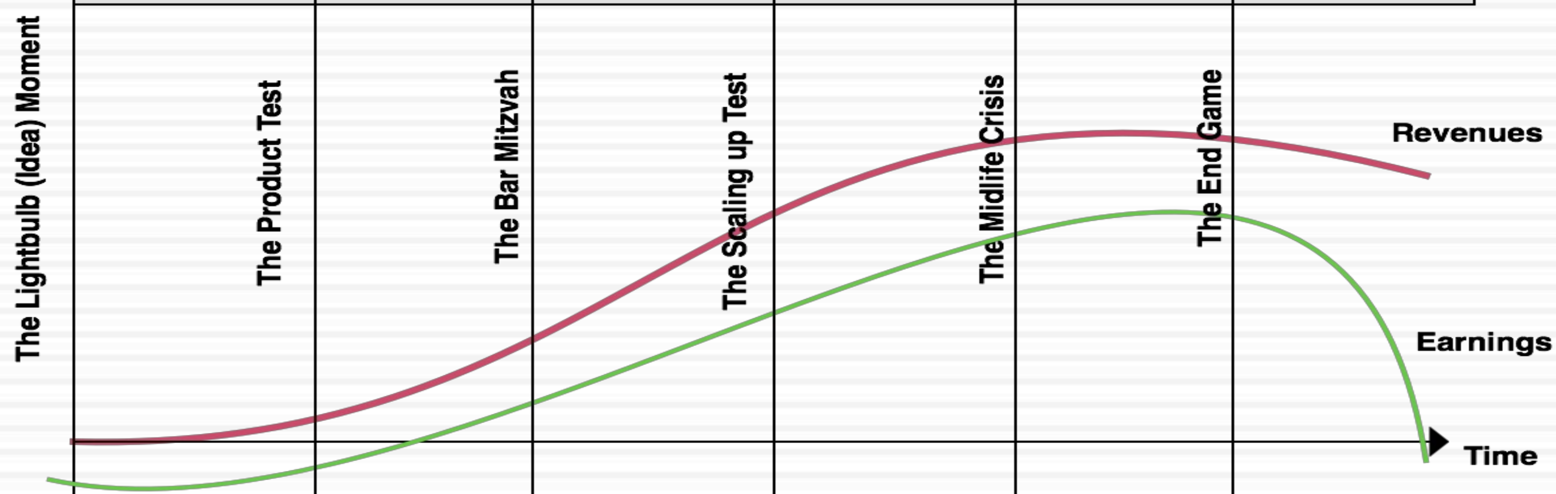
THE CORPORATE LIFE CYCLE: GROWING UP IS HARD TO DO!

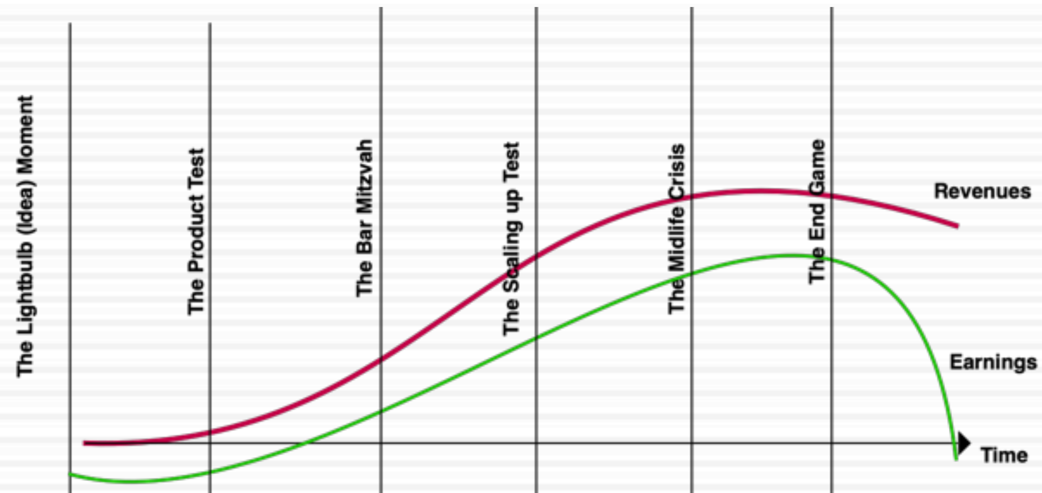
Aswath Damodaran

The Corporate Life Cycle

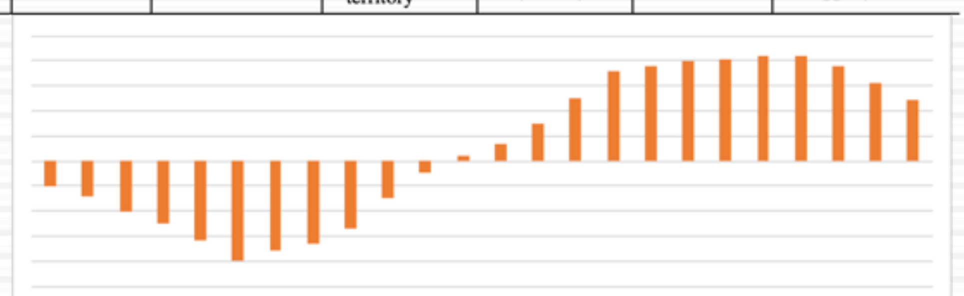


	1. Lime 2. AI	1. Tesla 2. Uber	1. Netflix 2. Nvidia	1. Facebook 2. Google	1. Coca Cola 2. Walmart	1. GE 2. Ford
Lifecycle stage	**Start-up**	**Young Growth**	**High Growth**	**Mature Growth**	**Mature Stable**	**Decline**
Description	Have an idea for a business that meets an unmet need in the market.	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 Life Cycle in earnings and cash flows



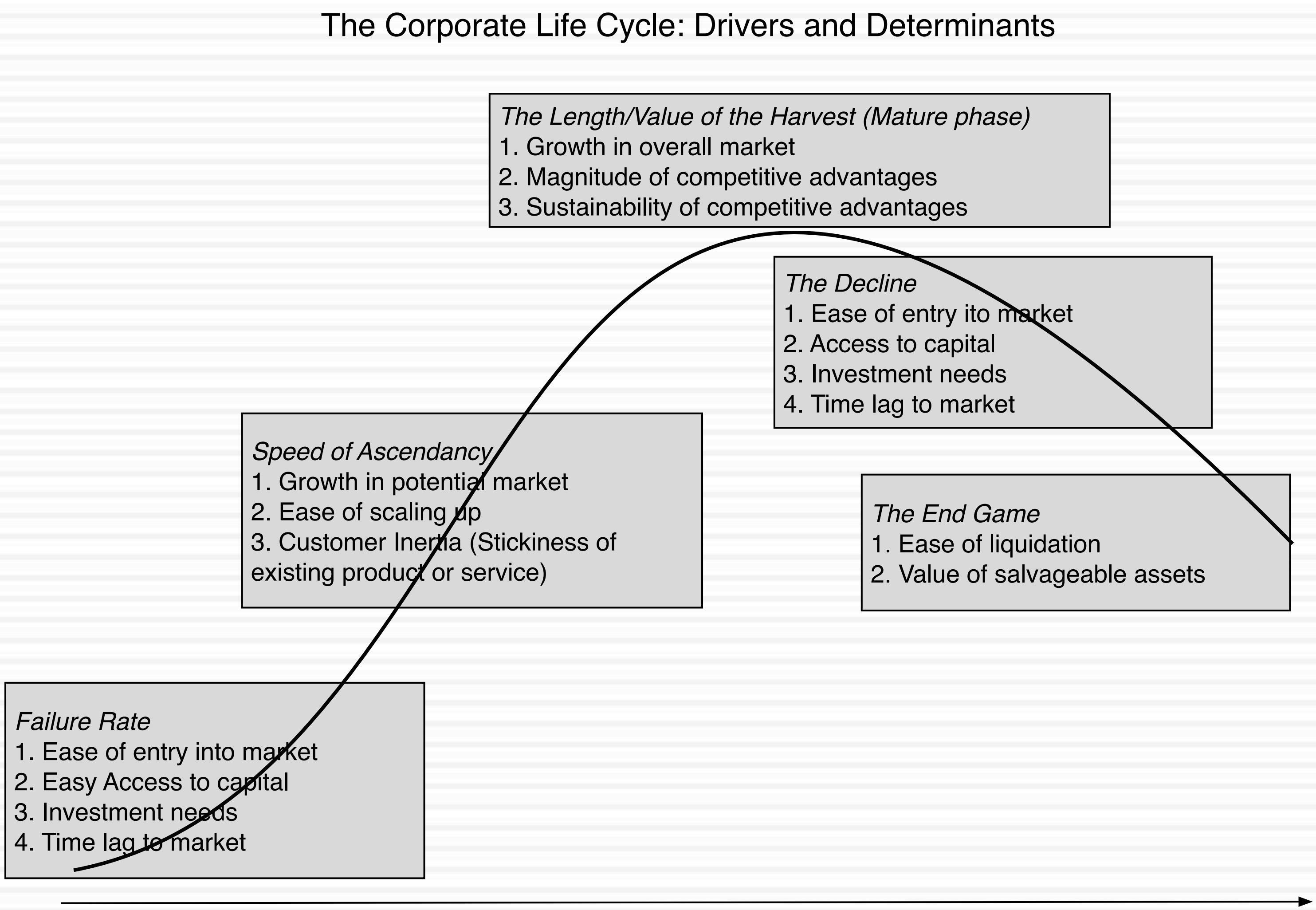
Lifecycle Stage	Start-up	Young Growth	High Growth	Mature Growth	Mature Stable	Decline
	Large operating losses	Operating losses narrow	Operating profits turn positive	Operating profits grow quickly	Operating profits level off	Operating profits decline
Reinvestment	Very High	High	Remain large, but scale down in percent.	Decrease	Mostly Maintenance	Divestment
Free Cash Flow to Firm	Negative	Negative	Cross over to positive territory	Positive & growing	Positive & stable	Positive & dropping



Would you rather be young or old?

- As a business, where in the life cycle would you most like to be?
  a. A Start up
  b. A Young, Growth Company
  c. An Established Growth Company
  d. A Mature Growth Company
  e. A Mature Company
  f. A Declining Company
- Assuming you are a business, where in the life cycle are you currently?
  a. A Start up
  b. A Young, Growth Company
  c. An Established Growth Company
  d. A Mature Growth Company
  e. A Mature Company
  f. A Declining Company

The determinants of the life cycle



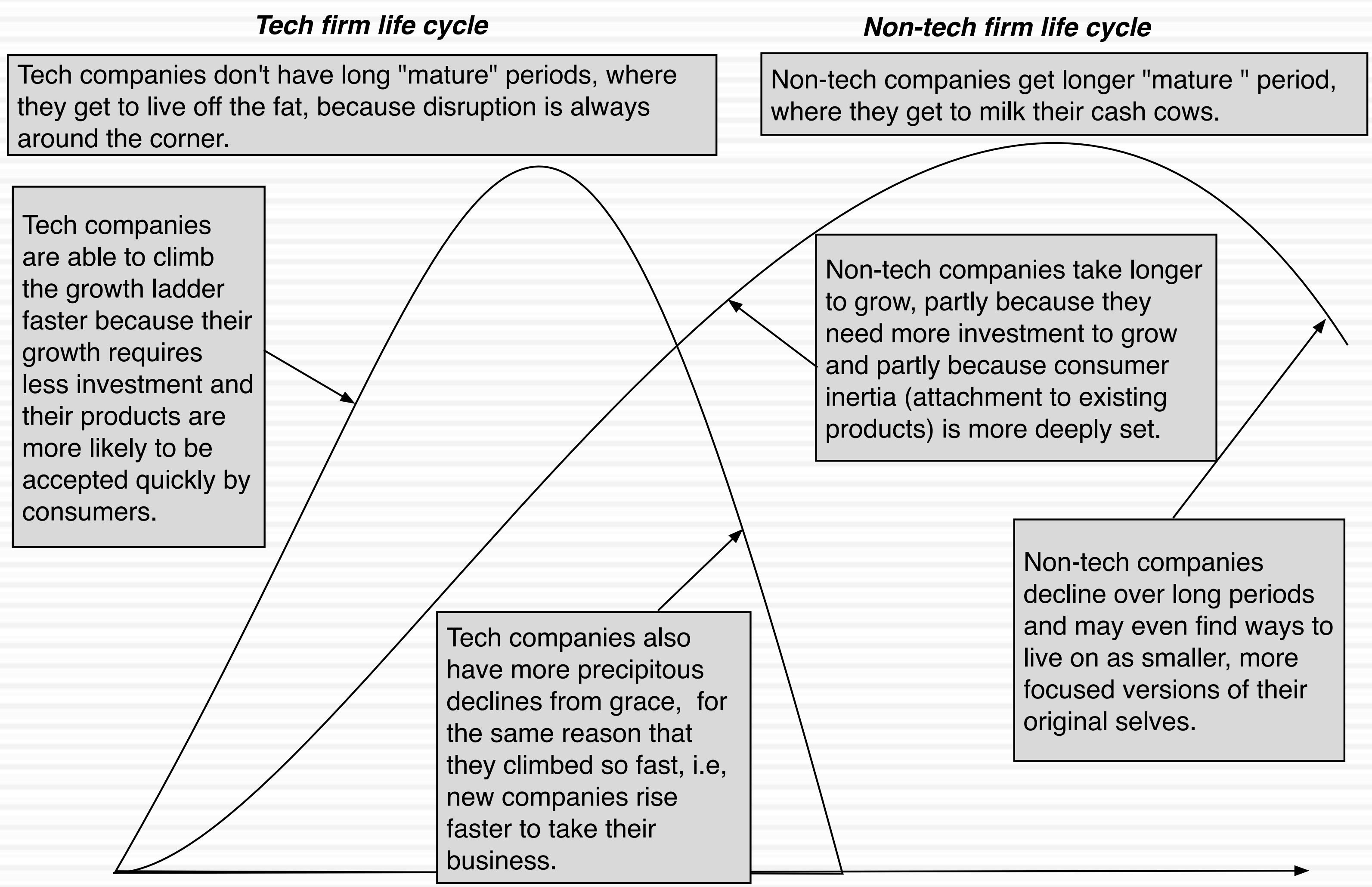
Tech versus Non-tech companies

- Drawing the line between tech and non tech companies is getting more and more difficult. The solution may be to think of technology on a continuum.
- There are two reasons the classifications matter:
  - Equity research analysts and portfolio managers still work in sector silos, with tunnel vision of anything that happens outside these silos. Where a company like Amazon is placed can make a difference in how it is analyzed.
  - Pricing is often done relative to the sector that investors decide to put a company into.

The defining characteristics of the tech business..

1. Scaling up is easy: Tech companies often operate in businesses where entry is not restricted, the up front investment is minimal and scaling up in easy.
2. Holding on is tough: Once tech companies reach the mature phase, they don't get to have long harvest periods. Their competitive advantages are fleeting and quickly deplete.
3. Decline is rapid: The same forces that allow technology companies to grow, i.e., unrestricted entry, ease of scaling up and customer switching, also make them vulnerable to new entrants seeking to take their business away from them.
4. And there is little left in the end game: Unlike other businesses, which accumulate physical assets as they grow and thus have a liquidation potential, with technology companies, there is little of substance to fall back, once earnings power is exhausted.

