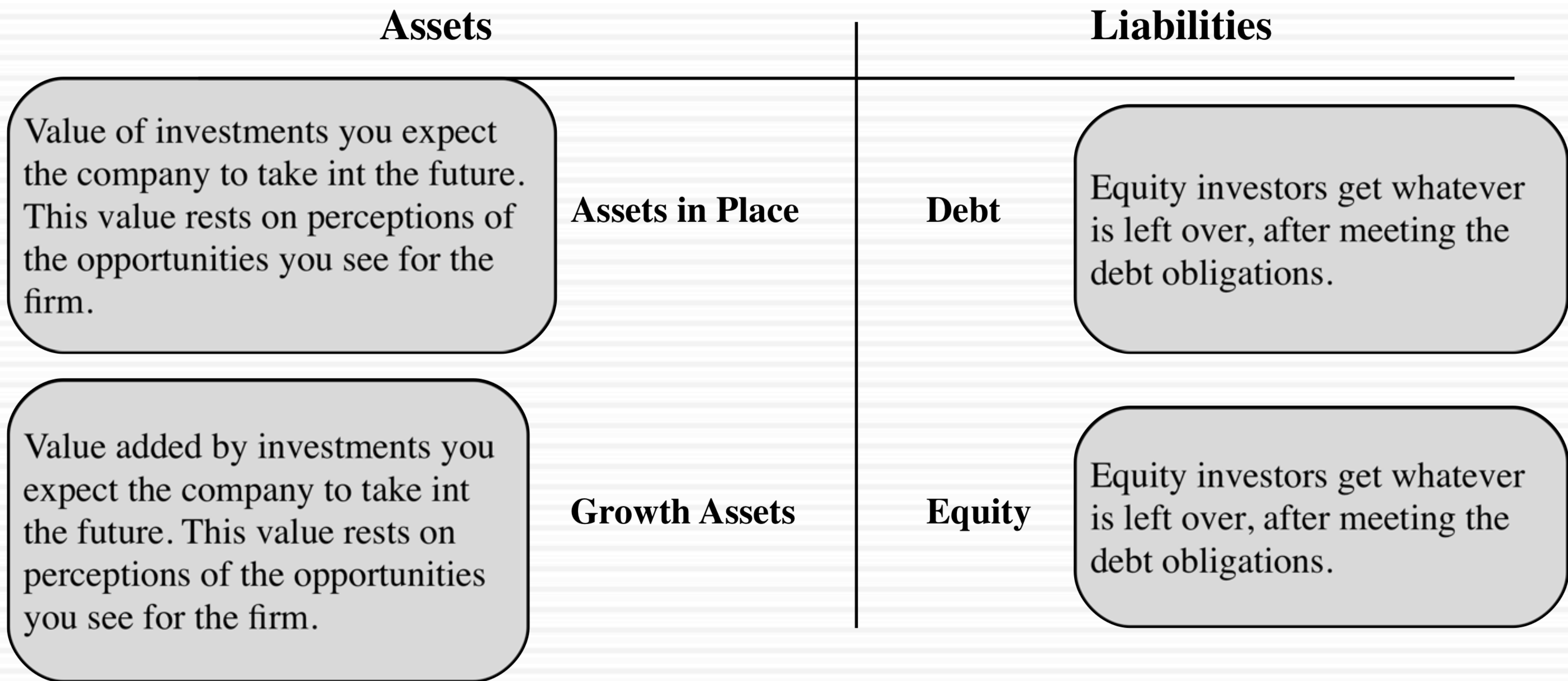
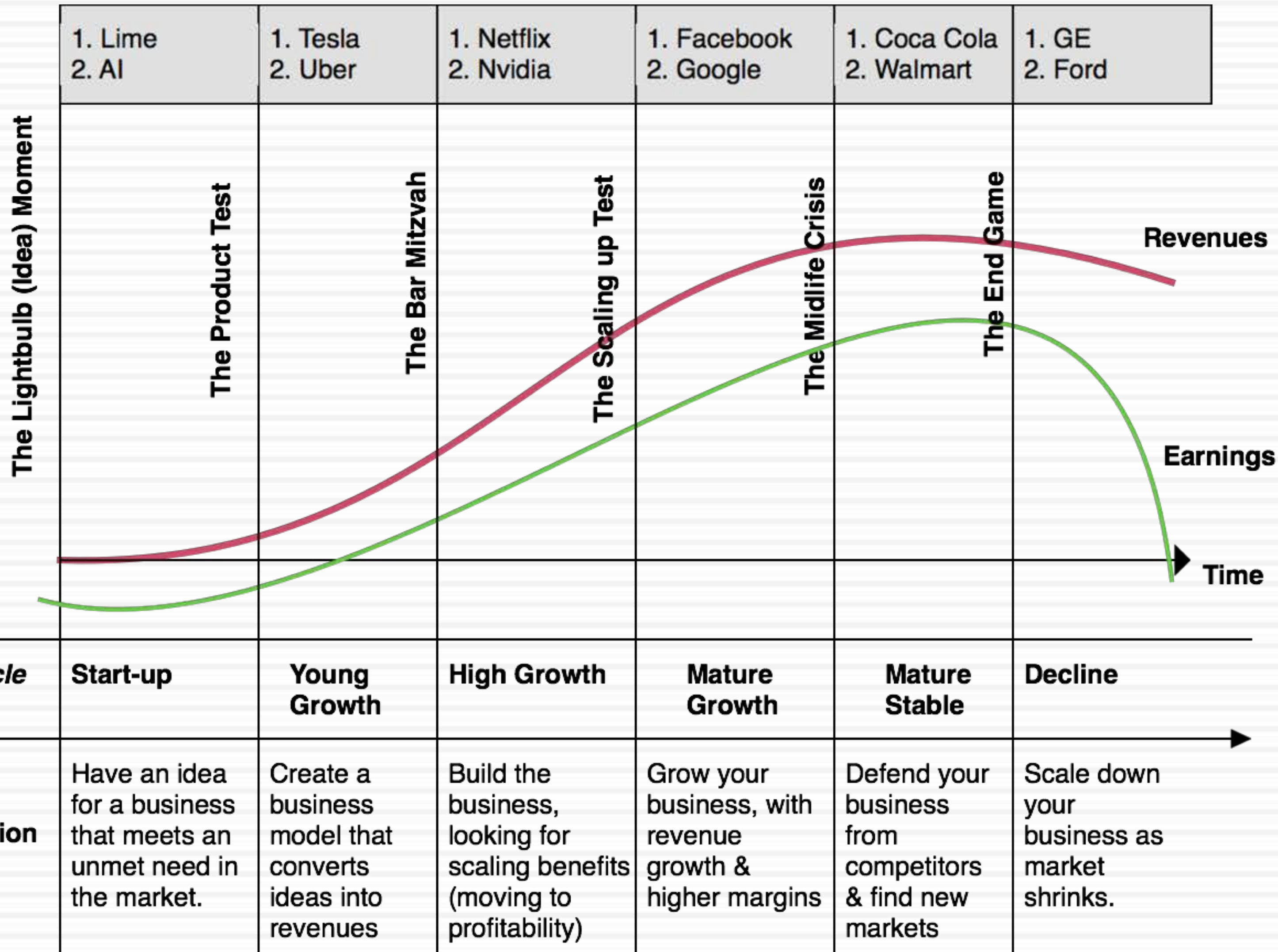
THE CORPORATE LIFE CYCLE: GROWING UP IS HARD TO DO!

