



# MY VALUATION JOURNEY: HAVE FAITH, YOU MUST!

December 2018

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# I. Don't mistake accounting for finance

*Valued based upon motive for investment – some marked to market, some recorded at cost and some at quasi-cost*

*Assets are recorded at original cost, adjusted for depreciation.*

## The Balance Sheet

Assets		Liabilities	
Long Lived Real Assets	Fixed Assets	Current Liabilities	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

*True intangible assets like brand name, patents and customer did not show up. The only intangible asset of any magnitude (goodwill) is a plug variable that is of consequence only if you do an acquisition.*

*Equity reflects original capital invested and historical retained earnings.*

# The financial balance sheet

*Recorded at intrinsic value (based upon cash flows and risk), not at original cost*

Assets		Liabilities	
Existing Investments Generate cashflows today Includes long lived (fixed) and short-lived (working capital) assets	Assets in Place	Debt	Fixed Claim on cash flows Little or No role in management <i>Fixed Maturity</i> <i>Tax Deductible</i>
Expected Value that will be created by future investments	Growth Assets	Equity	Residual Claim on cash flows Significant Role in management <i>Perpetual Lives</i>

*Value will depend upon magnitude of growth investments and excess returns on these investments*

*Intrinsic value of equity, reflecting intrinsic value of assets, net of true value of debt outstanding.*

## II. Don't assume that $D+CF = DCF$

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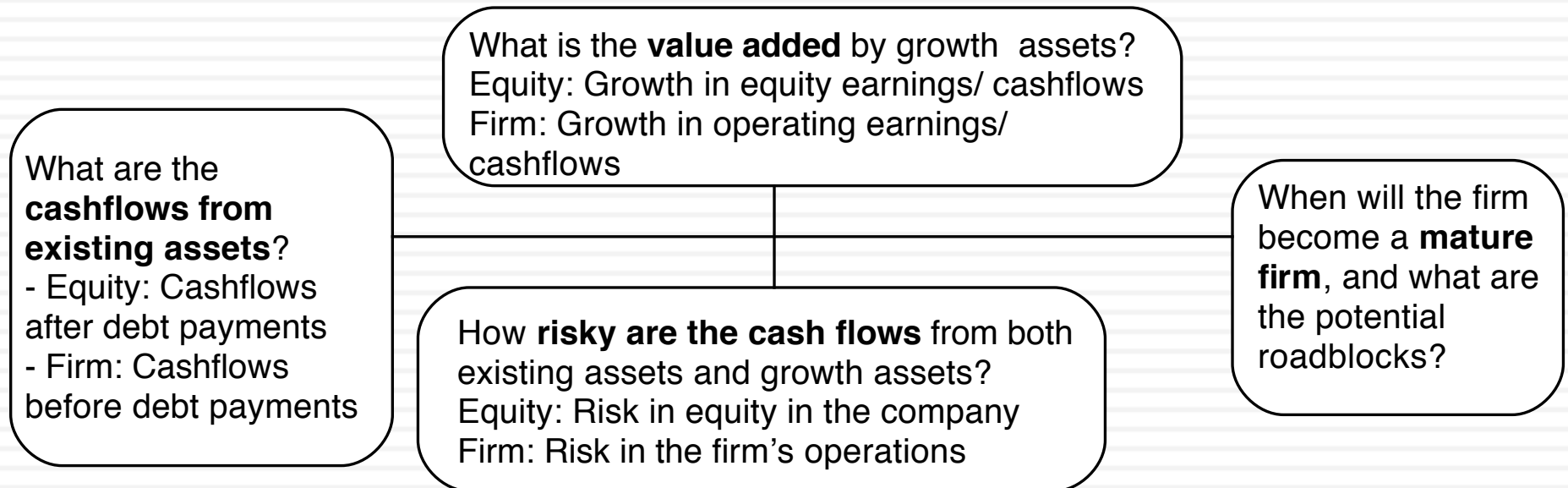
- The value of a risky asset can be estimated by discounting the expected cash flows on the asset over its life at a risk-adjusted discount rate:

$$\text{Value of asset} = \frac{E(CF_1)}{(1+r)} + \frac{E(CF_2)}{(1+r)^2} + \frac{E(CF_3)}{(1+r)^3} \dots + \frac{E(CF_n)}{(1+r)^n}$$

1. *The IT Proposition:* If “it” does not affect the cash flows or alter risk (thus changing discount rates), “it” cannot affect value.
2. *The DUH Proposition:* For an asset to have value, the expected cash flows have to be positive some time over the life of the asset.
3. *The DON'T FREAK OUT Proposition:* Assets that generate cash flows early in their life will be worth more than assets that generate cash flows later; the latter may however have greater growth and higher cash flows to compensate.

# The drivers of value..

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# DCF as a tool for intrinsic valuation

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**Value of growth**  
The future cash flows will reflect expectations of how quickly earnings will grow in the future (as a positive) and how much the company will have to reinvest to generate that growth (as a negative). The net effect will determine the value of growth.  
Expected Cash Flow in year  $t = E(CF) = \text{Expected Earnings in year } t - \text{Reinvestment needed for growth}$

**Cash flows from existing assets**  
The base earnings will reflect the earnings power of the existing assets of the firm, net of taxes and any reinvestment needed to sustain the base earnings.

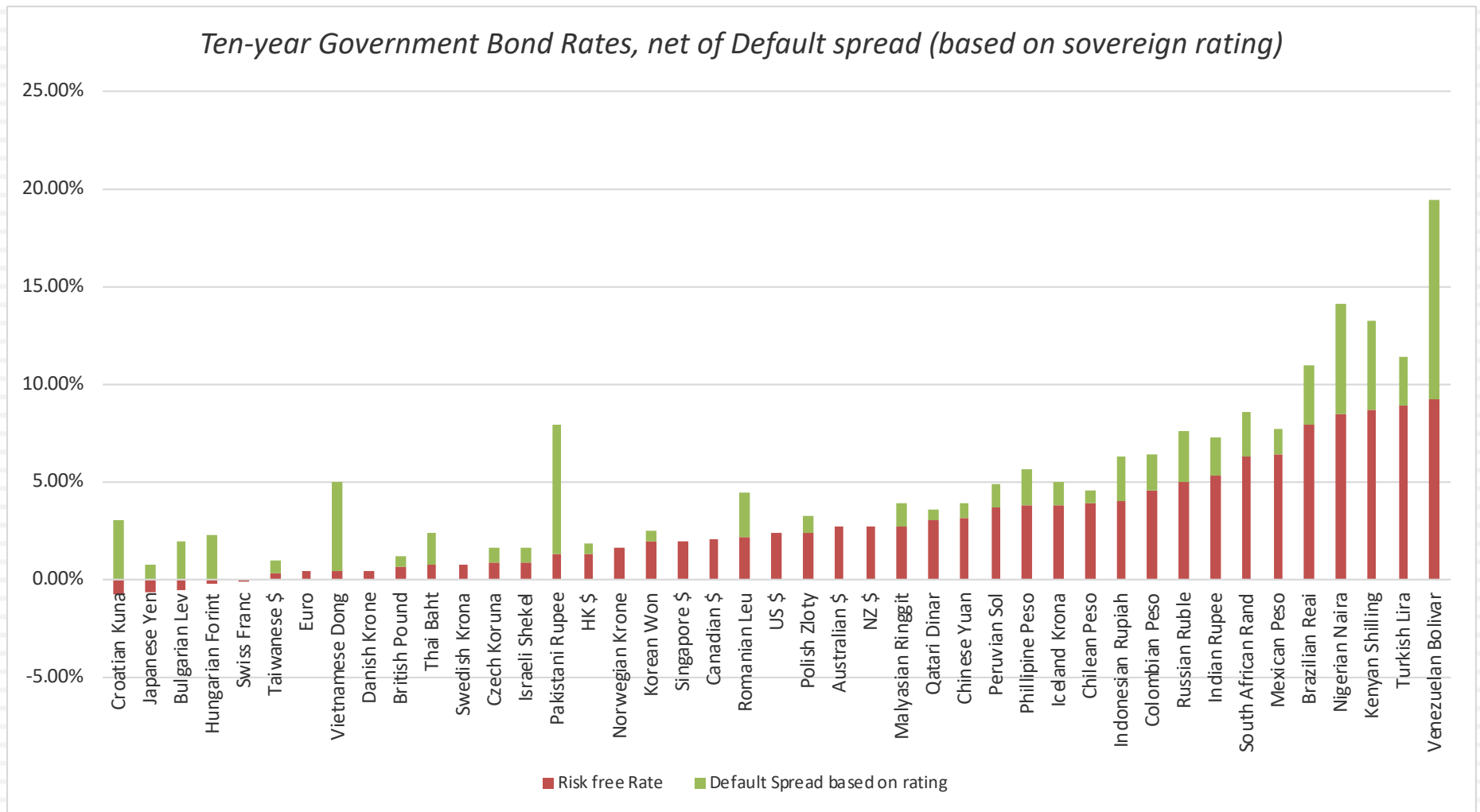
$$\text{Value of asset} = \frac{E(CF_1)}{(1+r)} + \frac{E(CF_2)}{(1+r)^2} + \frac{E(CF_3)}{(1+r)^3} + \dots + \frac{E(CF_n)}{(1+r)^n}$$

**Steady state**  
The value of growth comes from the capacity to generate excess returns. The length of your growth period comes from the strength & sustainability of your competitive advantages.

**Risk in the Cash flows**  
The risk in the investment is captured in the discount rate as a beta in the cost of equity and the default spread in the cost of debt.

# 1. Match your cash flows to your discount rates..

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# Valuing Infosys in Rupees and Dollars

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	In Rupees	In Dollars
Risk free Rate	5.38%	2.85%
Expected growth rate	10.00% for next 5 years, scaling down to 5.38% in year 10 (and forever)	7.37% for next 5 years, scaling down to 2.85% in year 10 (and forever)
Return on Capital	Marginal ROIC of 39.70%, scaling down to 15% forever	Marginal ROIC of 37.68%, scaling down to 12.36% forever.
Cost of capital	11.02% for next 5 years, scaling down to 9.88% in year 10 (and beyond)	8.36% for next 5 years, scaling down to 7.23% in year 10 (and beyond)
Value per share	Rs 1072.22 per share about 7% below stock price of Rs 1,150/share	\$16.86 per share about 7% below stock price of \$18.02/share

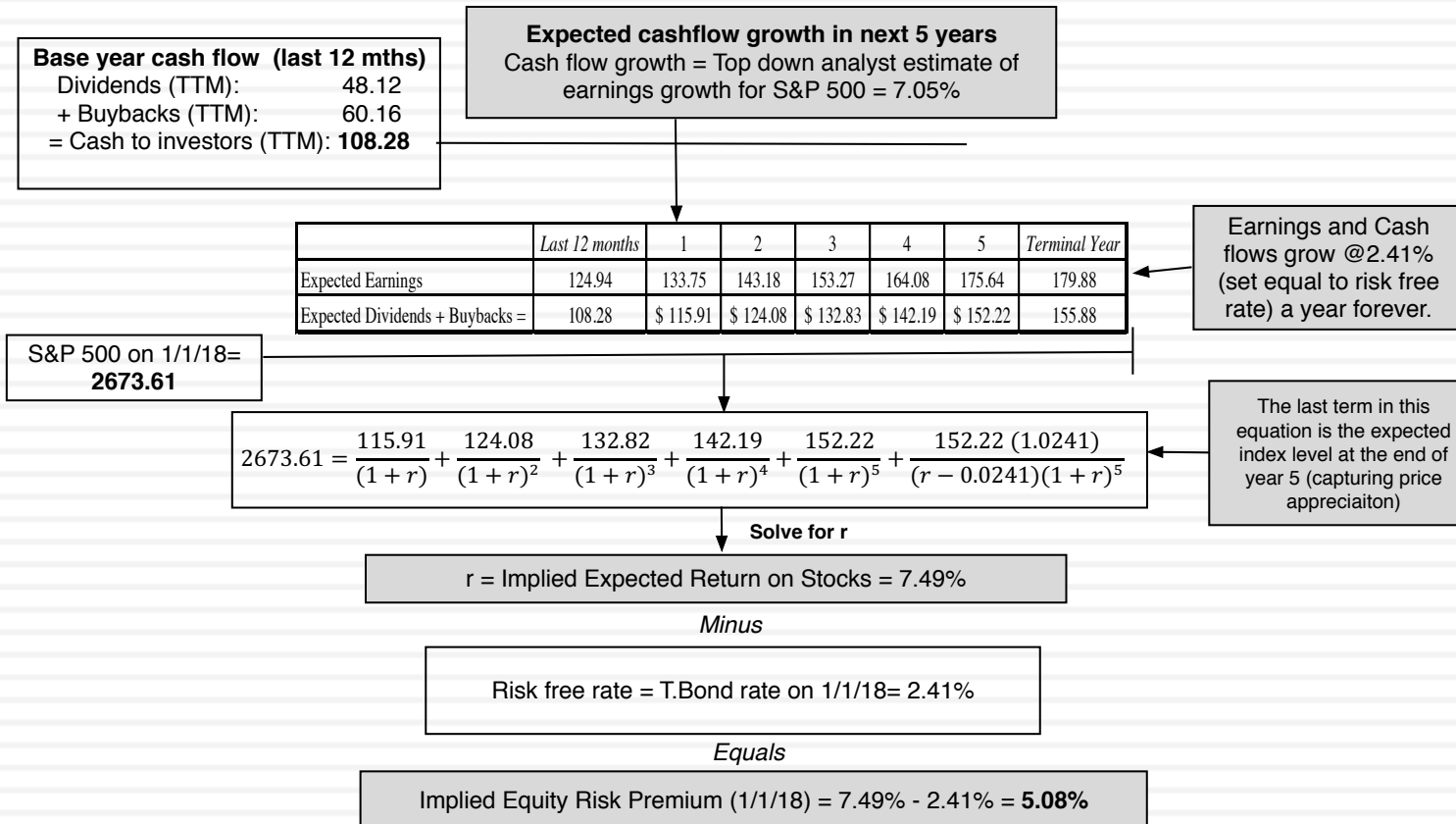


## 2. Risk is not in the past..

	Arithmetic Average		Geometric Average	
	Stocks - T. Bills	Stocks - T. Bonds	Stocks - T. Bills	Stocks - T. Bonds
1928-2017	8.09%	6.38%	6.26%	4.77%
<b>Std Error</b>	<b>2.10%</b>	<b>2.24%</b>		
1968-2017	6.58%	4.24%	5.28%	3.29%
<b>Std Error</b>	<b>2.39%</b>	<b>2.70%</b>		
2008-2017	9.85%	5.98%	8.01%	4.56%
<b>Std Error</b>	<b>6.12%</b>	<b>8.70%</b>		

- If you are going to use a historical risk premium, make it
  - ▣ Long term (because of the standard error)
  - ▣ Consistent with your risk free rate
  - ▣ A “compounded” average
- No matter which estimate you use, recognize that it is backward looking, is noisy and may reflect selection bias.

# But in the future..



# 3. Globalization is not a buzz word

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- As companies get globalized, the valuations that we do have to reflect that globalization. In particular, we need to be wary of
  - ▣ Currency mismatches: Multinationals derive their revenues in many currencies but you have to be currency-consistent.
  - ▣ Beta gaming: When a company is listed in many markets, you can get very different betas, depending on how you set up and run a beta regression
  - ▣ Equity Risk Premiums: The standard practice of estimating equity risk premiums based on your country of incorporation will lead to skewed valuations.