Tech versus Non-tech life cycles



ACCOUNTING VERSUS FINANCE ACROSS 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

Kraft Heinz: Balance Sheet in December 2021

The Kraft Heinz Company
Consolidated Balance Sheets
(in millions, except per share data)

	December 25, 2021	December 26, 2020
ASSETS		
Cash and cash equivalents	$ 3,445	$ 3,417
Trade receivables (net of allowances of $48 at December 25, 2021 and $48 at December 26, 2020)	1,957	2,063
Inventories	2,729	2,773
Prepaid expenses	136	132
Other current assets	716	574
Assets held for sale	11	1,863
Total current assets	8,994	10,822
Property, plant and equipment, net	6,806	6,876
Goodwill	31,296	33,089
Intangible assets, net	43,542	46,667
Other non-current assets	2,756	2,376
TOTAL ASSETS	$ 93,394	$ 99,830
LIABILITIES AND EQUITY		
Commercial paper and other short-term debt	$ 14	$ 6
Current portion of long-term debt	740	230
Trade payables	4,753	4,304
Accrued marketing	804	946
Interest payable	268	358
Income taxes payable	541	114
Other current liabilities	1,944	2,086
Liabilities held for sale	—	17
Total current liabilities	9,064	8,061
Long-term debt	21,061	28,070
Deferred income taxes	10,536	11,462
Accrued postemployment costs	205	243
Long-term deferred income	1,534	6
Other non-current liabilities	1,542	1,745
TOTAL LIABILITIES	43,942	49,587
Commitments and Contingencies (Note 16)		
Redeemable noncontrolling interest	4	—
Equity:		
Common stock, $0.01 par value (5,000 shares authorized; 1,235 shares issued and 1,224 shares outstanding at December 25, 2021; 1,228 shares issued and 1,223 shares outstanding at December 26, 2020)	12	12
Additional paid-in capital	53,379	55,096
Retained earnings/(deficit)	(1,682)	(2,694)
Accumulated other comprehensive income/(losses)	(1,824)	(1,967)
Treasury stock, at cost (11 shares at December 25, 2021 and 5 shares at December 26, 2020)	(587)	(344)
Total shareholders' equity	49,298	50,103
Noncontrolling interest	150	140
TOTAL EQUITY	49,448	50,243
TOTAL LIABILITIES AND EQUITY	$ 93,394	$ 99,830

Kraft Heinz: Financial Balance Sheet

A Market Balance Sheet

Assets		*Liabilities & Equity*	
Assets in Place	$ 51,900	Debt	$ 28,306
Growth Assets	$ 25,854	Equity	$ 49,448
Total Assets	$ 77,754	Total Capital	$ 77,754

$$Assets\ in\ Place = \frac{After-tax\ Operating\ Income}{Cost\ of\ Capital} = \frac{\$3{,}460\ (1-.25)}{.05}$$

Market Cap

Zoom: Balance Sheet in December 2021

ZOOM VIDEO COMMUNICATIONS, INC.
CONSOLIDATED BALANCE SHEETS
(in thousands, except share and per share data)

	As of January 31, 2021	As of January 31, 2020
Assets		
Current assets:		
Cash and cash equivalents	$ 2,240,303	$ 283,134
Marketable securities	2,004,410	572,060
Accounts receivable, net of allowances of $36,844 and $7,634 as of January 31, 2021 and 2020, respectively	294,703	120,435
Deferred contract acquisition costs, current	136,630	44,885
Prepaid expenses and other current assets	116,819	75,008
Total current assets	4,792,865	1,095,522
Deferred contract acquisition costs, noncurrent	157,262	46,245
Property and equipment, net	149,924	57,138
Operating lease right-of-use assets	97,649	68,608
Goodwill	24,340	—
Other assets, noncurrent	75,953	22,332
Total assets	$ 5,297,993	$ 1,289,845
Liabilities and stockholders' equity		
Current liabilities:		
Accounts payable	$ 8,664	$ 1,596
Accrued expenses and other current liabilities	393,018	122,692
Deferred revenue, current	858,284	209,542
Total current liabilities	1,259,966	333,830
Deferred revenue, noncurrent	25,211	20,994
Operating lease liabilities, noncurrent	90,415	64,792
Other liabilities, noncurrent	61,634	36,286
Total liabilities	1,437,226	455,902
Commitments and contingencies (Note 8)		
Stockholders' equity:		
Preferred stock, $0.001 par value per share, 200,000,000 shares authorized as of January 31, 2021 and 2020; zero shares issued and outstanding as of January 31, 2021 and 2020	—	—
Common stock, $0.001 par value per share, 2,000,000,000 Class A shares authorized as of January 31, 2021 and 2020; 215,737,924 and 123,391,114 shares issued and outstanding as of January 31, 2021 and 2020, respectively; 300,000,000 Class B shares authorized as of January 31, 2021 and 2020; 77,811,299 and 155,336,747 shares issued and outstanding as of January 31, 2021 and 2020, respectively	292	277
Additional paid-in capital	3,187,168	832,705
Accumulated other comprehensive income	839	809
Retained earnings	672,468	152
Total stockholders' equity	3,860,767	833,943
Total liabilities and stockholders' equity	$ 5,297,993	$ 1,289,845

Zoom: Financial Balance Sheet

A Market Balance Sheet

Assets		Liabilities & Equity	
Assets in Place	$ 9,975	Debt	$ 90
Growth Assets	$ 20,595	Equity	$ 30,480
Total Assets	$ 30,570	Total Capital	$ 30,570

$$Assets\ in\ Place = \frac{After-tax\ Operating\ Income}{Cost\ of\ Capital} = \frac{\$1064\ (1-.25)}{.08}$$

Market Cap

The Bottom Line

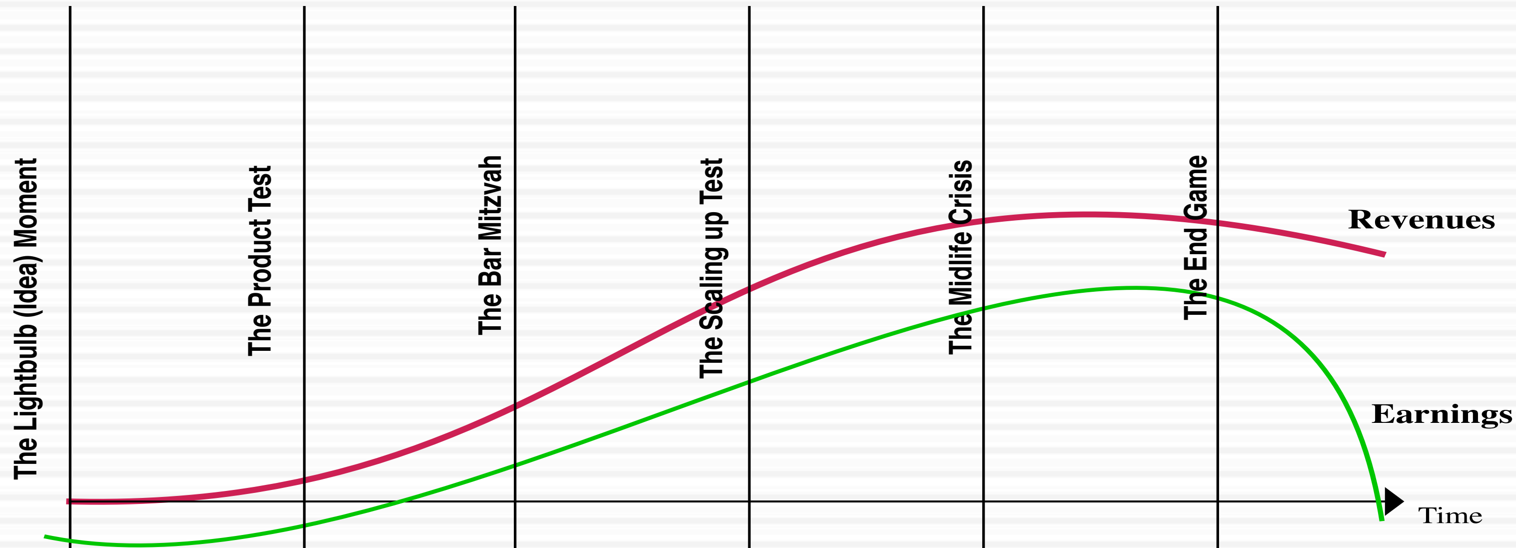
- Accounting statements get less and less useful if you are looking earlier in the life cycle, since accountants have neither a history to record nor an operating business to describe.
- As companies age, balance sheets mean more but they also become more cluttered, since they carry the legacy of "accounting" fixes and choices. Meaningless assets start to populate the balance sheet and meaningless liabilities are often created to offset them.
  - Balance sheet based valuation is useless with young companies. It is most useful in mature companies without accounting clutter.
  - Comparing price to book value, a commonly used value investing metric, may find you cheap firms and lead you away from expensive firms, or perhaps just load up your portfolio will older firms and steer you away from young firms.
- Fair value accounting is destined for failure everywhere, because you cannot capture growth assets fully, no matter how creative you get, and creativity is not an accounting strong point.

CORPORATE FINANCE ACROSS THE LIFE CYCLE

The Big Picture

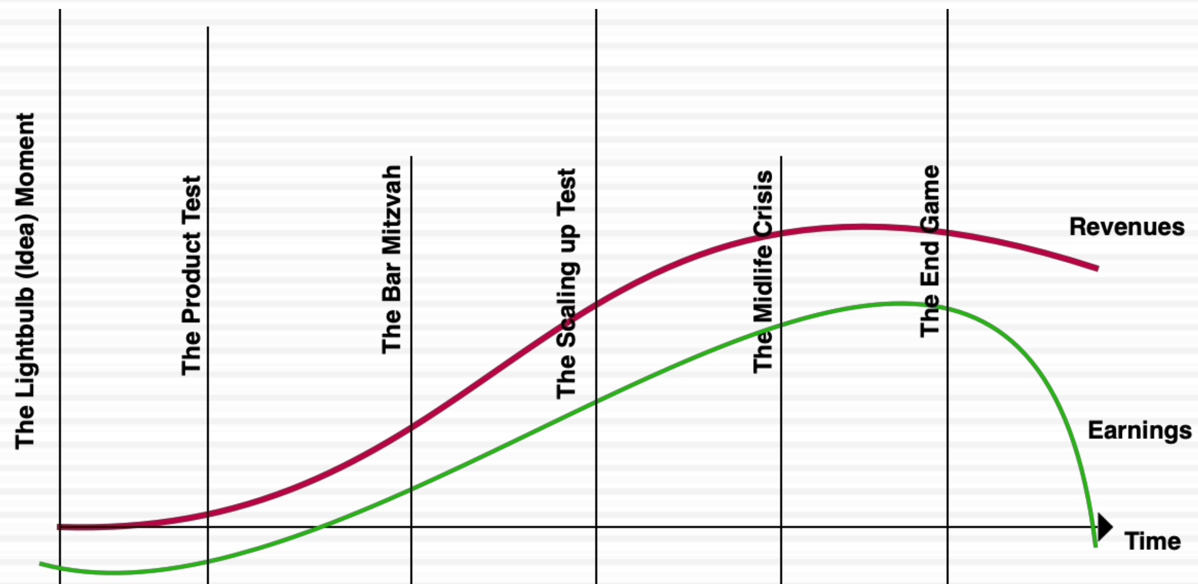
- Maximize the value of the business (firm)
  - **The Investment Decision** Invest in assets that earn a return greater than the minimum acceptable hurdle rate
    - The **hurdle rate** should reflect the riskiness of the investment and the mix of debt and equity used to fund it.
    - The **return** should reflect the magnitude and the timing of the cashflows as well as all side effects.
  - **The Financing Decision** Find the right kind of debt for your firm and the right mix of debt and equity to fund your operations
    - The **optimal mix** of debt and equity maximizes firm value
    - The **right kind** of debt matches the tenor of your assets
  - **The Dividend Decision** If you cannot find investments that make your minimum acceptable rate, return the cash to owners of your business
    - **How much cash** you can return depends upon current & potential investment opportunities
    - **How you choose** to return cash to the owners will depend on whether they prefer dividends or buybacks

The emphasis in corporate finance shifts… as companies age



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

Investing: From too many projects to too few..



Lifecycle Stage	**Start-up**	**Young Growth**	**High Growth**	**Mature Growth**	**Mature Stable**	**Decline**
Biggest Concern	Lack of capital	Allocating limited capital across competing investments	Balance existing investments with new ventures	Learning to live with less "attractive" investments	Too much capital chasing too few investments	Deciding which investments to pull capital from first
	Option Models. All about upside	Maximize IRR (maximize bang for buck)	Profitability Index (NPV as % of investment)	Net Present Value, as capital constraints ease	ROIC and Excess Return Models	Divesiture & Liquidation Analysis

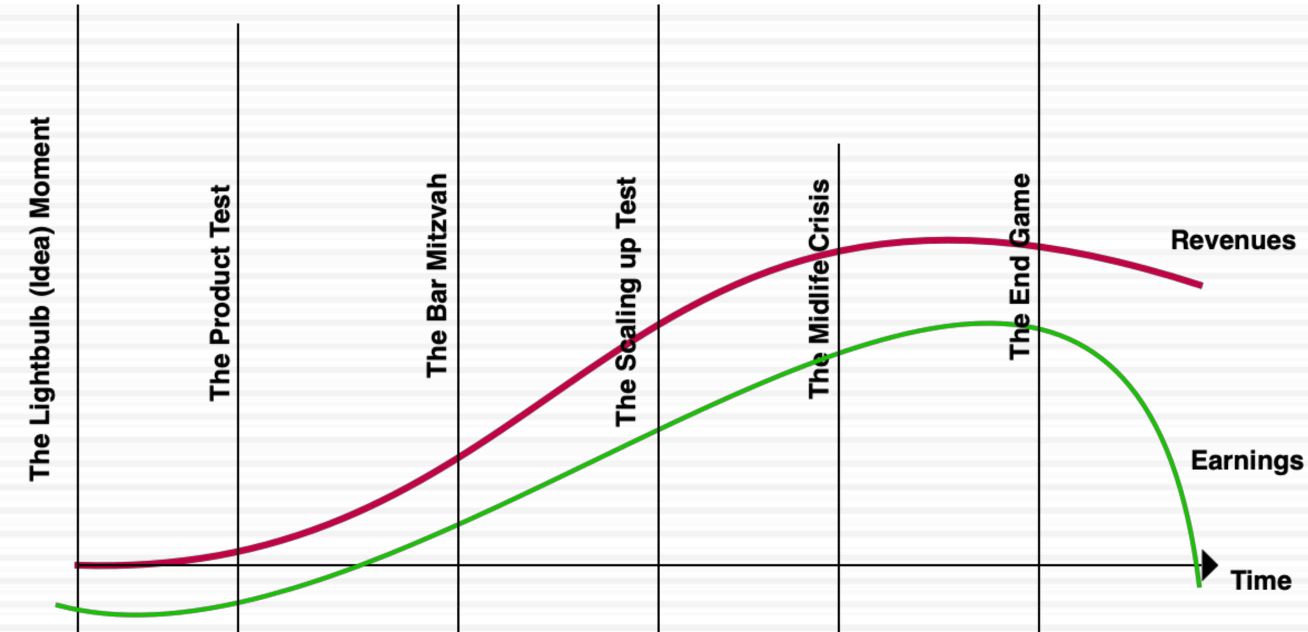
Organic Investments

Acquisitions for potential growth

Acquisitions for current growth

Divestitures

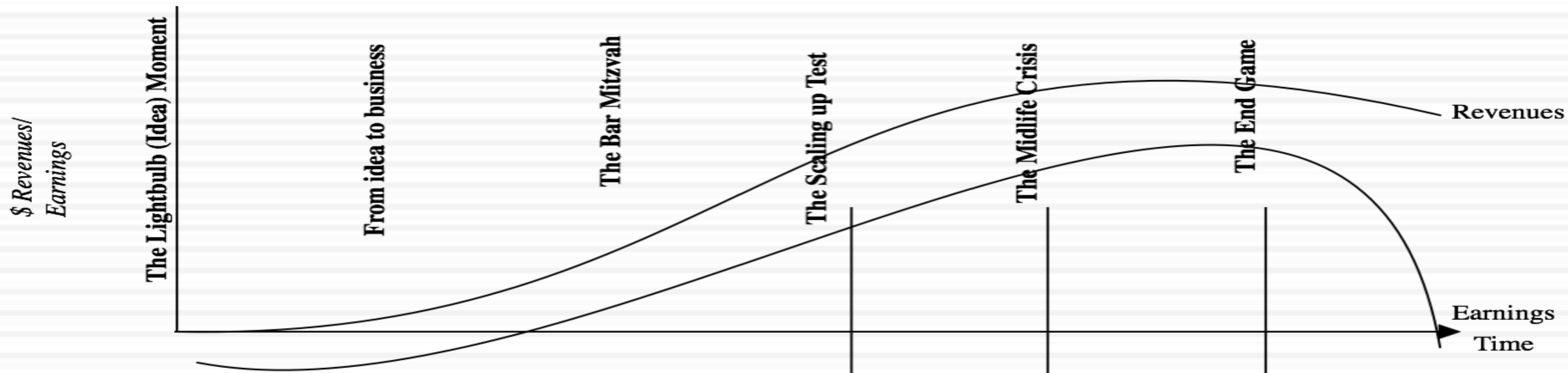
Financing, from start to finish..



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 firm	Decrease	Scale down further	Divestment
Debt Capacity	Non-existent	Very low	Low	Rising	High	Declining

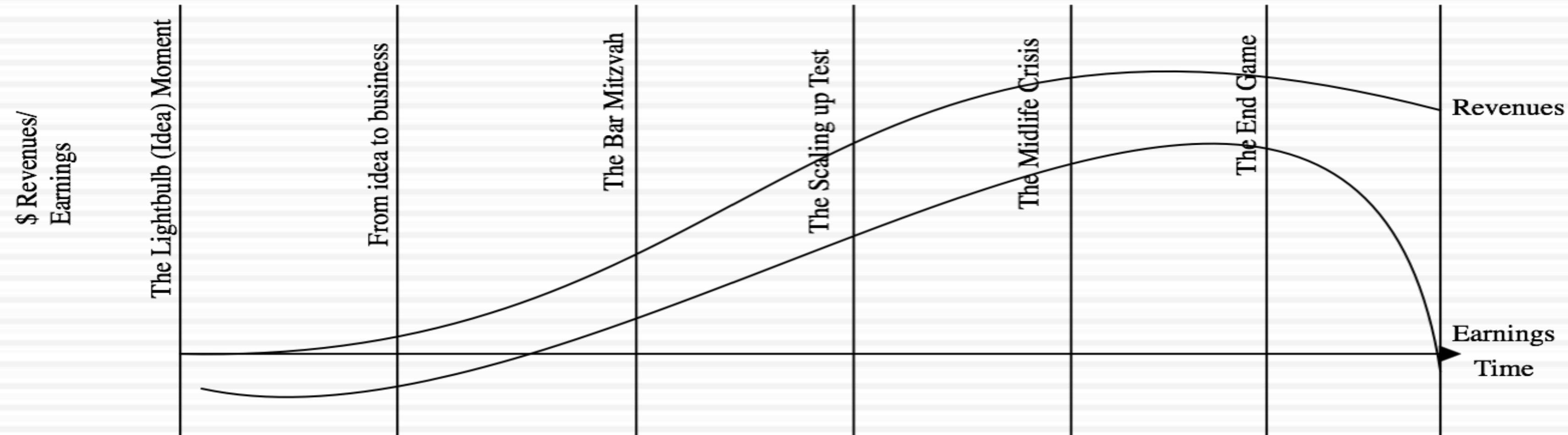
And with it, debt capacity

Debt Capacity across Life Cycle



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
Profits & Cash Flows	Large losses & negative cashflows	Losses narrow but cashflows still negative	Profits turn positive but reinvestment needs make cashflows low/ negative	Cash flows turn positive, as profits grow & reinvestment drops	Cashflows continue to rise, as earnings stabilize	Operating profits decline but divestitures add to cashflow
Tax Benefits	None	None	Low, as NOLS shelter income	Rising, as NOLs expire	High	Positive, but dropping
Expected Bankruptcy Costs	Very high, since earnings are negative	Very high, as probability of default still stays high.	High, as costs of bankruptcy (indirect) rise.	Dropping, as earnings grow and bankruptcy cost drops	Lower, as earnings become more predictable	Manageable, if debt scales down as firm gets smaller
Debt Capacity	**Non-existent**	**Very low**	**Low**	**Rising**	**High**	**High, but dropping**

Dividends, from seed to harvest..



