THE CORPORATE LIFE CYCLE: GROWING UP IS HARD TO DO, GROWING OLD IS EVEN HARDER!

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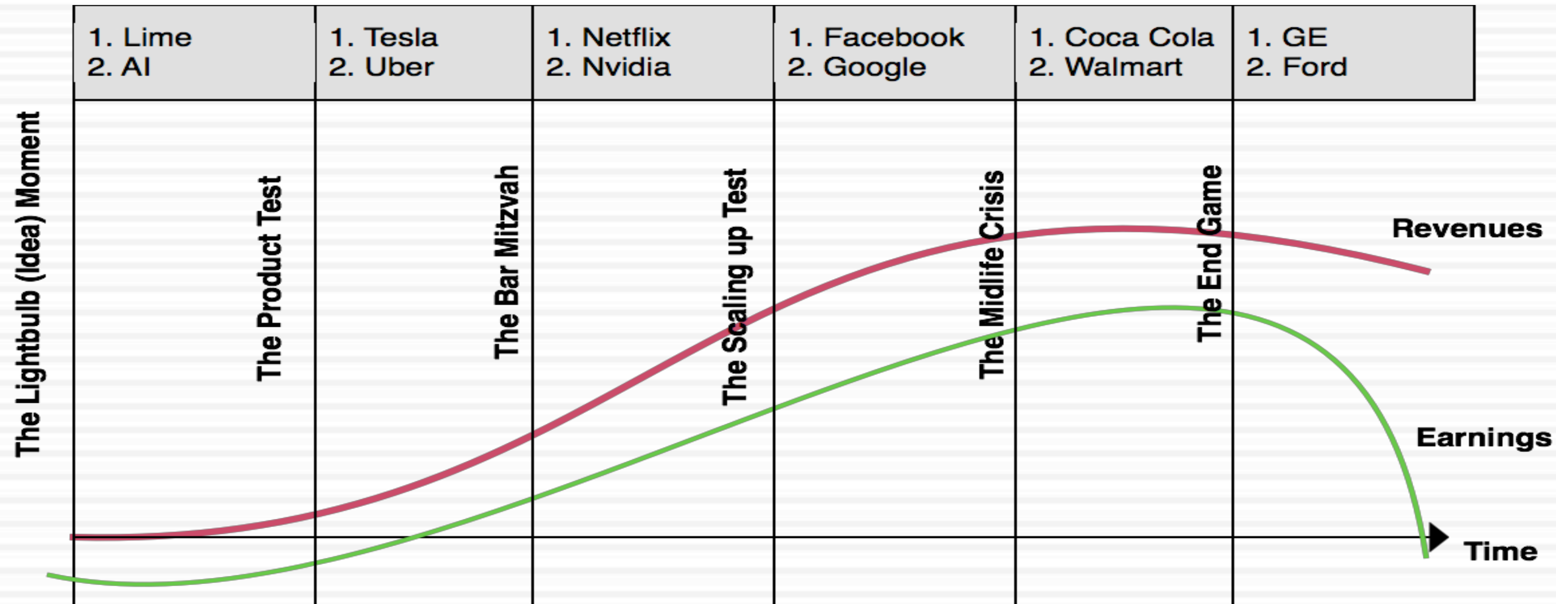
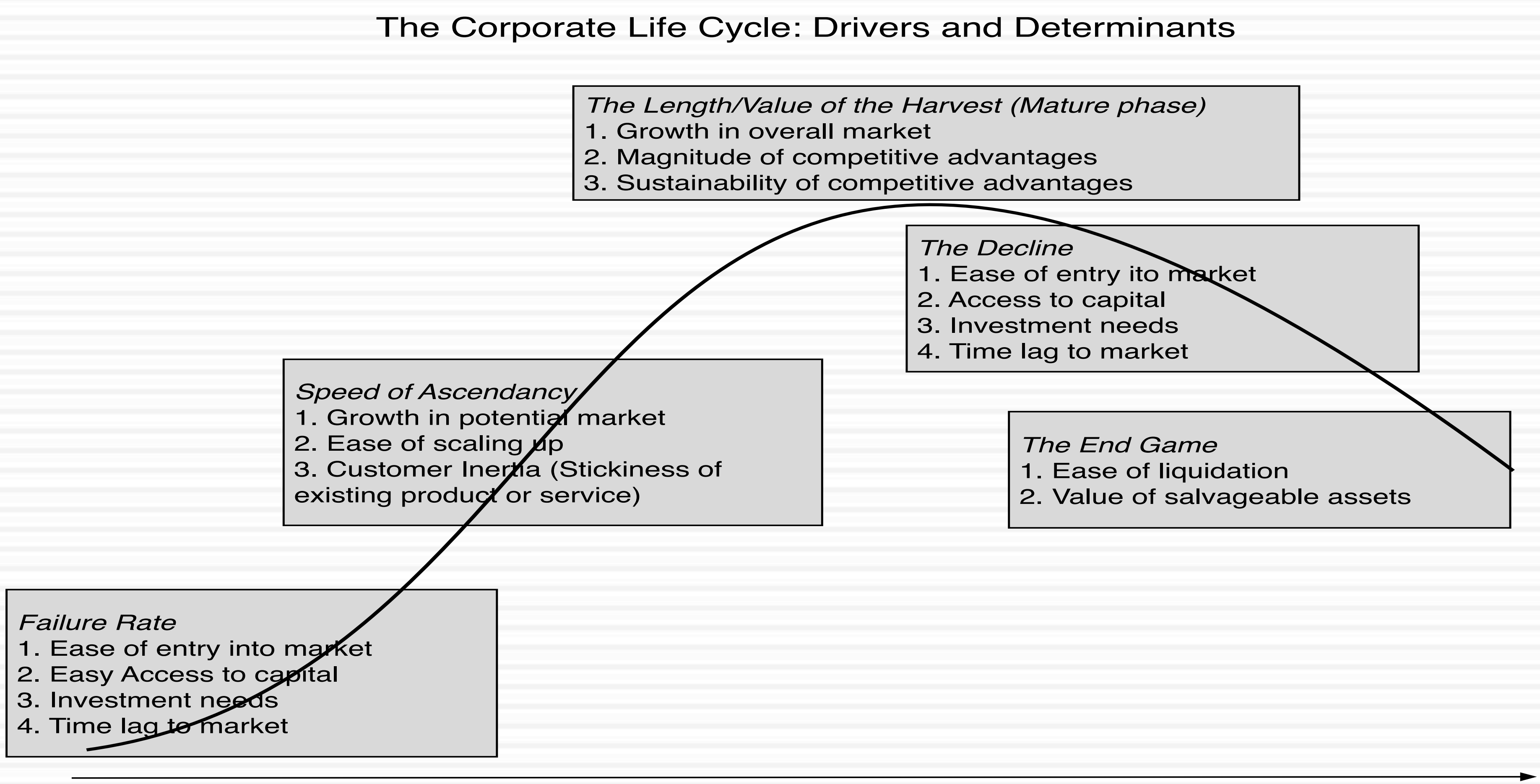
The Corporate Life Cycle



