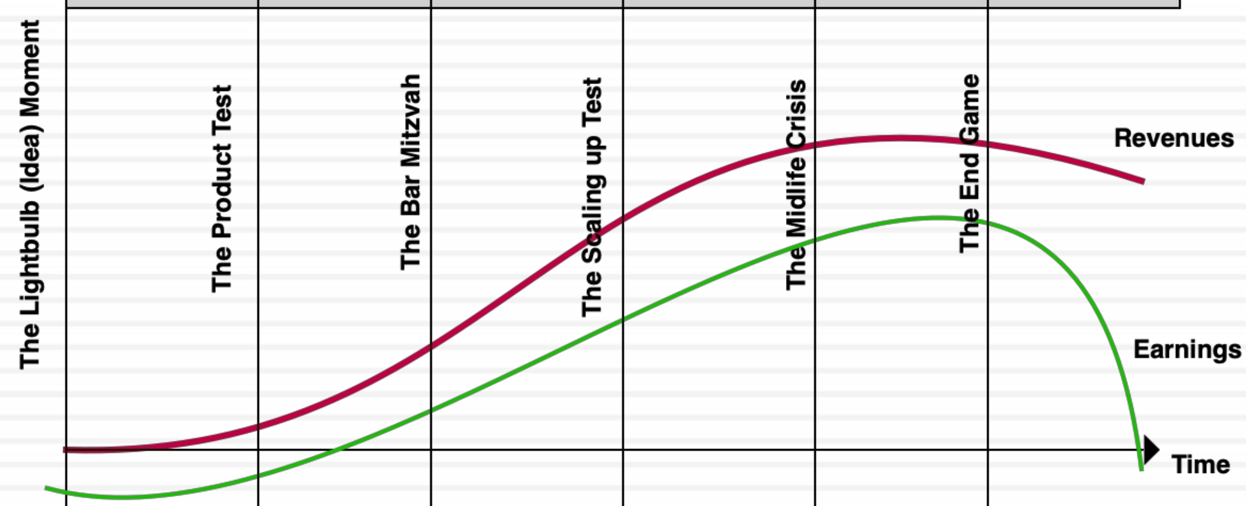
THE CORPORATE LIFE CYCLE: GROWING UP IS HARD TO DO, GROWING OLD IS EVEN HARDER!