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 Cashflow to Equity	Negative	Negative	Small +'ve -> Big Positive	Big, growing Positive	Big, stable Positive	Declining
Reinvestment	High	High	High, but dropping	High, approaching average	Low	Negative (Divesting)
Debt	No debt	No debt	Low debt	Medium debt	High debt	Retiring debt
Potential Dividend (FCFE)	Negative FCFE	Negative FCFE	Negative -> Low +ve FCFE	Positive & growing FCFE	Positive & stable FCFE	Positive & dropping FCFE
Regular Dividends	No. Don't have cash flow	No. Don't have cash flow	No. Cash flow is too uncertain.	Initiate, but keep low.	**Sweet spot. Big & stable**	Shrinking Dividends
Special Dividends/ Buybacks	No. Don't have cash flow	No. Don't have cash flow	Perhaps, if you have a good year	**Sweet Spot. Big & recurrent.**	Supplement in good years	Liquidating Dividends

The Bottom Line

- Early in the life of a business, it is the creative part of the business (R&D, New Product development) that will drive the business, since value is created primarily from making great investments.
- As a business ages, you will see power shift towards the "finance" portion of the business, as projects start to get less attractive and financial engineering (changing debt mixes, debt types) will start to be potentially more value creating.
- As the business enters its declining phase, it will be decisions about how much to return to owners and in what form that will become the core discussion.
- By observing what a company is focusing its energies on, you can usually get a sense of where it thinks it is in the life cycle, but only if it is behaving sensibly.

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 act young and refuse to return cash.
  - Stable companies that try to be growth companies through acquisitions.
  - Declining companies that think they can reverse decline, with new management and a new business plan.

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

FROM NARRATIVE TO NUMBERS

All story to mostly numbers..

Valuation as a bridge

Favored Tools
- Accounting statements
- Excel spreadsheets
- Statistical Measures
- Pricing Data

A Good Valuation

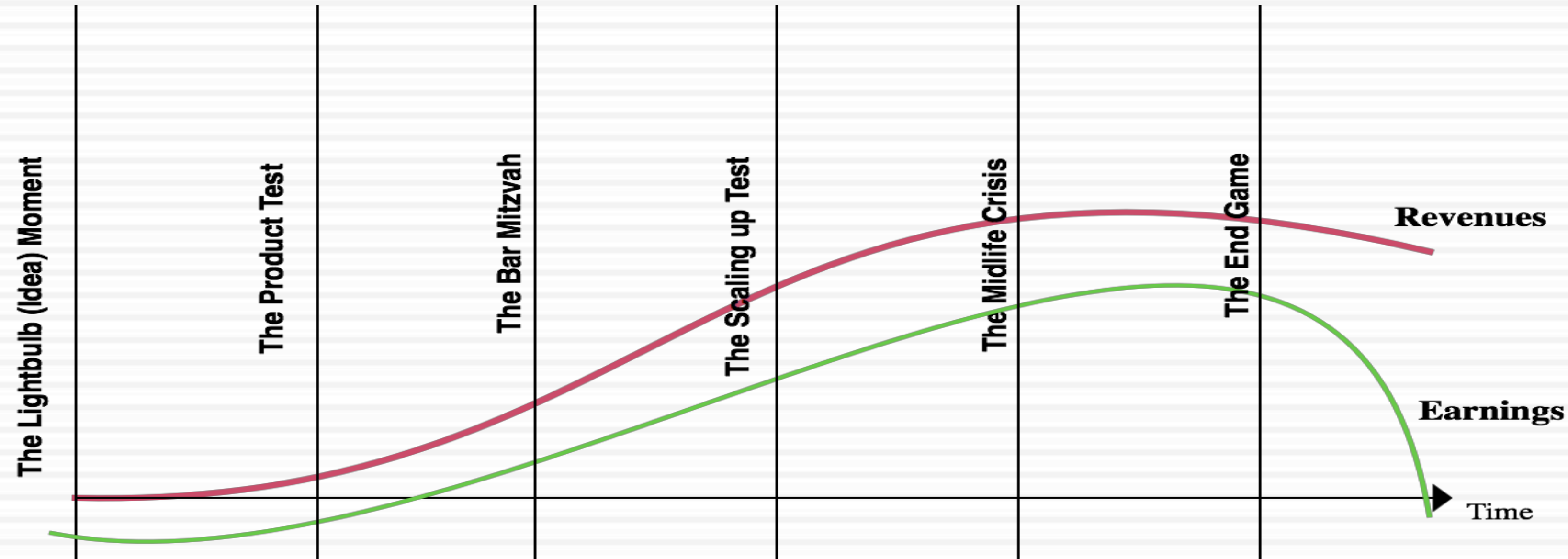
Favored Tools
- Anecdotes
- Experience (own or others)
- Behavioral evidence

The Numbers People ⟷ The Narrative People

Illusions/Delusions
1. Precision: Data is precise
2. Objectivity: Data has no bias
3. Control: Data can control reality

Illusions/Delusions
1. Creativity cannot be quantified
2. If the story is good, the investment will be.
3. Experience is the best teacher

Narrative versus Numbers



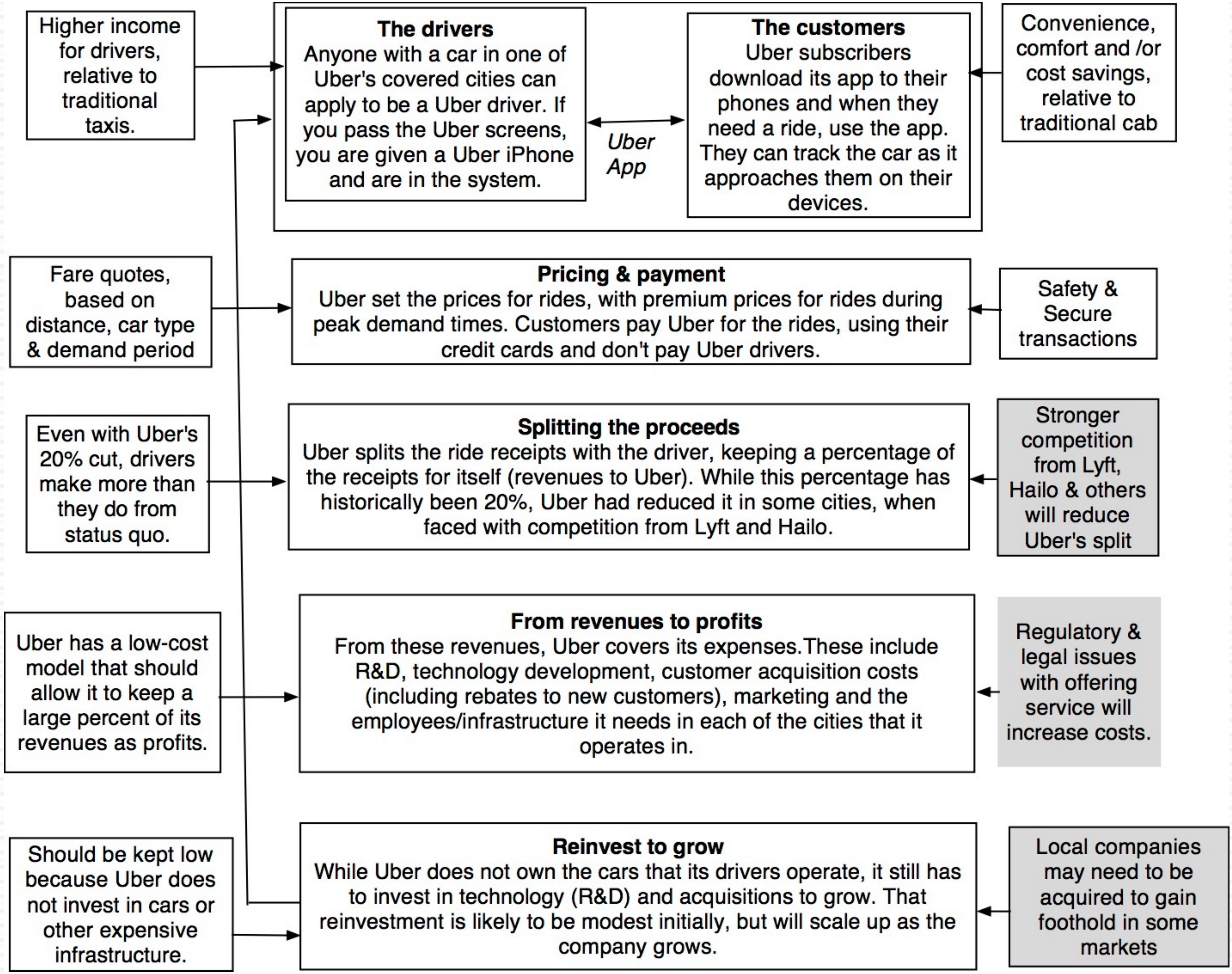
Lifecycle stage	**Start-up**	**Young Growth**	**High Growth**	**Mature Growth**	**Mature Stable**	**Decline**
Narrative versus Numbers	All Narrative	Mostly narrative	Narrative + Numbers	Numbers + Narrative	Mostly Numbers	All Numbers
Narrative Drivers	How big is the narrative?	How plausible is narrative?	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.

Step 1: Survey the landscape

- Every valuation starts with a narrative, a story that you see unfolding for your company in the future.
- In developing this narrative, you will be making assessments of
  - Your company (its products, its management and its history.
  - The market or markets that you see it growing in.
  - The competition it faces and will face.
  - The macro environment in which it operates.


Higher income for drivers, relative to traditional taxis.
The drivers
Anyone with a car in one of Uber's covered cities can apply to be a Uber driver. If you pass the Uber screens, you are given a Uber iPhone and are in the system.
Uber App
The customers
Uber subscribers download its app to their phones and when they need a ride, use the app. They can track the car as it approaches them on their devices.
Convenience, comfort and /or cost savings, relative to traditional cab
Fare quotes, based on distance, car type & demand period
Pricing & payment
Uber set the prices for rides, with premium prices for rides during peak demand times. Customers pay Uber for the rides, using their credit cards and don't pay Uber drivers.
Safety & Secure transactions
Even with Uber's 20% cut, drivers make more than they do from status quo.
Splitting the proceeds
Uber splits the ride receipts with the driver, keeping a percentage of the receipts for itself (revenues to Uber). While this percentage has historically been 20%, Uber had reduced it in some cities, when faced with competition from Lyft and Hailo.
Stronger competition from Lyft, Hailo & others will reduce Uber's split
Uber has a low-cost model that should allow it to keep a large percent of its revenues as profits.
From revenues to profits
From these revenues, Uber covers its expenses.These include R&D, technology development, customer acquisition costs (including rebates to new customers), marketing and the employees/infrastructure it needs in each of the cities that it operates in.
Regulatory & legal issues with offering service will increase costs.
Should be kept low because Uber does not invest in cars or other expensive infrastructure.
Reinvest to grow
While Uber does not own the cars that its drivers operate, it still has to invest in technology (R&D) and acquisitions to grow. That reinvestment is likely to be modest initially, but will scale up as the company grows.
Local companies may need to be acquired to gain foothold in some markets

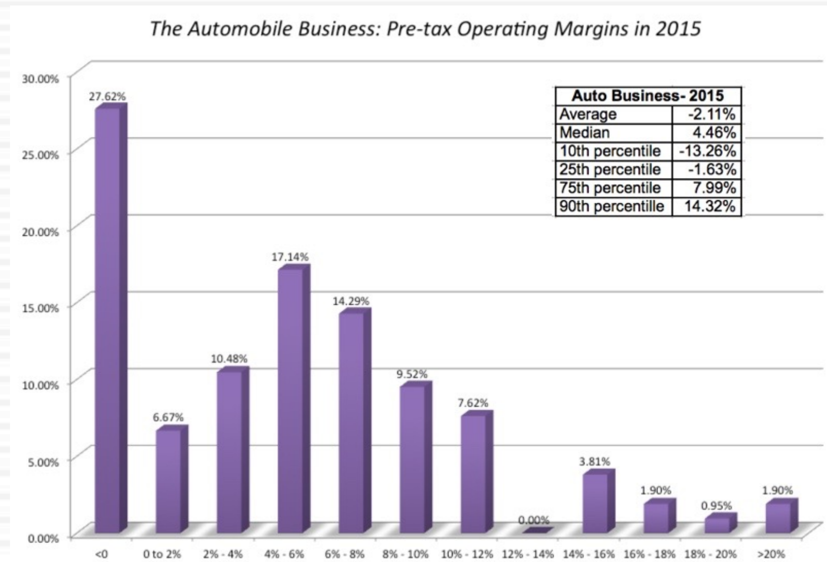
The Auto Business

Anemic Revenue Growth

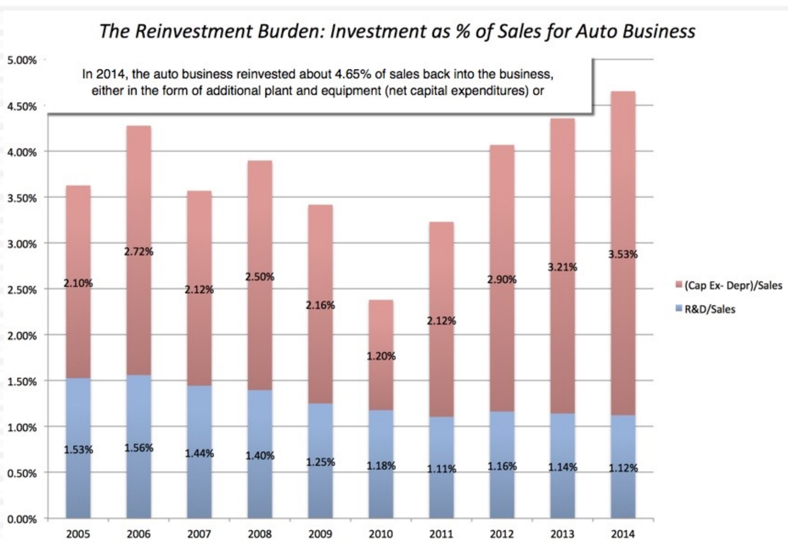
Year	Revenues ($)	% Growth Rate
2005	1,274,716.6	
2006	1,421,804.2	11.54%
2007	1,854,576.4	30.44%
2008	1,818,533.0	-1.94%
2009	1,572,890.1	-13.51%
2010	1,816,269.4	15.47%
2011	1,962,630.4	8.06%
2012	2,110,572.2	7.54%
2013	2,158,603.0	2.28%
2014	2,086,124.8	-3.36%

Compounded annual revenue growth of 5.63% between 2005 and 2014.