Lifecycle stage	**Start-up**	**Young Growth**	**High Growth**	**Mature Growth**	**Mature Stable**	**Decline**
Description	Have an idea for a business that meets an unmet need in the market.	Create a business model that converts ideas into revenues	Build the business, looking for scaling benefits (moving to profitability)	Grow your business, with revenue growth & higher margins	Defend your business from competitors & find new markets	Scale down your business as market shrinks.

The determinants of the life cycle



Accounting and Financial Balance Sheets

Accounting Balance Sheet

	Assets		Liabilities
Long Lived Real Assets	Fixed Assets	Current Liabilties	Short-term liabilities of the firm
Short-lived Assets	Current Assets	Debt	Debt obligations of firm
Investments in securities & assets of other firms	Financial Investments	Other Liabilities	Other long-term obligations
Assets which are not physical, like patents & trademarks	Intangible Assets	Equity	Equity investment in firm

A Financial Balance Sheet

	Assets		Liabilities
Existing Investments Generate cashflows today	Investments already made	Debt	Borrowed money
Expected Value that will be created by future investments	Investments yet to be made	Equity	Owner's funds

Variant 1: You estimate the values of assets

Variant 2: You let the market estimate it for your

An Early Stage Comparison - Twitter

Accounting Balance Sheet

Cash	$550	Debt (leases)	$21
PP&E	$ 62	Preferred stock	$835
Intangible assets	$6	Equity	$202
Goodwill	$ 47		

Intrinsic Value Balance Sheet (post-IPO)

Cash	$ 1,616	Debt	$ 214
Assets in place	$ 73	Equity	$11,106
Growth assets	$ 9,631		

Market Price Balance Sheet (post-IPO)

Cash	$ 1,816	Debt	$ 214
Assets in place	$ 73	Equity	$28,119
Growth assets	$ 26,444		

