



NUMBERS AND NARRATIVE:
MODELING, STORY TELLING AND
INVESTING

Aswath Damodaran



Let's start with an experiment

A valuation of Amazon in October 2014

A DCF valuation of Amazon

Amazon: A DCF valuation in late October 2014

Revenues grow @15% a year for 5 years, tapering down to 2.2% growth after year 10

| | Base year | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Terminal year |
|-------------------------|-----------|------------|------------|------------|------------|------------|-----------|-----------|-----------|-----------|-----------|---------------|
| Revenue growth rate | | 15.00% | 15.00% | 15.00% | 15.00% | 15.00% | 12.44% | 9.88% | 7.32% | 4.76% | 2.20% | 2.20% |
| Revenues | \$ 85,246 | \$98,033 | \$112,738 | \$129,649 | \$149,096 | \$171,460 | \$192,790 | \$211,837 | \$227,344 | \$238,166 | \$243,405 | \$ 248,760 |
| EBIT (Operating) margin | 0.58% | 1.26% | 1.94% | 2.62% | 3.30% | 3.98% | 4.66% | 5.34% | 6.02% | 6.70% | 7.38% | 7.38% |
| EBIT (Operating income) | \$ 494 | \$ 1,235 | \$ 2,187 | \$ 3,397 | \$ 4,920 | \$ 6,824 | \$ 8,984 | \$ 11,312 | \$ 13,686 | \$ 15,957 | \$ 17,963 | \$ 18,358 |
| Tax rate | 31.80% | 31.80% | 31.80% | 31.80% | 31.80% | 31.80% | 31.80% | 31.80% | 31.80% | 31.80% | 31.80% | 31.80% |
| EBIT(1-t) | \$ 337 | \$ 842 | \$ 1,492 | \$ 2,317 | \$ 3,356 | \$ 4,654 | \$ 6,127 | \$ 7,715 | \$ 9,334 | \$ 10,883 | \$ 12,251 | \$ 12,520 |
| - Reinvestment | | \$ 3,474 | \$ 3,995 | \$ 4,594 | \$ 5,284 | \$ 6,076 | \$ 5,795 | \$ 5,175 | \$ 4,213 | \$ 2,940 | \$ 1,424 | \$ 2,755 |
| FCFF | | \$ (2,632) | \$ (2,504) | \$ (2,278) | \$ (1,928) | \$ (1,422) | \$ 332 | \$ 2,540 | \$ 5,121 | \$ 7,943 | \$ 10,827 | \$ 9,766 |
| Terminal Value | | | | | | | | | | | \$168,379 | |
| Cost of capital | | 8.39% | 8.39% | 8.39% | 8.39% | 8.39% | 8.32% | 8.24% | 8.16% | 8.08% | 8.00% | 8.00% |
| PV(FCFF) | | \$ (2,489) | \$ (2,189) | \$ (1,842) | \$ (1,446) | \$ (994) | \$ 169 | \$ 1,420 | \$ 2,681 | \$ 3,865 | \$ 80,918 | |

Operating margin improves to 7.38% in year 10, weighted average of retail & media businesses

Reinvest \$1 for every \$3.68 in additional revenues

| | |
|---------------------------------|-----------|
| PV(Terminal value) | \$ 76,029 |
| PV (CF over next 10 years) | \$ 4,064 |
| Value of operating assets = | \$ 80,093 |
| - Debt | \$ 8,353 |
| + Cash | \$ 10,252 |
| Value of equity | \$ 81,143 |
| - Value of options | \$ - |
| Value of equity in common stock | \$ 81,125 |
| Number of shares | 463.01 |
| Estimated value /share | \$ 175.25 |
| Price | \$ 287.06 |
| Price as % of value | 163.84% |

Debt ratio is 94.7% equity, 5.3% debt, with a pre-tax cost of debt of 5.00%.

Beta used in cost of capital is 1.12, weighted average of online retail, entertainment and business services (cloud). ERP is weighted average of US ERP (5%) and rest of the world (6.45%)

A 'narrative' about Amazon

1. Continue high revenue growth: In valuing Amazon, I am going to assume that the company is going to continue on its path of growing revenues rapidly (high revenues), with media and cloud services adding to retail, to become the second largest retailer in the world.
2. By selling products at or below cost: In pursuit of this growth, Amazon will continue to give away its products and services at or below cost, leading to a continuation of low operating margins for the next few years.
3. Aspirations of using market power: Once Amazon reaches a dominant position, it will raise prices on products/ services but the ease with which new entrants can come into the business will act as a restraint on prices (keeping operating margins constrained in long term).
4. Low/different reinvestment: Amazon will have to invest in a mix of assets, including infrastructure, computing services, acquisitions and product development, but will be able to deliver more revenues/dollar investment than the typical retail firm.
5. Shifting risk profile: Amazon's risk profile will be a mix of retail, entertainment and business services as well as its geographic ambitions, and the technology twist to its business will keep debt ratios low (lower than brick and mortar retailers).

A quick test

- Now that you have been exposed to two different valuations of Amazon, one driven entirely by numbers and one set as a story, which one do you find more credible?
 - a. The DCF valuation
 - b. The Amazon story
- Which one are you more likely to remember tomorrow?
 - a. The DCF valuation
 - b. The Amazon story
- What would your biggest concern be with each one?

Marrying numbers & narrative

To deliver this high revenue growth, Amazon will continue to sell its products/services at or below cost. Operating margin stays low for the next few years.

Amazon will continue on its path of revenue growth first, pushing into media & cloud services to become the second largest retailer in the world. Revenues grow @15% a year for 5 years, tapering down to 2.2% growth after year 10

As Amazon becomes more dominant, it will increase prices, but easy entry into the business will act as a restraint. Operating margin improves to 7.38% in year 10, weighted average of retail & media businesses

Amazon will be able to invest more efficiently than the average retailer. Reinvest \$1 for every \$3.68 in additional revenues

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Amazon's technology twist will keep financial leverage low: Debt ratio is 94.7% equity, 5.3% debt, with a pre-tax cost of debt of 5.00%.

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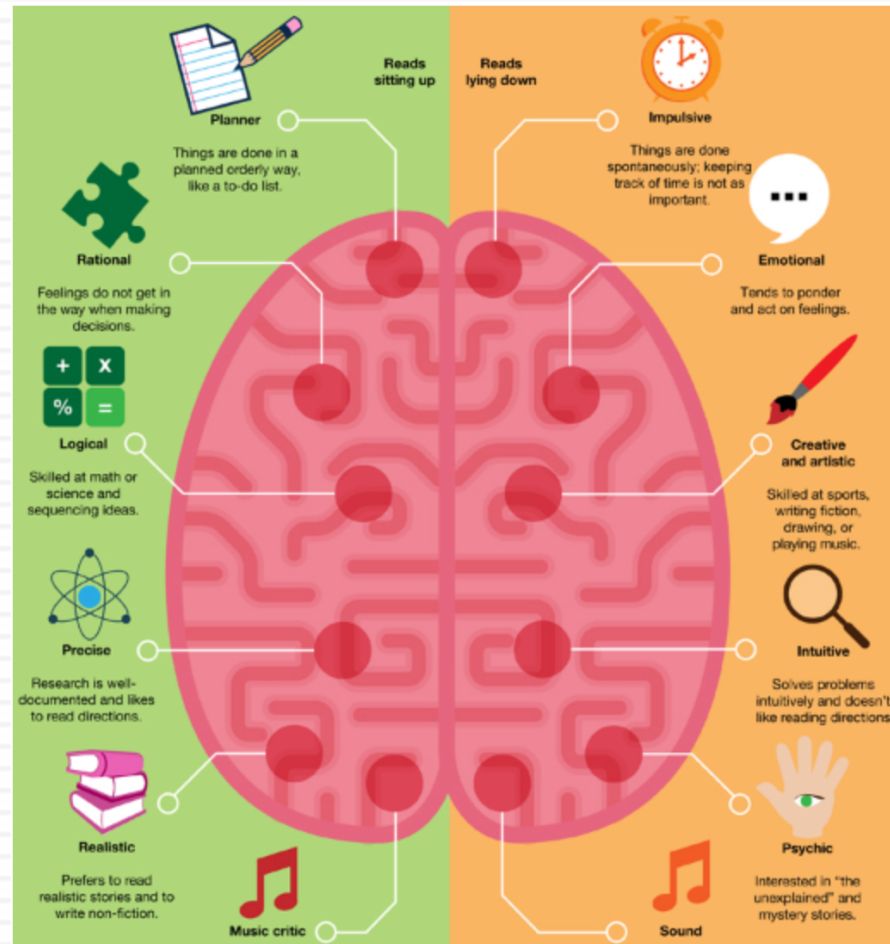
Amazon: A DCF valuation in late October 2014