# ERP : Jan 2018

Andorra	Baa2	7.27%	2.19%	Jersey	Aa3	5.78%	0.70%
Austria	Aa1	5.54%	0.46%	Liechtenstein	Aaa	5.08%	0.00%
Belgium	Aa3	5.78%	0.70%	Luxembourg	Aaa	5.08%	0.00%
Cyprus	Ba3	9.23%	4.15%	Malta	A3	6.46%	1.38%
Denmark	Aaa	5.08%	0.00%	Netherlands	Aaa	5.08%	0.00%
Finland	Aa1	5.54%	0.46%	Norway	Aaa	5.08%	0.00%
France	Aa2	5.65%	0.57%	Portugal	Ba1	7.96%	2.88%
Germany	Aaa	5.08%	0.00%	Spain	Baa2	7.27%	2.19%
Greece	Caa2	15.46%	10.38%	Sweden	Aaa	5.08%	0.00%
Guernsey	Aa3	5.78%	0.70%	Switzerland	Aaa	5.08%	0.00%
Iceland	A3	6.46%	1.38%	Turkey	Ba1	7.96%	2.88%
Ireland	A2	6.06%	0.98%	United Kingdom	Aa2	5.65%	0.57%
Isle of Man	Aa2	5.65%	0.57%	<b>Western Europe</b>		6.01%	0.93%
Italy	Baa2	7.27%	2.19%				

Canada	Aaa	5.08%	0.00%
United States	Aaa	5.08%	0.00%
<b>North America</b>		5.08%	0.00%

<b>Caribbean</b>		11.39%	6.31%
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Argentina	B2	11.42%	6.34%
Belize	B3	12.58%	7.50%
Bolivia	Ba3	9.23%	4.15%
Brazil	Ba2	8.54%	3.46%
Chile	Aa3	5.78%	0.70%
Colombia	Baa2	7.27%	2.19%
Costa Rica	Ba2	8.54%	3.46%
Ecuador	B3	12.58%	7.50%
El Salvador	Caa1	13.72%	8.64%
Guatemala	Ba1	7.96%	2.88%
Honduras	B1	10.27%	5.19%
Mexico	A3	6.46%	1.38%
Nicaragua	B2	11.42%	6.34%
Panama	Baa2	7.27%	2.19%
Paraguay	Ba1	7.96%	2.88%
Peru	A3	6.46%	1.38%
Suriname	B1	10.27%	5.19%
Uruguay	Baa2	7.27%	2.19%
Venezuela	Caa3	16.60%	11.52%
<b>Latin America</b>		8.63%	3.55%

Angola		11.42%	6.34%
Botswana		6.06%	0.98%
Burkina Faso		11.42%	6.34%
Cameroon		11.42%	6.34%
Cape Verde		11.42%	6.34%
Congo (DR)		12.58%	7.50%
Congo (Rep of)		15.46%	10.38%
Côte d'Ivoire		9.23%	4.15%
Egypt		12.58%	7.50%
Ethiopia		10.27%	5.19%
Gabon		12.58%	7.50%
Ghana		12.58%	7.50%
Kenya		10.27%	5.19%
Morocco		7.96%	2.88%
Mozambique		16.60%	11.52%
Namibia		7.96%	2.88%
Nigeria		11.42%	6.34%
Rwanda		11.42%	6.34%
Senegal		9.23%	4.15%
South Africa		7.62%	2.54%
Swaziland		5.08%	11.42%
Tunisia		10.27%	5.19%
Uganda		11.42%	6.34%
Zambia		12.58%	7.50%
<b>Africa</b>		10.63%	5.58%

Albania	B1	10.27%	5.19%
Armenia	B1	10.27%	5.19%
Azerbaijan	Ba2	8.54%	3.46%
Belarus	Caa1	13.72%	8.64%
Bosnia	B3	12.58%	7.50%
Bulgaria	Baa2	7.27%	2.19%
Croatia	Ba2	8.54%	3.46%
Czech Republic	A1	5.89%	0.81%
Estonia	A1	5.89%	0.81%
Georgia	Ba2	8.54%	3.46%
Hungary	Baa3	7.62%	2.54%
Kazakhstan	Baa3	7.62%	2.54%
Kyrgyzstan	B2	11.42%	6.34%
Latvia	A3	6.46%	1.38%
Lithuania	A3	6.46%	1.38%
Macedonia	Ba3	9.23%	4.15%
Moldova	B3	12.58%	7.50%
Montenegro	B1	10.27%	5.19%
Poland	A2	6.06%	0.98%
Romania	Baa3	7.62%	2.54%
Russia	Ba1	7.96%	2.88%
Serbia	Ba3	9.23%	4.15%
Slovakia	A2	6.06%	0.98%
Slovenia	Baa1	6.92%	1.84%
Tajikistan	B3	7.96%	2.88%
Ukraine	Caa2	15.46%	10.38%
<b>E. Europe</b>		7.75%	2.69%

Abu Dhabi	Aa2	5.65%	0.57%
Bahrain	B1	10.27%	5.19%
Iraq	Caa1	13.72%	8.64%
Israel	A1	5.89%	0.81%
Jordan	B1	10.27%	5.19%
Kuwait	Aa2	5.65%	0.57%
Lebanon	B3	12.58%	7.50%
Oman	Baa2	7.27%	2.19%
Qatar	Aa3	5.78%	0.70%
Ras Al Khaimah	A2	6.06%	0.98%
Saudi Arabia	A1	5.89%	0.81%
Sharjah	A3	6.46%	1.38%
United Arab Emirates	Aa2	5.65%	0.57%
<b>Middle East</b>		6.69%	1.61%

Country	PRS	ERP	CRP	Country	PRS	ERP	CRP
Algeria	62.3	12.58%	7.50%	Malawi	61.3	13.73%	8.65%
Brunei	76.3	6.06%	0.98%	Mali	60.8	13.73%	8.65%
Gambia	59.3	15.46%	10.38%	Myanmar	63.8	12.58%	7.50%
Guinea	58.3	15.46%	10.38%	Niger	53.7	18.91%	13.83%
Guinea-Bissau	63.8	12.58%	7.50%	Sierra Leone	54.3	18.91%	13.83%
Guyana	68.5	9.23%	4.15%	Somalia	52	18.91%	13.83%
Haiti	61.8	13.73%	8.65%	Sudan	48	25.32%	20.24%
Iran	73.3	7.27%	2.19%	Syria	47	25.32%	20.24%
Korea, D.P.R.	56	16.60%	11.52%	Tanzania	63.3	12.58%	7.50%
Liberia	53	18.91%	13.83%	Togo	61	13.73%	8.65%
Libya	62	13.73%	8.65%	Yemen, Republic	49.3	25.32%	20.24%
Madagascar	64.5	11.42%	6.34%	Zimbabwe	58.5	15.46%	10.38%

Bangladesh	Ba3	9.23%	4.15%
Cambodia	B2	11.42%	6.34%
China	A1	5.89%	0.81%
Fiji	Ba3	9.23%	4.15%
Hong Kong	Aa2	5.65%	0.57%
India	Baa2	7.27%	2.19%
Indonesia	Baa3	7.62%	2.54%
Japan	A1	5.89%	0.81%
Korea	Aa2	5.65%	0.57%
Macao	Aa3	5.78%	0.70%
Malaysia	A3	6.46%	1.38%
Mauritius	Baa1	6.92%	1.84%
Mongolia	Caa1	13.72%	8.64%
Pakistan	B3	12.58%	7.50%
Papua New Guinea	B2	11.42%	6.34%
Philippines	Baa2	7.27%	2.19%
Singapore	Aaa	5.08%	0.00%
Sri Lanka	B1	10.27%	5.19%
Taiwan	Aa3	5.78%	0.70%
Thailand	Baa1	6.92%	1.84%
Vietnam	B1	10.27%	5.19%
<b>Asia</b>		6.27%	1.19%

Australia	Aaa	5.08%	0.00%
Cook Islands	B1	10.27%	5.19%
New Zealand	Aaa	5.08%	0.00%
<b>Australia &amp; New Zealand</b>		5.08%	0.00%

Red #: Country risk premium  
Regional #: GDP weighted average

# And your country risk exposure comes from where you operate, not where you incorporate!

<i>Region</i>	<i>Revenues</i>	<i>ERP</i>	<i>Weight</i>	<i>Weighted ERP</i>
North America	₹ 42,408	5.08%	62.01%	3.1499%
Europe	₹ 15,302	6.01%	22.37%	1.3437%
Rest of the World	₹ 8,504	6.21%	12.43%	0.7721%
India	₹ 2,180	7.27%	3.19%	0.2317%
Total	₹ 68,394		100.00%	5.4974%

1. By focusing on revenues, are we misestimating country risk exposure?
2. As the company looks to grow in Latin America and Asia, how do you see this premium evolving?

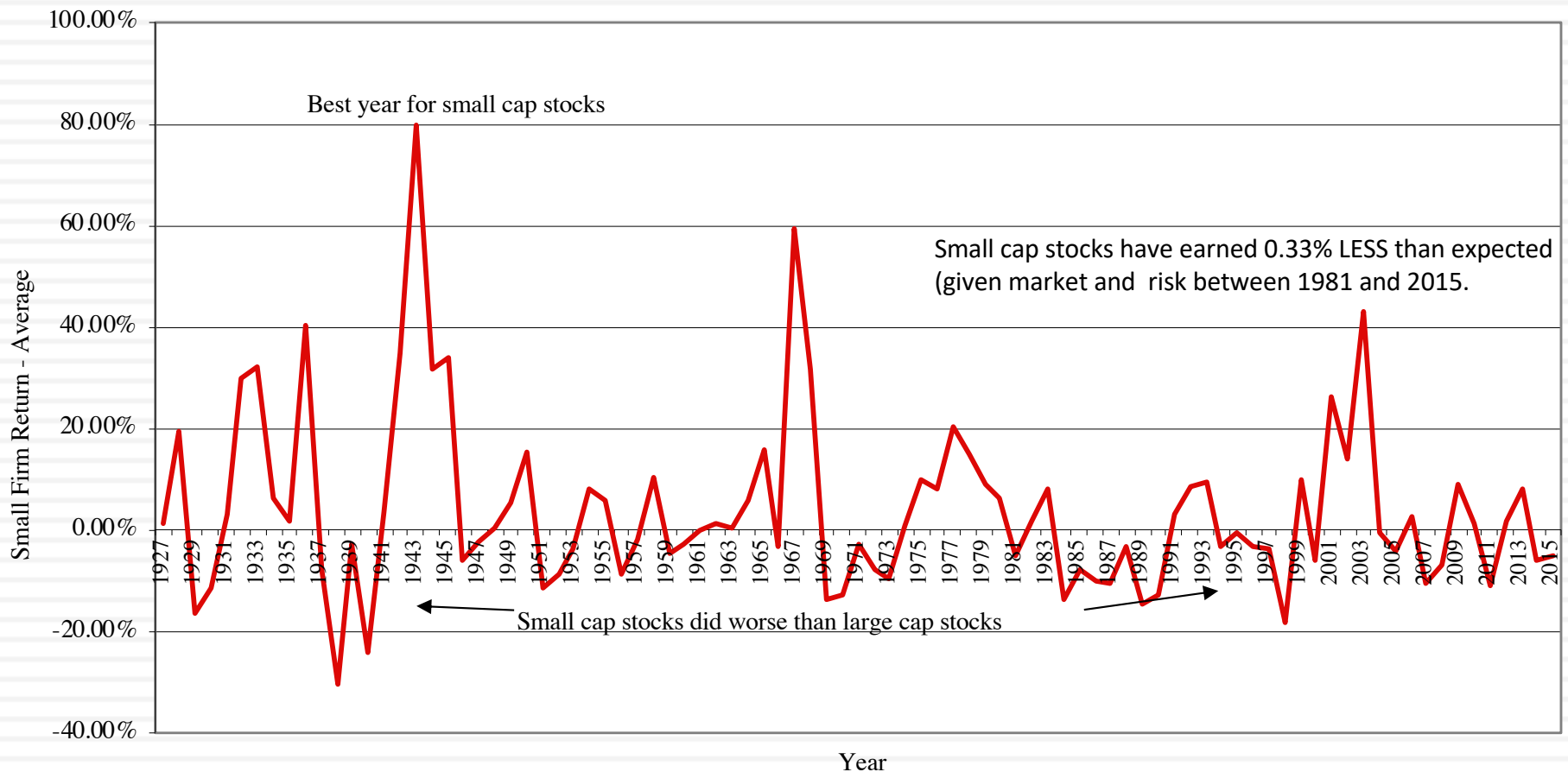
# Shell: Equity Risk Premium- March 2016

<i>Country</i>	<i>Oil &amp; Gas Production</i>	<i>% of Total</i>	<i>ERP</i>
Denmark	17396	3.83%	6.20%
Italy	11179	2.46%	9.14%
Norway	14337	3.16%	6.20%
UK	20762	4.57%	6.81%
<i>Rest of Europe</i>	<i>874</i>	<i>0.19%</i>	<i>7.40%</i>
Brunei	823	0.18%	9.04%
Iraq	20009	4.40%	11.37%
Malaysia	22980	5.06%	8.05%
Oman	78404	17.26%	7.29%
Russia	22016	4.85%	10.06%
<i>Rest of Asia &amp; ME</i>	<i>24480</i>	<i>5.39%</i>	<i>7.74%</i>
<i>Oceania</i>	<i>7858</i>	<i>1.73%</i>	<i>6.20%</i>
Gabon	12472	2.75%	11.76%
Nigeria	67832	14.93%	11.76%
Rest of Africa	6159	1.36%	12.17%
USA	104263	22.95%	6.20%
Canada	8599	1.89%	6.20%
Brazil	13307	2.93%	9.60%
<i>Rest of Latin America</i>	<i>576</i>	<i>0.13%</i>	<i>10.78%</i>
<b>Royal Dutch Shell</b>	<b>454326</b>	<b>100.00%</b>	<b>8.26%</b>

# 4. Everyone may do it, but that does not make it right.. The small cap premium

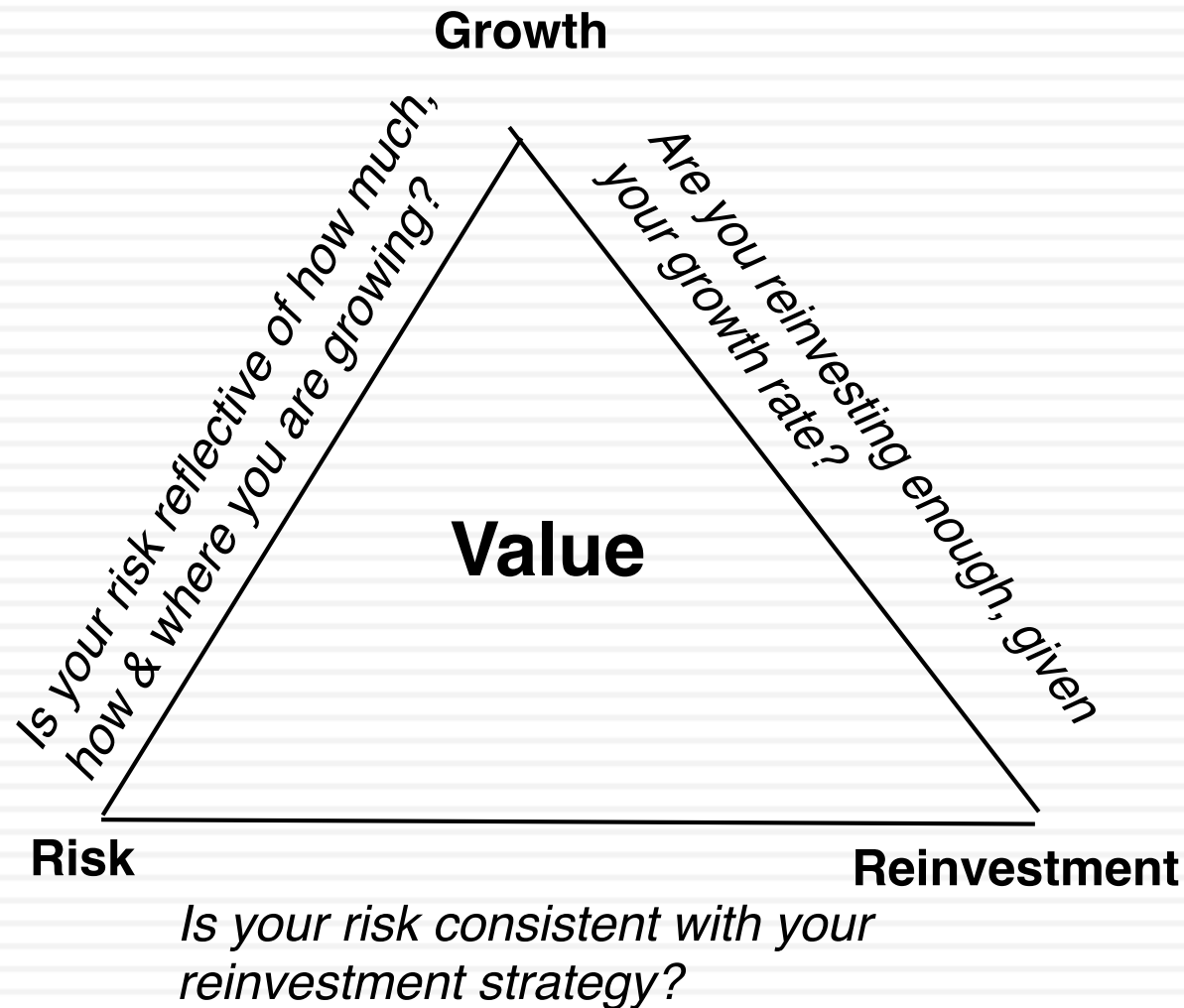
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Figure 4: Small Firm Premium over time- 1927 -2015