+ Poor Operating Margins

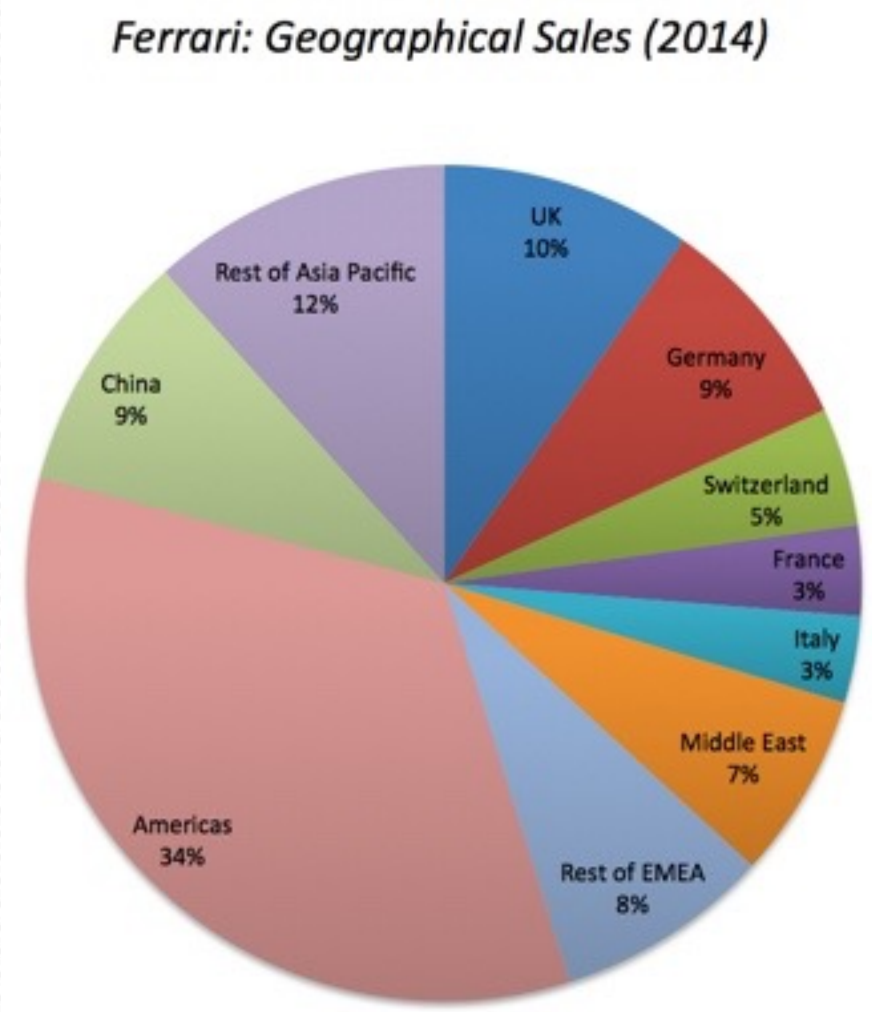


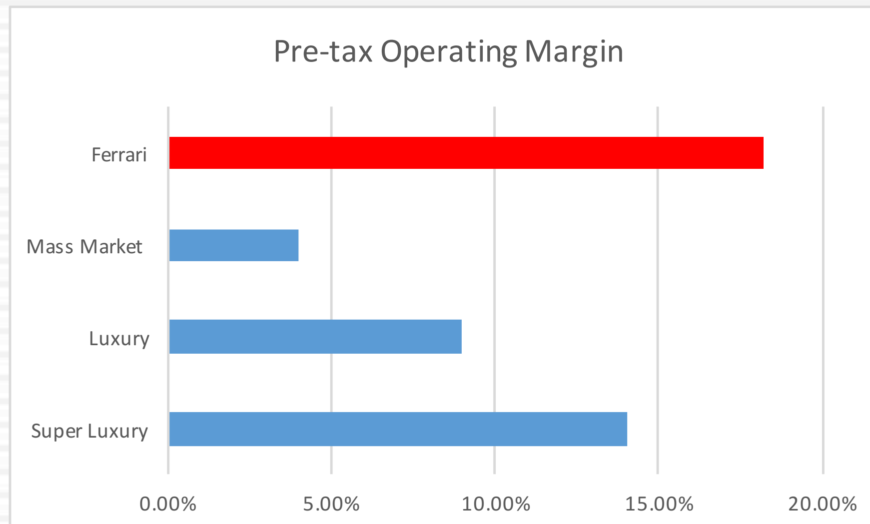
+ Increasing Reinvestment



= Bad Business

But super luxury cars look better..





Step 2: Create a narrative for the future

- Every valuation starts with a narrative, a story that you see unfolding for your company in the future.
- In developing this narrative, you will be making assessments of your company (its products, its management), the market or markets that you see it growing in, the competition it faces and will face and the macro environment in which it operates.
  - Rule 1: Keep it simple.
  - Rule 2: Keep it focused.

The Uber Narrative

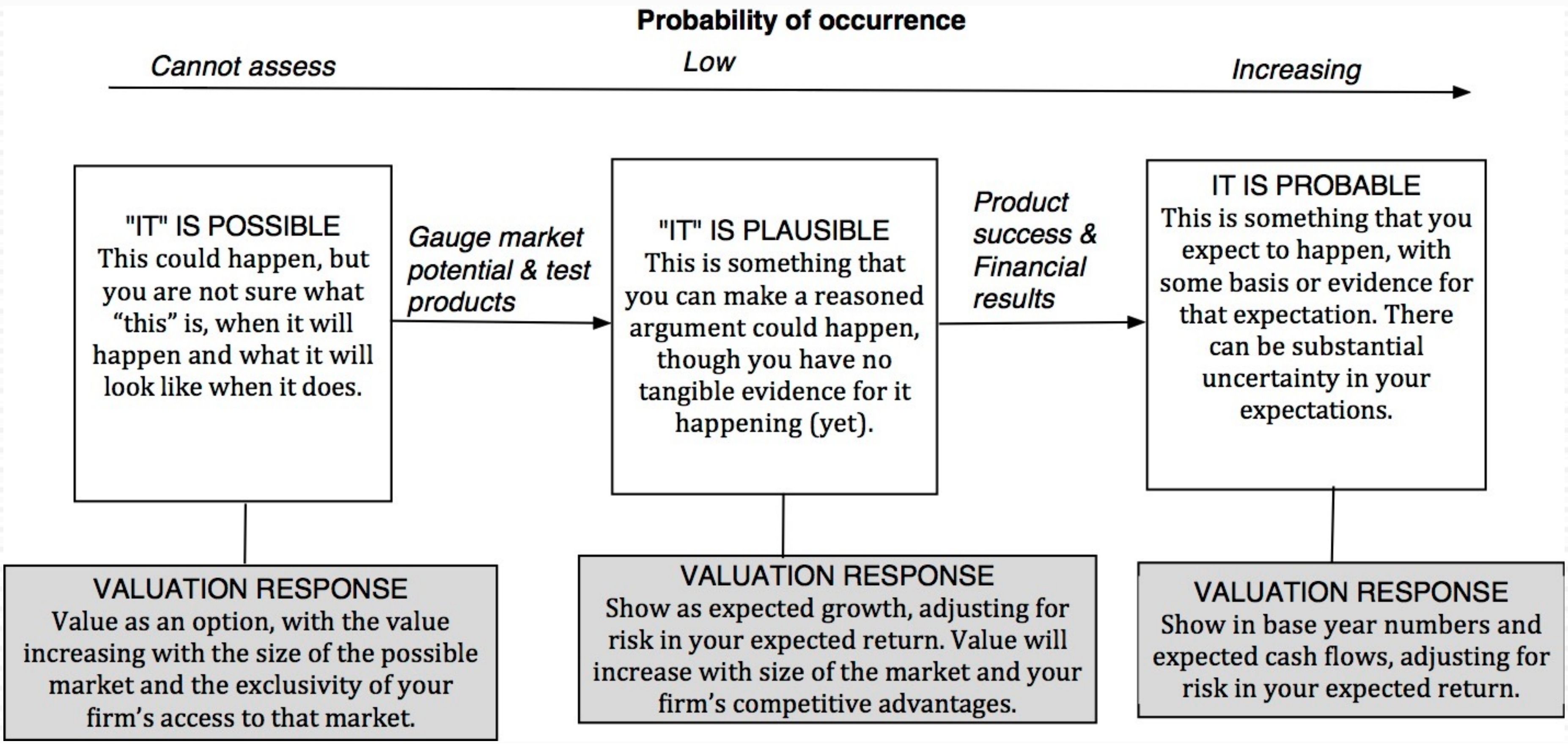
In June 2014, my initial narrative for Uber was that it would be

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.

The Ferrari Narrative

- After the IPO, Ferrari will continue to be run by the same managers who run it today and will continue to be controlled by the Agnelli family and Ferrari (just as it is now).
- In my base narrative, I expect the company to stick to the status quo and
  - Stay super exclusive (Ferrari's sales have been flat over much of the last decade) and global.
  - Charge exceptionally high prices
  - Spend little or nothing on advertising
  - Be only lightly affected by economic ups and downs (since these are the super rich)

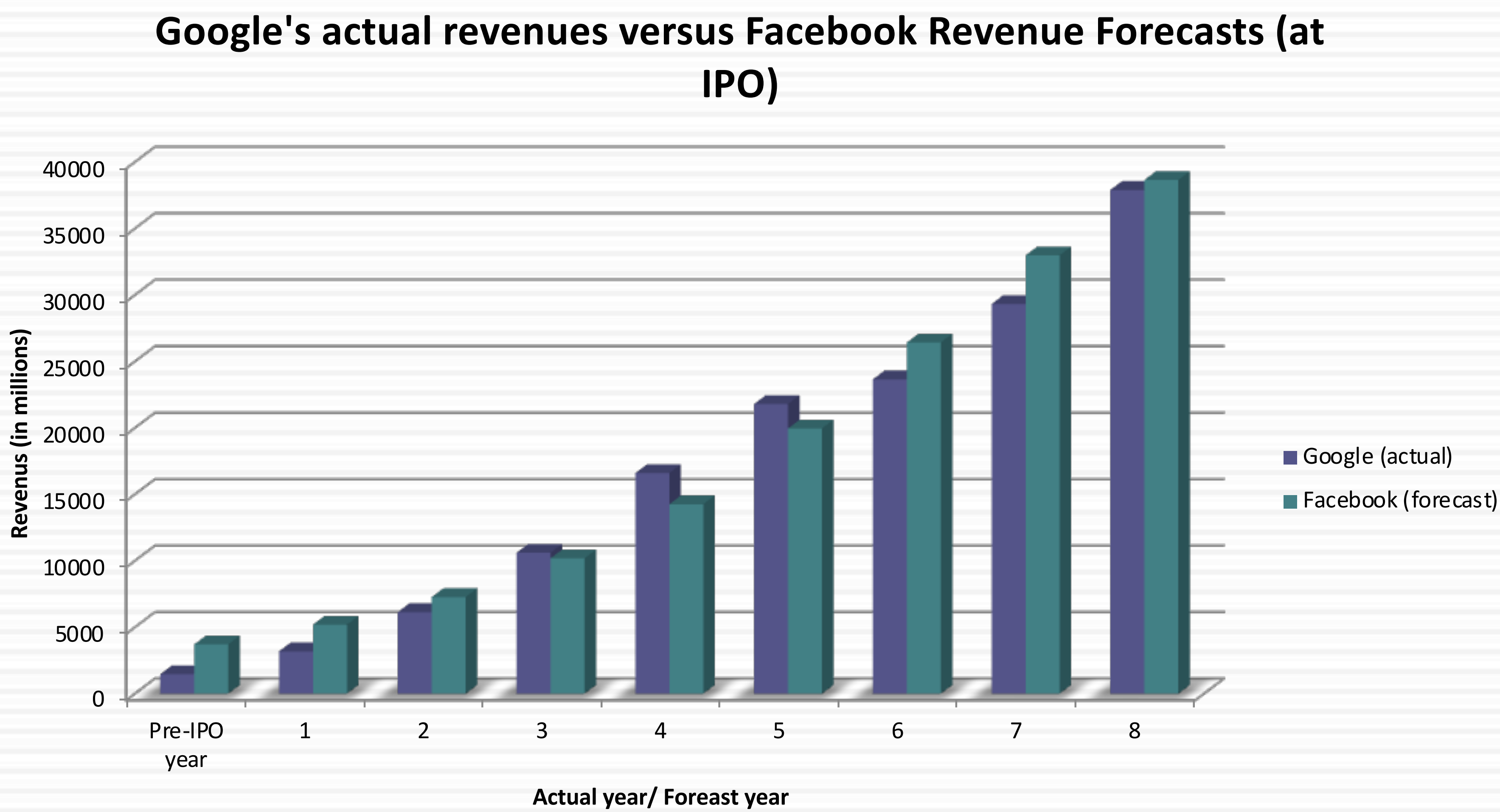
Step 3: Check the narrative against history, economic first principles & common sense



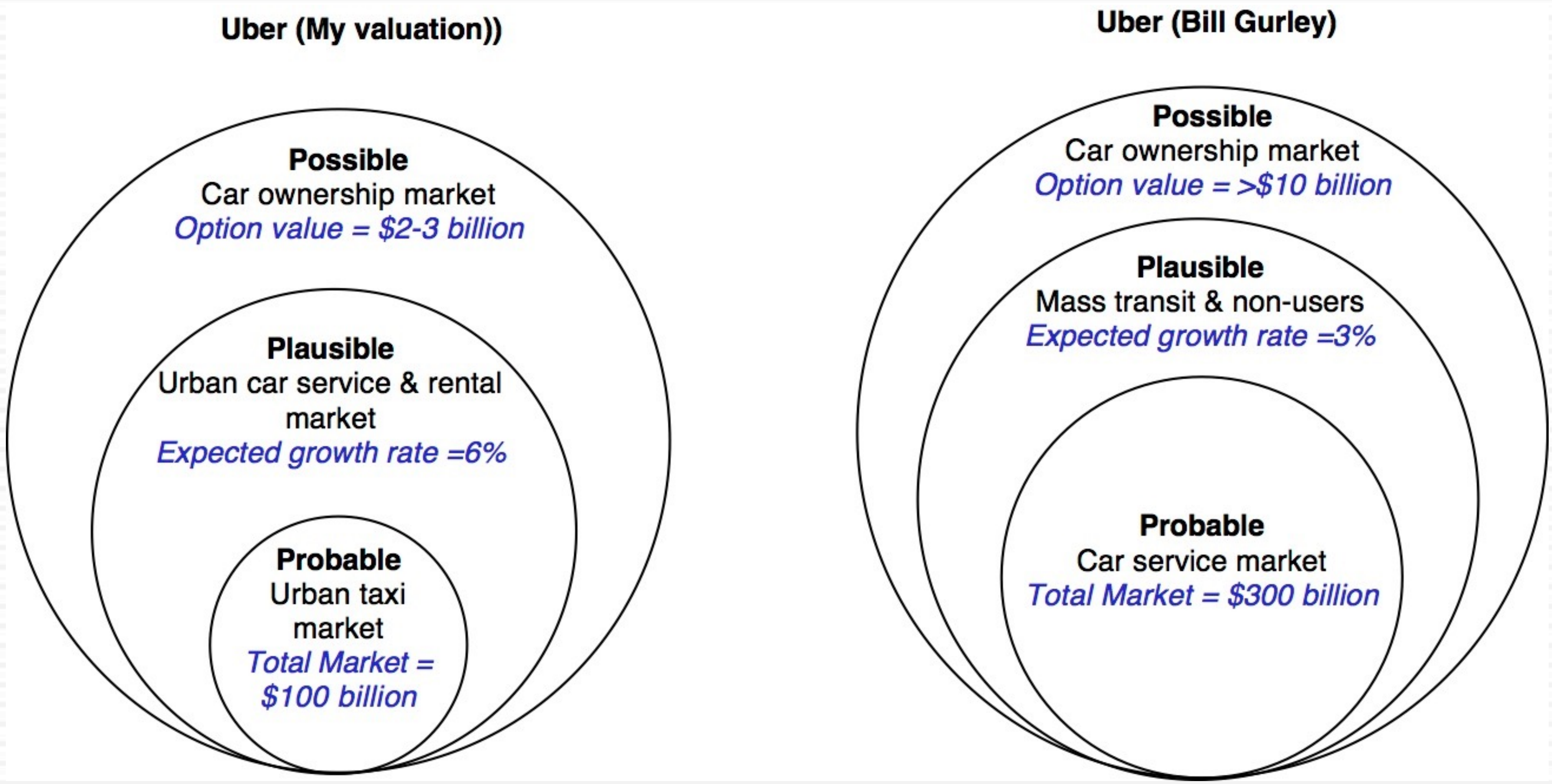
Test 1: The "Big Market" Delusion

Company	*Market Capitalization*	*Enterprise Value*	*Current Revenues*	*Breakeven Revenues (2023)*	*% from Online Ads (2012)*	*Imputed Online Ad Revenue (2023)*	*Cost of capital*	*Target margin*
Google	$291,586.00	$240,579.00	$56,594.00	$168,336.00	87.07%	$146,570.16	10%	22.49%
Facebook	$119,769.00	$111,684.00	$6,118.00	$90,959.00	84.08%	$76,478.33	10%	29.99%
Yahoo!	$34,688.00	$29,955.00	$4,823.00	$17,695.00	100%	$17,695.00	10%	25.00%
Linkedin	$27,044.00	$26,171.00	$1,244.00	$32,110.00	80.41%	$25,819.65	10%	25.00%
Twitter (Est)	$12,000.00	$11,000.00	$448.00	$7,846.00	90.00%	$7,061.40	10%	25.00%
Pandora	$4,833.00	$4,774.00	$528.00	$3,085.00	87.84%	$2,709.86	10%	25.00%
Yelp	$4,422.00	$4,325.00	$179.00	$2,825.00	94.31%	$2,664.26	10%	25.00%
Zillow	$3,192.00	$3,060.00	$152.00	$1,984.00	25.83%	$512.47	10%	25.00%
AOL	$2,586.00	$2,208.00	$2,211.00	$10,055.00	64.72%	$6,507.60	10%	9.32%
Retailmenot	$1,718.00	$1,644.00	$169.00	$1,605.00	100%	$1,605.00	10%	25.00%
OpenTable	$1,597.00	$1,505.00	$173.77	$1,361.38	74.22%	$1,010.42	10%	25.00%
US based	**$503,435.00**	**$436,905.00**	**$72,639.77**	**$337,861.38**	**$8.88**	**$288,634.13**		
Baidu	$53,589.00	$49,961.00	$4,182.00	$15,526.00	99.73%	$15,484.08	10%	25.00%
Sohu.com	$3,166.00	$2,540.00	$1,231.00	$1,338.00	36.33%	$486.10	10%	21.45%
Naver	$17,843.00	$17,595.00	$133.00	$11,227.00	62.94%	$7,066.27	10%	25.00%
Yandex	$12,654.00	$11,872.00	$1,065.00	$7,684.00	98%	$7,505.73	10%	25.00%
Global	**$590,687.00**	**$518,873.00**	**$79,250.77**	**$373,636.38**	**$11.85**	**$319,176.31**		

