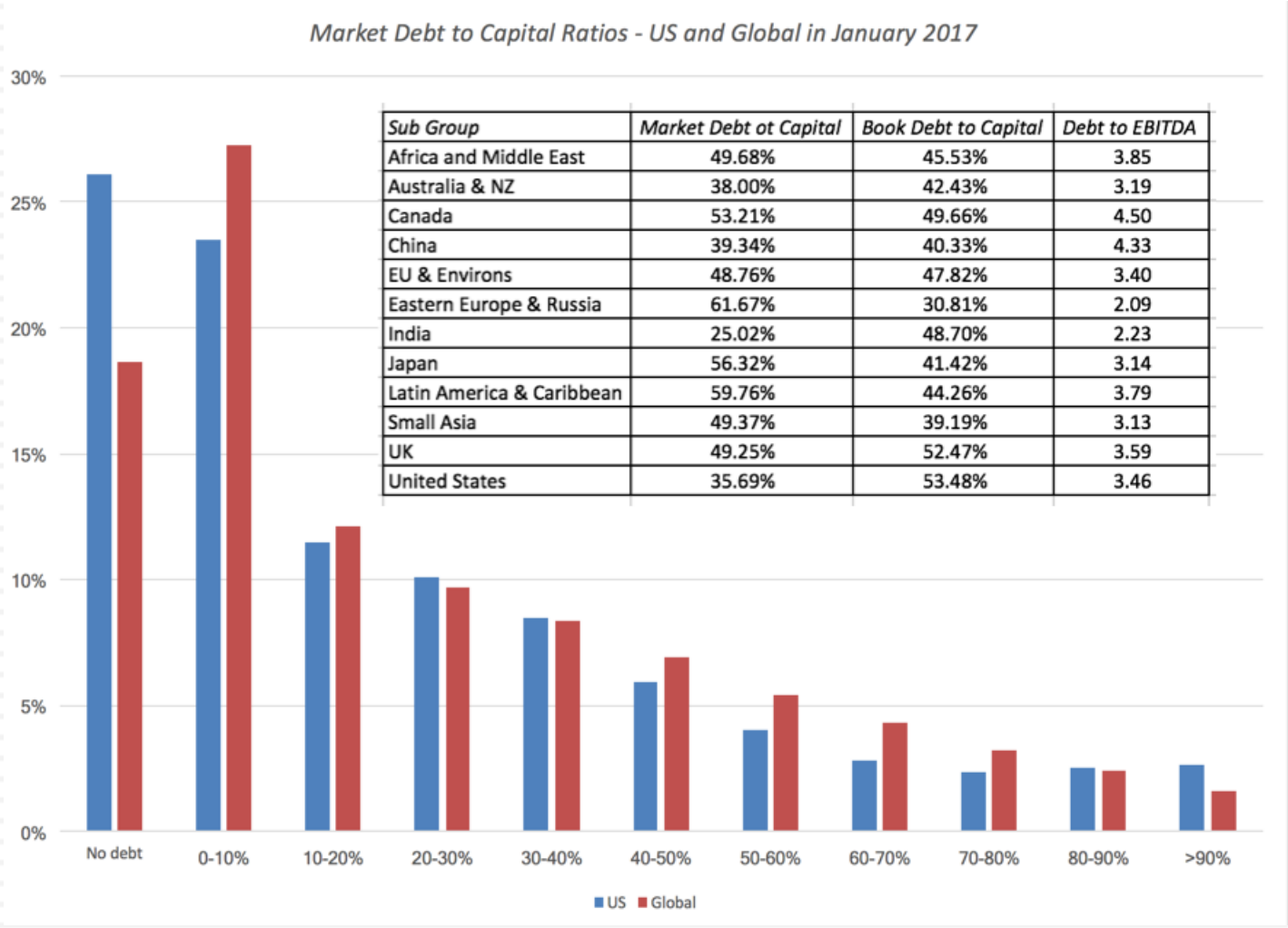
THE FINANCING DECISION

You can have too much debt… or too little..

Debt Ratios across Companies

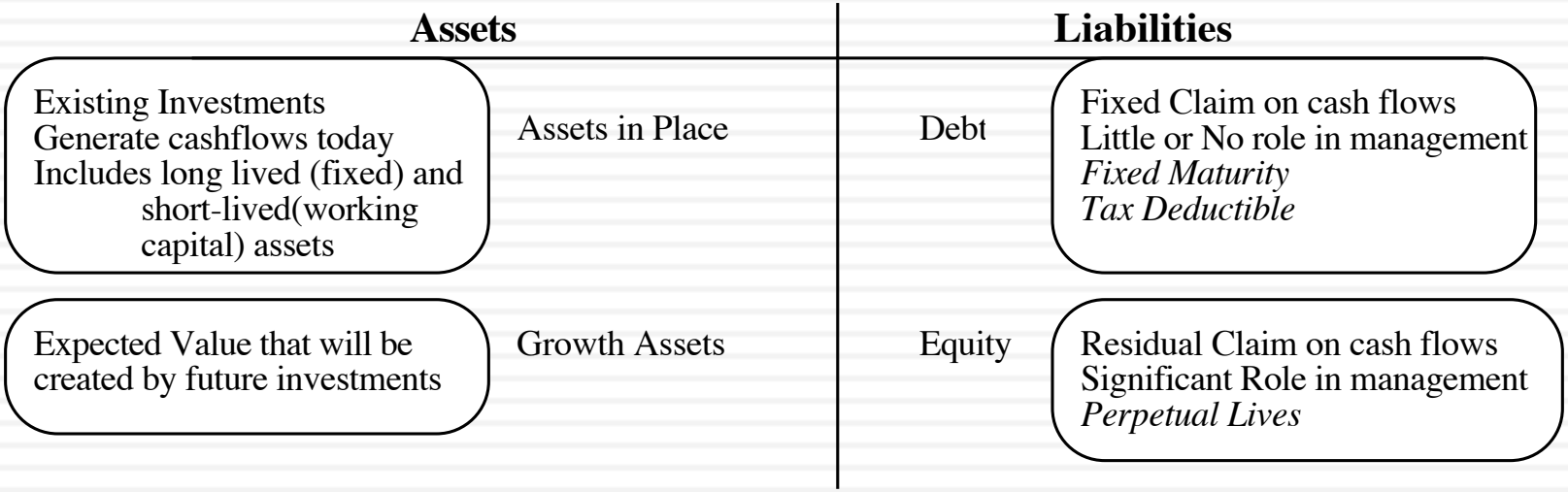


Sub Group	Market Debt ot Capital	Book Debt to Capital	Debt to EBITDA
Africa and Middle East	49.68%	45.53%	3.85
Australia & NZ	38.00%	42.43%	3.19
Canada	53.21%	49.66%	4.50
China	39.34%	40.33%	4.33
EU & Environs	48.76%	47.82%	3.40
Eastern Europe & Russia	61.67%	30.81%	2.09
India	25.02%	48.70%	2.23
Japan	56.32%	41.42%	3.14
Latin America & Caribbean	59.76%	44.26%	3.79
Small Asia	49.37%	39.19%	3.13
UK	49.25%	52.47%	3.59
United States	35.69%	53.48%	3.46