# 5. Don't let your inputs be at war with each other.

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# The Improbable: Willy Wonkitis

## Tesla: Summary 15-year DCF Analysis (DCF valuation as of mid-year 2013)

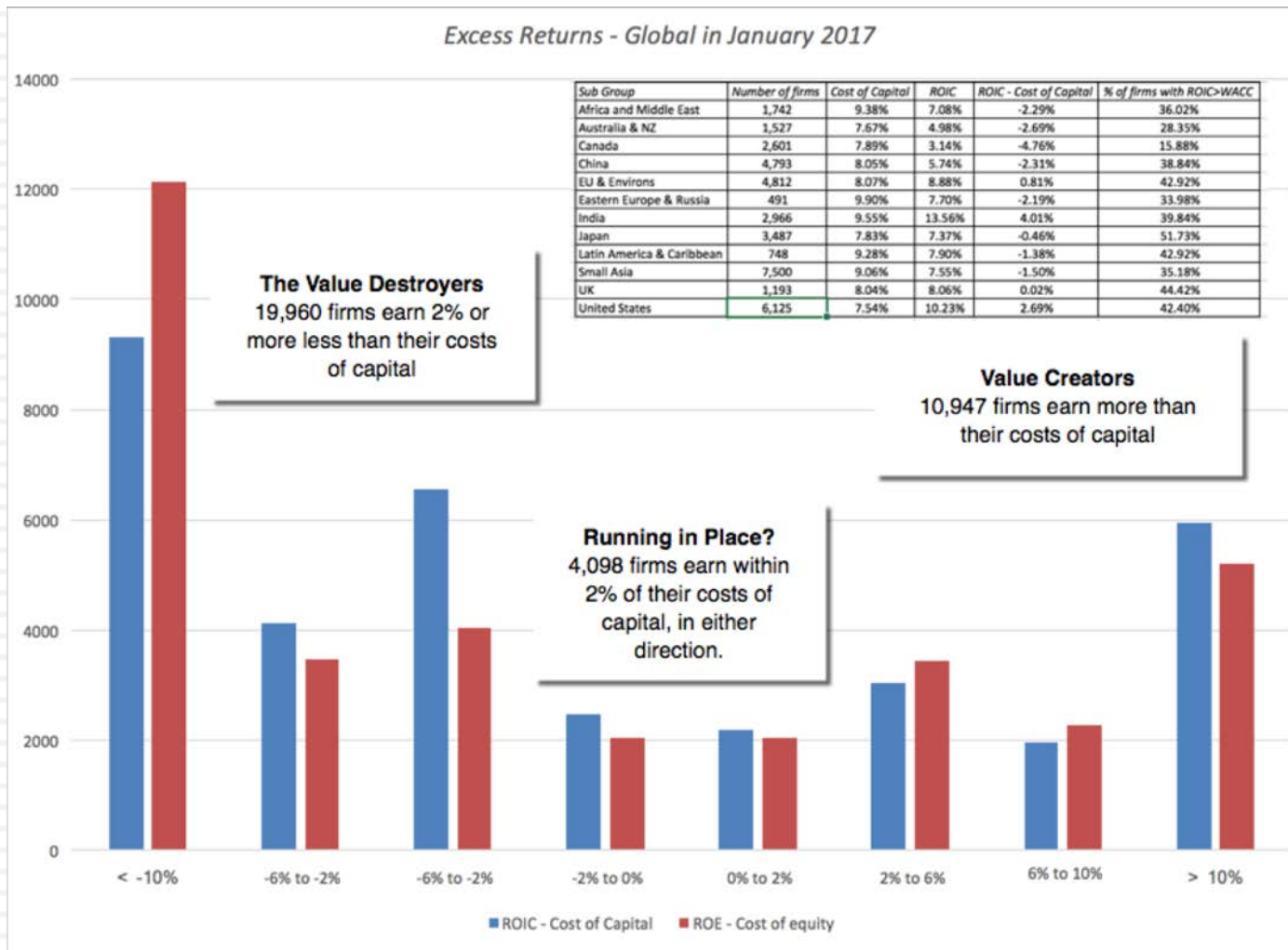
	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
Unit Volume	24,298	36,883	64,684	86,713	149,869	214,841	291,861	384,747	466,559	550,398	643,850	726,655	820,645	922,481	1,034,215	1,137,780
% Growth		52%	79%	34%	73%	43%	36%	32%	21%	18%	17%	13%	12%	12%	12%	10%
Automotive Revenue Per Unit (\$)	93,403	85,342	83,432	78,932	65,465	58,258	56,407	55,553	55,991	56,586	56,969	57,540	58,138	58,603	59,002	59,554
% Growth		-9%	-2%	-5%	-17%	-11%	-3%	-2%	1%	1%	1%	1%	1%	1%	1%	1%
Automotive Sales	2,462	3,321	5,613	7,051	10,025	12,720	16,685	21,595	26,347	31,357	36,897	42,022	47,949	54,283	61,221	67,980
Development Service Sales	16	40	42	44	46	49	51	54	56	59	62	65	68	72	75	79
<b>Total Sales</b>	<b>2,478</b>	<b>3,361</b>	<b>5,655</b>	<b>7,095</b>	<b>10,072</b>	<b>12,768</b>	<b>16,736</b>	<b>21,648</b>	<b>26,403</b>	<b>31,416</b>	<b>36,959</b>	<b>42,087</b>	<b>48,017</b>	<b>54,355</b>	<b>61,296</b>	<b>68,059</b>
% Growth		36%	60%	25%	42%	27%	31%	29%	22%	19%	18%	14%	14%	13%	13%	11%
<b>EBITDA</b>	<b>148</b>	<b>417</b>	<b>920</b>	<b>1,042</b>	<b>1,586</b>	<b>2,150</b>	<b>3,138</b>	<b>4,066</b>	<b>4,857</b>	<b>5,723</b>	<b>6,328</b>	<b>7,182</b>	<b>8,144</b>	<b>9,688</b>	<b>10,874</b>	<b>12,099</b>
% Margin	6.0%	12.4%	16.3%	14.7%	15.7%	16.8%	18.7%	18.8%	18.4%	18.2%	17.1%	17.1%	17.0%	17.8%	17.7%	17.8%
D&A	103	158	172	203	301	353	389	537	606	696	811	938	1,088	1,260	1,451	1,661
% of Capex	41%	79%	59%	65%	62%	69%	78%	86%	79%	77%	75%	76%	76%	76%	76%	77%
<b>EBIT</b>	<b>45</b>	<b>259</b>	<b>748</b>	<b>839</b>	<b>1,285</b>	<b>1,796</b>	<b>2,749</b>	<b>3,529</b>	<b>4,252</b>	<b>5,027</b>	<b>5,517</b>	<b>6,244</b>	<b>7,056</b>	<b>8,429</b>	<b>9,423</b>	<b>10,439</b>
% Margin	1.8%	7.7%	13.2%	11.8%	12.8%	14.1%	16.4%	16.3%	16.1%	15.0%	14.0%	14.8%	14.7%	15.9%	15.4%	15.3%
Net Interest Income (Expense)	(27)	(1)	9	33	47	90	108	155	199	278	358	445	542	651	784	934
Other Income	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Pretax Income</b>	<b>46</b>	<b>258</b>	<b>758</b>	<b>872</b>	<b>1,332</b>	<b>1,886</b>	<b>2,857</b>	<b>3,684</b>	<b>4,451</b>	<b>5,305</b>	<b>5,875</b>	<b>6,688</b>	<b>7,598</b>	<b>9,080</b>	<b>10,207</b>	<b>11,373</b>
Income Taxes	3	2	14	34	86	262	462	641	807	1,003	1,134	1,317	1,470	1,761	2,028	2,323
% Effective Rate	6%	1%	2%	4%	6%	14%	16%	17%	18%	19%	19%	20%	19%	19%	20%	20%
<b>Net Income</b>	<b>44</b>	<b>256</b>	<b>744</b>	<b>839</b>	<b>1,246</b>	<b>1,624</b>	<b>2,395</b>	<b>3,043</b>	<b>3,644</b>	<b>4,303</b>	<b>4,741</b>	<b>5,372</b>	<b>6,128</b>	<b>7,319</b>	<b>8,179</b>	<b>9,050</b>
<b>Plus</b>																
After-tax Interest Expense (Income)	27	1	(9)	(33)	(47)	(90)	(108)	(154)	(189)	(278)	(357)	(444)	(541)	(650)	(782)	(932)
Depreciation of PP&E	103	158	172	203	301	353	389	537	606	696	811	938	1,088	1,260	1,451	1,661
Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Less</b>																
Change in Working Capital	(155)	(14)	(157)	(167)	(172)	(325)	(163)	(81)	(28)	(299)	(356)	(328)	(219)	(329)	(365)	(376)
% of Change in Sales		-2%	-7%	-12%	-9%	-12%	-4%	-2%	-1%	-6%	-6%	-6%	-4%	-5%	-5%	-6%
Capital Expenditures	250	200	312	312	486	510	497	623	765	906	1,078	1,236	1,437	1,660	1,898	2,149
% of Sales	10%	6%	6%	4%	5%	4%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Unlevered Free Cash Flow</b>	<b>78</b>	<b>229</b>	<b>750</b>	<b>863</b>	<b>1,186</b>	<b>1,702</b>	<b>2,343</b>	<b>2,884</b>	<b>3,314</b>	<b>4,113</b>	<b>4,472</b>	<b>4,959</b>	<b>5,456</b>	<b>6,597</b>	<b>7,315</b>	<b>8,005</b>

EBITDA	12,099
Sales	68,059
Net Debt (Cash)	(260)
Tesla Diluted Shares	142

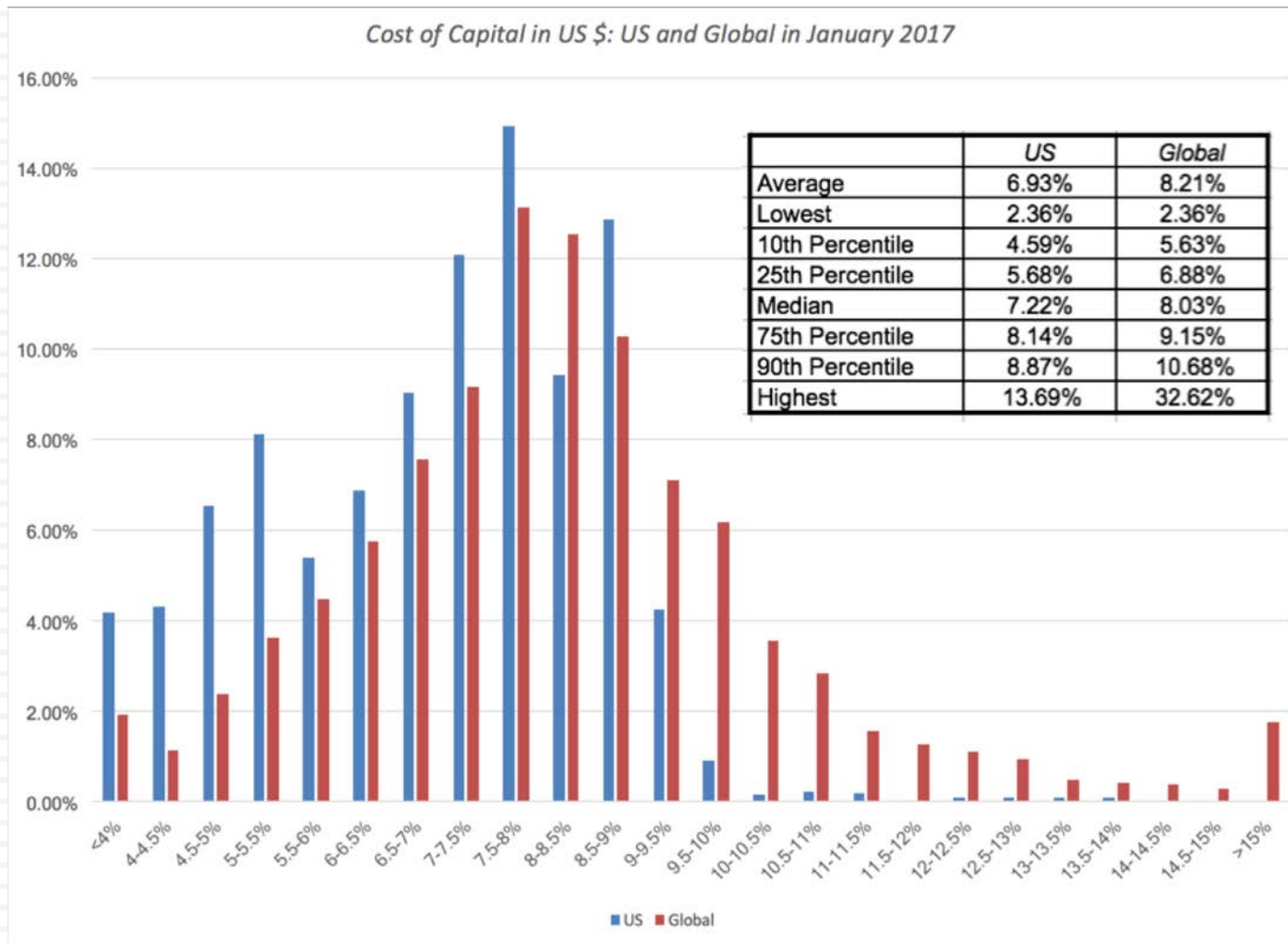
Exit EBITDA High	12.0 x	Exit PPG High	5.0%	Exit P/Sales High	180%
Exit EBITDA Low	8.0 x	Exit PPG Low	3.0%	Exit P/Sales Low	130%

Discount Rate High	13.0%	FY Month of Valuation	1.0 (Beginning of this Month)
Discount Rate Low	9.0%	Month of FY End	12.0 (End of this Month)

# And consider the trade offs..



# 6. Don't sweat the small stuff



# 7. Don't let your terminal value run away with your valuation

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- In the terminal value equation, the growth seems to be the magic input, the key driver of value.

$$\text{Terminal Value}_n = \frac{\text{Free Cash Flow}_{n+1}}{(r - g)}$$

- Since that growth rate has to be maintained in perpetuity, it cannot exceed the growth rate of the economy in which you operate:
  - ▣ If your valuation is in nominal terms, it is the nominal growth rate of the economy. If it is in real terms, it is the real growth rate.
  - ▣ If your company is purely domestic, it is the growth rate of the domestic economy. If it is global, it is the global economy.

# My Simple Proxy: The Risk free Rate

- I use a simpler and more easily observable number as a cap on stable growth: the risk free rate that I have used in the valuation. This take into account the currency automatically (since higher inflation currencies have higher risk free rates) and it is not unreasonable to argue that it is a good proxy for the nominal growth rate in the economy.
- There are three reasons I do it:
  - The best predictor nominal growth in the US economy at the start of every decade has been the US treasury bond rate at the time.
  - It preserves consistency. If you believe, as many have, that the risk free rate is too low in US \$ or Euros, it compensates for the resulting too-low cost of capital by also capping the growth rate at the same number (at least in terminal value).
  - It puts a control on my biases.

