



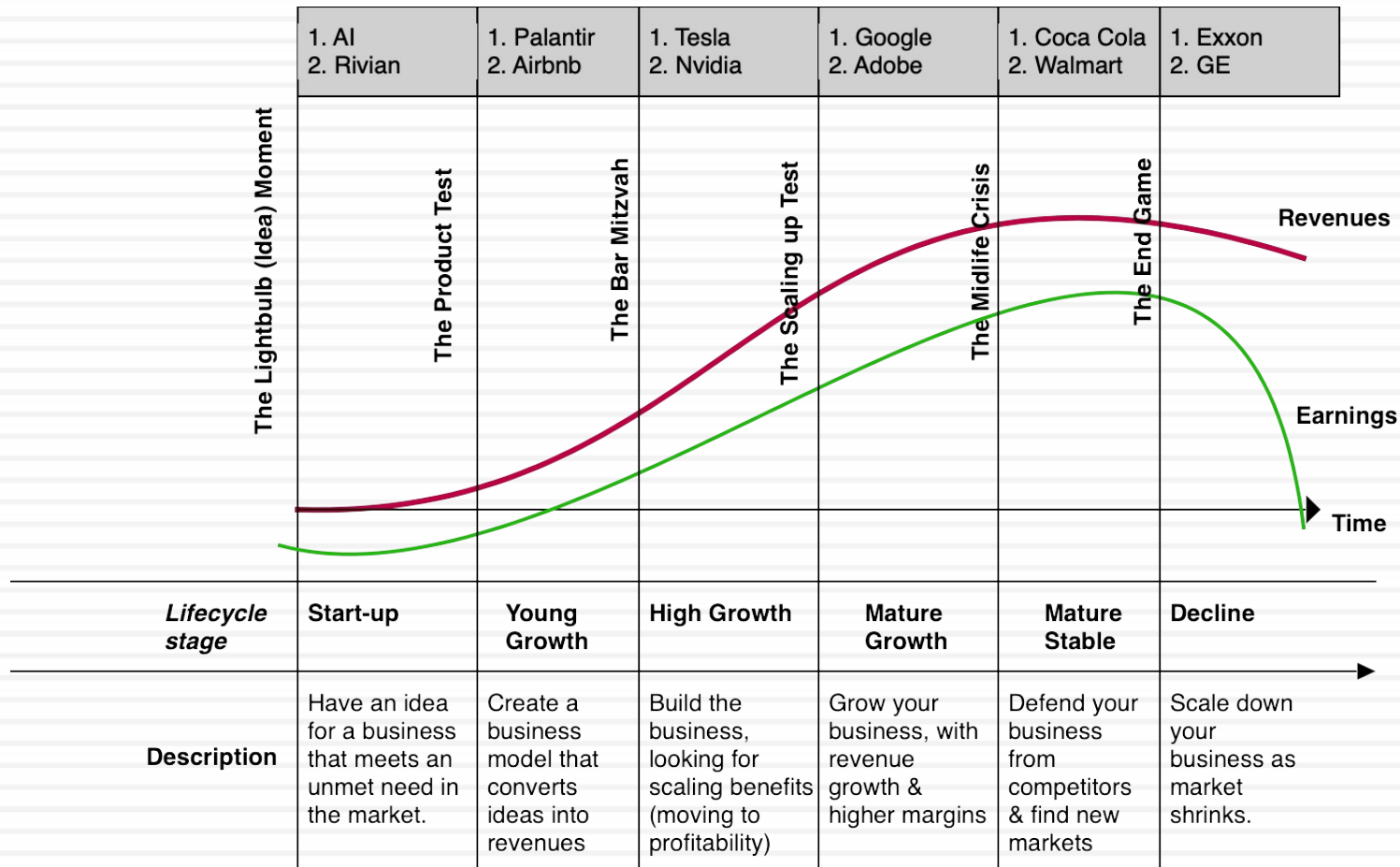
THE FINANCE AND INVESTING: A BIG PICTURE PERSPECTIVE

Aswath Damodaran



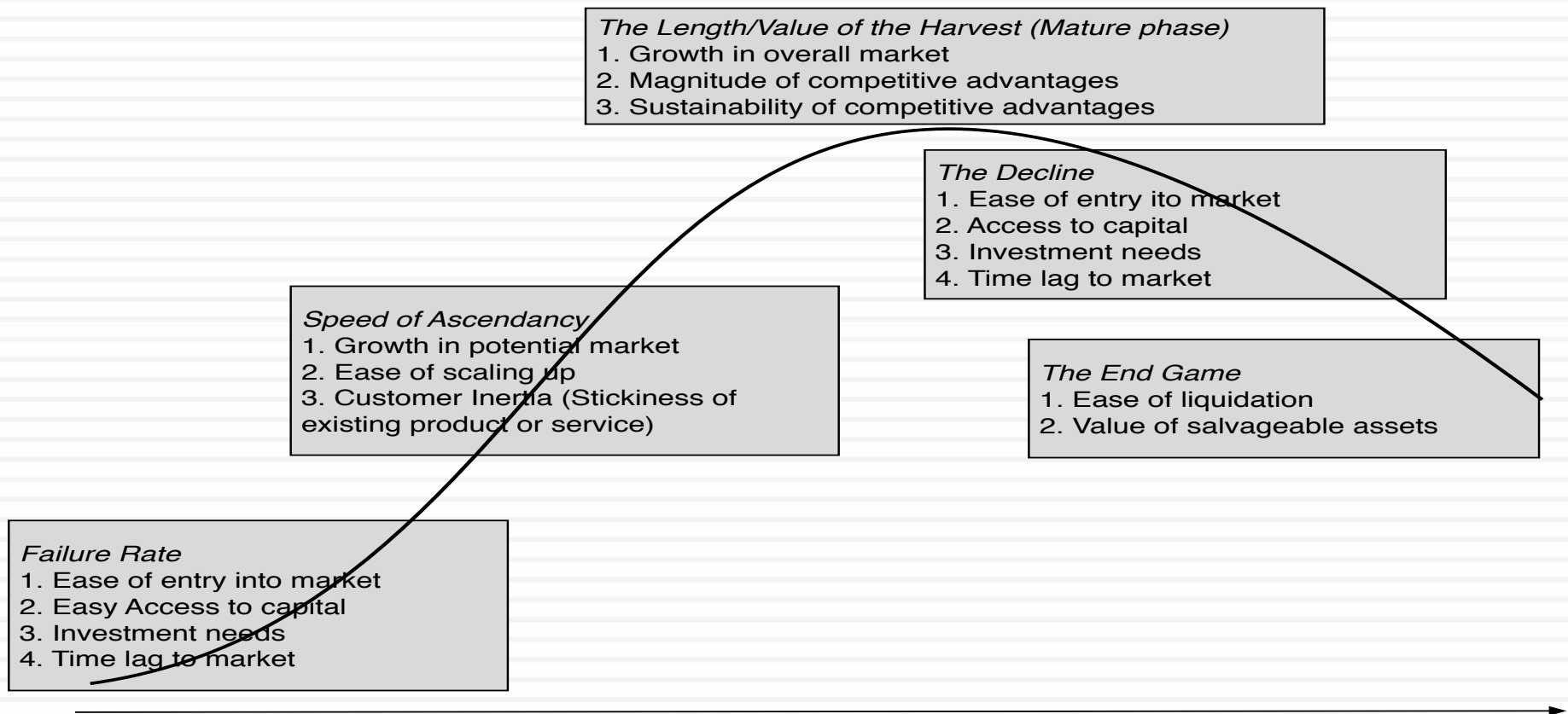
The Corporate Life Cycle

The Corporate Life Cycle