Aswath Damodaran

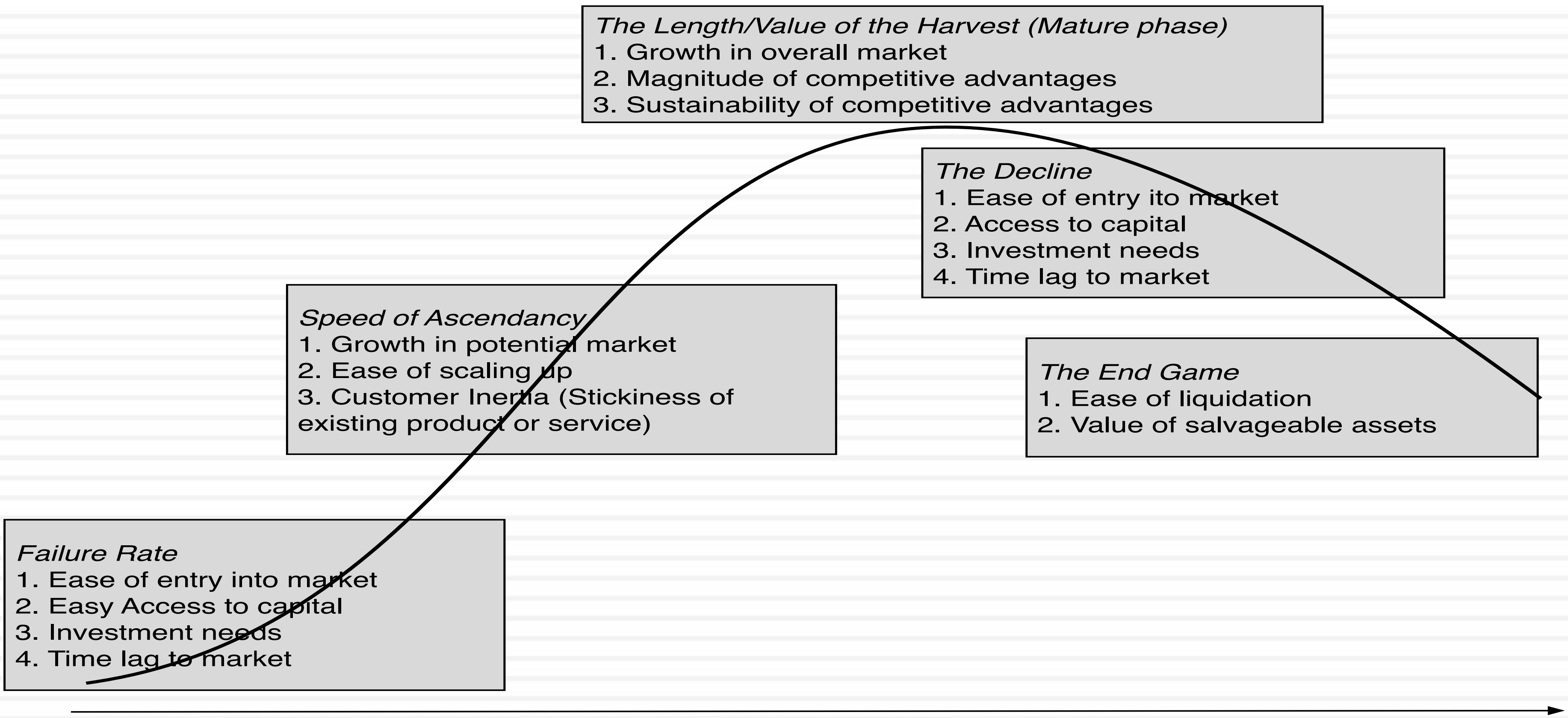
The Corporate Life Cycle



	Start-up	Young Growth	High Growth	Mature Growth	Mature Stable	Decline
	1. AI 2. Rivian	1. Palantir 2. Airbnb	1. Tesla 2. Nvidia	1. Google 2. Adobe	1. Coca Cola 2. Walmart	1. Exxon 2. GE
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

The Corporate Life Cycle: Drivers and Determinants



Accounting 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	**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

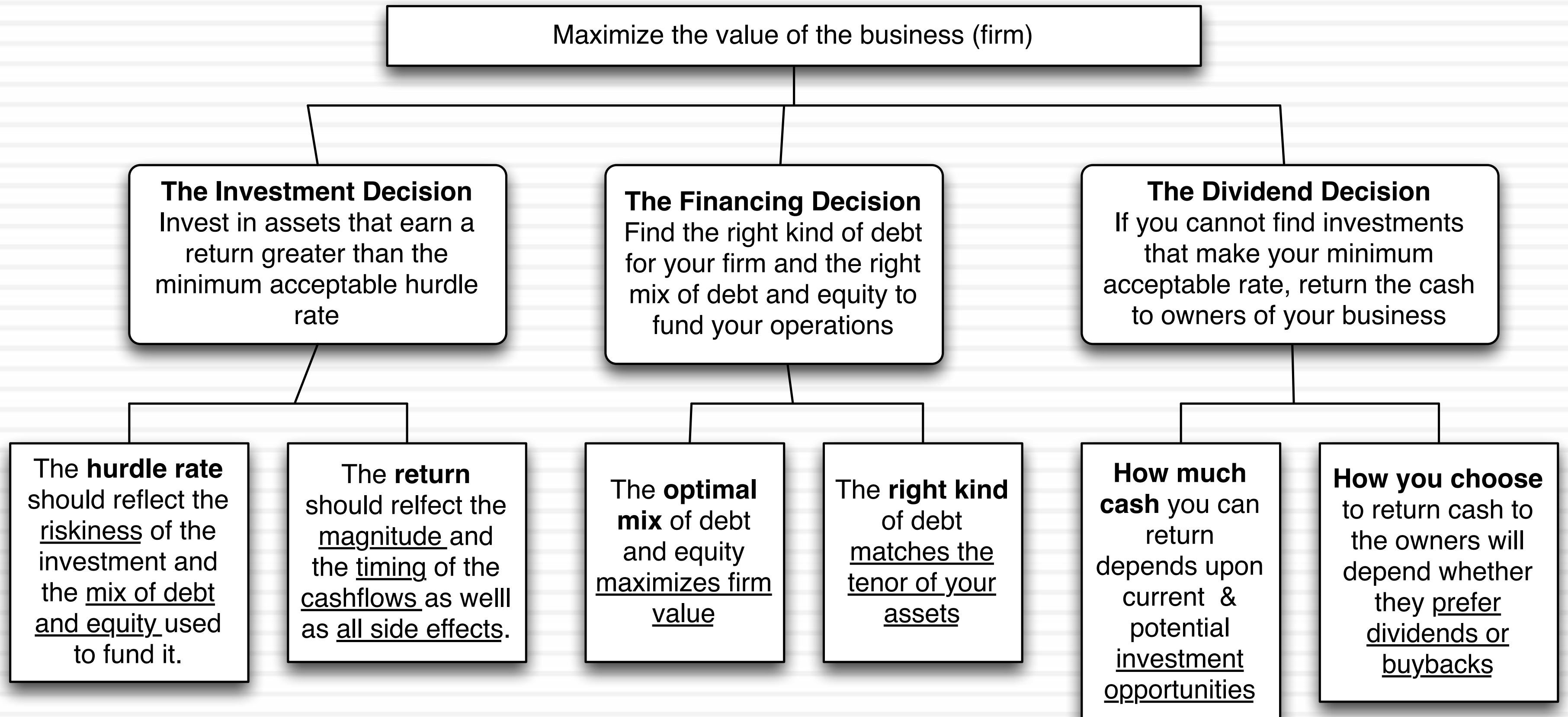
The Bottom Line

- 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, 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.