# A Consistent Version of Terminal Value

- The terminal value equation can be restated:

$$\text{Terminal Value in year } n = \frac{\text{EBIT}_{n+1} (1 - t)(1 - \frac{g}{\text{ROC}})}{(\text{Cost of Capital} - g)}$$

**Terminal Value for a firm with \$100 million in after-tax operating income & cost of capital = 10% (for different g and ROIC)**

		<i>Return on capital in perpetuity</i>				
		6%	8%	10%	12%	14%
<i>Growth rate forever</i>	0.00%	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000
	0.50%	\$965	\$987	\$1,000	\$1,009	\$1,015
	1.00%	\$926	\$972	\$1,000	\$1,019	\$1,032
	1.50%	\$882	\$956	\$1,000	\$1,029	\$1,050
	2.00%	\$833	\$938	\$1,000	\$1,042	\$1,071
	2.50%	\$778	\$917	\$1,000	\$1,056	\$1,095
	3.00%	\$714	\$893	\$1,000	\$1,071	\$1,122

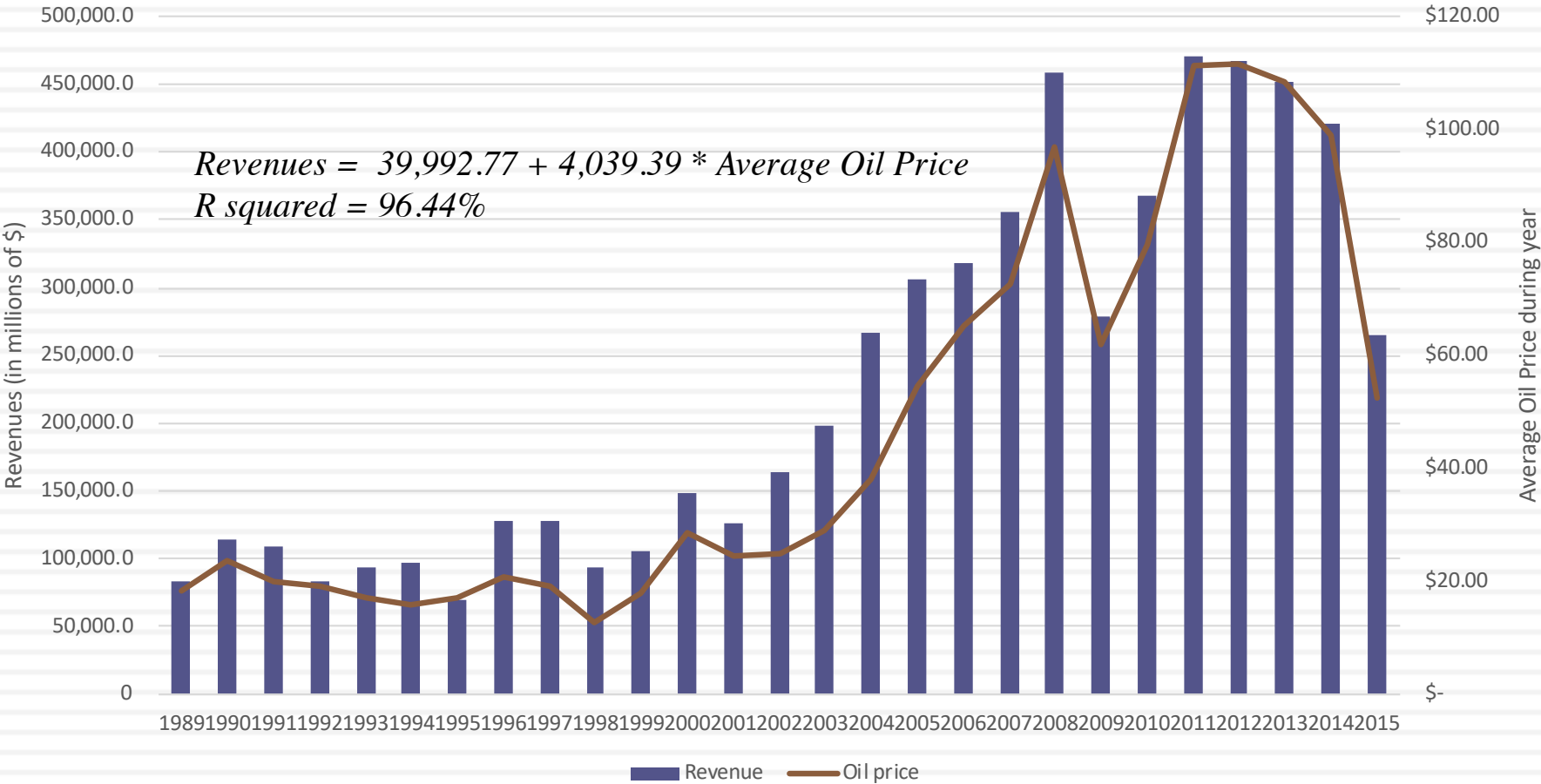
## 8. Don't let your macro views drown out your micro views..

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- When you are asked to value a company, you should keep your focus on what drives that value. If you bring in your specific macro views into the valuation, the value that you obtain for a company will be a joint result of what you think about the company and your macro views.
- **Bottom line:** If you have macro views, provide them separately. You should be as macro-neutral as you can be, in your company valuations.
- **Follow up:** If you find macro risk dominating your thoughts, deal with it frontally.

# The biggest driver for Shell (and no surprise) is..

Shell: Revenues vs Oil Price





# Valuing Shell at April 2016 oil price (\$40)

Revenue calculated from prevailing oil price of \$40/barrel in March 2016  
 Revenue = 39992.77+4039.40\*\$40  
 = \$201,569

Compounded revenue growth of 3.91% a year, based on Shell's historical revenue growth rate from 2000 to 2015

	Base Year	1	2	3	4	5	Terminal Year
Revenues	\$ 201,569	\$ 209,450	\$ 217,639	\$ 226,149	\$ 234,991	\$ 244,180	\$ 249,063
Operating Margin	3.01%	6.18%	7.76%	8.56%	8.95%	9.35%	9.35%
Operating Income	\$ 6,065.00	\$ 12,942.85	\$ 16,899.10	\$ 19,352.39	\$ 21,040.39	\$ 22,830.80	\$ 23,287.41
Effective tax rate	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%
AT Operating Income	\$ 4,245.50	\$ 9,060.00	\$ 11,829.37	\$ 13,546.68	\$ 14,728.27	\$ 15,981.56	\$ 16,301.19
+ Depreciation	\$ 26,714.00	\$ 27,759	\$ 28,844	\$ 29,972	\$ 31,144	\$ 32,361	
- Cap Ex	\$ 31,854.00	\$ 33,099	\$ 34,394	\$ 35,738	\$ 37,136	\$ 38,588	
- Chg in WC		\$ 472.88	\$ 491.37	\$ 510.58	\$ 530.55	\$ 551.29	
FCFF		\$ 3,246.14	\$ 5,788.19	\$ 7,269.29	\$ 8,205.44	\$ 9,203.68	\$ 13,011.34
Terminal Value						\$ 216,855.71	
Return on capital							12.37%
Cost of Capital		9.91%	9.91%	9.91%	9.91%	9.91%	8.00%
Cumulated Discount Factor		1.0991	1.2080	1.3277	1.4593	1.6039	
Present Value		\$ 2,953.45	\$ 4,791.47	\$ 5,474.95	\$ 5,622.81	\$ 140,940.73	
Value of Operating Assets	\$ 159,783.41						
+ Cash	\$ 31,752.00						
+ Cross Holdings	\$ 33,566.00						
- Debt	\$ 58,379.00						
- Minority Interests	\$ 1,245.00						
Value of Equity	\$ 165,477.41						
Number of shares	4209.7						
Value per share	\$ 39.31						

Added long term investments in joint ventures and subtracted out minority interest in consolidated holdings.

Operating margin converges on Shell's historical average margin of 9.35% from 200-2015

Return on capital reverts and stays at Shell's historic average of 12.37% from 200-2015

# Infosys: March 2018 (in Rupees)

## Cash flows from existing assets

	LTM	2011-2017	Industry (US data)
Revenue growth =	3.28%	14.22%	15.31%
Pre-tax operating margin =	24.29%	26.16%	8.35%
Sales to capital ratio =	1.81	2.50	3.69
Return on invested capital =	31.57%	47.80%	27.96%

## The Payoff from growth

Revenues will grow 10% a year for next 5 years, tapering down to 5.38% growth in year 10

Operating margin (per-tax) will continue to decline from 24.29% to 23%

Sales/Invested Capital will stay at ten-year average of 1.81

## Maturity and Closure

Stable Growth  
 $g = 5.38\%$ ;  
 Cost of capital = 9.88%  
 ROC = 15%;  
 Reinvestment Rate =  $g/ROC = 5.83\%/15.00\% = 35.87\%$

## Rupee Cashflows

Terminal Value =  $169,632 / (.0988 - .0538) = 3,769,597$

	Base year	1	2	3	4	5	6	7	8	9	10	Terminal year
Revenue growth rate		10.00%	10.00%	10.00%	10.00%	10.00%	9.08%	8.15%	7.23%	6.30%	5.38%	5.38%
Revenues	₹ 683,119	₹ 751,431	₹ 826,574	₹ 909,231	₹ 1,000,155	₹ 1,100,170	₹ 1,200,021	₹ 1,297,847	₹ 1,391,656	₹ 1,479,386	₹ 1,558,976	₹ 1,642,849
EBIT (Operating) margin	24.29%	24.16%	24.03%	23.90%	23.78%	23.65%	23.52%	23.39%	23.26%	23.13%	23.00%	23.00%
EBIT (Operating income)	₹ 165,945	₹ 181,568	₹ 198,657	₹ 217,348	₹ 237,790	₹ 260,148	₹ 282,208	₹ 303,536	₹ 323,678	₹ 342,170	₹ 358,565	₹ 377,855
Tax rate	28.00%	28.00%	28.00%	28.00%	28.00%	28.00%	28.40%	28.80%	29.20%	29.60%	30.00%	30.00%
EBIT(1-t)	₹ 119,480	₹ 130,729	₹ 143,033	₹ 156,491	₹ 171,209	₹ 187,306	₹ 202,061	₹ 216,118	₹ 229,164	₹ 240,888	₹ 250,995	₹ 264,499
- Reinvestment		₹ 37,842	₹ 41,626	₹ 45,789	₹ 50,368	₹ 55,404	₹ 55,313	₹ 54,191	₹ 51,966	₹ 48,599	₹ 44,090	₹ 94,867
FCFF		₹ 92,887	₹ 101,407	₹ 110,702	₹ 120,841	₹ 131,902	₹ 146,747	₹ 161,927	₹ 177,198	₹ 192,289	₹ 206,905	₹ 169,632
Cost of capital		11.02%	11.02%	11.02%	11.02%	11.02%	10.80%	10.57%	10.34%	10.11%	9.88%	
Cumulated discount factor		0.9007	0.8113	0.7307	0.6581	0.5928	0.5350	0.4839	0.4386	0.3983	0.3625	
PV(FCFF)		₹ 83,664	₹ 82,268	₹ 80,890	₹ 79,531	₹ 78,190	₹ 78,514	₹ 78,356	₹ 77,712	₹ 76,588	₹ 74,999	

PV(Terminal value)	₹ 1,366,411
PV (CF over next 10 years)	₹ 790,711
Value of operating assets =	₹ 2,157,122
- Debt	₹ -
- Minority interests	₹ -
+ Cash	₹ 230,727
+ Non-operating assets	₹ 61,081
Value of equity	₹ 2,448,930
- Value of options	₹ 945
Value of equity in common stock	₹ 2,447,985
Number of shares	₹ 2,283
Estimated value /share	₹ 1,072.22

Discount at Rs Cost of Capital (WACC) = 11.02% (.100) = 11.02%

## The Risk in the Cash flows

On March 27, 2018, Infosys was trading at Rs 1150/ share

Cost of Equity 11.02%

Cost of Debt NO DEBT

Weights E = 100% D = 0%

Riskfree Rate: Rupee Risk free Rate = 7.33% - 1.95% = 5.38%

Beta = 1.03

Firm's D/E Ratio: 0%

Business	Revenues	EV/Sales	Estimated Value	Value Weight	Unlevered Beta
Computer Software	₹ 2,101	6.3640	₹ 13,371	13.51%	1.1114
Computer Services	₹ 66,383	1.2899	₹ 85,630	86.49%	1.0136
<b>Company</b>	<b>₹ 68,484</b>		<b>₹ 99,001</b>		<b>1.0268</b>

ERP = 5.50%				
Region	Revenues	ERP	Weight	Weighted ERP
North America	₹ 42,408	5.08%	62.01%	3.1499%
Europe	₹ 15,302	6.01%	22.37%	1.3437%
Rest of the World	₹ 8,504	6.21%	12.43%	0.7721%
India	₹ 2,180	7.27%	3.19%	0.2317%
<b>Total</b>	<b>₹ 68,394</b>		<b>100.00%</b>	<b>5.4974%</b>



The **Chimera DCF** mixes dollar cash flows with peso discount rates, nominal cash flows with real costs of capital and cash flows before debt payments with costs of equity, violating basic consistency rules



In a **Trojan Horse DCF**, Just as the Greeks used a wooden horse to smuggle soldiers into Troy, analysts use the Trojan Horse of cash flows to smuggle in a pricing (in the form of a terminal value, estimated by using a multiple).



In a **Dreamstate DCF**, you build amazing companies on spreadsheets, making outlandish assumptions about growth and operating margins over time.



A **Kabuki DCF** is a work of art, where analyst and rule maker (or court) go through the motions of valuation, with the intent of developing models that are legally or accounting-rule defensible rather than yielding reasonable values.

$$D+CF \neq DCF$$



In a **Robo DCF**, the analyst builds a valuation almost entirely from the most recent financial statements and automated forecasts.

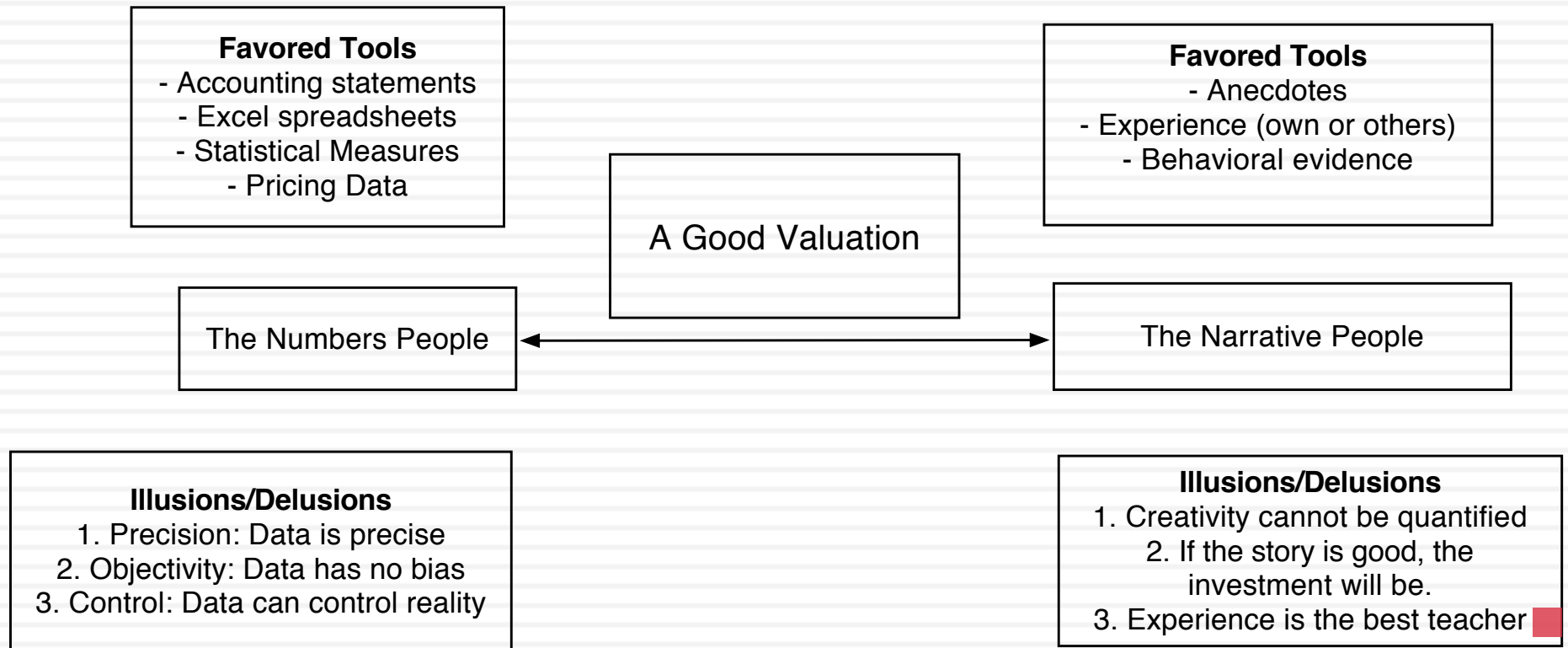


In a **Dissonant DCF**, assumptions about growth, risk and cash flows are not consistent with each other, with little or no explanation given for the mismatch.