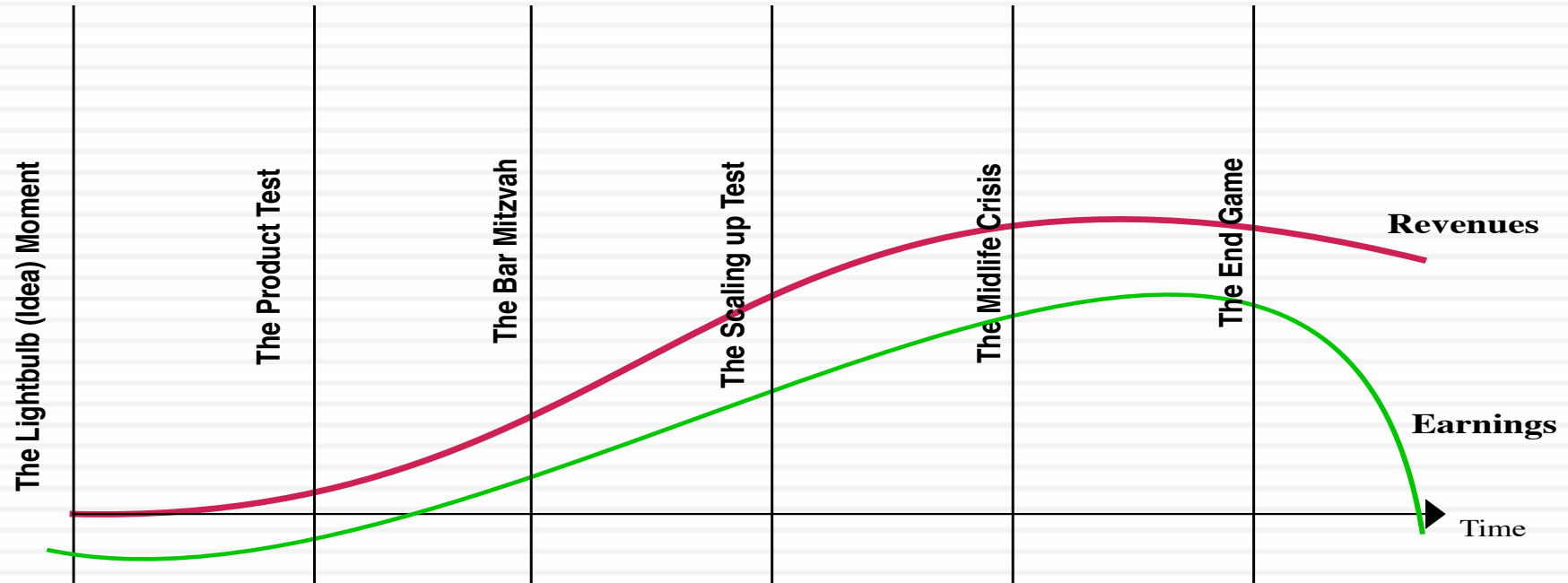


The determinants of the life cycle

The Corporate Life Cycle: Drivers and Determinants

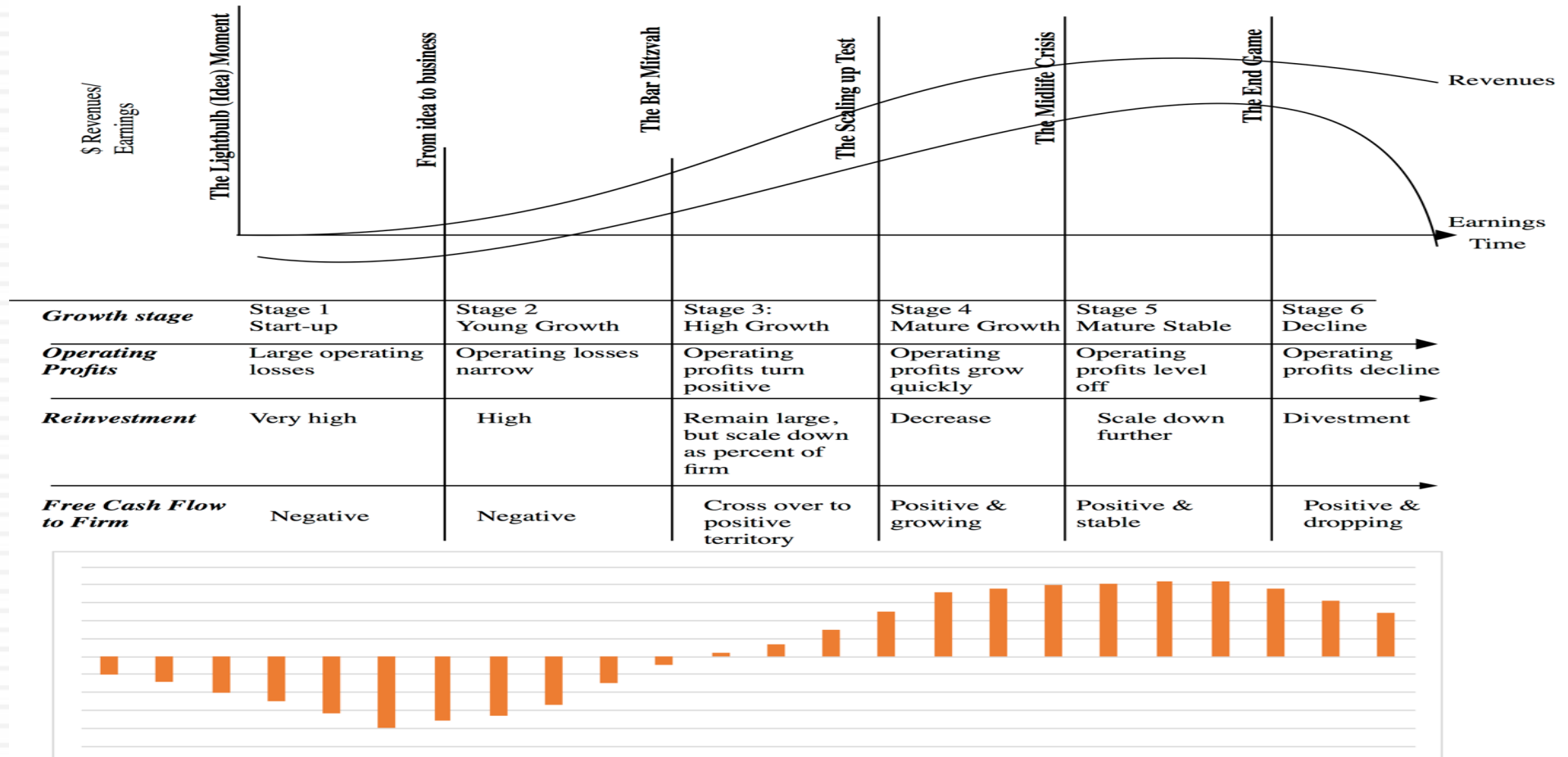


The emphasis in corporate finance shifts..

