

# The Value of Control: Some General Propositions

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Stern School of Business

## Why control matters...

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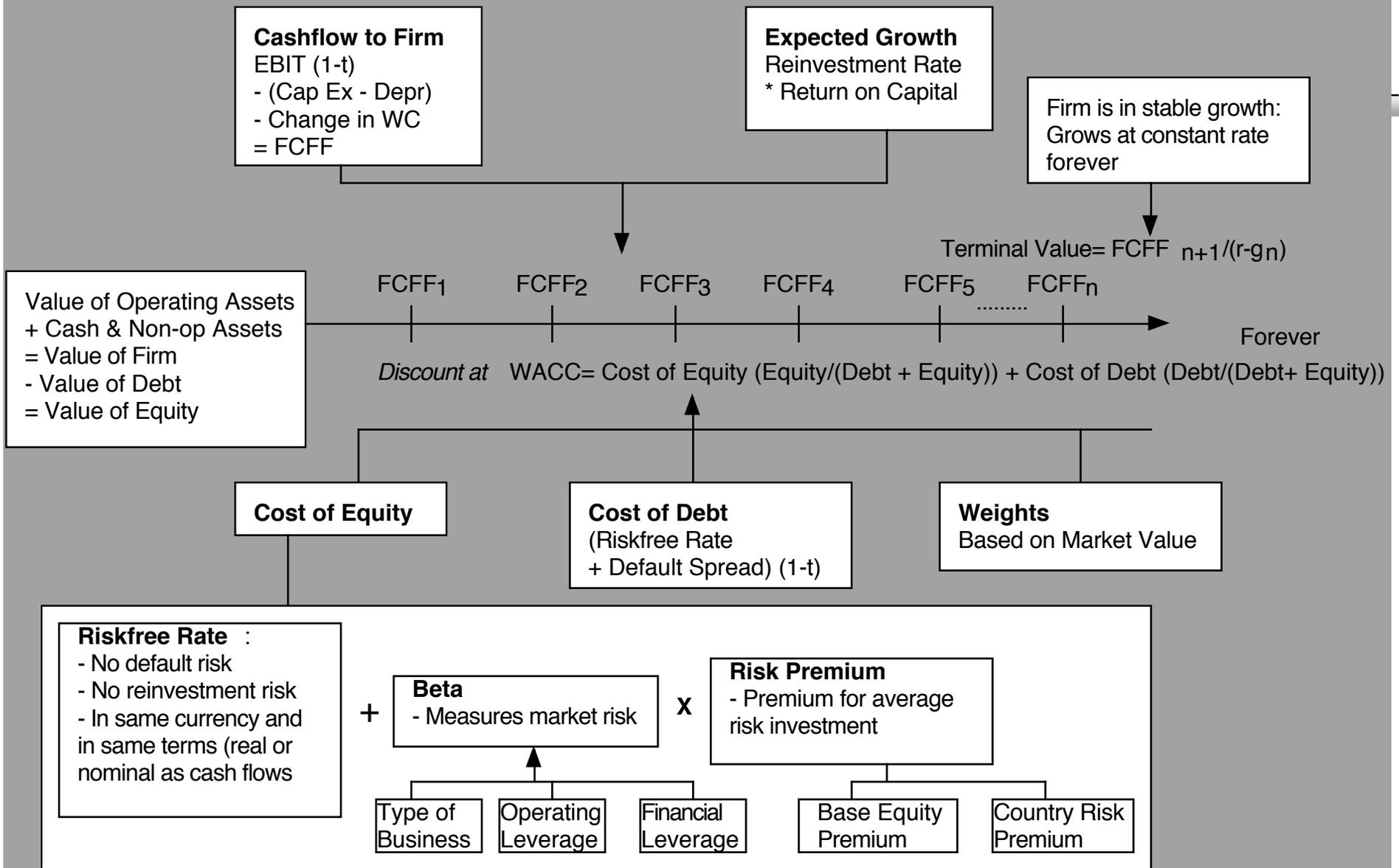
- When valuing a firm, the value of control is often a key factor in determining value.
- For instance,
  - In acquisitions, acquirers often pay a premium for control that can be substantial
  - When buying shares in a publicly traded company, investors often pay a premium for voting shares because it gives them a stake in control.
  - In private companies, there is often a discount attached to buying minority stakes in companies because of the absence of control.

## What is the value of control?

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- The value of controlling a firm derives from the fact that you believe that you or someone else would operate the firm differently (and better) from the way it is operated currently.
- The expected value of control is the product of two variables:
  - the change in value from changing the way a firm is operated
  - the probability that this change will occur
- In a private business or an acquisition, we can assume that the latter will be one (if we succeed in acquiring the business) and concentrate on the first component.

# DISCOUNTED CASHFLOW VALUATION



# SAP: Status Quo

Avg Reinvestment rate = 36.94%

## Current Cashflow to Firm

EBIT(1-t) : 1414  
 - Nt CpX 831  
 - Chg WC - 19  
 = FCFF 602  
 Reinvestment Rate =  $812/1414 = 57.42\%$

Reinvestment Rate 57.42%

Expected Growth in EBIT (1-t)  
 $.5742 * .1993 = .1144$   
**11.44%**

Return on Capital 19.93%

Stable Growth  
 $g = 3.41\%$ ; Beta = 1.00;  
 Debt Ratio = 20%  
 Cost of capital = 6.62%  
 ROC = 6.62%; Tax rate = 35%  
 Reinvestment Rate = 51.54%

Terminal Value<sub>10</sub> =  $1717 / (.0662 - .0341) = 53546$

First 5 years

Growth decreases gradually to 3.41%

Op. Assets 31,615  
 + Cash: 3,018  
 - Debt 558  
 - Pension Lian 305  
 - Minor. Int. 55  
 = Equity 34,656  
 - Options 180  
 Value/Share 106.12