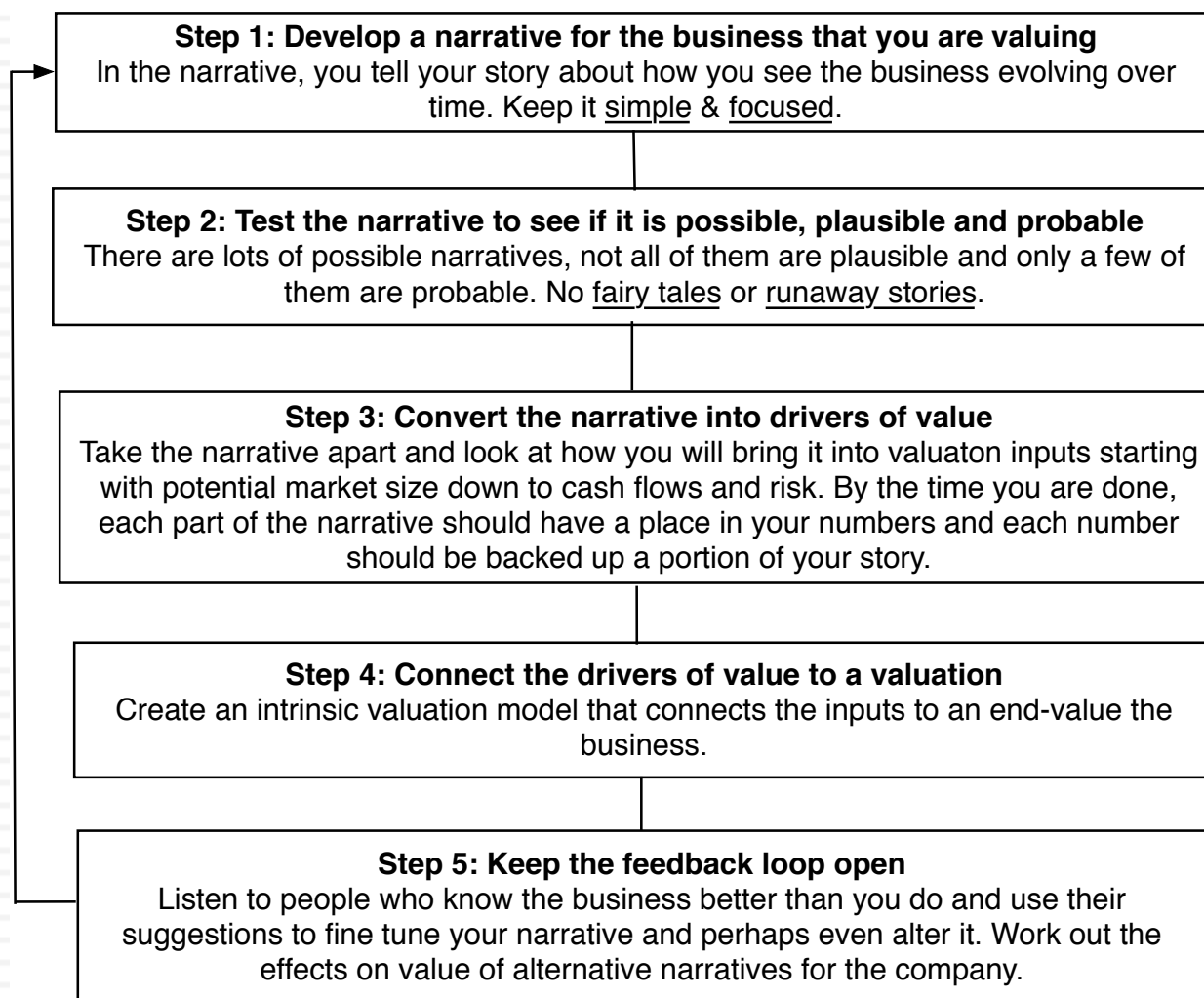
A **Mutant DCF** is a collection of numbers where items have familiar names (free cash flow, cost of capital) but the analyst putting it together has neither a narrative nor a sense of the basic principles of

# III. Don't mistake modeling for valuation



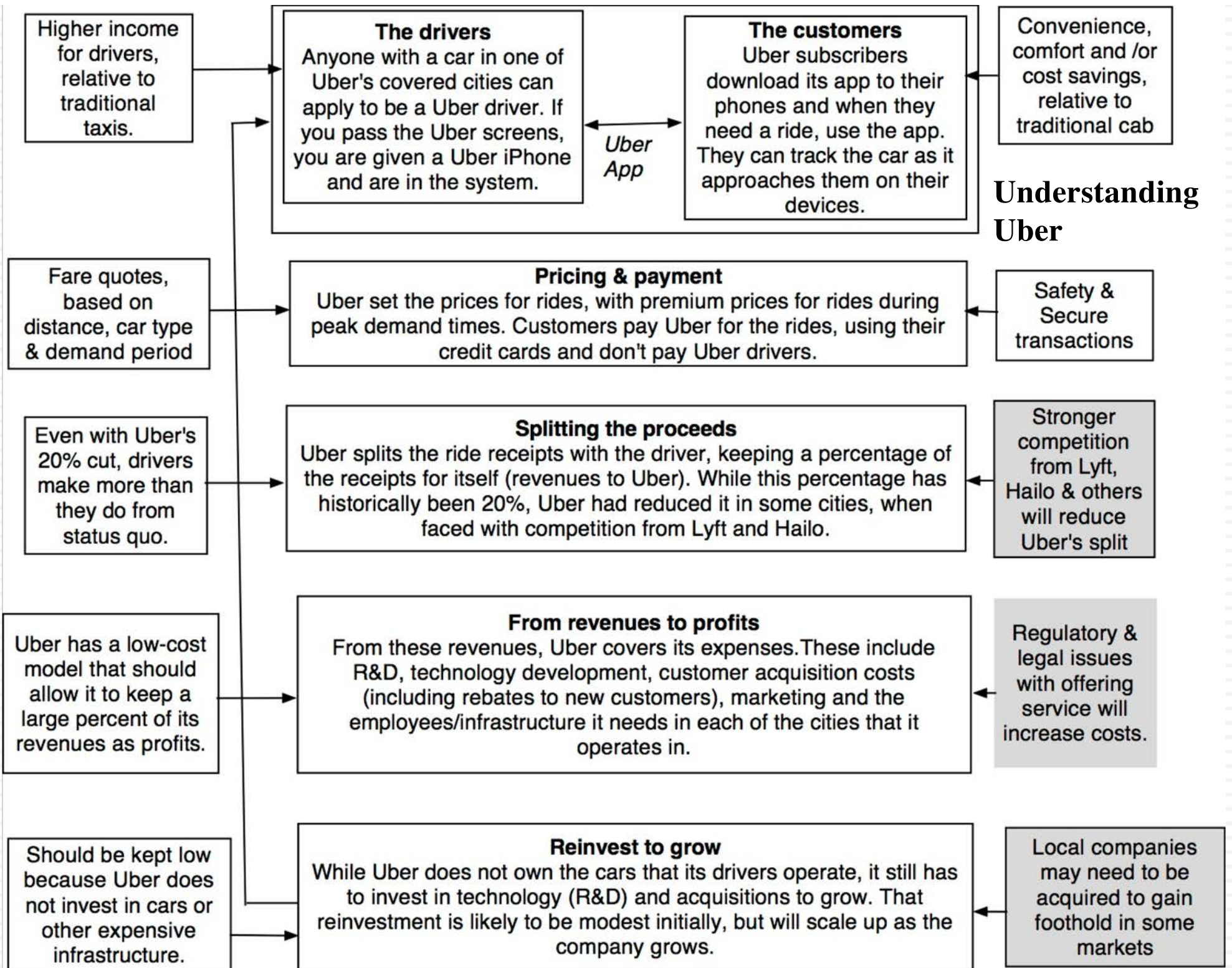
# From story to numbers and beyond..

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# Step Zero: 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.



# Step 1: 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.



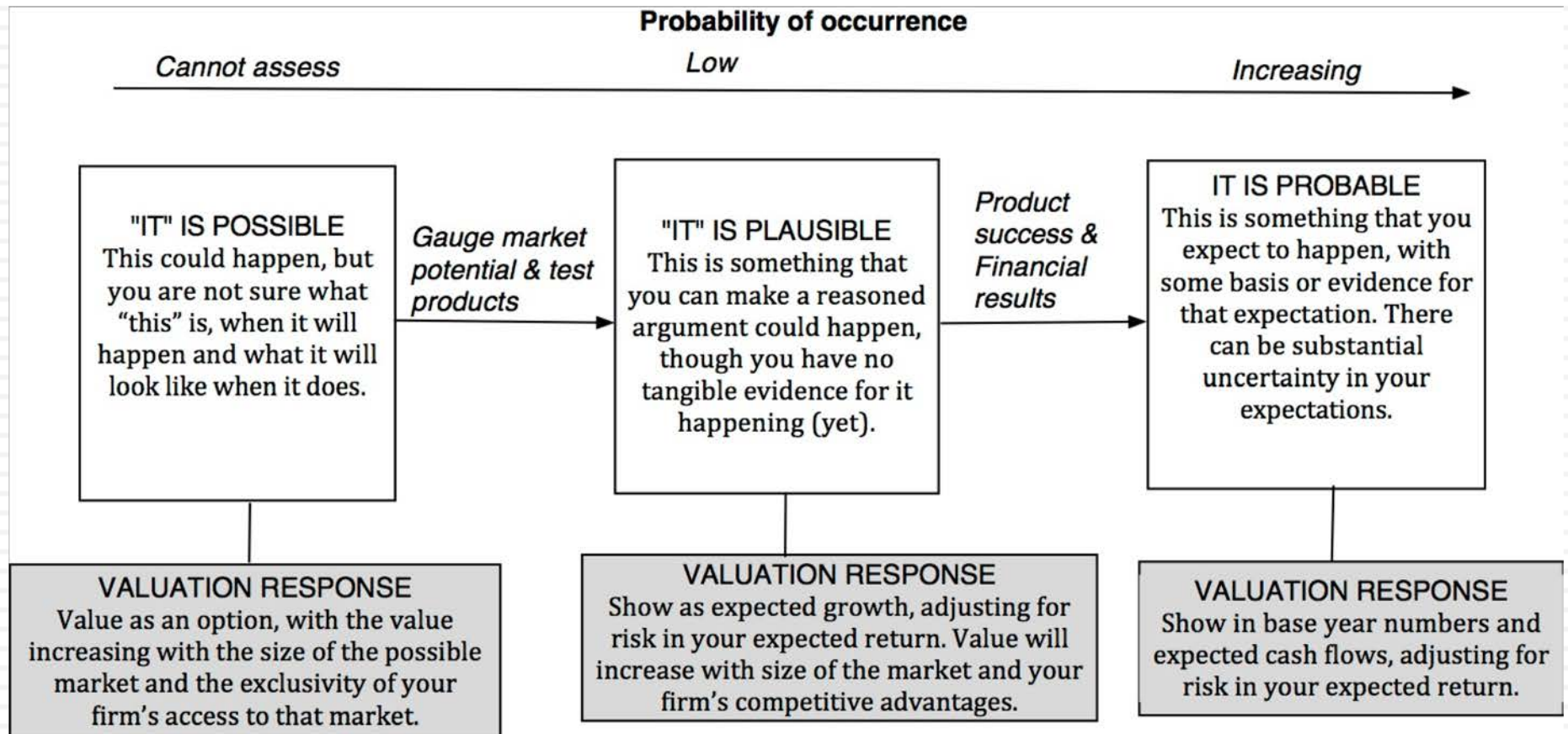
# The Uber Narrative

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.

# Step 2: Check the narrative against history, economic first principles & common sense

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# The Impossible, The Implausible and the Improbable

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## The Impossible

### Bigger than the economy

Assuming Growth rate for company in perpetuity > Growth rate for economy

### Bigger than the total market

Allowing a company's revenues to grow so much that it has more than a 100% market share of whatever business it is in.

### Profit margin > 100%

Assuming earnings growth will exceed revenue growth for a long enough period, and pushing margins above 100%

### Depreciation without cap ex

Assuming that depreciation will exceed cap ex in perpetuity.

## The Implausible

### Growth without reinvestment

Assuming growth forever without reinvestment.

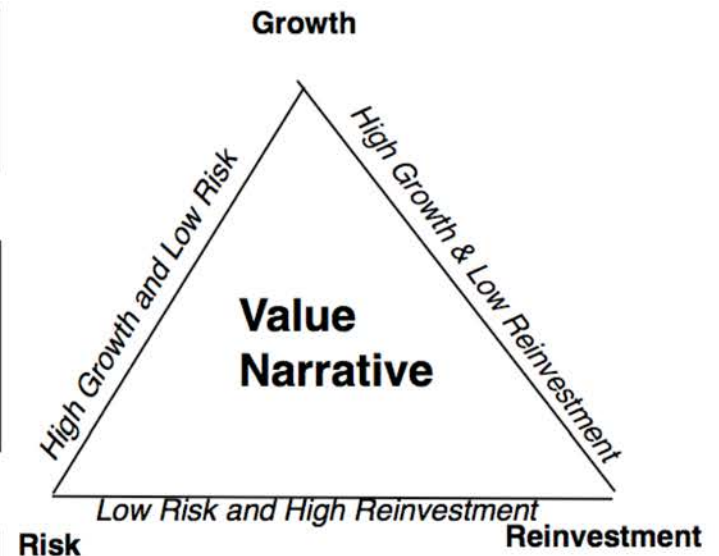
### Profits without competition

Assuming that your company will grow and earn higher profits, with no competition.

### Returns without risk

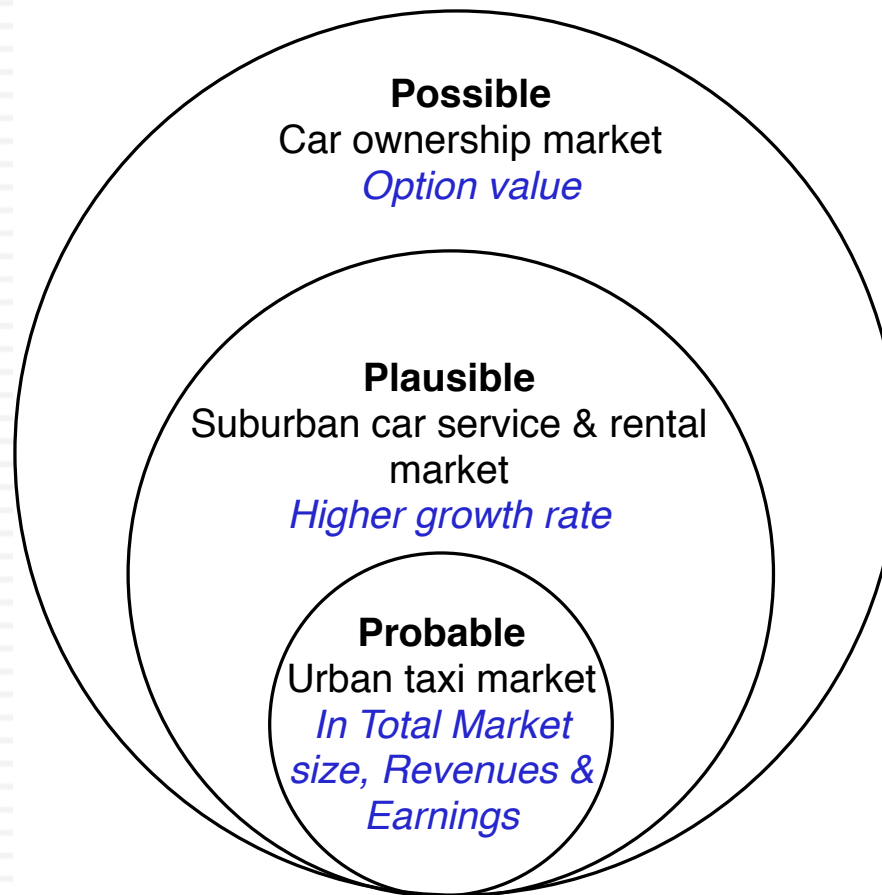
Assuming that you can generate high returns in a business with no risk.

