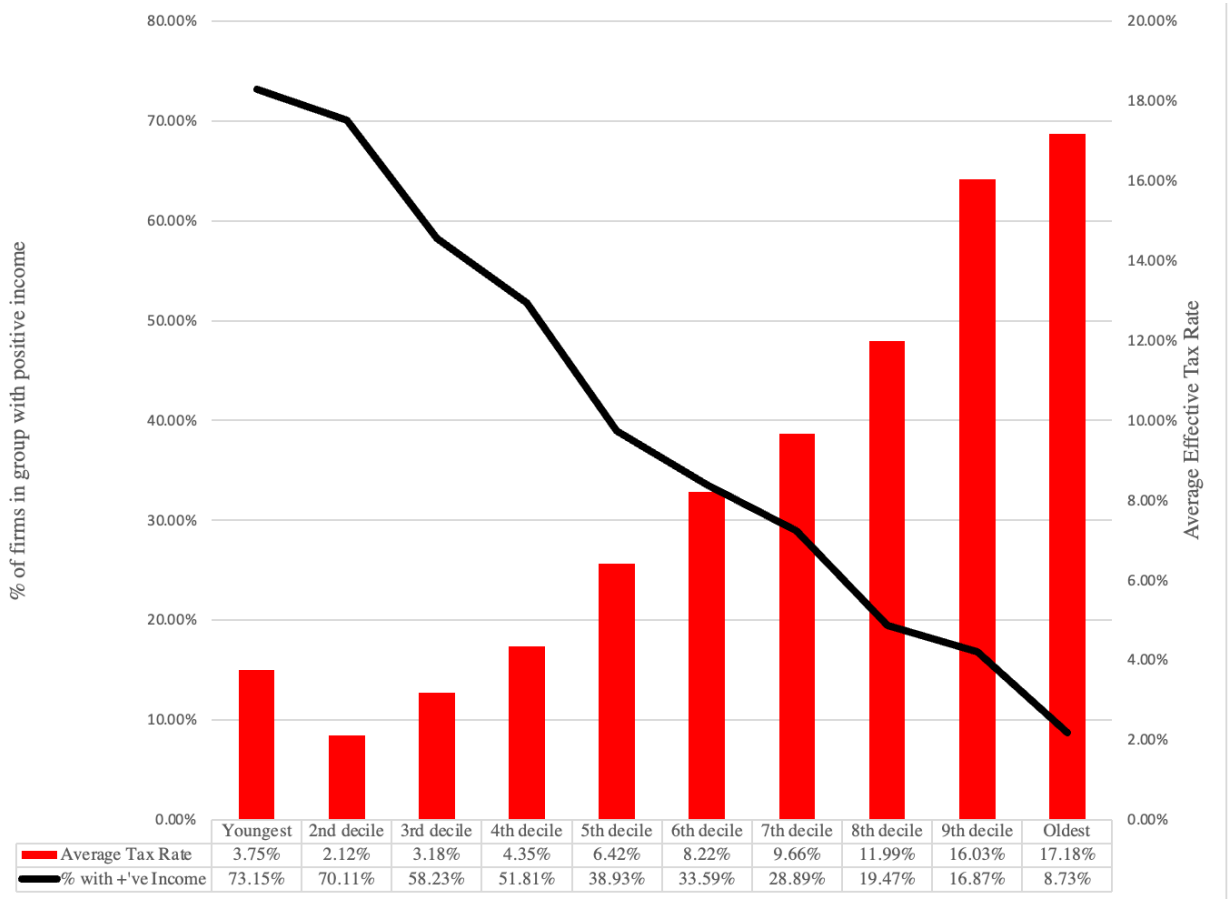
AND IMPLICATIONS ACROSS LIFE CYCLE

- While these illusory reasons are used by firms across the life cycle, they **can often explain inexplicable choices** made by firms at each stage.
  - There are *young firms, clearly unsuited to debt,* **that choose to borrow money because the interest rate that they pay on the debt looks lower than the target rates demanded by venture capitalists**. This illusion is fed by the inclusion of equity components in debt, as is the case with convertible debt or venture debt paired with equity warrants, that lower the interest rate on the debt.
  - At the other end of the spectrum, **there are mature firms that are family-run that view equity as a free or very cheap source of capital that choose to borrow very little or no money** and take investments that barely make money, because of their misconceptions about funding costs. At the heart of this illusion is the belief that dividends are the only cost of equity.