Aswath Damodaran

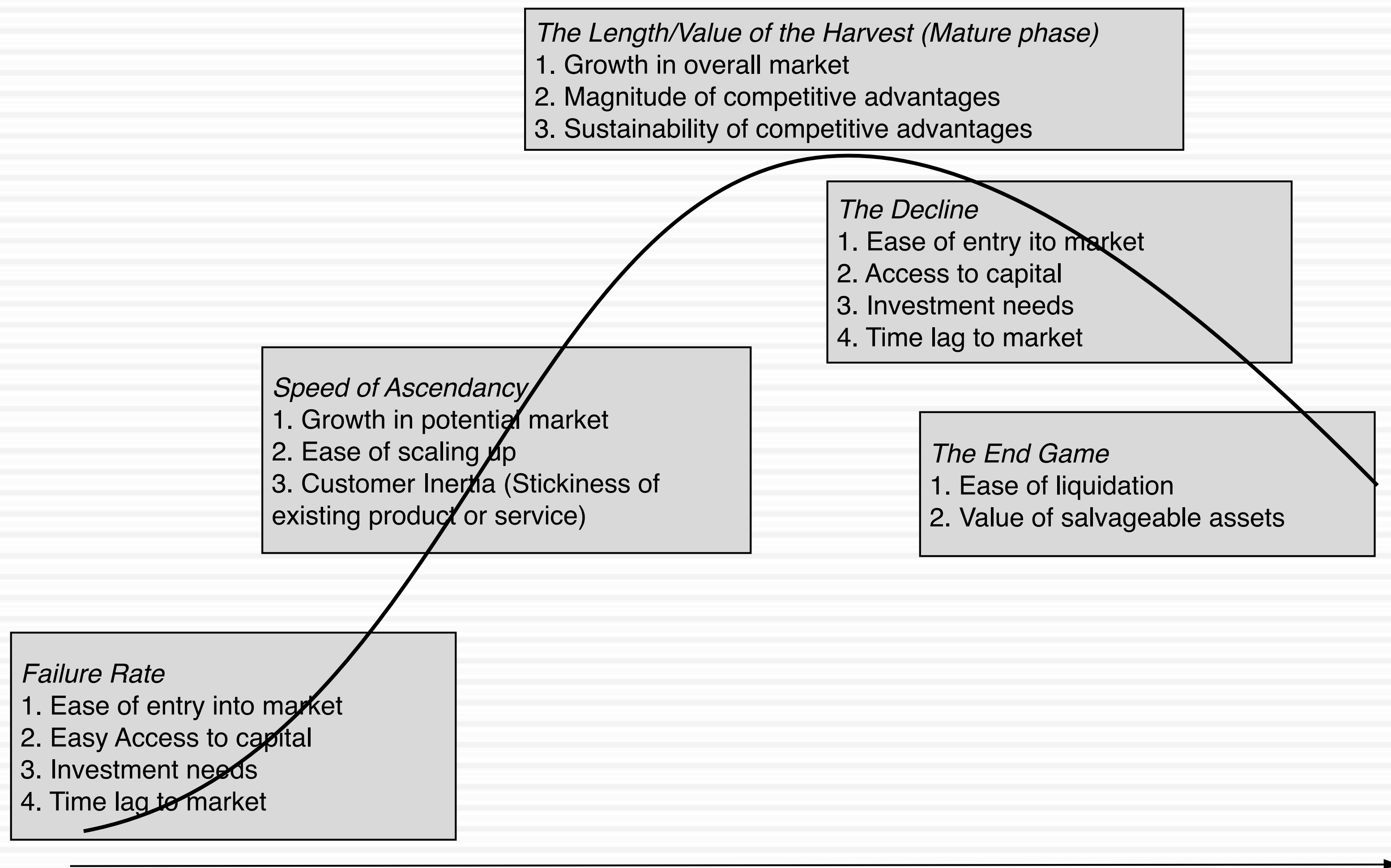
The Financial Balance Sheet



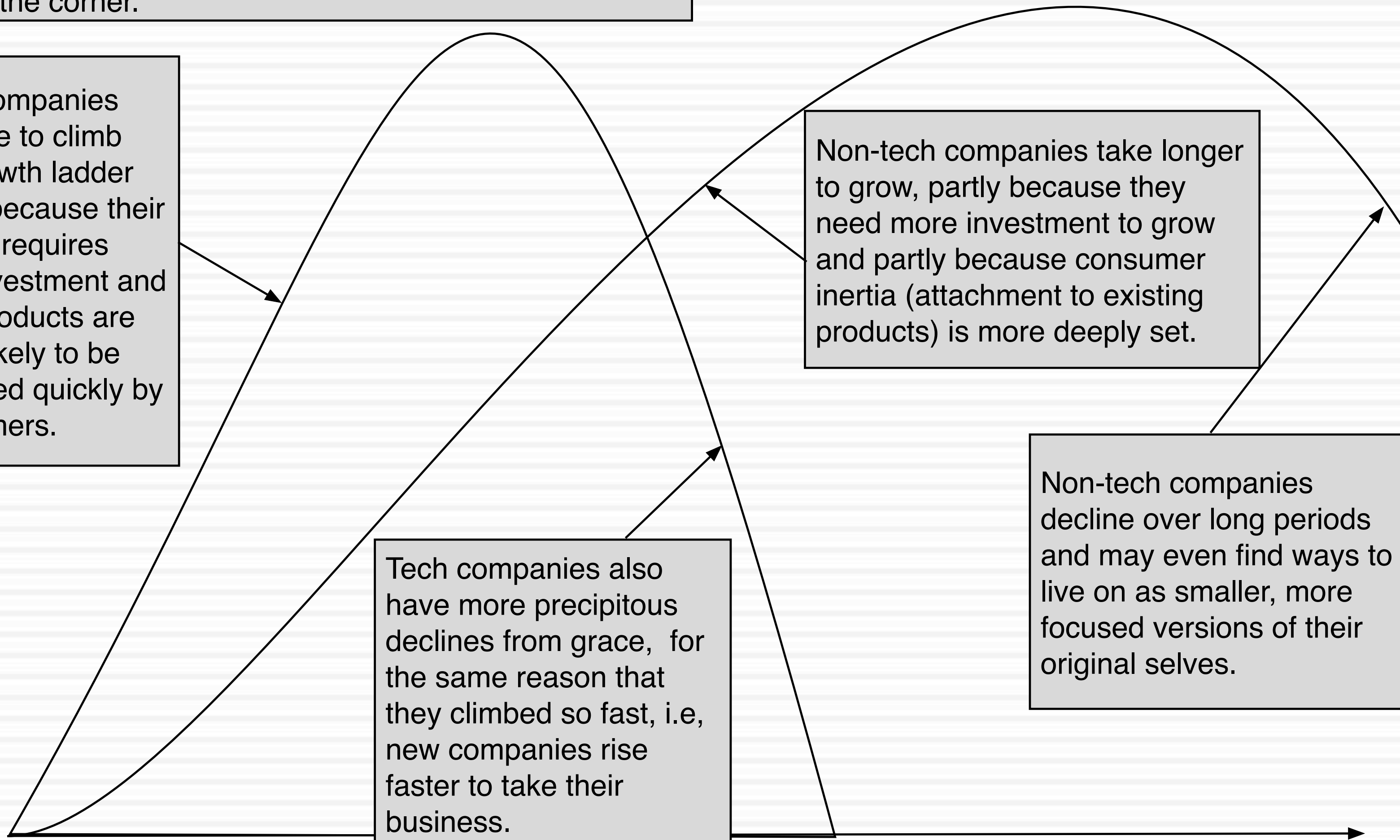
The Corporate Life Cycle



The determinants of the life cycle



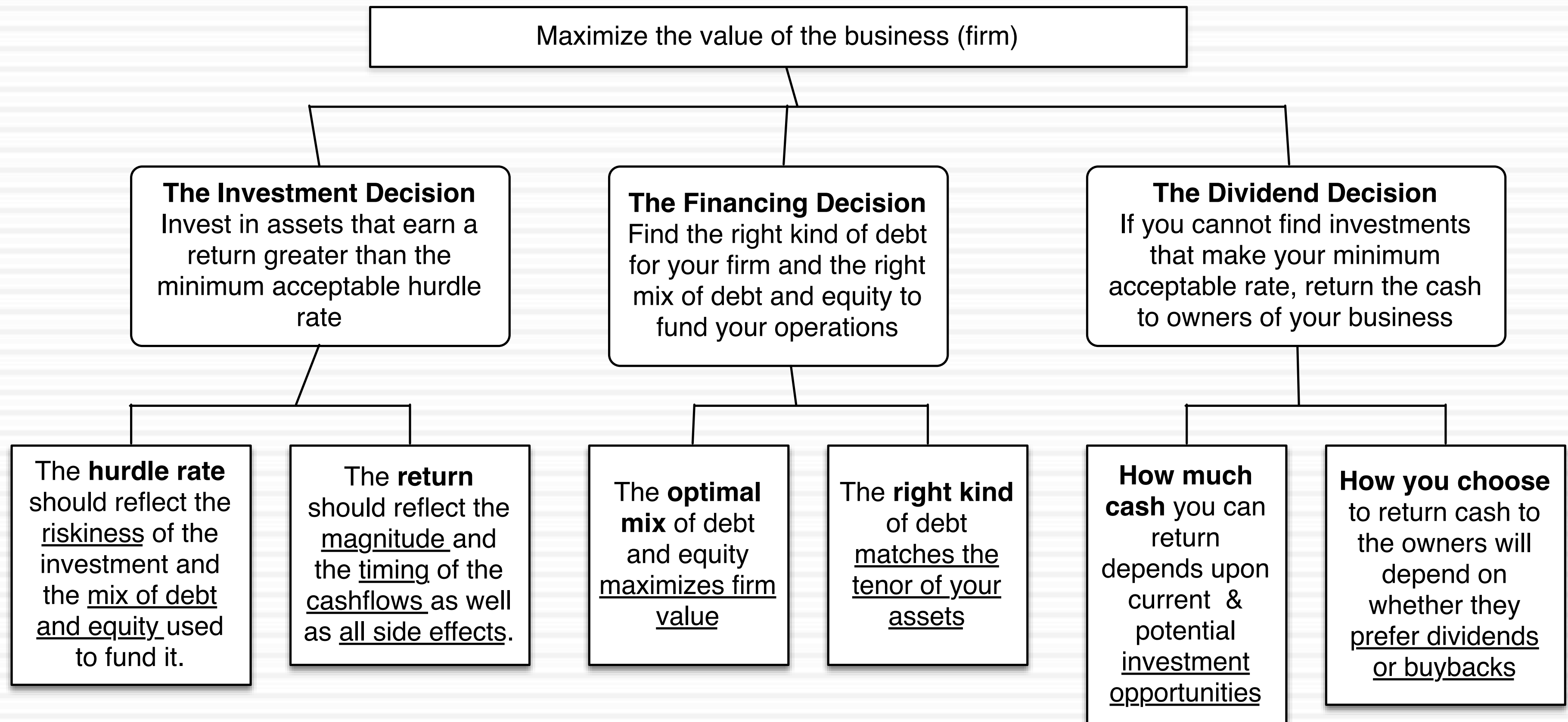
Tech versus Non-tech life cycles



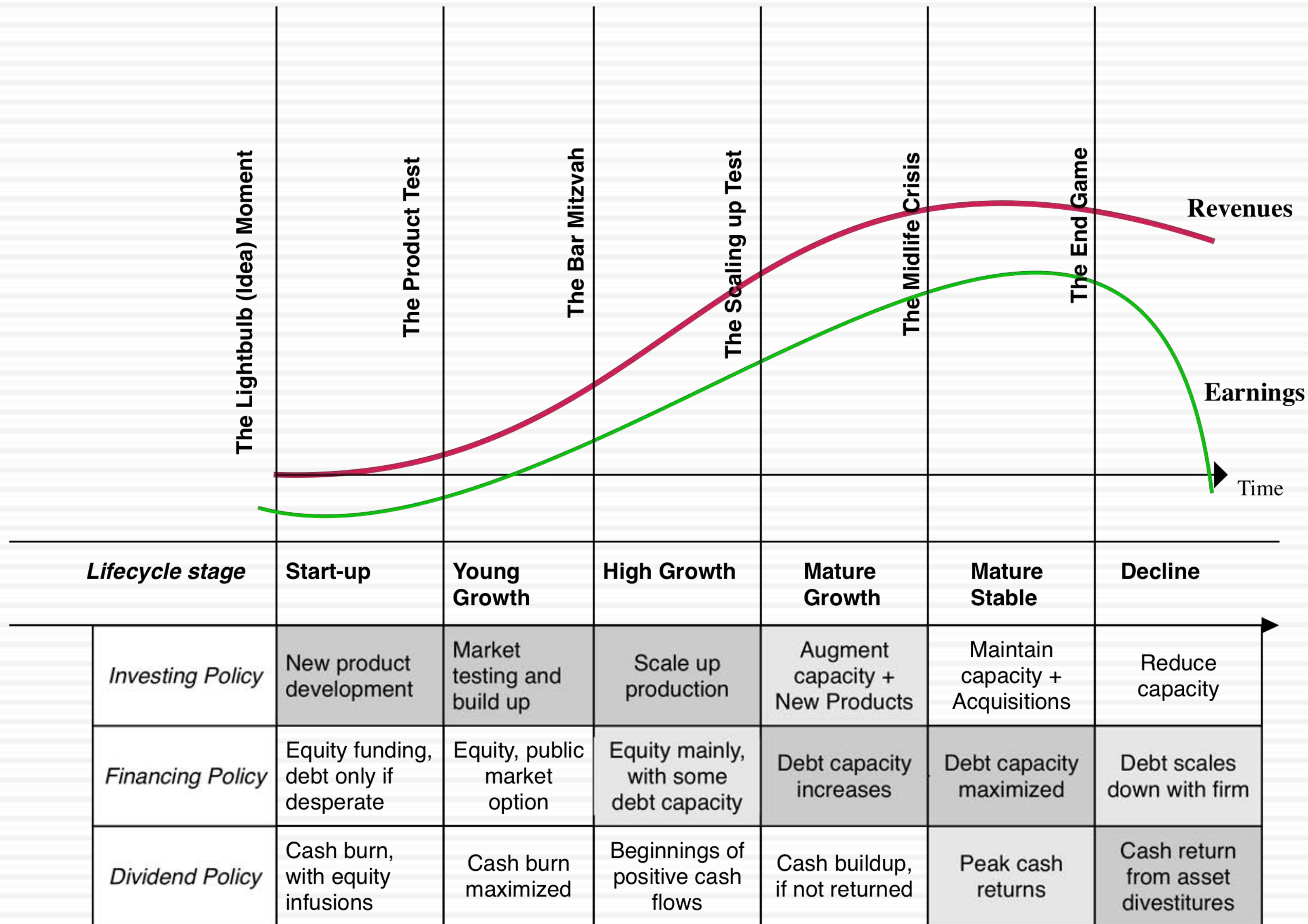
CORPORATE FINANCE ACROSS THE LIFE CYCLE

Act your (corporate) age..

The Big Picture



The emphasis in corporate finance shifts..



Lifecycle stage	**Start-up**	**Young Growth**	**High Growth**	**Mature Growth**	**Mature Stable**	**Decline**
Investing Policy	New product development	Market testing and build up	Scale up production	Augment capacity + New Products	Maintain capacity + Acquisitions	Reduce capacity
Financing Policy	Equity funding, debt only if desperate	Equity, public market option	Equity mainly, with some debt capacity	Debt capacity increases	Debt capacity maximized	Debt scales down with firm