## The Improbable

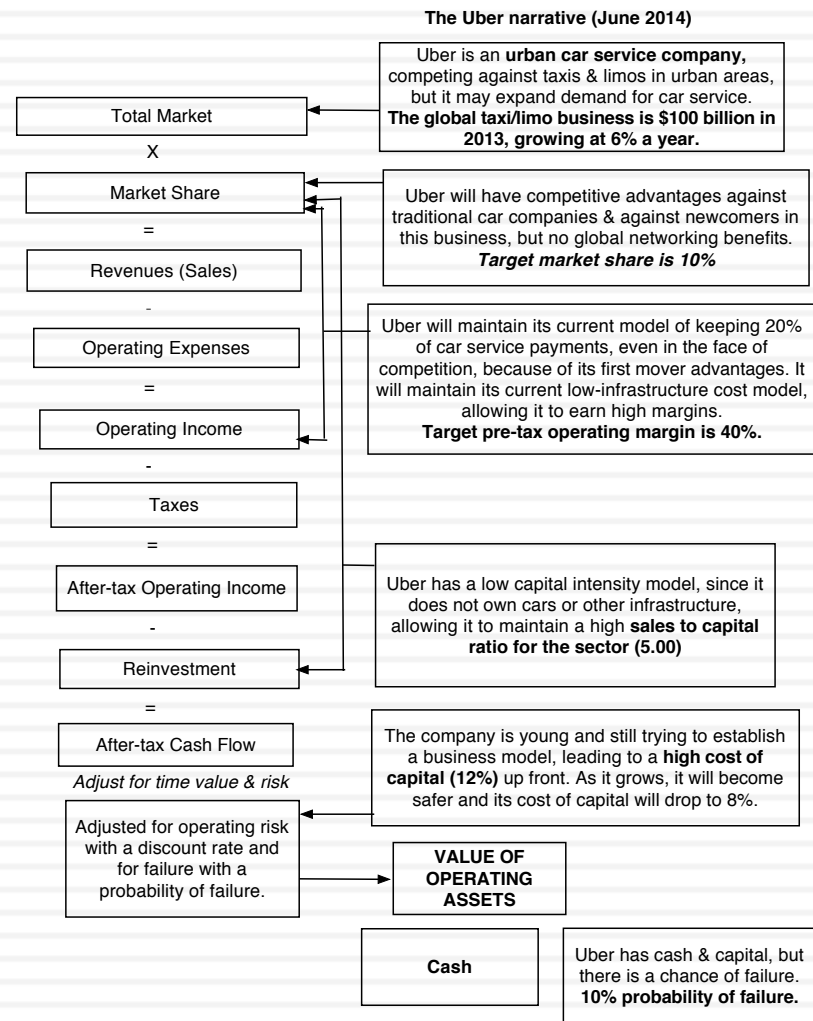


# Uber: Possible, Plausible and Probable

## Uber (My narrative))



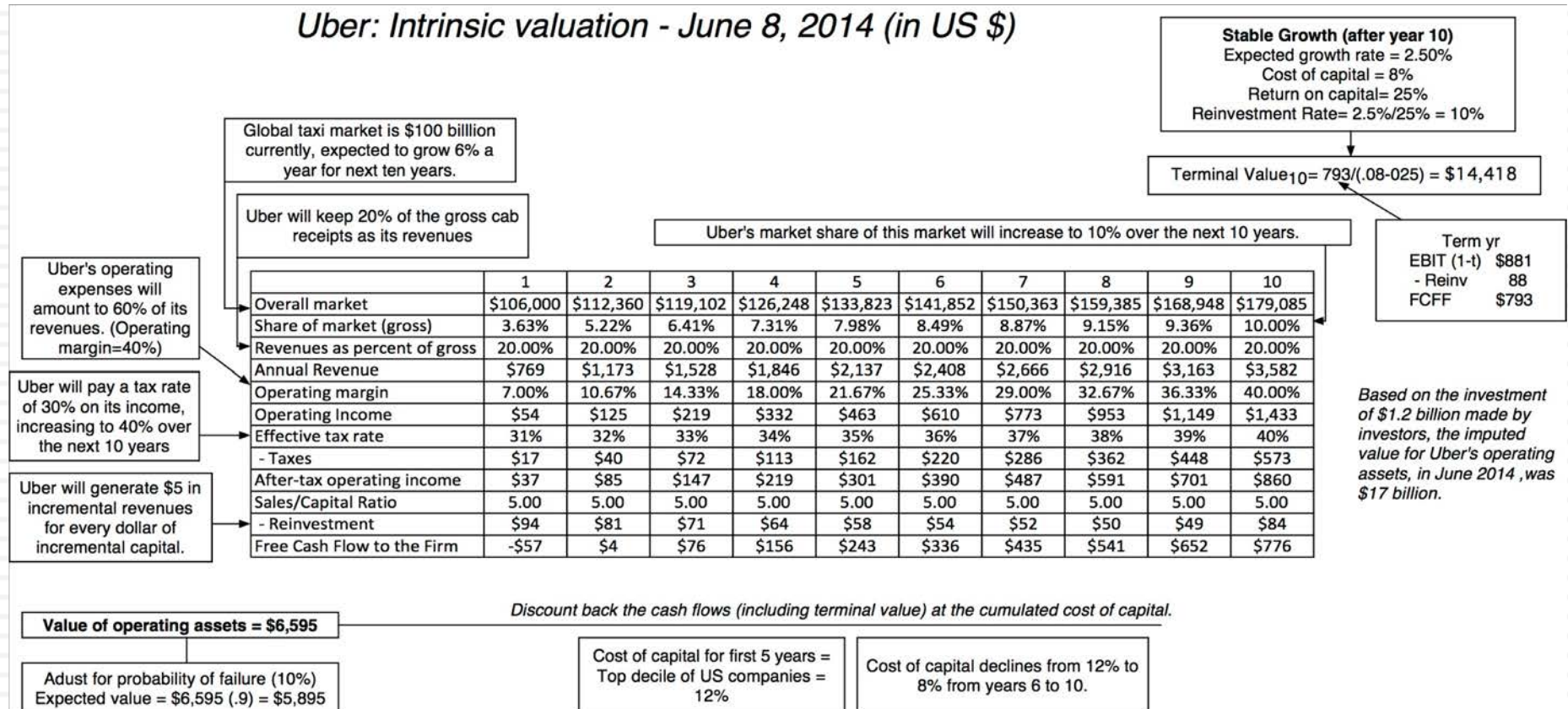
# Step 3: Connect your narrative to key drivers of value



# Step 4: Value the company (Uber)

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



# Step 5: Keep the feedback loop open

- When you tell a story about a company (either explicitly or implicitly), it is natural to feel attached to that story and to defend it against all attacks. Nothing can destroy an investor more than hubris.
- Being open to other views about a company is not easy, but here are some suggestions that may help:
  - ▣ Face up to the uncertainty in your own estimates of value.
  - ▣ Present the valuation to people who don't think like you do.
  - ▣ Create a process where people who disagree with you the most have a say.
  - ▣ Provide a structure where the criticisms can be specific and pointed, rather than general.

# The Gurley Pushback

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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

	<i>Uber (Gurley)</i>	<i>Uber (Gurley Mod)</i>	<i>Uber (Damodaran)</i>
Narrative	Uber will <u>expand the car service market substantially</u> , bringing in mass transit users & non-users from the suburbs into the market, and use its <u>networking advantage to gain a dominant market share</u> , while maintaining its revenue slice at 20%.	Uber will <u>expand the car service market substantially</u> , bringing in mass transit users & non-users from the suburbs into the market, and use its <u>networking advantage to gain a dominant market share</u> , while cutting prices and margins (to 10%).	Uber will expand the car service market moderately, primarily in urban environments, and use its <u>competitive advantages to get a significant but not dominant market share</u> 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

<i>Total Market</i>	<i>Growth Effect</i>	<i>Network Effect</i>	<i>Competitive Advantages</i>	<i>Value of Uber</i>
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

# The Real World Intrudes: Be ready to modify narrative as events unfold

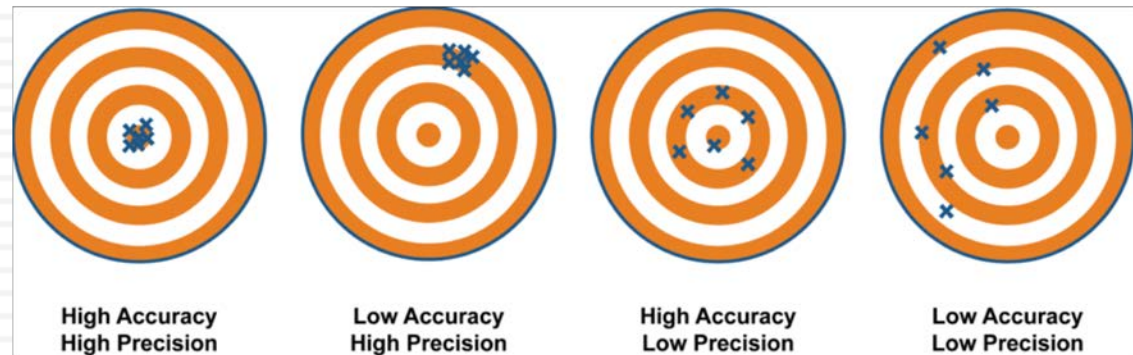
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Narrative Break/End	Narrative Shift	Narrative Change (Expansion or Contraction)
Events, external (legal, political or economic) or internal (management, competitive, default), that can cause the narrative to break or end.	Improvement or deterioration 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

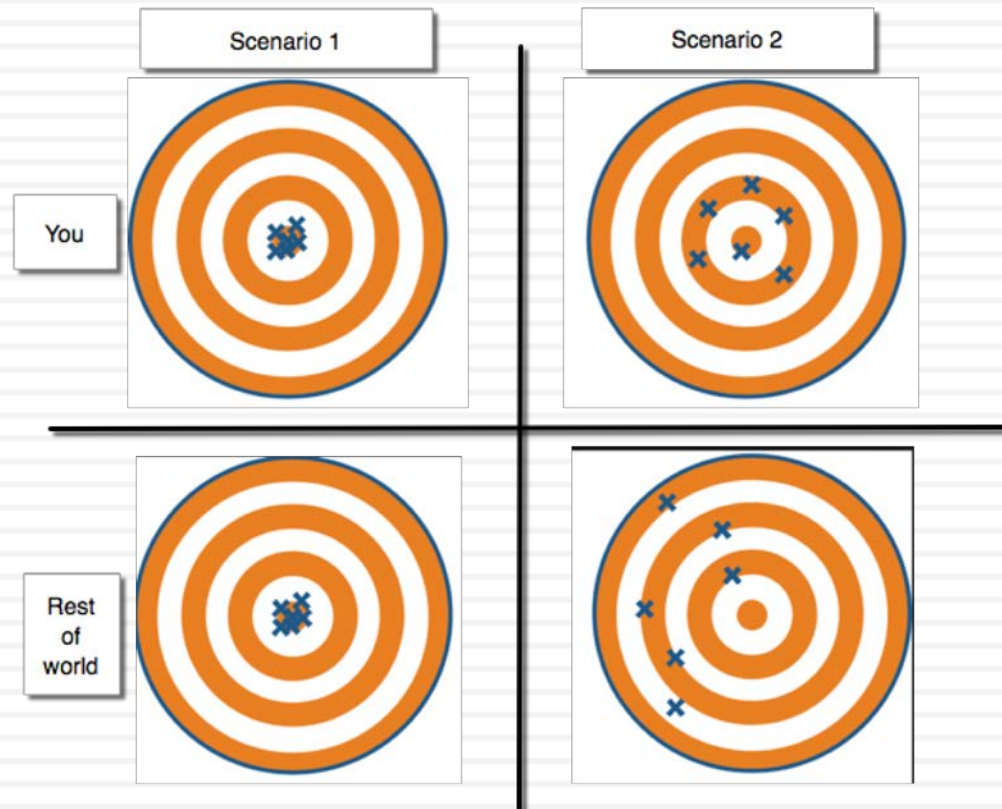
# IV. Don't mistake precision for accuracy.. And accuracy for payoff..

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Better accurate  
than precise



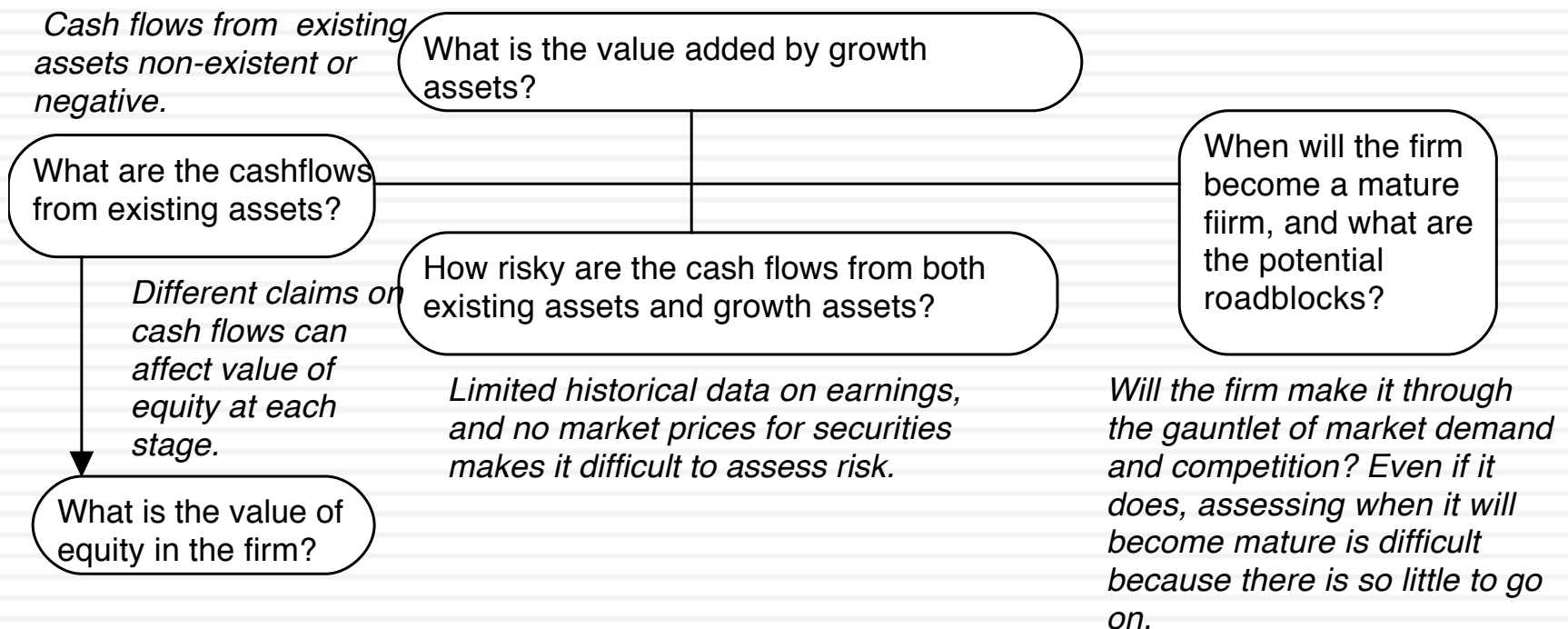
It's all relative



# Valuing a start up is hard to do..

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

*Making judgments on revenues/ profits difficult because you cannot draw on history. If you have no product/service, it is difficult to gauge market potential or profitability. The company's entire value lies in future growth but you have little to base your estimate on.*



# And the dark side will beckon..

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- 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.