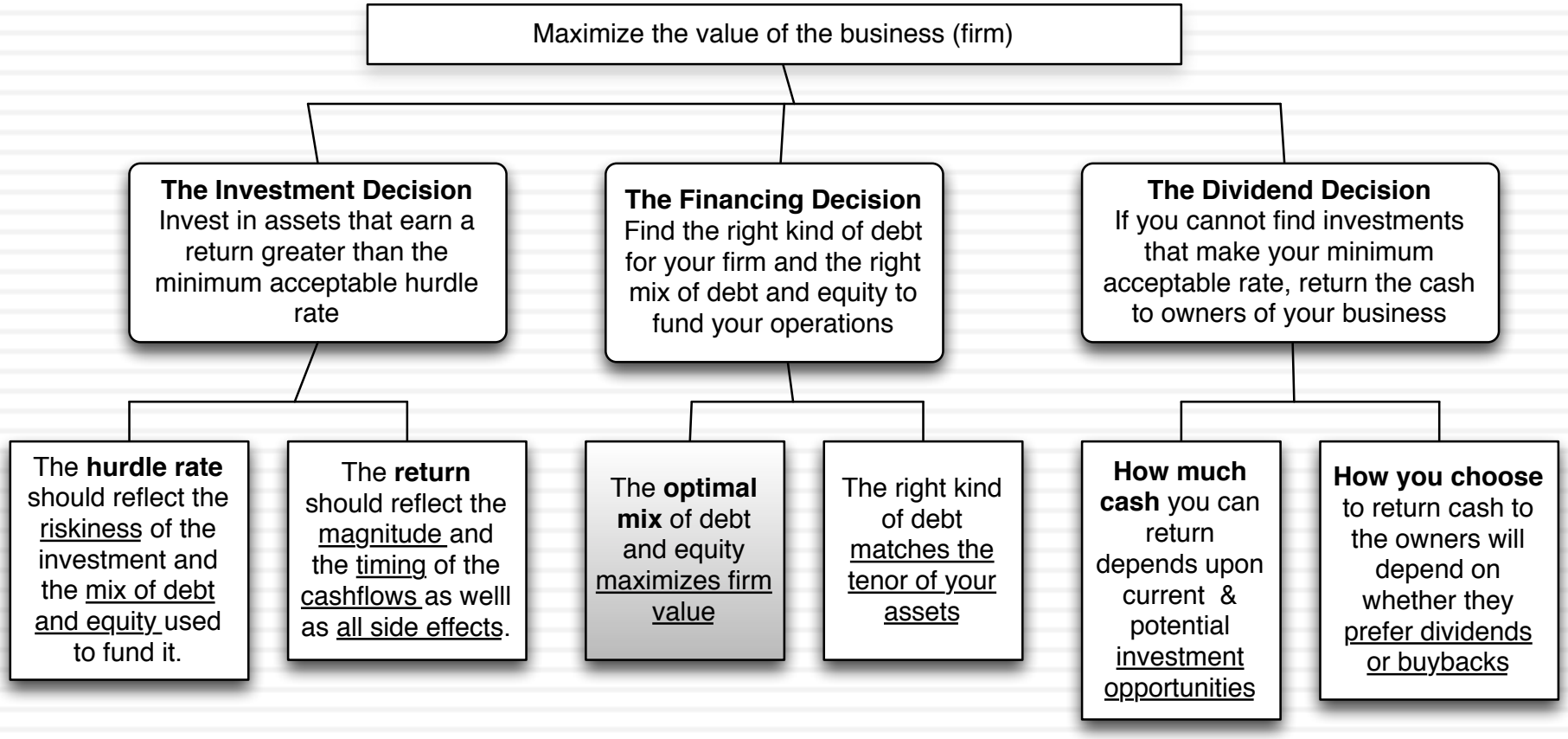
Debt Ratios across Sectors

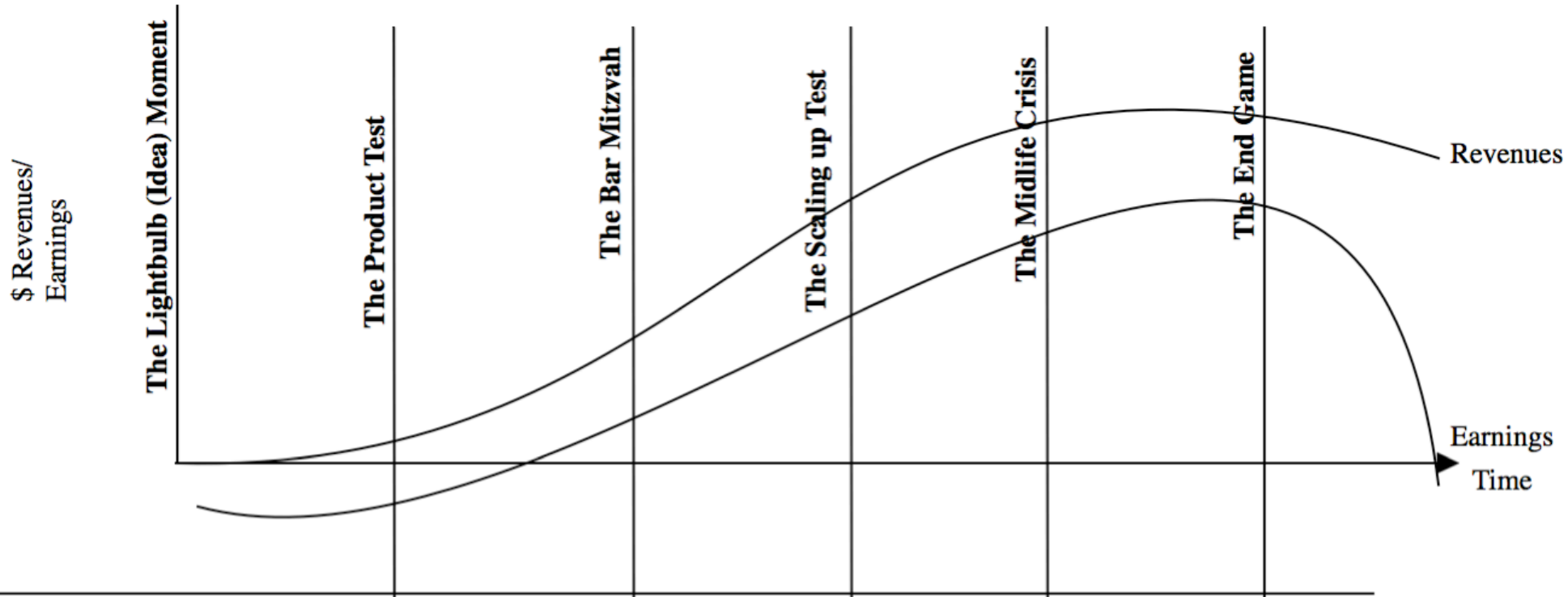
Most lightly levered			Most highly levered		
Industry	*Book Debt to Capital*	*Market Debt to Capital*	*Industry*	*Book Debt to Capital*	*Market Debt to Capital*
Software (Internet)	11.25%	4.09%	Oil/Gas Distribution	53.92%	43.52%
Retail (Online)	44.56%	8.78%	R.E.I.T.	60.46%	44.28%
Shoe	22.40%	9.30%	Power	61.61%	46.61%
Semiconductor	31.51%	12.35%	Trucking	72.95%	47.59%
Drugs (Pharmaceutical)	36.74%	12.72%	Broadcasting	82.98%	48.96%
Software (Entertainment)	34.94%	12.85%	Telecom (Wireless)	60.85%	53.40%
Semiconductor Equip	37.17%	14.05%	Coal & Related Energy	78.50%	58.08%
Oil/Gas (Integrated)	22.44%	14.46%	Auto & Truck	73.26%	60.07%
Tobacco	79.51%	14.66%	Hospitals/Healthcare Facilities	83.73%	63.07%
Electronics (General)	27.69%	15.16%	Green & Renewable Energy	54.56%	63.55%

The Financial Balance Sheet



The Big Picture..