Dividend Policy	Cash burn, with equity infusions	Cash burn maximized	Beginnings of positive cash flows	Cash buildup, if not returned	Peak cash returns	Cash return from asset divestitures

Companies, act your age!

- For many reasons, companies try to speed up or slow down aging
  - Young companies that borrow money to grow faster, Invest without a purpose or with too much focus on short term profits or pay dividends.
  - Mature growth companies that think that they are still young companies and refuse to return cash.
  - Stable companies that think that they can become growth companies through acquisitions.
  - Declining companies that think they can reverse decline, with new management and a new business plan.
- In this process, they will be aided and abetted by an ecosystem that makes money of this process.

Companies that don't "act their age" will destroy value.

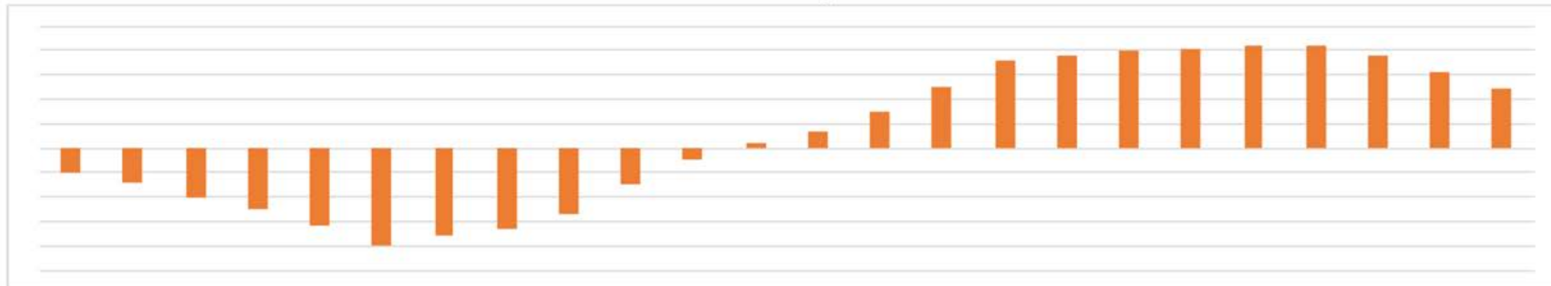
The Cash Flows over the Life Cycle

$ Revenues/ Earnings

The Lightbulb (Idea) Moment
From idea to business
The Bar Mitzvah
The Scaling up Test
The Midlife Crisis
The End Game