A More Mature Company: Ferrari

Accounting Balance Sheet

Cash	164	Debt	623
Other current asset	3,131	Minority Interest	13
PP&E	591	Other liabilities	1,894
Financial Inv	216	**Equity**	**2,474**
Goodwill	781		
Other Intangibles	278		
Total Assets	5,004		

Intrinsic Value Balance Sheet

Cash	164	Debt	623
Assets in Place	5,489	Minority Interest	13
Growth Assets	658	**Equity**	**6,311**

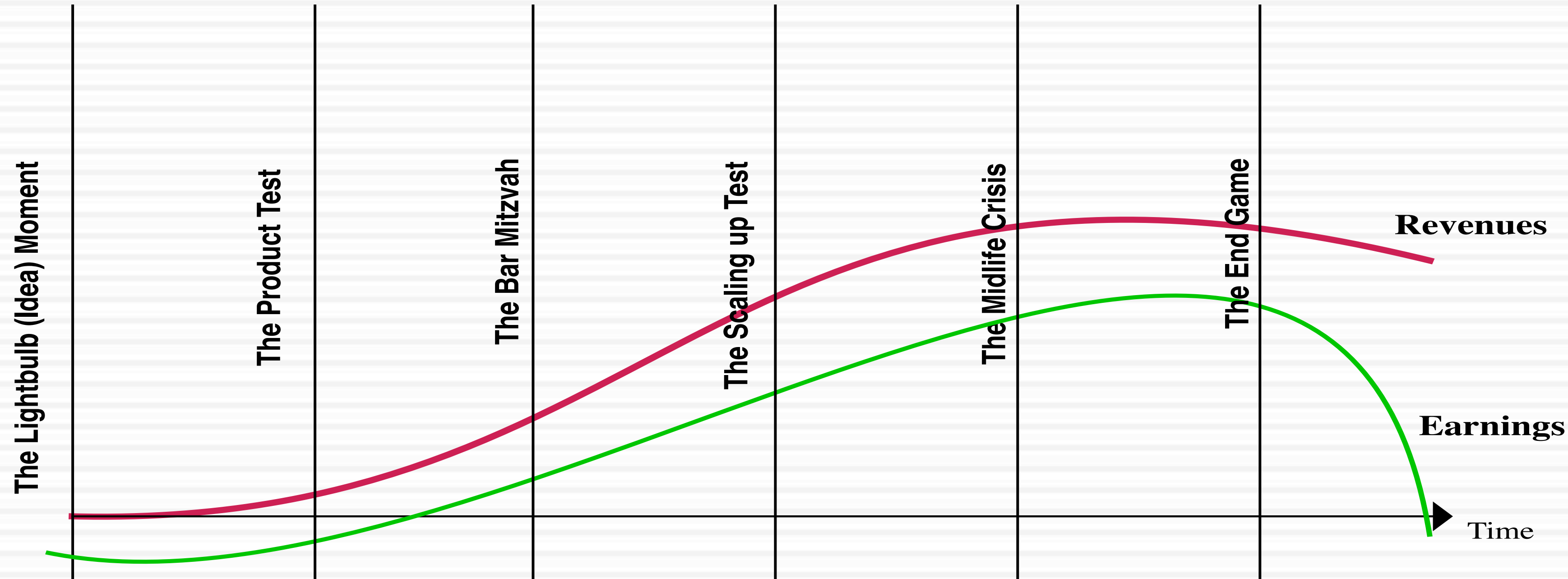
Market Price Balance Sheet

Cash	164	Debt	623
Assets in Place	5,489	Minority Interest	13
Growth Assets	5,347	**Equity**	**11,000**