Year	1	2	3	4	5	6	7	8	9	10
EBIT	2,483	2,767	3,083	3,436	3,829	4,206	4,552	4,854	5,097	5,271
EBIT(1-t)	1,576	1,756	1,957	2,181	2,430	2,669	2,889	3,080	3,235	3,345
- Reinvestm	905	1,008	1,124	1,252	1,395	1,501	1,591	1,660	1,705	1,724
= FCFF	671	748	833	929	1,035	1,168	1,298	1,420	1,530	1,621

Term Yr  
 5451  
 3543  
 1826  
 1717

Cost of Capital (WACC) =  $8.77\% (0.986) + 2.39\% (0.014) = 8.68\%$

Debt ratio increases to 20%  
 Beta decreases to 1.00

Cost of Equity 8.77%

Cost of Debt  
 $(3.41\% + .35\%)(1 - .3654)$   
 = 2.39%

Weights  
 E = 98.6% D = 1.4%

On May 5, 2005, SAP was trading at 122 Euros/share

Riskfree Rate:  
 Euro riskfree rate = 3.41%

+

Beta  
 1.26

x

Risk Premium  
 4.25%

Unlevered Beta for Sectors: 1.25

Mature risk premium 4%

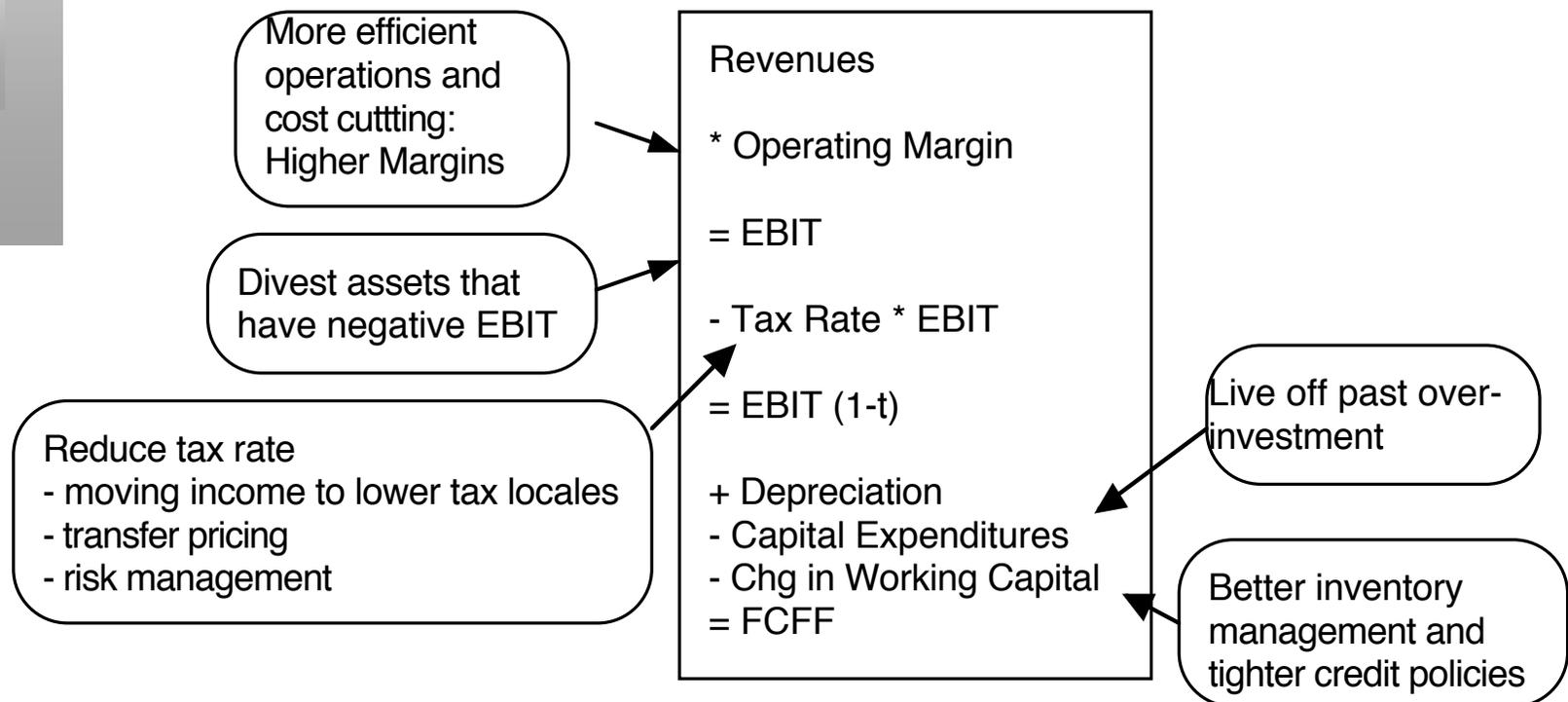
Country Equity Prem 0.25%

## A. Value of Gaining Control

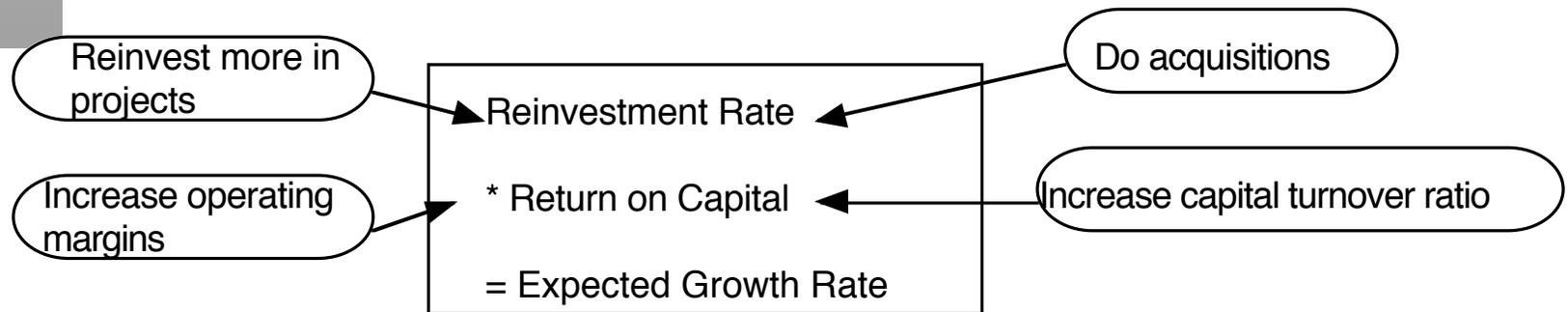
