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

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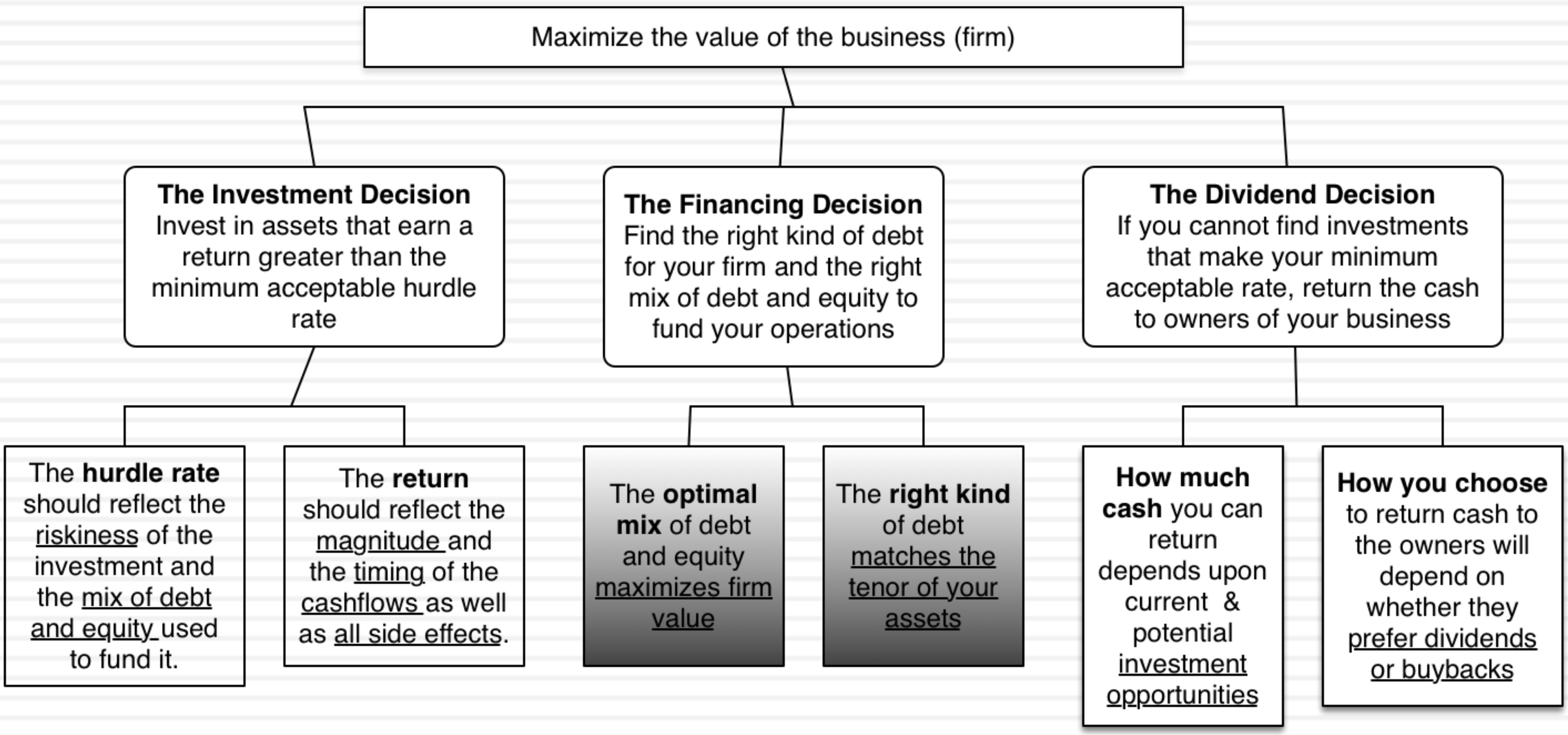
CAPITAL STRUCTURE: THE CHOICES AND THE TRADE OFF

“Neither a borrower nor a lender be”
Someone who obviously hated this part of corporate finance

