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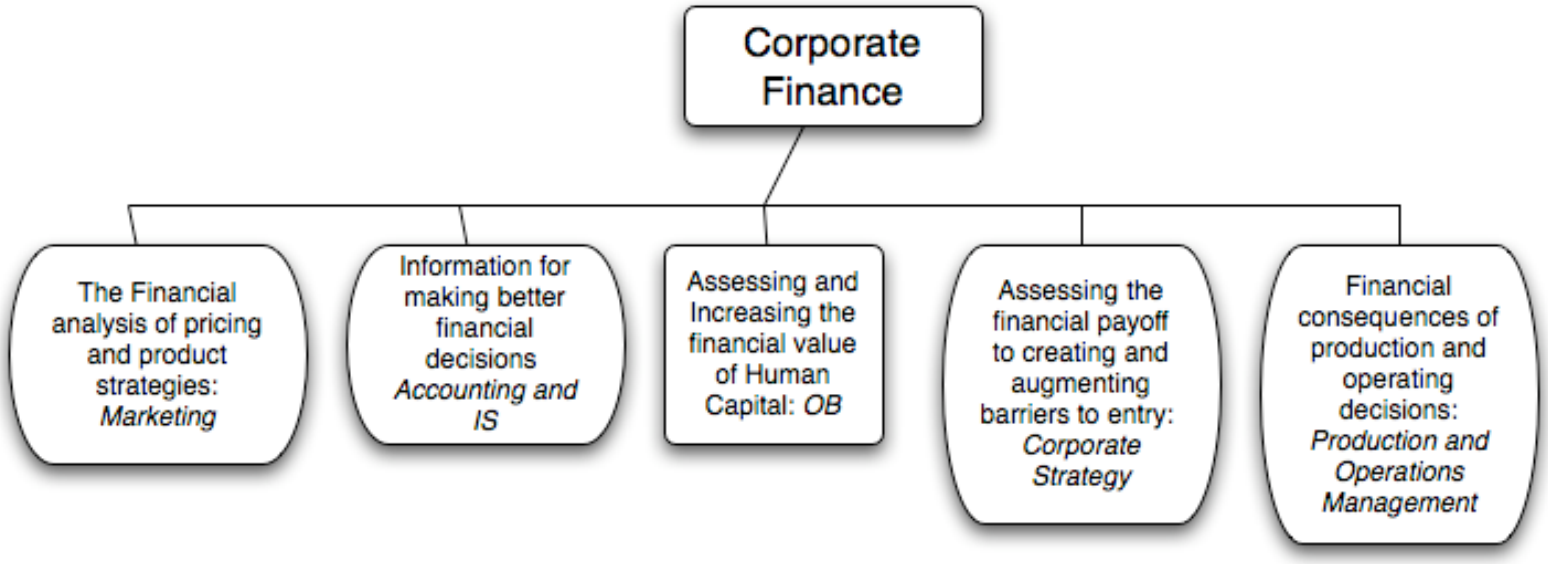
DON'T SWEAT THE SMALL STUFF: A BIG PICTURE PERSPECTIVE ON FINANCE

Aswath Damodaran

Lesson 1: Every business decision is ultimately a financial one

- Every decision that a business makes has financial implications, and any decision which affects the finances of a business is a corporate finance decision.
- Defined broadly, everything that a business does fits under the rubric of corporate finance.



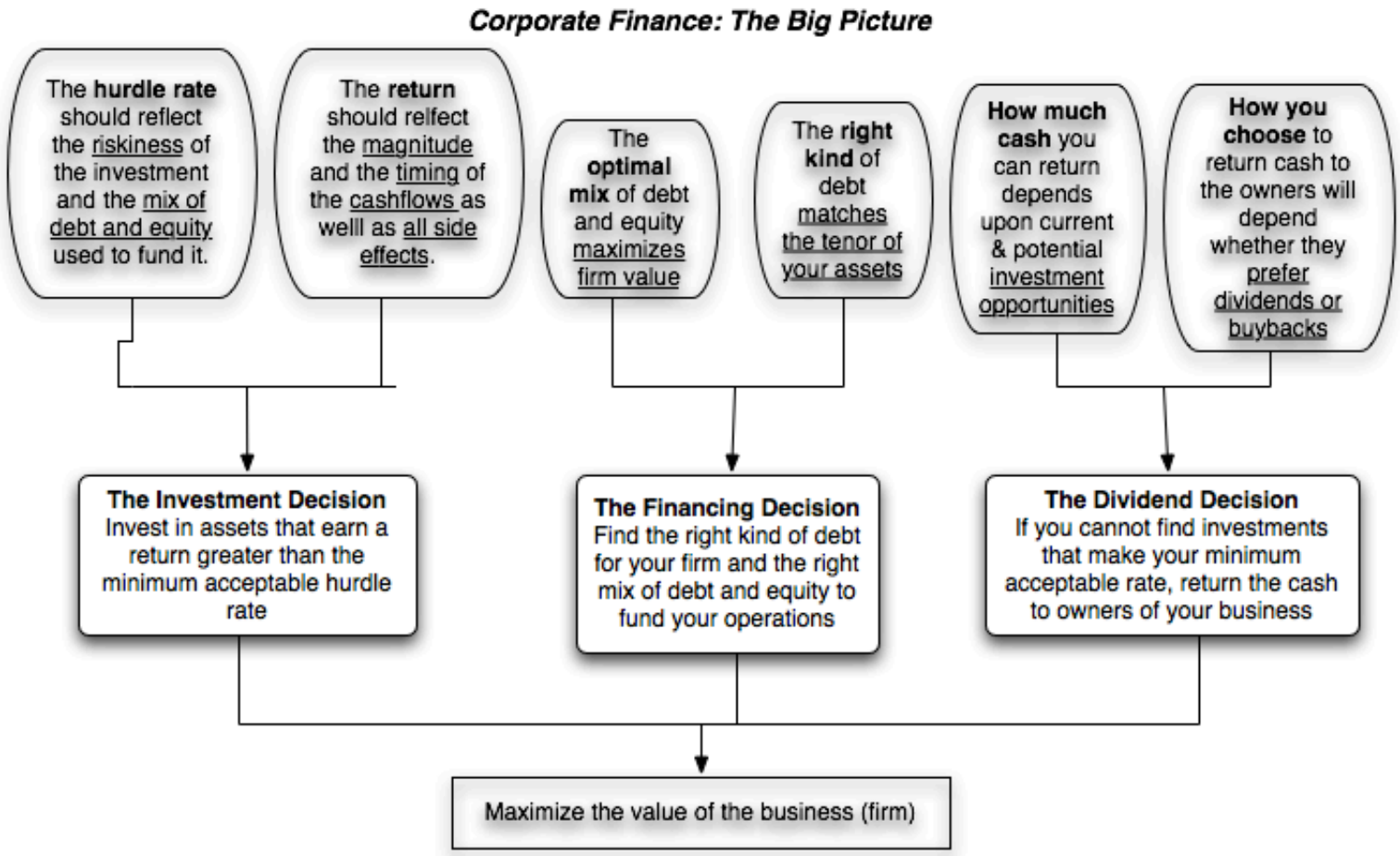
So, watch out for these justifications

- The "Expert" Cop out: For many firms, the easiest way to explain the unexplainable is to pass the buck and get a consultant/expert to sign off on an action.
- Weapons of distraction: Managers/investors/analysts seem to find ways of over riding the numbers with buzz words. Here are some to watch out for:
  - "Gut feeling" or "Intuition": Older, more experienced managers often claim to have a gut feeling about decisions. Psychological studies of gut feeling find that they are almost never based upon good data, are often completely wrong and get worse as managers get smarter/ more experienced.
  - "Strategic": The word "strategic" almost always goes to describe actions that cannot be justified based upon the numbers… (My list of five words of mass distraction)

Lesson 2: Know where you are going… Have a dominant objective that is measurable…

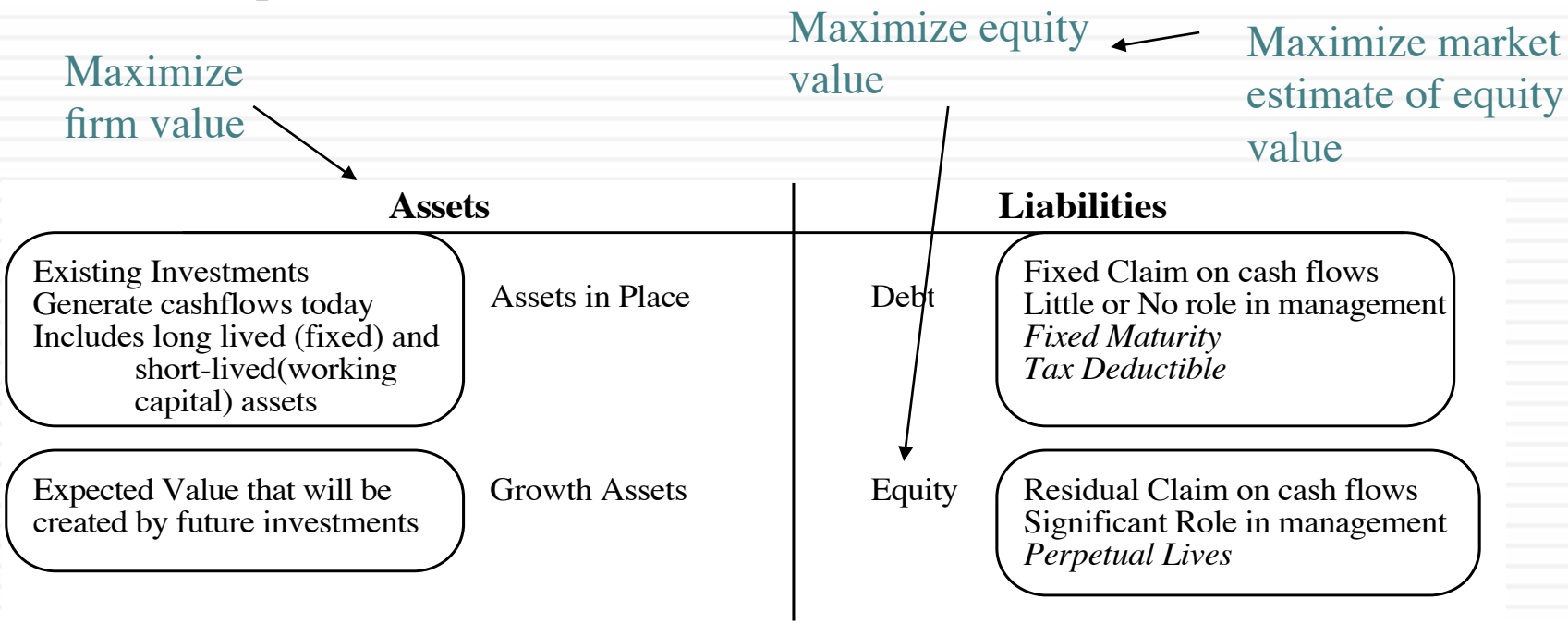
- If you don't have an objective, your decision making process has no rudder. Each manager will then create his or her own vision of where the business is going, and make decisions based on that vision.
- If you have multiple objectives, you will still have to make choices. If you are not clear about which objective should dominate, managers again will pick their own dominant objectives, leading to them working at cross purposes.
- If you have a fuzzy objective, you are giving no guidance on both how decisions should be made and no accountability for decisions, once made.

Here is my choice…

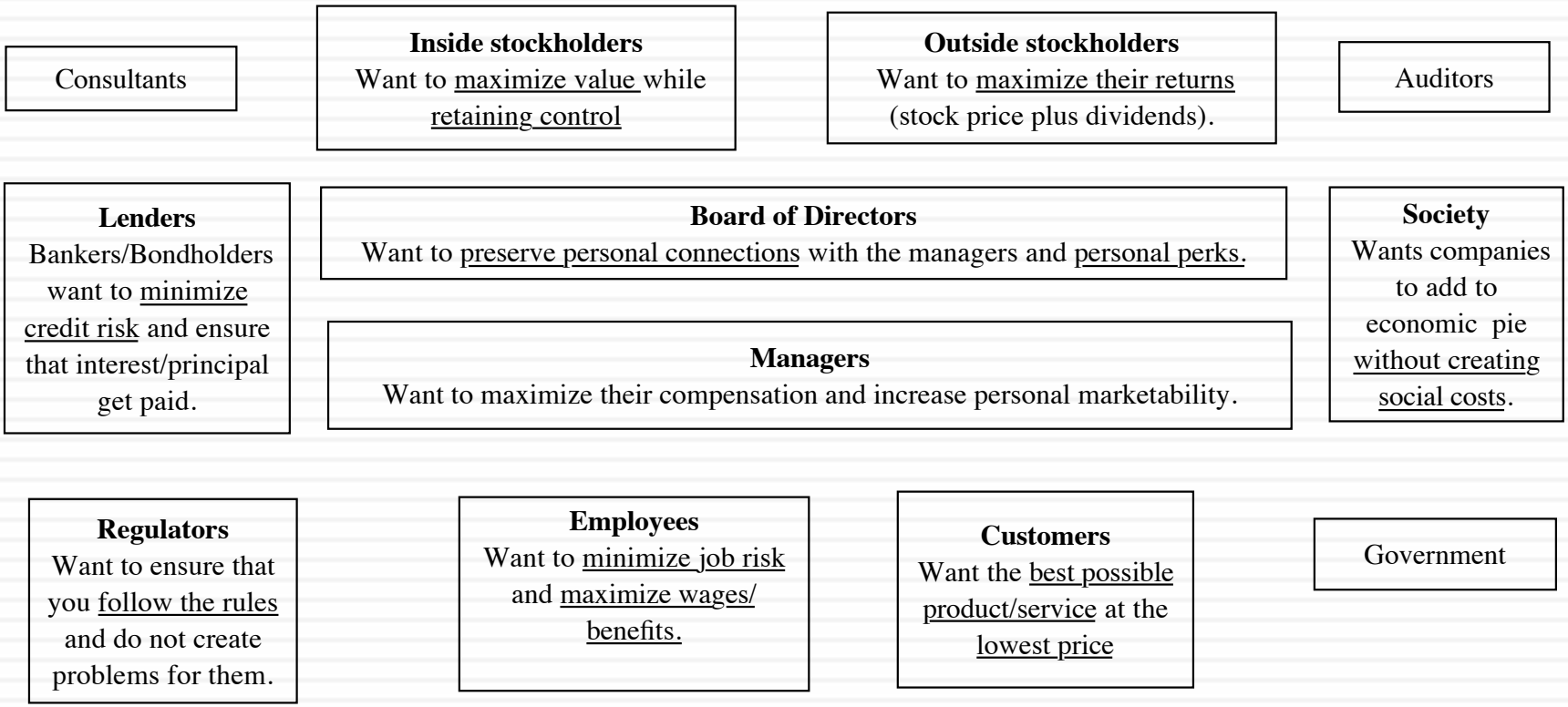


And here is what I mean by value of a business..