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- Using the DCF framework, there are four basic ways in which the value of a firm can be enhanced:
  - The cash flows from existing assets to the firm can be increased, by either
    - increasing after-tax earnings from assets in place or
    - reducing reinvestment needs (net capital expenditures or working capital)
  - The expected growth rate in these cash flows can be increased by either
    - Increasing the rate of reinvestment in the firm
    - Improving the return on capital on those reinvestments
  - The length of the high growth period can be extended to allow for more years of high growth.
  - The cost of capital can be reduced by
    - Reducing the operating risk in investments/assets
    - Changing the financial mix
    - Changing the financing composition

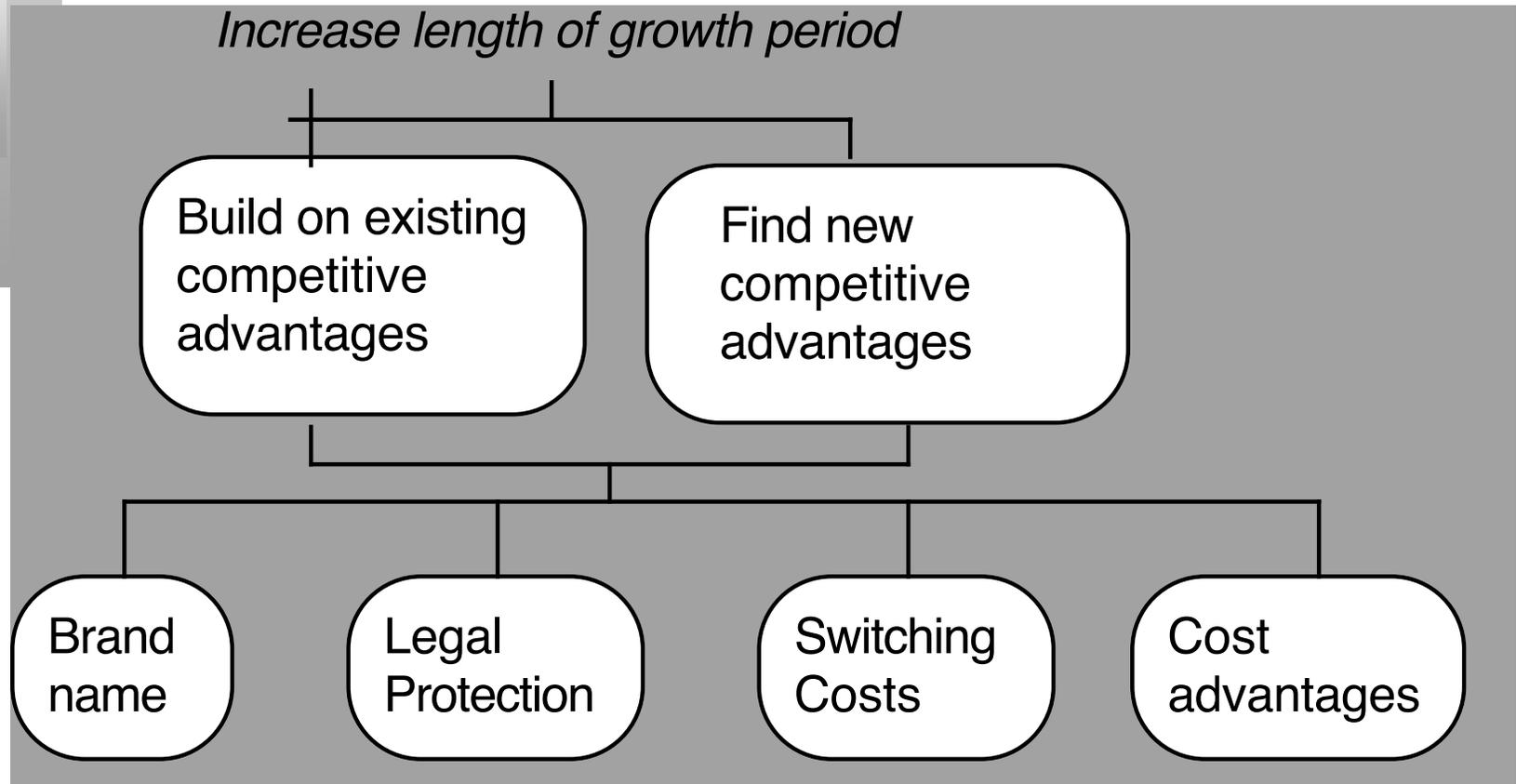
# I. Ways of Increasing Cash Flows from Assets in Place