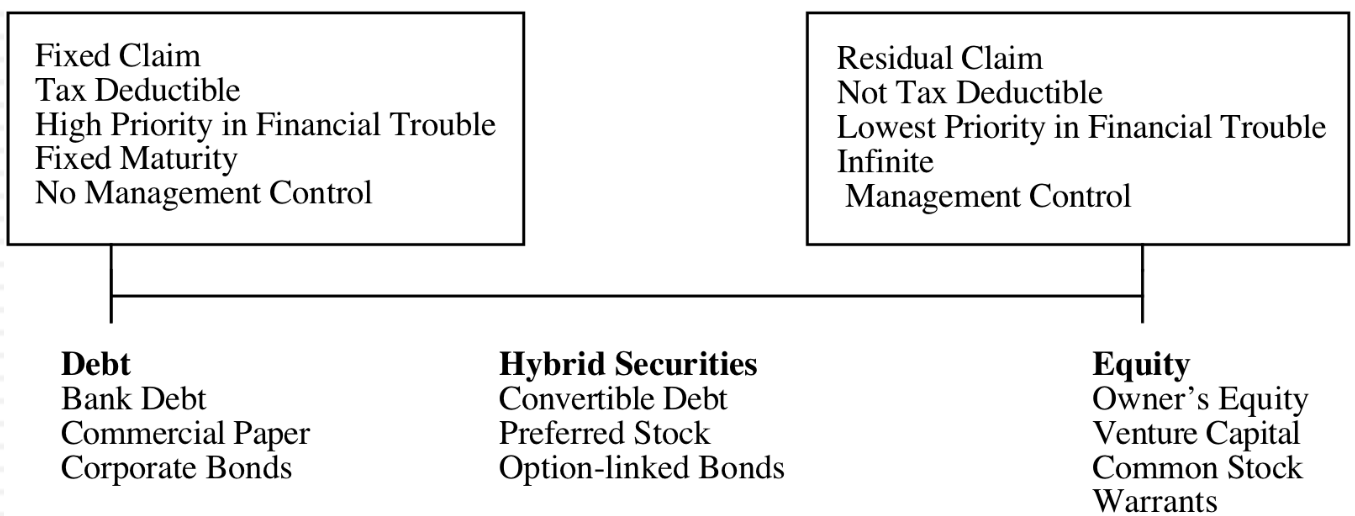
First principles



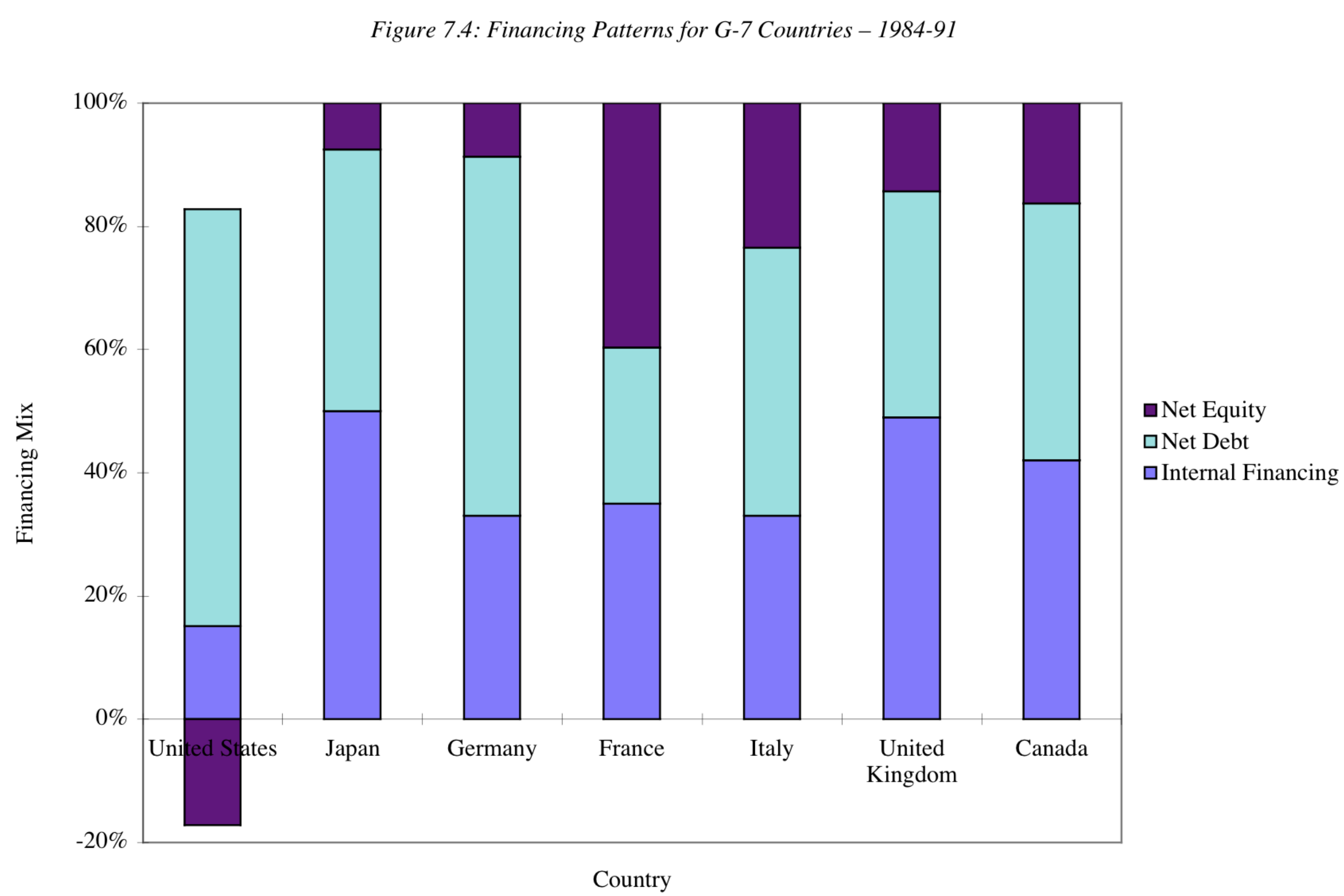
The Choices in Financing

- 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.