Revenues
Earnings
Time

Growth stage	Stage 1 Start-up	Stage 2 Young Growth	Stage 3: High Growth	Stage 4 Mature Growth	Stage 5 Mature Stable	Stage 6 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 firm	Decrease	Scale down further	Divestment
Free Cash Flow to Firm	Negative	Negative	Cross over to positive territory	Positive & growing	Positive & stable	Positive & dropping



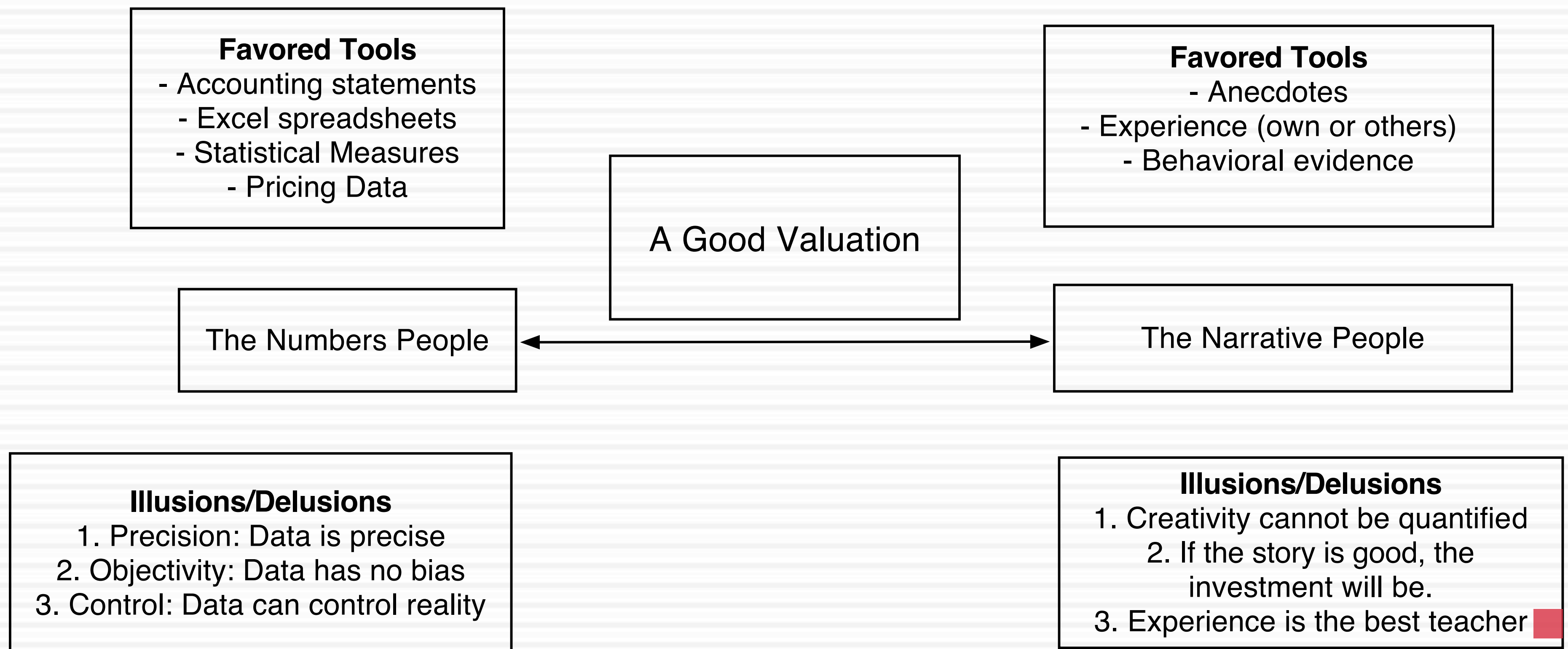
With reality checks..

1. For young companies, cash burn is a feature, not a bug: With young companies, cash flows will be negative in the early years, requiring new equity to be raised and dilution.
2. As growth starts to ease and companies mature, cash balances will build up during the transition: When growth starts to ease, cash flows will rise faster than revenues/profits, and as companies take time to adjust, cash balances will balloon out.
3. Once companies adjust to being mature, there will be more cash returned to stockholders: Returning cash to stockholders is not a failure, but a consequence of success.

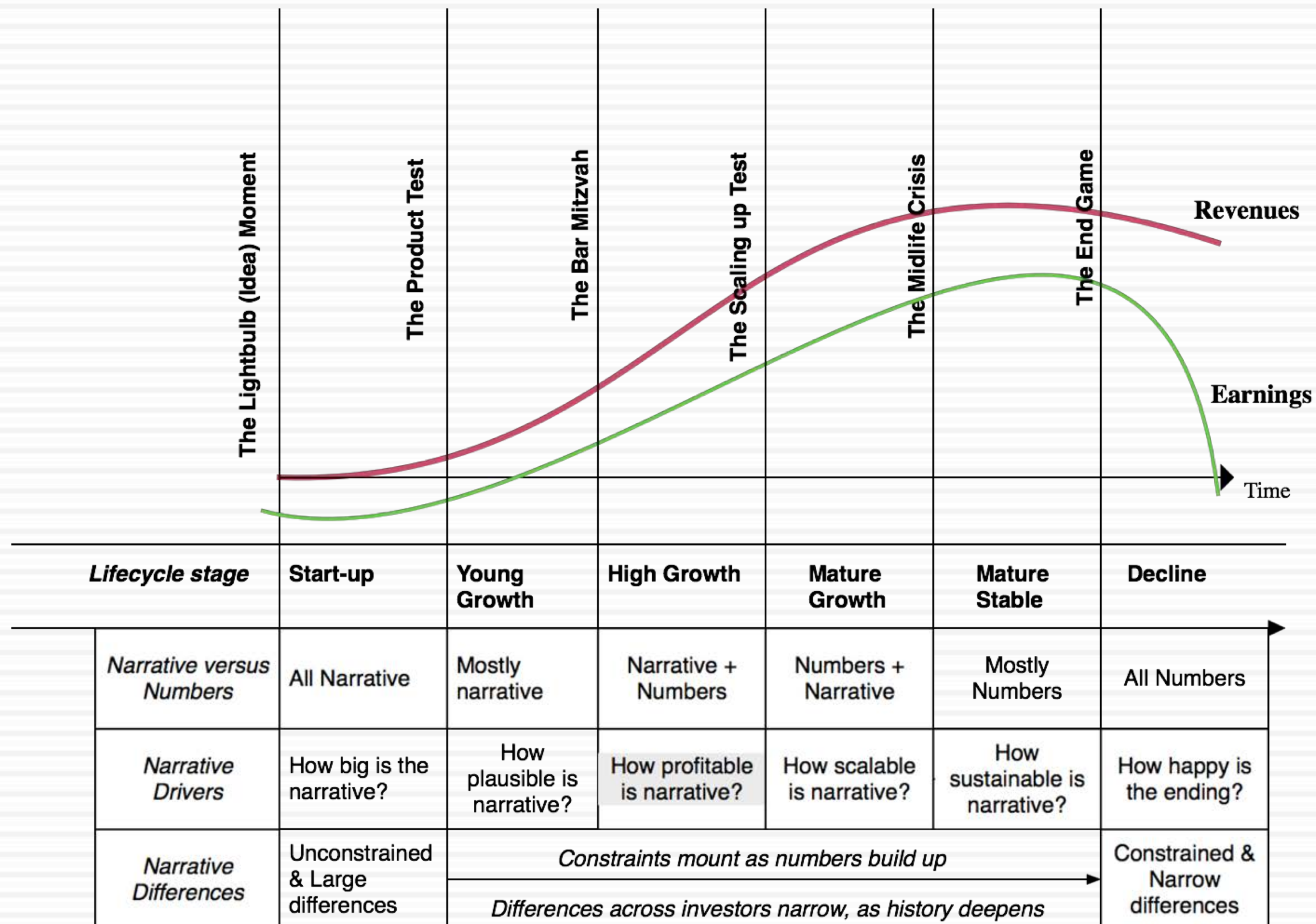
NARRATIVE TO NUMBERS, ACROSS THE LIFE CYCLE

All story to mostly numbers..