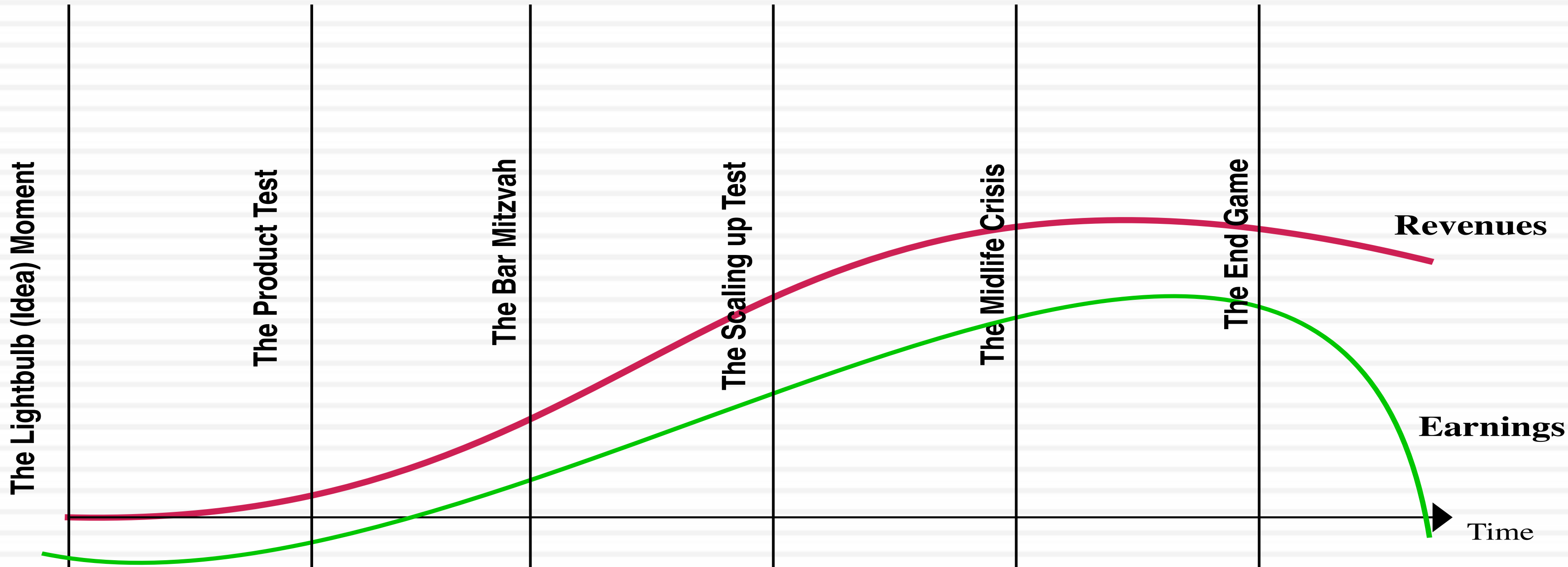
Corporate finance across the life cycle

Act your (corporate) age..

Corporate Finance: The Big Picture

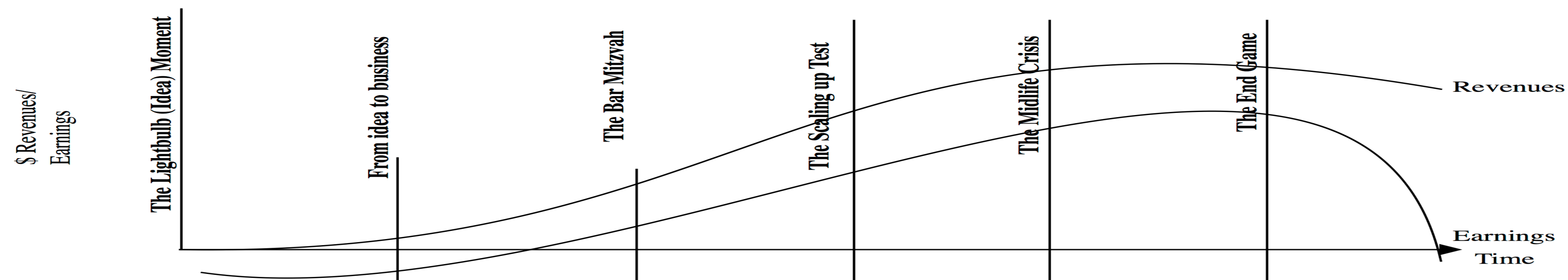


The emphasis in corporate finance shifts..



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

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

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.

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.

Valuation across the life cycle

Act your (corporate) age..