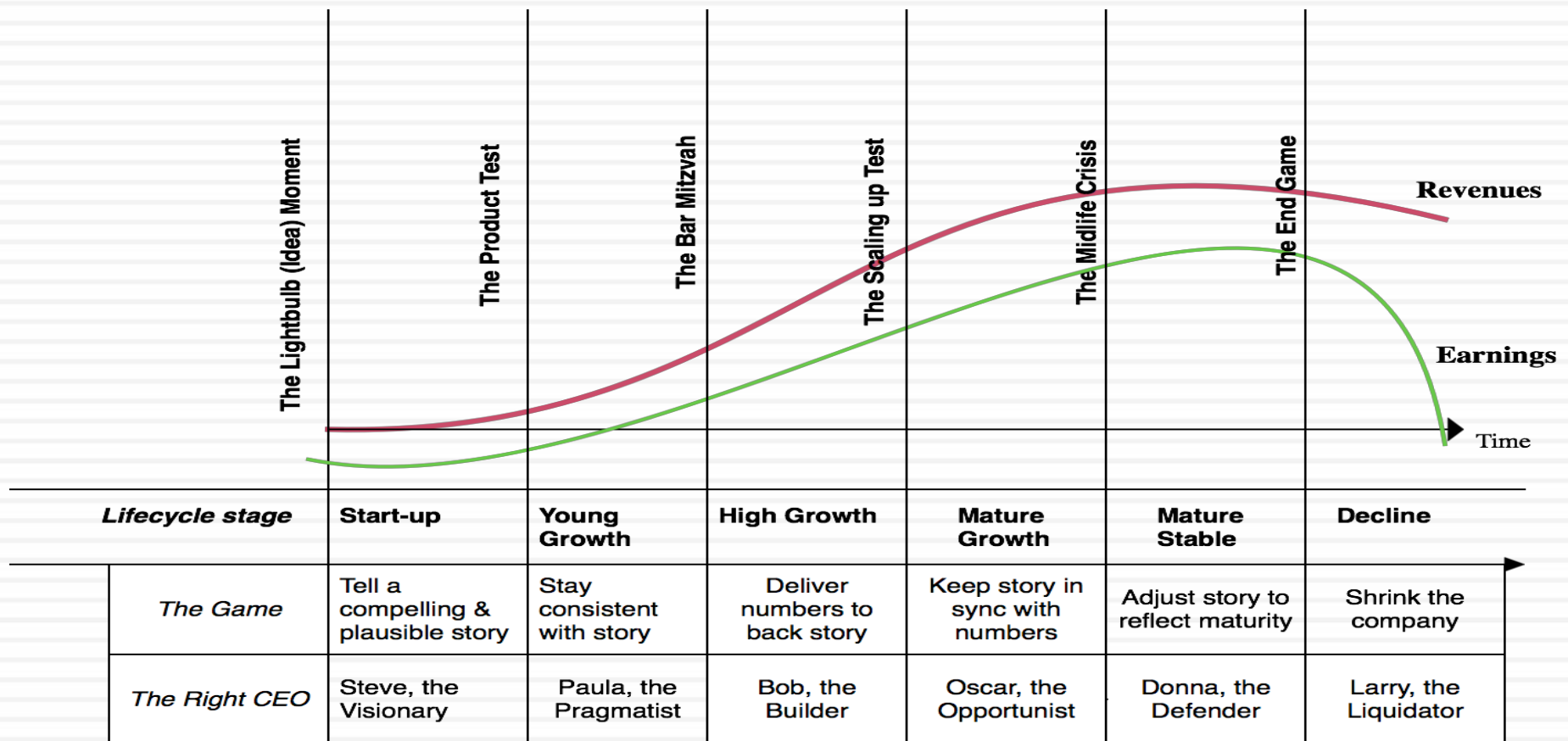


<i>Lifecycle stage</i>	Start-up	Young Growth	High Growth	Mature Growth	Mature Stable	Decline
<i>Investing Policy</i>	New product development	Market testing and build up	Scale up production	Augment capacity + New Products	Maintain capacity + Acquisitions	Reduce capacity
<i>Financing Policy</i>	Equity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

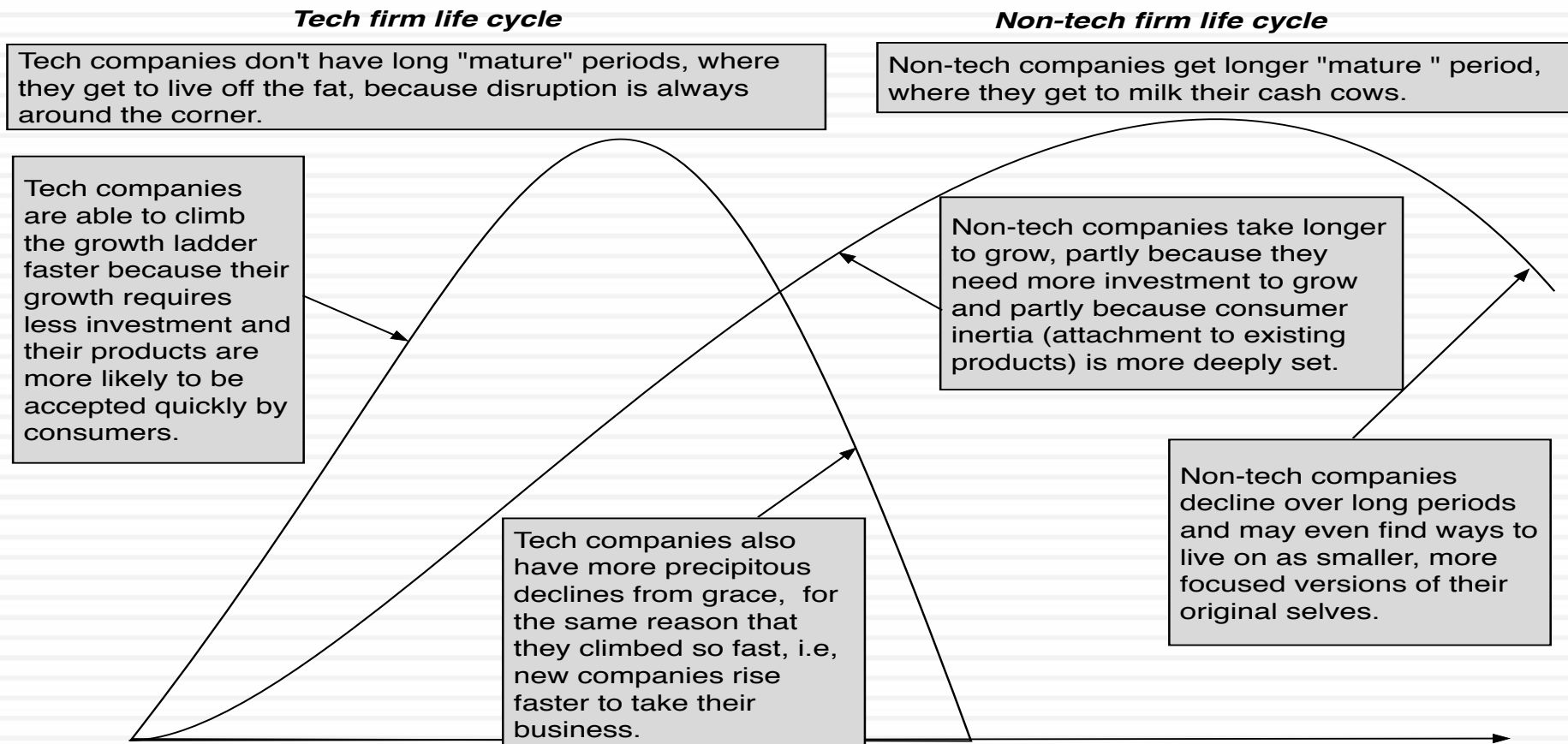
And so do the cash flows...



