CORPORATE FINANCE
LECTURE NOTE PACKET 2
CAPITAL STRUCTURE, DIVIDEND
POLICY AND VALUATION

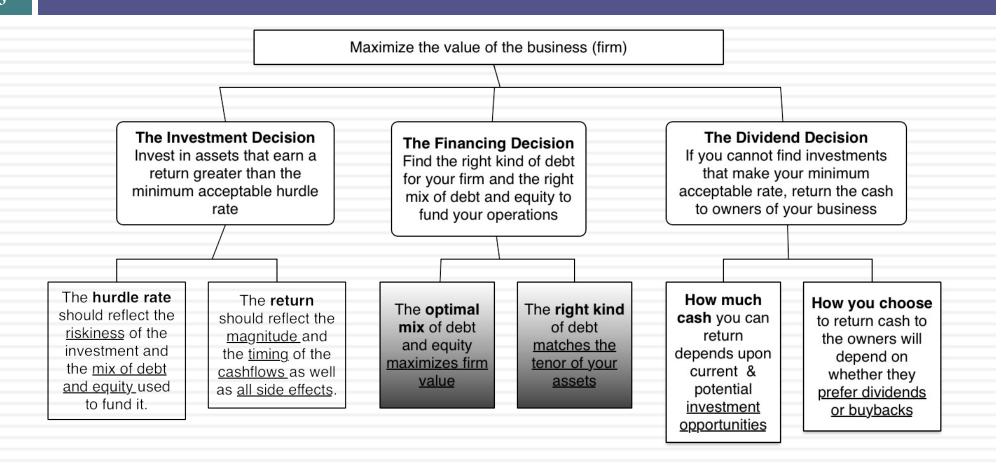
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# CAPITAL STRUCTURE: THE CHOICES AND THE TRADE OFF

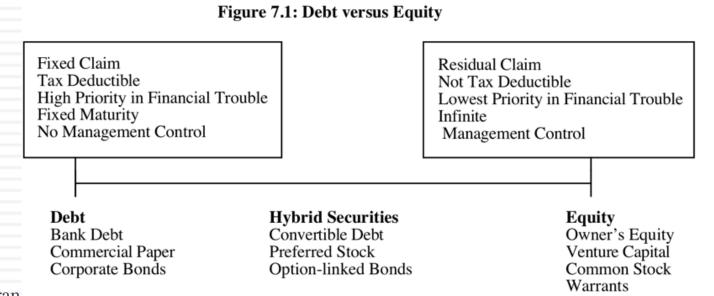
"Neither a borrower nor a lender be"

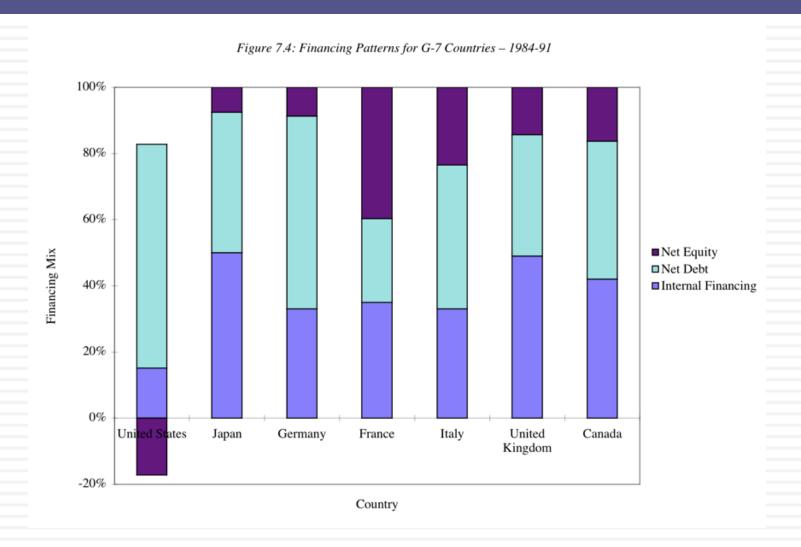
Someone who obviously hated this part of corporate finance