Value = Story + Numbers

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

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

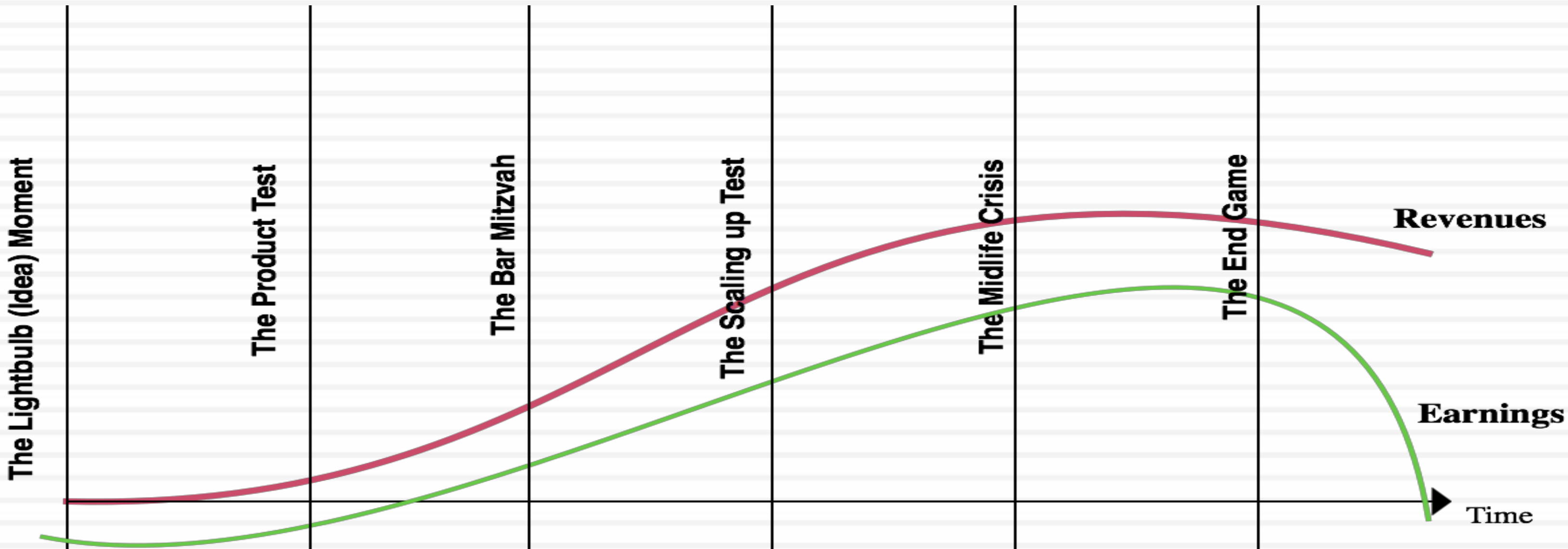
A Good Valuation

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

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

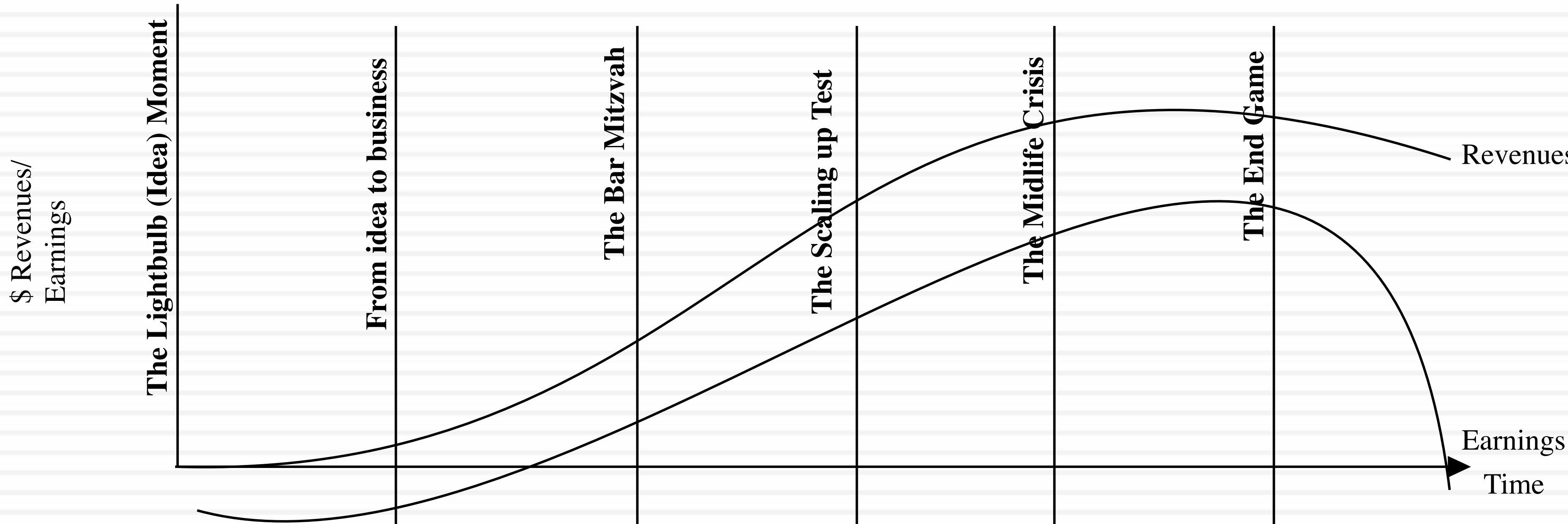
The Cash Flows

	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*