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



Tech versus Non-tech life cycles

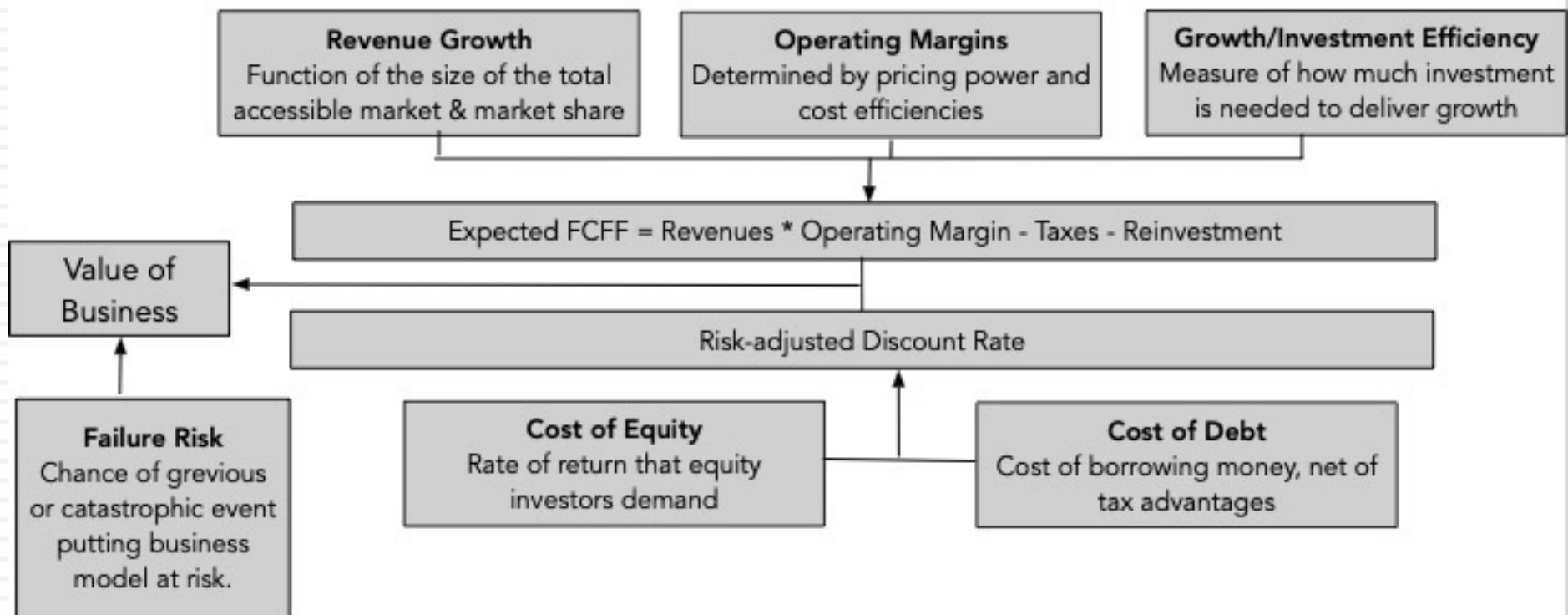


Stories and Numbers

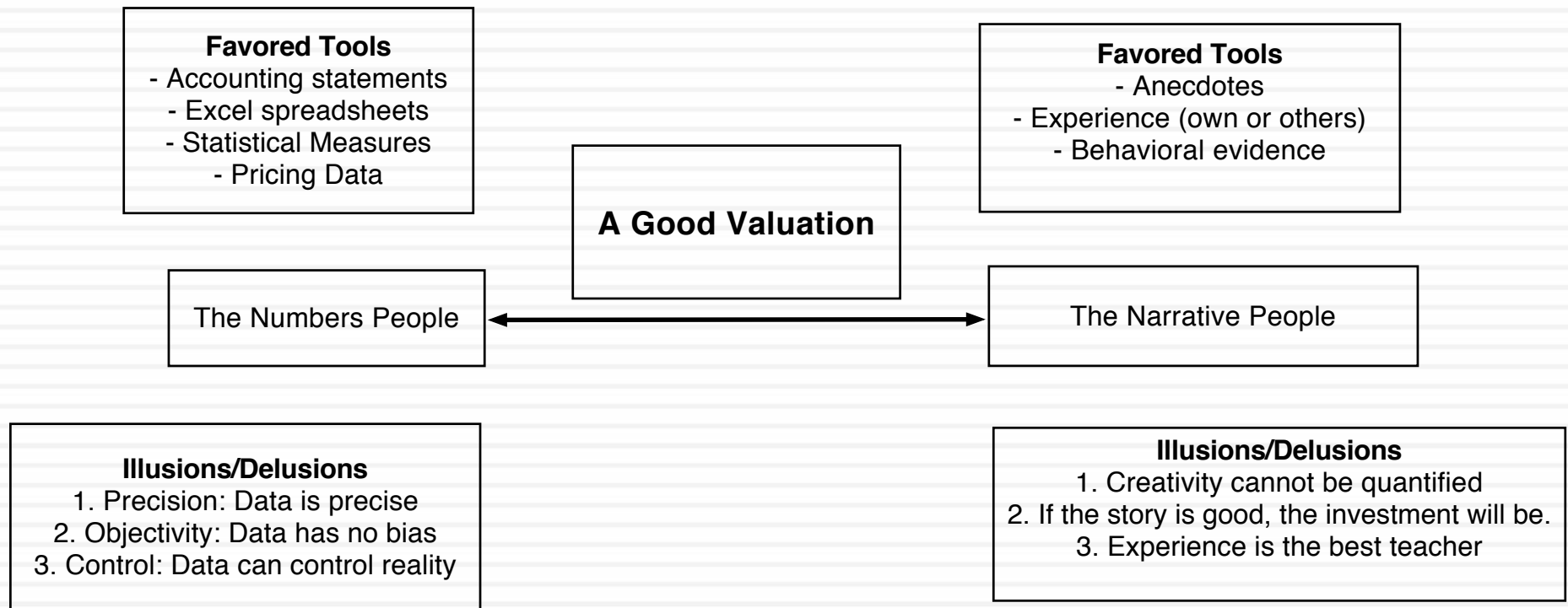


The Drivers of Value

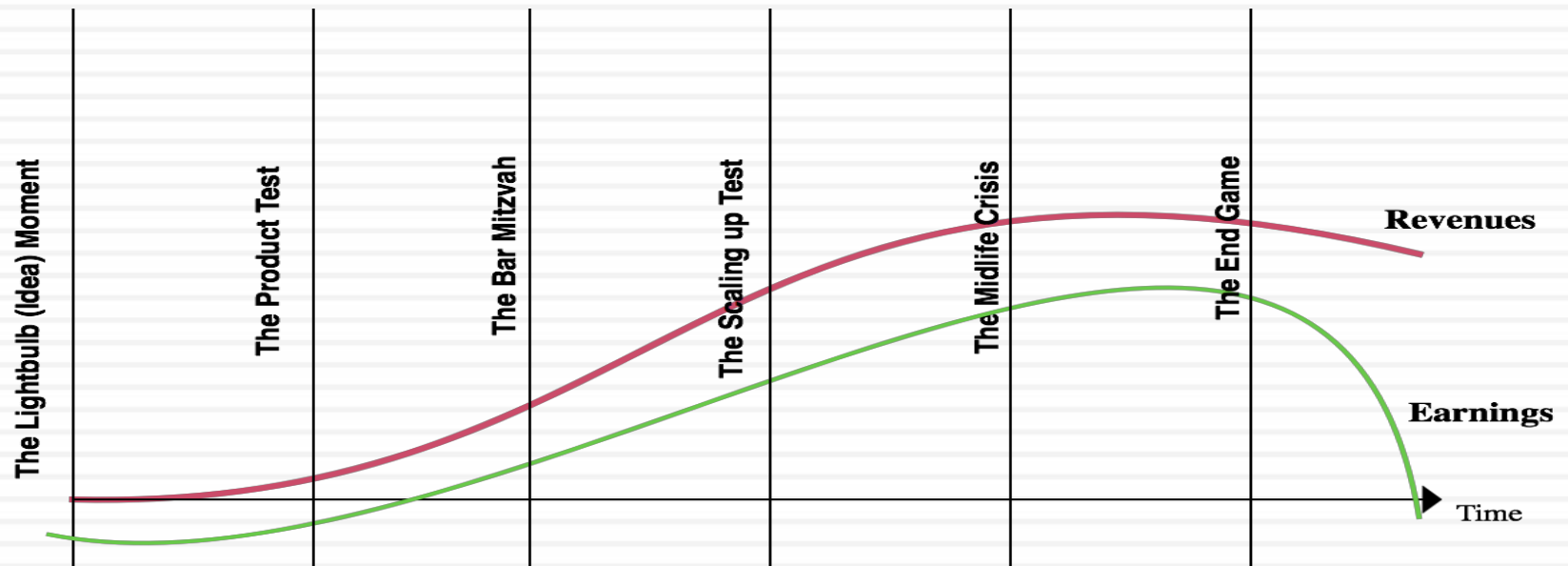
The Value Drivers for a Company



Healthy Valuation

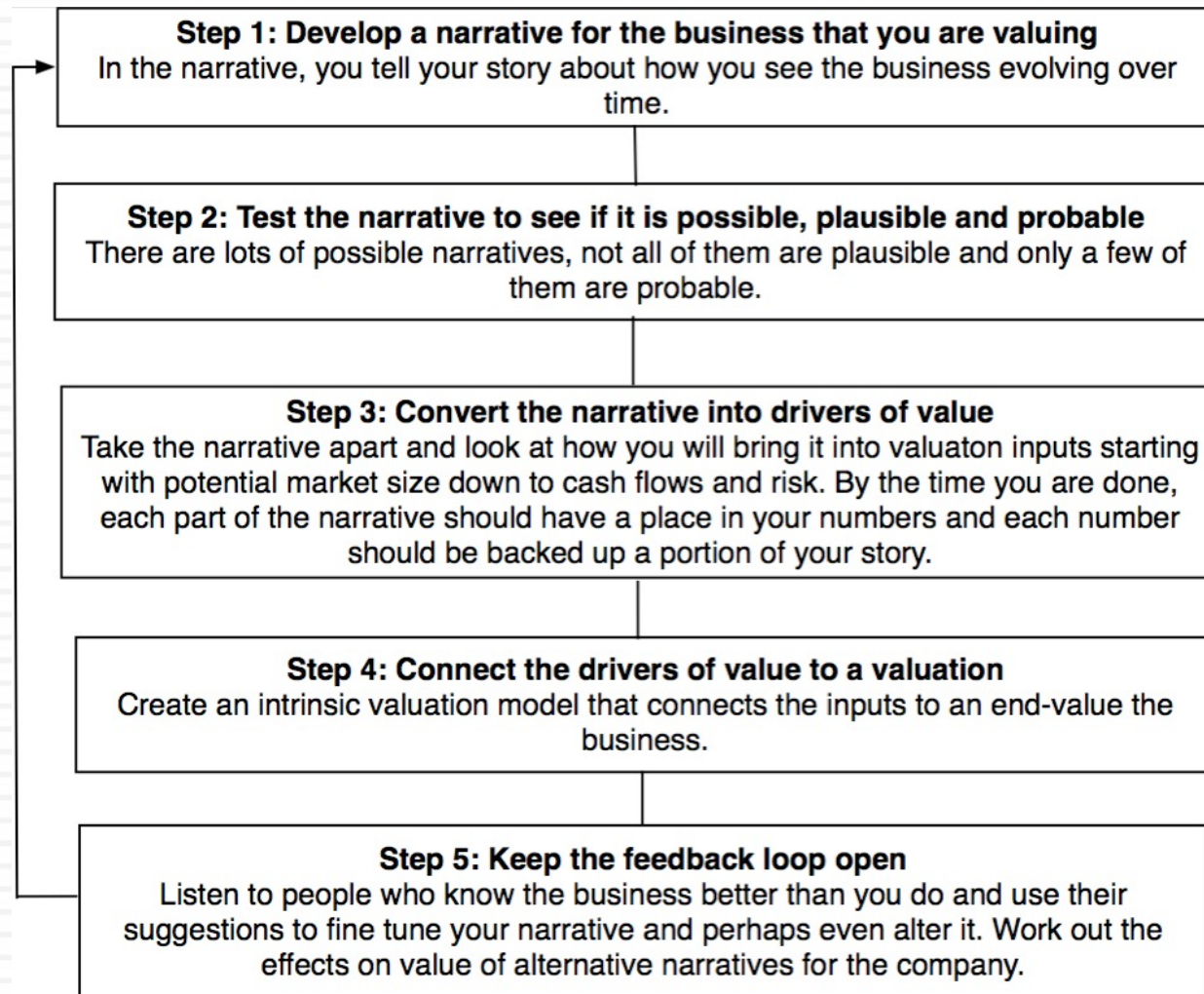


Across the life cycle, the emphasis shifts as well, from narrative to numbers...



<i>Lifecycle stage</i>	Start-up	Young Growth	High Growth	Mature Growth	Mature Stable	Decline
<i>Narrative versus Numbers</i>	All Narrative	Mostly narrative	Narrative + Numbers	Numbers + Narrative	Mostly Numbers	All Numbers
<i>Narrative Drivers</i>	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?
<i>Narrative Differences</i>	Unconstrained & Large differences	<i>Constraints mount as numbers build up</i>				Constrained & Narrow differences
		<i>Differences across investors narrow, as history deepens</i>				

The steps in valuation



Paint by the Numbers

Asian Paints primarily derives its revenues from its paint business in India, but it has started expanding into other home improvement products and markets, as well as expanding its global footprint. Borne by growth in the domestic market, the company will be able to continue with sustained growth, while also maintaining and improving margins. With its low debt ratio providing stability, it will be able to lower its cost of capital over time