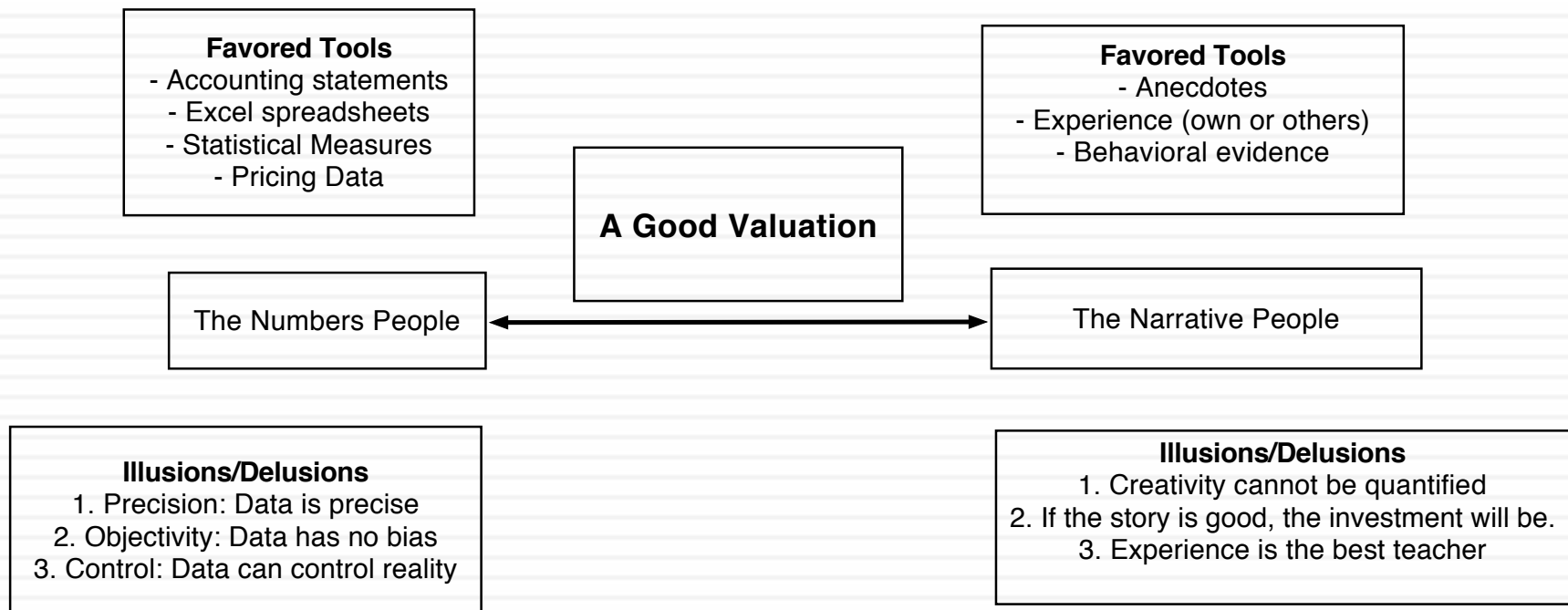
Numbers person or Story teller?

Vive le difference!

Left Brain and Right Brain



Bridging the Gap



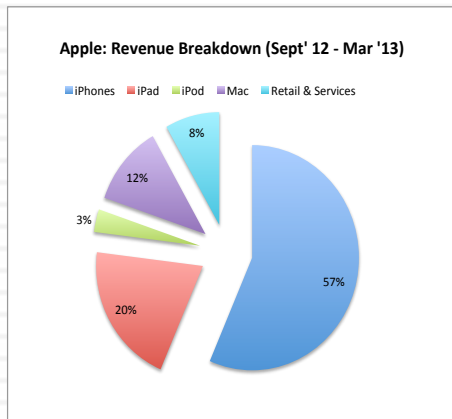
Step 1: Survey the landscape



- Before we start weaving narratives about a company's future, it behooves us to first understand the company's business model and where it stands right now (in terms of financials, business mix and the story).
- That understanding will require
 - ▣ Looking through financial statements
 - ▣ Assessing the overall market and competitors today
 - ▣ Trying out or talking to people involved: employees involved in producing the product/service as well as users.

Apple's financial balance sheet: April 23, 2013

Revenues tilting towards smartphones.
Revenue growth is slowing & margins are shrinking.



Rumors of new products (iTV, iWatch) continue, but "market" optimism about introduction/success have faded. (See market cap to right)

Cash balance has climbed by \$35 billion in last 6 months to hit \$145 billion. In April 2013, the cash balance was 35% of the value of the company.

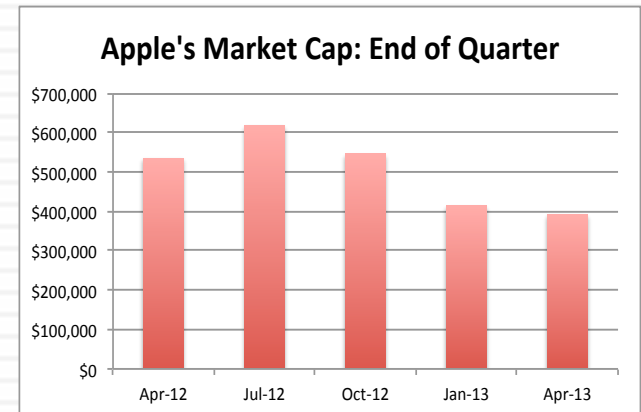
Assets

1. Operating Businesses: Existing
 - a. Computers & Peripherals
 - b. Smartphones & Tablets
 - c. Retail & Services
2. Value of growth potential
3. Cash

Liabilities

Debt
Company has never used conventional debt. It has a small lease commitment.

Equity



Apple's market capitalization dropped by more than \$200 billion between July 2012 and April 23, 2013

Twitter: Current Financials and Potential Market

Twitter's Income Statement

| | 2010 | 2011 | 2012 | 2012 (6 mths) | 2013 (6 mths) | Trailing 12 months |
|---|---------|----------|---------|---------------|---------------|--------------------|
| Revenues | \$28.3 | \$106.3 | \$316.9 | \$122.4 | \$253.6 | \$448.2 |
| R&D expenses | \$29.3 | \$80.2 | \$119.0 | \$46.3 | \$111.8 | \$184.5 |
| Operating income | -\$67.5 | -\$127.4 | -\$77.1 | -\$47.0 | -\$62.8 | -\$92.9 |
| Operating income adjusted for R&D & Leases | | | | | \$4.3 | |
| Adjusted EBITDA (Net Loss+Taxes+Int exp+ Depr+Stock-based employee compensation) | -\$51.2 | -\$42.8 | \$21.2 | \$6.7 | \$21.4 | \$35.9 |