# 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

## 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%
Netflix	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%

		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)

Aswath Damodaran

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

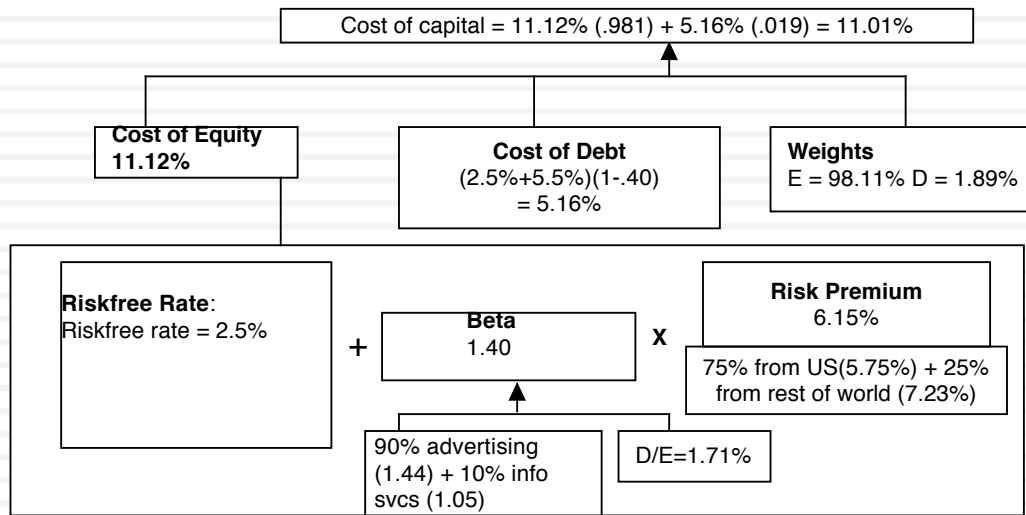
My estimate for Twitter: Sales/Capital will be 1.50 for next 10 years



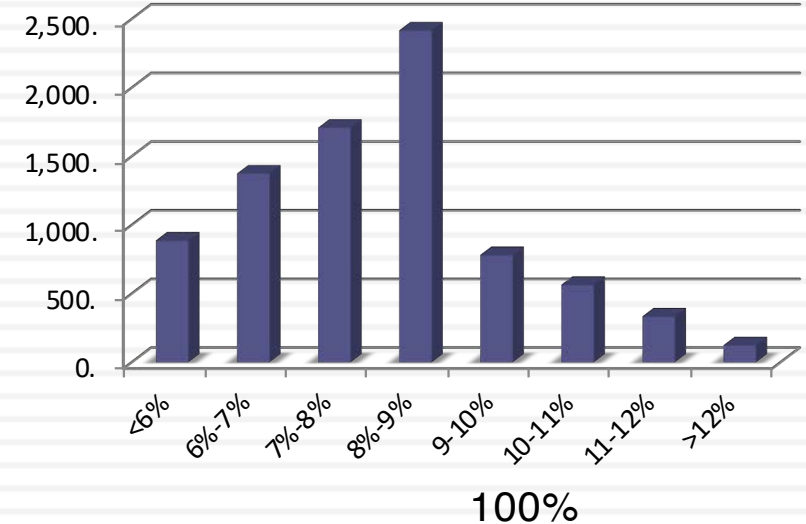
# The Cost of Capital for Twitter

## Risk in the discount rate

### My estimate for Twitter



### Cost of Capital: US - Nov '13



0%

Survival Risk

100%

Probability that the firm will not make it as a going concern

Certain to make it as going concern

Certain to fail

My assumption for Twitter

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%

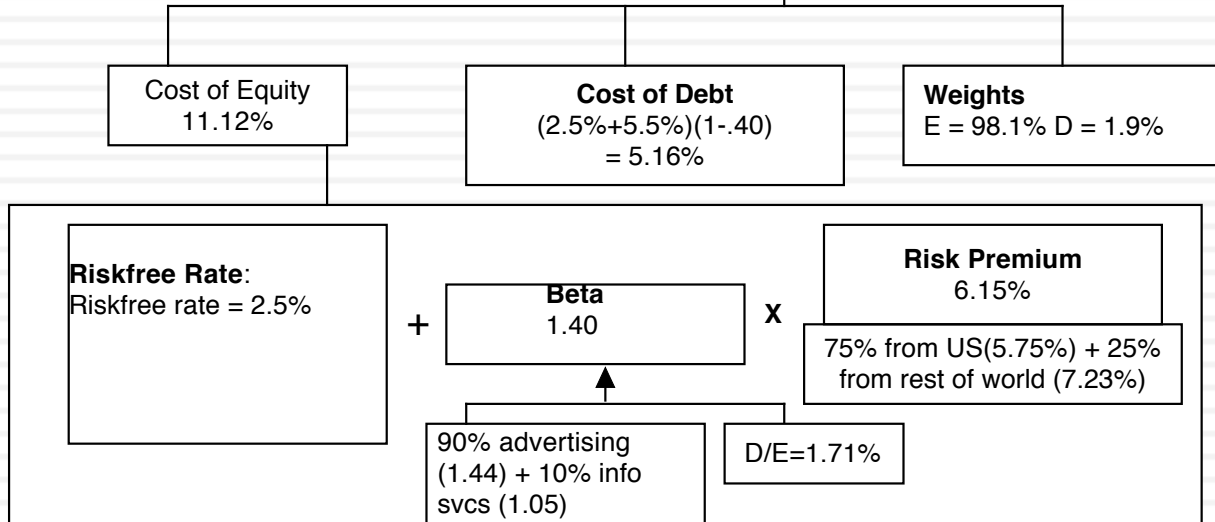
Terminal Value<sub>10</sub> = 1466/(.08-.025) = \$26,657

		1	2	3	4	5	6	7	8	9	10
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										
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

**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



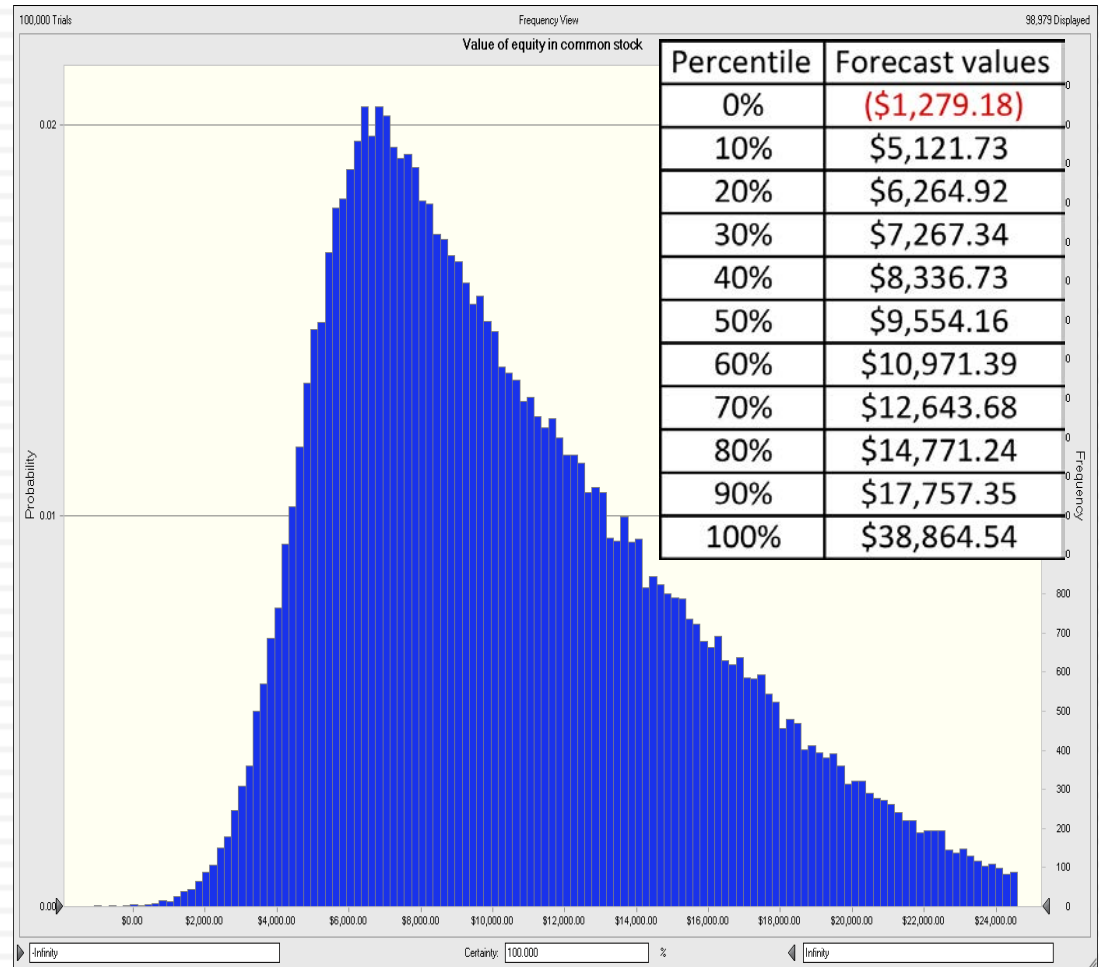
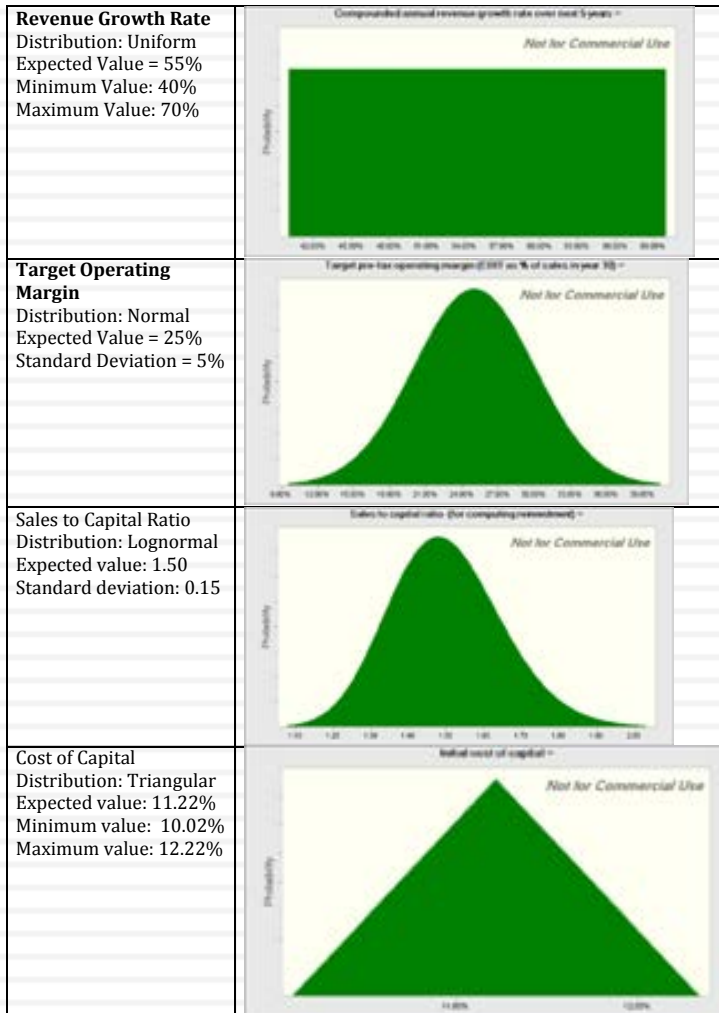
# A sobering reminder: You will be “wrong” and it is okay

51

- No matter how careful you are in getting your inputs and how well structured your model is, your estimate of value will change both as new information comes out about the company, the business and the economy.
- As information comes out, you will have to adjust and adapt your model to reflect the information. Rather than be defensive about the resulting changes in value, recognize that this is the essence of risk.
- Remember that it is not just your value that is changing, but so is the price, and the price will change a great deal more than the value.

# And your value is not a fact, but an estimate..

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# Forecasting in the face of uncertainty. A test:

53

- In which of these two cities would you find it easier to forecast the weather?

## Weather changeability for Honolulu, Hawaii

Temperature	Last Month	Last Year
Average change in high temperature day-to-day	1.7°	1.2°
Average change in low temperature day-to-day	1.5°	2.0°

Precipitation	Last Month	Last Year
Chance of dry day after a precip day	67%	81%
Chance of precip day after a dry day	7%	13%

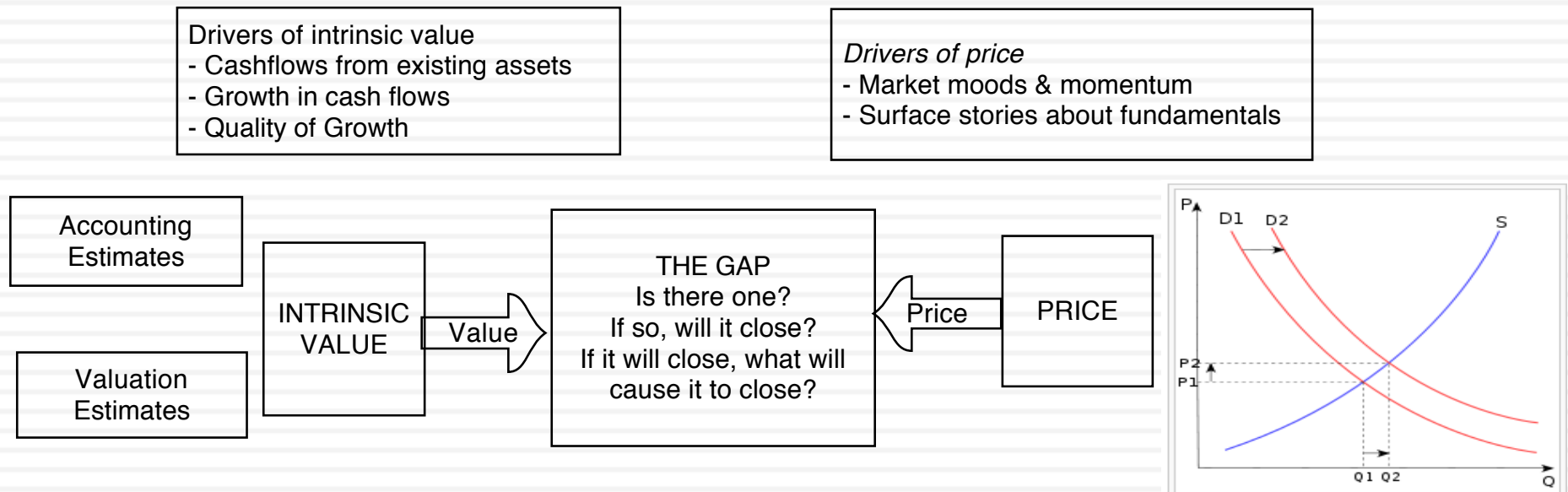
## Weather changeability for Epping, North Dakota

Temperature	Last Month	Last Year
Average change in high temperature day-to-day	8.5°	7.7°
Average change in low temperature day-to-day	7.1°	8.6°

Precipitation	Last Month	Last Year
Chance of dry day after a precip day	50%	65%
Chance of precip day after a dry day	38%	20%


# V. Don't mistake price for value!

54



# Test 1: Are you pricing or valuing?

55

 **5369 La Jolla Mesa Dr**  
La Jolla, CA 92037  
Status: Active





**\$995,000**  
Price

**3**  
Beds

**2.5**  
Baths


**1,440** Sq. Ft.  
\$691 / Sq. Ft.


Built: 1955 Lot Size: 3,000 Sq. Ft. On Redfin: 12 days

Favorite X-Out Share... Tour Home

Overview Property Details Tour Insights Property History Public Records Activity Schools Neighborhood & Offer Insights Similar Homes




1 of 25  [Play Video](#)

**Lisa Padilla**  
REDFIN Real Estate Agent

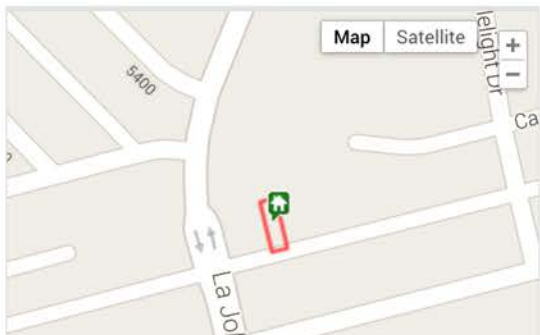
★★★★★  
47 client reviews

\$8,726 commission refund

 [Go Tour This Home](#)

[Ask Lisa a Question](#) or [Start an Offer](#)

1 of 4 Redfin Agents in this area



# Test 2: Are you pricing or valuing?

56

Europe  
Switzerland  
  
Biotechnology  
Biotechnology

Reuters  
BION.S

Bloomberg  
BION SW

Exchange  
SWX  
Ticker  
BION

Price at 12 Aug 2013 (CHF)	124.00
Price Target (CHF)	164.50
52-week range (CHF)	128.40 - 84.90

## Strong sector and stock-picking continue

### Impressive performance

Over the past two years, BB Biotech shares have roughly tripled, which could tempt investors to take profits. However, this performance has been well backed by a deserved revival of the biotech industry, encouraging fundamental news, M&A, and increased money flow into health care stocks. In addition, BBB returned to index outperformance by modifying its stock-picking approach. Hence, despite excellent performance, the shares still trade at a 23% discount to the net asset value of the portfolio. Hence, the shares are an attractive value vehicle to capture growth opportunities in an attractive sector.