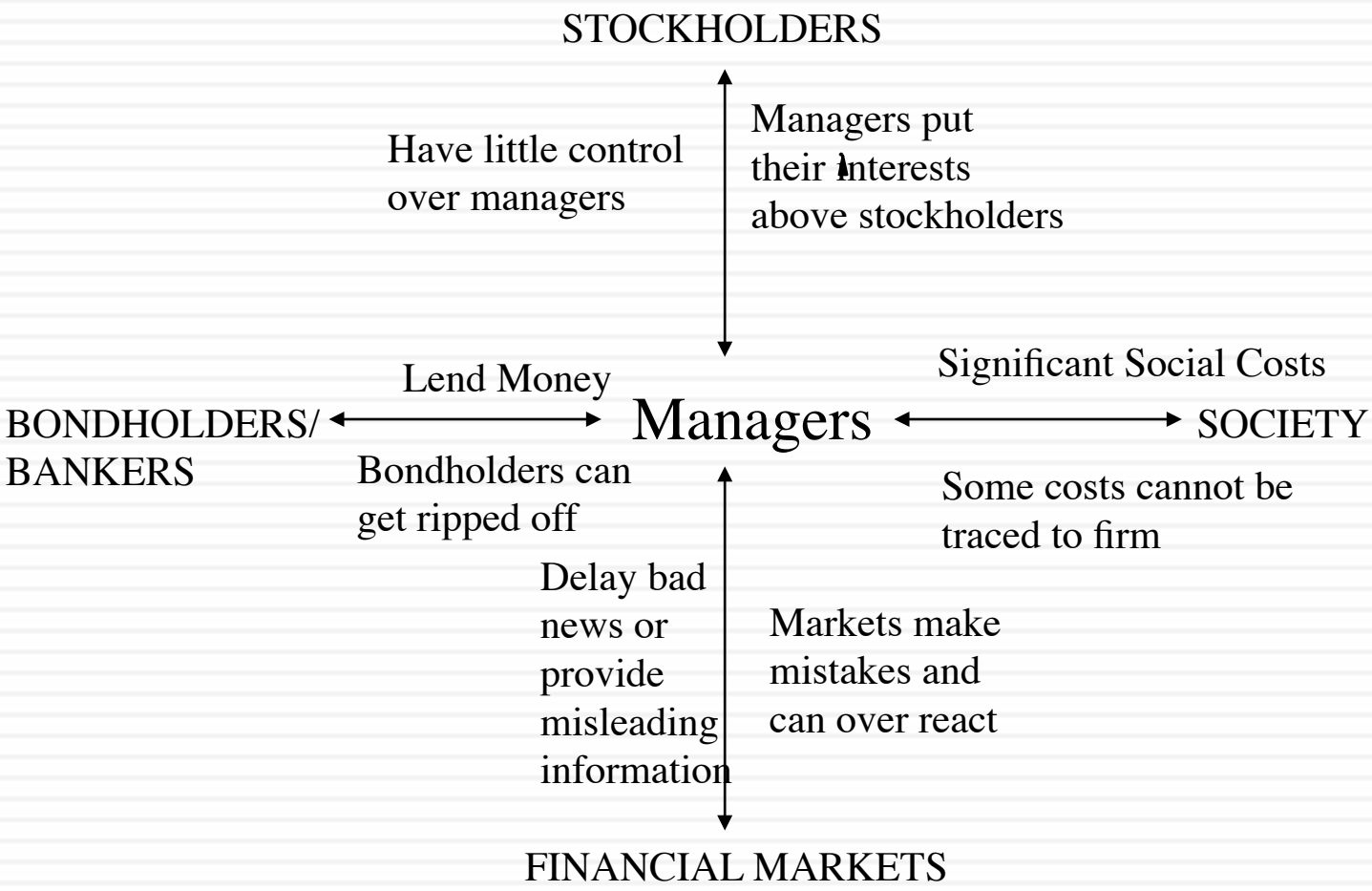
- In traditional corporate finance, the objective in decision making is to maximize the value of the firm.
- A narrower objective is to maximize stockholder wealth. When the stock is traded and markets are viewed to be efficient, the objective is to maximize the stock price.



Lesson 3: In any business, you are juggling conflicting interests..



And they often work at cross purposes with each other…



With the board of directors as a good example of the conflict of interest…

- In theory, the board of directors should work to protect the best interests of stockholders, monitoring top management to ensure that they do their fiduciary duty.
- In practice, boards are not effective because:
  - They are rubber stamps for CEOs: In many companies, the directors who sit on the board are picked by the CEO and inside stockholders. While outside stockholders get to nominally vote on these directors, they are not given any real say in the process.
  - Directors are ill equipped to play the role of monitors: Directors often lack the expertise to question top managers, lack the information to raise questions and the time to follow through.
  - Directors are generally not large stockholders nor do they represent them: In most companies, directors own only token stakes in the company.

And here is why investors should care…

- In the most comprehensive study of the effect of corporate governance on value, a governance index was created for each of 1500 firms based upon 24 distinct corporate governance provisions.
  - Buying stocks that had the strongest investor protections while simultaneously selling shares with the weakest protections generated an annual excess return of 8.5%.
  - Every one point increase in the index towards fewer investor protections decreased market value by 8.9%.
  - Firms that scored high in investor protections also had higher profits, higher sales growth and made fewer acquisitions.
- Price crashes and accounting scandals are much more common at companies with poor corporate governance. In fact, common features shared by companies that are struck by severe, self-inflicted wounds (accounting scandals, disastrous acquisitions) are imperial CEOs and rubber-stamp boards of directors.

Lesson 4: Understand the essence of risk

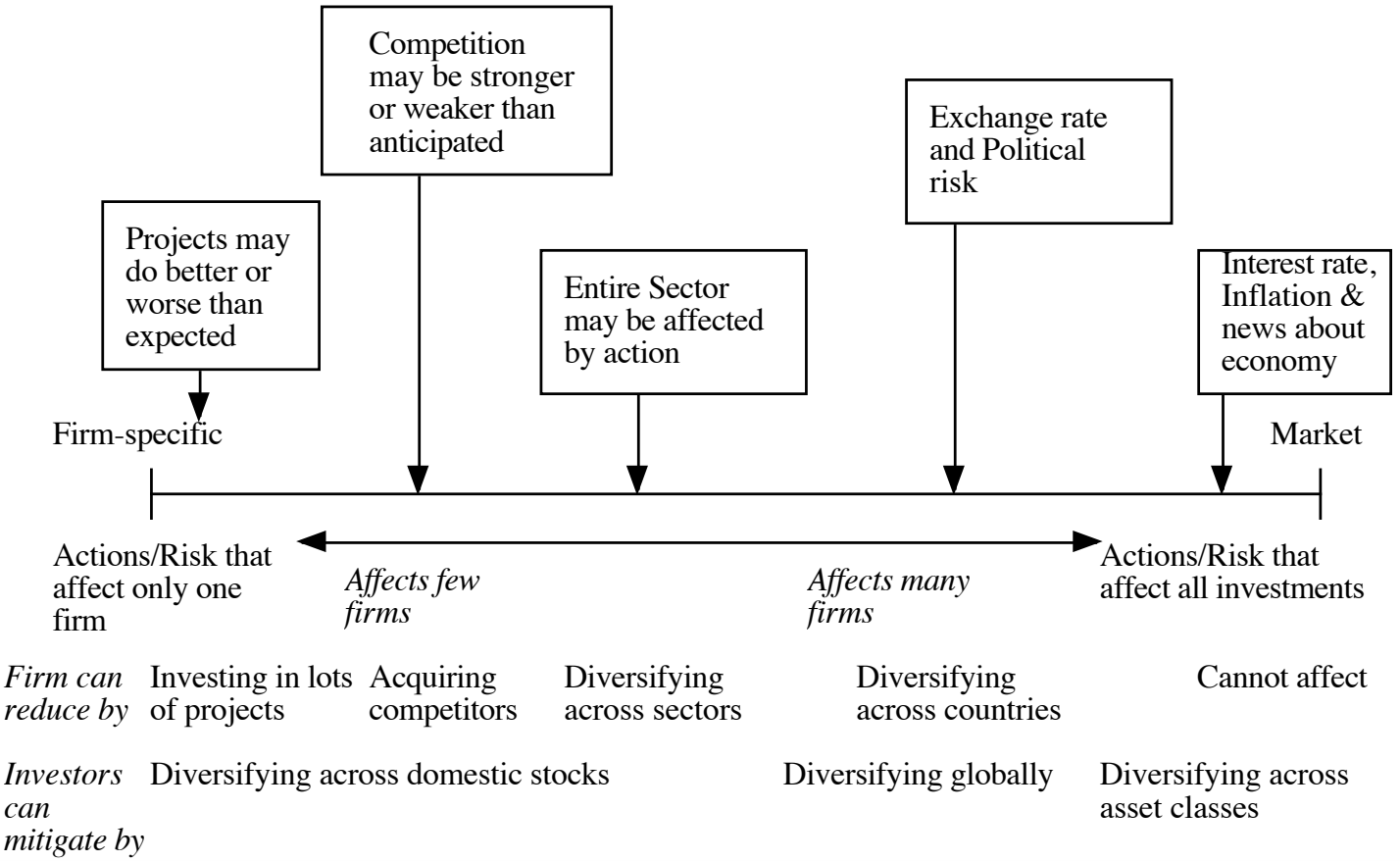
- Risk, in traditional terms, is viewed as a ‘negative’. Webster’s dictionary, for instance, defines risk as “exposing to danger or hazard”. The Chinese symbols for risk, reproduced below, give a much better description of risk:

危机

- The first symbol is the symbol for “danger”, while the second is the symbol for “opportunity”, making risk a mix of danger and opportunity. You cannot have one, without the other.
- Risk is therefore neither good nor bad. It is just a fact of life. The question that businesses have to address is therefore not whether to avoid risk but how best to incorporate it into their decision making.

Risk can come from many places…

Figure 3.5: A Break Down of Risk



And not all risk is made equal…

- If you are a sole owner of a business, you are exposed to all of the risks in a business. Thus, your hurdle rate should reflect those risks.
- If you are a publicly traded company, the game changes. As a manager, you have look at risk through the eyes of the marginal investor in your company. There are two criteria that go into being a marginal investor:
  - You need to own enough stock to make a difference. In other words, you have to be a large stockholder.
  - You have to trade that stock. Thus, a founder who owns a lot of stock but does not trade is not the marginal investor.
- If that marginal investor is a mutual fund or institutional investor, the only risk they see in an investment is the risk that it adds to a diversified portfolio. Consequently, the only risk you as a manager should build into your hurdle rate is the risk that cannot be diversified away.

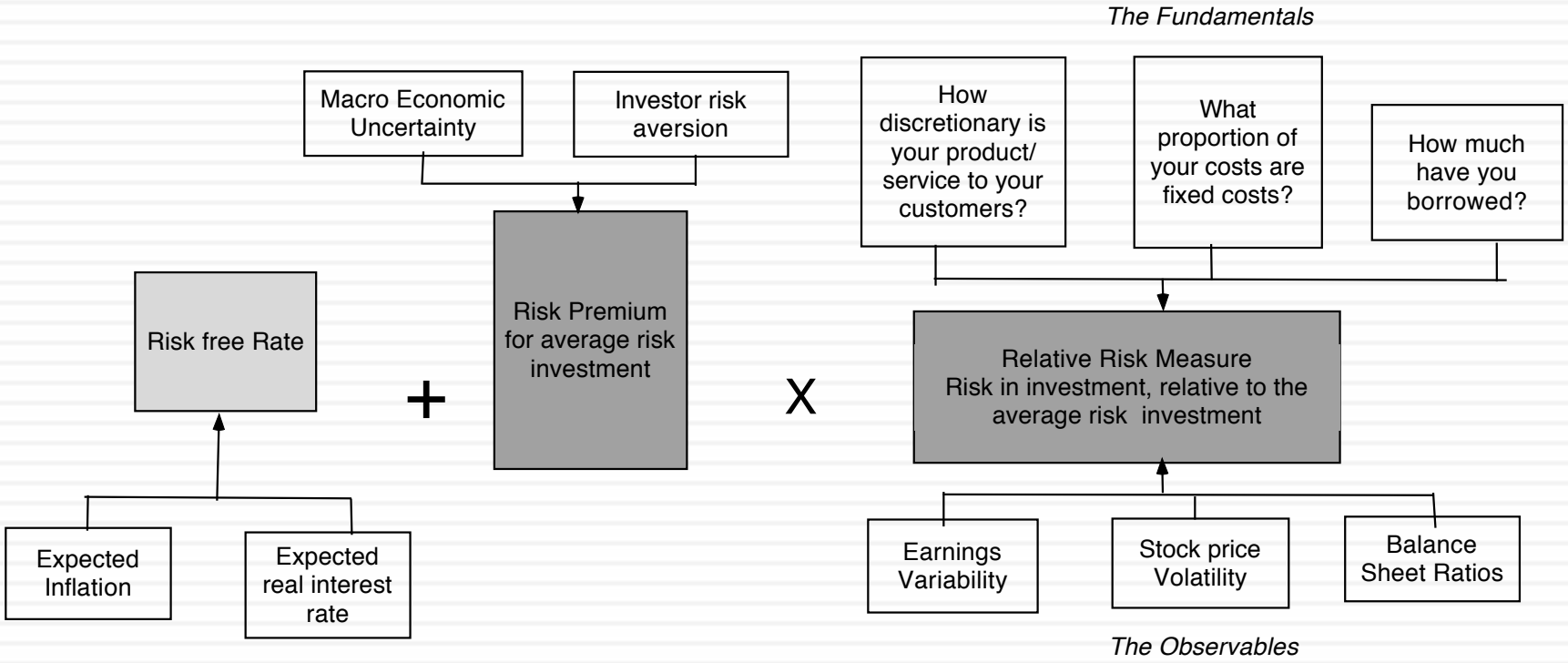
And as an investor, here is your take away…

- Be diversified: If you choose not to be diversified, you are taking on risks for which you get no reward. The penalty you pay for not being diversified will increase as the proportion of shares held and traded in the market by diversified investors increases.
- Not all risk is rewarded: Recognize that you can have a company that is risky as a stand alone entity but may not be risky in a portfolio with other stocks.
- As risk increases, you need to diversify more: The more uncertainty you face when investing, the more diversified you need to get to compensate for that uncertainty.