Figure 7.1: Debt versus Equity

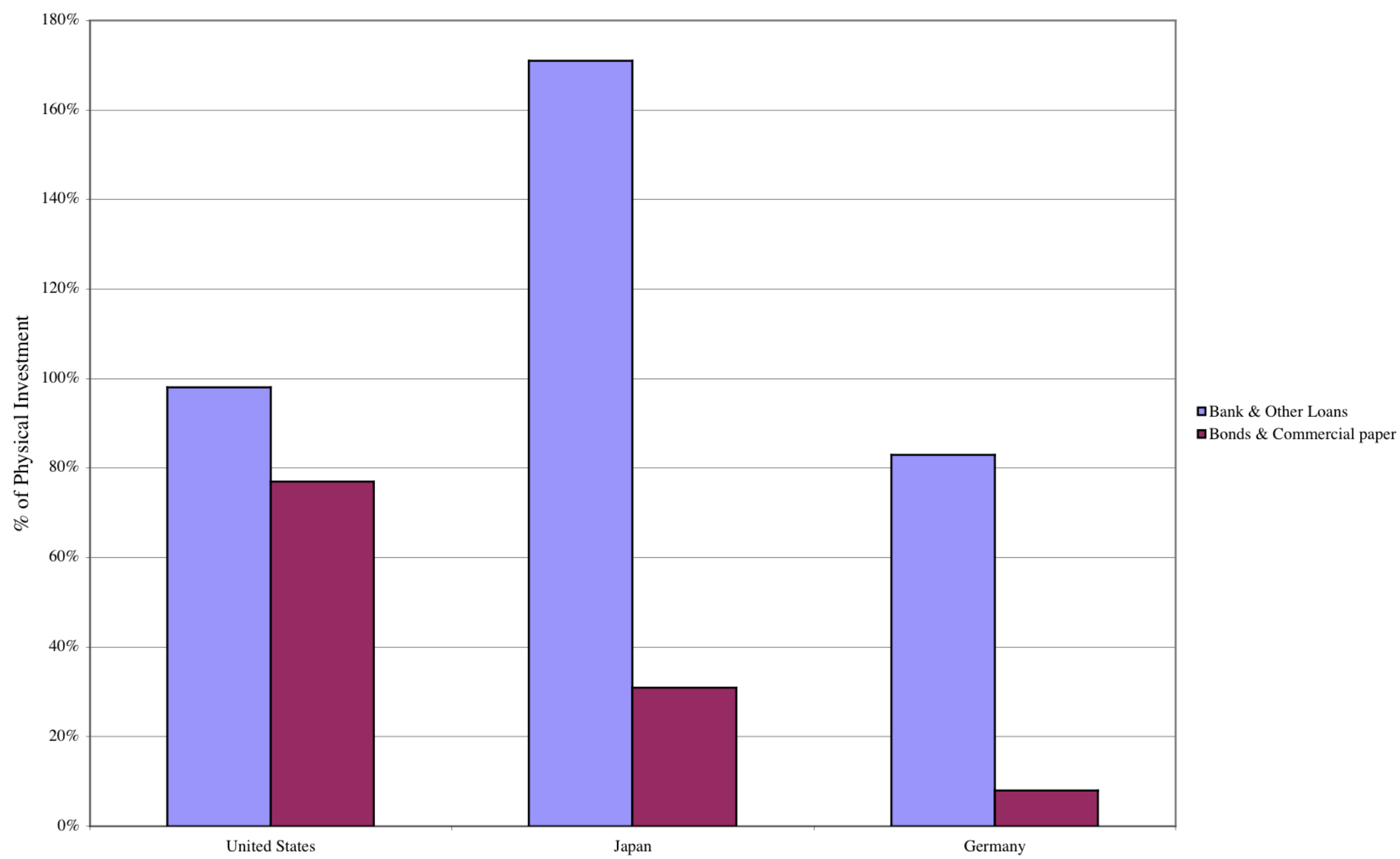


Global Patterns in Financing…



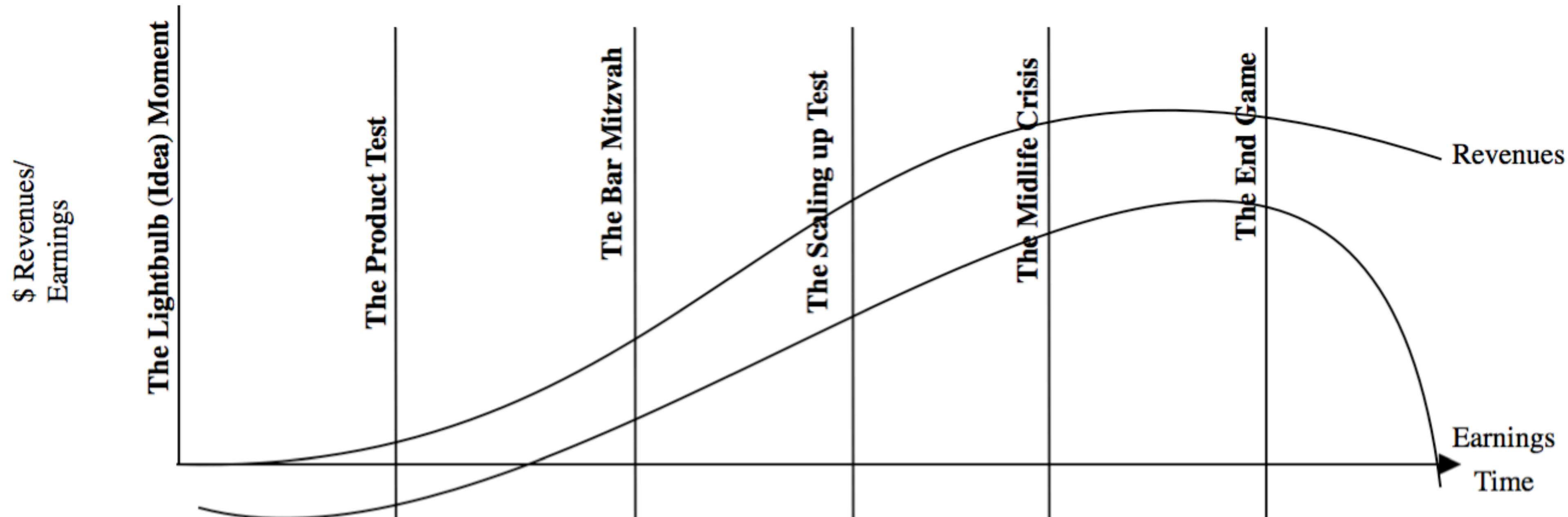
And a much greater dependence on bank loans outside the US…

Figure 7.5: Bonds versus Bank Loans - 1990-96



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 Debt				
Bank Debt	7.93%	59.97%	62.26%	100.00%
Bonds/Notes	92.07%	40.03%	37.74%	0.00%
Debt Maturity				
<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 for 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%
Fixed versus Floating rate debt				
Fixed rate debt	94.33%	100.00%	100.00%	94.63%
Floating rate debt	5.67%	0.00%	0.00%	5.37%



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		

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?

a. Conservatively financed (very little debt), privately owned businesses
b. Conservatively financed, publicly traded companies, with stocks held by millions of investors, none of whom hold a large percent of the stock.
c. 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. A Grocery Store
b. An Airplane Manufacturer
c. 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*
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.*