The Online Advertising Market

| | 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 |

Twitter's Balance Sheet

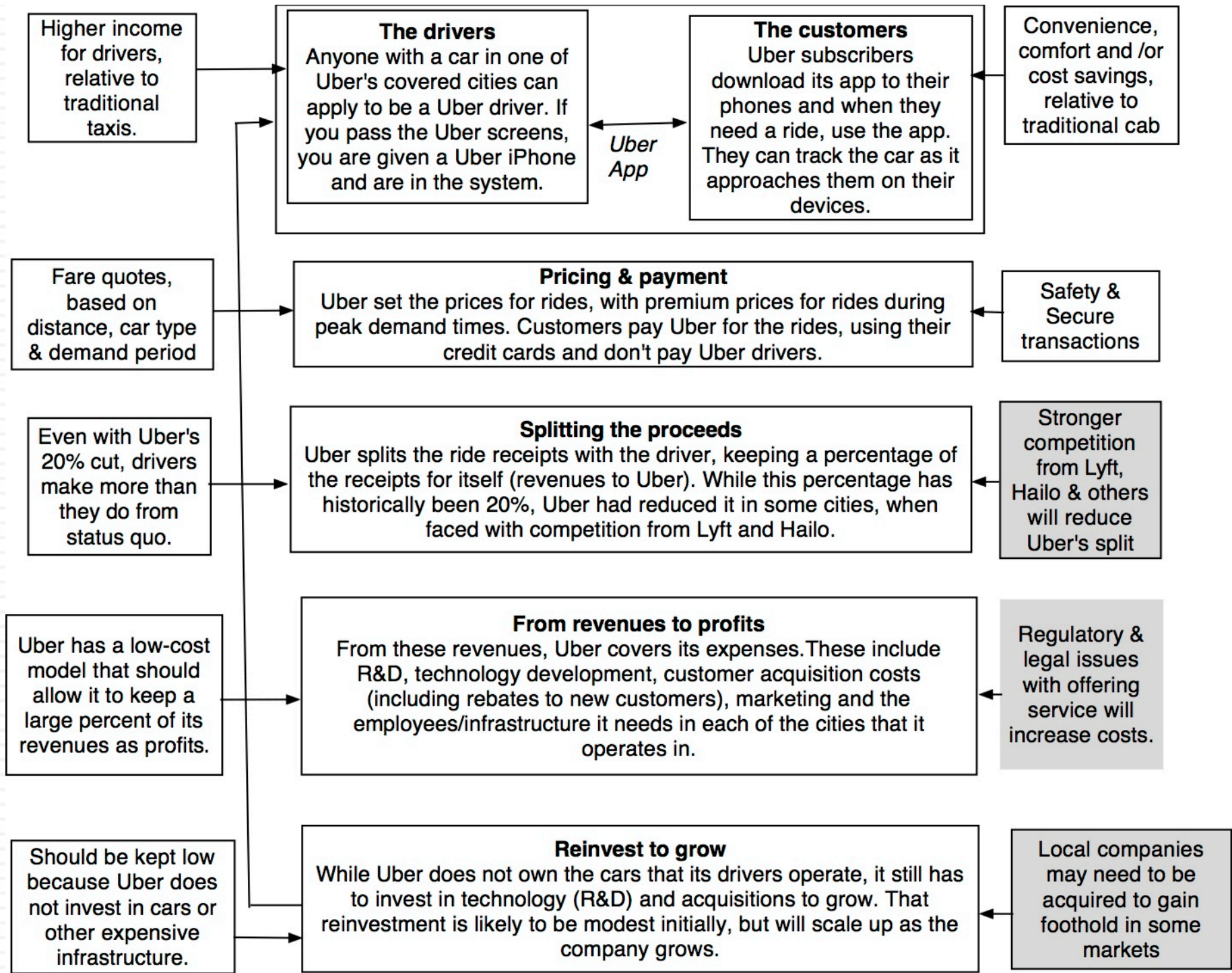
| | 2011 | 2012 | 2013: Qtr 2 | 2013: Pro forma |
|-----------------------|----------------|----------------|----------------|-----------------|
| Cash & ST Investments | \$549.5 | \$424.9 | \$375.0 | \$375.0 |
| Property & Equipment | \$61.9 | \$185.6 | \$242.6 | \$242.6 |
| Intangible assets | \$6.4 | \$3.8 | \$14.4 | \$14.4 |
| Goodwill | \$36.8 | \$68.8 | \$163.7 | \$163.7 |
| Capitalized R&D | | | | \$248.7 |
| Total Assets | \$720.7 | \$831.6 | \$964.1 | \$964.1 |
| Capital Leases | \$21.1 | \$65.7 | \$80.1 | \$80.1 |
| Capitalized Op Leases | | | | \$127.1 |
| Preferred Stock | \$835.1 | \$835.4 | \$835.4 | \$0.0 |
| Shareholders equity | -\$201.8 | -\$248.2 | -\$164.4 | \$716.9 |

Twitter Users

| Company | No of users |
|----------|-------------|
| Facebook | 1110 |
| Google | 1093 |
| LinkedIn | 225 |
| Twitter | 240 |

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 |



Step 2: Create a narrative for the future



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

Three narratives: Apple, Twitter and Uber

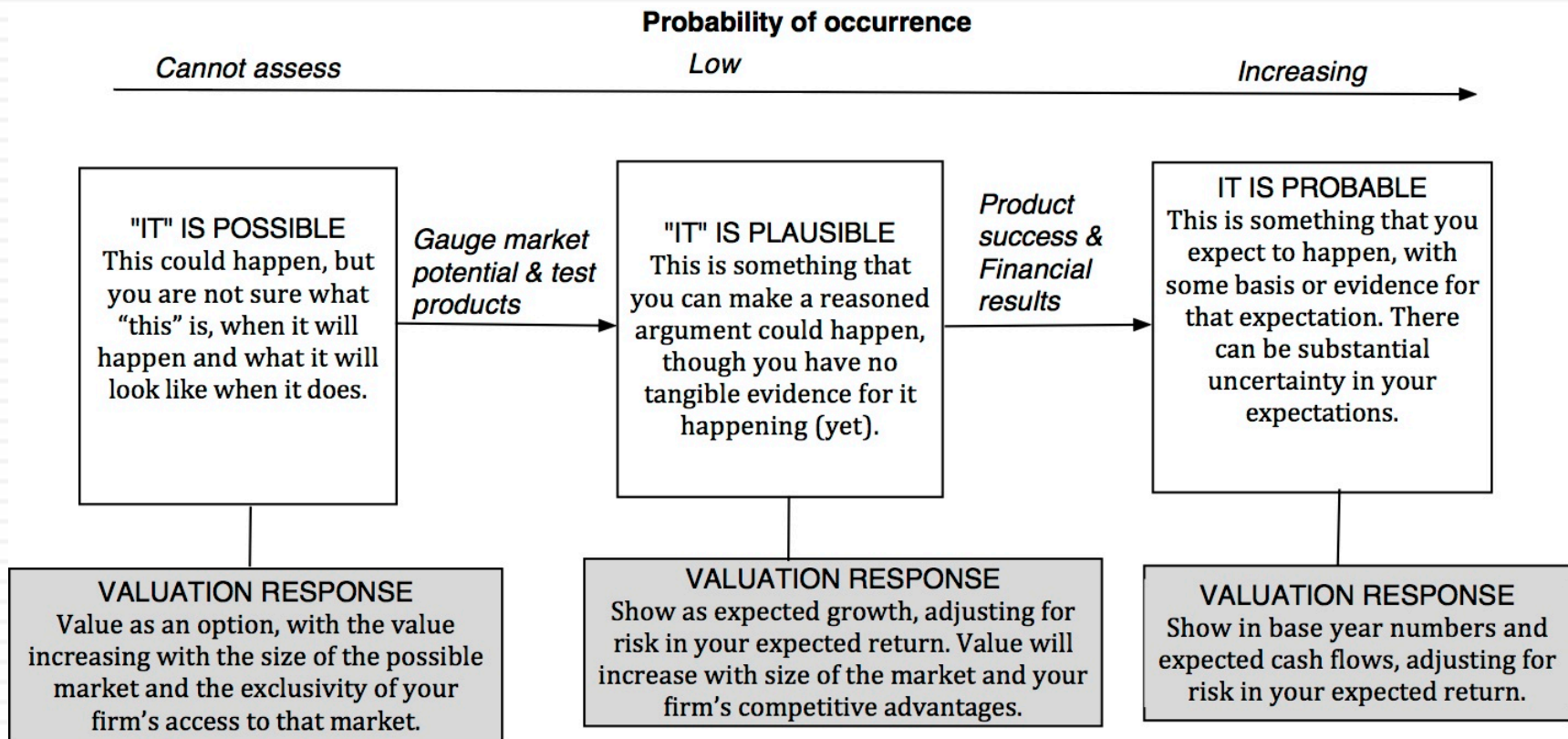
1. **Apple (April 2013):** Apple is a cash machine that derives much of its value from the smartphone business that is seeing growth slow and competition increase. Its size will make it difficult to create disruption that will create meaningful high growth.
2. **Twitter (October 2013):** Twitter is an innovative social media company which will be successful in its quest in online advertising, but because of its structure (140 characters), it will not be a dominant player.
3. **Uber (June 2014):** Uber will expand the car service market moderately, primarily in urban environments, and use its competitive advantages to get a significant but not dominant market share and maintain its profit margins.

Be open to counter narratives: Bill Gurley's Uber narrative

- ❑ 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.
- ❑ Not just urban: Uber can create new demands for car service in parts of the country where taxis are not used (suburbia, small towns).
- ❑ Global networking benefits: By linking with technology and credit card companies, Uber can have global networking benefits.