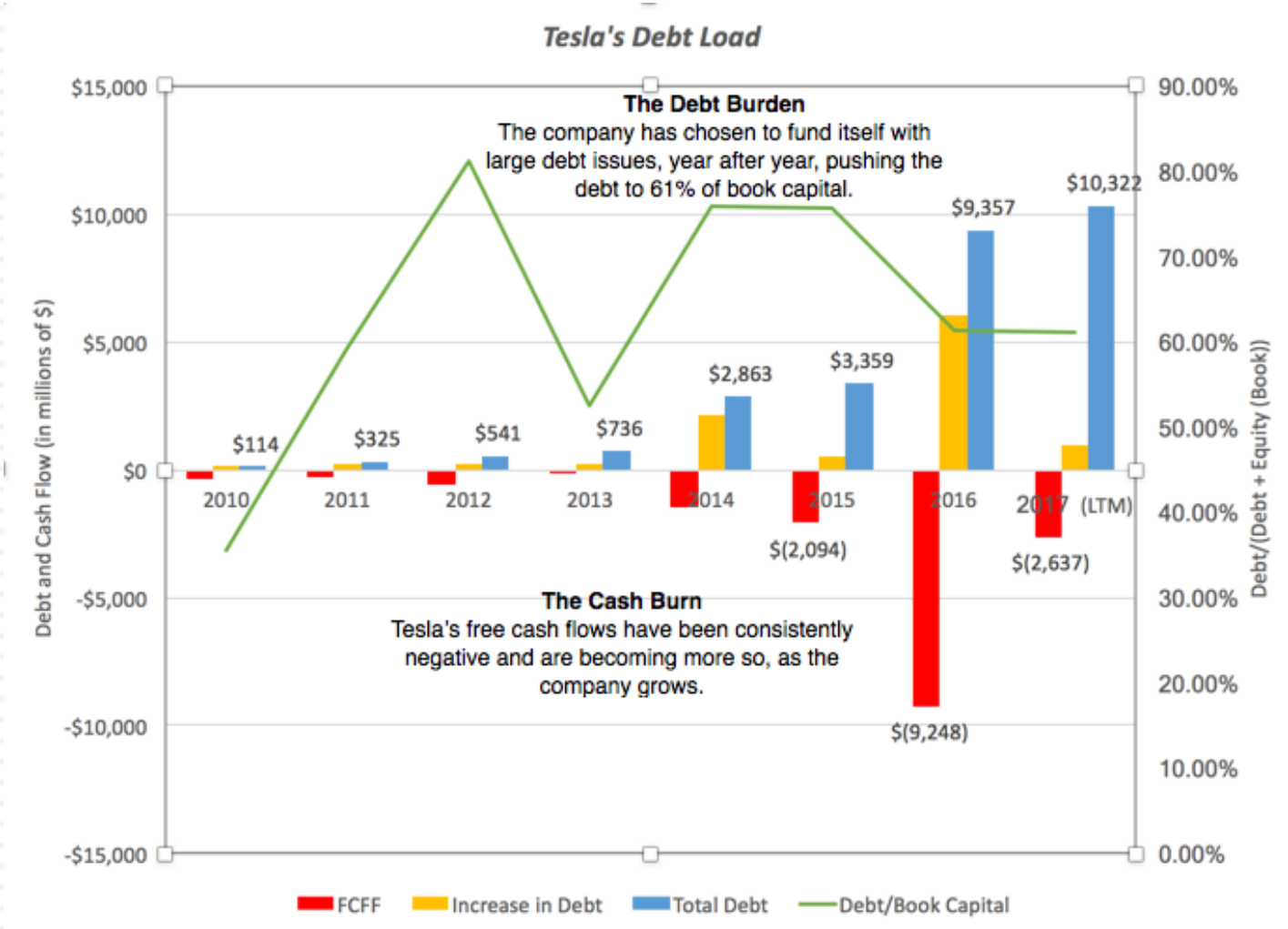


Growth stage	Stage 1 Start-up	Stage 2 Young Growth	Stage 3: High Growth	Stage 4 Mature Growth	Stage 5 Mature Stable	Stage 6 Decline
External funding needs	High, but constrained by other resources	High, relative to firm value.	Moderate, relative to firm value.	Declining, as a percent of firm value	Not needed	
Internal financing	Negative or low	Negative or low	Low, relative to funding needs	High, relative to funding needs	More than funding needs	
External Financing	Owner's Equity Bank Debt	Venture Capital Common Stock	Common stock Warrants Convertibles	Debt	Retire debt Repurchase stock	
Financing Transitions	Accessing private equity	Inital Public offering	Seasoned equity issue	Bond issues		

Disney's Debt Load

- At the end of 2013, Disney had $15.96 billion in debt outstanding.
  - $13 billion in conventional interest bearing debt (with a book value of $14.3 billion
  - $2.96 billion in operating lease debt (with no debt equivalent shown on the balance sheet)
- As a percent of its market value as a company, debt was 11.4% of its value. As a percent of book value, debt was 40% of value.
- As a multiple of EBITDA, debt was 1.3 times EBITDA.

Tesla: Debt Load over time



1. Define debt broadly

- General Rule: Debt generally has the following characteristics:
  - Commitment to make fixed payments in the future
  - The fixed payments are tax deductible
  - Failure to make the payments can lead to either default or loss of control of the firm to the party to whom payments are due.
- As a consequence, debt should include
  - Any interest-bearing liability, whether short term or long term.
  - Any lease obligation, whether operating or capital.