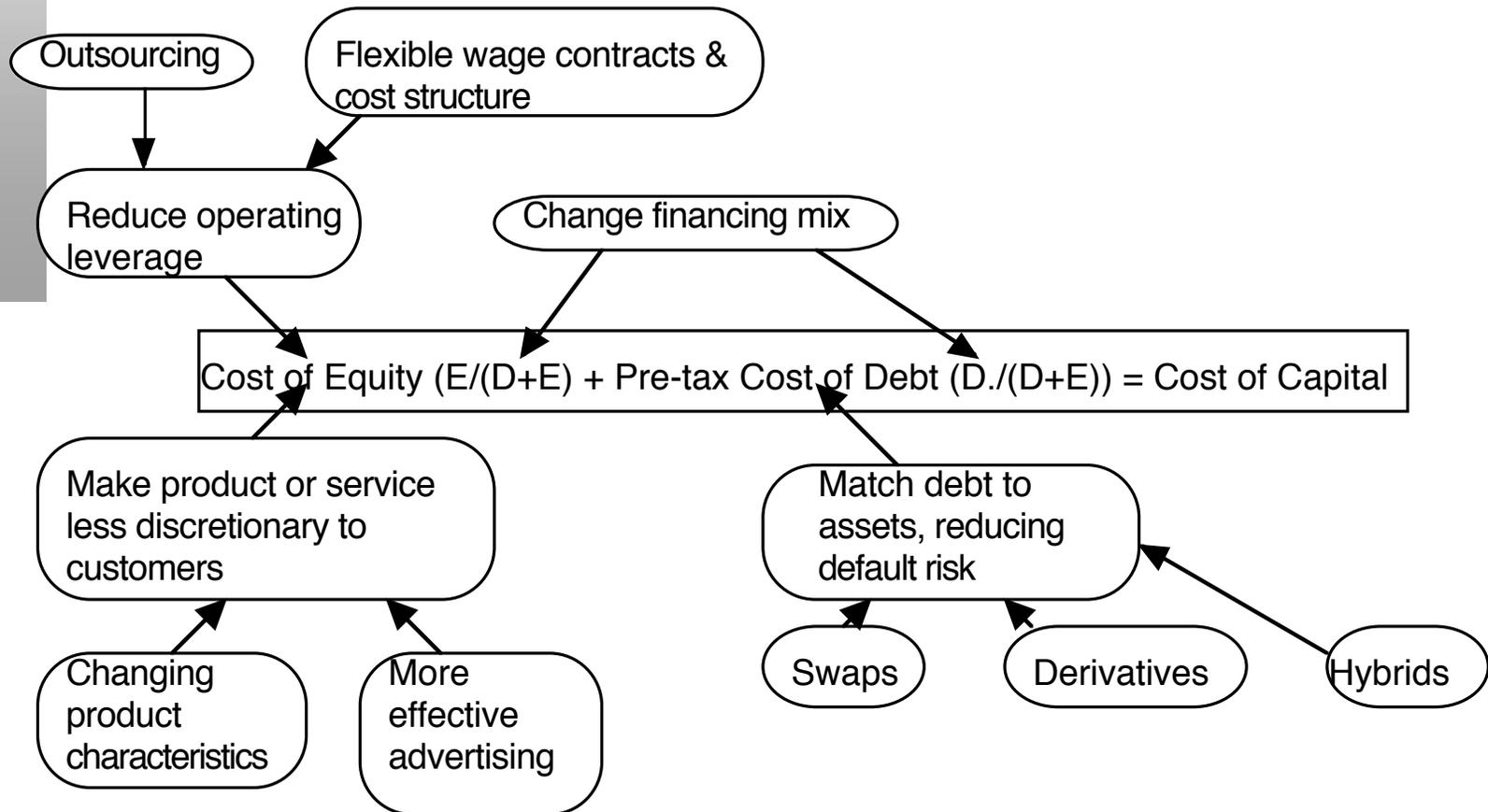
## II. Value Enhancement through Growth



### III. Building Competitive Advantages: Increase length of the growth period



## IV. Reducing Cost of Capital



## SAP : Optimal Capital Structure

Debt Ratio	Beta	Cost of Equity	Bond Rating	Interest rate on debt	Tax Rate	Cost of Debt (after-tax)	WACC	Firm Value (G)
0%	1.25	8.72%	AAA	3.76%	36.54%	2.39%	8.72%	\$39,088
10%	1.34	9.09%	AAA	3.76%	36.54%	2.39%	8.42%	\$41,480
20%	1.45	9.56%	A	4.26%	36.54%	2.70%	8.19%	\$43,567
30%	1.59	10.16%	A-	4.41%	36.54%	2.80%	7.95%	\$45,900
40%	1.78	10.96%	CCC	11.41%	36.54%	7.24%	9.47%	\$34,043
50%	2.22	12.85%	C	15.41%	22.08%	12.01%	12.43%	\$22,444
60%	2.78	15.21%	C	15.41%	18.40%	12.58%	13.63%	\$19,650
70%	3.70	19.15%	C	15.41%	15.77%	12.98%	14.83%	\$17,444
80%	5.55	27.01%	C	15.41%	13.80%	13.28%	16.03%	\$15,658
90%	11.11	50.62%	C	15.41%	12.26%	13.52%	17.23%	\$14,181

# SAP: Restructured

Avg Reinvestment rate = 36.94%

Reinvest more in emerging markets

Return on Capital 19.93%

## Current Cashflow to Firm

EBIT(1-t) : 1414  
 - Nt CpX 831  
 - Chg WC - 19  
 = FCFF 602  
 Reinvestment Rate = 812/1414 = 57.42%

Reinvestment Rate 70%

Expected Growth in EBIT (1-t)  
 $.70 * .1993 = .1144$   
**13.99%**

Stable Growth  
 $g = 3.41%$ ; Beta = 1.00;  
 Debt Ratio = 30%  
 Cost of capital = 6.27%  
 ROC = 6.27%; Tax rate = 35%  
 Reinvestment Rate = 54.38%