Lesson 5: 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:

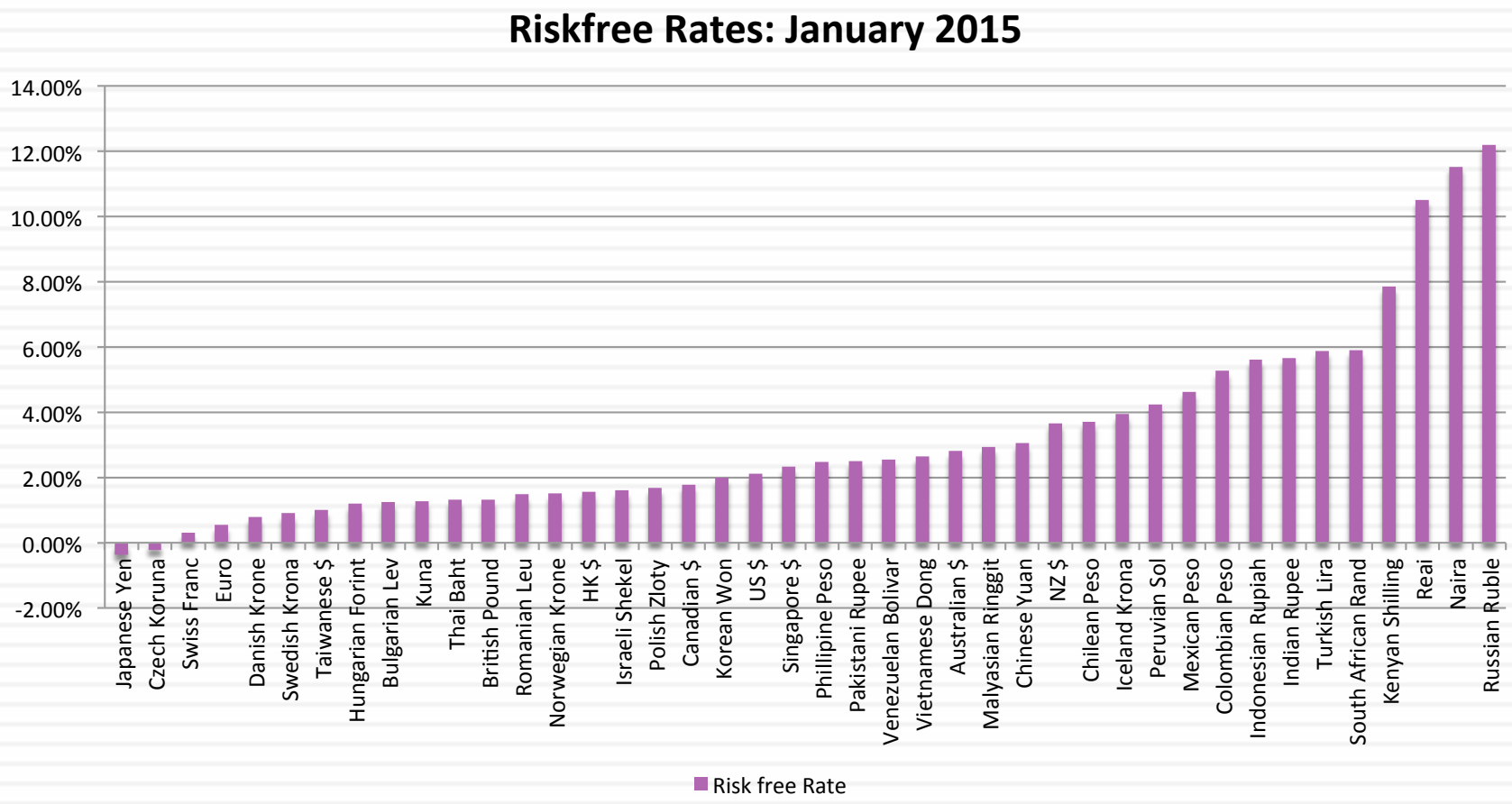
Hurdle rate = Riskless Rate + Risk Premium



The government bond rate is not always the risk free rate

- The Indian government had 10-year Rupee bonds outstanding, with a yield to maturity of about 7.87% on January 1, 2015.
- In January 2015, the Indian government had a local currency sovereign rating of Baa3. The typical default spread (over a default free rate) for Baa3 rated country bonds in early 2015 was 2.2%. The riskfree rate in Indian Rupees is
  a. The yield to maturity on the 10-year bond (7.87%)
  b. The yield to maturity on the 10-year bond + Default spread (10.07%)
  c. The yield to maturity on the 10-year bond – Default spread (5.67%)
  d. None of the above

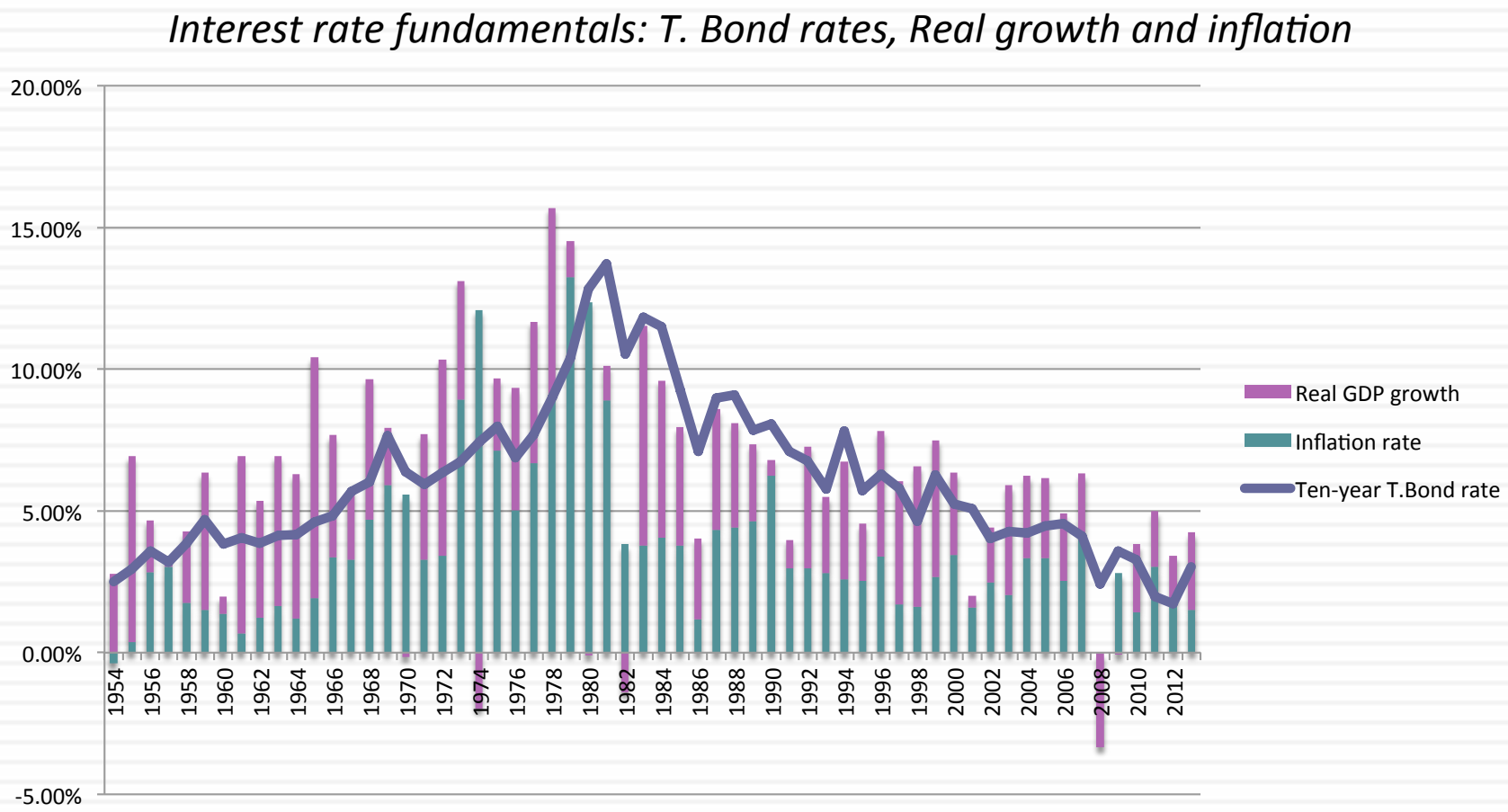
Currencies matter, or do they?



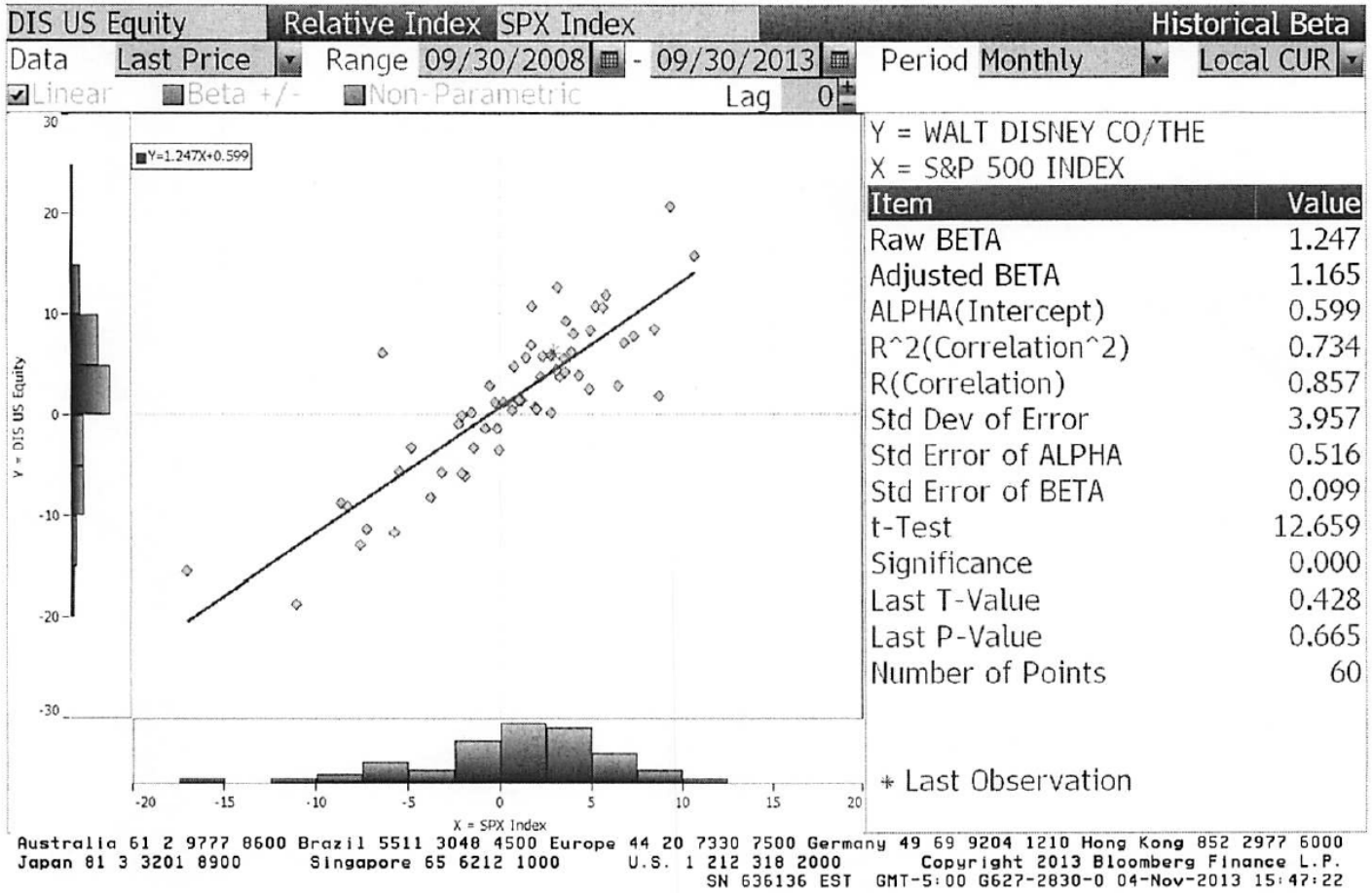
But valuations should not.. Tata Motors in US dollars

	In Indian Rupees	In US $
Risk free Rate	5.00%	2.00%
Expected inflation rate	4.00%	1.00%
Cost of capital - High Growth - Stable Growth	 12.50% 10.39%	 9.25% 7.21%
Expected growth rate - High Growth - Stable Growth	 12.01% 5.00%	 8.78% 2.00%
Return on Capital - High Growth - Stable Growth	 17.16% 10.39%	 13.78% 7.21%
Value per share	Rs 614	$12.79/share (roughly Rs 614 at current exchange rate)