Operating Leases at Disney

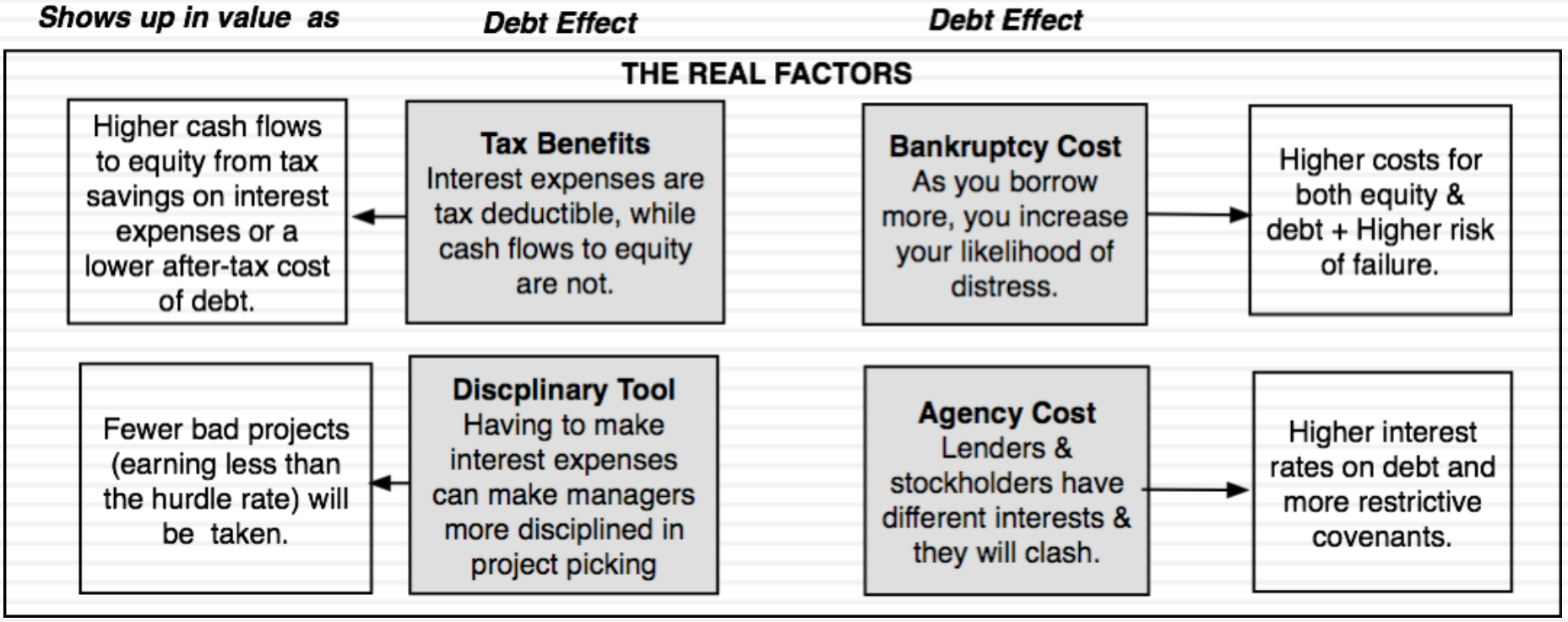
- The "debt value" of operating leases is the present value of the lease payments, at a rate that reflects their risk, usually the pre-tax cost of debt.
- The pre-tax cost of debt at Disney is 3.75%.

Year	Commitment	Present Value @3.75%
1	$507.00	$488.67
2	$422.00	$392.05
3	$342.00	$306.24
4	$272.00	$234.76
5	$217.00	$180.52
6-10	$356.80	$1,330.69
Debt value of leases		$2,932.93

Disney reported $1,784 million in commitments after year 5. Given that their average commitment over the first 5 years, we assumed 5 years @ $356.8 million each.

- Debt outstanding at Disney = $13,028 + $ 2,933= $15,961 million

2. The debt decision is driven by a real trade off



Implication 1: The Marginal Tax Rate matters

- The tax benefit of debt is directly linked to not only whether you are allowed to deduct interest expenses for tax purposes, but also your marginal tax rate on income.
  - If interest tax deductions are limited, companies will borrow less money.
  - As the marginal tax rate rises (falls), companies will borrow more (less) money.

Implication 2: Expected Bankruptcy Costs matter

- Companies will borrow less money, if expected bankruptcy costs rise.
- Expected bankruptcy costs are a function of
  - Volatility in earnings: As earnings become less predicable, borrowings will increase
  - Bankruptcy laws: As bankruptcy laws become more (less) lenient, companies will borrow more (less)
- If the government operates as a bankrupt, bailing out entities that borrow too much, every entity will borrow more.

Implication 3: The wider the chasm between lenders & equity investors..

- Agency costs arise because what equity investors want from a business is very different from what lenders want from the business.
- When lending money, sensible lenders incorporate this reality into whether they lend, how much they lend, the interest rates they charge and the covenants that they write into loans.
- The more difficult it is to monitor what borrowers are doing with the lent money, the greater the agency costs and the less lending there will be.

The Trade off for Disney

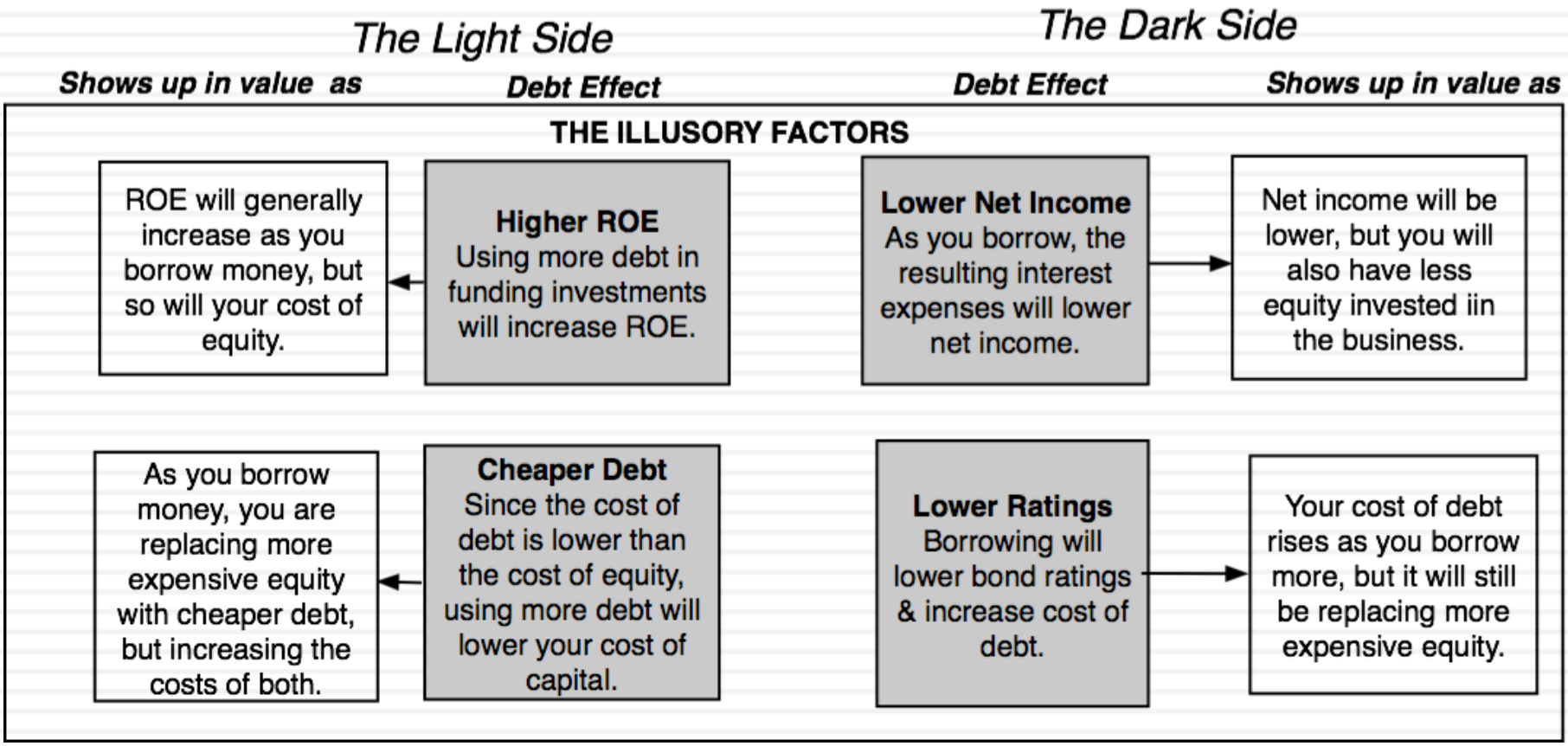
- Tax Benefits: The US has the highest marginal tax rate in the world. Disney, since it makes money, should benefit from using debt.
- Added Discipline: There is a separation of ownership and management at Disney, should lead to more debt.
- Expected Bankruptcy costs: Disney is large and spread over multiple entertainment businesses, with a cash cow in ESPN. Should lead to more debt.
- Agency Costs: Disney has assets that are physical and tangible (theme parks) against which it should be able to borrow money.