### Biotech industry remains attractive

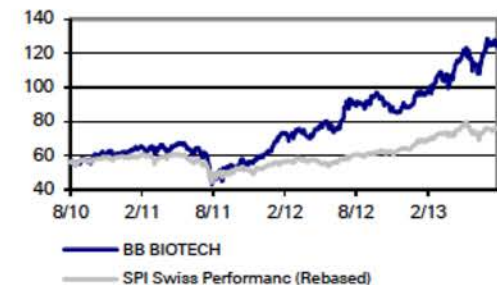
With the re-rating of the pharma sector, investors have also showed increased interest in biotech stocks. Established biotech stocks have delivered encouraging financial results and approvals, while there has also been substantial industry consolidation, which is not surprising in times of "cheap" money and high liquidity. BB Biotech remains an attractive vehicle to capture the future potential of the biotech sector. In addition, investors benefit from a 23% discount to NAV and attractive cash distribution policy of 5% yield p.a. Hence, we reiterate our Buy on BB Biotech shares.

### Key changes

Target Price 106.50 to 164.50 ↑ 54.5%

Source: Deutsche Bank

### Price/price relative



Performance (%)	1m	3m	12m
Absolute	-1.4	5.4	37.4



# Classifying Investments

1. Cash flow generating assets: Generate cash flows now or are expected to do so in the future. Can be a fixed cash flow claim, a residual claim or a contingent claim.
2. Commodities: Used as raw material to meet another need (energy, food etc.).
3. Currencies: Measure of cash flows, medium of exchange or store of value.
4. Collectibles: May have aesthetic or emotional value but derives its pricing from its scarcity (supply) and the perception of others that it is wanted.

# Value versus Price

	To value	To price
Assets	Can be valued based upon expected cashflows, with higher cashflows & lower risk = higher value.	Can be priced against similar assets, after controlling for cash flows and risk.
Commodity	Can be valued, based upon utilitarian demand and supply, but with long lags in both.	Can be priced against its own history (normalized price over time)
Currency	Cannot be valued	Can be priced against other currencies, with greater acceptance & more stable purchasing power = higher price.
Collectible	Cannot be valued	Can be priced based upon scarcity and desirability.

# The determinants of price

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## **Mood and Momentum**

Price is determined in large part by mood and momentum, which, in turn, are driven by behavioral factors (panic, fear, greed).

## **Liquidity & Trading Ease**

While the value of an asset may not change much from period to period, liquidity and ease of trading can, and as it does, so will the price.

The Market Price

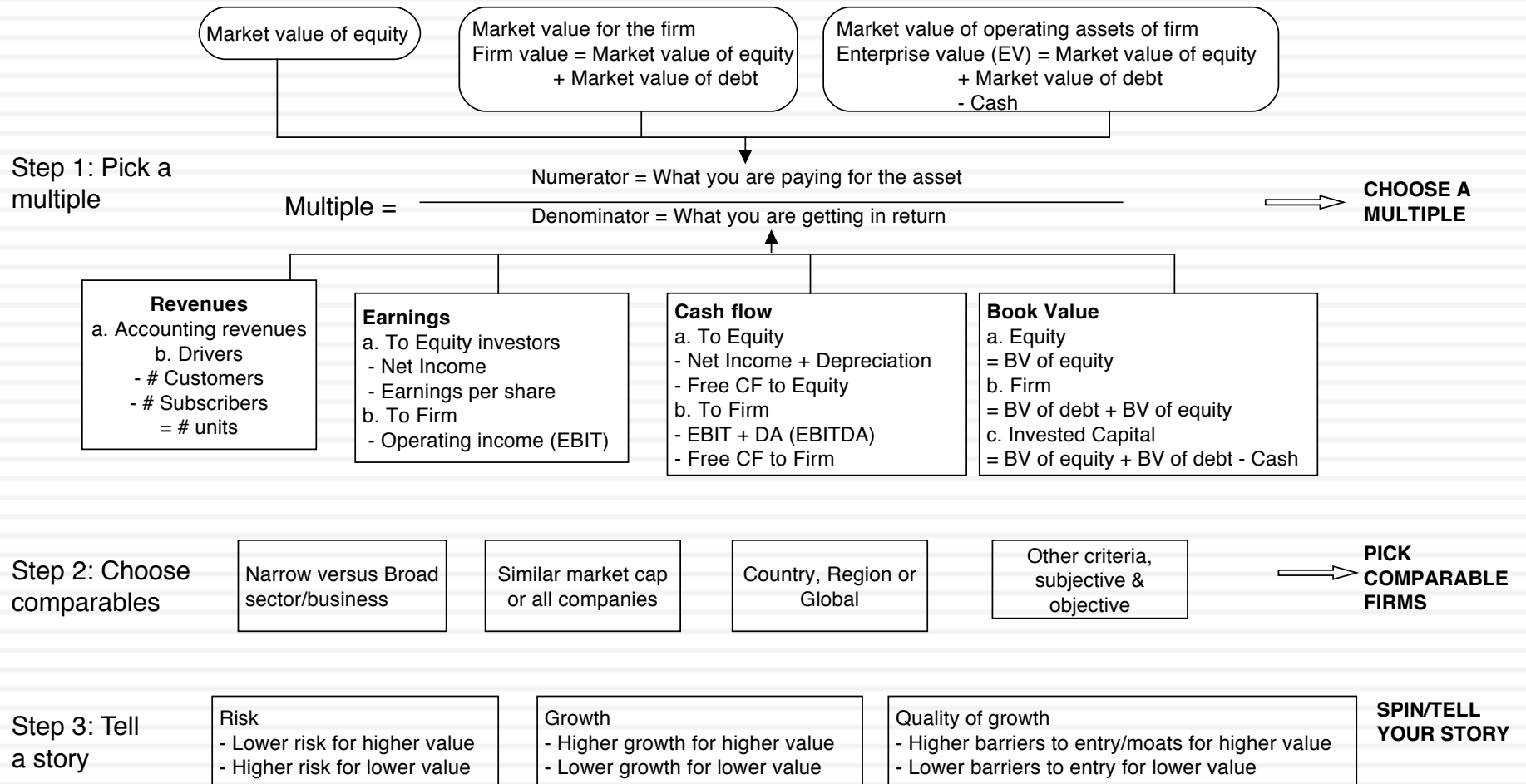
## **Incremental information**

Since you make money on price changes, not price levels, the focus is on incremental information (news stories, rumors, gossip) and how it measures up, relative to expectations

## **Group Think**

To the extent that pricing is about gauging what other investors will do, the price can be determined by the "herd".

# Multiples and Comparable Transactions



# Pricing Twitter: Start with the “comparables”

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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
						<b>Average</b>	\$130.01	11.32	350.80	267.44
						<b>Median</b>	\$97.41	10.92	44.20	116.47

# Read the tea leaves: See what the market cares about

62

	<i>Market Cap</i>	<i>Enterprise value</i>	<i>Revenues</i>	<i>EBITDA</i>	<i>Net Income</i>	<i>Number of users (millions)</i>
<i>Market Cap</i>	1.					
<i>Enterprise value</i>	0.9998	1.				
<i>Revenues</i>	0.8933	0.8966	1.			
<i>EBITDA</i>	0.9709	0.9701	0.8869	1.		
<i>Net Income</i>	0.8978	0.8971	0.8466	0.9716	1.	
<i>Number of users (millions)</i>	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”

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- 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

## VII. Investing is an act of faith..

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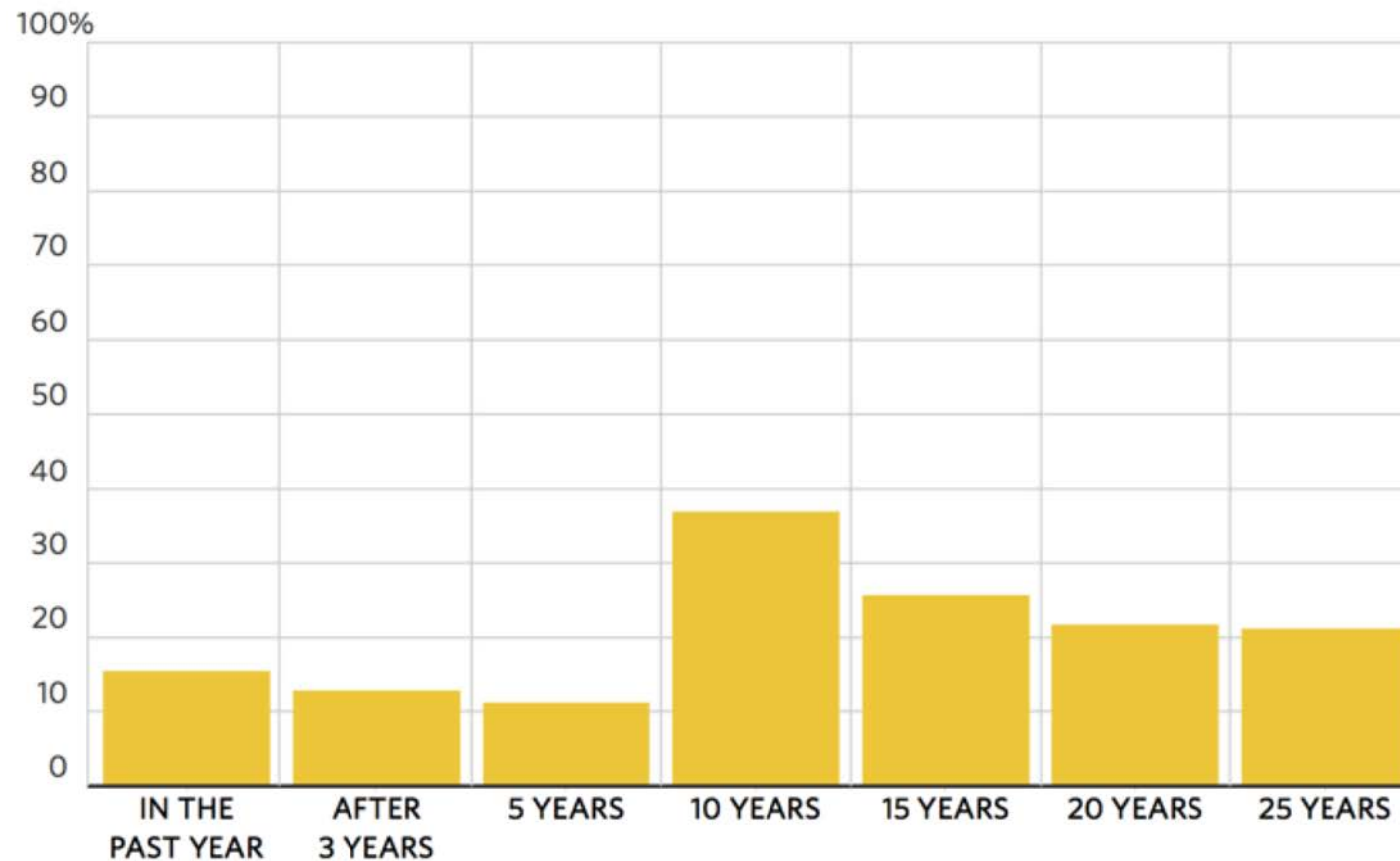
- When investing, we are often told that if you are virtuous (careful in your research, good at valuation, have a long time horizon), you will be rewarded (with high returns).
- That pitch is amplified by anecdotal evidence of righteous ones, i.e., those who have followed the path to success.
- Those who chose not to be virtuous are labeled as “speculators”, viewed as shallow and deserving of the fate that awaits them.
- If you have faith in investing, you will be tested.



# Active Investing is a loser's game

## Tough to Beat

Percentage of U.S. large-company mutual funds outperforming the Vanguard 500 Index Fund



# And it stays that way across styles..

	<i>% of US Mutual Funds that beat their respective indices</i>			
	Value	Growth	Core	All
Large	82.17%	86.54%	88.26%	84.15%
Mid-cap	70.27%	81.48%	76.51%	76.69%
Small	92.31%	91.89%	91.44%	90.13%
All Equity				88.43%
Real Estate				82.64%

S&P computes these percentages for the last year, the last 3 years & the last 10 years. There is not a single period or a single fund grouping where the number is <50%.

# And the "smart" money does not stay smart for very long

## Funds' Flop

Three-year rolling relative performance of stock hedge funds



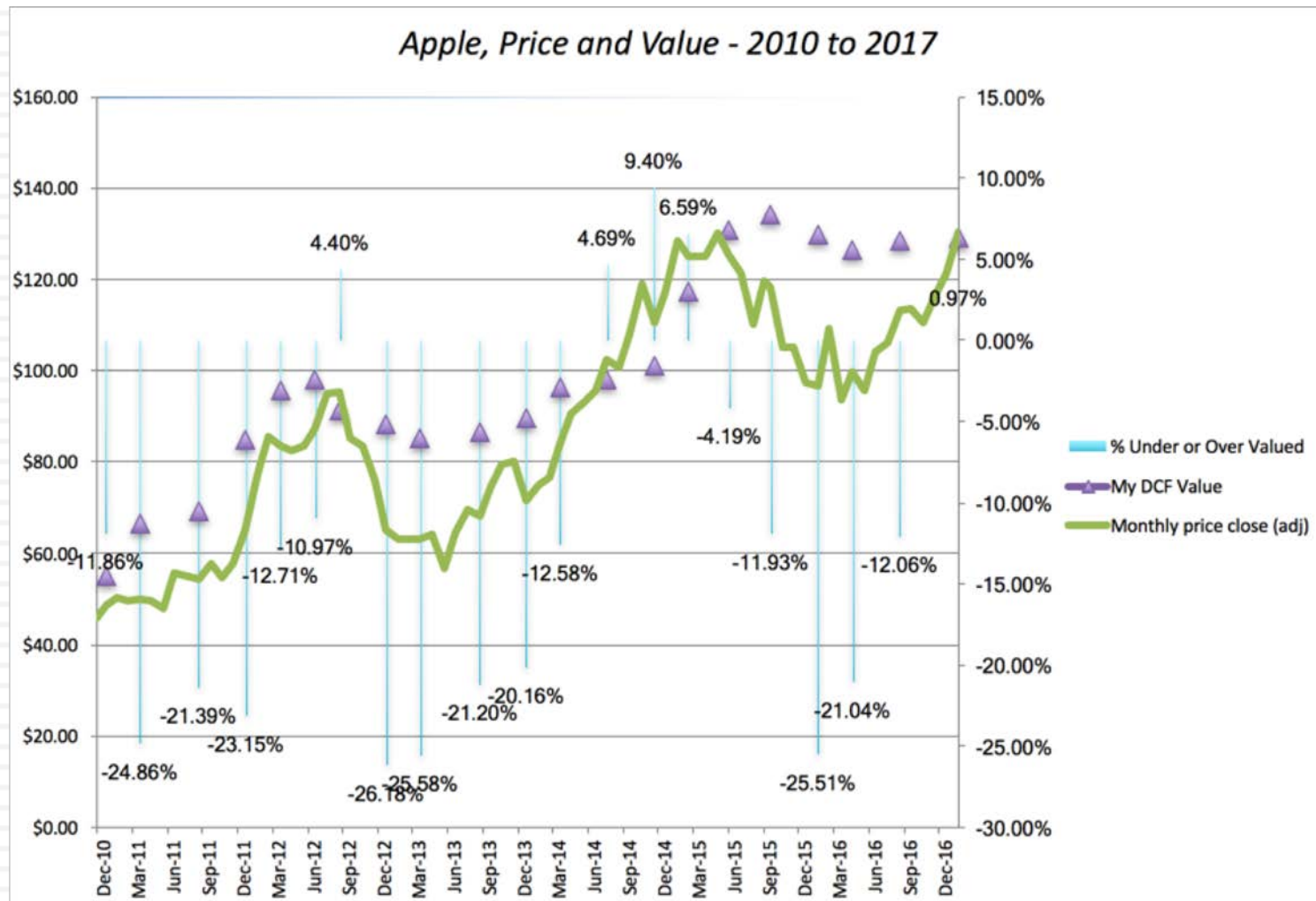
\*Compared to a 50/50 MSCI World Net Return Local Currency/LIBOR 3 Month USD index

Source: Partners Capital Investment Group analysis  
of data from HFR, MSCI and WSJ Market Data Group

THE WALL STREET JOURNAL.

# Investment Heaven is a promise, not a guarantee..

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# Follow the yellow brick road..