The Bottom Line

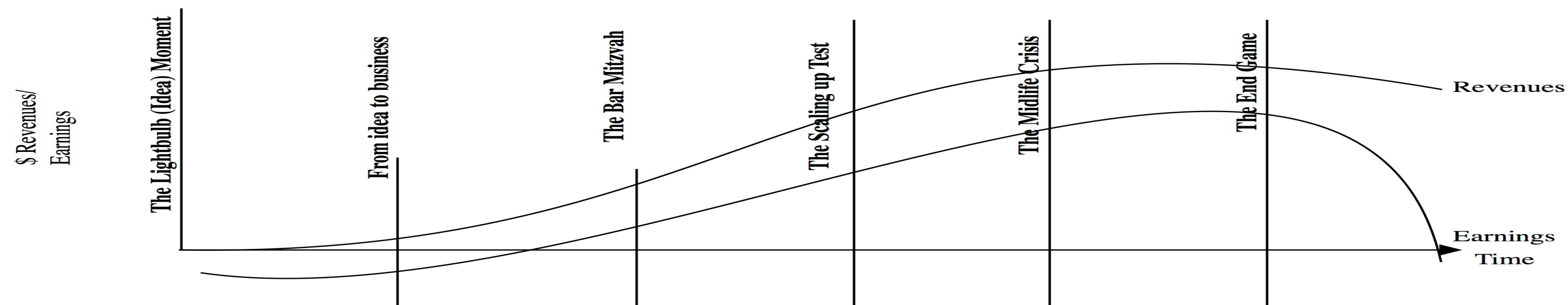
- Accounting statements get less and less useful if you are looking earlier in the life cycle, since accountants have neither a history to record nor an operating business to describe.
- As companies age, balance sheets mean more but they also become more cluttered, since they carry the legacy of “accounting” fixes and choices. Meaningless assets start to populate the balance sheet and meaningless liabilities are often created to offset them.
- Balance sheet based valuation, which is what most accounting valuation is (and is at the core of much of value investing) is useless with young companies. It is most useful in mature companies without accounting clutter.
- Fair value accounting is destined for failure everywhere, because accountants cannot be imaginative and/or creative, but it will fail most spectacularly with young companies.

The emphasis in corporate finance shifts..

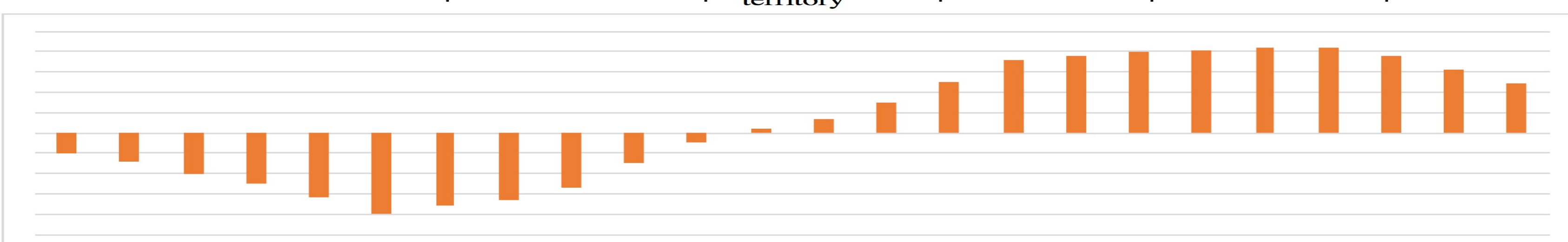


Lifecycle stage	**Start-up**	**Young Growth**	**High Growth**	**Mature Growth**	**Mature Stable**	**Decline**
Investing Policy	New product development	Market testing and build up	Scale up production	Augment capacity + New Products	Maintain capacity + Acquisitions	Reduce capacity
Financing Policy	Equity 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