Value = Story + Numbers



Narrative versus Numbers

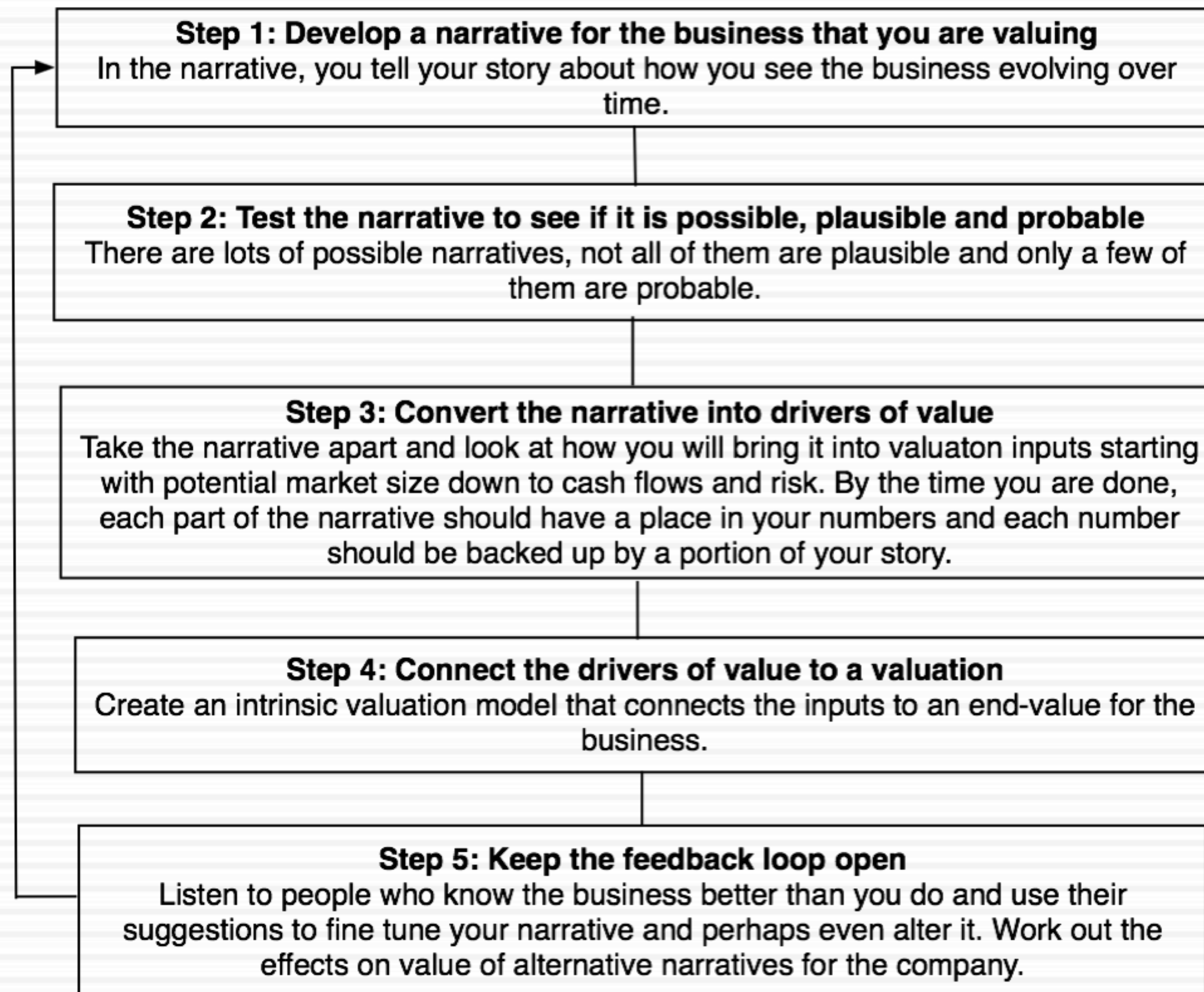


Lifecycle stage	Start-up	Young Growth	High Growth	Mature Growth	Mature Stable	Decline
Narrative versus Numbers	All Narrative	Mostly narrative	Narrative + Numbers	Numbers + Narrative	Mostly Numbers	All Numbers
Narrative Drivers	How big is the narrative?	How plausible is narrative?	How profitable is narrative?	How scalable is narrative?	How sustainable is narrative?	How happy is the ending?
Narrative Differences	Unconstrained & Large differences	*Constraints mount as numbers build up* / *Differences across investors narrow, as history deepens*				Constrained & Narrow differences

Narrative to Numbers for companies

- With a young company, narrative is central, divergent and volatile.
  - It is central because it is the only thing that you are offering investors, since you have no history.
  - It is divergent because you can still offer widely different narratives, since it is early in the game.
  - It is volatile, because the real world will deliver surprises that will require you to adjust your narrative.
- As companies age, their narratives get narrower as their histories, size and culture start to become binding. The numbers often drive the narrative, rather than the other way around.

From story to numbers and beyond..