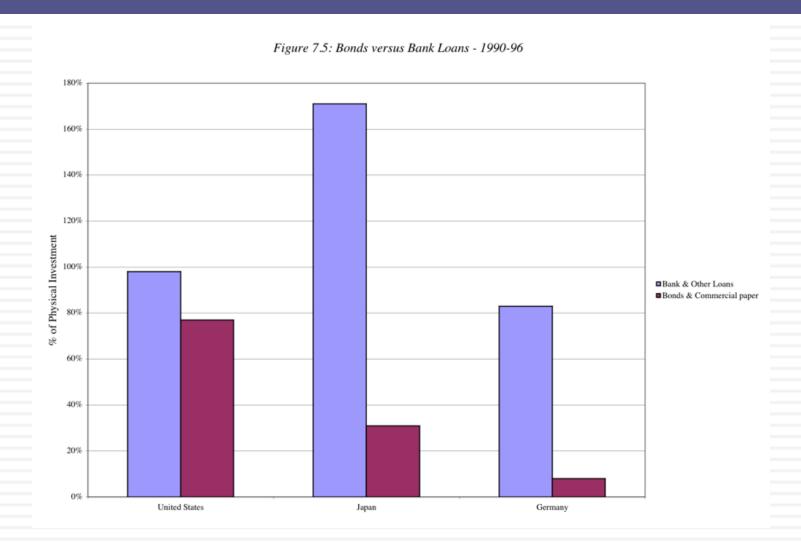


### The Choices in Financing

- There are only two ways in which a business can raise money.
  - The first is debt. The essence of debt is that you promise to make fixed payments in the future (interest payments and repaying principal). If you fail to make those payments, you lose control of your business.
  - The other is equity. With equity, you do get whatever cash flows are left over after you have made debt payments.