THE FINANCIAL TRADE OFF



I. TAX BENEFITS



	Youngest	2nd decile	3rd decile	4th decile	5th decile	6th decile	7th decile	8th decile	9th decile	Oldest
Average Tax Rate	3.75%	2.12%	3.18%	4.35%	6.42%	8.22%	9.66%	11.99%	16.03%	17.18%
% with +'ve Income	73.15%	70.11%	58.23%	51.81%	38.93%	33.59%	28.89%	19.47%	16.87%	8.73%

II. ADDED DISCIPLINE

			Institutional Holding			*Insider Holding*		
Age Class	*Number*	*Average Age*	*1st Quartile*	*Median*	*Average*	*1st Quartile*	*Median*	*Average*
Youngest	499	5.04	10.12%	27.18%	50.27%	1.53%	6.32%	20.85%
2nd decile	522	9.43	10.60%	28.77%	59.74%	2.10%	7.18%	20.50%
3rd decile	577	13.58	8.48%	29.27%	64.36%	1.90%	6.41%	19.51%
4th decile	718	18.12	8.40%	32.08%	69.69%	1.98%	6.03%	18.16%
5th decile	488	23.49	11.57%	42.56%	80.69%	1.55%	5.79%	16.44%
6th decile	652	29.49	16.58%	48.95%	86.52%	1.37%	4.23%	17.73%
7th decile	578	38.19	17.92%	54.75%	85.35%	1.45%	4.86%	17.82%
8th decile	606	52.48	30.66%	68.83%	89.27%	1.07%	4.28%	15.52%
9th decile	581	86.88	31.49%	70.94%	87.95%	0.88%	2.87%	10.36%
Oldest	584	140.22	28.30%	67.18%	84.45%	0.67%	2.19%	6.66%
All firms	6,542	42.24	13.13%	43.94%	79.80%	1.30%	4.96%	16.55%

III. BANKRUPTCY COSTS

			Variability in Operating Income			*Interest Coverage*		
	Number	*Average Age*	*1st Quartile*	*Median*	*Average*	*1st Quartile*	*Median*	*Average*
Youngest	499	5.04	0.33	0.78	0.95	1.58	3.34	7.37
2nd decile	522	9.43	0.64	0.97	1.28	1.25	4.13	10.89
3rd decile	577	13.58	0.66	0.96	1.35	1.85	4.68	21.27
4th decile	718	18.12	0.55	0.85	1.17	1.66	3.89	17.68
5th decile	488	23.49	0.48	0.76	1.17	1.71	6.40	17.38
6th decile	652	29.49	0.38	0.66	1.10	2.71	7.01	30.91
7th decile	578	38.19	0.40	0.70	1.13	2.79	7.93	22.92
8th decile	606	52.48	0.32	0.57	0.99	2.90	8.69	23.10
9th decile	581	86.88	0.25	0.44	0.84	4.15	9.40	22.08
Oldest	584	140.22	0.19	0.31	0.57	3.09	6.90	12.79
All firms	6,542	42.24	0.36	0.66	1.08	2.62	6.73	18.59