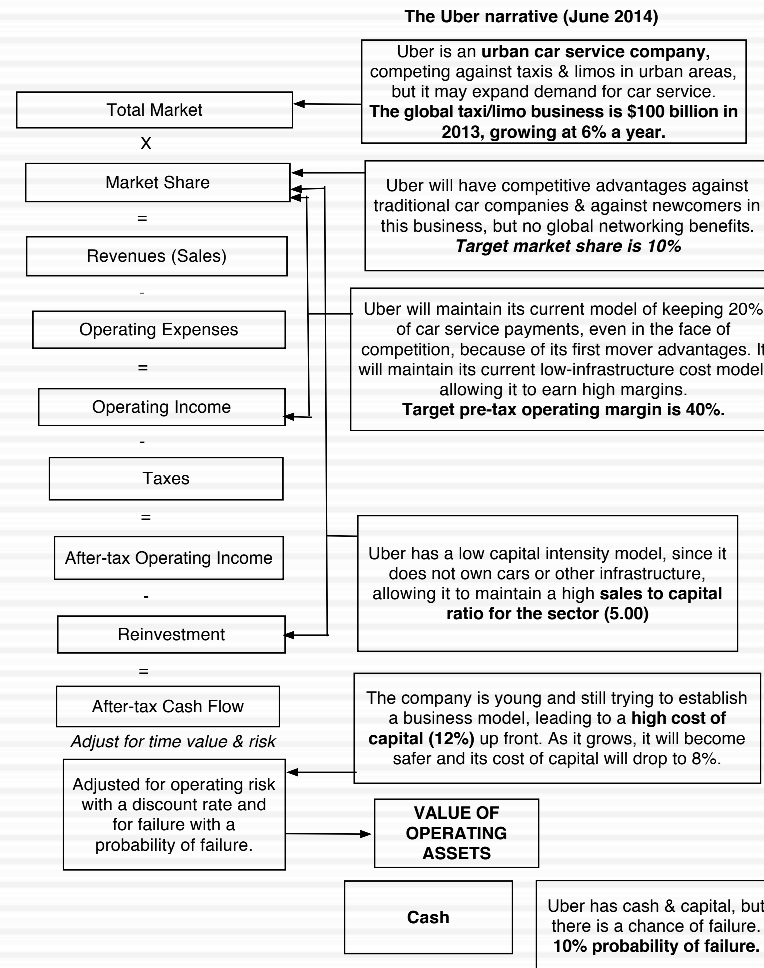


A Young Company: My Uber Narrative in June 2014

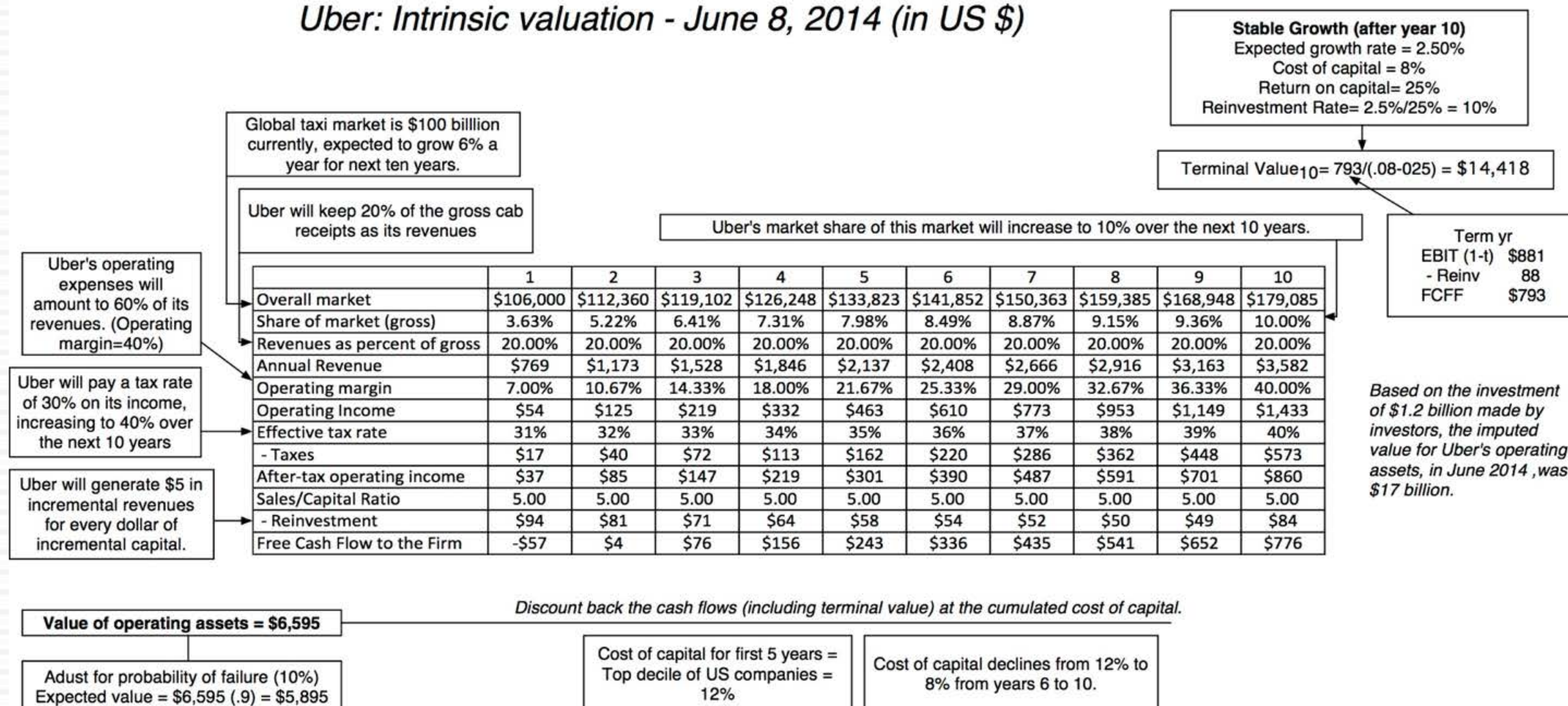
In June 2014, my initial narrative for Uber was that it would be

1. An urban car service business: I saw Uber primarily as a force in urban areas and only in the car service business.
2. Which would expand the business moderately (about 40% over ten years) by bringing in new users.
3. With local networking benefits: If Uber becomes large enough in any city, it will quickly become larger, but that will be of little help when it enters a new city.
4. Maintain its revenue sharing (20%) system due to strong competitive advantages (from being a first mover).
5. And its existing low-capital business model, with drivers as contractors and very little investment in infrastructure.