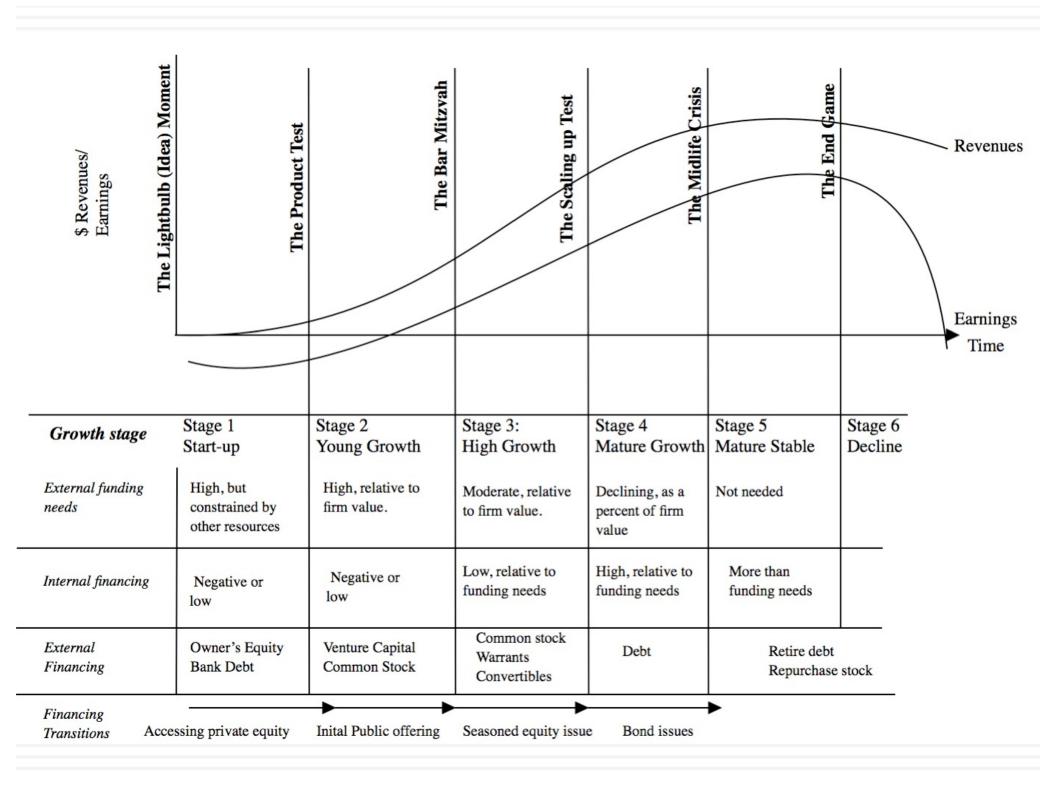






# Assessing the existing financing choices: Disney, Vale, Tata Motors, Baidu & Bookscape

	Disney	Vale	Tata Motors	Baidu
BV of Interest bearing Debt	\$14,288	\$48,469	535,914₹	¥17,844
MV of Interest bearing Debt	\$13,028	\$41,143	477,268₹	¥15,403
Lease Debt	\$2,933	\$1,248	0.00₹	¥3,051
	Type of D	Debt		
Bank Debt	7.93%	59.97%	62.26%	100.00%
Bonds/Notes	92.07%	40.03%	37.74%	0.00%
	Debt Matu	ırity		
<1 year	13.04%	6.08%	0.78%	1.98%
1- 5 years	48.93%	23.12%	30.24%	68.62%
5-10 years	20.31%	29.44%	57.90%	29.41%
10-20 years	4.49%	3.00%	10.18%	0.00%
> 20 years	13.24%	38.37%	0.90%	0.00%
	Currency fo	r debt		
Debt in domestic currency	94.51%	34.52%	70.56%	17.90%
Debt in foreign currency	5.49%	65.48%	29.44%	82.10%
Fixe	ed versus Float	ing rate debt		
Fixed rate debt	94.33%	100.00%	100.00%	94.63%
Floating rate debt	5.67%	0.00%	0.00%	5.37%



#### The Transitional Phases...

- The transitions that we see at firms from fully owned private businesses to venture capital, from private to public and subsequent seasoned offerings are all motivated primarily by the need for capital.
- In each transition, though, there are costs incurred by the existing owners:
  - When venture capitalists enter the firm, they will demand their fair share and more of the ownership of the firm to provide equity.
  - When a firm decides to go public, it has to trade off the greater access to capital markets against the increased disclosure requirements (that emanate from being publicly lists), loss of control and the transactions costs of going public.
  - When making seasoned offerings, firms have to consider issuance costs while managing their relations with equity research analysts and rat

### Measuring a firm's financing mix ...

- The simplest measure of how much debt and equity a firm is using currently is to look at the proportion of debt in the total financing. This ratio is called the debt to capital ratio:
  - Debt to Capital Ratio = Debt / (Debt + Equity)
- Debt includes all interest bearing liabilities, short term as well as long term. It should also include other commitments that meet the criteria for debt: contractually pre-set payments that have to be made, no matter what the firm's financial standing.
- Equity can be defined either in accounting terms (as book value of equity) or in market value terms (based upon the current price). The resulting debt ratios can be very different.

#### The Financing Mix Question

- In deciding to raise financing for a business, is there an optimal mix of debt and equity?
  - If yes, what is the trade off that lets us determine this optimal mix?
    - What are the benefits of using debt instead of equity?
    - What are the costs of using debt instead of equity?
  - If not, why not?

### The Illusory Benefits of Debt

- At first sight, the benefit of debt seems obvious. The cost of debt is lower than the cost of equity.
- That benefit is an illusion, though, because debt is cheaper than equity for a simple reason. The lender gets both first claim on the cash flows and a contractually pre-set cash flow. The equity investor is last in line and has to demand a higher rate of return than the lender does.
- By borrowing money at a lower rate, you are not making a business more valuable, but just moving the risk around.

#### Costs and Benefits of Debt

#### Benefits of Debt

- Tax Benefits: The tax code is tilted in favor of debt, with interest payments being tax deductible in most parts of the world, while cash flows to equity are not.
- Adds discipline to management: When managers are sloppy in their project choices, borrowing money may make them less so.