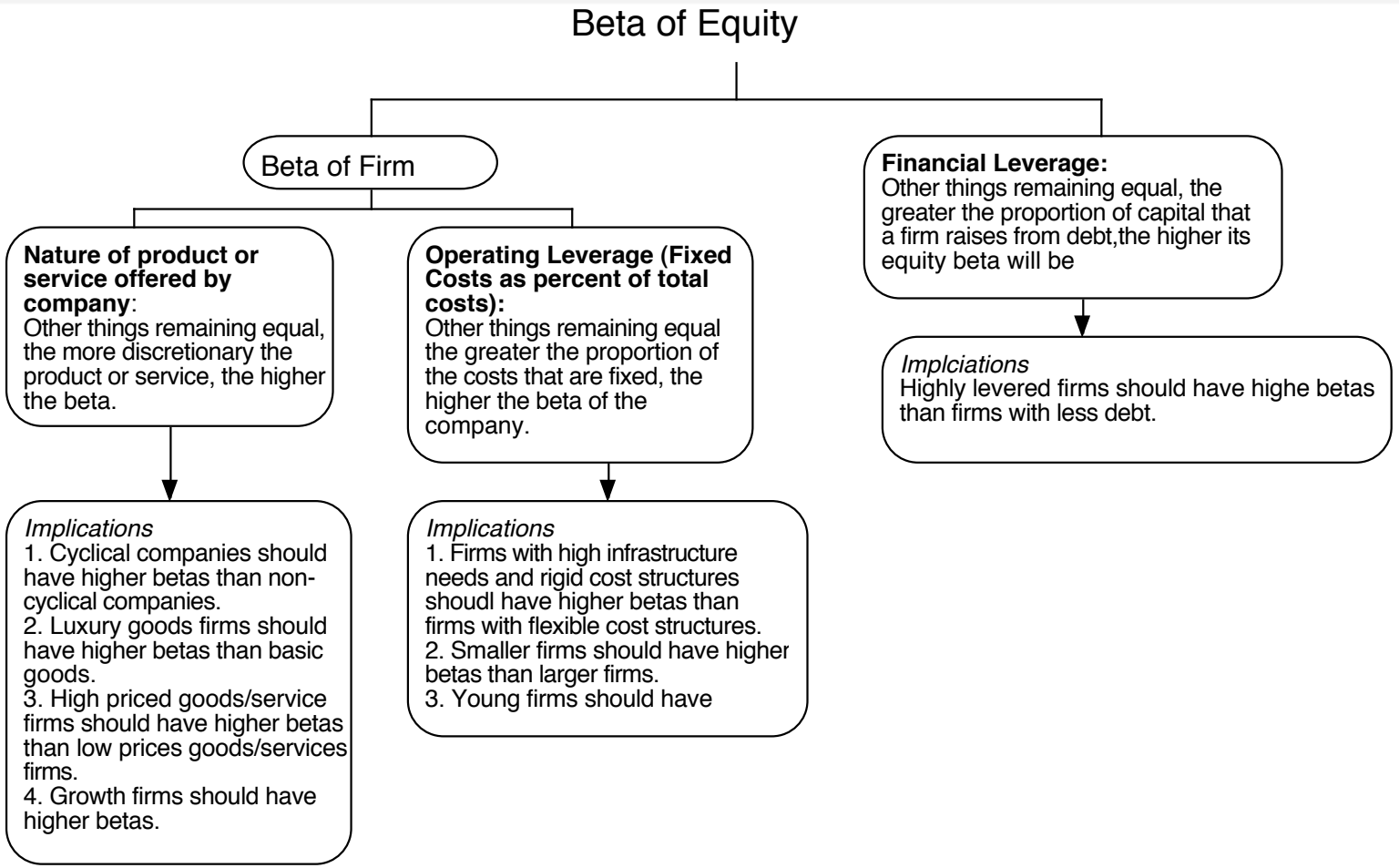
And central banks don't set interest rates, they tweak them..



Betas do not come from regressions… and are noisy…



Here is what drives the risk of your business…



Disney: From the Business up…

Business	*Comparable firms*	*Sample size*	*Median Beta*	*Median D/E*	*Median Tax rate*	*Company Unlevered Beta*	*Median Cash/ Firm Value*	*Business Unlevered Beta*
Media Networks	US firms in broadcasting business	26	1.43	71.09%	40.00%	1.0024	2.80%	1.0313
Parks & Resorts	Global firms in amusement park business	20	0.87	46.76%	35.67%	0.6677	4.95%	0.7024
Studio Entertainment	US movie firms	10	1.24	27.06%	40.00%	1.0668	2.96%	1.0993
Consumer Products	Global firms in toys/games production & retail	44	0.74	29.53%	25.00%	0.6034	10.64%	0.6752
Interactive	Global computer gaming firms	33	1.03	3.26%	34.55%	1.0085	17.25%	1.2187

To Costs of Equity

Business	*Revenues*	*EV/Sales*	*Value of Business*	*Proportion of Disney*	*Unlevered beta*	*Value*	*Proportion*
Media Networks	$20,356	3.27	$66,580	49.27%	1.03	$66,579.81	49.27%
Parks & Resorts	$14,087	3.24	$45,683	33.81%	0.70	$45,682.80	33.81%
Studio Entertainment	$5,979	3.05	$18,234	13.49%	1.10	$18,234.27	13.49%
Consumer Products	$3,555	0.83	$2,952	2.18%	0.68	$2,951.50	2.18%
Interactive	$1,064	1.58	$1,684	1.25%	1.22	$1,683.72	1.25%
Disney Operations	$45,041		$135,132	100.00%	0.9239	$135,132.11	

Business	*Unlevered beta*	*Value of business*	*D/E ratio*	*Levered beta*	*Cost of Equity*
Media Networks	1.0313	$66,580	10.03%	1.0975	9.07%
Parks & Resorts	0.7024	$45,683	11.41%	0.7537	7.09%
Studio Entertainment	1.0993	$18,234	20.71%	1.2448	9.92%
Consumer Products	0.6752	$2,952	117.11%	1.1805	9.55%
Interactive	1.2187	$1,684	41.07%	1.5385	11.61%
Disney Operations	0.9239	$135,132	13.10%	1.0012	8.52%

And the past is not always a good indicator of the future

- It is standard practice to use historical premiums as forward looking premiums. :

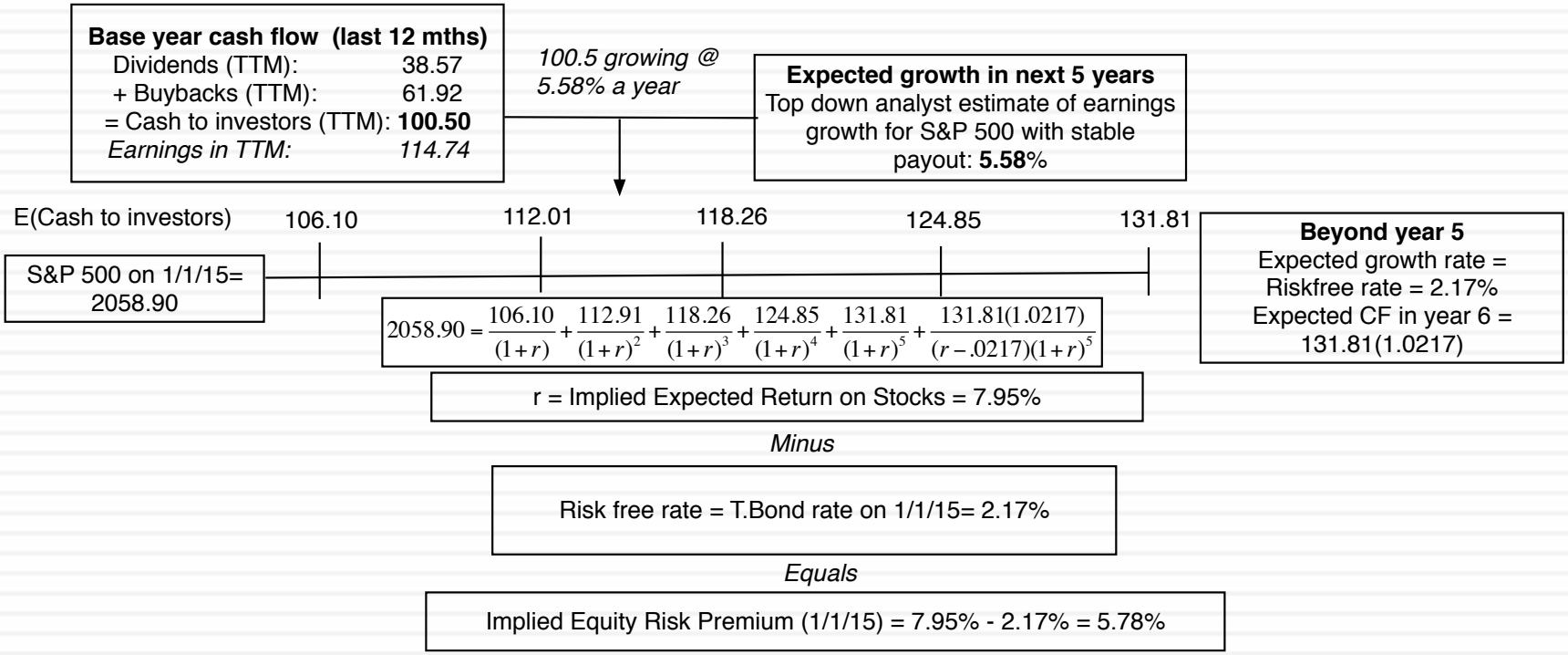
	Arithmetic Average		*Geometric Average*	
	Stocks - T. Bills	Stocks - T. Bonds	Stocks - T. Bills	Stocks - T. Bonds
1928-2014	8.00%	6.25%	6.11%	4.60%
	2.17%	2.32%		
1965-2014	6.19%	4.12%	4.84%	3.14%
	2.42%	2.74%		
2005-2014	7.94%	4.06%	6.18%	2.73%
	6.05%	8.65%		

- Not only is this approach backward-looking, but it yields estimates which significant noise associated with them. The standard error in a historical estimate will be the following:

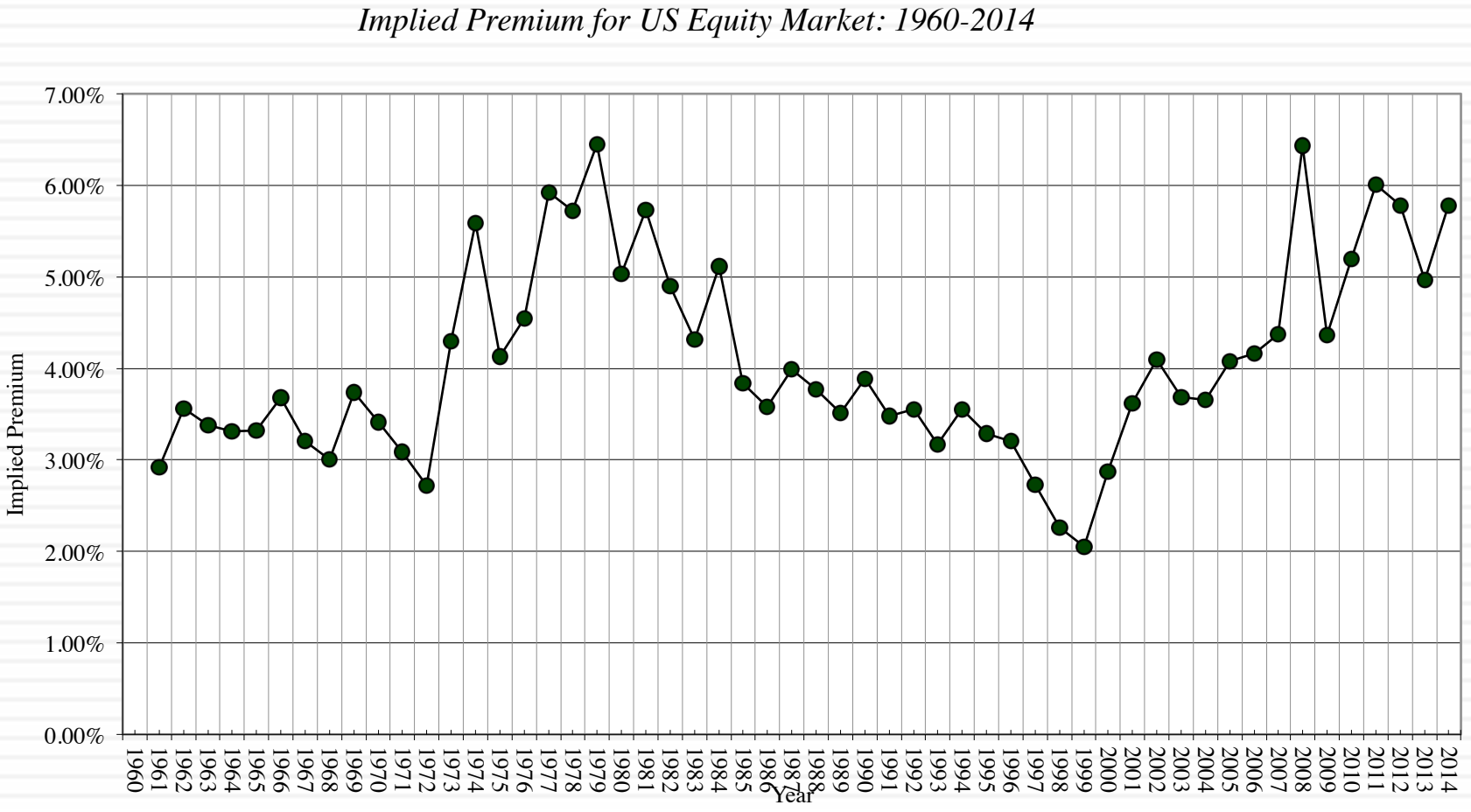
$$Standard\ Error_{Historical\ ERP} = \frac{Annual\ Standard\ Deviation_{Stocks}}{\sqrt{Number\ of\ years\ of\ data}}$$

- In most markets, you will be hard pressed to find more than a few decades of reliable stock market history, making historical risk premiums close to useless.