Uber in 2014: From Story to Inputs

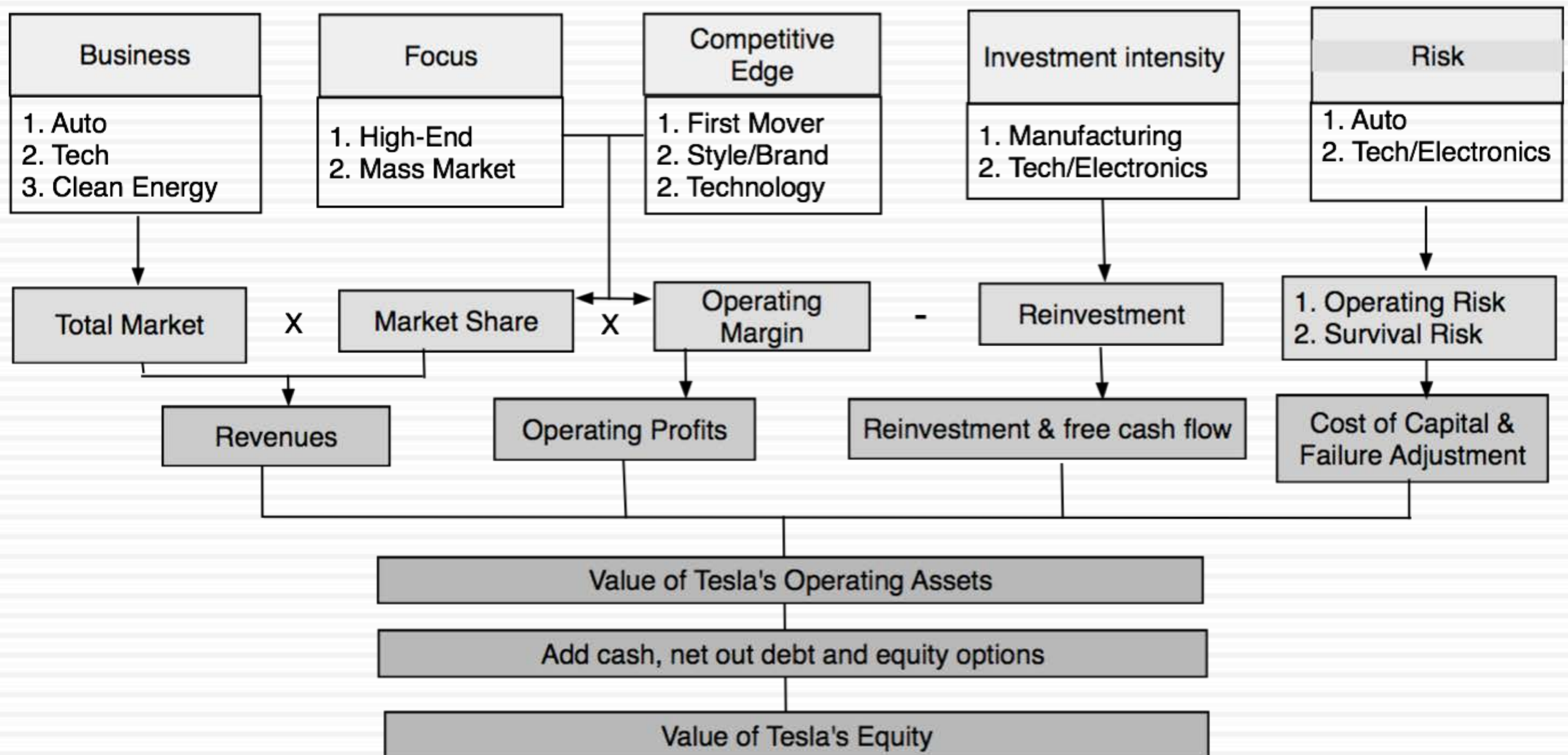


Uber in 2014: From Inputs to Value

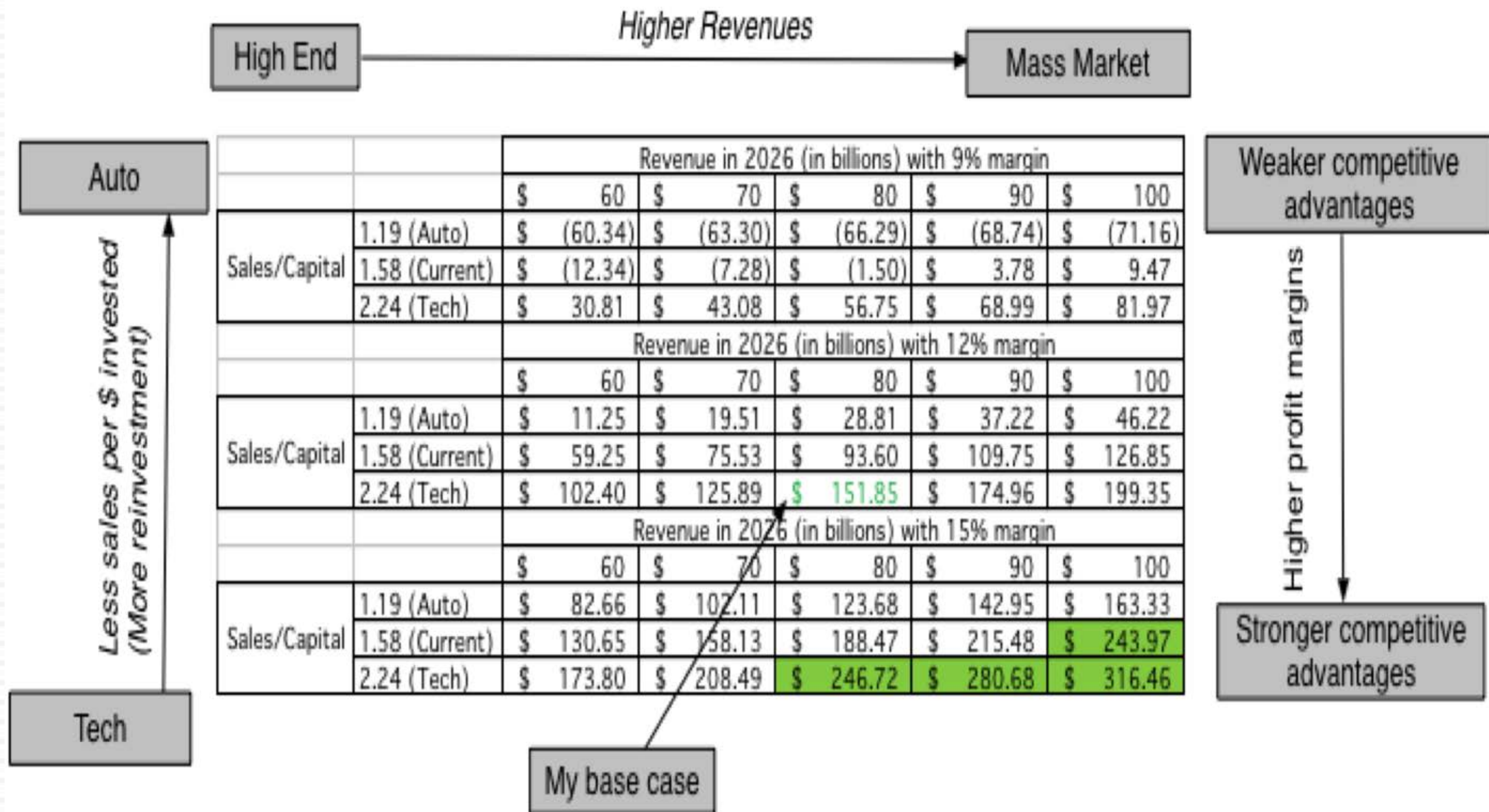


	1	2	3	4	5	6	7	8	9	10
Overall market	$106,000	$112,360	$119,102	$126,248	$133,823	$141,852	$150,363	$159,385	$168,948	$179,085
Share of market (gross)	3.63%	5.22%	6.41%	7.31%	7.98%	8.49%	8.87%	9.15%	9.36%	10.00%
Revenues as percent of gross	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%
Annual Revenue	$769	$1,173	$1,528	$1,846	$2,137	$2,408	$2,666	$2,916	$3,163	$3,582
Operating margin	7.00%	10.67%	14.33%	18.00%	21.67%	25.33%	29.00%	32.67%	36.33%	40.00%
Operating Income	$54	$125	$219	$332	$463	$610	$773	$953	$1,149	$1,433
Effective tax rate	31%	32%	33%	34%	35%	36%	37%	38%	39%	40%
- Taxes	$17	$40	$72	$113	$162	$220	$286	$362	$448	$573
After-tax operating income	$37	$85	$147	$219	$301	$390	$487	$591	$701	$860
Sales/Capital Ratio	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
- Reinvestment	$94	$81	$71	$64	$58	$54	$52	$50	$49	$84
Free Cash Flow to the Firm	-$57	$4	$76	$156	$243	$336	$435	$541	$652	$776

Divergent Stories? Tesla Story Choices in 2016



And how they translate to numbers



		Revenue in 2026 (in billions) with 9% margin				
		$ 60	$ 70	$ 80	$ 90	$ 100
Sales/Capital	1.19 (Auto)	$ (60.34)	$ (63.30)	$ (66.29)	$ (68.74)	$ (71.16)
	1.58 (Current)	$ (12.34)	$ (7.28)	$ (1.50)	$ 3.78	$ 9.47
	2.24 (Tech)	$ 30.81	$ 43.08	$ 56.75	$ 68.99	$ 81.97
		Revenue in 2026 (in billions) with 12% margin				
		$ 60	$ 70	$ 80	$ 90	$ 100
Sales/Capital	1.19 (Auto)	$ 11.25	$ 19.51	$ 28.81	$ 37.22	$ 46.22
	1.58 (Current)	$ 59.25	$ 75.53	$ 93.60	$ 109.75	$ 126.85
	2.24 (Tech)	$ 102.40	$ 125.89	$ 151.85	$ 174.96	$ 199.35
		Revenue in 2026 (in billions) with 15% margin				
		$ 60	$ 70	$ 80	$ 90	$ 100
Sales/Capital	1.19 (Auto)	$ 82.66	$ 102.11	$ 123.68	$ 142.95	$ 163.33
	1.58 (Current)	$ 130.65	$ 158.13	$ 188.47	$ 215.48	$ 243.97
	2.24 (Tech)	$ 173.80	$ 208.49	$ 246.72	$ 280.68	$ 316.46

As companies mature, their stories become bounded..

Apple

The Story

Apple is a cash machine, deriving much of its cash and value from its iPhone franchise. It's large size will make it disruptive growth difficult and I expect the company to continue to churn out cash from its existing businesses, albeit with almost flat revenues and declining margins, as competition increases. In spite of its size, the company will continue to be riskier than average, because it has to reinvent itself every two years to survive. Finally, the tax rate paid by the company will gradually rise over time to a global average and trapped cash will be returned with a tax penalty.

The Assumptions

	Base year	*Years 1-5*	*Years 6-10*		*After year 10*	*Link to story*
Revenues (a)	$ 218,118	1.50% →	1.00%		1.00%	Mature company; size impedes growth
Operating margin (b)	29.18%	29.18% →	25.00%		25.00%	Margins decrease with competition
Tax rate	26.01%	26.01% →	30.00%		30.00%	Tax rate increases to global average
Reinvestment (c)		Sales to capital ratio	1.60	RIR =	14.35%	Reinvest like electronics company
Return on capital	-7189.38%	Marginal ROIC =	-6.60%		6.97%	ROIC converges on cost of capital
Cost of capital (d)		9.09% →	6.97%		6.97%	In the 75th risk percentile of US firms

The Cash Flows

	Revenues	*Operating Margin*	*EBIT*	*EBIT (1-t)*	*Reinvestment*	*FCFF*
1	$ 221,390	28.76%	$ 63,674	$ 47,113	$ 2,045	$ 45,068
2	$ 224,711	28.34%	$ 63,690	$ 47,125	$ 2,076	$ 45,049
3	$ 228,081	27.93%	$ 63,692	$ 47,127	$ 2,107	$ 45,020
4	$ 231,502	27.51%	$ 63,680	$ 47,118	$ 2,138	$ 44,979
5	$ 234,975	27.09%	$ 63,654	$ 47,098	$ 2,170	$ 44,927
6	$ 238,265	26.67%	$ 63,549	$ 46,513	$ 2,056	$ 44,457
7	$ 241,362	26.25%	$ 63,366	$ 45,874	$ 1,936	$ 43,938
8	$ 244,258	25.84%	$ 63,106	$ 45,182	$ 1,810	$ 43,371
9	$ 246,945	25.42%	$ 62,768	$ 44,439	$ 1,679	$ 42,760
10	$ 249,415	25.00%	$ 62,354	$ 43,648	$ 1,543	$ 42,104
Terminal year	$ 251,909	25.00%	$ 62,977	$ 44,084	$ 6,325	$ 37,759

The Value

Terminal value	$ 632,483		
PV(Terminal value)	$ 281,080		
PV (CF over next 10 years)	$ 286,557		
Value of operating assets =	$ 567,637		
Adjustment for distress	$ -	Probability of failure =	0.00%
- Debt & Mnority Interests	$ 94,141		
+ Cash & Other Non-operating assets	$ 215,090		
Value of equity	$ 688,586		
- Value of equity options	$ 128		
Number of shares	5,336.17		
Value per share	$ 129.02	Stock was trading at =	$130.27

And in decline, they can be depressing..