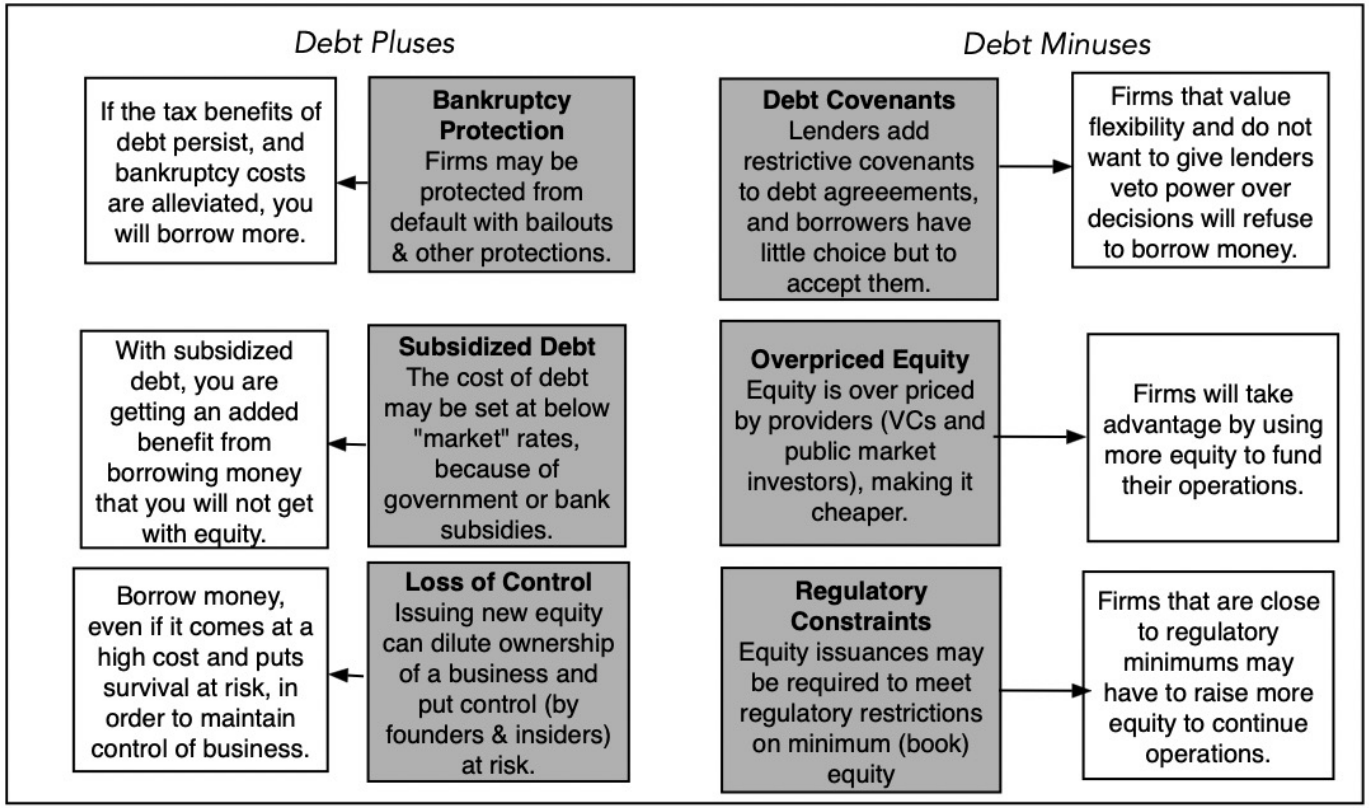
IV. AGENCY COSTS

- When you lend money to a business, the two biggest factors determining how concerned you are about equity investors putting your interests at risk relate to the composition of your assets and your capacity to monitor how equity investors are using the capital you provide them.
  - On the first count, **lenders seem to feel less concerned about this agency problem when they lend based on tangible assets**, such as real estate or a physical plant, than based on intangible assets. With young businesses, where the bulk of value comes from growth assets, i.e., investments that they make in the future, you can understand why lenders are leerier about letting equity investors free play with their capital.
  - In addition, **as young businesses experiment with different business models and try to gauge market size, lenders also often find themselves unable to monitor how money is being spent in a business**, and this fear gets worse in evolving sectors such as technology, where they know far less about the business than the founders/equity investors do.
- To induce a lender to lend money to a young company, not only do interest rates have to be set much higher, and covenants made more restrictive, but lenders also must be offered a share of the upside, in the form of an equity stake, to commit.