First 5 years

Growth decreases gradually to 3.41%

Terminal Value<sub>10</sub> = 1898 / (.0627 - .0341) = 66367

Op. Assets 38045  
 + Cash: 3,018  
 - Debt 558  
 - Pension Lian 305  
 - Minor. Int. 55  
 = Equity 40157  
 - Options 180  
 Value/Share 126.51

Year	2	3	4	5	6	7	8	9	10	Term Yr
EBIT	2,543	2,898	3,304	3,766	4,293	4,802	5,271	5,673	5,987	6,191
EBIT(1-t)	1,614	1,839	2,097	2,390	2,724	3,047	3,345	3,600	3,799	3,929
- Reinvest	1,130	1,288	1,468	1,673	1,907	2,011	2,074	2,089	2,052	1,965
= FCFF	484	552	629	717	817	1,036	1,271	1,512	1,747	1,963

Term Yr  
 6402  
 4161  
 2263  
 1898

Cost of Capital (WACC) = 10.57% (0.70) + 2.80% (0.30) = 8.24%

Cost of Equity 10.57%

Cost of Debt  
 $(3.41% + 1.00%)(1 - .3654)$   
 = 2.80%

Weights  
 E = 70% D = 30%

On May 5, 2005, SAP was trading at 122 Euros/share

Use more debt financing.

Riskfree Rate:  
 Euro riskfree rate = 3.41%

+

Beta  
 1.59

x

Risk Premium  
 4.50%

Unlevered Beta for Sectors: 1.25

Mature risk premium 4%

Country Equity Prem 0.5%

# Blockbuster: Status Quo

**Current Cashflow to Firm**  
 EBIT(1-t) : 163  
 - Nt CpX 39  
 - Chg WC 4  
 = FCFF 120  
 Reinvestment Rate = 43/163  
 =26.46%

Reinvestment Rate  
26.46%

**Expected Growth in EBIT (1-t)**  
 $.2645 * .0406 = .0107$   
**1.07%**

Return on Capital  
4.06%

Stable Growth  
 $g = 3\%$ ; Beta = 1.00;  
 Cost of capital = 6.76%  
 ROC = 6.76%; Tax rate = 35%  
 Reinvestment Rate = 44.37%

Terminal Value<sub>5</sub> =  $104 / (.0676 - .03) = 2714$

Op. Assets 2,472  
 + Cash: 330  
 - Debt 1847  
 = Equity 955  
 - Options 0  
 Value/Share \$ 5.13

	1	2	3	4	5
EBIT (1-t)	\$165	\$167	\$169	\$173	\$178
- Reinvestment	\$44	\$44	\$51	\$64	\$79
FCFF	\$121	\$123	\$118	\$109	\$99

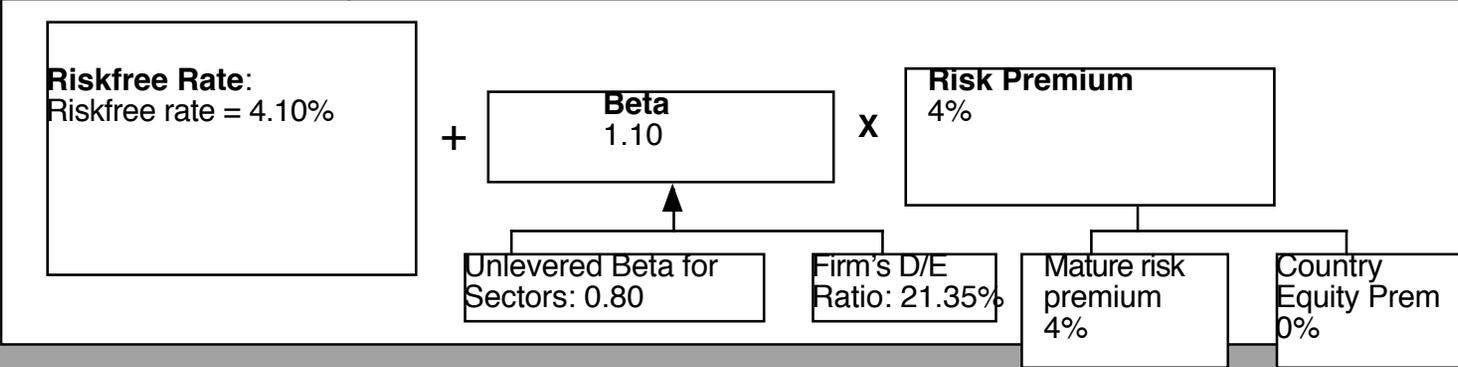
Term Yr  
 184  
 82  
 102

Discount at Cost of Capital (WACC) = 8.50% (.486) + 3.97% (0.514) = 6.17%

**Cost of Equity**  
8.50%

**Cost of Debt**  
 $(4.10\% + 2\%) (1 - .35)$   
 = 3.97%

**Weights**  
 E = 48.6% D = 51.4%



# Blockbuster: Restructured

**Current Cashflow to Firm**  
 EBIT(1-t) : 249  
 - Nt CpX 39  
 - Chg WC 4  
 = FCFF 206  
 Reinvestment Rate =  $43/249 = 17.32\%$

Reinvestment Rate  
17.32%

**Expected Growth in EBIT (1-t)**  
 $.1732 * .0620 = .0107$   
**1.07%**

Return on Capital  
6.20%

Stable Growth  
 $g = 3\%$ ; Beta = 1.00;  
 Cost of capital = 6.76%  
 ROC = 6.76%; Tax rate = 35%  
 Reinvestment Rate = 44.37%