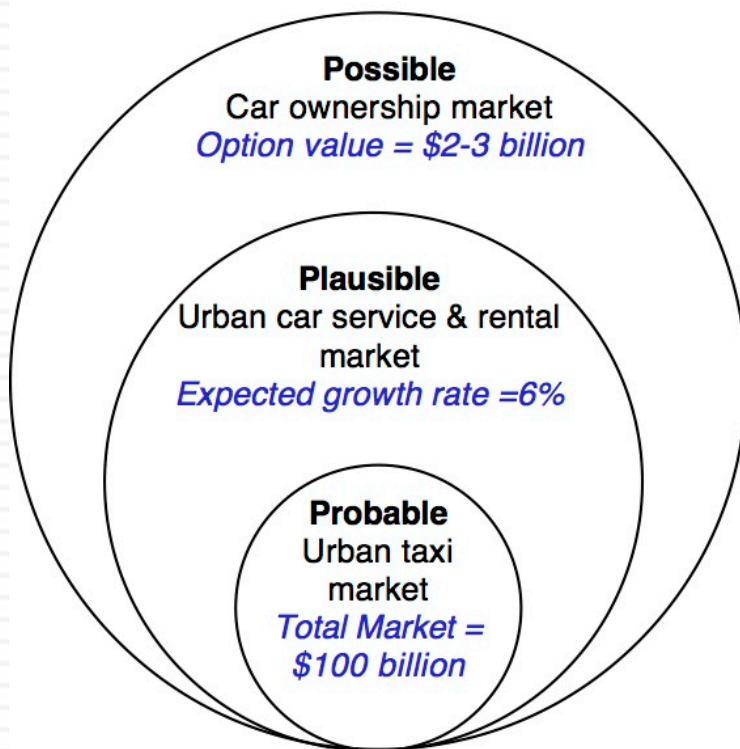
Step 3: Check the narrative against history, economic first principles & common sense

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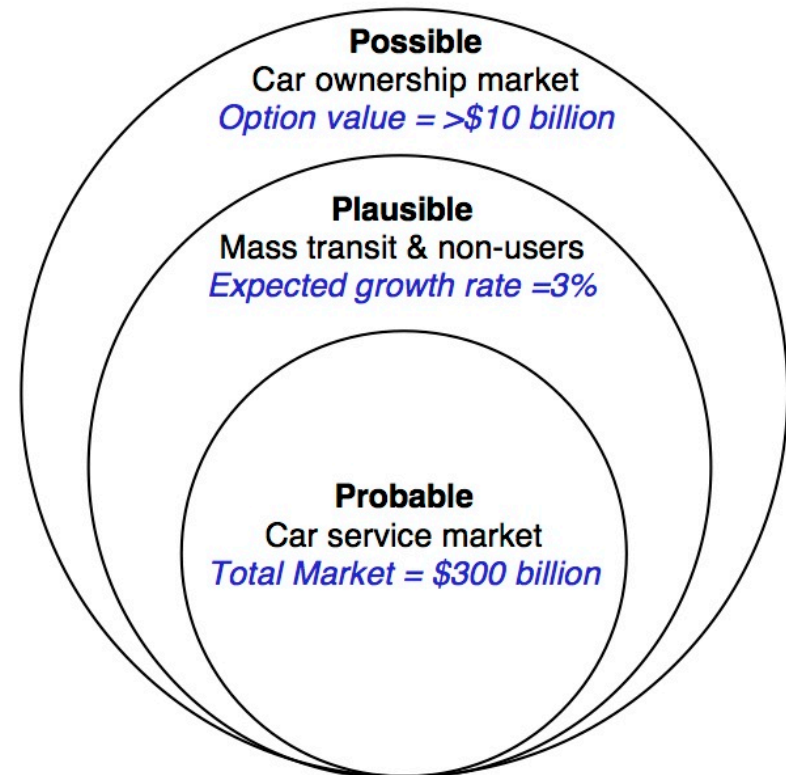


Uber: Possible, Plausible and Probable

Uber (My valuation))



Uber (Bill Gurley)

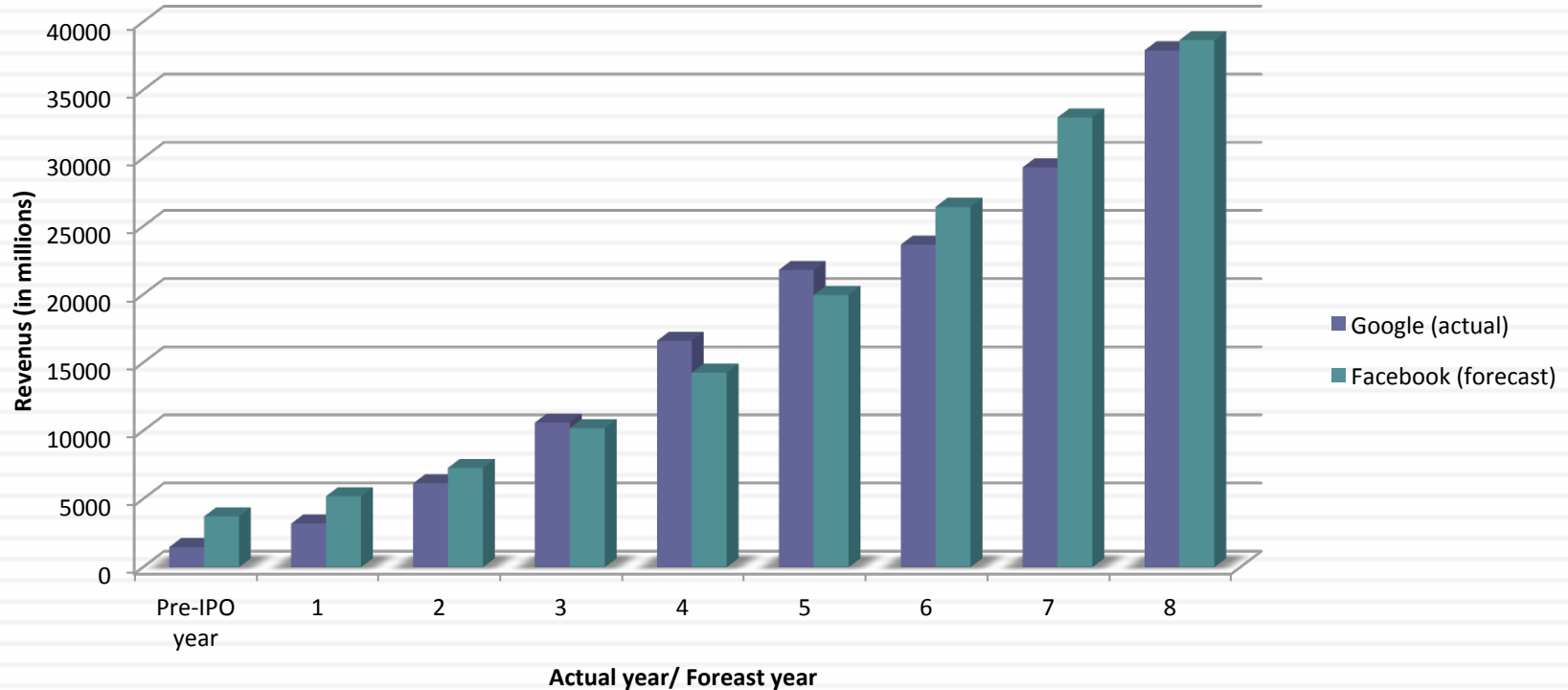


1. Check the macro story – Backing out imputed revenues from market prices

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

2. Measure up against the most successful companies in your “business”

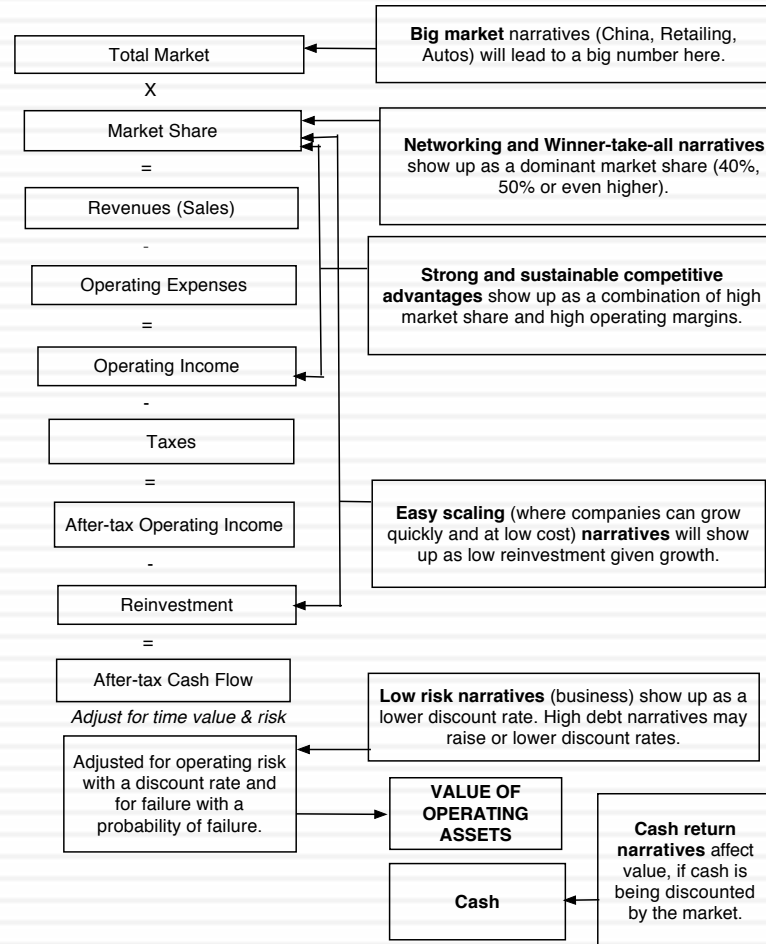
Google's actual revenues versus Facebook Revenue Forecasts (at IPO)