DEBT MIX ACROSS THE LIFE CYCLE

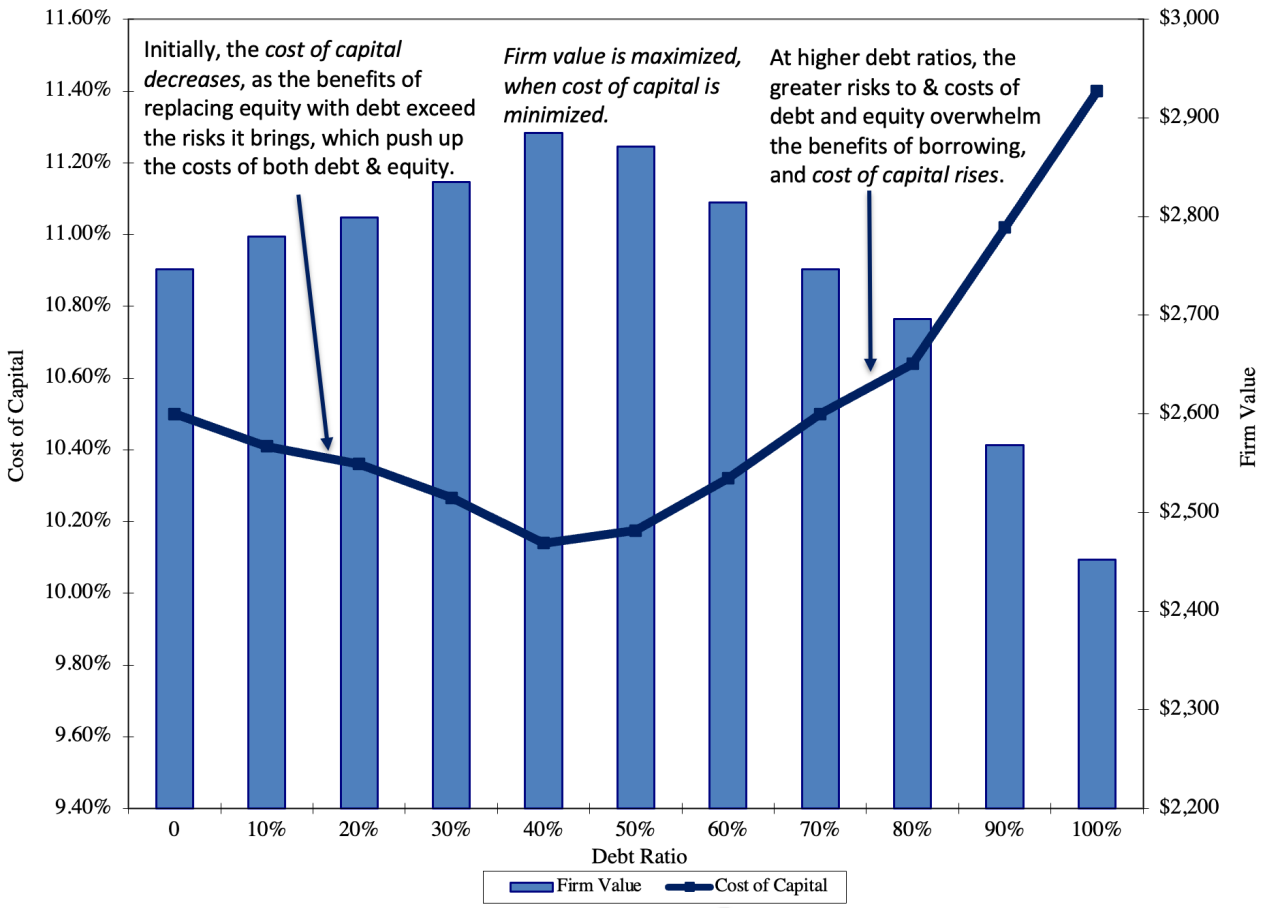
		Median		Debt to Capital (Market)			Debt to Capital (Book)		
	Number	*Average Age*	*Revenue Growth*	*1st Quartile*	*Median*	*3rd Quartile*	*1st Quartile*	*Median*	*3rd Quartile*
Youngest	499	5.04	26.90%	0.33%	3.66%	20.43%	1.34%	9.92%	37.14%
2nd decile	522	9.43	27.40%	0.23%	4.93%	20.47%	2.72%	18.49%	46.31%
3rd decile	577	13.58	23.80%	0.17%	3.54%	25.18%	4.84%	23.99%	52.83%
4th decile	718	18.12	21.50%	0.07%	5.03%	21.72%	3.61%	21.47%	46.87%
5th decile	488	23.49	16.20%	0.00%	5.88%	22.77%	7.96%	27.97%	51.90%
6th decile	652	29.49	13.40%	0.22%	6.03%	23.25%	7.02%	27.01%	54.55%
7th decile	578	38.19	12.50%	1.19%	11.55%	32.42%	10.50%	32.04%	55.61%
8th decile	606	52.48	10.30%	2.63%	16.31%	34.64%	14.11%	38.16%	57.96%
9th decile	581	86.88	9.27%	7.59%	18.66%	35.05%	18.92%	35.87%	51.81%
Oldest	584	140.22	6.89%	11.36%	22.81%	38.35%	22.27%	37.52%	56.07%
All firms	6,542	42.24	12.90%	0.29%	8.50%	27.85%	7.57%	28.90%	51.58%