#### Costs of Debt

- Bankruptcy Costs: Borrowing money will increase your expected probability and cost of bankruptcy.
- Agency Costs: What's good for stockholders is not always what's good for lenders and that creates friction and costs.
- Loss of Future Flexibility: Using up debt capacity today will mean that you will not be able to draw on it in the future.

#### Tax Benefits of Debt

- When you borrow money, you are allowed to deduct interest expenses from your income to arrive at taxable income. This reduces your taxes. When you use equity, you are not allowed to deduct payments to equity (such as dividends) to arrive at taxable income.
- The dollar tax benefit from the interest payment in any year is a function of your tax rate and the interest payment:
  - Tax benefit each year = Tax Rate \* Interest Payment
    The caveat is that you need to have the income to cover interest payments to get this tax benefit.
- Proposition 1: Other things being equal, the higher the marginal tax rate of a business, the more debt it will have in its capital structure.



#### The Effects of Taxes

- You are comparing the debt ratios of real estate corporations, which pay the corporate tax rate, and real estate investment trusts, which are not taxed, but are required to pay 95% of their earnings as dividends to their stockholders. Which of these two groups would you expect to have the higher debt ratios?
- a. The real estate corporations
- b. The real estate investment trusts
- c. Cannot tell, without more information

#### Tax Law and Debt

- At the end of 2017, the United States had one of the highest marginal corporate tax rates in the world (about 40%). Most companies had effective tax rates well below this, with the average effective tax rate closers to 22%. Which tax rate drives the tax benefit of debt and why?
  - a. Marginal tax rates
  - b. Effective tax rates
- At the end of 2017, a tax reform act passed Congress and became law, lowering the federal corporate tax rate from 36% to 21%? Holding all else constant, what should you expect to see happen to debt at US companies?

### Debt adds discipline to management

- If you are managers of a firm with no debt, and you generate high income and cash flows each year, you tend to become complacent. The complacency can lead to inefficiency and investing in poor projects. There is little or no cost borne by the managers
- Forcing such a firm to borrow money can be an antidote to the complacency. The managers now have to ensure that the investments they make will earn at least enough return to cover the interest expenses. The cost of not doing so is bankruptcy and the loss of such a job.



#### **Debt and Discipline**

- Assume that you buy into this argument that debt adds discipline to management. Which of the following types of companies will most benefit from debt adding this discipline?
- Conservatively financed (very little debt), privately owned businesses
- Conservatively financed, publicly traded companies, with stocks held by millions of investors, none of whom hold a large percent of the stock.
- Conservatively financed, publicly traded companies, with an activist and primarily institutional holding.

#### **Bankruptcy Cost**

- □ The expected bankruptcy cost is a function of two variables-
  - the probability of bankruptcy, which will depend upon how uncertain you are about future cash flows
  - the cost of going bankrupt
    - direct costs: Legal and other Deadweight Costs
    - indirect costs: Costs arising because people perceive you to be in financial trouble
- Proposition 2: Firms with more volatile earnings and cash flows will have higher probabilities of bankruptcy at any given level of debt and for any given level of earnings.
- Proposition 3: Other things being equal, the greater the indirect bankruptcy cost, the less debt the firm can afford to use for any given level of debt.





#### Debt & Bankruptcy Cost

- Rank the following companies on the magnitude of bankruptcy costs from most to least, taking into account both explicit and implicit costs:
- A Grocery Store
- b. An Airplane Manufacturer
- High Technology company

#### **Agency Cost**

- An agency cost arises whenever you hire someone else to do something for you. It arises because your interests(as the principal) may deviate from those of the person you hired (as the agent).
- When you lend money to a business, you are allowing the stockholders to use that money in the course of running that business. Stockholders interests are different from your interests, because
  - You (as lender) are interested in getting your money back
  - Stockholders are interested in maximizing their wealth
- In some cases, the clash of interests can lead to stockholders
  - Investing in riskier projects than you would want them to
  - Paying themselves large dividends when you would rather have them keep the cash in the business.
- Proposition 4: Other things being equal, the greater the agency problems associated with lending to a firm, the less debt the firm can afford to use.