The Assumptions

	Base year	Next year	Years 2-5	Years 6-10	After year 10	Link to story
Revenues (a)	\$215,036.00	20.0%	20.00% →	5.42%	5.42%	Growth in domestic market for paints and home improvement products
Operating margin (b)	18.90%	18.9%	18.90% →	20.00%	20.00%	Strong brand name and marketing maintain operating margins close to current levels
Tax rate	25.50%		25.50% →	30.00%	30.00%	Indian marginal tax rate over time
Reinvestment (c)		5.00	3.75	2.25	27.10%	Excess capacity allows for less reinvestment in near years, and moving to current level over time.
Return on capital	31.70%	Marginal ROIC =	53.39%		20.00%	Brand name and economies of scale.
Cost of capital (d)			12.17% →	9.66%	9.66%	Indian Rupee cost of capital

The Cash Flows

	Revenues	Operating Margin	EBIT	EBIT (1-t)	Reinvestment	FCFF
1	₹ 258,043	18.90%	₹ 48,772	₹ 36,335	₹ 8,601	₹ 27,733
2	₹ 309,652	19.34%	₹ 59,888	₹ 44,616	₹ 13,762	₹ 30,854
3	₹ 371,582	19.56%	₹ 72,682	₹ 54,148	₹ 16,515	₹ 37,634
4	₹ 445,899	19.78%	₹ 88,199	₹ 65,708	₹ 19,818	₹ 45,891
5	₹ 535,078	20.00%	₹ 107,016	₹ 79,727	₹ 39,611	₹ 40,116
6	₹ 626,491	20.00%	₹ 125,298	₹ 92,220	₹ 40,603	₹ 51,617
7	₹ 715,252	20.00%	₹ 143,050	₹ 103,998	₹ 39,425	₹ 64,573
8	₹ 795,733	20.00%	₹ 159,147	₹ 114,267	₹ 35,747	₹ 78,521
9	₹ 862,065	20.00%	₹ 172,413	₹ 122,241	₹ 29,463	₹ 92,778
10	₹ 908,789	20.00%	₹ 181,758	₹ 127,230	₹ 20,753	₹ 106,477
Terminal year	₹ 958,045	20.00%	₹ 191,609	₹ 134,126	₹ 36,348	₹ 97,778