A forward-looking alternative: Back out an implied equity risk premium



Implied Premiums in the US: 1960-2013



There is a downside to globalization…

- Emerging markets offer growth opportunities but they are also riskier. If we want to count the growth, we have to also consider the risk.
- Two ways of estimating the country risk premium:
  - Sovereign Default Spread: In this approach, the country equity risk premium is set equal to the default spread of the bond issued by the country.
    - Equity Risk Premium for mature market = 4.50%
    - Default Spread for India = 3.00% (based on rating)
    - Equity Risk Premium for India = 4.50% + 3.00%
  - Adjusted for equity risk: The country equity risk premium is based upon the volatility of the equity market relative to the government bond rate.
    - Country risk premium= Default Spread* $\text{Std Deviation}_{\text{Country Equity}} / \text{Std Deviation}_{\text{Country Bond}}$
    - Standard Deviation in Sensex = 21%
    - Standard Deviation in Indian government bond= 14%
    - Default spread on Indian Bond= 3%
    - Additional country risk premium for India = 3% (21/14) = 4.5%

ERP : Jan 2015

Andorra	8.15%	2.40%
Austria	5.75%	0.00%
Belgium	6.65%	0.90%
Cyprus	15.50%	9.75%
Denmark	5.75%	0.00%
Finland	5.75%	0.00%
France	6.35%	0.60%
Germany	5.75%	0.00%
Greece	17.00%	11.25%
Guernsey	6.35%	0.60%
Iceland	9.05%	3.30%
Ireland	8.15%	2.40%
Isle of Man	6.35%	0.60%
Italy	8.60%	2.85%
Jersey	6.35%	0.60%
Liechtenstein	5.75%	0.00%
Luxembourg	5.75%	0.00%
Malta	7.55%	1.80%
Netherlands	5.75%	0.00%
Norway	5.75%	0.00%
Portugal	9.50%	3.75%
Spain	8.60%	2.85%
Sweden	5.75%	0.00%
Switzerland	5.75%	0.00%
Turkey	9.05%	3.30%
UK	6.35%	0.60%
W. Europe	**6.88%**	**1.13%**

Albania	12.50%	6.75%
Armenia	10.25%	4.50%
Azerbaijan	9.05%	3.30%
Belarus	15.50%	9.75%
Bosnia	15.50%	.75%
Bulgaria	8.60%	2.85%
Croatia	9.50%	3.75%
Czech Repub	6.80%	1.05%
Estonia	6.80%	1.05%
Georgia	11.15%	5.40%
Hungary	9.50%	3.75%
Kazakhstan	8.60%	2.85%
Latvia	8.15%	2.40%
Lithuania	8.15%	2.40%
Macedonia	11.15%	5.40%
Moldova	15.50%	9.75%
Montenegro	11.15%	5.40%
Poland	7.03%	1.28%
Romania	9.05%	3.30%
Russia	8.60%	2.85%
Serbia	12.50%	6.75%
Slovakia	7.03%	1.28%
Slovenia	9.50%	3.75%
Ukraine	20.75%	15.00%
E. Europe	**9.08%**	**3.33%**

Canada	5.75%	0.00%
US	5.75%	0.00%
North America	**5.75%**	**0.00%**

Argentina	17.00%	11.25%
Belize	19.25%	13.50%
Bolivia	11.15%	5.40%
Brazil	8.60%	2.85%
Chile	6.65%	0.90%
Colombia	8.60%	2.85%
Costa Rica	9.50%	3.75%
Ecuador	15.50%	9.75%
El Salvador	11.15%	5.40%
Guatemala	9.50%	3.75%
Honduras	15.50%	9.75%
Mexico	7.55%	1.80%
Nicaragua	15.50%	9.75%
Panama	8.60%	2.85%
Paraguay	10.25%	4.50%
Peru	7.55%	1.80%
Suriname	11.15%	5.40%
Uruguay	8.60%	2.85%
Venezuela	17.00%	11.25%
Latin America	**9.95%**	**4.20%**

Angola	10.25%	4.50%
Botswana	7.03%	1.28%
Burkina Faso	15.50%	9.75%
Cameroon	14.00%	8.25%
Cape Verde	14.00%	8.25%
Congo (DR)	15.50%	9.75%
Congo (Republic)	11.15%	5.40%
Côte d'Ivoire	12.50%	6.75%
Egypt	17.00%	11.25%
Ethiopia	12.50%	6.75%
Gabon	11.15%	5.40%
Ghana	14.00%	8.25%
Kenya	12.50%	6.75%
Morocco	9.50%	3.75%
Mozambique	12.50%	6.75%
Namibia	9.05%	3.30%
Nigeria	11.15%	5.40%
Rwanda	14.00%	8.25%
Senegal	12.50%	6.75%
South Africa	8.60%	2.85%
Tunisia	11.15%	5.40%
Uganda	12.50%	6.75%
Zambia	12.50%	6.75%
Africa	**11.73%**	**5.98%**

Abu Dhabi	6.50%	0.75%
Bahrain	8.60%	2.85%
Israel	6.80%	1.05%
Jordan	12.50%	6.75%
Kuwait	6.50%	0.75%
Lebanon	14.00%	8.25%
Oman	6.80%	1.05%
Qatar	6.50%	0.75%
Ras Al Khaimah	7.03%	1.28%
Saudi Arabia	6.65%	0.90%
Sharjah	7.55%	1.80%
UAE	6.50%	0.75%
Middle East	**6.85%**	**1.10%**

Bangladesh	11.15%	5.40%
Cambodia	14.00%	8.25%
China	6.65%	0.90%
Fiji	12.50%	6.75%
Hong Kong	6.35%	0.60%
India	9.05%	3.30%
Indonesia	9.05%	3.30%
Japan	6.80%	1.05%
Korea	6.65%	0.90%
Macao	6.50%	0.75%
Malaysia	7.55%	1.80%
Mauritius	8.15%	2.40%
Mongolia	14.00%	8.25%
Pakistan	17.00%	11.25%
Papua New Guinea	12.50%	6.75%
Philippines	8.60%	2.85%
Singapore	5.75%	0.00%
Sri Lanka	12.50%	6.75%
Taiwan	6.65%	0.90%
Thailand	8.15%	2.40%
Vietnam	12.50%	6.75%
Asia	**7.26%**	**1.51%**

Australia	5.75%	0.00%
Cook Islands	12.50%	6.75%
New Zealand	5.75%	0.00%
Australia & NZ	**5.75%**	**0.00%**

Black #: Total ERP
Red #: Country risk premium
AVG: GDP weighted average

Globalization's flip side: Operation-based ERP

Disney (2013)

Region/ Country	*Proportion of Disney's Revenues*	*ERP*
US& Canada	82.01%	5.50%
Europe	11.64%	6.72%
Asia-Pacific	6.02%	7.27%
Latin America	0.33%	9.44%
Disney	**100.00%**	**5.76%**

Vale (2013)

	% Revenues	ERP
US & Canada	4.90%	5.50%
Brazil	16.90%	8.50%
Rest of Latin Ameria	1.70%	10.09%
China	37.00%	6.94%
Japan	10.30%	6.70%
Rest of Asia	8.50%	8.61%
Europe	17.20%	6.72%
Rest of World	3.50%	10.06%
Company	100.00%	7.38%

And here is how it plays out: Divisional Costs of Equity and Capital for Disney

	Cost of equity	Cost of debt	Marginal tax rate	After-tax cost of debt	Debt ratio	Cost of capital
Media Networks	9.07%	3.75%	36.10%	2.40%	9.12%	8.46%
Parks & Resorts	7.09%	3.75%	36.10%	2.40%	10.24%	6.61%
Studio Entertainment	9.92%	3.75%	36.10%	2.40%	17.16%	8.63%
Consumer Products	9.55%	3.75%	36.10%	2.40%	53.94%	5.69%
Interactive	11.65%	3.75%	36.10%	2.40%	29.11%	8.96%
Disney Operations	8.52%	3.75%	36.10%	2.40%	11.58%	7.81%

Assume that you have to estimate a cost of capital for a Disney theme park in Rio in US dollars. What would you use as your

a. Risk free rate:
b. Beta:
c. Equity Risk Premium:
d. Debt ratio and cost of debt:

A test on hurdle rates… for managers

Do you have a hurdle rate within your company?

a. Yes
b. No
c. Not sure

If yes, where did that hurdle rate come from?

a. From an assessment of the costs of debt, equity and capital
b. From the returns we have made historically on our investments
c. I have no idea. We have always used it

If you are a multi-business, multinational company, do you have different hurdle rates for different businesses?

a. We use the same hurdle rate for all businesses and all countries
b. We use different hurdle rates for different businesses but not for countries
c. We use different hurdle rates for different countries but not for businesses.
d. We use different hurdle rates for different businesses & different countries

As an investor, understand the risk in your company before you make your investment…

- Know your hurdle rate for an investment: Just as companies need to know their hurdle rate, when investing in risky investments, investors need to have hurdle rates that when investing in companies that reflect the business mix and geographical exposure of the company.
- Change hurdle rate as company changes: Adjust your hurdle rate as the company changes its mix of businesses and where it operates.
  - Growth from safer businesses is worth more than equivalent growth from riskier businesses.
  - Growth from safer economies or geographical areas is worth more than growth from riskier economies or geographical areas.
- Change hurdle rates to reflect macro shifts: The hurdle rates for all investments can be affected by
  - Riskfree rates, rising or fall, can cause all hurdle rates to rise or fall
  - Risk premiums shifting over time can cause all hurdle rates to rise and fall

Lesson 6: 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
a. Extraordinary or one-time expenses or income
b. Operating leases and R&D
c. Cyclicality in earnings (Normalize)
d. 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

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

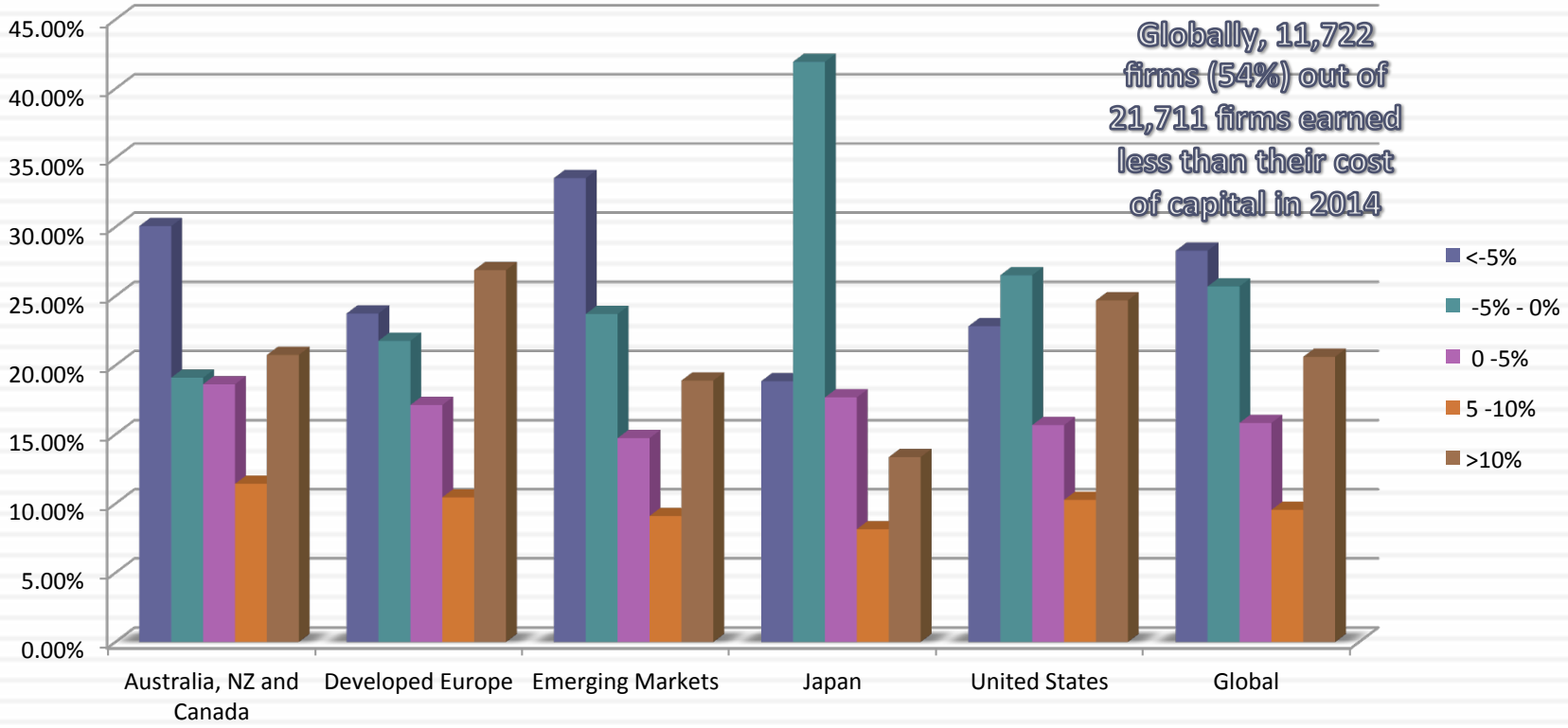
Adjust book equity for
1. Capitalized R&D
2. Acquisition Debris (Goodwill)

Adjust book value of debt for
a. Capitalized operating leases

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

Sounds simple, right? But companies seem to have trouble in practice

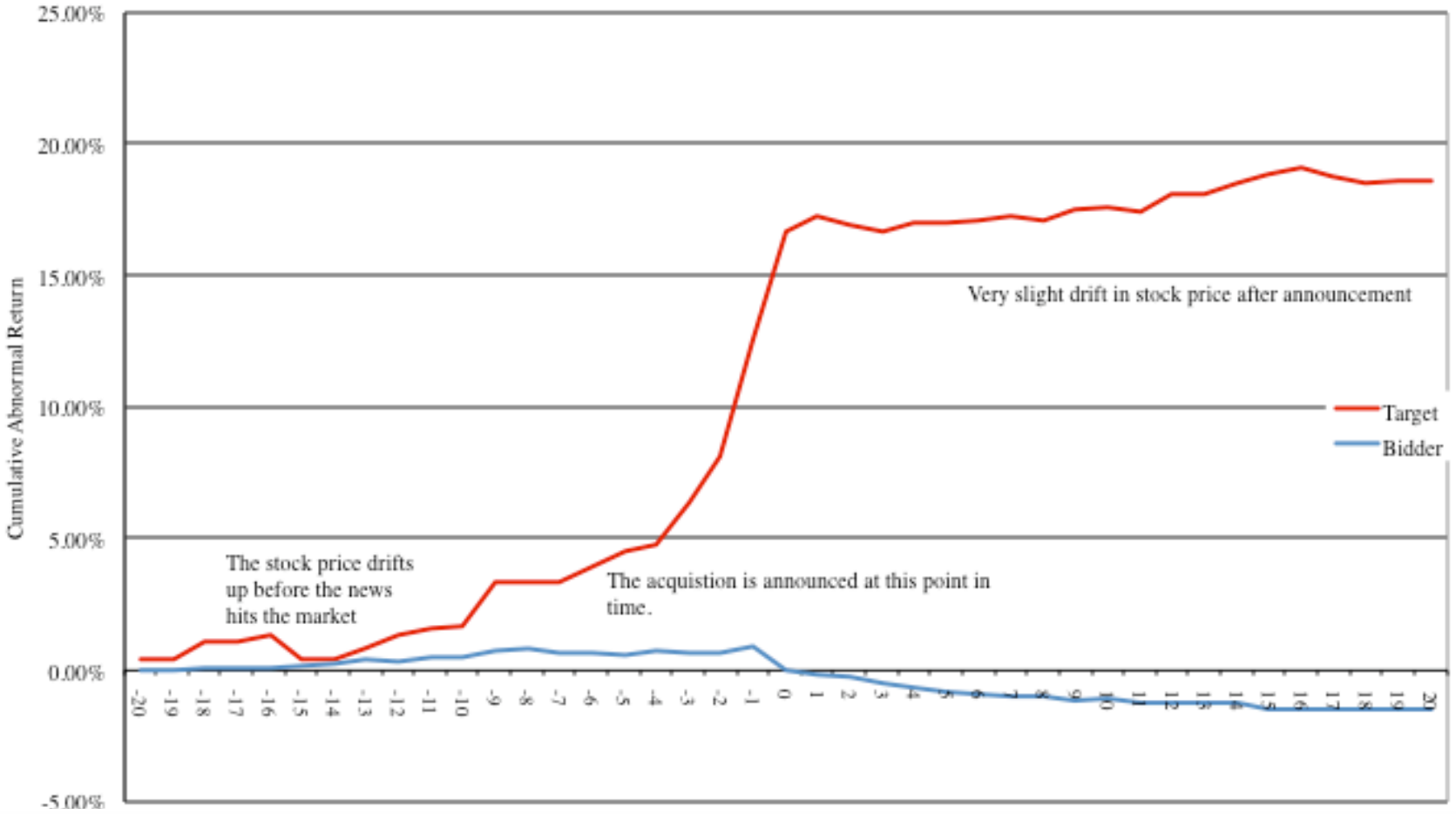
Excess Return (ROC minus Cost of Capital) for firms with market capitalization> $50 million: Global in 2014



Lesson 7: Acquisitions are very big investments and have to meet the same standards..