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

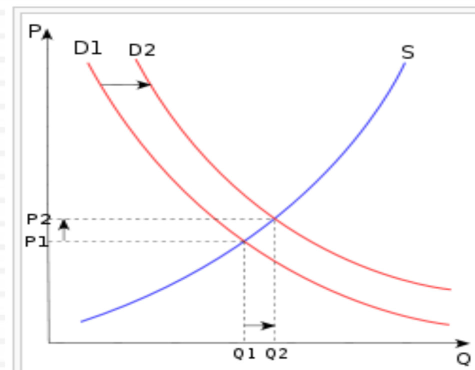
INTRINSIC VALUE

Value

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

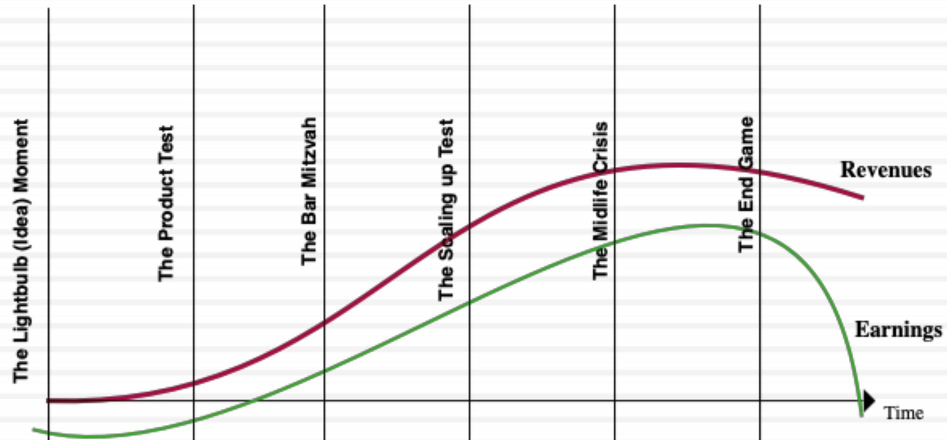
Price

PRICE



Price versus Value: Across the life cycle

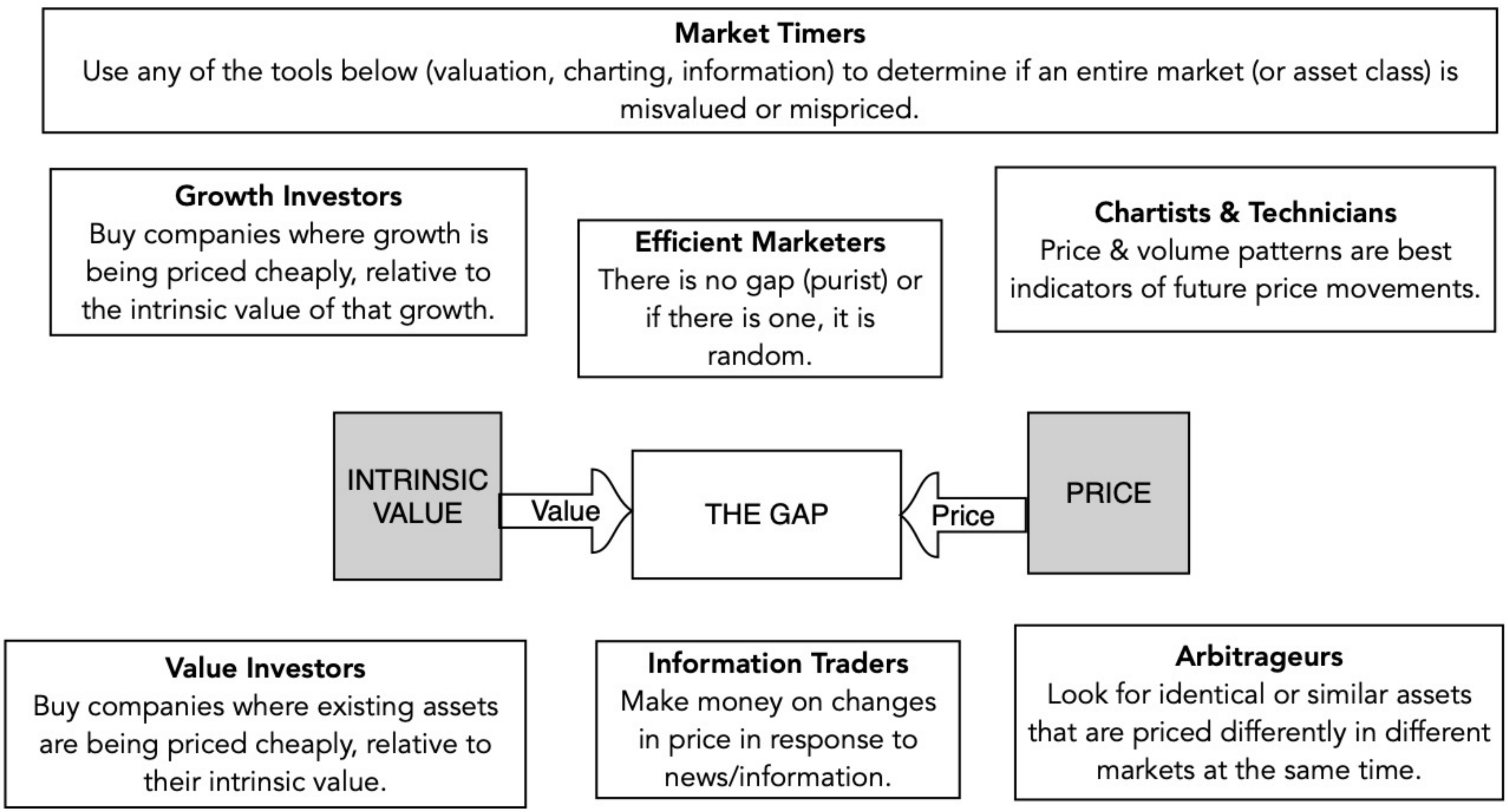
Figure 14.9:: Investment Philosophies across the Life Cycle