The Value

Terminal value	\$2,306,087.08		
PV(Terminal value)	\$782,612.89		
PV (CF over next 10 years)	\$285,677.48		
Value of operating assets =	\$1,068,290.37		
Adjustment for distress	\$0.00	Probability of failure =	0.00%
- Debt & Minority Interests	\$15,160.00		
+ Cash & Other Non-operating assets	\$62,458.00		
Value of equity	\$1,115,588.37		
- Value of equity options	\$0.00		
Number of shares	959.20		
Value per share	\$1,163.04	Stock was trading at =	\$3,123.00



Corporate Finance 101

The Essence of risk

- Risk, in traditional terms, is viewed as a ‘negative’ . Webster’ s dictionary, for instance, defines risk as “exposing to danger or hazard” .
 - ▣ If you adopt this definition, risk is bad and avoiding it becomes your first priority.
 - ▣ Risk management then becomes risk hedging or avoidance.
- The Chinese symbols for risk, reproduced below, give a much better description of risk:

危機

 - ▣ The first symbol is the symbol for “danger”, while the second is the symbol for “opportunity”, making risk a mix of danger and opportunity.
 - ▣ With this definition of risk, risk management is richer, where you decide which risks to hedge/avoid, which risks to pass through to your investors and which risks to seek out and exploit.

Know your “hurdle” rate

- Since financial resources are finite, there is a “hurdle rate” that projects have to cross before being deemed acceptable. A simple representation of the hurdle rate is as follows:

$$\text{Hurdle rate} = \text{Riskless Rate} + \text{Risk Premium}$$

The Drivers of Hurdle Rates

Currency Choice

Your choice of currency for analysis will determine the riskfree rate you use, with higher inflation currencies carrying higher riskfree rates

Riskfree Rate

Business Choice

Your relative risk is determined by the business you are investing in, with more discretionary products/services carrying more relative risk.