Bottom line: Disney should borrow a substantial amount.

The Debt Trade off for Tesla

- **No tax benefits**: It is a company that is not only still losing money but has carried forward losses of close to $4.3 billion, effectively nullifying any tax benefits from debt for the near future.
- **No disciplinary function**: With Elon Musk, the largest stockholder at the company, at the helm, there is no basis for the argument that debt will make managers more disciplined in their investment decisions.
- **Large bankruptcy risk**: The company is still young and losing money, and adding a contractual commitment to make interest payments on top of all of the other capital needs that the company has, strikes me as imprudent, with the possibility that one bad year could its promise at risk.
- **Agency problems**: In a company like Tesla, making large and risky bets in new businesses, the chasm between lenders and equity investors is wide, and lenders will either impose restrictions on the company or price in their fears (as higher interest rates).

3. But many debt choices are driven by illusory trade offs

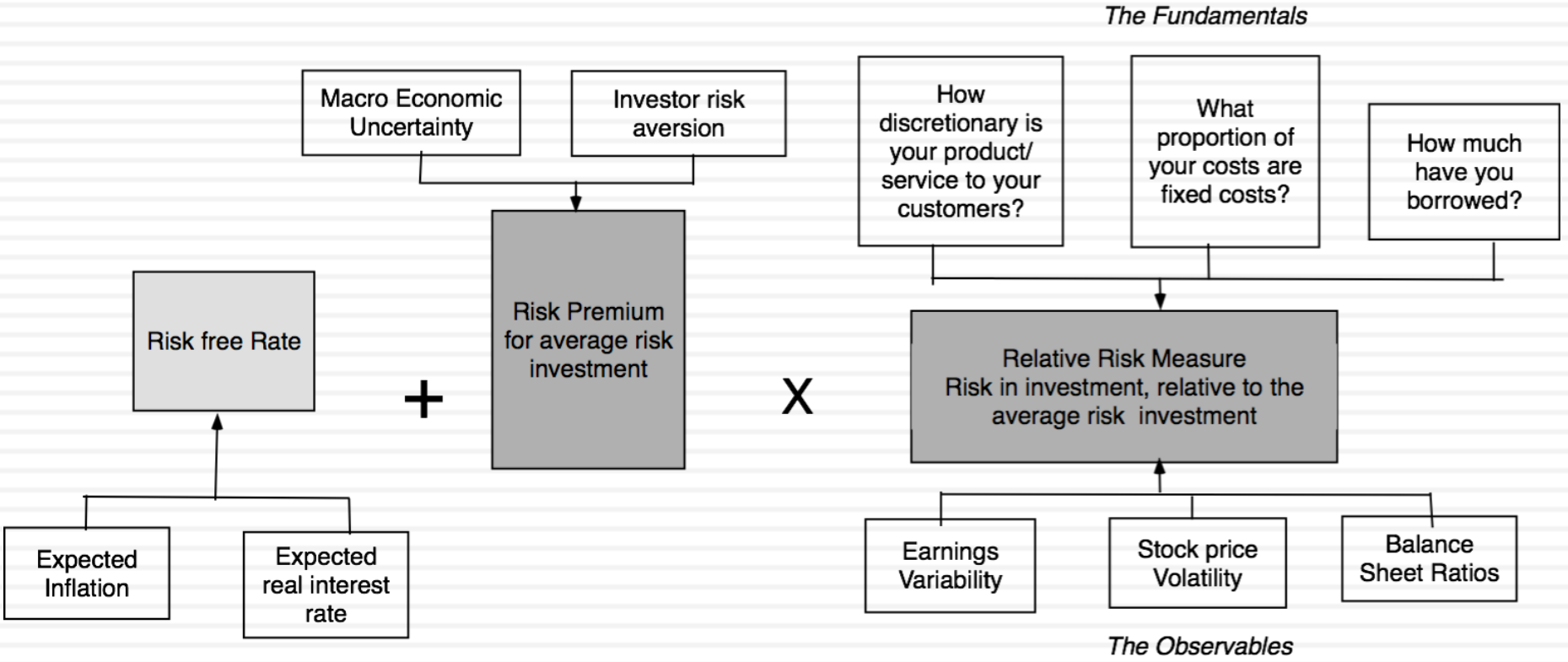


Or by other motives..

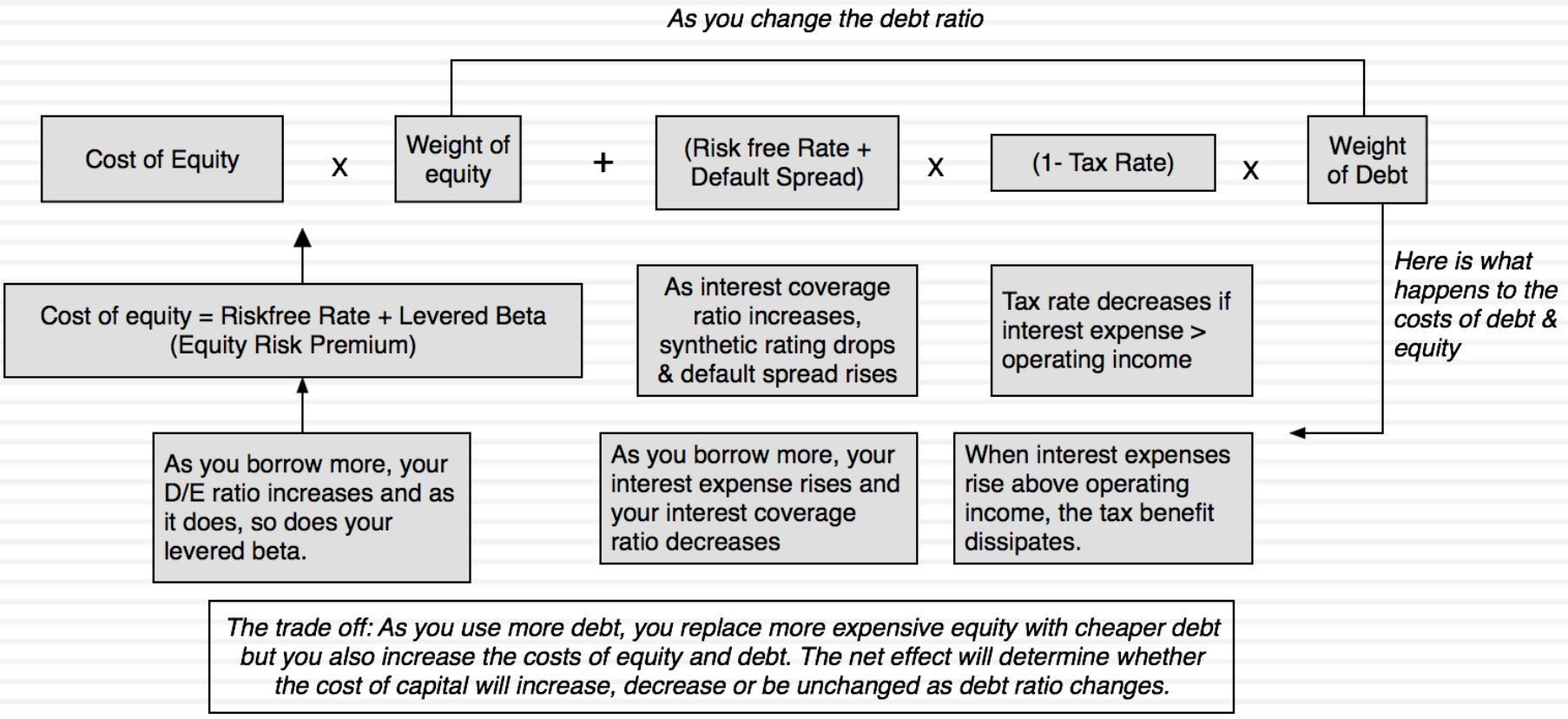
- Lack of access to equity: In some cases, companies have to borrow money because they cannot raise equity, either because they are private businesses or because equity markets are undeveloped.
- Control: In other cases, companies that should be using equity use debt instead because the company is closely held and the controlling equity interests don't want to risk giving up control.
- Subsidies: Sometimes, lenders lend at "subsidized" rates and equity investors take advantage of those subsidies.