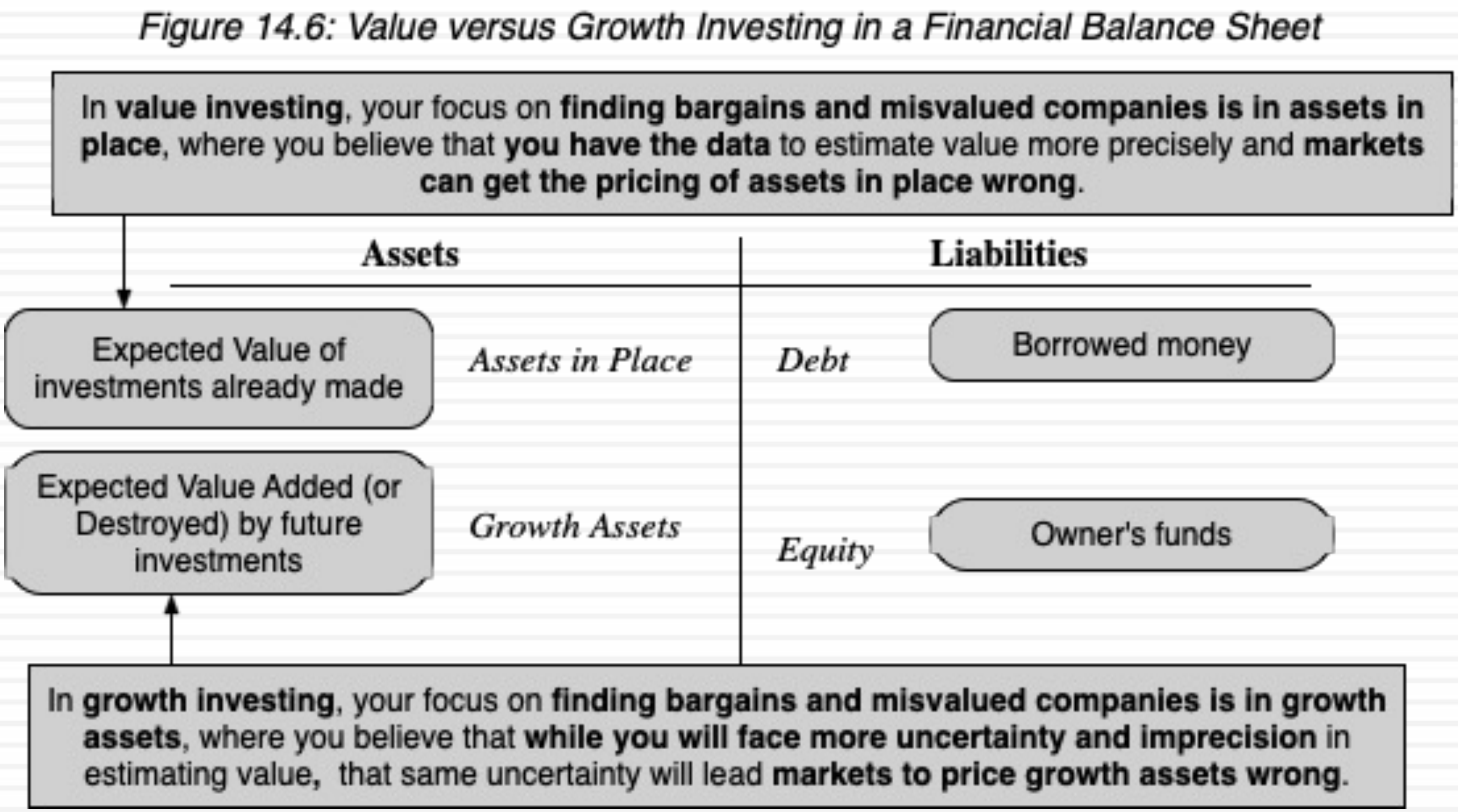
Lifecycle stage	Start-up	Young Growth	High Growth	Mature Growth	Mature Stable	Decline
Price vs Value	Price on potential	Price on total market	Price based upon growth	Value based upon growth	Value based upon earnings	Value based upon assets
The Gap between Price and Value	Wide gaps with significant volatility	*As companies age, gap becomes smaller & less volatile* →				Smaller gap
Investing vs Trading	Mostly traders	*As companies age, investors replace traders in market* →				More investors
Investing Focus	Activist Growth	IPO Growth	Public Equity Growth	Public Equity Value	Contrarian Value	Activist Value
Trading Focus	Private Pricing Momentum	Public Market Momentum		Information Trading	Arbitrage Trading	

Investing across the life cycle

Investment Philosophies



Value versus Growth Investing: Financial Balance Sheet



Lazy Growth investing…

- In lazy growth investing, you focus on firms early in the life cycle, especially in big markets, and you hope that the updraft will make you rich.
- The Cathie Wood story for any of the stocks in her portfolios reflects this lazy approach, where every stock is justified based upon a big market and lots of potential. It misses two factors:
  - Big markets are not always profitable markets, especially if competition is intense and pricing power is low.
  - Only a subset of young firms in a big market are successful, and without screening for these companies, you will end up a over priced growth companies, with prices driven by momentum and little else.