Terminal Value<sub>5</sub> =  $156 / (.0676 - .03) = 4145$

Op. Assets 3,840  
 + Cash: 330  
 - Debt 1847  
 = Equity 2323  
 - Options 0  
 Value/Share \$ 12.47

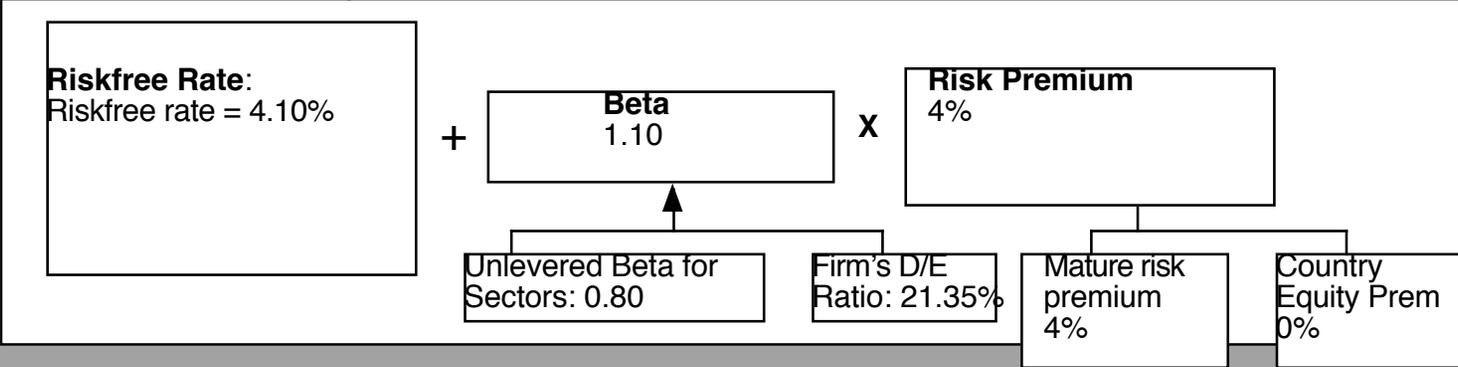
	1	2	3	4	5	Term Yr
EBIT (1-t)	\$252	\$255	\$258	\$264	\$272	280
- Reinvestment	\$44	\$44	\$59	\$89	\$121	124
FCFF	\$208	\$211	\$200	\$176	\$151	156

Discount at Cost of Capital (WACC) =  $8.50\% (.486) + 3.97\% (0.514) = 6.17\%$

**Cost of Equity**  
8.50%

**Cost of Debt**  
 $(4.10\% + 2\%) (1 - .35) = 3.97\%$

**Weights**  
 E = 48.6% D = 51.4%



## B. The Probability of Changing Control

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- The probability of changing management will be different across different companies and will vary across different markets. In general, the more power stockholders have and the stronger corporate governance systems are, the greater is the probability of management change for any given firm.
- The probability of changing management will change over time as a function of legal changes, market developments and investor shifts.

## Mechanisms for changing management

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- Activist investors: Some investors have been willing to challenge management practices at companies by offering proposals for change at annual meetings. While they have been for the most part unsuccessful at getting these proposals adopted, they have shaken up incumbent managers.
- Proxy contests: In proxy contests, investors who are unhappy with management try to get their nominees elected to the board of directors.
- Forced CEO turnover: The board of directors, in exceptional cases, can force out the CEO of a company and change top management.
- Hostile acquisitions: If internal processes for management change fail, stockholders have to hope that another firm or outside investor will try to take over the firm (and change its management).

## Determinants of Likelihood of Change: Institutional Factors

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- Capital restrictions: In markets where it is difficult to raise funding for hostile acquisitions, management change will be less likely. Hostile acquisitions in Europe became more common after the corporate bond market developed.
- State Restrictions: Some markets restrict hostile acquisitions for parochial (France and Dannon, US and Unocal), political (Pennsylvania's anti-takeover law to protect Armstrong Industries), social (loss of jobs) and economic reasons (prevent monopoly power).
- Inertia and Conflicts of Interest: If financial service institutions (banks and investment banks) have ties to incumbent managers, it will become difficult to change management.

## Determinants of the Likelihood of Change: Firm-specific factors

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- Anti-takeover amendments: Corporate charters can be amended, making it more difficult for a hostile acquirer to acquire the company or dissident stockholders to change management.
- Voting Rights: Incumbent managers get voting rights which are disproportional to their stockholdings, by issuing shares with no voting rights or reduced voting rights to the public.
- Corporate Holding Structures: Cross holdings and Pyramid structures are designed to allow insiders with small holdings to control large numbers of firms.
- Large Stockholders as managers: A large stockholder (usually the founder) is also the incumbent manager of the firm.

## Why the probability of management changing shifts over time....

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- Corporate governance rules can change over time, as new laws are passed. If the change gives stockholders more power, the likelihood of management changing will increase.
- Activist investing ebbs and flows with market movements (activist investors are more visible in down markets) and often in response to scandals.
- Events such as hostile acquisitions can make investors reassess the likelihood of change by reminding them of the power that they do possess.

## Estimating the Probability of Change

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- You can estimate the probability of management changes by using historical data (on companies where change has occurred) and statistical techniques such as probits or logits.
- Empirically, the following seem to be related to the probability of management change:
  - Stock price and earnings performance, with forced turnover more likely in firms that have performed poorly relative to their peer group and to expectations.
  - Structure of the board, with forced CEO changes more likely to occur when the board is small, is composed of outsiders and when the CEO is not also the chairman of the board of directors.
  - Ownership structure; forced CEO changes are more common in companies with high institutional and low insider holdings. They also seem to occur more frequently in firms that are more dependent upon equity markets for new capital.
  - Industry structure, with CEOs more likely to be replaced in competitive industries.