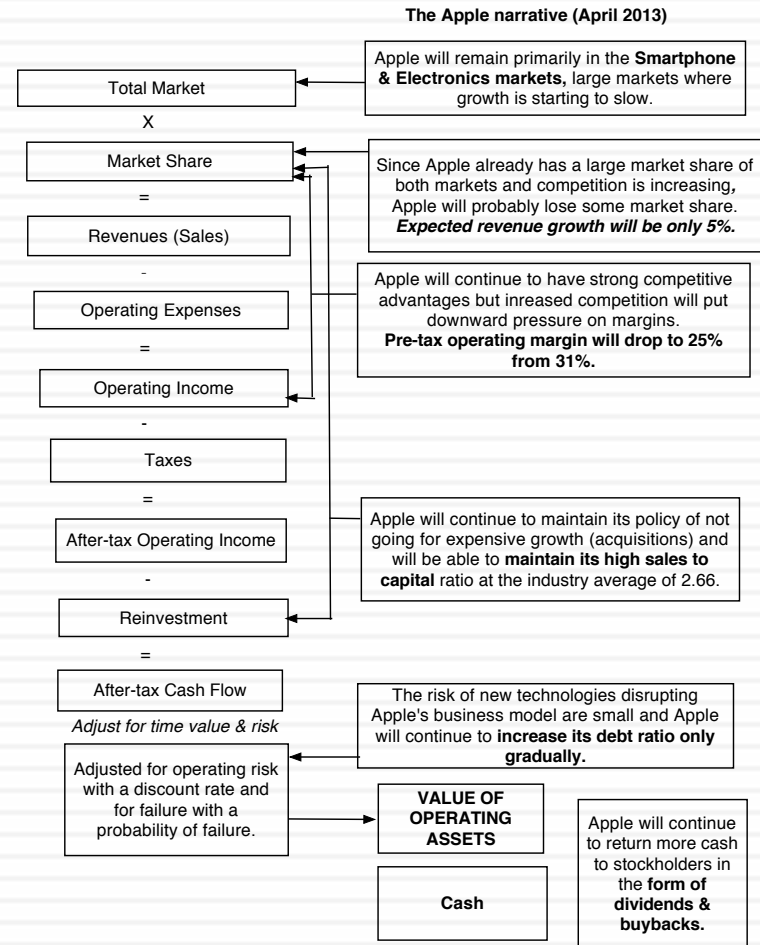
3. Identify the losers

- Apple: If Apple continues to dominate the smart phone business and generate high operating margins, the losers will be the other smart phone companies. (Do you buy that?)
- Twitter: If Twitter ends up with a market share of 20-25% of the online ad market, the losers will have to be Google and Facebook. (If you are also valuing those companies, are you showing dropping market shares for these companies?)
- Uber: If Uber succeeds as a urban car service company, that will be devastating for traditional taxi cab companies (Work through the consequences for taxi cab medallion prices). If it succeeds as a logistics company, that will be bad for automobile companies. (Do you think that you should sell them short?)

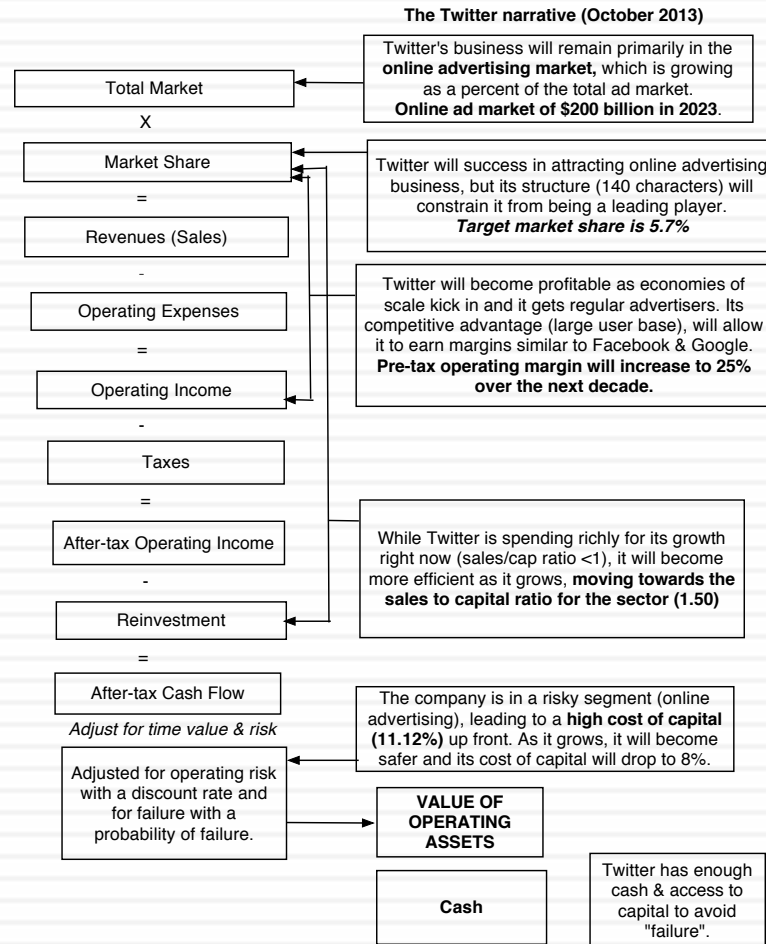
Step 4: Connect your narrative to key drivers of value



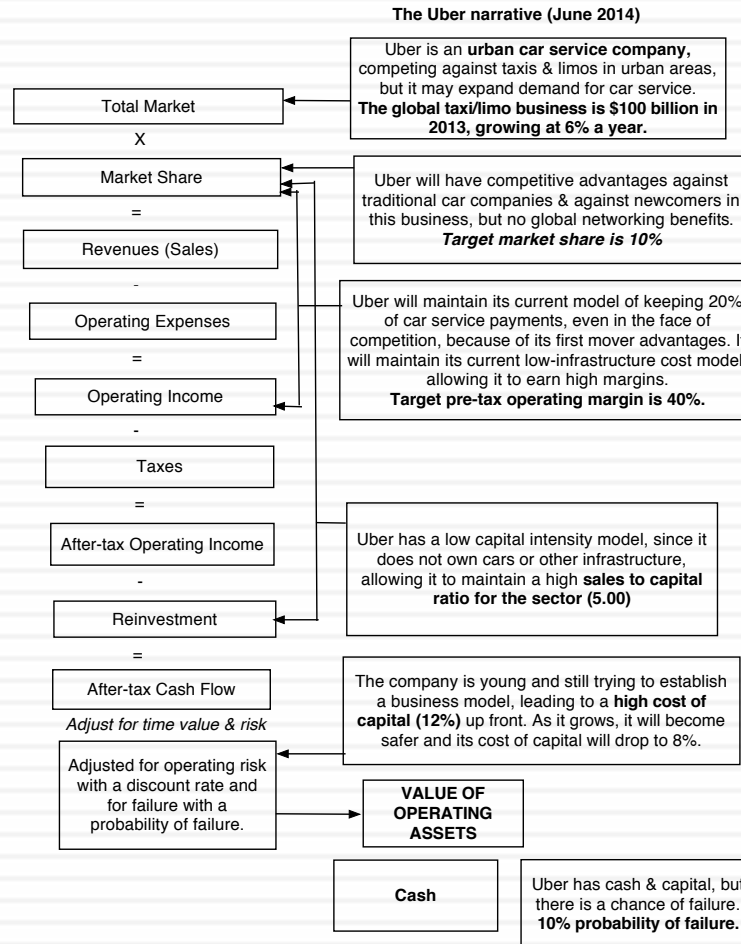
Apple (April 2013): From narrative to numbers