JC Penney in 2016: Road to Nowhere?

Declining business: Revenues expected to drop by 3% a year fo next 5 years

	Base year	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
Revenue growth rate		-3.00%	-3.00%	-3.00%	-3.00%	-3.00%	-2.00%	-1.00%	0.00%	1.00%	2.00%
Revenues	$ 12,522	$12,146	$11,782	$11,428	$11,086	$10,753	$10,538	$10,433	$10,433	$10,537	$10,748
EBIT (Operating) margin	1.32%	1.82%	2.31%	2.80%	3.29%	3.79%	4.28%	4.77%	5.26%	5.76%	6.25%
EBIT (Operating income)	$ 166	$ 221	$ 272	$ 320	$ 365	$ 407	$ 451	$ 498	$ 549	$ 607	$ 672
Tax rate	35.00%	35.00%	35.00%	35.00%	35.00%	35.00%	36.00%	37.00%	38.00%	39.00%	40.00%
EBIT(1-t)	$ 108	$ 143	$ 177	$ 208	$ 237	$ 265	$ 289	$ 314	$ 341	$ 370	$ 403
- Reinvestment		$ (188)	$ (182)	$ (177)	$ (171)	$ (166)	$ (108)	$ (53)	$ -	$ 52	$ 105
FCFF		$ 331	$ 359	$ 385	$ 409	$ 431	$ 396	$ 366	$ 341	$ 318	$ 298
Cost of capital		9.00%	9.00%	9.00%	9.00%	9.00%	8.80%	8.60%	8.40%	8.20%	8.00%
PV(FCFF)		$ 304	$ 302	$ 297	$ 290	$ 280	$ 237	$ 201	$ 173	$ 149	$ 129
Terminal value	$ 5,710										
PV(Terminal value)	$ 2,479										
PV (CF over next 10 years)	$ 2,362										
Sum of PV	$ 4,841										
Probability of failure =	20.00%										
Proceeds if firm fails =	$2,421										
Value of operating assets =	$4,357										

High debt load and poor earnings put survival at risk. Based on bond rating, 20% chance of failure and liquidation will bring in 50% of book value

Margins improve gradually to median for US retail sector (6.25%)

As stores shut down, cash released from real estate.

The cost of capital is at 9%, higher because of high cost of debt.

The Bottom Line for Investors

- To be a successful investor in early-stage businesses, you need to be a good judge of narrative.
  - Not only do you need to be able to find good stories to invest in, but you also have to be able to separate impossible stories (fairy tales) from plausible stories, and then providing support (financial or management) to make the plausible into the probable.
  - You will also get much bigger disagreements about value and story, across investors.
- To be a successful in mature businesses, you need to be able to use the numbers that the business has already produced to decide on a narrative that is right for it, and then invest in companies where (you believe) the market has a mistaken narrative.

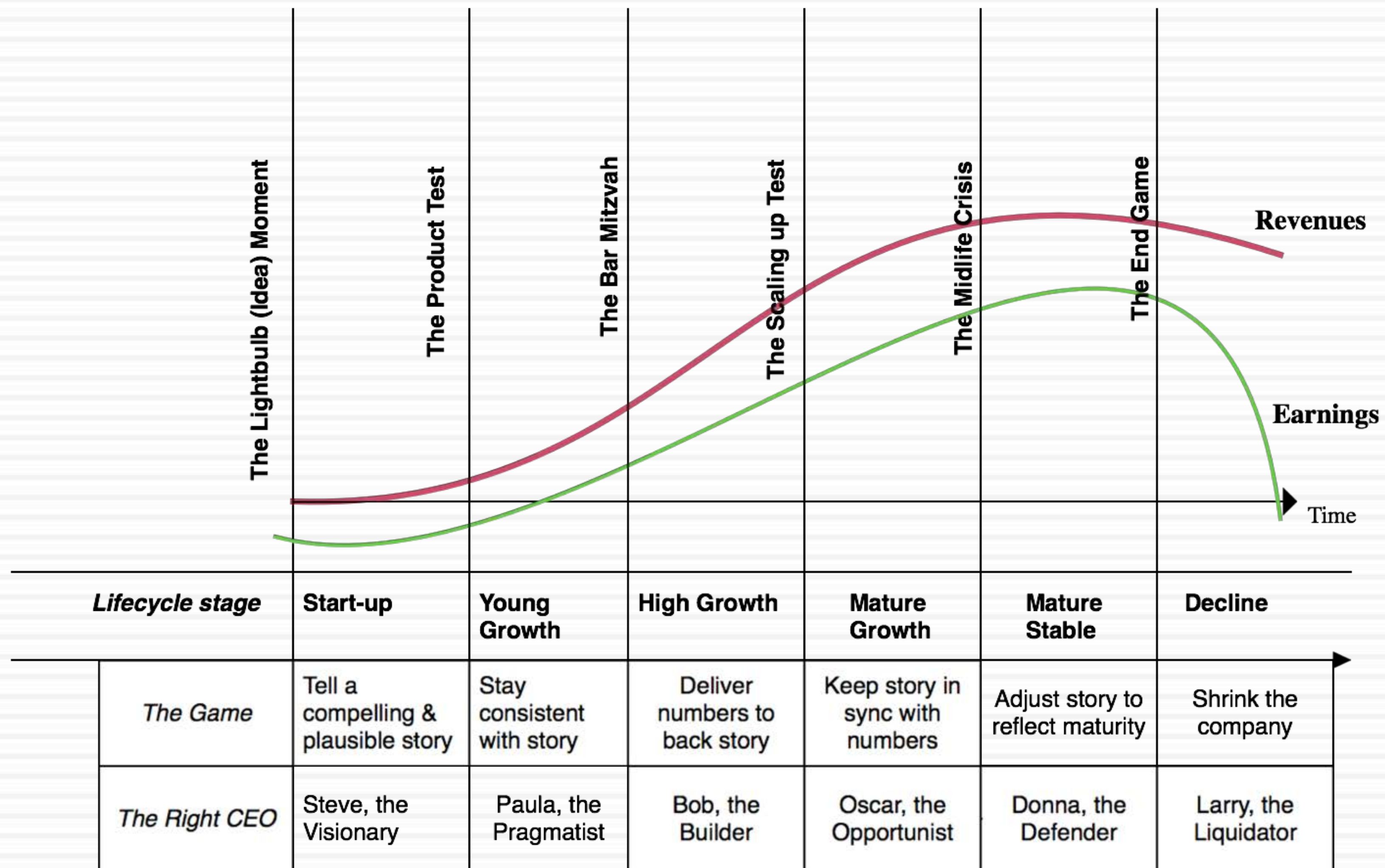
THE MANAGERS' JOB, ACROSS THE LIFE CYCLE

Story Tellers, Business Builders and Managers

As companies age, the managerial imperative shifts..

- Early in a company's life, when all you have are ideas and no clear business plan, it is all about the narrative. Not surprisingly, the most successful managers/investors at this stage are people who are stronger on narrative.
- As companies age, the emphasis shifts to numbers, partly because more of the value is determined by the narrative that has actually unfolded and partly because there are more numbers to focus on. The most successful managers/investors become people who can work with and around those numbers.

And the focus changes.... And so does the right CEO for the company



As emphasis shifts, managers and investors can resist, adapt or move on

- As young start-ups succeed and start moving into the growth, the managers who were instrumental in their success have three choices:
  - Adapt and adjust their focus to include numbers, without giving up their narrative.
  - Stay completely focused on narrative and ignore numbers.
  - Hand over control of the operating details of the company to a numbers person while handling the narrative part.
- With investors, the transition is made easier by the existence of public markets. As companies go public, these investors can cash out and go back to their preferred habitat. Investors who stray far from their strengths will pay a price.

The challenge of shorter life cycles..

- When life cycles were long, stretching over decades, time and aging allowed for smoother transitions, since CEOs aged with their companies, and moved on.
- As life cycles shorten, managers are far more likely to find their companies changing under them so quickly that they can no longer adapt.
  - To be a long tenured CEO, you will either need to be versatile and/or be able to delegate the work that you cannot do to people you empower and trust.
  - If these transitions are not well managed, there will be far more turnover in top management and activist investing will flourish.

“Growing old is mandatory, Growing up is optional”