Which one do you think best explains Tesla?

4. The mix of debt and equity drives your cost of capital, and hence your value



And changing that mix will change your cost of capital



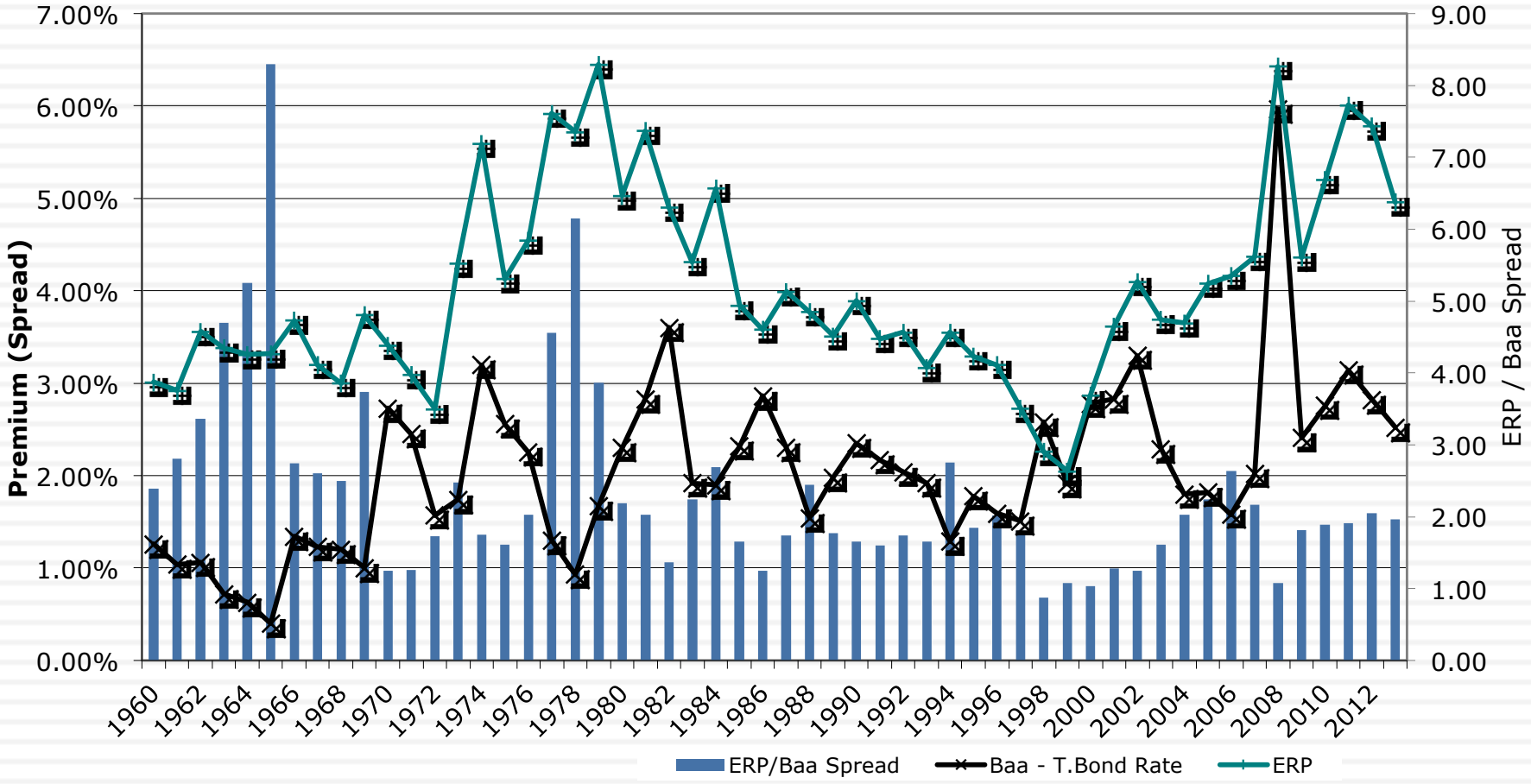
Here is an example: Disney in 2013

Debt Ratio	Beta	Cost of Equity	Cost of Debt (after-tax)	WACC
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%