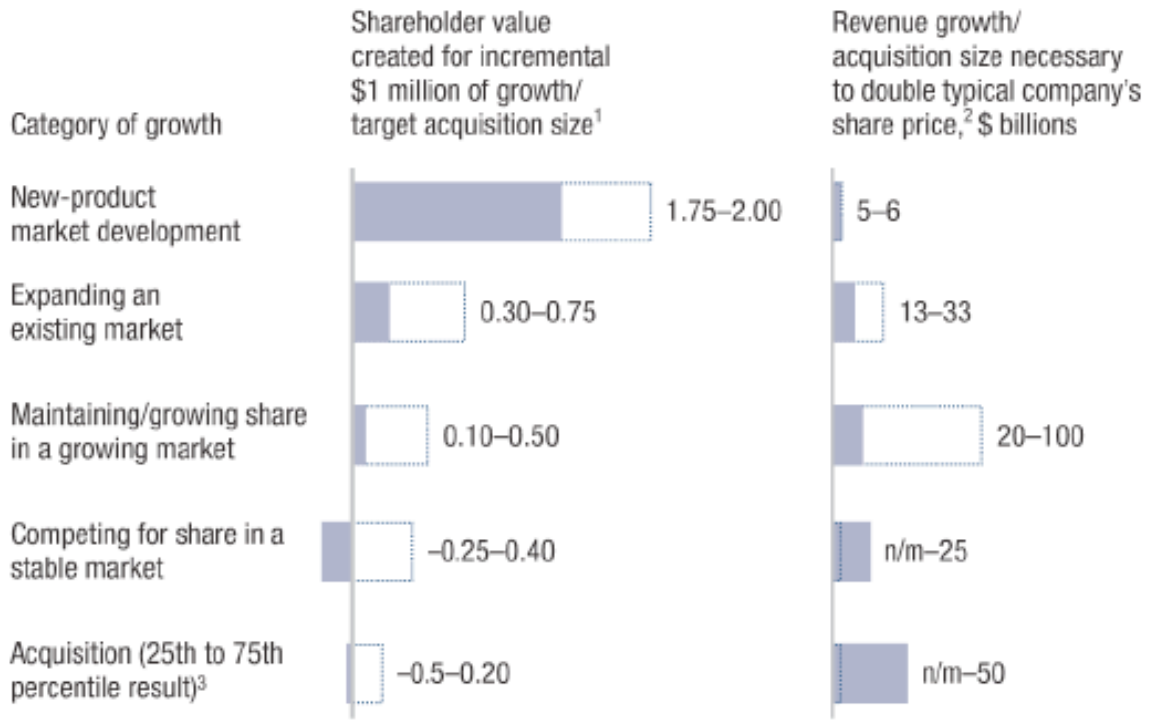
- An acquisition is just a large-scale project. All of the rules that apply to individual investments apply to acquisitions, as well. For an acquisition to create value, it has to
  - Generate a higher return on capital, after allowing for synergy and control factors, than the cost of capital.
  - Put another way, an acquisition will create value only if the present value of the cash flows on the acquired firm, inclusive of synergy and control benefits, exceeds the cost of the acquisitons
- A divestiture is the reverse of an acquisition, with a cash inflow now (from divesting the assets) followed by cash outflows (i.e., cash flows foregone on the divested asset) in the future. If the present value of the future cash outflows is less than the cash inflow today, the divestiture will increase value.
- A fair-price acquisition or divestiture is value neutral.

Only one clear winner in acquisitions.. And it is not the acquiring company's stockholders..



And of all the ways to create growth, acquisitions rank worst…

Modes of organic growth vary in value creation intensity—consumer goods industry

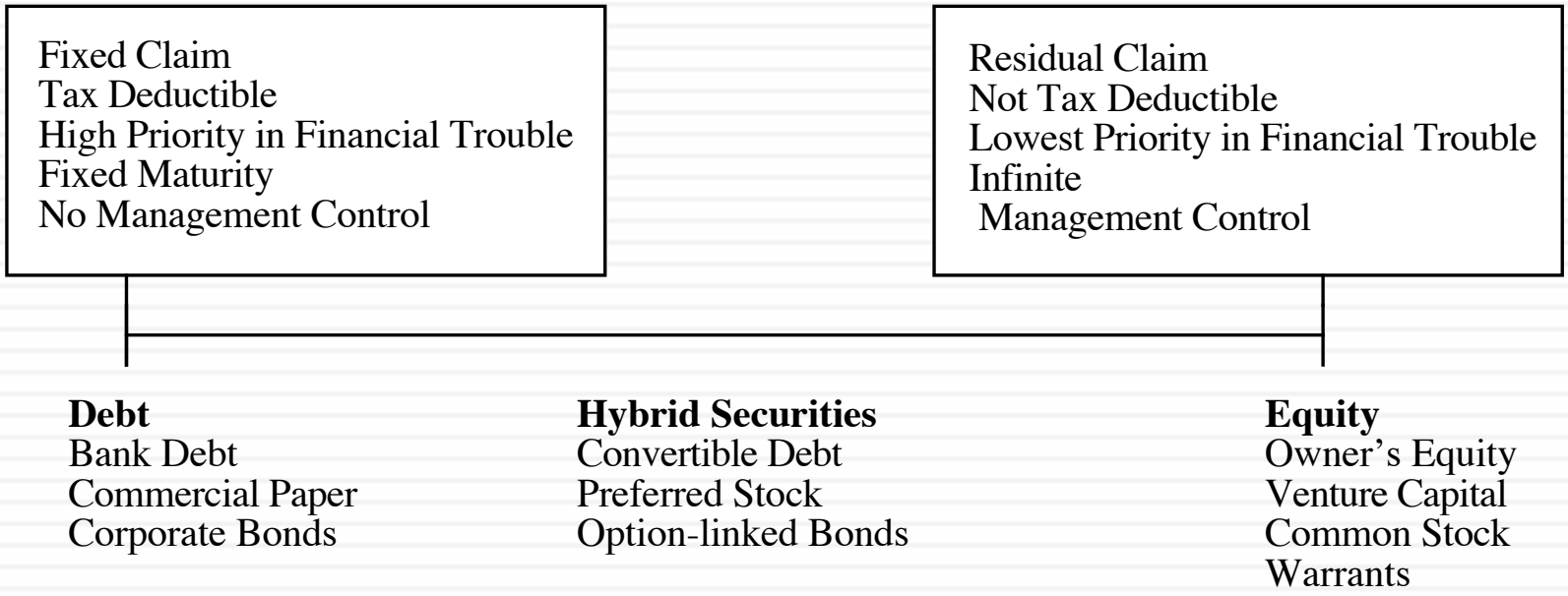


Common acquisition errors

1. Risk Transference: Attributing acquiring company risk characteristics to the target firm. Just because you are a safe firm and operate in a secure market, does not mean that you can transfer these characteristics to a target firm.
2. Debt subsidies: Subsiding target firm stockholders for the strengths of the acquiring firm is providing them with a benefit they did not earn.
3. Auto-pilot Control: Adding 20% to the market price just because other people do it is a recipe for overpayment. Using silly rules such as EPS accretion just makes the problem worse.
4. Elusive Synergy: While there is much talk about synergy in mergers, it is seldom valued realistically or appropriately.
5. Its all relative: The use of transaction multiples (multiples paid by other acquirers in acquisitions) perpetuates over payment.
6. Verdict first, trial afterwards: Deciding you want to do an acquisition first and then looking for justification for the price paid does not make sense.
7. It's not my fault: Holding no one responsible for delivering results is a sure-fire way not to get results…

Lesson 8: You have only two ways of raising funding for a business…

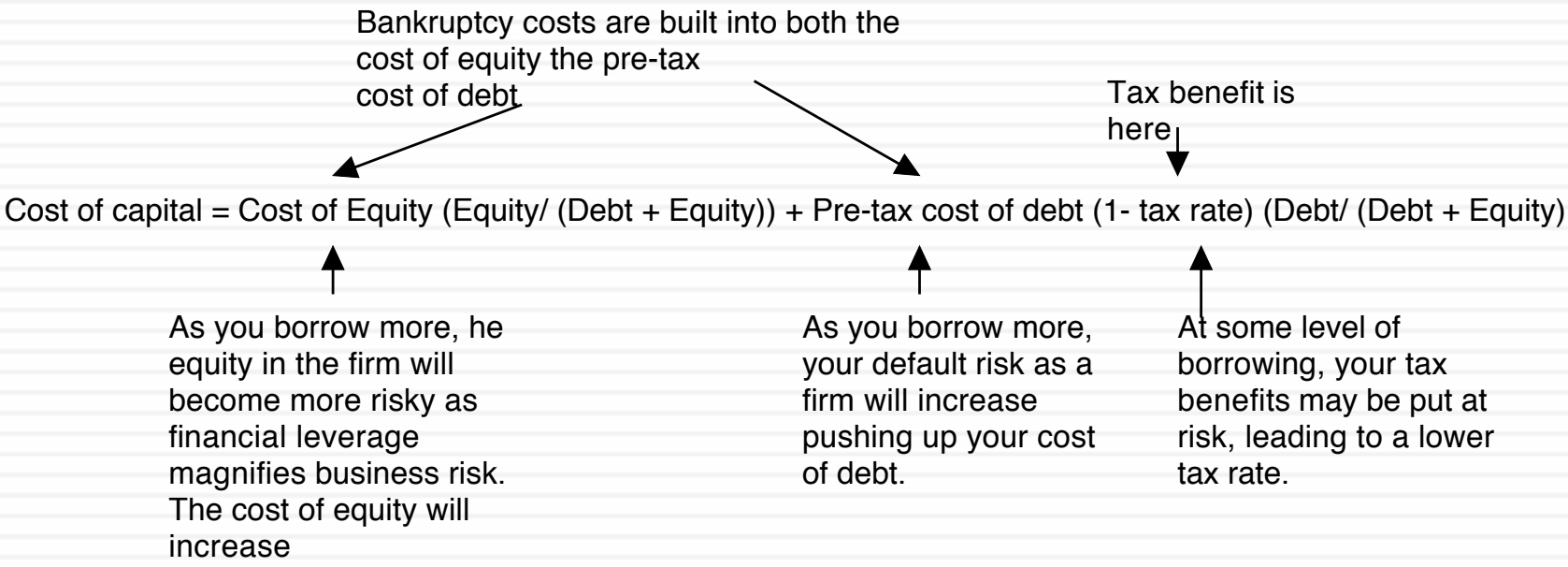
Figure 7.1: Debt versus Equity



And here is the trade off….

Advantages of Debt	*Disadvantages of debt*
1. Tax Benefit: Interest expenses on debt are tax deductible but cash flows to equity are generally not. *Implication: The higher the marginal tax rate, the greater the benefits of debt.*	**1. Expected Bankruptcy Cost**: The expected cost of going bankrupt is a product of the probability of going bankrupt and the cost of going bankrupt. The latter includes both direct and indirect costs. The probability of going bankrupt will be higher in businesses with more volatile earnings and the cost of bankruptcy will also vary across businesses. *Implication:* *1. Firms with more stable earnings should borrow more, for any given level of earnings.* *2. Firms with lower bankruptcy costs should borrow more, for any given level of earnings.*
2. Added Discipline: Borrowing money may force managers to think about the consequences of the investment decisions a little more carefully and reduce bad investments. *Implication: As the separation between managers and stockholders increases, the benefits to using debt will go up.*	**2. Agency Costs**: Actions that benefit equity investors may hurt lenders. The greater the potential for this conflict of interest, the greater the cost borne by the borrower (as higher interest rates or more covenants). *Implication: Firms where lenders can monitor/ control how their money is being used should be able to borrow more than firms where this is difficult to do.*
	3. Loss of flexibility: Using up available debt capacity today will mean that you cannot draw on it in the future. This loss of flexibility can be disastrous if funds are needed and access to capital is shut off. *Implication:* 1. *Firms that can forecast future funding needs better should be able to borrow more.* 2. *Firms with better access to capital markets should be more willing to borrow more today.*

Lesson 9: There is a "right" mix of debt and equity for your business…



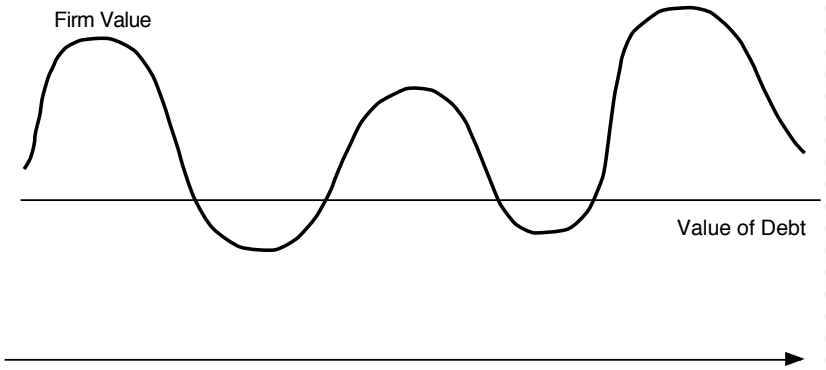
And that mix can be computed…

Debt Ratio	Beta	Cost of Equity	Cost of Debt (after-tax)	Cost of Capital
0%	0.9239	8.07%	2.01%	8.07%
10%	0.9895	8.45%	2.01%	7.81%
20%	1.0715	8.92%	2.01%	7.54%
30%	1.1770	9.53%	2.20%	7.33%
40%	1.3175	10.34%	2.40%	7.16%
50%	1.5143	11.48%	6.39%	8.93%
60%	1.8095	13.18%	7.35%	9.68%
70%	2.3762	16.44%	7.75%	10.35%
80%	3.6289	23.66%	8.97%	11.90%
90%	7.4074	45.43%	10.33%	13.84%

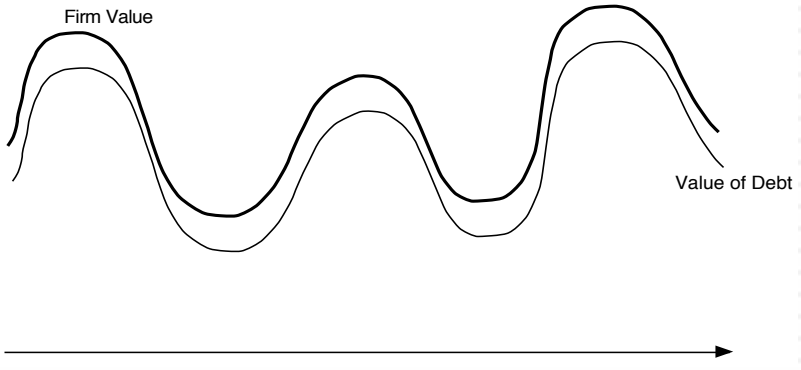
Lesson 10: The "right" debt for your firm depends on your firm

- The objective in designing debt is to make the cash flows on debt match up as closely as possible with the cash flows that the firm makes on its assets.
- By doing so, we reduce our risk of default, increase debt capacity and increase firm value.