Test 2: Measure up against past winners



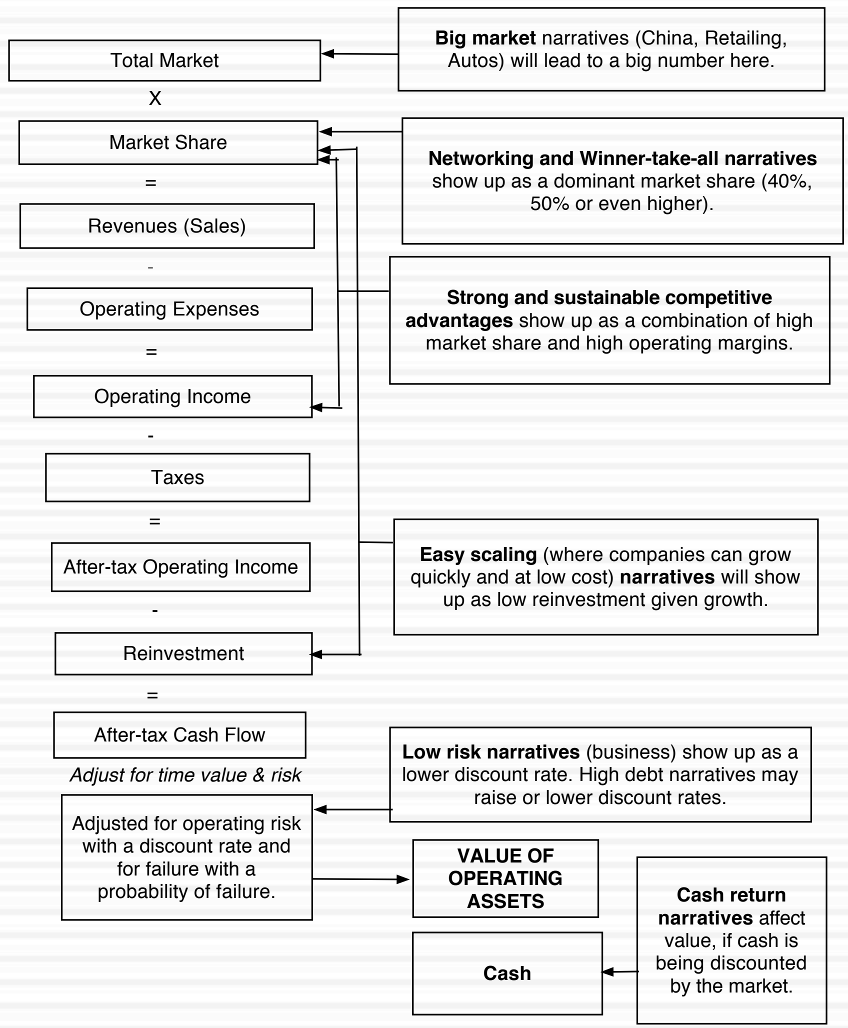
Uber: Possible, Plausible and Probable



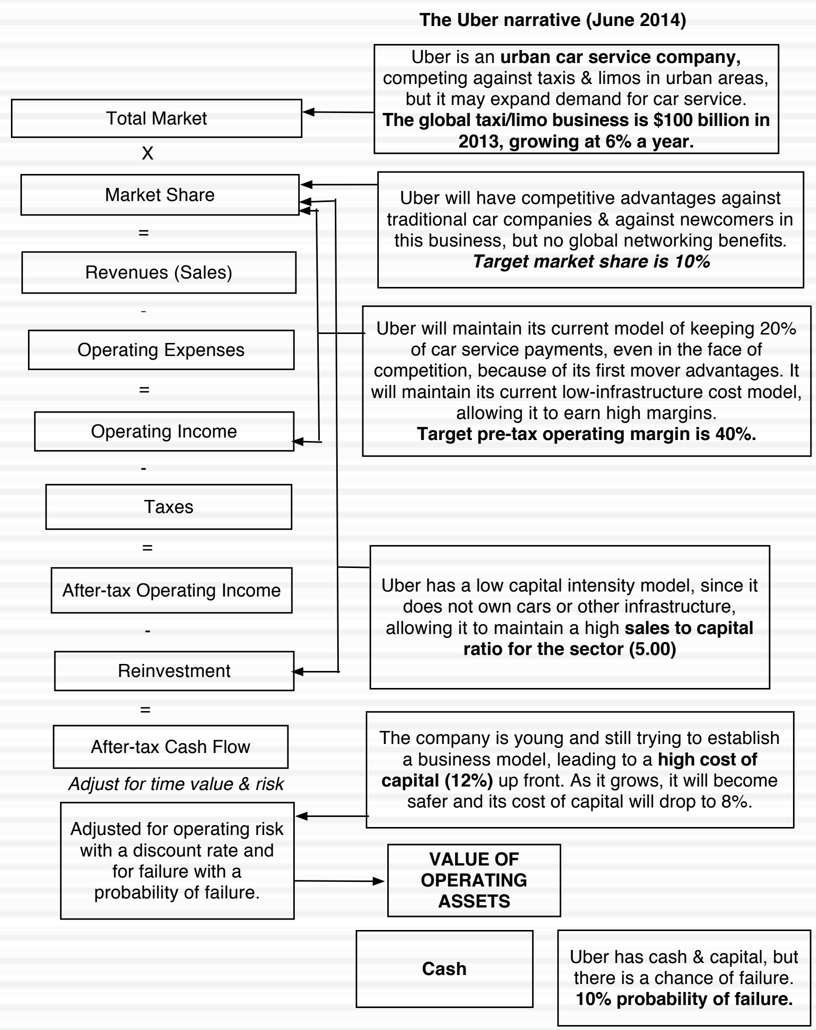
Ferrari: Probable, Plausible and Impossible

- <u>It is probable</u>: Ferrari will continue on its current path of staying an exclusive car maker that sells cars without any conventional advertising/selling at very high prices to a global market.
- <u>It is plausible</u>: Ferrari will try to go for a higher growth model, introducing perhaps a lower-cost Ferrari, increasing advertising/selling expenses and settling for lower margins.
- <u>It is impossible</u>: Ferrari will go for sharply higher revenue growth, without cutting prices or increasing selling expenses.

Step 4: Connect your narrative to key drivers of value



With Uber



The Uber narrative (June 2014)
Total Market
X
Market Share
=
Revenues (Sales)
-
Operating Expenses
=
Operating Income
-
Taxes
=
After-tax Operating Income
-
Reinvestment
=
After-tax Cash Flow
Adjust for time value & risk
Adjusted for operating risk with a discount rate and for failure with a probability of failure.
VALUE OF OPERATING ASSETS
Cash
Uber is an **urban car service company,** competing against taxis & limos in urban areas, but it may expand demand for car service. **The global taxi/limo business is $100 billion in 2013, growing at 6% a year.**
Uber will have competitive advantages against traditional car companies & against newcomers in this business, but no global networking benefits. ***Target market share is 10%***
Uber will maintain its current model of keeping 20% of car service payments, even in the face of competition, because of its first mover advantages. It will maintain its current low-infrastructure cost model, allowing it to earn high margins. **Target pre-tax operating margin is 40%.**
Uber has a low capital intensity model, since it does not own cars or other infrastructure, allowing it to maintain a high **sales to capital ratio for the sector (5.00)**
The company is young and still trying to establish a business model, leading to a **high cost of capital (12%)** up front. As it grows, it will become safer and its cost of capital will drop to 8%.
Uber has cash & capital, but there is a chance of failure. **10% probability of failure.**

With Ferrari

The Status Quo

Revenues	**Keep it scarce**	Revenue growth of 4% (in Euro terms) a year for next 5 years, scaling down to 0.7% in year 10. Translates into an increase in production of about 25% in next 10 years
Operating Margin & Taxes	**And pricey**	Ferrari's pre-tax operating margin stays at 18.2%, in the 95th percentile of auto business.
Operating Income		
Reinvestment	**Little need for capacity expansion**	Sales/Invested Capital stays at 1.42.
Cash Flow		
Discount Rate (Risk)	**Super-rich clients are stable market**	Cost of capital of 6.96% in Euros and no chance of default
Value		

Step 4: Value the company (Uber)

Uber: Intrinsic valuation - June 8, 2014 (in US $)

Stable Growth (after year 10)
Expected growth rate = 2.50%
Cost of capital = 8%
Return on capital= 25%
Reinvestment Rate= 2.5%/25% = 10%

Terminal Value$_{10}$= 793/(.08-025) = $14,418

Term yr
EBIT (1-t) $881
- Reinv 88
FCFF $793

Global taxi market is $100 billlion currently, expected to grow 6% a year for next ten years.

Uber will keep 20% of the gross cab receipts as its revenues

Uber's market share of this market will increase to 10% over the next 10 years.

Uber's operating expenses will amount to 60% of its revenues. (Operating margin=40%)

Uber will pay a tax rate of 30% on its income, increasing to 40% over the next 10 years

Uber will generate $5 in incremental revenues for every dollar of incremental capital.

	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

Based on the investment of $1.2 billion made by investors, the imputed value for Uber's operating assets, in June 2014 ,was $17 billion.

Discount back the cash flows (including terminal value) at the cumulated cost of capital.

Value of operating assets = $6,595

Adust for probability of failure (10%)
Expected value = $6,595 (.9) = $5,895

Cost of capital for first 5 years = Top decile of US companies = 12%

Cost of capital declines from 12% to 8% from years 6 to 10.

And Ferrari

Stay Super Exclusive: Revenue growth is low

	Base year	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	Terminal year
Revenue growth rate		4.00%	4.00%	4.00%	4.00%	4.00%	3.34%	2.68%	2.02%	1.36%	0.70%	0.70%
Revenues	€ 2,763	€ 2,874	€ 2,988	€ 3,108	€ 3,232	€ 3,362	€ 3,474	€ 3,567	€ 3,639	€ 3,689	€ 3,714	€ 3,740
EBIT (Operating) margin	18.20%	18.20%	18.20%	18.20%	18.20%	18.20%	18.20%	18.20%	18.20%	18.20%	18.20%	18.20%
EBIT (Operating income)	€ 503	€ 523	€ 544	€ 566	€ 588	€ 612	€ 632	€ 649	€ 662	€ 671	€ 676	€ 681
Tax rate	33.54%	33.54%	33.54%	33.54%	33.54%	33.54%	33.54%	33.54%	33.54%	33.54%	33.54%	33.54%
EBIT(1-t)	€ 334	€ 348	€ 361	€ 376	€ 391	€ 407	€ 420	€ 431	€ 440	€ 446	€ 449	€ 452
- Reinvestment		€ 78	€ 81	€ 84	€ 87	€ 91	€ 79	€ 66	€ 51	€ 35	€ 18	€ 22
FCFF		€ 270	€ 281	€ 292	€ 303	€ 316	€ 341	€ 366	€ 389	€ 411	€ 431	€ 431
Cost of capital		6.96%	6.96%	6.96%	6.96%	6.96%	6.96%	6.97%	6.98%	6.99%	7.00%	7.00%
PV(FCFF)		€ 252	€ 245	€ 238	€ 232	€ 225	€ 228	€ 228	€ 227	€ 224	€ 220	

Terminal value	€ 6,835
PV(Terminal value)	€ 3,485
PV (CF over next 10 years)	€ 2,321
Value of operating assets =	€ 5,806
- Debt	€ 623
- Minority interests	€ 13
+ Cash	€ 1,141
Value of equity	€ 6,311

High Prices + No selling cost = Preserve current operating margin

Minimal Reinvestment due to low growth

The super rich are not sensitive to economic downturns

Step 5: Keep the feedback loop

1. Not just car service company.: Uber is a car company, not just a car service company, and there may be a day when consumers will subscribe to a Uber service, rather than own their own cars. It could also expand into logistics, i.e., moving and transportation businesses.
2. Not just urban: Uber can create new demands for car service in parts of the country where taxis are not used (suburbia, small towns).
3. Global networking benefits: By linking with technology and credit card companies, Uber can have global networking benefits.

Valuing Bill Gurley's Uber narrative

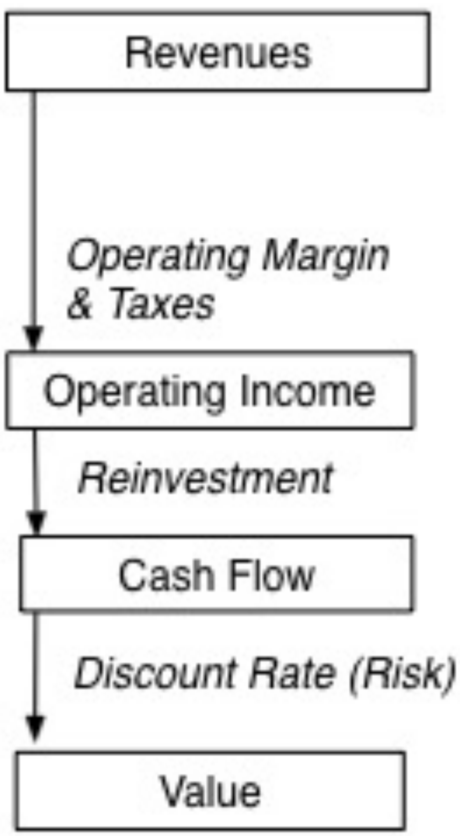
	Uber (Gurley)	*Uber (Gurley Mod)*	*Uber (Damodaran)*
Narrative	Uber will expand the car service market substantially, bringing in mass transit users & non-users from the suburbs into the market, and use its networking advantage to gain a dominant market share, while maintaining its revenue slice at 20%.	Uber will expand the car service market substantially, bringing in mass transit users & non-users from the suburbs into the market, and use its networking advantage to gain a dominant market share, while cutting prices and margins (to 10%).	Uber will expand the car service market moderately, primarily in urban environments, and use its competitive advantages to get a significant but not dominant market share and maintain its revenue slice at 20%.
Total Market	$300 billion, growing at 3% a year	$300 billion, growing at 3% a year	$100 billion, growing at 6% a year
Market Share	40%	40%	10%
Uber's revenue slice	20%	10%	20%
Value for Uber	$53.4 billion + Option value of entering car ownership market ($10 billion+)	$28.7 billion + Option value of entering car ownership market ($6 billion+)	$5.9 billion + Option value of entering car ownership market ($2-3 billion)

Different narratives, Different Numbers

Total Market	*Growth Effect*	*Network Effect*	*Competitive Advantages*	*Value of Uber*
A4. Mobility Services	B4. Double market size	C5. Strong global network effects	D4. Strong & Sustainable	$90,457
A3. Logistics	B4. Double market size	C5. Strong global network effects	D4. Strong & Sustainable	$65,158
A4. Mobility Services	B3. Increase market by 50%	C3. Strong local network effects	D3. Semi-strong	$52,346
A2. All car service	B4. Double market size	C5. Strong global network effects	D4. Strong & Sustainable	$47,764
A1. Urban car service	B4. Double market size	C5. Strong global network effects	D4. Strong & Sustainable	$31,952
A3. Logistics	B3. Increase market by 50%	C3. Strong local network effects	D3. Semi-strong	$14,321
A1. Urban car service	B3. Increase market by 50%	C3. Strong local network effects	D3. Semi-strong	$7,127
A2. All car service	B3. Increase market by 50%	C3. Strong local network effects	D3. Semi-strong	$4,764
A4. Mobility Services	B1. None	C1. No network effects	D1. None	$1,888
A3. Logistics	B1. None	C1. No network effects	D1. None	$1,417
A2. All car service	B1. None	C1. No network effects	D1. None	$1,094
A1. Urban car service	B1. None	C1. No network effects	D1. None	$799

Ferrari: A Rev it up Narrative

Rev it up



Driver	Story	Input
Revenues	**Push up sales**	Revenue growth of 12% (in Euro terms) a year for next 5 years, scaling down to 0.7% in year 10. Translates into an increase in production of about 100% in next 10 years
Operating Margin & Taxes	**With lower prices/more sellng costs**	Ferrari's pre-tax operating margin drops to 14.32%, in the 90th percentile of auto business.
Reinvestment	**More capacity needed.**	Sales/Invested Capital stays at 1.42, but higher sales create more reinvestment
Discount Rate (Risk)	**Very rich clients are more sensitive to economic conditions.**	Cost of capital of 8% in Euros and no chance of default

And valuation..