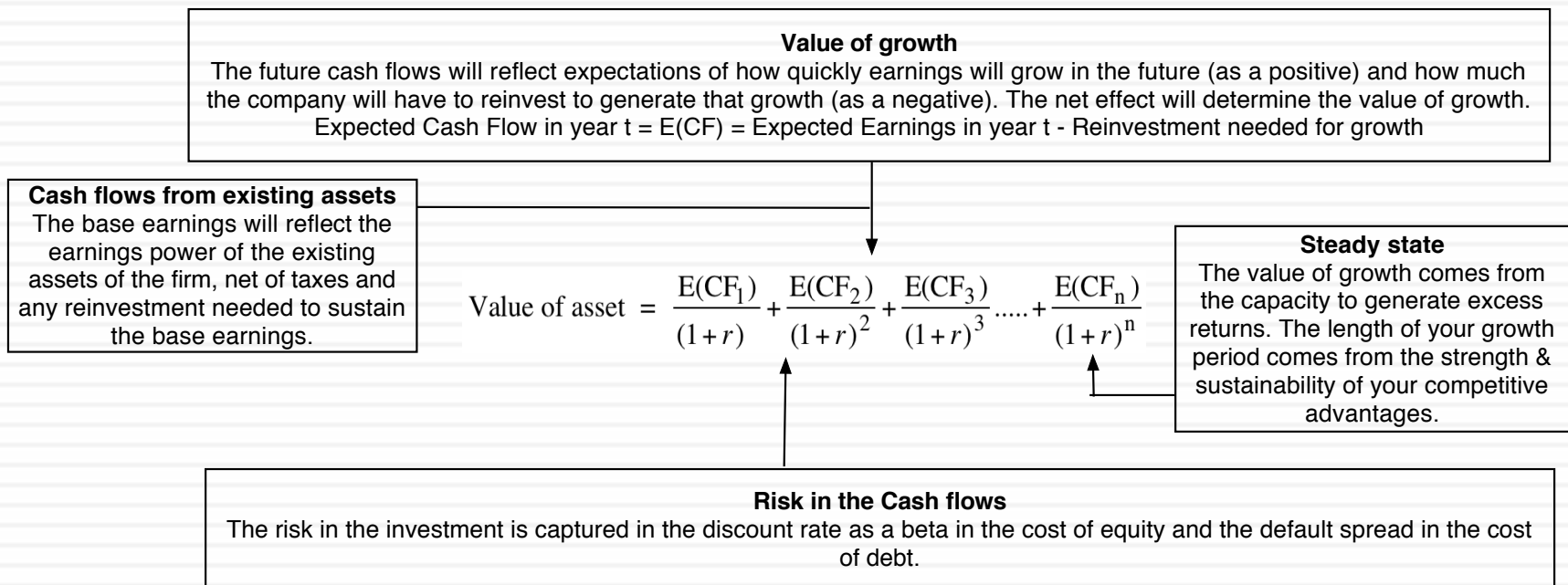
Twitter: From narrative to numbers



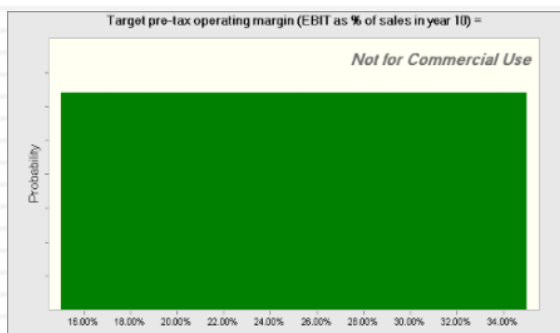
Uber: From narrative to numbers



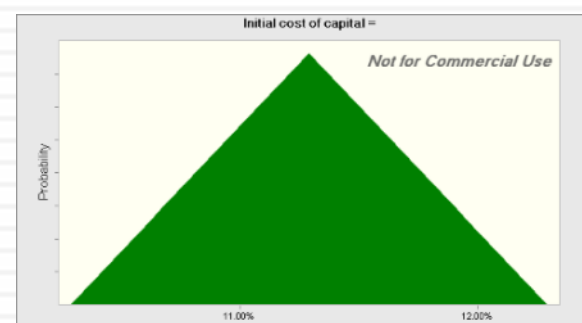
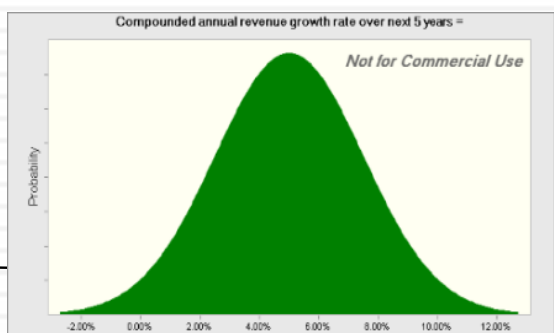
Step 5: Value the company



Correlations across assumptions make bad outcomes more likely to occur together, low revenue growth -> low margin -> high cost of capital



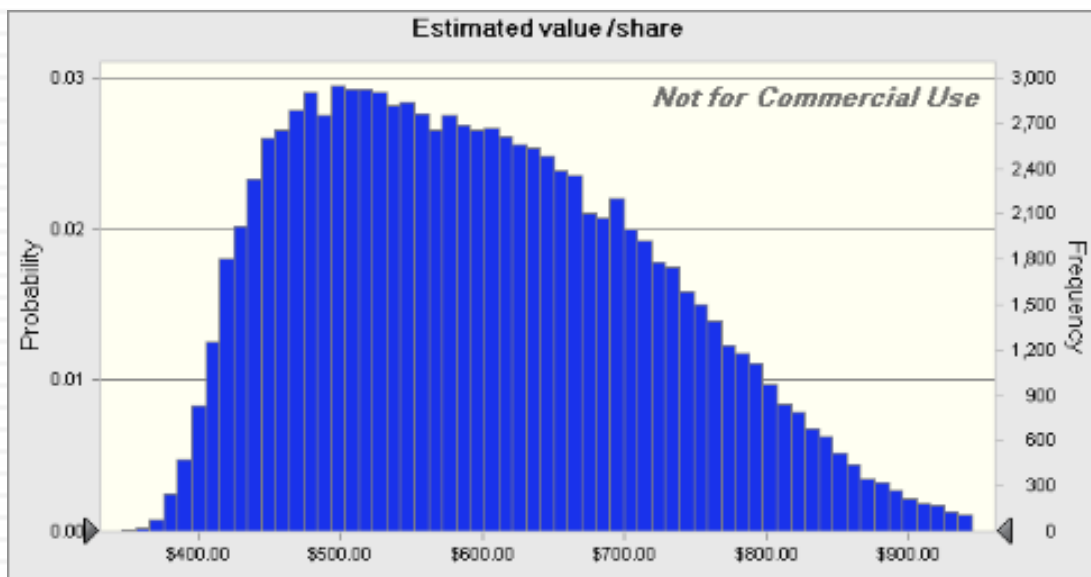
Correlation = 0.70



Pre-tax Operating Margin
Uniformly distributed, min=15%, max=35%

Revenue growth (next 5 years)
Normally distributed, with
avg=5%,sd=2.5%

Cost of capital
Triangular distribution, min=10.29%, max
=11.29%



| Percentiles: | Forecast values |
|--------------|-----------------|
| 0% | \$346.90 |
| 10% | \$448.34 |
| 20% | \$483.99 |
| 30% | \$517.91 |
| 40% | \$552.20 |
| 50% | \$588.45 |
| 60% | \$625.46 |
| 70% | \$665.16 |
| 80% | \$711.47 |
| 90% | \$771.57 |
| 100% | \$1,182.70 |

| Statistics: | Forecast values |
|-------------|-----------------|
| Trials | 100,000 |
| Base Case | \$588.25 |
| Mean | \$600.74 |
| Median | \$588.45 |
| Minimum | \$346.90 |
| Maximum | \$1,182.70 |

Starting numbers

| | 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 |

Twitter Pre-IPO Valuation: October 27, 2013

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 Value₁₀ = 1466 / (.08 - .025) = \$26,657

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

Terminal year (11)

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

| | |
|------------------|---------|
| 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 |

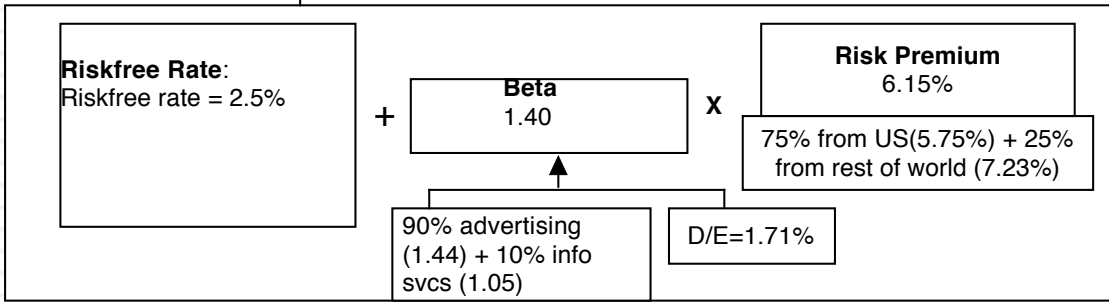
Cost of capital = 11.12% (.981) + 5.16% (.019) = 11.01%