Unmatched Debt

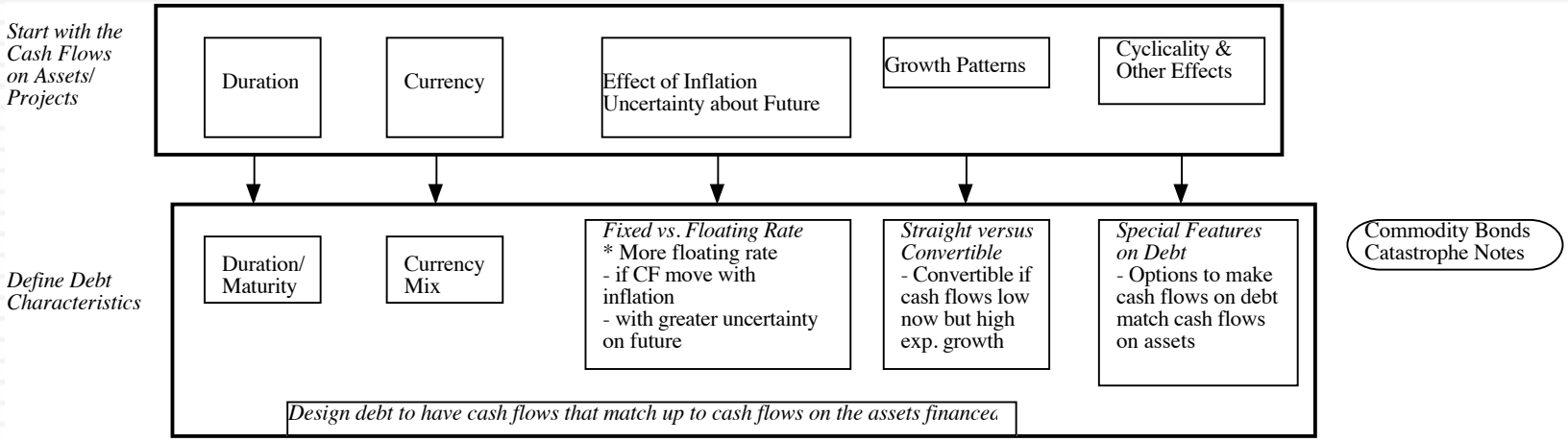


Matched Debt



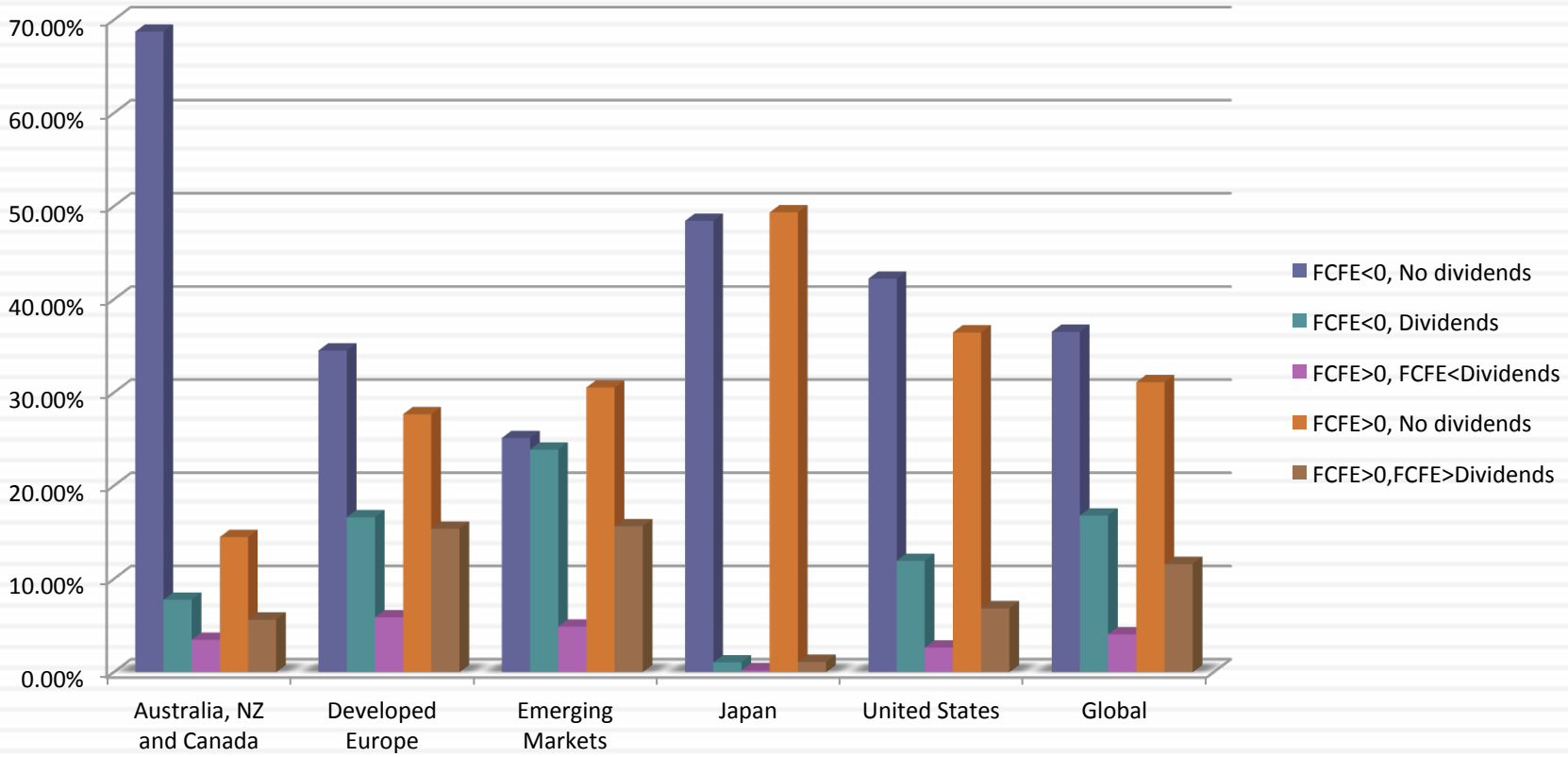
The perfect debt for you is….

- The perfect financing instrument will
  - Have all of the tax advantages of debt
  - While preserving the flexibility offered by equity



Lesson 11: Companies do not accumulate cash balances by accident, & it is stockholder cash

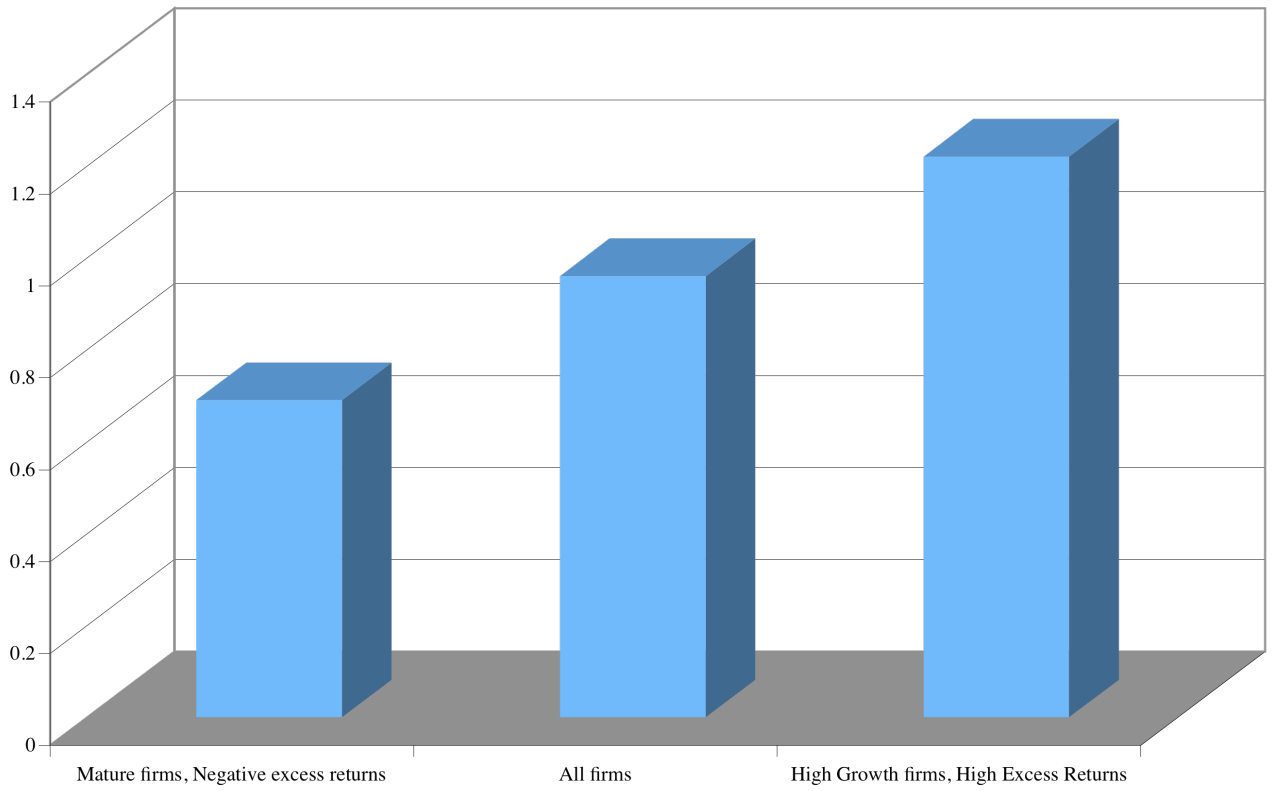
Figure 11.2: Dividends versus FCFE in 2014



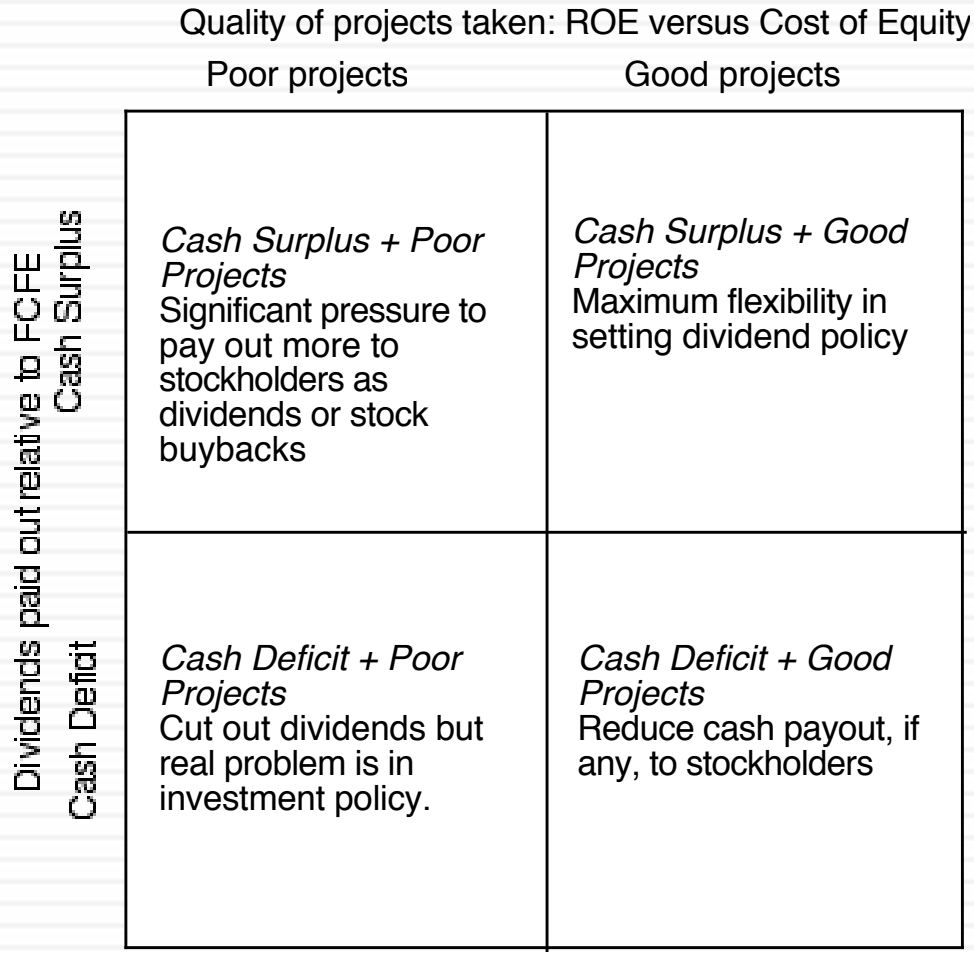
FCFE = Potential Dividends = Cash left over after all operating expenses, taxes, reinvestment and debt payments have been made.