Get less exclusive: Double number of cars sold over next decade

	Base year	1	2	3	4	5	6	7	8	9	10	Terminal year
Revenue growth rate		12.00%	12.00%	12.00%	12.00%	12.00%	9.74%	7.48%	5.22%	2.96%	0.70%	0.70%
Revenues	€ 2,763	€ 3,095	€ 3,466	€ 3,882	€ 4,348	€ 4,869	€ 5,344	€ 5,743	€ 6,043	€ 6,222	€ 6,266	€ 6,309
EBIT (Operating) margin	18.20%	17.81%	17.42%	17.04%	16.65%	16.26%	15.87%	15.48%	15.10%	14.71%	14.32%	14.32%
EBIT (Operating income)	€ 503	€ 551	€ 604	€ 661	€ 724	€ 792	€ 848	€ 889	€ 912	€ 915	€ 897	€ 904
Tax rate	33.54%	33.54%	33.54%	33.54%	33.54%	33.54%	33.54%	33.54%	33.54%	33.54%	33.54%	33.54%
EBIT(1-t)	€ 334	€ 366	€ 401	€ 439	€ 481	€ 526	€ 564	€ 591	€ 606	€ 608	€ 596	€ 600
- Reinvestment		€ 233	€ 261	€ 293	€ 328	€ 367	€ 334	€ 281	€ 211	€ 126	€ 31	€ 35
FCFF		€ 133	€ 140	€ 147	€ 153	€ 159	€ 230	€ 310	€ 395	€ 482	€ 566	€ 565
Cost of capital		8.00%	8.00%	8.00%	8.00%	8.00%	7.90%	7.80%	7.70%	7.60%	7.50%	7.50%
PV(FCFF)		€ 123	€ 120	€ 117	€ 113	€ 108	€ 145	€ 181	€ 215	€ 244	€ 266	

Terminal value	€ 8,315
PV(Terminal value)	€ 3,906
PV (CF over next 10 years)	€ 1,631
Value of operating assets =	€ 5,537
- Debt	€ 623
- Minority interests	€ 13
+ Cash	€ 1,141
Value of equity	€ 6,042

Lower Prices + Some selling cost = Lower operating margin

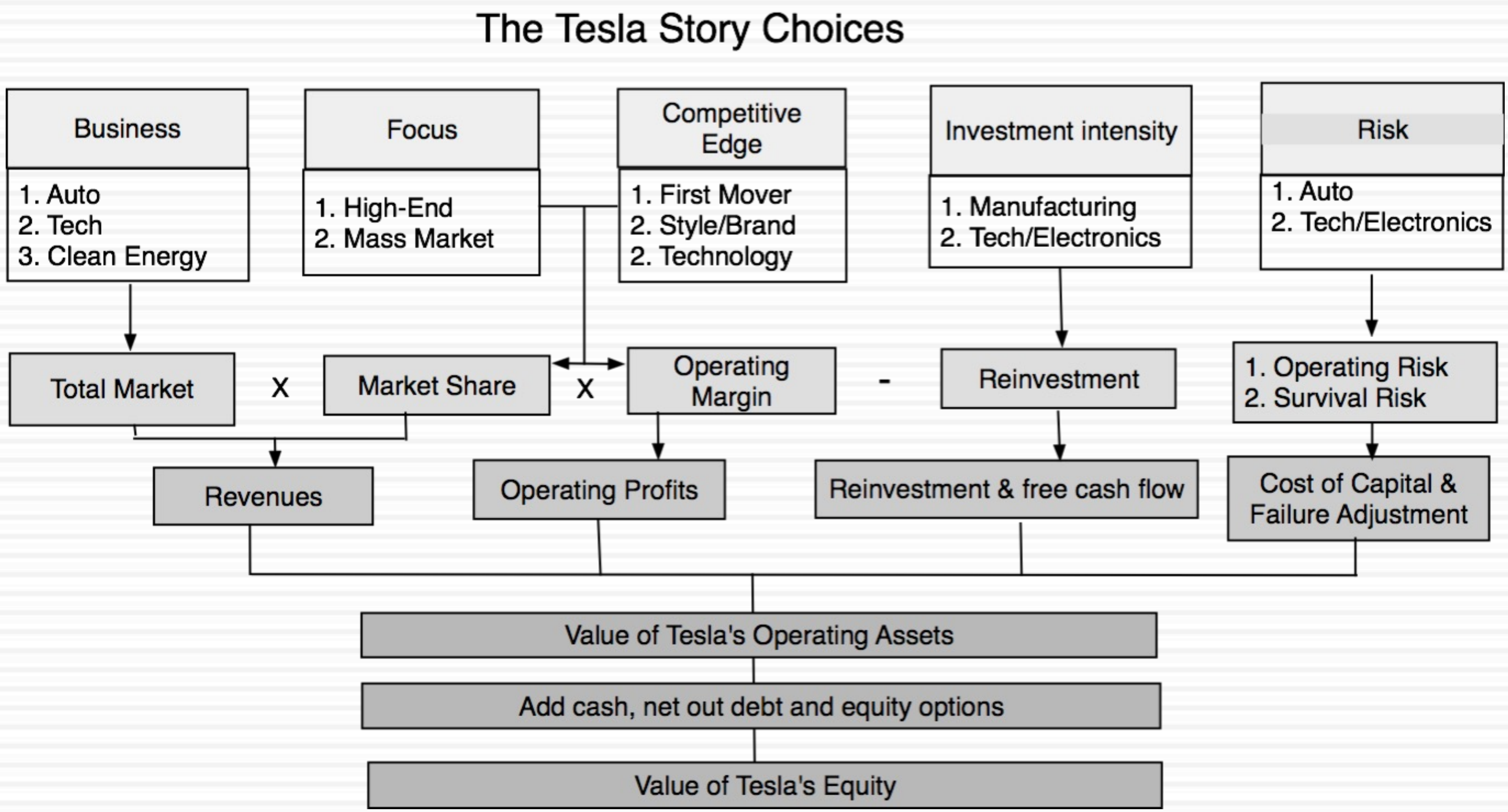
Reinvestment reflects higher sales

The very rich are more sensitive to economic conditions

Step 6: Be ready to modify narrative as events unfold

Narrative Break/End	Narrative Shift	Narrative Change (Expansion or Contraction)
Events, external (legal, political or economic) or internal (management, competitive, default), that can cause the narrative to break or end.	Improvement or deterioration in initial business model, changing market size, market share and/or profitability.	Unexpected entry/success in a new market or unexpected exit/failure in an existing market.
Your valuation estimates (cash flows, risk, growth & value) are no longer operative	Your valuation estimates will have to be modified to reflect the new data about the company.	Valuation estimates have to be redone with new overall market potential and characteristics.
Estimate a probability that it will occur & consequences	Monte Carlo simulations or scenario analysis	Real Options

Divergent Stories? Tesla Story Choices



And how they translate to numbers

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
FAANG	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.

The Bottom Line for Investors

- To be a successful investor in or to value early-stage businesses, you need to be a <u>good judge of narrative</u>.
  - 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 <u>use the numbers</u> 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.

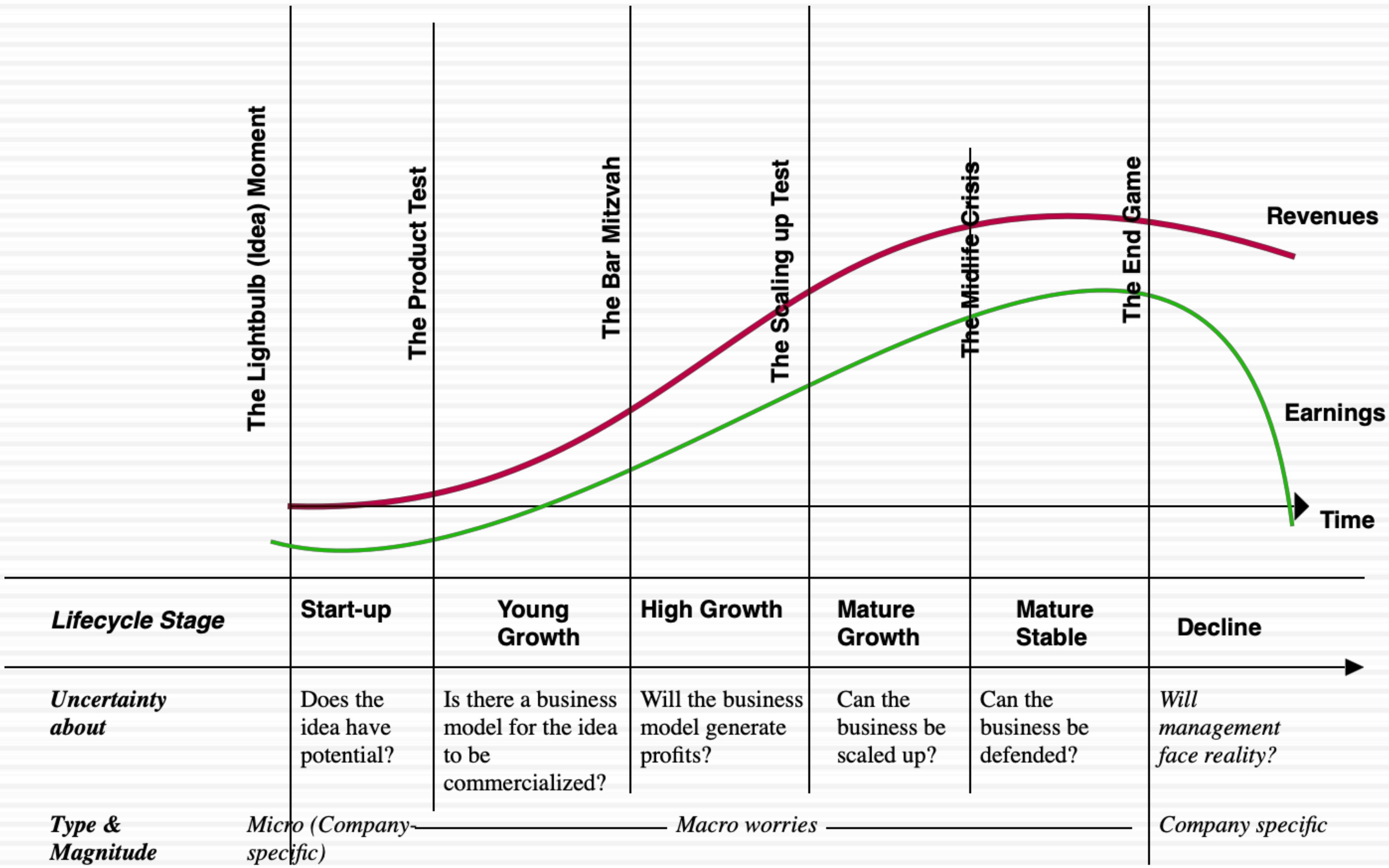
UNCERTAINTY ACROSS THE LIFE CYCLE

There are no facts, just opinions

Uncertainty in valuation

- Estimation versus Economic uncertainty
  - Estimation uncertainty reflects the possibility that you could have the “wrong model” or estimated inputs incorrectly within this model.
  - Economic uncertainty comes the fact that markets and economies can change over time and that even the best models will fail to capture these unexpected changes.
- Micro uncertainty versus Macro uncertainty
  - Micro uncertainty refers to uncertainty about the potential market for a firm’s products, the competition it will face and the quality of its management team.
  - Macro uncertainty reflects the reality that your firm’s fortunes can be affected by changes in the macro economic environment.
- Discrete versus continuous uncertainty
  - Discrete risk: Risks that lie dormant for periods but show up at points in time. (Examples: A drug working its way through the FDA pipeline may fail at some stage of the approval process or a company in Venezuela may be nationalized)
  - Continuous risk: Risks changes in interest rates or economic growth occur continuously and affect value as they happen.

The Evolution of Uncertainty



And unhealthy ways of dealing with it..

- Divine Intervention: Praying for intervention from a higher power is the oldest and most practiced risk management system of all.
- Paralysis & Denial: When faced with uncertainty, some of us get paralyzed. Accompanying the paralysis is the hope that if you close your eyes to it, the uncertainty will go away
- Mental short cuts (rules of thumb): Behavioral economists note that investors faced with uncertainty adopt mental short cuts that have no basis in reality. And here is the clincher. More intelligent people are more likely to be prone to this.
- Herding: When in doubt, it is safest to go with the crowd.. The herding instinct is deeply engrained and very difficult to fight.
- Outsourcing: Assuming that there are experts out there who have the answers does take a weight off your shoulders, even if those experts have no idea of what they are talking about.

Uncertainty in Young Companies…

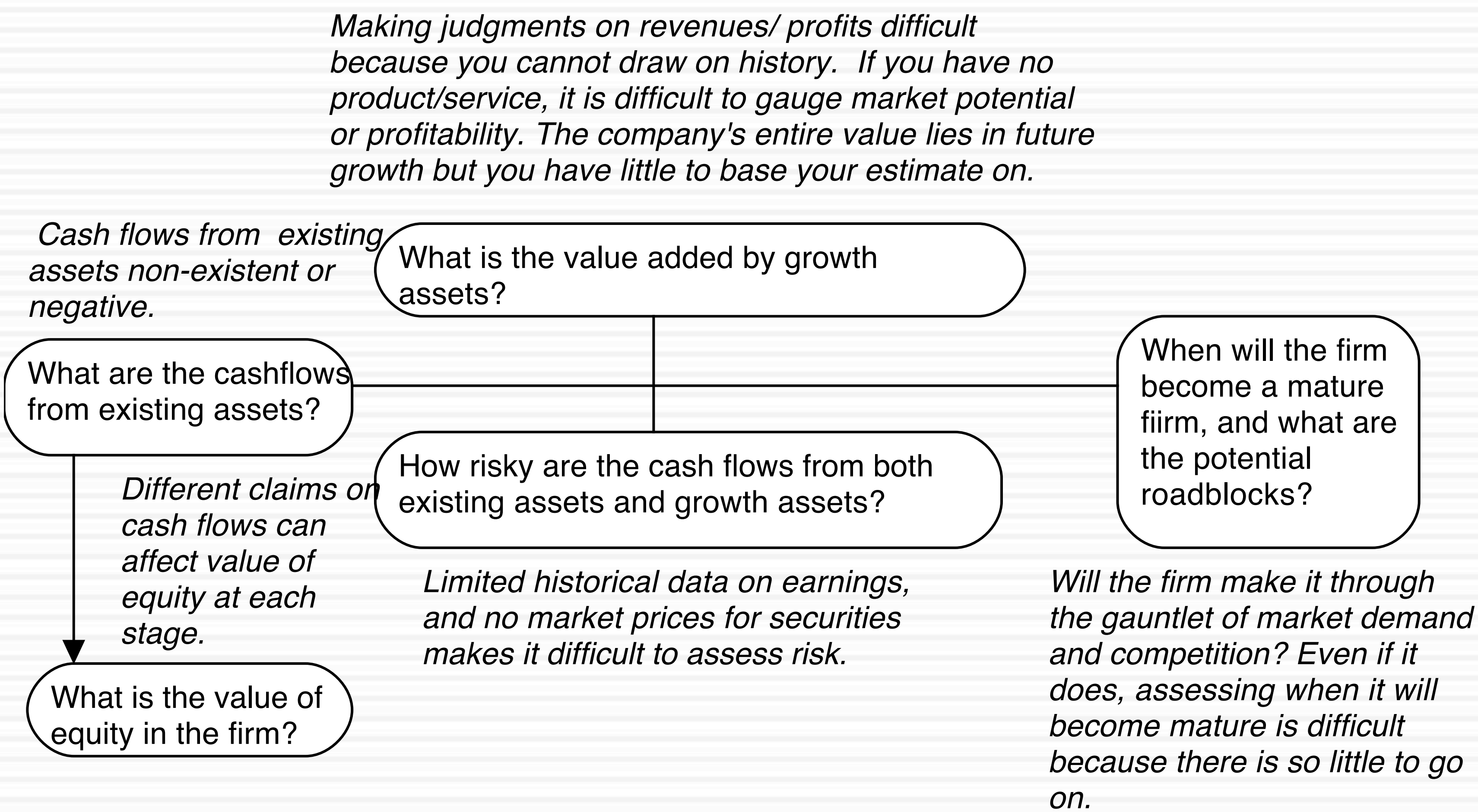


Figure 3: Estimation Issues - Young and Start-up Companies

The dark side will beckon.. Don't be tempted..

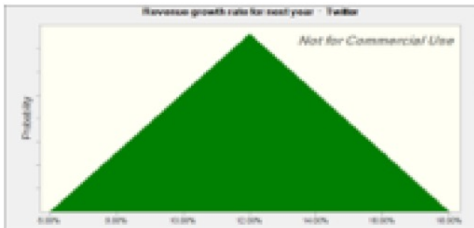
- With young start up companies, you will be told that it is "too difficult" or even "impossible" to value these companies, because there is so little history and so much uncertainty in the future.
- Instead, you will be asked to come over to the "dark side", where
  - You will see value metrics that you have never seen before
  - You will hear "macro" stories, justifying value
  - You will be asked to play the momentum game
- While all of this behavior is understandable, none of it makes the uncertainty go away. You have a choice. You can either hide from uncertainty or face up to it.