THE FRICTIONAL TRADE OFFS

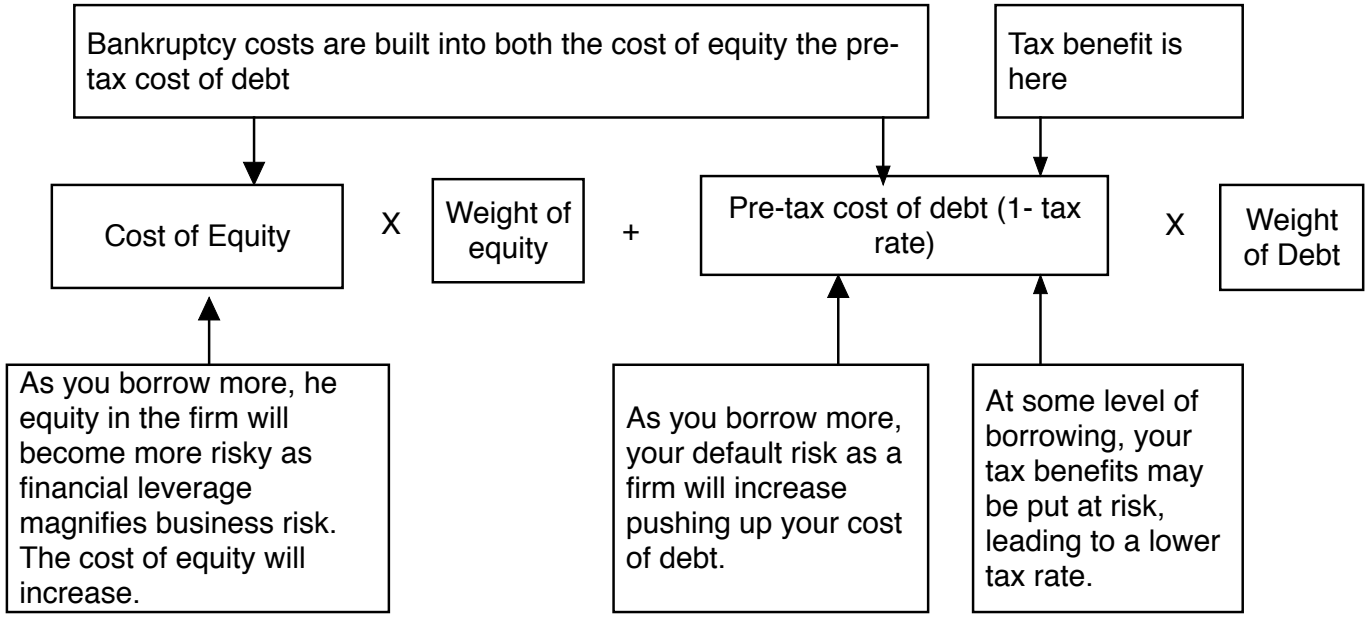


OPTIMIZING TOOLS: THE COST OF CAPITAL

Figure 7.5: Cost of Capital and Firm Value

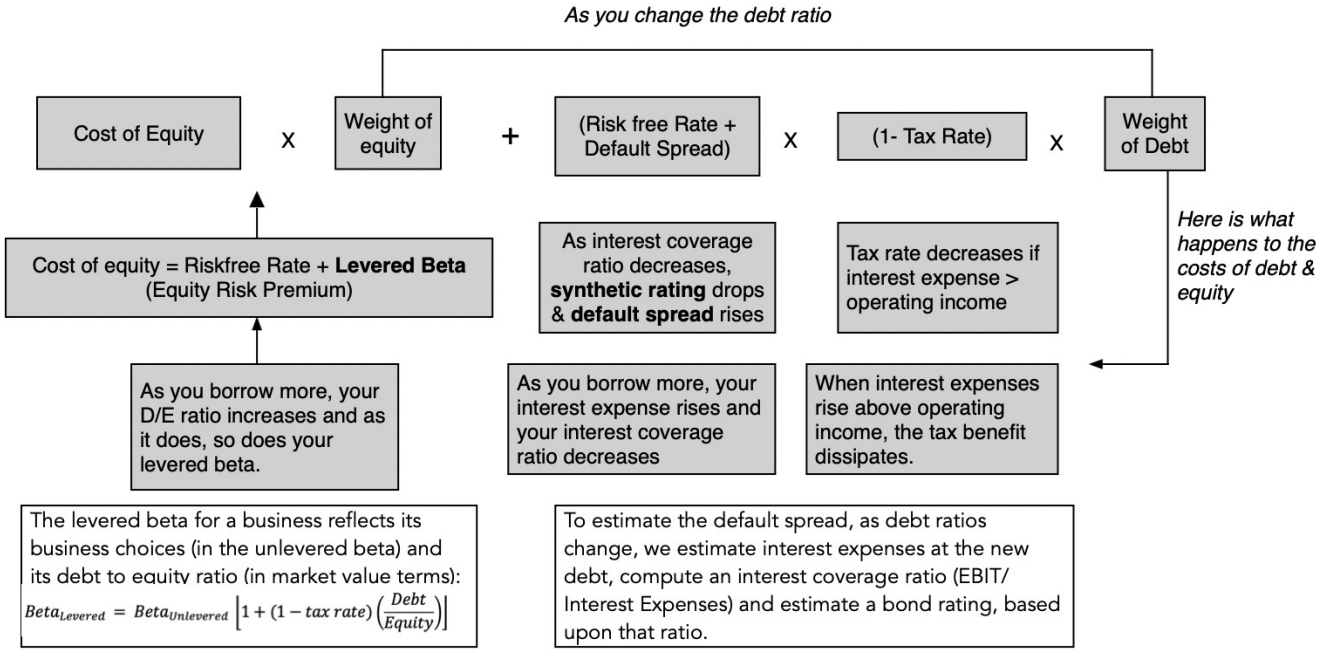


COST OF CAPITAL MECHANICS



The trade off: As you use more debt, you replace more expensive equity with cheaper debt but you also increase the costs of equity and debt. The net effect will determine whether the cost of capital will increase, decrease or be unchanged as debt ratio changes.