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

Cost of Equity
11.12%

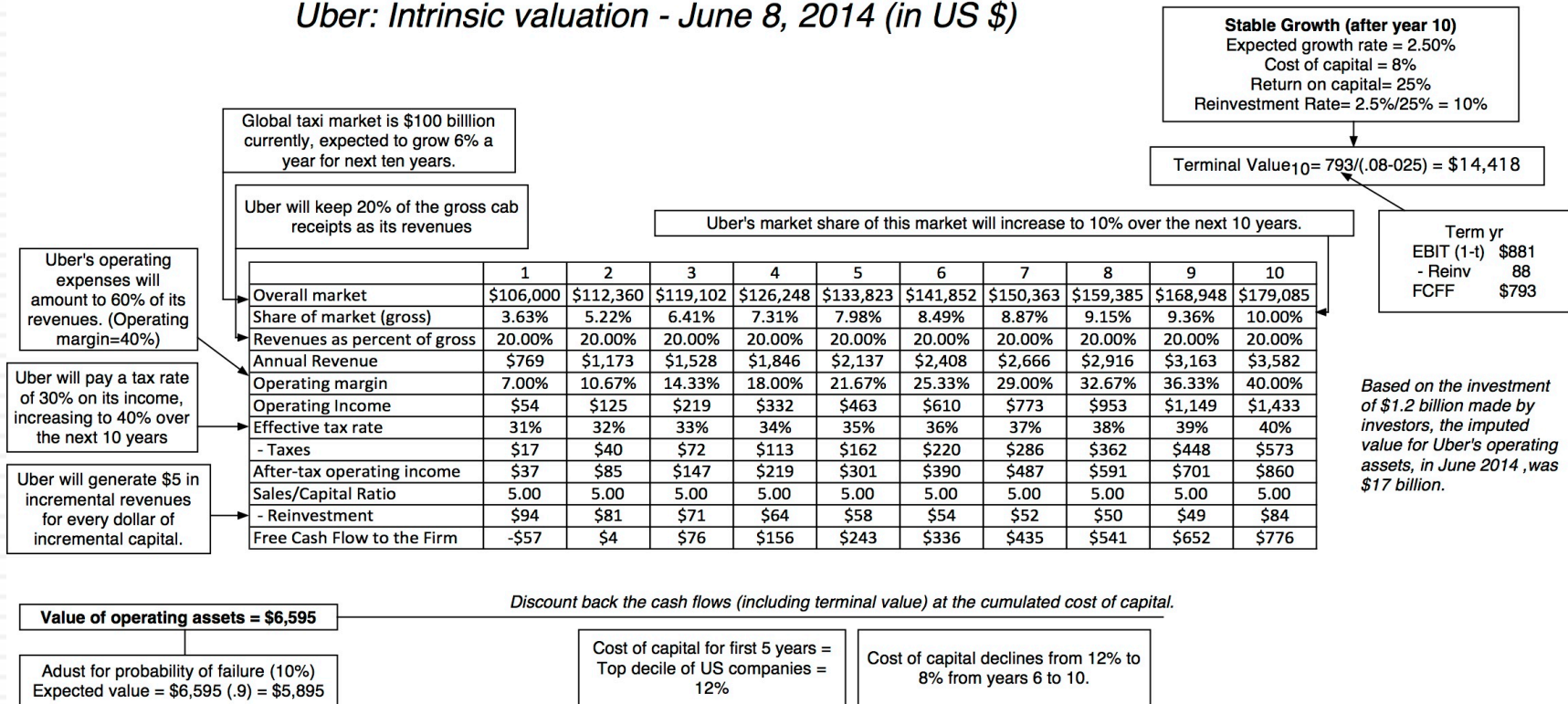
Cost of Debt
(2.5% + 5.5%)(1 - .40)
= 5.16%

Weights
E = 98.1% D = 1.9%



Uber: Valuation

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



Step 6: Keep the feedback loop

| | <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</u> to gain a <u>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</u> to gain a <u>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</u> to get a <u>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) |

Narrative breaks, shifts & changes

“When my information changes, I alter my conclusions. What do you do, sir?”

Lord Keynes

Why narratives change

1. Earnings reports: Every earnings announcement from a firm is a chance to reassess the narrative about the firm.
2. Corporate actions: Any action that changes the basic construct for the firm, including divestitures, acquisitions and splits offs.
3. Management change: A new CEO, board of directors or other significant management change.
4. Macroeconomic changes: A change in the macroeconomic environment, leading to shifts in interest rates, inflation, exchange rates or other variables.
5. Political changes: A change in government, political system or any structural shift.

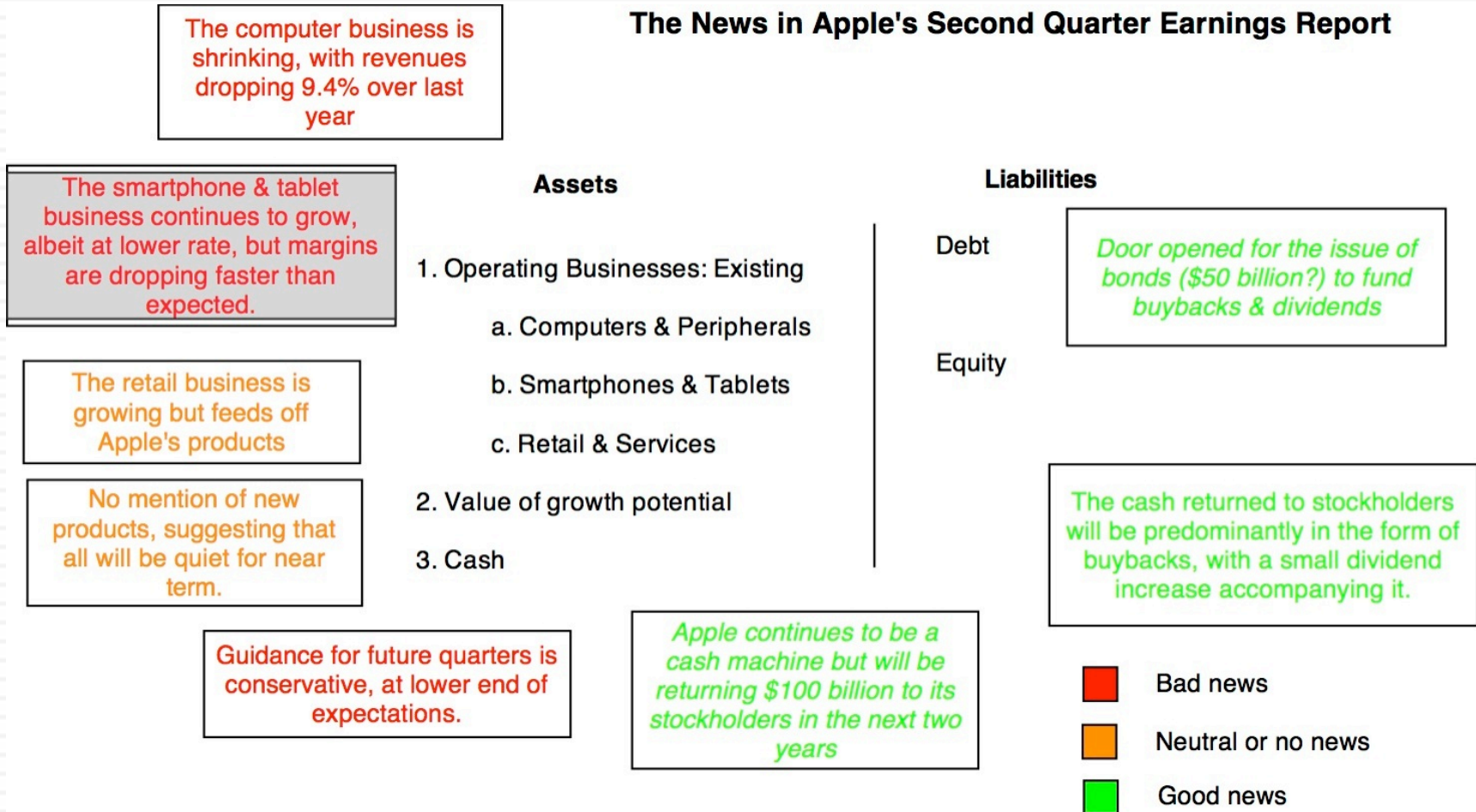
How narratives change

33

| 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 |

An Earnings Report: Apple in May 2013

The News in Apple's Second Quarter Earnings Report



Apple: Another Earnings Report (September 2014)

In September 2014, Apple reported its third quarter earnings. While much of the information followed predictable patterns (Apple still gets the bulk of its revenues from smartphones, a market that is seeing slowing growth and smaller margins), Apple did announce two new products: the iWatch and Apple Pay.