Facing up to uncertainty…

- Uncertainty is a feature, not a bug: Uncertainty is part and parcel of investing life, and while denial may make you more comfortable, it will not make it go away.
- Uncertainty varies across the life cycle: You will face more uncertainty in valuing young companies, with little financial history and unformed business models, than more mature companies with lots of history and established business models.
- Uncertainty is not an excuse for not valuing companies: That does not mean that you cannot value young companies. It is just that you will face more estimation error in your valuations, but so will everyone else in the market.

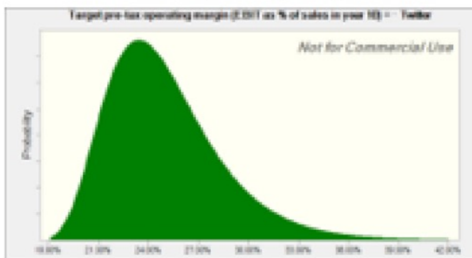
Uncertainty in valuation: Twitter in 2022

Revenue Growth Rate - Years 1- 5



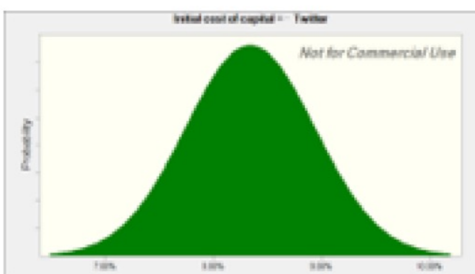
Min = 6% Base case=12% Max = 18%

Target Operating Margin



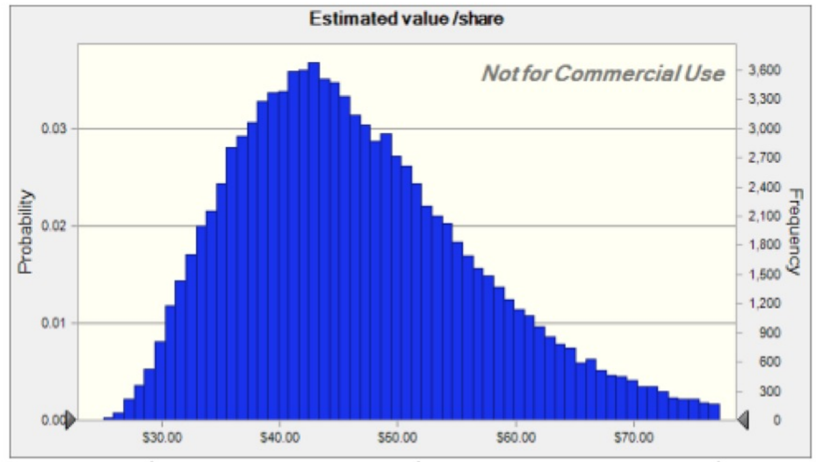
Exp Value=25% Std dev = 3.5% Location = 15%

Cost of Capital



Exp Value=8.34% Std dev = 0.60%

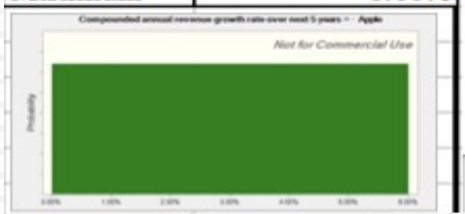
Twitter Valuation in April 2022: Simulation



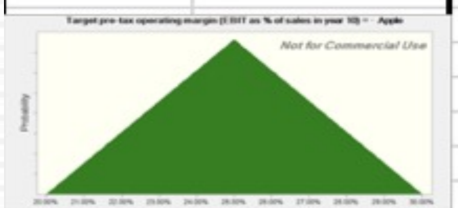
Percentile	*Value per share*
0%	$ 24.14
10%	$ 34.42
20%	$ 37.61
30%	$ 40.27
40%	$ 42.69
50%	$ 45.17
60%	$ 47.95
70%	$ 51.08
80%	$ 55.15
90%	$ 61.32
100%	$ 138.18

Uncertainty in valuation: Apple in 2018

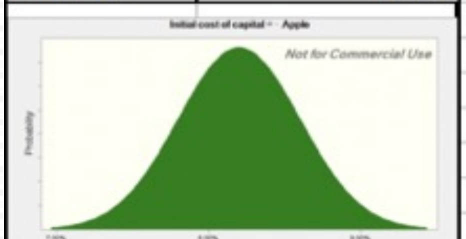
Growth Rate in Revenues	
Minimum	0.00%
Maximum	6.00%



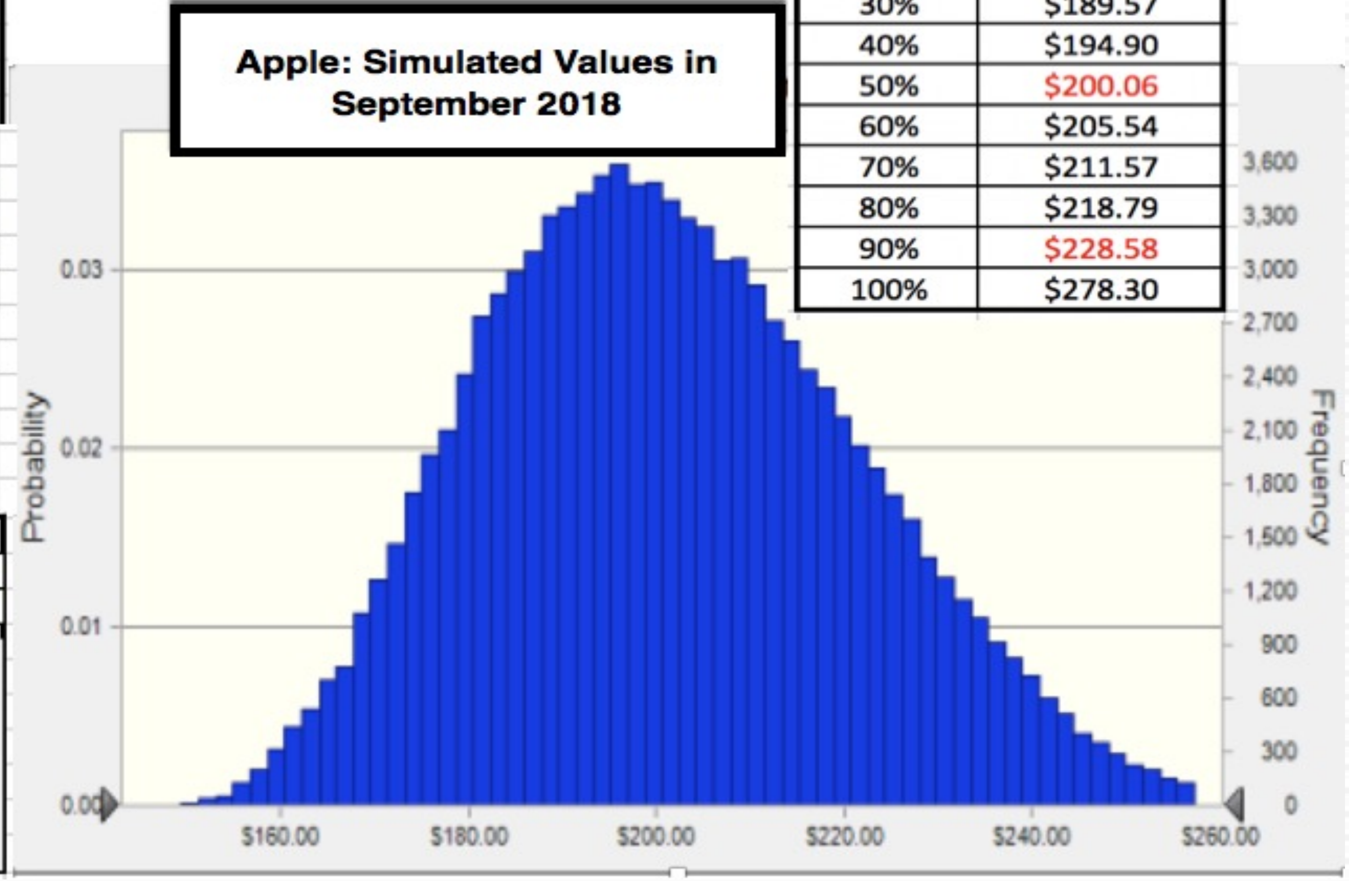
Operating Margin (year 5)	
Minimum	20.00%
Likeliest	25.00%
Maximum	30.00%



Cost of Capital	
Mean	8.20%
Std. Dev.	0.40%



Base Case	$200.71
Mean	$201.42
Median	$200.06



Percentiles	*Forecast values*
0%	$145.84
10%	$176.28
20%	$183.69
30%	$189.57
40%	$194.90
50%	$200.06
60%	$205.54
70%	$211.57
80%	$218.79
90%	$228.58
100%	$278.30

The Bottom Line

- Early in a company's life, it is a fact of life that everything is uncertain. Consulting with experts, collecting more data or building bigger models will not make the uncertainty go away.
- As you move from mature companies to young companies, you have to be willing to move from
  - Rule-based valuation to principle-based valuation
  - Being reliant on historical data to market-based best judgments
  - Wanting the right answer to being okay with being wrong (sometimes horribly so).
  - Point estimate valuations to valuation distributions

PRICE VERSUS VALUE, ACROSS THE LIFE CYCLE

Price versus Value: The Set up

Drivers of intrinsic value
- Cashflows from existing assets
- Growth in cash flows
- Quality of Growth

Drivers of price
- Market moods & momentum
- Surface stories about fundamentals

Accounting Estimates

Valuation Estimates

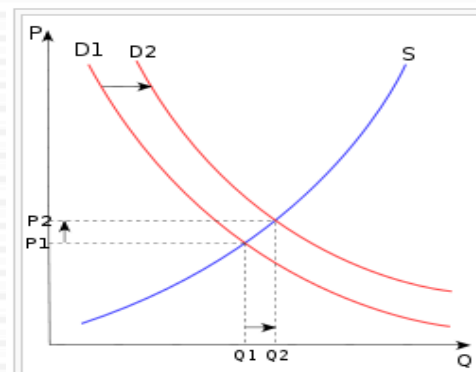
INTRINSIC VALUE

Value

THE GAP
Is there one?
If so, will it close?
If it will close, what will cause it to close?

Price

PRICE



Multiples and Comparable Transactions

Market value of equity

Market value for the firm
Firm value = Market value of equity
+ Market value of debt

Market value of operating assets of firm
Enterprise value (EV) = Market value of equity
+ Market value of debt
- Cash

Step 1: Pick a multiple

Multiple = $\dfrac{\text{Numerator = What you are paying for the asset}}{\text{Denominator = What you are getting in return}}$ ⇒ **CHOOSE A MULTIPLE**

Revenues
a. Accounting revenues
b. Drivers
- # Customers
- # Subscribers
= # units

Earnings
a. To Equity investors
- Net Income
- Earnings per share
b. To Firm
- Operating income (EBIT)

Cash flow
a. To Equity
- Net Income + Depreciation
- Free CF to Equity
b. To Firm
- EBIT + DA (EBITDA)
- Free CF to Firm

Book Value
a. Equity
= BV of equity
b. Firm
= BV of debt + BV of equity
c. Invested Capital
= BV of equity + BV of debt - Cash

Step 2: Choose comparables

- Narrow versus Broad sector/business
- Similar market cap or all companies
- Country, Region or Global
- Other criteria, subjective & objective

⇒ **PICK COMPARABLE FIRMS**

Step 3: Tell a story

Risk
- Lower risk for higher value
- Higher risk for lower value

Growth
- Higher growth for higher value
- Lower growth for lower value

Quality of growth
- Higher barriers to entry/moats for higher value
- Lower barriers to entry for lower value

SPIN/TELL YOUR STORY

Uncertainty and the Pricing Imperative

- As investors/analysts face more uncertainty about the future, they become less willing to grapple with it and make estimates for the future, a requirement for valuation.
- Instead, they choose to price companies/assets, thus anchoring what they are willing to pay to what others are paying for similar assets.
- Note that while this reaction is understandable, the uncertainty still remains.
  - You are in denial. Hiding from uncertainty does not make it go away.
  - You are letting the crowd, just as uncertain as you are, determine what you should pay.

Twitter: Setting the table in October 2013

	Last 10K	Trailing 12 month
Revenues	$316.93	$534.46
Operating Income	($77.06)	($134.91)
Adjusted Operating Income		$7.66
Invested Capital		$955.00
Adjusted Operating Margin		1.44%
Sales/ Invested Capital		$0.56

Twitter: Priming the Pump for Valuation

1. Make small revenues into big revenues

	2011		2012		2013	
	%	$	%	$	%	$
Google	32.09%	$27.74	31.46%	$32.73	33.24%	$38.83
Facebook	3.65%	$3.15	4.11%	$4.28	5.04%	$5.89
Yahoo!	3.95%	$3.41	3.37%	$3.51	3.10%	$3.62
Microsoft	1.27%	$1.10	1.63%	$1.70	1.78%	$2.08
IAC	1.15%	$0.99	1.39%	$1.45	1.47%	$1.72
AOL	1.17%	$1.01	1.02%	$1.06	0.95%	$1.11
Amazon	0.48%	$0.41	0.59%	$0.61	0.71%	$0.83
Pandora	0.28%	$0.24	0.36%	$0.37	0.50%	$0.58
Twitter	0.16%	$0.14	0.28%	$0.29	0.50%	$0.58
Linkedin	0.18%	$0.16	0.25%	$0.26	0.32%	$0.37
Millennial Media	0.05%	$0.04	0.07%	$0.07	0.10%	$0.12
Other	55.59%	$48.05	55.47%	$57.71	52.29%	$61.09
Total Market	100%	$86.43	100.00%	$104.04	100.00%	$116.82

		Annual growth rate in Global Advertising Spending				
		2.00%	2.50%	3.00%	3.50%	4.00%
Online advertising share of market	20%	$124.78	$131.03	$137.56	$144.39	$151.52
	25%	$155.97	$163.79	$171.95	$180.49	$189.40
	30%	$187.16	$196.54	$206.34	$216.58	$227.28
	35%	$218.36	$229.30	$240.74	$252.68	$265.16
	40%	$249.55	$262.06	$275.13	$288.78	$303.04

My estimate for 2023: Overall online advertising market will be close to $200 billion and Twitter will have about 5.7% ($11.5 billion)

2. Make losses into profits

Company	*Operating Margin*
Google Inc. (NasdaqGS:GOOG)	22.82%
Facebook, Inc. (NasdaqGS:FB)	29.99%
Yahoo! Inc. (NasdaqGS:YHOO)	13.79%
Netlfix	3.16%
Groupon	2.53%
LinkedIn Corporation (NYSE:LNKD)	5.18%
Pandora Media, Inc. (NYSE:P)	-9.13%
Yelp, Inc. (NYSE:YELP)	-6.19%
OpenTable, Inc. (NasdaqGS:OPEN)	24.90%
RetailMeNot	45.40%
Travelzoo Inc. (NasdaqGS:TZOO)	15.66%
Zillow, Inc. (NasdaqGS:Z)	-66.60%
Trulia, Inc. (NYSE:TRLA)	-6.79%
Aggregate	20.40%

My estimate for Twitter: Operating margin of 25% in year 10

3. Reinvest for growth

	Sales/ Invested Capital
Twitter (2013)	1.10
Advertising Companies	1.40
Social Media Companies	1.05

My estimate for Twitter: Sales/Capital will be 1.50 for next 10 years

Starting numbers

Twitter Pre-IPO Valuation: October 27, 2013

	Last 10K	Trailing 12 month
Revenues	$316.93	$534.46
Operating income	-$77.06	-$134.91
Adjusted Operating Income		$7.67
Invested Capital		$955.00
Adjusted Operatng Margin		1.44%
Sales/ Invested Capital		0.56
Interest expenses	$2.49	$5.30

Revenue growth of 51.5% a year for 5 years, tapering down to 2.5% in year 10

Pre-tax operating margin increases to 25% over the next 10 years

Sales to capital ratio of **1.50** for incremental sales

Stable Growth
g = 2.5%; Beta = 1.00;
Cost of capital = 8%
ROC= **12**%;
Reinvestment Rate=2.5%/12% = 20.83%

Terminal Value$_{10}$= 1466/(.08-.025) = $26,657

	1	2	3	4	5	6	7	8	9	10
Revenues	$ 810	$1,227	$1,858	$2,816	$4,266	$6,044	$7,973	$9,734	$10,932	$11,205
Operating Income	$ 31	$ 75	$ 158	$ 306	$ 564	$ 941	$1,430	$1,975	$ 2,475	$ 2,801
Operating Income after tax	$ 31	$ 75	$ 158	$ 294	$ 395	$ 649	$ 969	$1,317	$ 1,624	$ 1,807
- Reinvestment	$ 183	$ 278	$ 421	$ 638	$ 967	$1,186	$1,285	$1,175	$ 798	$ 182
FCFF	$(153)	$ (203)	$ (263)	$ (344)	$ (572)	$ (537)	$ (316)	$ 143	$ 826	$ 1,625

Operating assets	$9,705
+ Cash	321
+ IPO Proceeds	1295
- Debt	214
Value of equity	11,106
- Options	713
Value in stock	10,394
/ # of shares	582.46
Value/share	$17.84

Terminal year (11)