ESTIMATION PROCESS

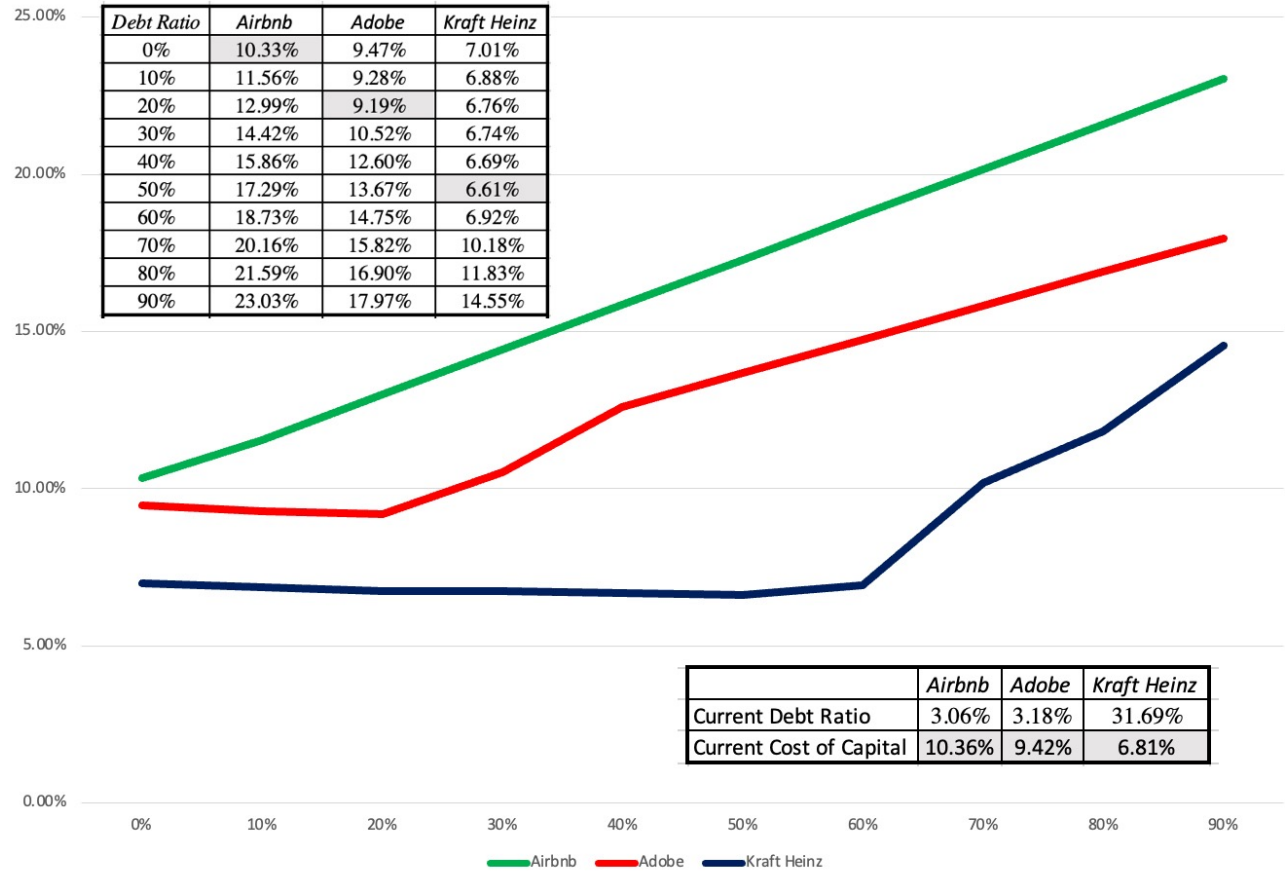


COST OF CAPITAL EXAMPLES ACROSS THE LIFE CYCLE

	Airbnb	*Adobe*	*Kraft Heinz*
Corporate Age	15	40	153
Revenue Growth (last 3 years)	64.07%	20.50%	0.80%
Expected Revenue Growth (next 2 years)	47.20%	14.30%	-2.96%
Operating Income in 2021	$ 429	$ 5,802	$ 5,222
Operating Income in 2019	$ (501)	$ 3,268	$ 5,077

Optimal Debt Mix

Debt Ratio	Airbnb	Adobe	Kraft Heinz
0%	10.33%	9.47%	7.01%
10%	11.56%	9.28%	6.88%
20%	12.99%	9.19%	6.76%
30%	14.42%	10.52%	6.74%
40%	15.86%	12.60%	6.69%
50%	17.29%	13.67%	6.61%
60%	18.73%	14.75%	6.92%
70%	20.16%	15.82%	10.18%
80%	21.59%	16.90%	11.83%
90%	23.03%	17.97%	14.55%



	Airbnb	Adobe	Kraft Heinz
Current Debt Ratio	3.06%	3.18%	31.69%
Current Cost of Capital	10.36%	9.42%	6.81%