#### **Debt and Agency Costs**

- Assume that you are a bank. Which of the following businesses would you perceive the greatest agency costs?
- a. A Technology firm
- b. A Large Regulated Electric Utility
- c. A Real Estate Corporation
- □ Why?

### Loss of future financing flexibility

- When a firm borrows up to its capacity, it loses the flexibility of financing future projects with debt.
- Thus, if the firm is faced with an unexpected investment opportunity or a business shortfall, it will not be able to draw on debt capacity, if it has alread used it up.
- Proposition 5: Other things remaining equal, the more uncertain a firm is about its future financing requirements and projects, the less debt the firm will use for financing current projects.

## What managers consider important in deciding on how much debt to carry...

 A survey of Chief Financial Officers of large U.S. companies provided the following ranking (from most important to least important) for the factors that they considered important in the financing decisions

Factor	Ranking (0-5)
1. Maintain financial flexibility	4.55
2. Ensure long-term survival	4.55
3. Maintain Predictable Source of Funds	4.05
4. Maximize Stock Price	3.99
5. Maintain financial independence	3.88
6. Maintain high debt rating	3.56
7. Maintain comparability with peer group	2.47

## Debt: Summarizing the trade off

Advantages of Debt	Disadvantages of debt	
<b>1. Tax Benefit</b> : Interest expenses on debt are tax deductible	1. Expected Bankruptcy Cost: The expected cost of going	
but cash flows to equity are generally not.	bankrupt is a product of the probability of going bankrupt and	
Implication: The higher the marginal tax rate, the greater the	the cost of going bankrupt. The latter includes both direct and	
benefits of debt.	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	2. Agency Costs: Actions that benefit equity investors may	
to think about the consequences of the investment decisions a	hurt lenders. The greater the potential for this conflict of	
little more carefully and reduce bad investments.	interest, the greater the cost borne by the borrower (as higher	
Implication: As the separation between managers and	interest rates or more covenants).	
stockholders increases, the benefits to using debt will go up.	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.	

# The Trade off for Disney, Vale, Tata Motors and Baidu

Debt trade off	Discussion of relative benefits/costs
Tax benefits	Marginal tax rates of 40% in US (Disney & Bookscape), 32.5% in India (Tata
	Motors), 25% in China (Baidu) and 34% in Brazil (Vale), but there is an offsetting
	tax benefit for equity in Brazil (interest on equity capital is deductible).
Added	The benefits should be highest at Disney, where there is a clear separation of
Discipline	ownership and management and smaller at the remaining firms.
Expected	Volatility in earnings: Higher at Baidu (young firm in technology), Tata Motors
Bankruptcy	(cyclicality) and Vale (commodity prices) and lower at Disney (diversified across
Costs	entertainment companies).
	Indirect bankruptcy costs likely to be highest at Tata Motors, since it's products
	(automobiles) have long lives and require service and lower at Disney and Baidu.
Agency Costs	Highest at Baidu, largely because it's assets are intangible and it sells services and
	lowest at Vale (where investments are in mines, highly visible and easily
	monitored) and Tata Motors (tangible assets, family group backing). At Disney,
	the agency costs will vary across its business, higher in the movie and
	broadcasting businesses and lower at theme parks.
Flexibility	Baidu will value flexibility more than the other firms, because technology is a
needs	shifting and unpredictable business, where future investment needs are difficult to
	forecast. The flexibility needs should be lower at Disney and Tata Motors, since
	they are mature companies with well-established investment needs. At Vale, the
	need for investment funds may vary with commodity prices, since the firm grows
	by acquiring both reserves and smaller companies. At Bookscape, the difficulty of
	accessing external capital will make flexibility more necessary.

# Application Test: Would you expect your firm to gain or lose from using a lot of debt?

- Considering, for your firm,
  - The potential tax benefits of borrowing
  - The benefits of using debt as a disciplinary mechanism
  - The potential for expected bankruptcy costs
  - The potential for agency costs
  - The need for financial flexibility
- Would you expect your firm to have a high debt ratio or a low debt ratio?
- Does the firm's current debt ratio meet your expectations?