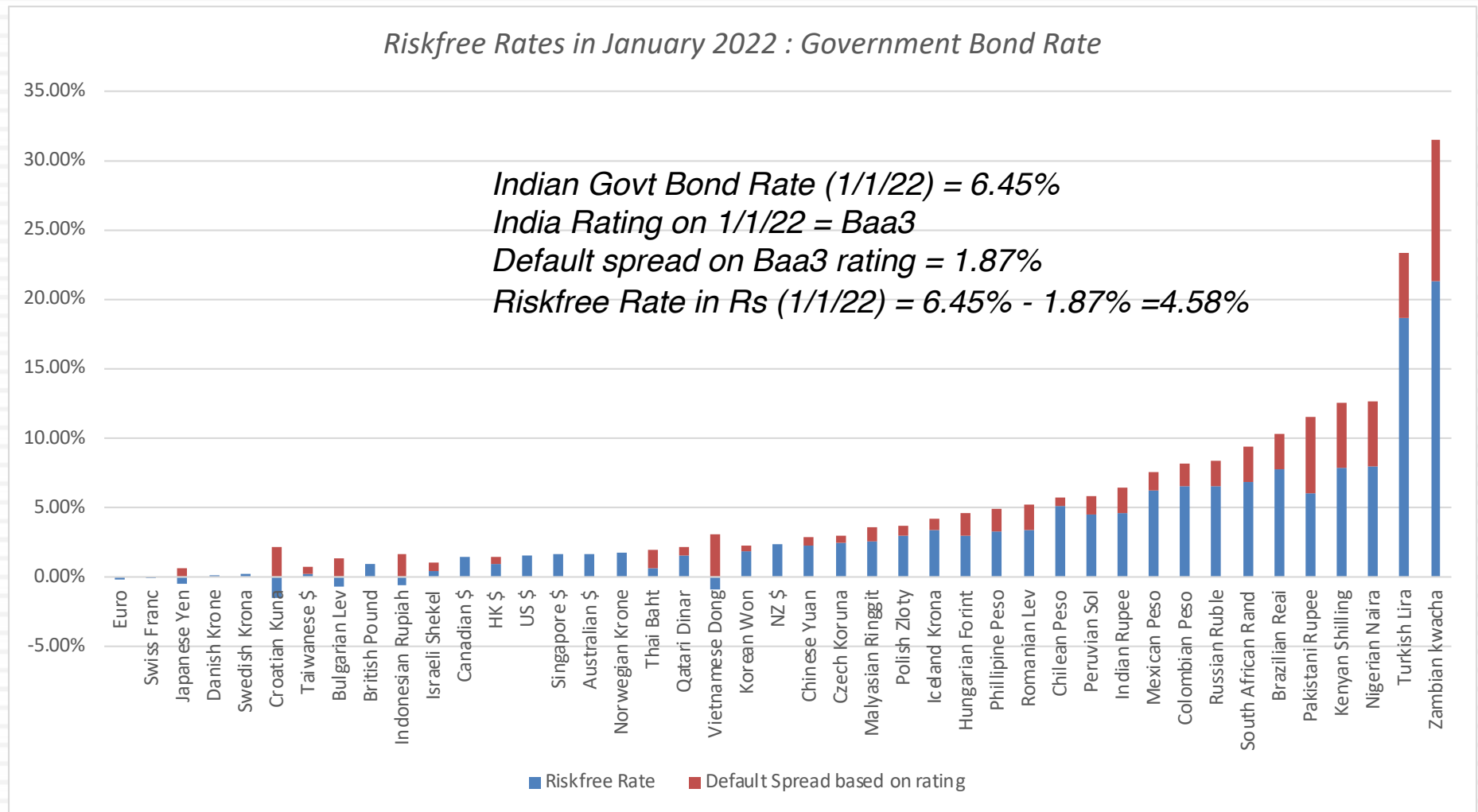
Relative Risk Measure

Geographical Exposure

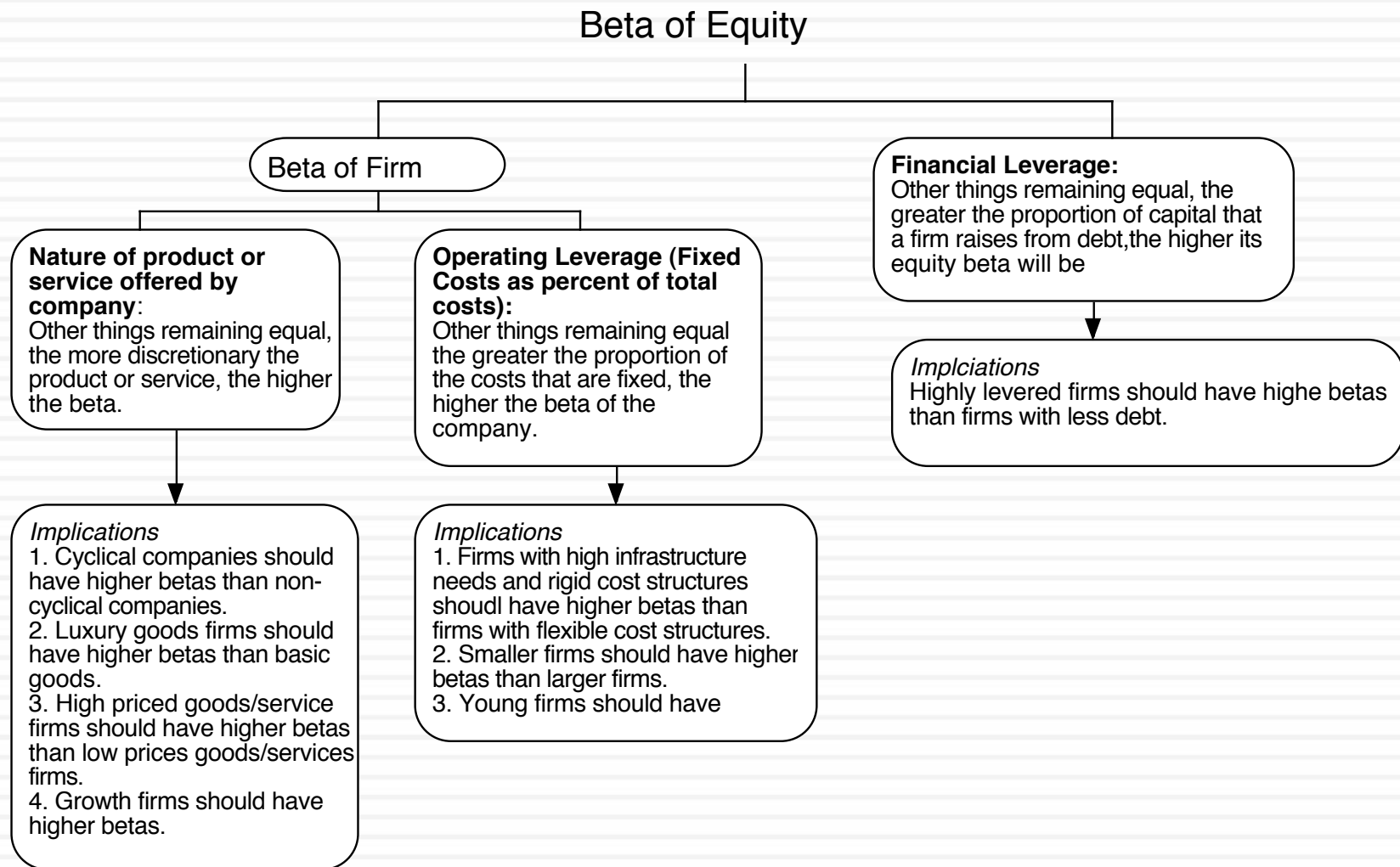
The price of risk in the market (or equity risk premium) is determined by the countries in which your operations lie (production and sales), with riskier countries carrying higher prices.

Price of Risk in Market

Risk free rates will vary across currencies!



Determinants of Relative Risk



ERP : Jan 2022

Andorra	Baa2	1.88%	6.12%	Italy	Baa3	2.18%	6.42%
Austria	Aa1	0.39%	4.63%	Jersey	Aaa	0.00%	4.24%
Belgium	Aa3	0.60%	4.84%	Liechtenstein	Aaa	0.00%	4.24%
Cyprus	Ba1	2.47%	6.71%	Luxembourg	Aaa	0.00%	4.24%
Denmark	Aaa	0.00%	4.24%	Malta	A2	0.84%	5.08%
Finland	Aa1	0.39%	4.63%	Netherlands	Aaa	0.00%	4.24%
France	Aa2	0.49%	4.73%	Norway	Aaa	0.00%	4.24%
Germany	Aaa	0.00%	4.24%	Portugal	Baa2	1.88%	6.12%
Greece	Ba3	3.56%	7.80%	Spain	Baa1	1.58%	5.82%
Guernsey	Aa3	0.60%	4.84%	Sweden	Aaa	0.00%	4.24%
Iceland	A2	0.84%	5.08%	Switzerland	Aaa	0.00%	4.24%
Ireland	A2	0.84%	5.08%	Turkey	B2	5.44%	9.68%
Isle of Man	Aa3	0.60%	4.84%	UK	Aa3	0.60%	4.84%
				W. Europe		0.83%	5.07%

Canada	Aaa	0.00%	4.24%
United States	Aaa	0.00%	4.24%
North America		0.00%	4.24%

Caribbean	NA	6.83%	11.07%
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Argentina	Ca	11.87%	16.11%
Belize	Caa3	9.89%	14.13%
Bolivia	B2	5.44%	9.68%
Brazil	Ba2	2.97%	7.21%
Chile	A1	0.70%	4.94%
Colombia	Baa2	1.88%	6.12%
Costa Rica	B2	5.44%	9.68%
Ecuador	Caa3	9.89%	14.13%
El Salvador	Caa1	7.41%	11.65%
Guatemala	Ba1	2.47%	6.71%
Honduras	B1	4.45%	8.69%
Mexico	Baa1	1.58%	5.82%
Nicaragua	B3	6.43%	10.67%
Panama	Baa2	1.88%	6.12%
Paraguay	Ba1	2.47%	6.71%
Peru	Baa1	1.58%	5.82%
Suriname	Caa3	9.89%	14.13%
Uruguay	Baa2	1.88%	6.12%
Venezuela	C	20.34%	24.58%
Latin America		3.79%	8.03%

Country	Rating	CRP	ERP
Angola	B3	5.53%	10.67%
Benin	B1	3.83%	8.69%
Botswana	A3	1.02%	5.43%
Burkina Faso	B2	4.68%	9.68%
Cameroon	B2	4.68%	9.68%
Cape Verde	B3	5.53%	10.67%
Congo (Democratic Republic of)	Caa1	6.38%	11.65%
Congo (Republic of)	Caa2	7.66%	13.14%
Côte d'Ivoire	Ba3	3.06%	7.80%
Egypt	B2	4.68%	9.68%
Ethiopia	Caa2	7.66%	13.14%
Gabon	Caa1	6.38%	11.65%
Ghana	B3	5.53%	10.67%
Kenya	B2	4.68%	9.68%
Mali	Caa1	6.38%	11.65%
Mauritius	Baa2	1.62%	6.12%
Morocco	Ba1	2.13%	6.71%
Mozambique	Caa2	7.66%	13.14%
Namibia	Ba3	3.06%	7.80%
Niger	B3	5.53%	10.67%
Nigeria	B2	4.68%	9.68%
Rwanda	B2	4.68%	9.68%
Senegal	Ba3	3.06%	7.80%
South Africa	Ba2	2.56%	7.21%
Swaziland	B3	5.53%	10.67%
Tanzania	B2	4.68%	9.68%
Togo	B3	5.53%	10.67%
Tunisia	Caa1	6.38%	11.65%
Uganda	B2	4.68%	9.68%
Zambia	Ca	10.21%	16.11%
Africa		5.25%	9.49%

Albania	B1	4.45%	8.69%
Armenia	Ba3	3.56%	7.80%
Azerbaijan	Ba2	2.97%	7.21%
Belarus	B3	6.43%	10.67%
Bosnia and Herzegovina	B3	6.43%	10.67%
Bulgaria	Baa1	1.58%	5.82%
Croatia	Ba1	2.47%	6.71%
Czech Republic	Aa3	0.60%	4.84%
Estonia	A1	0.70%	4.94%
Georgia	Ba2	2.97%	7.21%
Hungary	Baa2	1.88%	6.12%
Kazakhstan	Baa2	1.88%	6.12%
Kyrgyzstan	B2	5.44%	9.68%
Latvia	A3	1.19%	5.43%
Lithuania	A2	0.84%	5.08%
Macedonia	Ba3	3.56%	7.80%
Moldova	B3	6.43%	10.67%
Montenegro	B1	4.45%	8.69%
Poland	A2	0.84%	5.08%
Romania	Baa3	2.18%	6.42%
Russia	Baa3	2.18%	6.42%
Serbia	Ba2	2.97%	7.21%
Slovakia	A2	0.84%	5.08%
Slovenia	A3	1.19%	5.43%
Tajikistan	B3	6.43%	10.67%
Ukraine	B3	6.43%	10.67%
Uzbekistan	B1	4.45%	8.69%
E. Europe & Russia		2.11%	6.35%