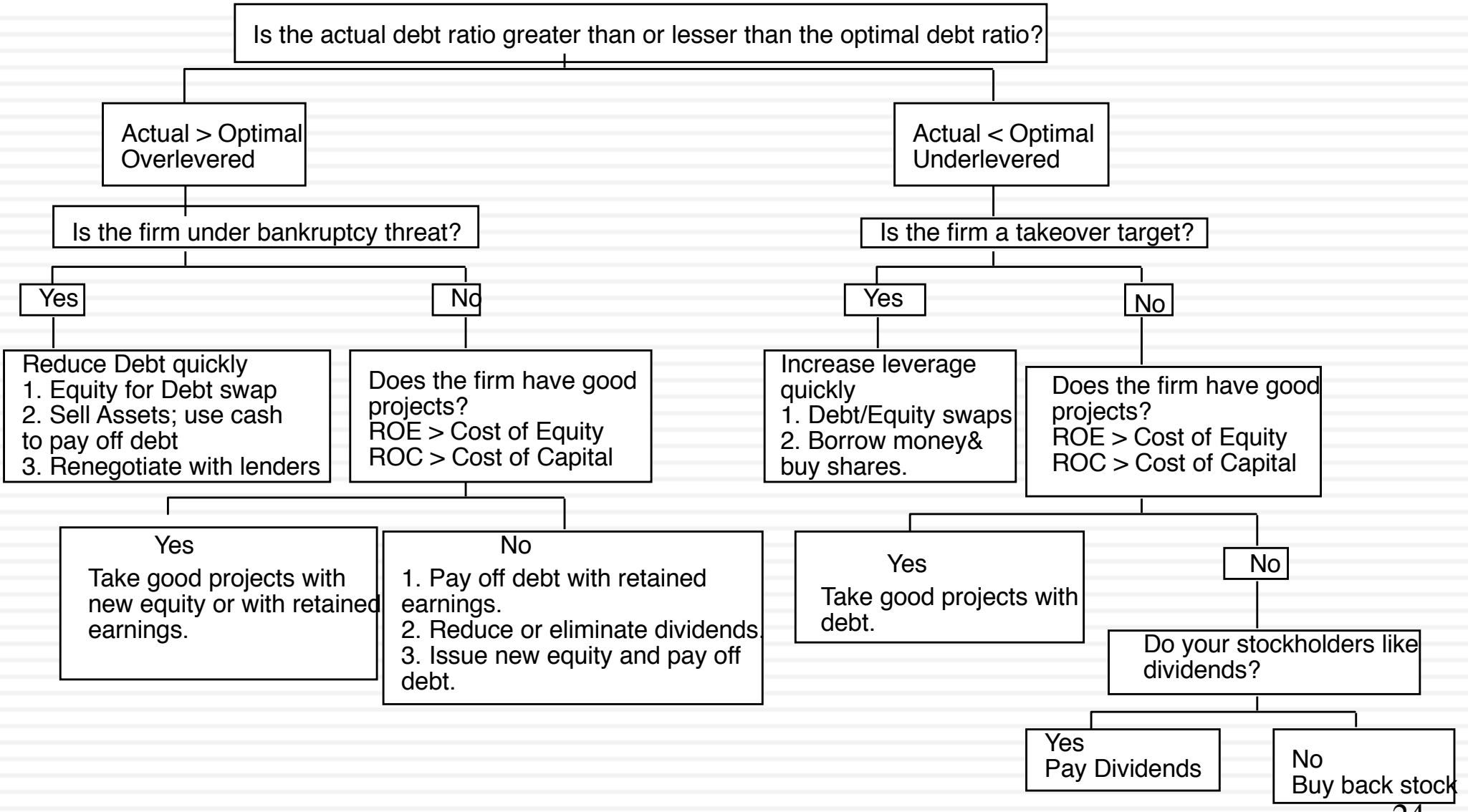
Here are the "firm specific" determinants

- Marginal tax rate: Holding all else constant, lowering the tax rate will lower the optimal. At a zero percent tax rate, Disney's optimal debt ratio becomes zero.
- Cash Flow Generation: Holding all else constant, the more cash flow that a firm generates, relative to its enterprise value, the more it can borrow. Disney's EBITDA was 9.35% of its enterprise value in 2013.
- Volatility in Cash flows: Holding all else constant, the more volatile cash flows are, the less a company should borrow.

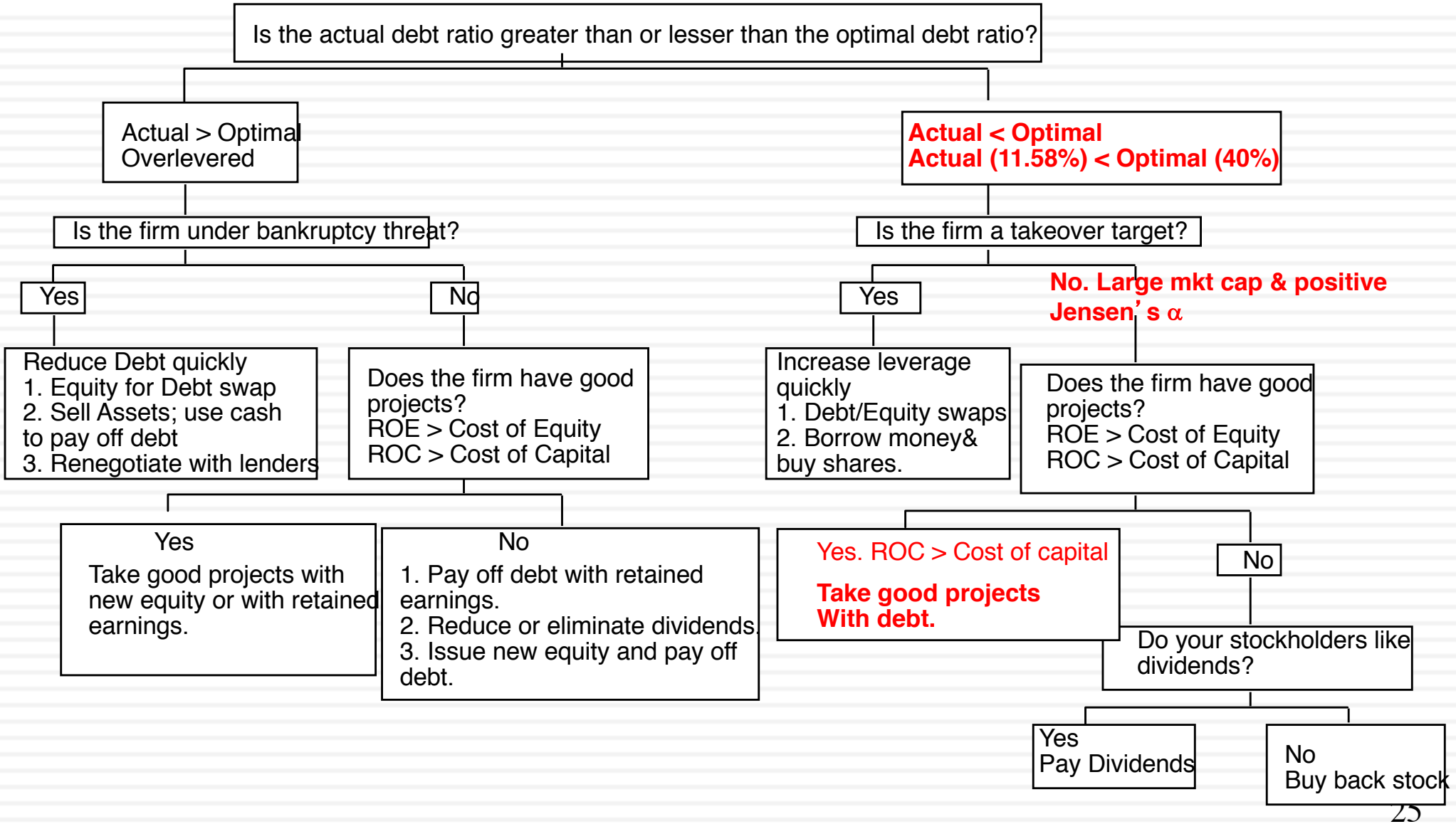
And here is the only macro determinant: The relative prices of risk in equity & debt markets