1. Do you think either of these new products has the capacity to alter the current narrative for Apple?
2. If so, which one has the greater potential?
3. What are some of the indicators you will track to see if this potential is being captured?

Twitter: Searching for a change– Sept 2014 (and contrasting with Facebook)

Twitter's Numbers

| Report Date | Business Breakdown | | Global Breakdown | | Mobile Breakdown | | Invested Capital | | |
|-------------|--------------------|----------------|------------------|---------|------------------|------|------------------|-------------------------|--------------------|
| | Advertising | Data Licensing | Domestic | Foreign | Mobile | Rest | Capital | Quarterly Sales/Capital | T12m Sales/Capital |
| 2/5/14 | 90.53% | 9.47% | 72.80% | 27.20% | 75% | 25% | \$827 | 0.29 | 0.80 |
| 4/29/14 | 90.40% | 9.60% | 72.05% | 27.95% | 80% | 20% | \$863 | 0.29 | 0.93 |
| 7/29/14 | 88.78% | 11.22% | 67.31% | 32.69% | 81% | 19% | \$1,051 | 0.30 | 0.93 |

Facebook's Numbers

| Report Date | # Users (in millions) | | | Revenue Statistics | | Net Income | | Invested Capital | | |
|-------------|-----------------------|-----|------------|--------------------|--------|------------|-----------|------------------|-------------------------|--------------------|
| | MAU | DAU | Mobile MAU | Advertising | Mobile | Before SBC | After SBC | Capital | Quarterly Sales/Capital | T12m Sales/Capital |
| 7/26/12 | 955 | 552 | 543 | 83.78% | NR | -\$157 | \$295 | \$3,515 | 0.34 | 1.23 |
| 10/23/12 | 1010 | 584 | 604 | 86.37% | NR | -\$59 | \$311 | \$4,252 | 0.30 | 1.09 |
| 1/30/13 | 1060 | 618 | 680 | 83.91% | 23.00% | \$64 | \$426 | \$4,120 | 0.38 | 1.24 |
| 5/1/13 | 1100 | 665 | 751 | 85.73% | 30.00% | \$219 | \$312 | \$4,272 | 0.34 | 1.28 |
| 7/24/13 | 1150 | 699 | 819 | 88.25% | 41.00% | -\$152 | \$488 | \$3,948 | 0.46 | 1.55 |
| 10/30/13 | 1190 | 728 | 874 | 89.29% | 49.00% | \$425 | \$621 | \$4,007 | 0.50 | 1.71 |
| 1/29/14 | 1230 | 757 | 945 | 90.52% | 53.00% | \$523 | \$780 | \$4,258 | 0.61 | 1.85 |
| 4/23/14 | 1280 | 802 | 1010 | 90.73% | 59.00% | \$642 | \$885 | \$4,299 | 0.58 | 2.07 |
| 7/23/14 | 1320 | 829 | 1070 | 92.10% | 62.00% | \$791 | \$1,090 | \$4,543 | 0.64 | 2.20 |

Uber: Potential narrative breaks/shifts/ changes

- Narrative breaks
 - Regulatory shut downs: A regulatory shut down, especially if coordinated across a large region (an entire country or countries) could be catastrophic.
 - Legal jeopardy: A lawsuit with potentially huge liabilities, with Uber as a co-defendant, may put its survival at risk.
- Narrative shifts:
 - Regulatory cost burdens: Regulatory requirements on insurance and other costs will reduce margins and profitability.
 - Competitive changes: The entry of new competitors (the exit of old ones) will have negative (positive) consequences.
 - Global networking advantages: If success in one market is spilling over into other markets, it improves the odds of Uber having a high market share.
- Narrative changes
 - Success in new markets: If the Uber date car and mom car become ubiquitous in suburbia, it changes Uber's potential market (and value).
 - Changes in car ownership patterns: If dealers see a decline in a subset of car buyers (young & urban?), that would be good news (indirectly) for Uber.



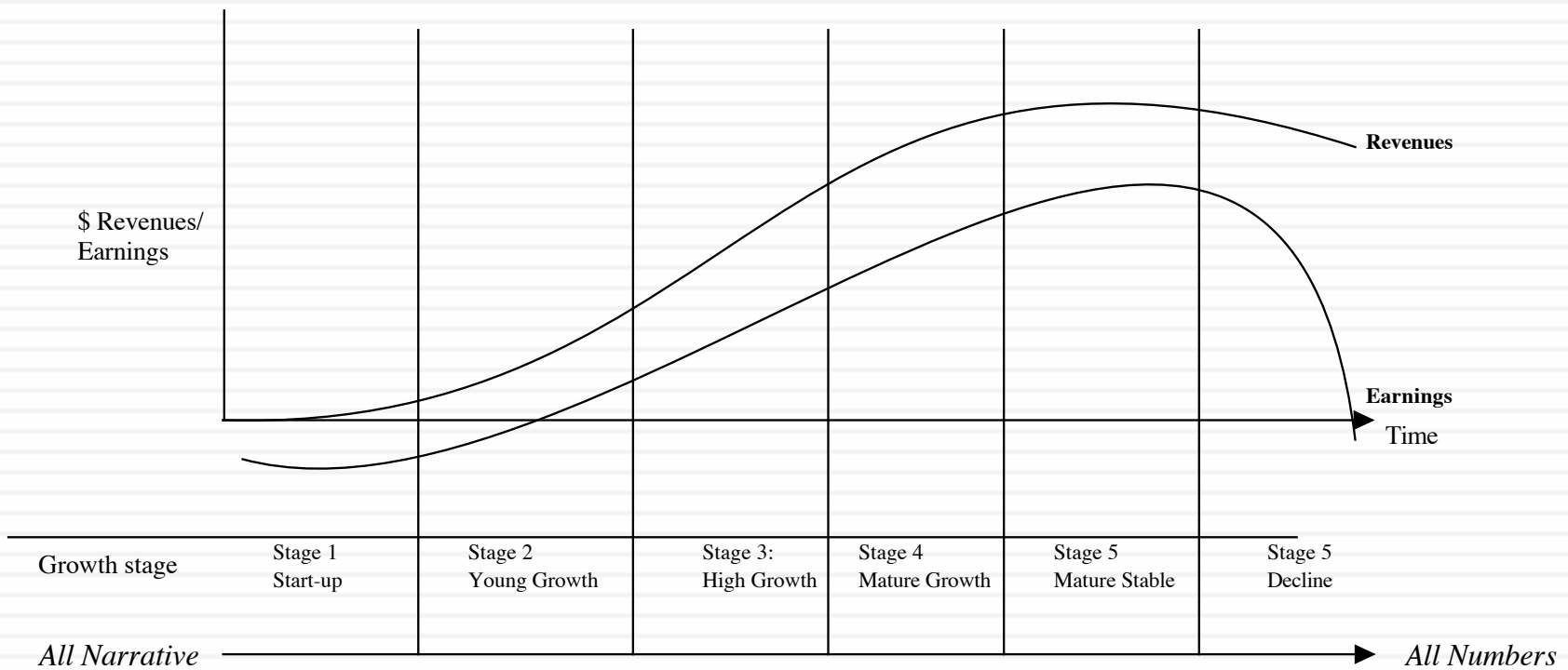
Here is why you should care, even if you are not an investor..

“Management is, above all, a practice where art, science, and craft meet”

The Management Perspective

- Have a story: If you are the management of a company, it behooves you to create a narrative for your company, both to guide investors in how they should view the company and you, in your decision making.
- The CEO's job? This is perhaps the most significant mission for the top manager of a company and it is what strategists like to call “strategic vision”, the capacity to elevate yourself above the details of every day management and to see/convey that narrative.
- Life Cycle: The importance of doing this is clearly larger, when a company is young and investors are seeking guidance but it is still critical as companies mature.

A Company's Life Cycle & Narrative/ Numbers



And the focus changes..

| | <i>The Idea</i> | <i>The Product/Service</i> | <i>The Business Model</i> | <i>The Harvest</i> | <i>The End Game</i> |
|------------------|--|--|---|--------------------------------------|--|
| Phase | See an exploitable market | Develop a product or service to exploit the market | Create a business model to generate profits on product or service | Run as an ongoing business | Manage decline |
| Focus is on | Market Potential, Survival | Product usage, Competition | Viability and Scalability of Business Model | Profitability & Sustainability | Asset liquidity, Cash flows & Survival |
| Pricing Measures | Market size, Cash on hand, Access to capital | Number of users, User intensity | User engagement with business model, Revenues | Earnings (Levels, Margins & Returns) | Cash flows, Book Value |
| Pricing Metrics | EV/ Market Potential | EV/User | EV/Sales | PE & EV/ EBITDA | Dividend Yields, Price to Book |



The End

“There is no real ending. It’s just the place where you stop the story.”