## Manifestations of the Value of Control

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- Hostile acquisitions: In hostile acquisitions which are motivated by control, the control premium should reflect the change in value that will come from changing management.
- Valuing publicly traded firms: The market price for every publicly traded firm should incorporate an expected value of control, as a function of the value of control and the probability of control changing.  
$$\text{Market value} = \text{Status quo value} + \frac{(\text{Optimal value} - \text{Status quo value}) * \text{Probability of management changing}}$$
- Voting and non-voting shares: The premium (if any) that you would pay for a voting share should increase with the expected value of control.
- Minority Discounts in private companies: The minority discount (attached to buying less than a controlling stake) in a private business should be increase with the expected value of control.

# 1. Hostile Acquisition: Example

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- In a hostile acquisition, you can ensure management change after you take over the firm. Consequently, you would be willing to pay up to the optimal value.
- As an example, Blockbuster was trading at \$9.50 per share in July 2005. The optimal value per share that we estimated as \$ 12.47 per share. Assuming that this is a reasonable estimate, you would be willing to pay up to \$2.97 as a premium in acquiring the shares.
- Issues to ponder:
  - Would you automatically pay \$2.97 as a premium per share? Why or why not?
  - What would your premium per share be if change will take three years to implement?

## Hostile Acquisitions: Implications

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- a. *The value of control will vary across firms:* Since the control premium is the difference between the status-quo value of a firm and its optimal value, it follows that the premium should be larger for poorly managed firms and smaller for well managed firms.
- b. *There can be no rule of thumb on control premium:* Since control premium will vary across firms, there can be no simple rule of thumb that applies across all firms. The notion that control is always 20-30% of value cannot be right.
- c. *The control premium should vary depending upon why a firm is performing badly:* The control premium should be higher when a firm is performing badly because of poor management decisions than when a firm's problems are caused by external factors over which management has limited or no control.
- d. *The control premium should be a function of the ease of making management changes:* Not all changes are easy to make or quick to implement. It is far easier to change the financing mix of an under levered company than it is to modernize the plant and equipment of a manufacturing company with old and outdated plants.

## 2. Market prices of Publicly Traded Companies: An example

- The market price per share at the time of the valuation (May 2005) was roughly \$9.50.

Expected value per share = Status Quo Value + Probability of control changing \* (Optimal Value – Status Quo Value)

$$\$ 9.50 = \$ 5.13 + \text{Probability of control changing } (\$12.47 - \$5.13)$$

- The market is attaching a probability of 59.5% that management policies can be changed. This was after Icahn's successful challenge of management. Prior to his arriving, the market price per share was \$8.20, yielding a probability of only 41.8% of management changing.

	Value of Equity	Value per share
Status Quo	\$ 955 million	\$ 5.13 per share
Optimally managed	\$2,323 million	\$12.47 per share

## Market Prices for Publicly Traded Firms: Implications

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- a. *Paying a premium over the market price can result in over payment:* In a firm where the market already assumes that management will be changed and builds it into the stock price, acquirers should be wary of paying a premium on the current market price even for a badly managed firm.
- b. *Anything that causes market perception of the likelihood of management change to shift can have large effects on all stocks.* A hostile acquisition of one company, for instance, may lead investors to change their assessments of the likelihood of management change for all companies and to an increase in stock prices.
- c. *Poor corporate governance = Lower stock prices:* Stock prices in a market where corporate governance is effective will reflect a high likelihood of change for bad management and a higher expected value for control. In contrast, it is difficult, if not impossible, to dislodge managers in markets where corporate governance is weak. Stock prices in these markets will therefore incorporate lower expected values for control. The differences in corporate governance are likely to manifest themselves most in the worst managed firms in the market.

### 3. Voting and Non-voting Shares: An Example

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- To value voting and non-voting shares, we will consider Embraer, the Brazilian aerospace company. As is typical of most Brazilian companies, the company has common (voting) shares and preferred (non-voting shares).
  - Status Quo Value = 12.5 billion \$R for the equity;
  - Optimal Value = 14.7 billion \$R, assuming that the firm would be more aggressive both in its use of debt and in its reinvestment policy.
- There are 242.5 million voting shares and 476.7 non-voting shares in the company and the probability of management change is relatively low. Assuming a probability of 20% that management will change, we estimated the value per non-voting and voting share:
  - Value per non-voting share = Status Quo Value/ (# voting shares + # non-voting shares) =  $12,500 / (242.5 + 476.7) = 17.38$  \$R/ share
  - Value per voting share = Status Quo value/sh + Probability of management change \* (Optimal value – Status Quo Value) =  $17.38 + 0.2 * (14,700 - 12,500) / 242.5 = 19.19$  \$R/share
- With our assumptions, the voting shares should trade at a premium of 10.4% over the non-voting shares.

## Voting and Non-voting Shares: Implications

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- a. *The difference between voting and non-voting shares should go to zero if there is no chance of changing management/control.* If there are relatively few voting shares, held entirely by insiders, the probability of management change may very well be close to zero and voting shares should trade at the same price as non-voting shares.
- b. *Other things remaining equal, voting shares should trade at a larger premium on non-voting shares at badly managed firms than well-managed firms.* In a badly managed firm, the expected value of control is likely to be higher.
- c. *Other things remaining equal, the smaller the number of voting shares relative to non-voting shares, the higher the premium on voting shares should be.* The expected value of control is divided by the number of voting shares to get the premium; the smaller that number, the greater the value per share.
- d. *Other things remaining equal, the greater the percentage of voting shares that are available for trading by the general public (float), the higher the premium on voting shares should be.* When voting shares are predominantly held by insiders, the probability of control changing is small and so is the expected value of control.
- e. *Any event that illustrates the power of voting shares relative to non-voting shares is likely to affect the premium at which all voting shares trade.*

## 4. Minority Discount: An example

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- Assume that you are valuing Kristin Kandy, a privately owned candy business for sale in a private transaction. You have estimated a value of \$ 1.6 million for the equity in this firm, assuming that the existing management of the firm continues into the future and a value of \$ 2 million for the equity with new and more creative management in place.
  - Value of 51% of the firm = 51% of optimal value =  $0.51 * \$ 2 \text{ million} = \$1.02 \text{ million}$
  - Value of 49% of the firm = 49% of status quo value =  $0.49 * \$1.6 \text{ million} = \$784,000$
- Note that a 2% difference in ownership translates into a large difference in value because one stake ensures control and the other does not.