Abu Dhabi	Aa2	0.49%	4.73%
Bahrain	B2	5.44%	9.68%
Iraq	Caa1	7.41%	11.65%
Israel	A1	0.70%	4.94%
Jordan	B1	4.45%	8.69%
Kuwait	A1	0.70%	4.94%
Lebanon	C	20.34%	24.58%
Oman	Ba3	3.56%	7.80%
Qatar	Aa3	0.60%	4.84%
Ras Al Khaimah	A3	1.19%	5.43%
Saudi Arabia	A1	0.70%	4.94%
Sharjah	Baa3	2.18%	6.42%
United Arab Emirates	Aa2	0.49%	4.73%
Middle East		1.60%	5.84%

Country	PRS	CRP	ERP
Algeria	62.25	6.43%	10.67%
Brunei	79	0.84%	5.08%
Gambia	65.75	5.44%	9.68%
Guinea	57.5	8.90%	13.14%
Guinea-Bissau	62.75	6.43%	10.67%
Guyana	66.25	4.45%	8.69%
Haiti	56.25	9.89%	14.13%
Iran	63.75	6.43%	10.67%
Korea, D.P.R.	51.5	11.87%	16.11%
Liberia	59	8.90%	13.14%
Libya	66.25	4.45%	8.69%
Madagascar	63.5	6.43%	10.67%
Malawi	59.75	8.90%	13.14%
Myanmar	53	11.87%	16.11%
Sierra Leone	57	9.89%	14.13%
Somalia	51.5	11.87%	16.11%
Sudan	36.25	20.34%	24.58%
Syria	45.5	20.34%	24.58%
Yemen	52.75	11.87%	16.11%
Zimbabwe	61	7.41%	11.65%

Bangladesh	Ba3	3.56%	7.80%
Cambodia	B2	5.44%	9.68%
China	A1	0.70%	4.94%
Fiji	B1	4.45%	8.69%
Hong Kong	Aa3	0.60%	4.84%
India	Baa3	2.18%	6.42%
Indonesia	Baa2	1.88%	6.12%
Japan	A1	0.70%	4.94%
Korea	Aa2	0.49%	4.73%
Laos	Caa2	8.90%	13.14%
Macao	Aa3	0.60%	4.84%
Malaysia	A3	1.19%	5.43%
Maldives	Caa1	7.41%	11.65%
Mongolia	B3	6.43%	10.67%
Pakistan	B3	6.43%	10.67%
Papua New Guinea	B2	5.44%	9.68%
Philippines	Baa2	1.88%	6.12%
Singapore	Aaa	0.00%	4.24%
Solomon Islands	Caa1	7.41%	11.65%
Sri Lanka	Caa2	8.90%	13.14%
Taiwan	Aa3	0.60%	4.84%
Thailand	Baa1	1.58%	5.82%
Vietnam	Ba3	3.56%	7.80%
Asia		1.04%	5.28%

Australia	Aaa	0.00%	4.24%
Cook Islands	B1	4.45%	8.69%
New Zealand	Aaa	0.00%	4.24%
Australia & NZ		0.00%	4.24%

Blue: Moody's Rating
Red: Added Country Risk
Green #: Total ERP

Aswath Damodaran

Grasim: A Multi Business Company

<i>Segment</i>	<i>Riskfree Rate</i>	<i>Beta</i>	<i>Equity Risk Premium</i>	<i>Cost of Equity</i>	<i>Cost of Debt (after-tax)</i>	<i>Debt Ratio</i>	<i>Cost of Capital</i>
Viscose	5.42%	1.26	7.09%	14.35%	6.15%	40.75%	11.01%
Cement	5.42%	1.47	7.09%	15.82%	6.15%	40.75%	11.88%
Chemicals	5.42%	1.39	7.09%	15.29%	6.15%	40.75%	11.57%
Financial Services	5.42%	0.89	7.09%	11.73%	NA	NA	NA
Grasim	5.42%	1.14	7.09%	13.51%	6.15%	40.75%	10.51%

Your investments need to earn returns that beat the hurdle rate...

- Your hurdle rate is both a cost of financing your business and an opportunity cost, i.e., a return you can make elsewhere if you invest in a project of equivalent risk. If that is the case, you should only take investments that generate returns that earn more than the hurdle rate.
- To measure returns, though, here are three simple propositions to follow:
 1. Look at the cash flows that you will make on the investment, rather than earnings. You cannot spend earnings.
 2. Look at incremental cash flows that come out because of the investment. Be wary of allocated costs (that will be there whether you take the investment or not) and ignore sunk costs (costs that you have already incurred).
 3. Time weight the cash flows, with cash flows occurring earlier being valued more than cash flows later.

Here is a short cut that you can use to assess the quality of your existing investments...

Adjust EBIT for

- Extraordinary or one-time expenses or income
- Operating leases and R&D
- Cyclicality in earnings (Normalize)
- Acquisition Debris (Goodwill amortization etc.)

Use a marginal tax rate to be safe. A high ROC created by paying low effective taxes is not sustainable

$$\text{ROC} = \frac{\text{EBIT (1- tax rate)}}{\text{Book Value of Equity + Book value of debt - Cash}}$$

Adjust book equity for

- Capitalized R&D
- Acquisition Debris (Goodwill)

Adjust book value of debt for

- Capitalized operating leases

Use end of prior year numbers or average over the year but be consistent in your application

Grasim's Businesses and Returns

□ Non financial service businesses

<i>Segment</i>	<i>Revenues</i>	<i>EBITDA</i>	<i>Operating Income</i>	<i>Assets (prior year)</i>	<i>Operating Margin</i>	<i>ROIC (with effective tax rate = 30.93%)</i>
Viscose	₹ 6,965	₹ 1,187	₹ 753	₹ 11,646	10.81%	4.47%
Cement	₹ 44,726	₹ 12,302	₹ 9,602	₹ 81,107	21.47%	8.18%
Chemicals	₹ 4,581	₹ 590	₹ 302	₹ 6,186	6.59%	3.37%

- In the financial services business, Grasim reports ₹ 14,720 million in operating income and a huge amount of assets, but that is a misleading metric for financial service companies. This business should be judged on its net income and book equity, but even with generous assumptions, it does not look like the ROE is in double digits.

Asian Paints versus Grasim: A Tally Card

	<i>Asian Paints</i>	<i>Grasim</i>
Financials		
Market Cap (millions)	₹ 3,000,000	₹ 1,150,000
Enterprise Value (millions)	₹ 2,963,221	₹ 1,721,596
Revenues (millions)	₹ 215,036	₹ 763,978
Operating Income (millions)	₹ 40,643	₹ 146,698
Net Income (millions)	₹ 31,393	₹ 43,048
Invested Capital	₹ 95,513	₹ 1,597,212
Value Drivers		
Effective Tax Rate	25.50%	30.90%
Revenue Growth (Last 5 years)	8.76%	17.24%
Operating Margin	18.90%	19.20%
ROIC	31.70%	6.35%
Sales/Capital	2.25	0.48
Complexity		
# Pages- Last Annual	170	500
Number of subsidiaries	14 (mostly geographic)	You must be kidding me
Business focus	Paints & Home Improvement	Multiple businesses
Market Judgment		
PE	95.56	26.71
EV/EBIT	72.91	11.74
EV/Sales	13.78	2.25



“Growing old is mandatory, Growing up is optional”