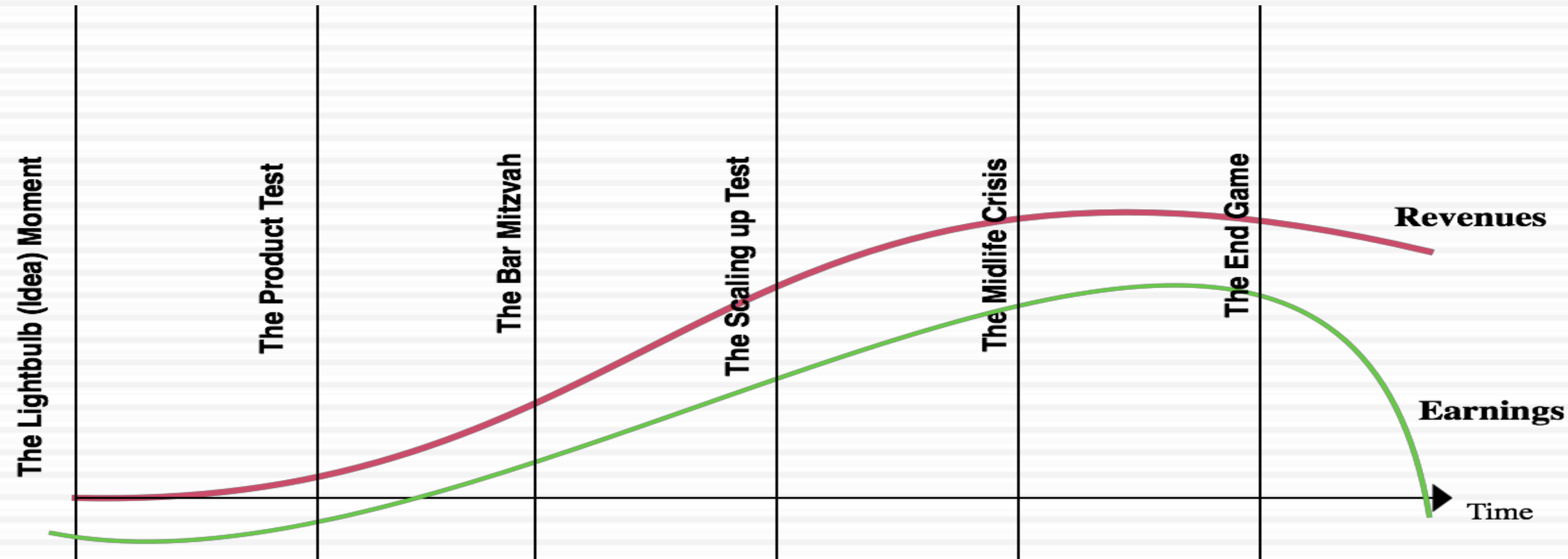
And so do the cash flows…



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



In value, the emphasis shifts as well, from narrative to 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

Divergent Stories? Tesla Story Choices in 2020

Story	*Revenues*	*Operating Margins*	*Reinvestment Efficiency*	*Risk*	*Value/Share*	*Equity Value*
The Big Auto	BMW-like ($100 billion)	Auto 75th percentile	Auto 75th percentile	Auto median	$ 105.79	$ 27,547
	Daimler-like ($200 billion)	Auto 75th percentile	Auto 75th percentile	Auto median	$ 227.42	$ 49,076
	VW/Toyota-like ($300 billion)	Auto 75th percentile	Auto 75th percentile	Auto median	$ 332.82	$ 67,731
Auto+ Tech	BMW-like ($100 billion)	Tech median	Tech median	Tech median	$ 110.96	$ 28,461
	Daimler-like ($200 billion)	Tech median	Tech median	Tech median	$ 211.84	$ 46,317
	VW/Toyota-like ($300 billion)	Tech median	Tech median	Tech median	$ 297.86	$ 61,544
An Auto FAANG	BMW-like ($100 billion)	FAANG aggregate	FAANG aggregate	Tech median	$ 458.37	$ 89,953
	Daimler-like ($200 billion)	FAANG aggregate	FAANG aggregate	Tech median	$ 854.64	$ 160,094
	VW/Toyota-like ($300 billion)	FAANG aggregate	FAANG aggregate	Tech median	$ 1,204.62	$ 222,040
MYB	VW/Toyota-like ($300 billion)	Software median	Revolutionary Manufacturing	Auto median	$ 2,105.55	$ 381,504

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.

Severstal

The Reality-based Steel Company

Severstal is a company in a bad business (shrinking revenues, margin pressures) that has worked at divesting the portions of its business that have the lowest margins (North America), reducing its debt load and focusing on its high margin domestic business. The company will continue to emphasize high margins over growth and while country and commodity price risk lurk, it will be able to weather the storms with its domestic profits.

The Assumptions

	Base year	*Years 1-5*	*Years 6-10*		*After year 10*	*Link to story*
Revenues (a)	$ 5,916	3.00%	2.50%		2.50%	Return to low growth after consolidation
Operating margin (b)	25.81%	25.81%	19.13%		19.13%	Current margins are at all-time high. Will drop to peak 2004-11 margins with Russian operations
Tax rate	17.20%	17.20%	20.00%		20.00%	Russian tax rate
Reinvestment (c)		Sales to capital ratio =	1.20	RIR =	29.41%	Low growth reduces reinvestment needs
Return on capital	32.58%	Marginal ROIC =	-1.76%		8.50%	Earn cost of capital in stable growth
Cost of capital (d)		9.32%	8.50%		8.50%	Cost of capital higher due to country risk