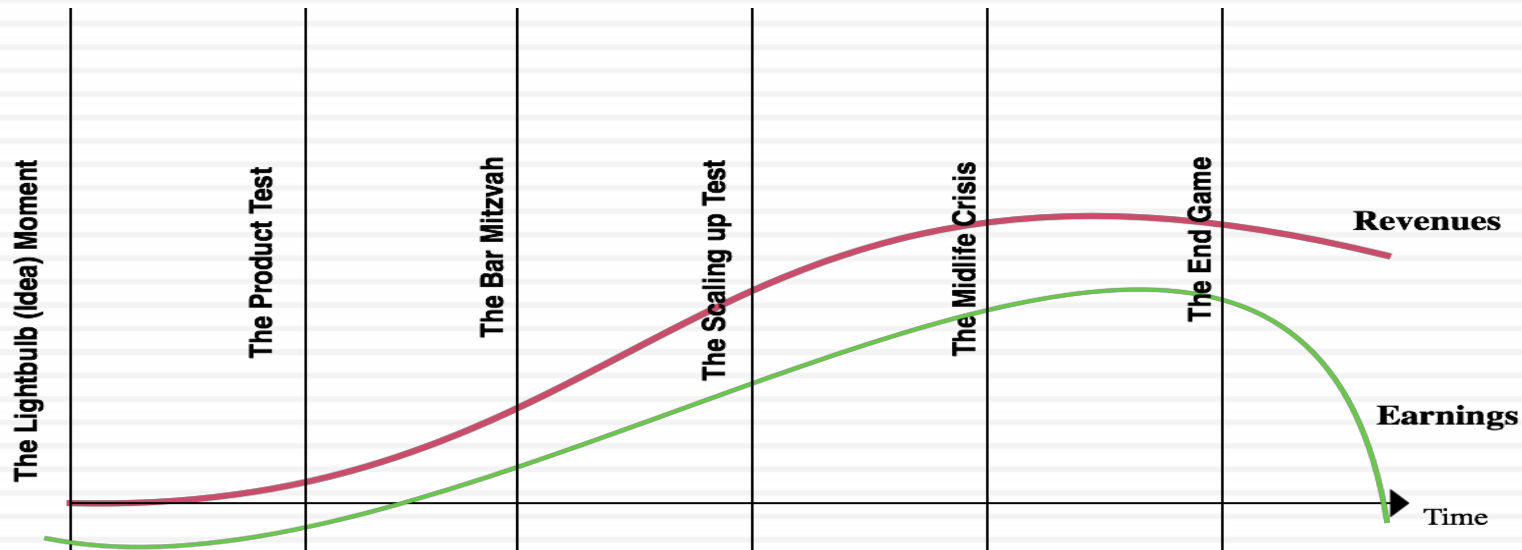
Rigid Value Investing

- In rigid value investing, i.e., the value investing described in the Ben Graham manual and by some of its leading advocates, you look for cheap companies, with arbitrary rules restricting you from buying
  - High priced stocks
  - Stocks with a lot of uncertainty about the future
  - Stocks you do not understand
- Not surprisingly, this will push you into investing more and more of your money in aging companies, with the dangers of
  - Value traps, where cheap companies become chaper
  - Disruption, undercutting the business model
  - Changing tastes and preferences

The managers' job, across the life cycle

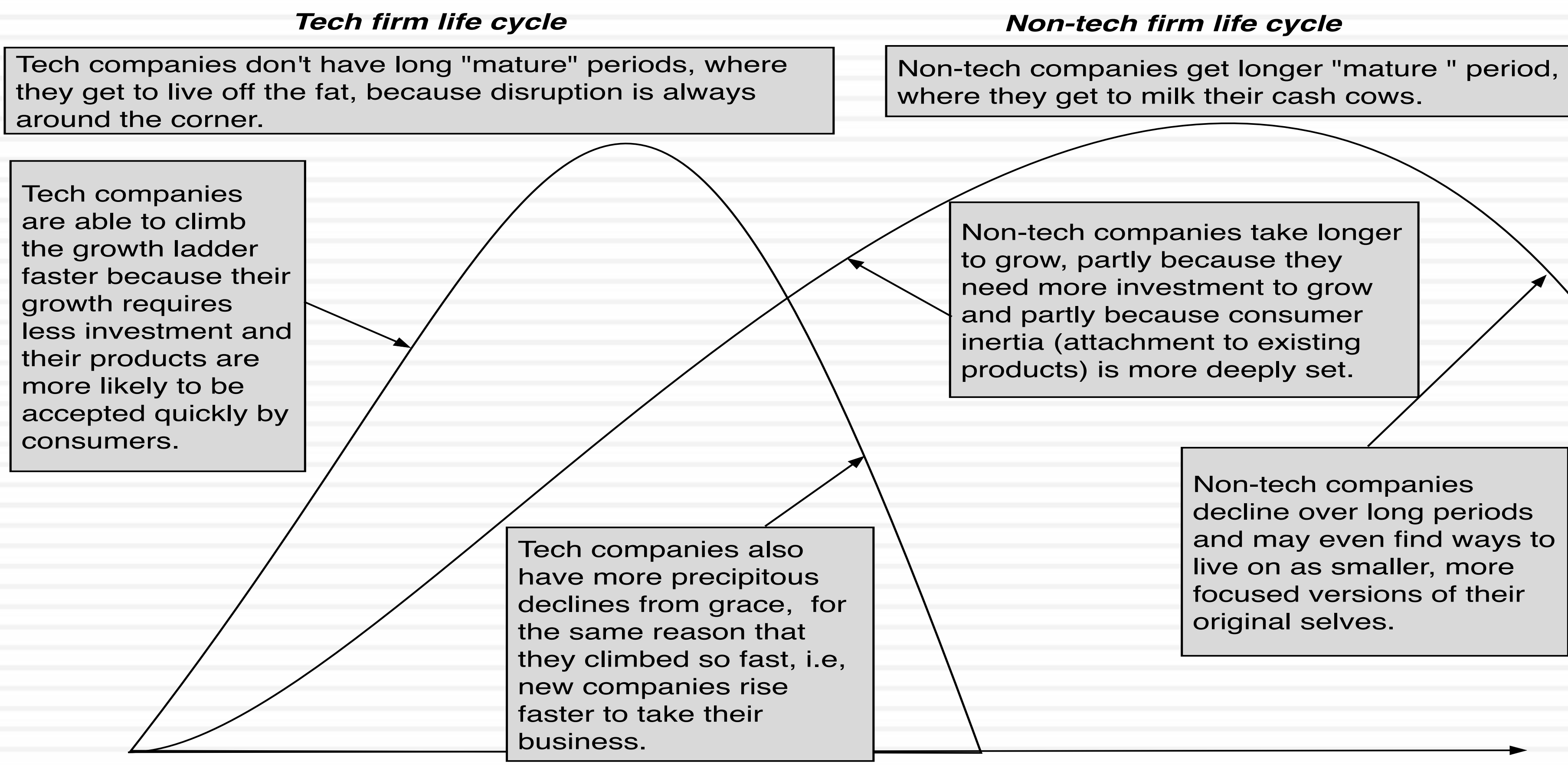
Story Tellers, Business Builders and Managers