Not all cash balances are created equal…

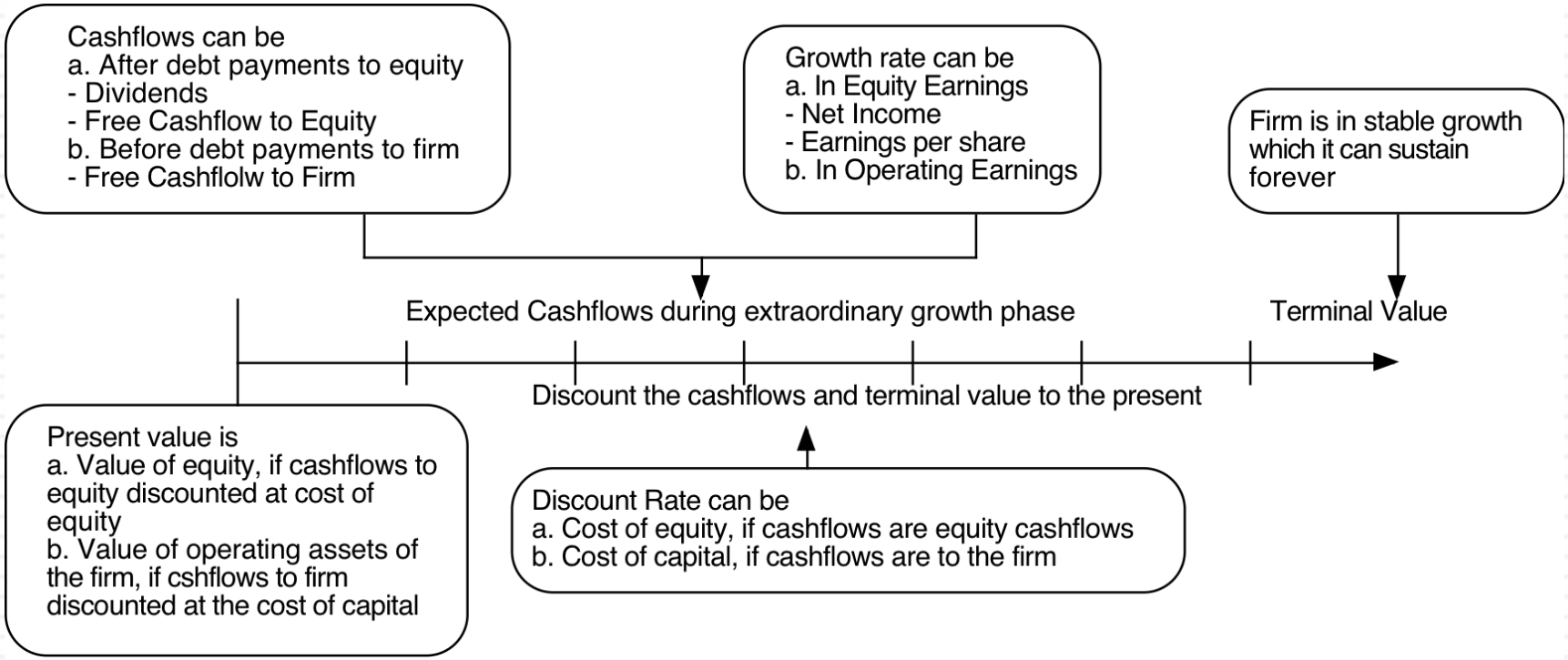
Market Value of $ 1 in cash:
Estimates obtained by regressing Enterprise Value against Cash Balances



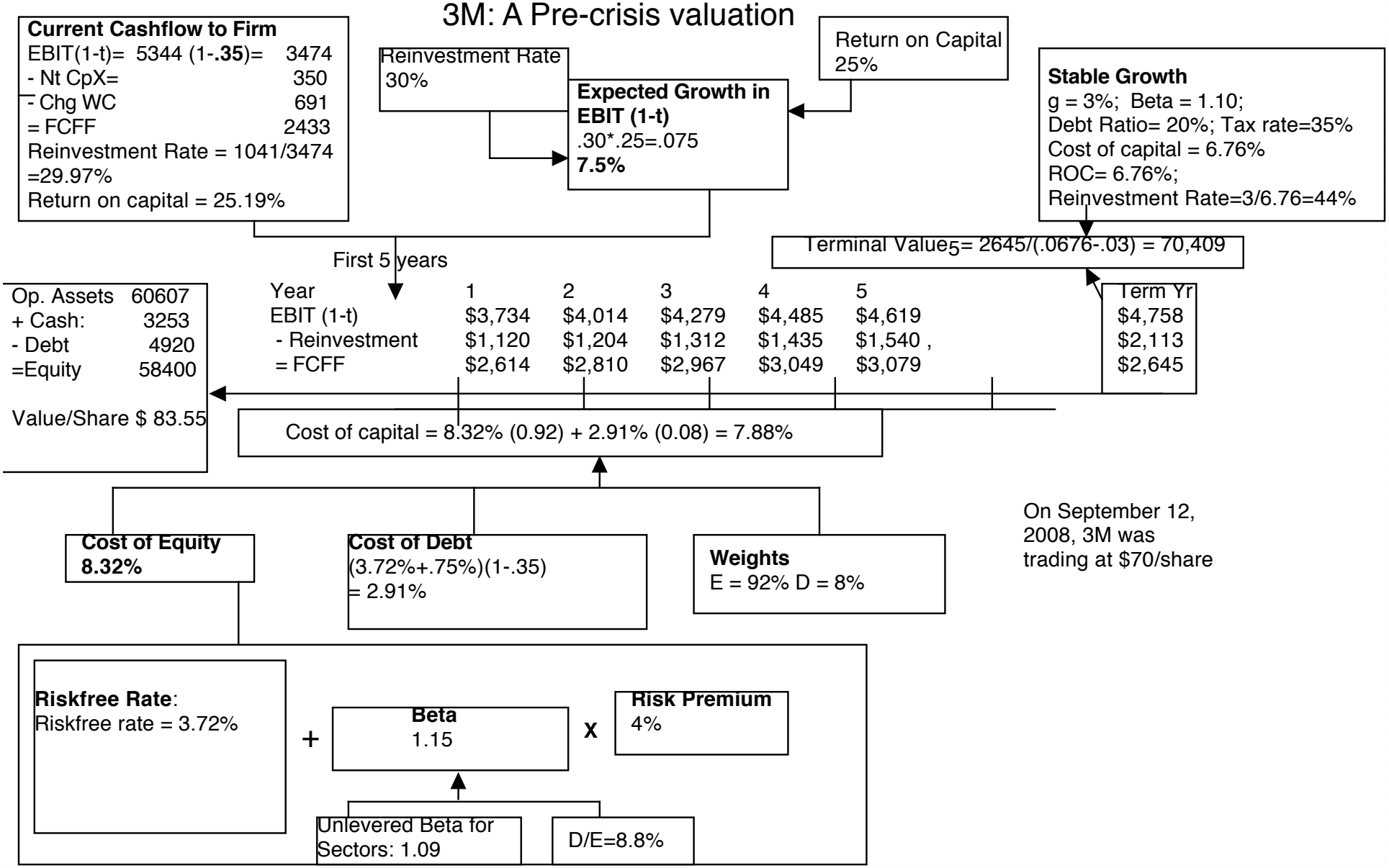
If you have too much cash, there is an easy fix…



Lesson 12: The value of your business is a function of these variables…



3M: A Pre-crisis valuation



On September 12, 2008, 3M was trading at $70/share

Starting numbers

Twitter Pre-IPO Valuation: October 5, 2013

	2012	Trailing 2013
Revenues	$316.9	$448.2
Operating Income	-$77.1	-$92.9
Adj Op Inc		$4.3
Invested Capital		$549.1
Operating Margin		0.96%
Sales/Capital		0.82

Revenue growth of 55% a year for 5 years, tapering down to 2.7% 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 = 2.7%; Beta = 1.00;
Cost of capital = 8%
ROC= **12**%;
Reinvestment Rate=2.7%/12% = 22.5%

Terminal Value$_{10}$= 1433/(.08-.027) = $27.036

	1	2	3	4	5	6	7	8	9	10
Revenues	$ 694.7	$ 1,076.8	$ 1,669.1	$ 2,587.1	$ 4,010.0	$ 5,796.0	$ 7,771.3	$ 9,606.8	$10,871.1	$11,164.6
Operating Income	$ 23.3	$ 62.0	$ 136.3	$ 273.5	$ 520.3	$ 891.5	$ 1,382.2	$ 1,939.7	$ 2,456.3	$ 2,791.2
Operating Income after taxes	$ 23.3	$ 62.0	$ 136.3	$ 265.3	$ 364.2	$ 614.2	$ 937.1	$ 1,293.8	$ 1,611.4	$ 1,800.3
Reinvestment	$ 164.3	$ 254.7	$ 394.8	$ 612.0	$ 948.6	$ 1,190.7	$ 1,316.8	$ 1,223.7	$ 842.8	$ 195.7
FCFF	$ (141.0)	$ (192.7)	$ (258.5)	$ (346.6)	$ (584.4)	$ (576.5)	$ (379.7)	$ 70.0	$ 768.5	$ 1,604.6

Operating assets	$9,611
+ Cash	375
+ IPO Proceeds	1000
- Debt	207
Value of equity	10,779
- Options	805
Value in stock	9,974
/ # of shares	574.44
Value/share	$17.36

Terminal year (11)

EBIT (1-t)	$1,849
- Reinvestment	$ 416
FCFF	$1,433

Cost of capital = 11.32% (.983) + 5.16% (.017) = 11.22%

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

Cost of Equity
11.32%

Cost of Debt
(2.7%+5.3%)(1-.40)
= 5.16%

Weights
E = 98.31% D = 1.69%

Riskfree Rate:
Riskfree rate = 2.7%

+

Beta
1.40

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

D/E=1.71%

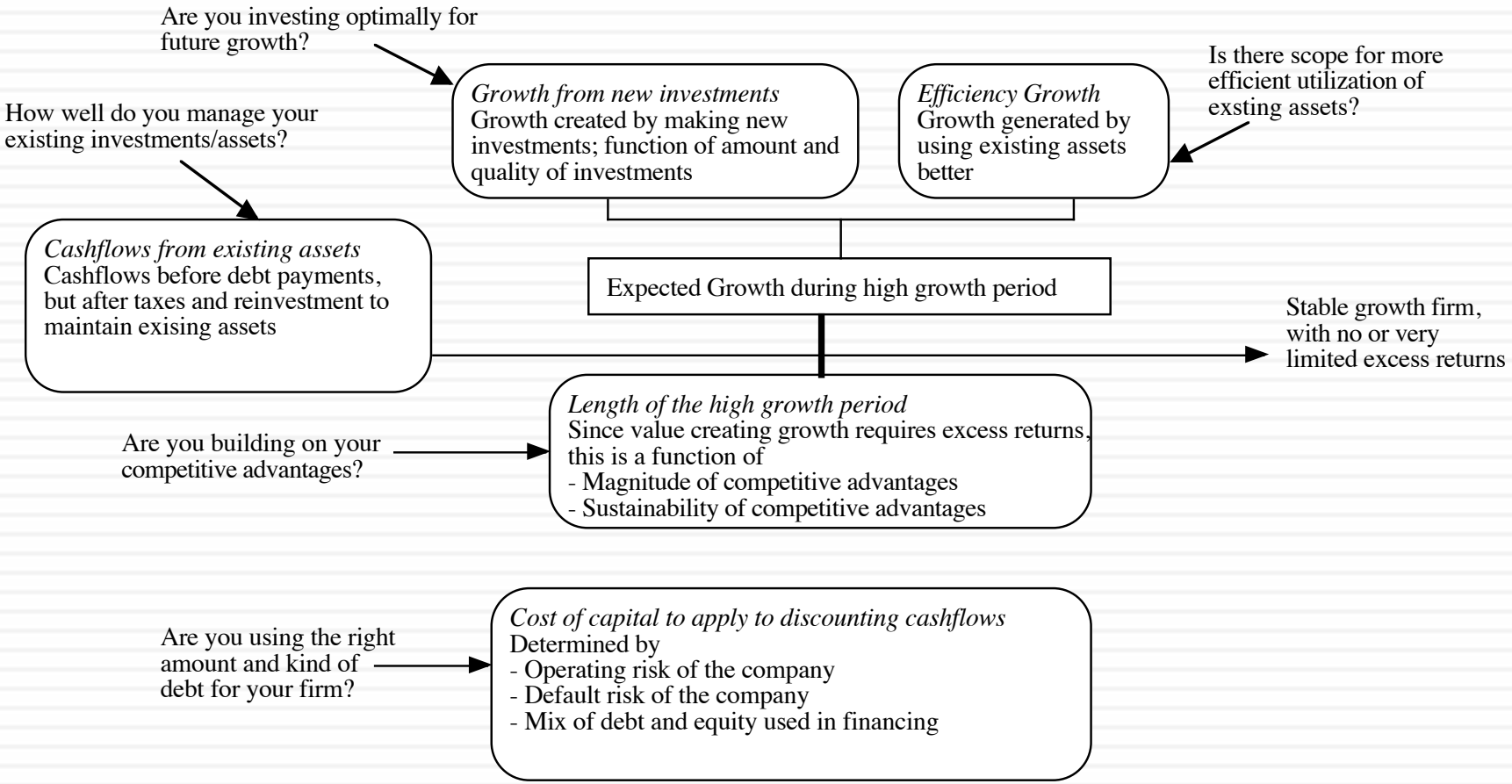
x

Risk Premium
6.15%

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

On October 5, 2013, Twitter had not been priced yet, but the company's most recent acquisition suggested a price of about $20/share.

And here is how you can change your value



As investors, you need to get value right… and hope that price moves towards it..

Tools for intrinsic analysis
- Discounted Cashflow Valuation (DCF)
- Intrinsic multiples
- Book value based approaches
- Excess Return Models

Tools for "the gap"
- Behavioral finance
- Price catalysts

Tools for pricing
- Multiples and comparables
- Charting and technical indicators
- Pseudo DCF

Value of cashflows, adjusted for time and risk

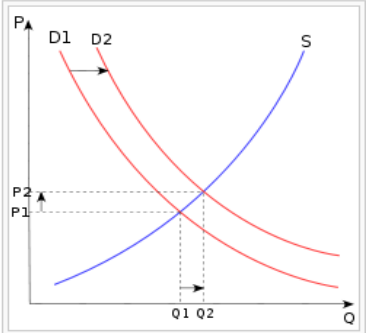
INTRINSIC VALUE

Value

THE GAP
Is there one?
Will it close?

Price

PRICE



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

Drivers of "the gap"
- Information
- Liquidity
- Corporate governance

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

Investors and Managers: Watch out for "lemmingitis"…