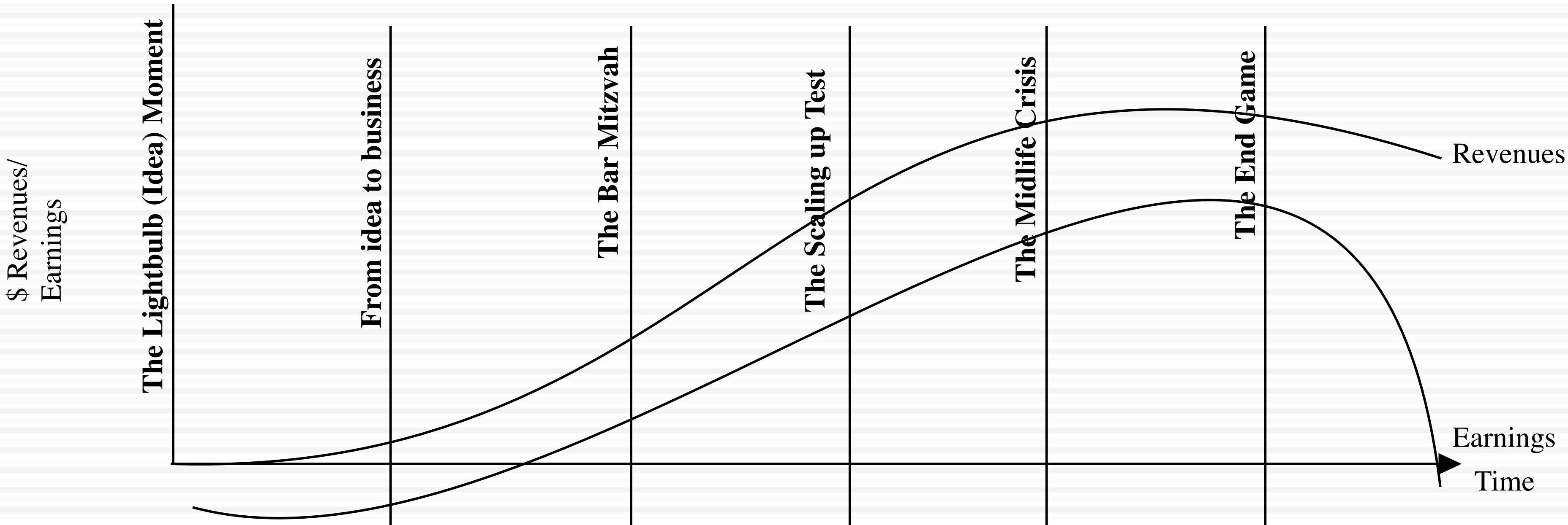
The Cash Flows

	Revenues	*Operating Margin*	*EBIT*	*EBIT (1-t)*	*Reinvestment*	*FCFF*
1	$ 6,093	25.14%	$ 1,532	$ 1,269	$ 148	$ 1,121
2	$ 6,276	24.48%	$ 1,536	$ 1,272	$ 152	$ 1,120
3	$ 6,465	23.81%	$ 1,539	$ 1,274	$ 157	$ 1,117
4	$ 6,659	23.14%	$ 1,541	$ 1,276	$ 162	$ 1,114
5	$ 6,858	22.47%	$ 1,541	$ 1,276	$ 166	$ 1,110
6	$ 7,057	21.80%	$ 1,539	$ 1,265	$ 166	$ 1,100
7	$ 7,255	21.13%	$ 1,533	$ 1,252	$ 165	$ 1,088
8	$ 7,451	20.47%	$ 1,525	$ 1,237	$ 163	$ 1,074
9	$ 7,644	19.80%	$ 1,513	$ 1,219	$ 161	$ 1,058
10	$ 7,835	19.13%	$ 1,499	$ 1,199	$ 159	$ 1,040
Terminal year	$ 8,031	19.13%	$ 1,536	$ 1,229	$ 362	$ 868

The Value

Terminal value	$ 14,460		
PV(Terminal value)	$ 6,067		
PV (CF over next 10 years)	$ 6,988		
Value of operating assets =	$ 13,055		
Adjustment for distress	$ -	Probability of failure =	0.00%
- Debt & Mnority Interests	$ 2,028		
+ Cash & Other Non-operating assets	$ 1,439		
Value of equity	$ 12,466		
- Value of equity options	$ -		
Number of shares	837.72		
Value per share	$ 14.88	Stock was trading at =	$13.84