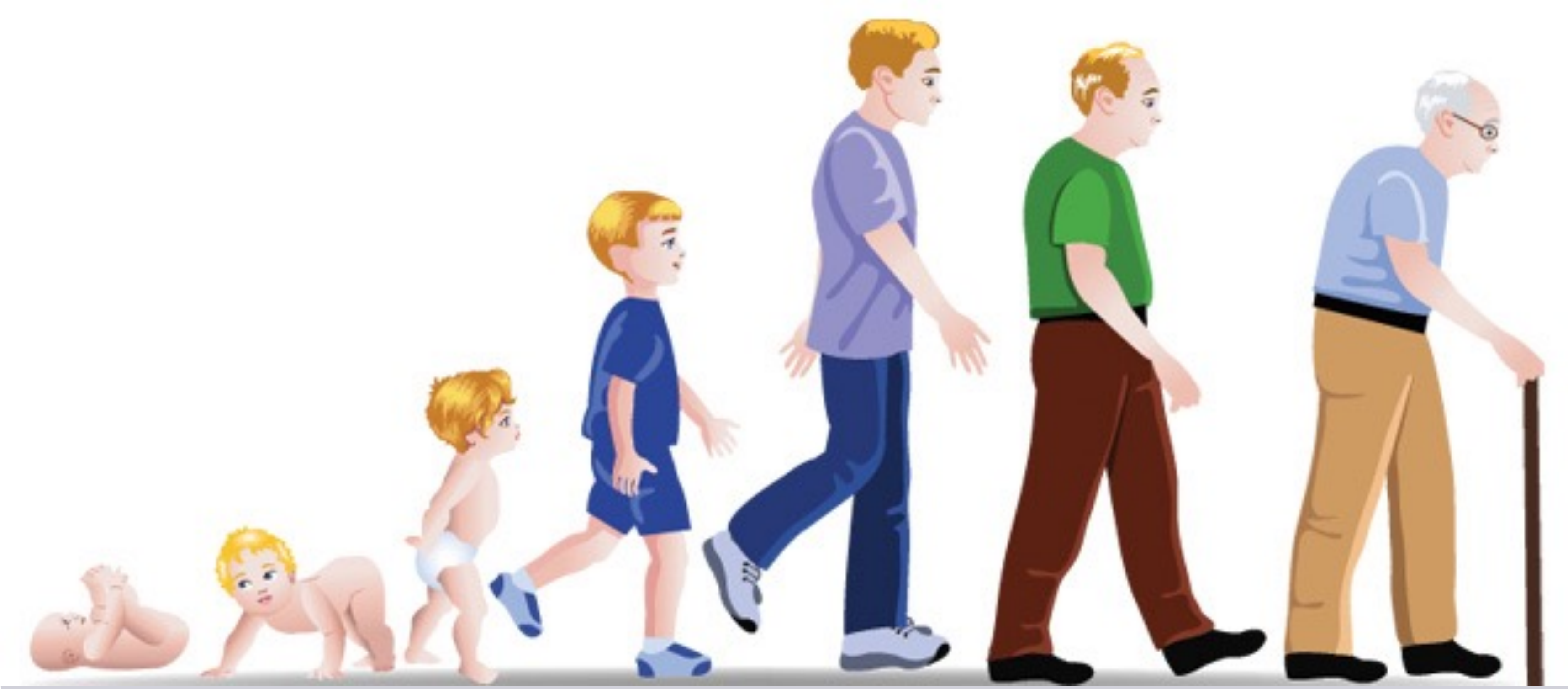
And the focus changes.... And so does the right CEO for the company



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"