5. And the pathway to your optimal debt ratio depends on..



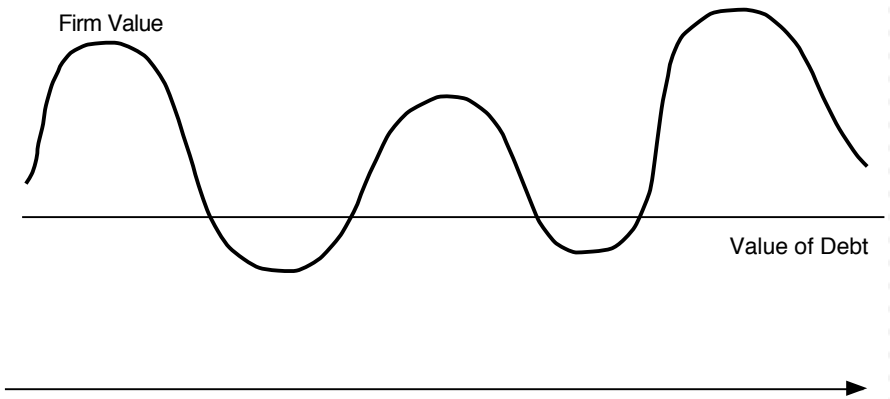
Applied to Disney (in 2013)



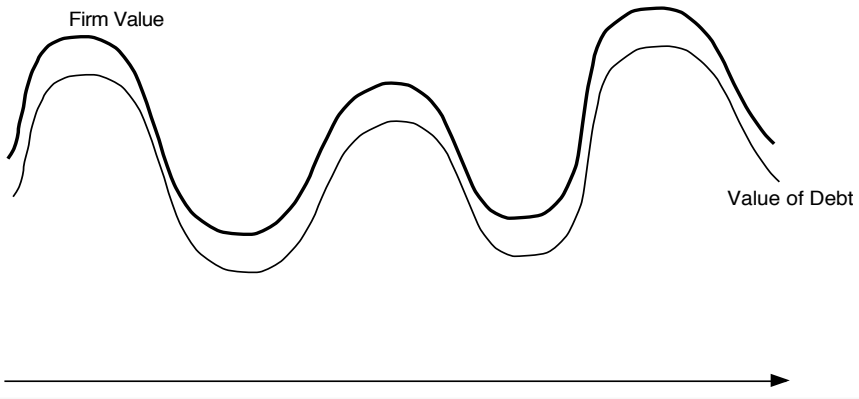
6. The right debt for your firm will look like equity

- 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.

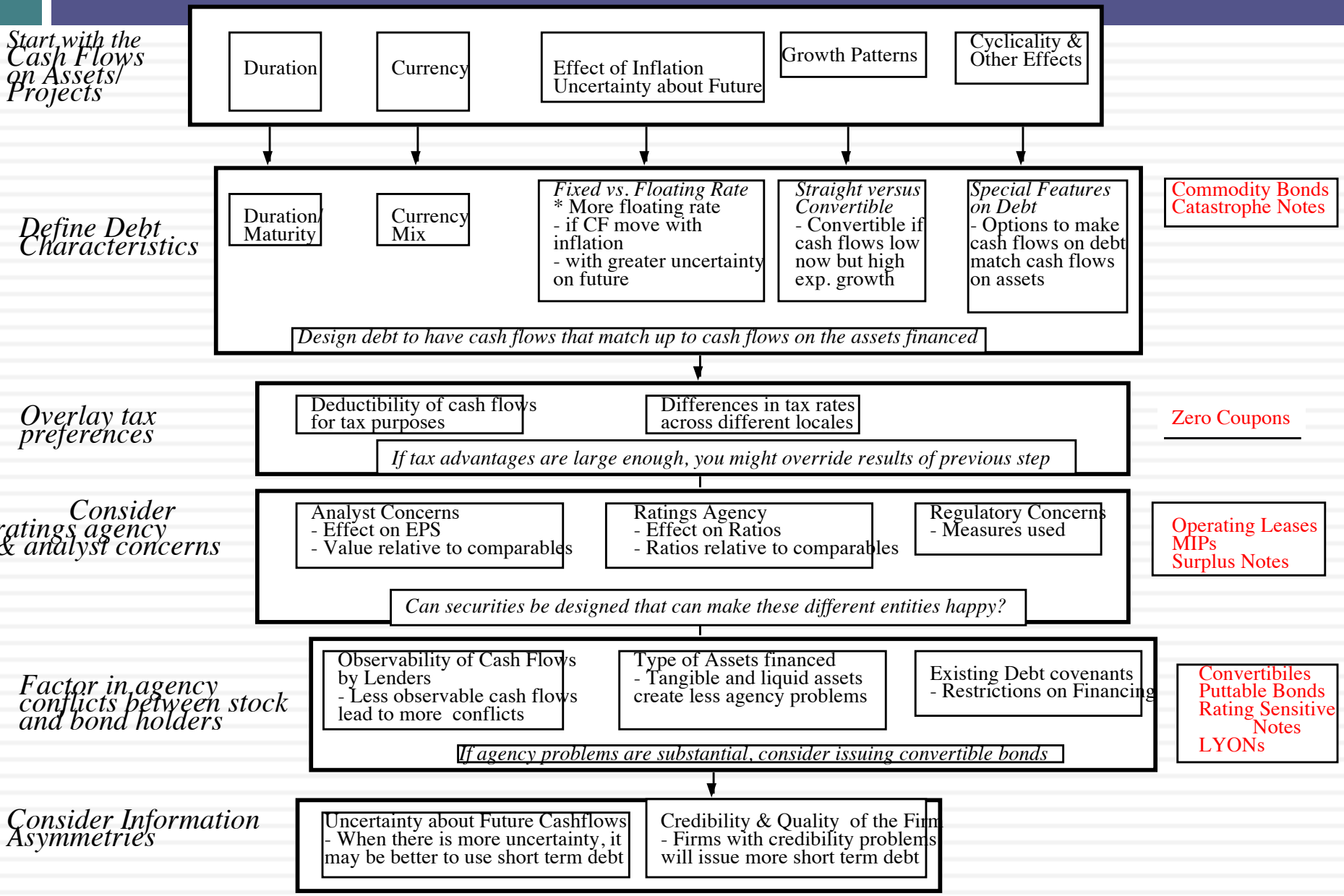
Unmatched Debt



Matched Debt



Designing Debt: Bringing it all together



Applied to Disney

Business	*Project Cash Flow Characteristics*	*Type of Financing*
Studio entertainment	Movie projects are likely to • Be short-term • Have cash outflows primarily in dollars (because Disney makes most of its movies in the U.S.), but cash inflows could have a substantial foreign currency component (because of overseas revenues) • Have net cash flows that are heavily driven by whether the movie is a hit, which is often difficult to predict	Debt should be 1. Short-term 2. Mixed currency debt, reflecting audience make-up. 3. If possible, tied to the success of movies.
Media networks	Projects are likely to be 1. Short-term 2. Primarily in dollars, though foreign component is growing, especially for ESPN. 3. Driven by advertising revenues and show success (Nielsen ratings)	Debt should be 1. Short-term 2. Primarily dollar debt 3. If possible, linked to network ratings
Park resorts	Projects are likely to be 1. Very long-term 2. Currency will be a function of the region (rather than country) where park is located. 3. Affected by success of studio entertainment and media networks divisions	Debt should be 1. Long-term 2. Mix of currencies, based on tourist makeup at the park.
Consumer products	Projects are likely to be short- to medium-term and linked to the success of the movie division; most of Disney's product offerings and licensing revenues are derived from their movie productions	Debt should be 1. Medium-term 2. Dollar debt
Interactive	Projects are likely to be short-term, with high growth potential and significant risk. While cash flows will initially be primarily in US dollars, the mix of currencies will shift as the business ages.	Debt should be short-term, convertible US dollar debt.