The Evolution of Uncertainty

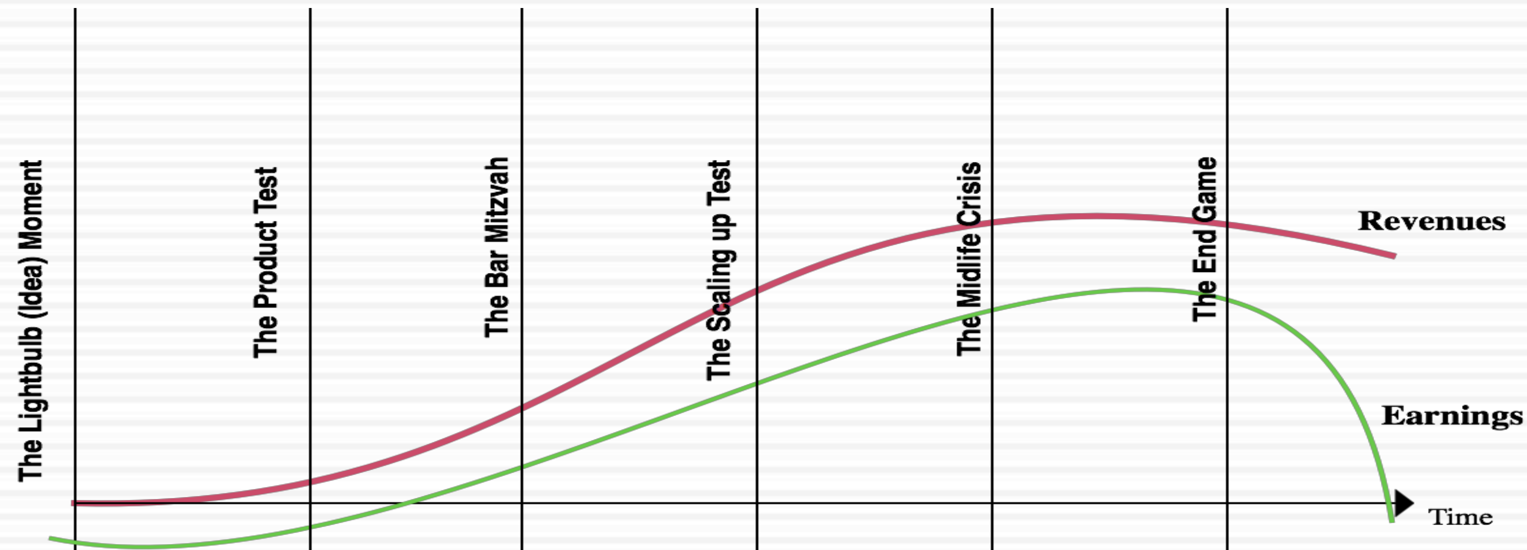


Growth stage	Stage 1 Start-up	Stage 2 Young Growth	Stage 3: High Growth	Stage 4 Mature Growth	Stage 5 Mature Stable	Stage 6 Decline
Uncertainty about	Does the idea have potential?	Is there a business model for the idea to be commercialized?	Will the business model generate profits?	Can the business be scaled up?	Can the business be defended?	Will management face reality?
Type & Magnitude	*High & company specific*	→				*Low & sector or macro driven*