## Minority Discount: Implications

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- a. *The minority discount should vary inversely with management quality:* If the minority discount reflects the value of control (or lack thereof), it should be larger for firms that are poorly run and smaller for well-run firms.
- b. *Control may not always require 51%:* While it is true that you need 51% of the equity to exercise control of a private firm when you have only two co-owners, it is possible to effectively control a firm with a smaller proportion of the outstanding stock when equity is dispersed more investors.
- c. *The value of an equity stake will depend upon whether it provides the owner with a say in the way a firm is run:* Many venture capitalists play an active role in the management of the firms that they invest in and the value of their equity stake should reflect this power. In effect, the expected value of control is built into the equity value. In contrast, a passive private equity investor who buys and holds stakes in private firms, without any input into the management process, should value her equity stakes at a lower value.

## Proposition 1: The value of control is not 20%

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- Since the value of control derives from changing the way a firm is run, there is no simple rule of thumb that can be used to determine what it is worth.
- Control is worth more at badly managed, badly run firms than it is at well managed, well run firms
- The value of control can be zero if a firm is already optimally run.

## Proposition 2: To make the control premium real, you have to act

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- The value of control derives from making real changes to a firm - its investment policies, financing policies and dividend policies.
- For this control value to become real value, someone has to put these changes into effect. In other words, valuing a firm with an optimal or target debt ratio may increase the value on paper (or on a spreadsheet), but the real increase in value will require you to make the changes in practice.
- Corollary 1: If you have no power to change the way a firm is run, the control premium may be an illusion.
- Corollary 2: Changes are much easier to make on paper than they are in practice.

## Proposition 3: Whether you add a control premium to a valuation will depend on how the valuation is done...

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- In many valuations of private businesses, you begin with a discounted cash flow valuation of the business and add a control premium. Whether this is a good practice will depend upon the assumptions that you used to come up with the discounted cash flow value.
  - If you did your discounted cash flow valuation with inputs reflecting a well managed firm (rather than the actual firm), you already have an optimal value. **DO NOT ADD A CONTROL PREMIUM.**
  - If your valuation is a status quo valuation, you may be entitled to add a control premium but only if you feel that there is potential for change.
- Some clues to look for: If you use target debt ratios, industry average margins and optimistic earnings growth numbers, you are doing an optimal valuation. Adding a control premium will be double counting.

## Proposition 4: The premium paid in public acquisitions is not a control premium

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- It is true that acquirers often pay premiums of 20-30% in acquisitions of publicly traded firms, but is not true that this is a control premium.
- There are three reasons to be wary:
  - The acquisition premiums are computed by comparing the acquisition price to the pre-deal market price
  - Even if acquirers are rational, there are multiple motives for acquisitions, and the premium is paid for all of them.
  - There is a sampling bias at work. Acquirers in acquisitions tend to overpay.

## a. Computing the premium can be tricky

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- The technical measure of the acquisition premium is
  - Acquisition Premium = Acquisition Price - Pre-acquisition price
- Problem 1: The Leakage factor
  - Acquisition announcement are seldom complete surprises
  - The market prices of target companies drift up in the weeks before the acquisition
- Problem 2: Markets identify potential target firms well before they are target
  - If target firms in acquisitions share common characteristics, their stock prices will rise to reflect the expectation that they will be taken over.
  - The difference between the price paid and the pre-acquisition price will not reflect the true premium paid.

## b. Attributing motive to premiums is difficult to do..

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1. Market valuation mistake: Firms that are undervalued by markets, relative to true value, will be targeted by those who recognize this anomaly.
2. Diversification: A more controversial reason is **diversification**, with the intent of stabilizing earnings and reducing risk.
3. Synergy refers to the potential additional value from combining two firms, either from operational or financial sources.
  - Operating Synergy can come from *higher growth* or *lower costs*
  - Financial Synergy can come from *tax savings*, *increased debt capacity* or *cash slack*.
4. **Control: Poorly managed firms are taken over and restructured** by the new owners, who lay claim to the additional value.
5. Managerial self-interest and hubris are the primary, though unstated, reasons for many takeovers.

### c. And acquirers are not a random sample..

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- Egos drive deals: While there may be some disagreement among studies, there is substantial evidence that acquirers tend to overpay on deals though the extent of the overpayment can range from small to significant.
- The winner's curse applies: Acquirers are more likely to overpay on deals where there are multiple bidders
- And the post-mortems of deals are not pretty: Neither synergy nor control seems to show up in real deals as often (or as large an amount) as they do on paper.

## To conclude...

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- The value of control in a firm should lie in being able to run that firm differently and better. Consequently, the value of control should be greater in poorly performing firms, where the primary reason for the poor performance is the management.
- The market value of every firm reflects the expected value of control, which is the product of the probability of management changing and the effect on value of that change. This has far ranging implications. In acquisitions, the premiums paid should reflect how much the price already reflects the expected value of control; in a market that already reflects a high value for expected control, the premiums should be smaller.