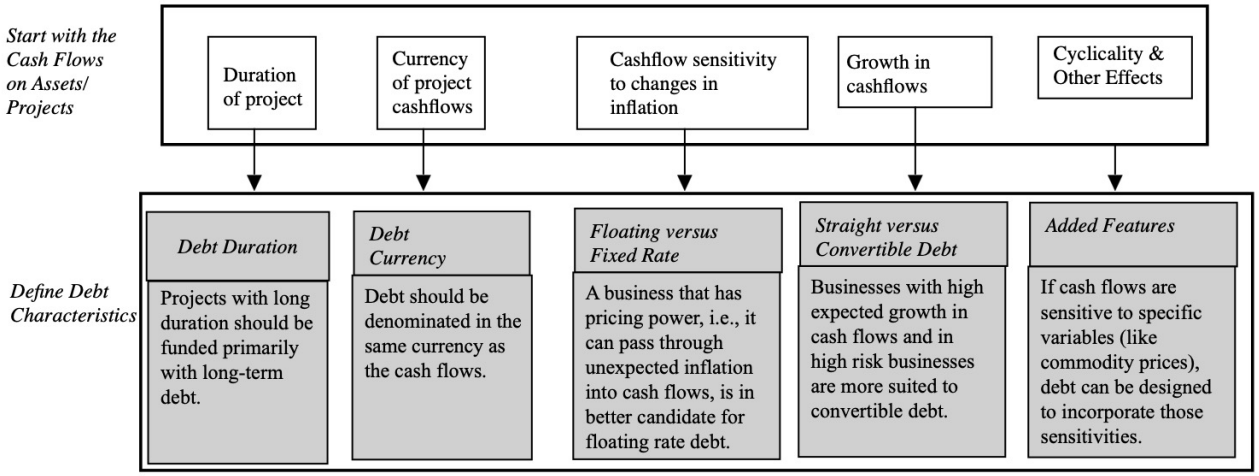
EXPLANATION AND FOLLOW UP

	Airbnb	*Adobe*	*Kraft Heinz*
Operating Income	$ 429	$ 5,802	$ 5,222
Enterprise Value	$ 67,045	$ 173,818	$ 65,356
EBIT/ Enterprise Value	0.64%	3.34%	7.99%
Marginal Tax Rate	25%	25%	25%
Variability in Operating Income	NA	0.70	0.54

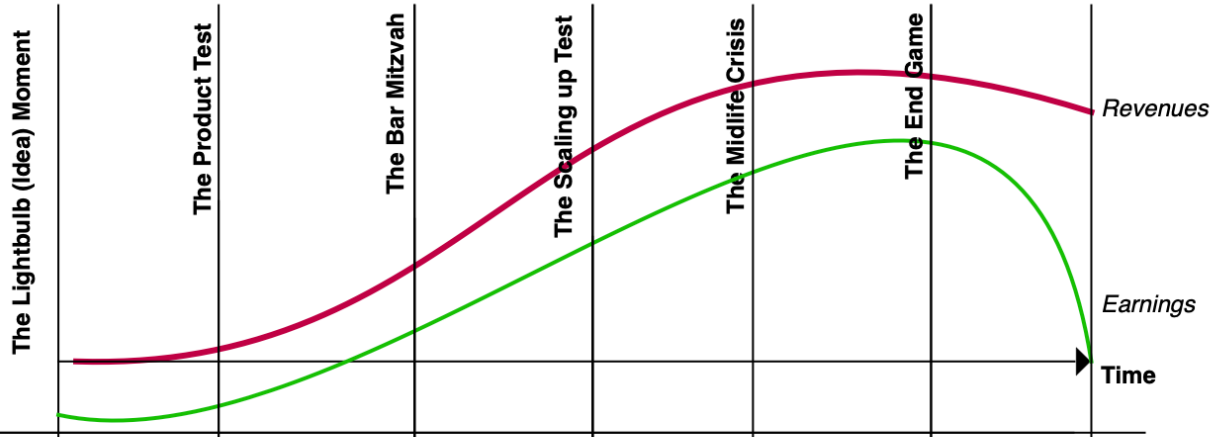
PEER GROUP ASSESSMENT

- For many firms, finding the right mix of debt of equity does not come from the capacity of these firms to generate tax benefits from debt or weighing these benefits off against expected bankruptcy costs, but **from looking at what other companies in these peer group are choosing to borrow**.
- The **roots of me-too finance**, which is our descriptor for making major corporate finance decisions (borrowing, dividend policy and even investing) based upon what other companies in the sector are doing, lie in the **belief that making mistakes, as a manager, becomes easier to defend, when you have lots of company**.
- The perils of peer-group driven debt decisions lie in the choices that you must make in picking companies that will comprise your peer group and coming with a metric that measures debt load.

FINANCING TYPE: THE MATCHING PRINCIPLE



THE FINANCING PRINCIPLE ACROSS THE LIFE CYCLE



Lifecycle Stage	Start-up	Young Growth	High Growth	Mature Growth	Mature Stable	Decline
Operating Profits	Large operating losses	Operating losses narrow	Operating profits turn positive	Operating profits grow quickly	Operating profits level off	Operating profits decline
Reinvestment	Very high	High	Remain large, but scale down as percent of earnings	Continue to decrease, on relative basis.	Mostly maintenance	Divestment
Financing Mix (Debt Capacity)	Non-existent	Very low	Low	Rising	High	Declining
Financing Type	Equity & Equity Hybrids (Warrants, Conv Preferred)		Convertible Debt	Conventional Debt