Pricing and Value: Across the Life Cycle

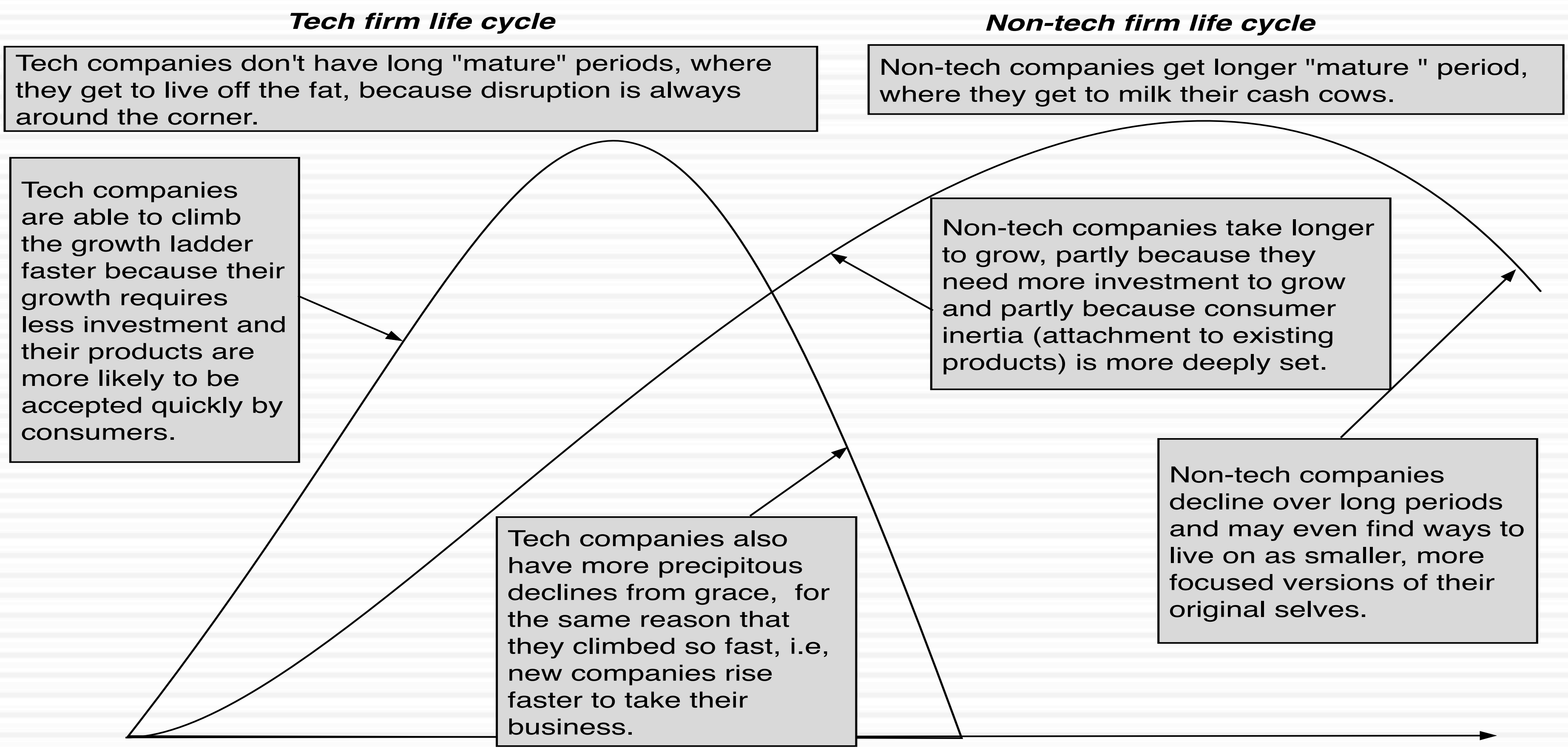
Growth stage	*Stage 1 Start-up*	*Stage 2 Young Growth*	*Stage 3: High Growth*	*Stage 4 & 5 Mature Stable*	*Stage 6 Decline*
Key Questions	Is there a market for the product or service? How big is that market? Will you survive?	Do people use your product or service? How much do they like it?	Will people pay for the product or service? Can you scale up, i.e., grow as you get bigger?	Can you make money of the product and service and sustain profitability in the face of competition?	What will you get if you sell your assets? How do you plan to return cash flows to your investors?
Pricing Metrics & Measures	Market size, Cash on hand, Access to capital	Number of users, User intensity (EV/User)	User engagement with model, Revenues (EV/Sales)	Earnings levels and growth (PE, EV/EBIT)	Cash flows, Payout & Debt servicing (PBV, EV/EBITDA)
Narrative vs Numbers	Mostly or all narrative	More narrative than numbers	Mix of narrative & numbers	More numbers than narrative	Mostly or all numbers
Value Drivers	Total market size, Market Share & Target Margin	Revenue Growth (and its drivers)	Revenue Growth & Reinvestment	Operating margins and Return on capital	Dividends/Cash Returns & Debt ratios
Dangers	*Macro delusions*, where companies are collectively overpriced, given market size.	*Value distractions*, with focus on wrong revenue drivers.	*Growth illusions*, with failure to factor in the cost of growth.	*Disruption Denial*, with failure to see threats to sustainable profits.	*Liquidation leakage*, with unrealistic assumptions about what others will pay for liquidated assets.
Transitions		*Potential to Product*	*Product to Revenues*	*Revenues to Profits*	*Profits to Cash flows*

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



Lifecycle stage	Start-up	Young Growth	High Growth	Mature Growth	Mature Stable	Decline
The Game	Tell a compelling & plausible story	Stay consistent with story	Deliver numbers to back story	Keep story in sync with numbers	Adjust story to reflect maturity	Shrink the company
The Right CEO	Steve, the Visionary	Paula, the Pragmatist	Bob, the Builder	Oscar, the Opportunist	Donna, the Defender	Larry, the Liquidator

Tech versus Non-tech life cycles



"Growing old is mandatory, Growing up is optional"