EBIT (1-t)	$ 1,852
- Reinvestment	$ 386
FCFF	$ 1,466

Cost of capital = 11.12% (.981) + 5.16% (.019) = 11.01%

Cost of capital decreases to 8% from years 6-10

Cost of Equity
11.12%

Cost of Debt
(2.5%+5.5%)(1-.40)
= 5.16%

Weights
E = 98.1% D = 1.9%

Riskfree Rate:
Riskfree rate = 2.5%

+

Beta
1.40

X

Risk Premium
6.15%

75% from US(5.75%) + 25% from rest of world (7.23%)

90% advertising (1.44) + 10% info svcs (1.05)

D/E=1.71%

Pricing Twitter: Start with the "comparables"

Company	*Market Cap*	*Enterprise value*	*Revenues*	*EBITDA*	*Net Income*	*Number of users (millions)*	*EV/User*	*EV/Revenue*	*EV/EBITDA*	*PE*
Facebook	$173,540.00	$160,090.00	$7,870.00	$3,930.00	$1,490.00	1230.00	$130.15	20.34	40.74	116.47
Linkedin	$23,530.00	$19,980.00	$1,530.00	$182.00	$27.00	277.00	$72.13	13.06	109.78	871.48
Pandora	$7,320.00	$7,150.00	$655.00	-$18.00	-$29.00	73.40	$97.41	10.92	NA	NA
Groupon	$6,690.00	$5,880.00	$2,440.00	$125.00	-$95.00	43.00	$136.74	2.41	47.04	NA
Netflix	$25,900.00	$25,380.00	$4,370.00	$277.00	$112.00	44.00	$576.82	5.81	91.62	231.25
Yelp	$6,200.00	$5,790.00	$233.00	$2.40	-$10.00	120.00	$48.25	24.85	2412.50	NA
Open Table	$1,720.00	$1,500.00	$190.00	$63.00	$33.00	14.00	$107.14	7.89	23.81	52.12
Zynga	$4,200.00	$2,930.00	$873.00	$74.00	-$37.00	27.00	$108.52	3.36	39.59	NA
Zillow	$3,070.00	$2,860.00	$197.00	-$13.00	-$12.45	*34.50*	$82.90	14.52	NA	NA
Trulia	$1,140.00	$1,120.00	$144.00	-$6.00	-$18.00	*54.40*	$20.59	7.78	NA	NA
Tripadvisor	$13,510.00	$12,860.00	$945.00	$311.00	$205.00	*260.00*	$49.46	13.61	41.35	65.90
						Average	$130.01	11.32	350.80	267.44
						Median	$97.41	10.92	44.20	116.47

Read the tea leaves: See what the market cares about

	Market Cap	Enterprise value	Revenues	EBITDA	Net Income	Number of users (millions)
Market Cap	1.					
Enterprise value	0.9998	1.				
Revenues	0.8933	0.8966	1.			
EBITDA	0.9709	0.9701	0.8869	1.		
Net Income	0.8978	0.8971	0.8466	0.9716	1.	
Number of users (millions)	0.9812	0.9789	0.8053	0.9354	0.8453	1.

Twitter had 240 million users at the time of its IPO. What price would you attach to the company?

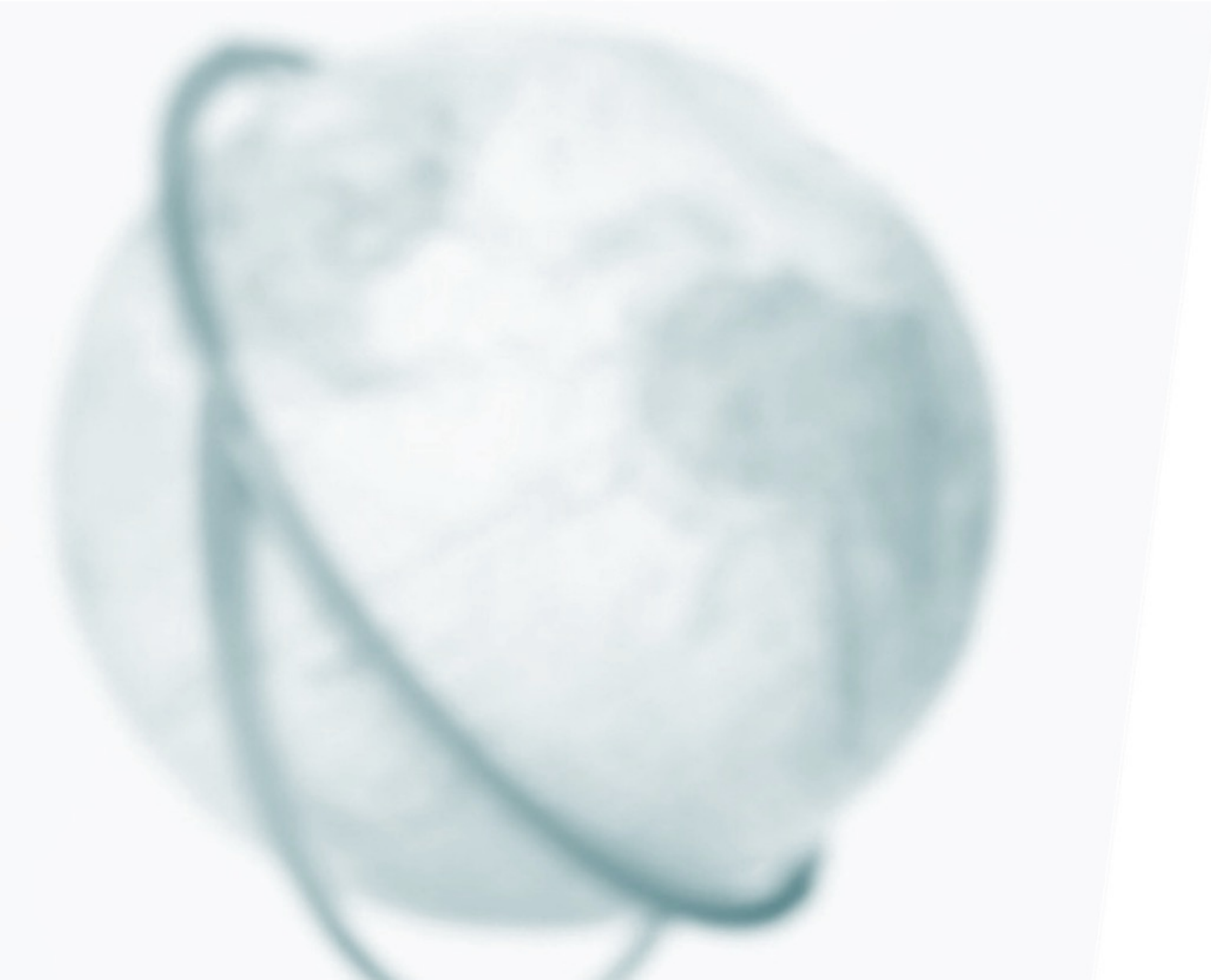
Use the “market metric” and “market price”

- The most important variable, in late 2013, in determining market value and price in this sector (social media, ill defined as that is) is the number of users that a company has.
- Looking at comparable firms, it looks like the market is paying about $100/user in valuing social media companies, with a premium for “predictable” revenues (subscriptions) and user intensity.
- Twitter has about 240 million users and can be valued based on the $100/user:
- Enterprise value = 240 * 100 = $24 billion

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.

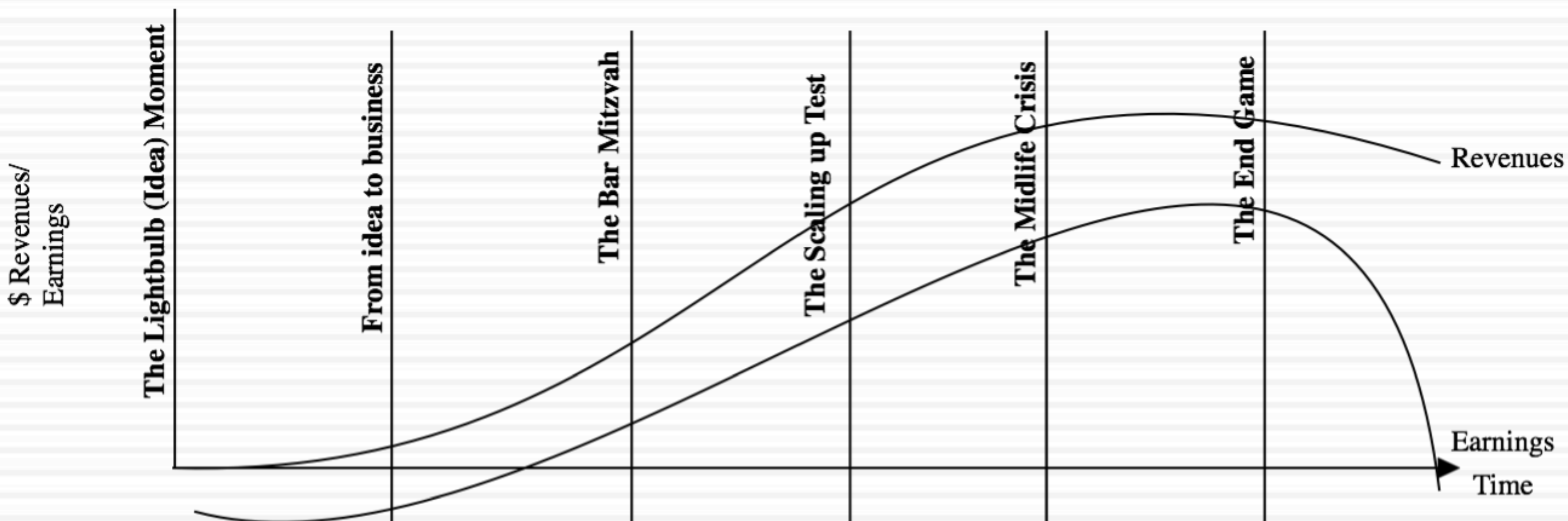
Transitions — *Potential to Product* — *Product to Revenues* — *Revenues to Profits* — *Profits to Cash flows*



THE "RIGHT" MANAGER

Story Tellers, Business Builders and Managers

The focus for management, for different stages in the life cycle..

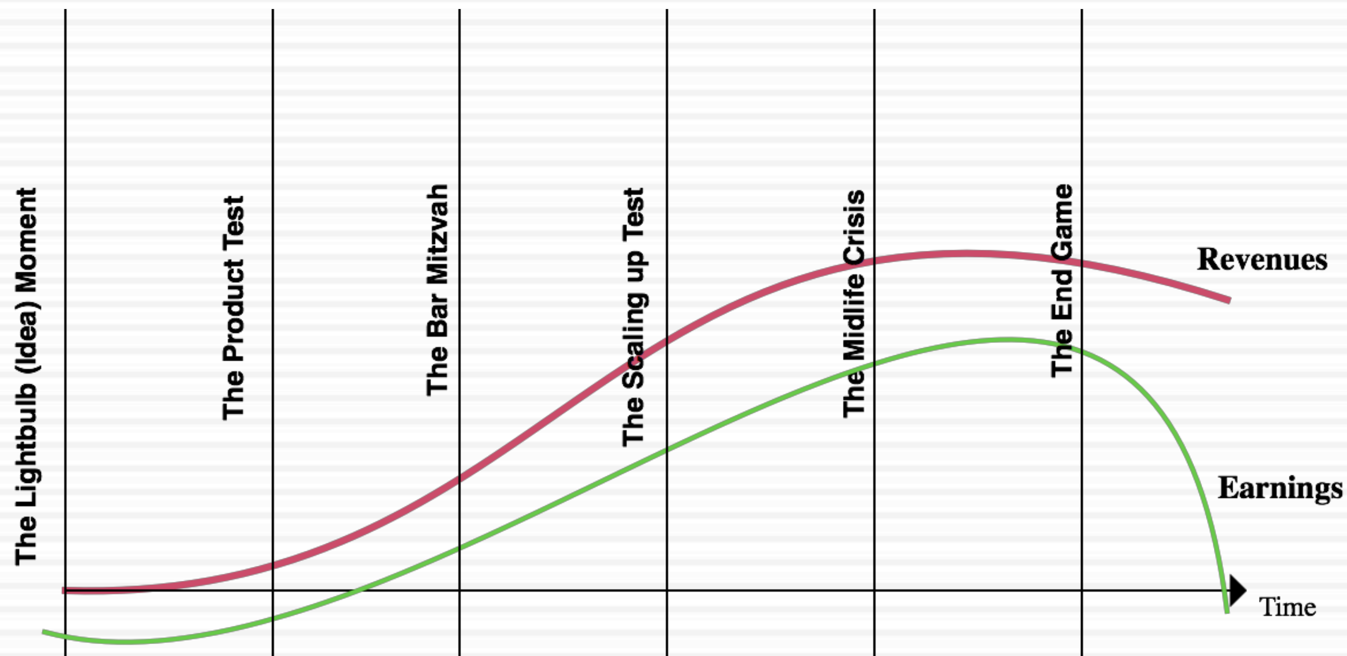


Growth Stage	Stage 1 Start-up	Stage 2 Young Growth	Stage 3: High Growth	Stage 4 Mature Growth	Stage 5 Mature Stable	Stage 6 Decline
All Narrative → ***All Numbers***						
The Top Management's Job	Tell a compelling and plausible story with potential for huge profits	Stay consistent in word & actions with your story	Start delivering numbers to back up the story	Keep your narrative in sync with your numbers	Adjust your narrative to reflect where you are in the life cycle.	Act your age (in terms of narrative & choices)

As companies age, the emphasis 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 are stronger on numbers.

The Right CEO for your company? It depends..



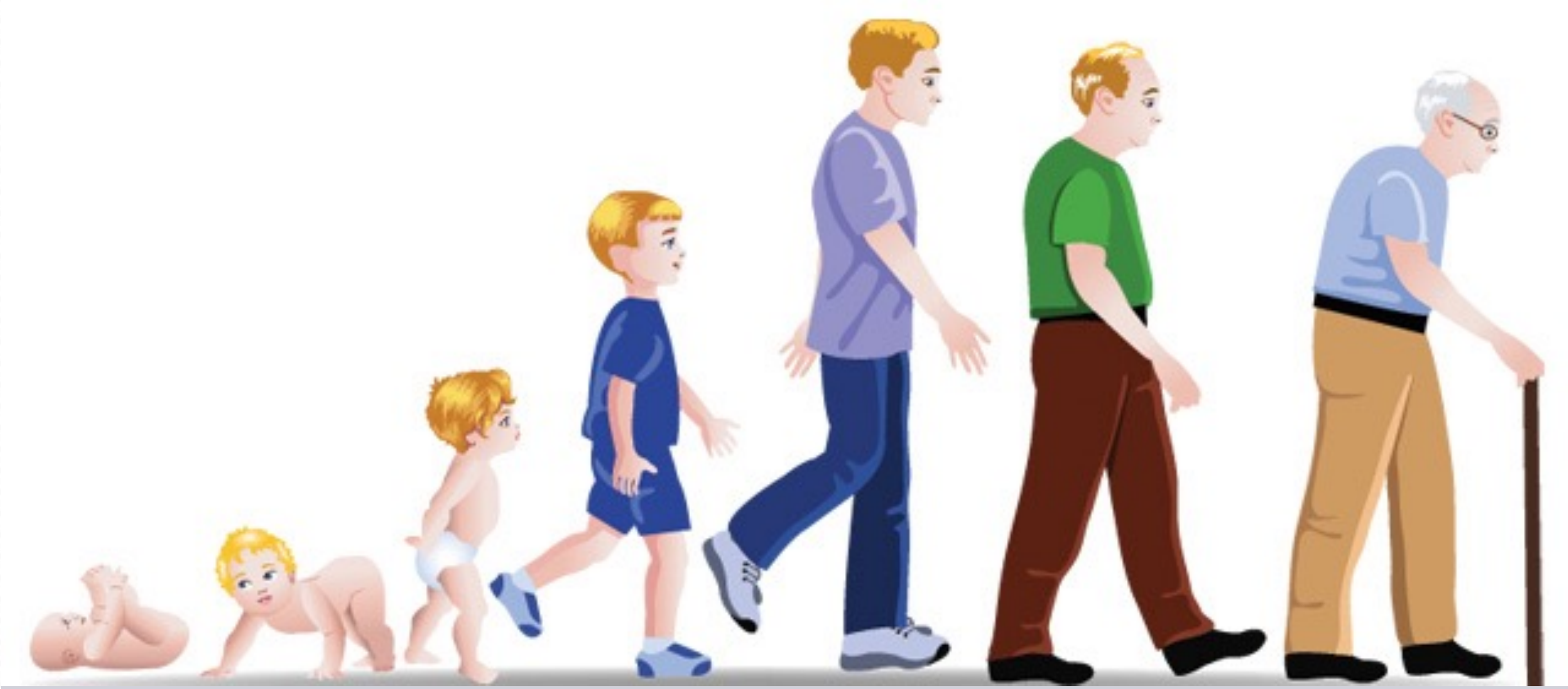
Lifecycle stage	**Start-up**	**Young Growth**	**High Growth**	**Mature Growth**	**Mature Stable**	**Decline**
The Game	Tell a compelling & plausible story	Stay consistent with story	Deliver numbers to back story	Keep story in sync with numbers	Adjust story to reflect maturity	Shrink the company
The Right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

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"