

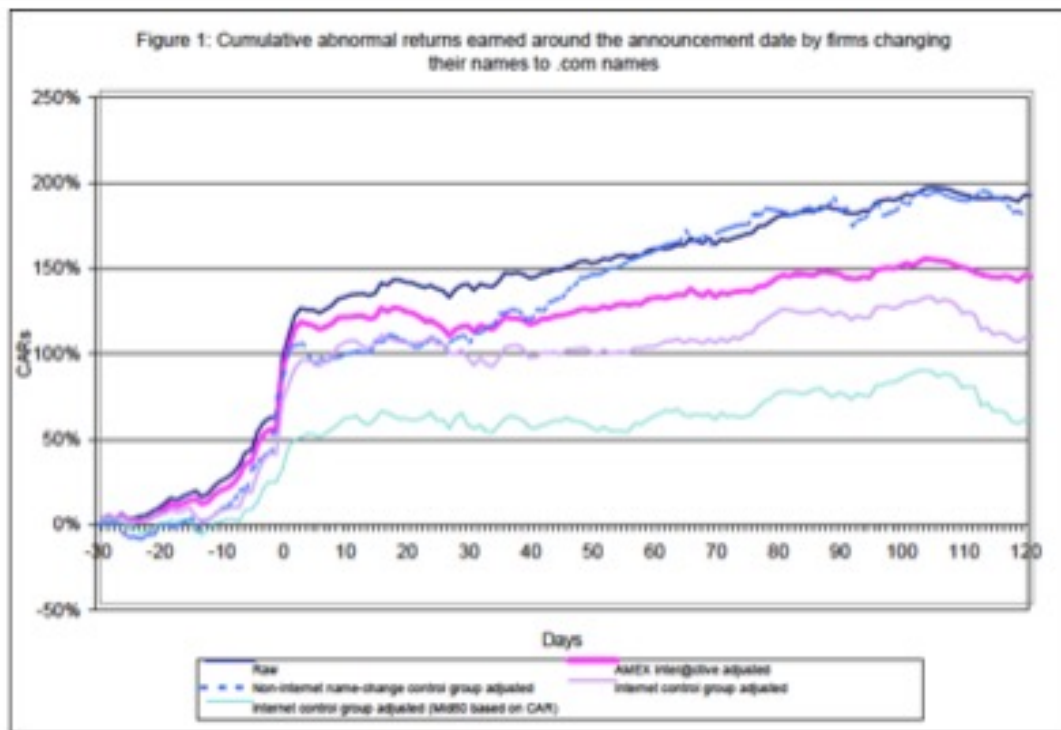


# VALUE ENHANCEMENT AND THE EXPECTED VALUE OF CONTROL: BACK TO BASICS

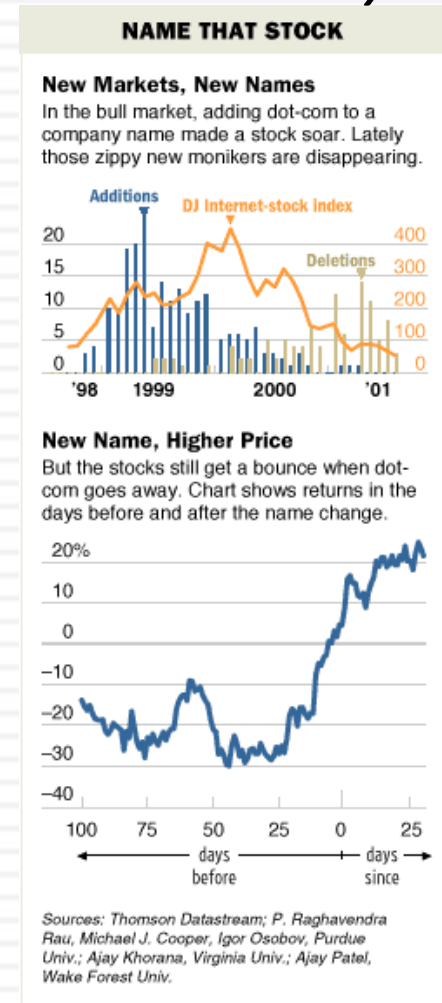
# Price Enhancement versus Value Enhancement

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*The market gives...*



*And takes away....*



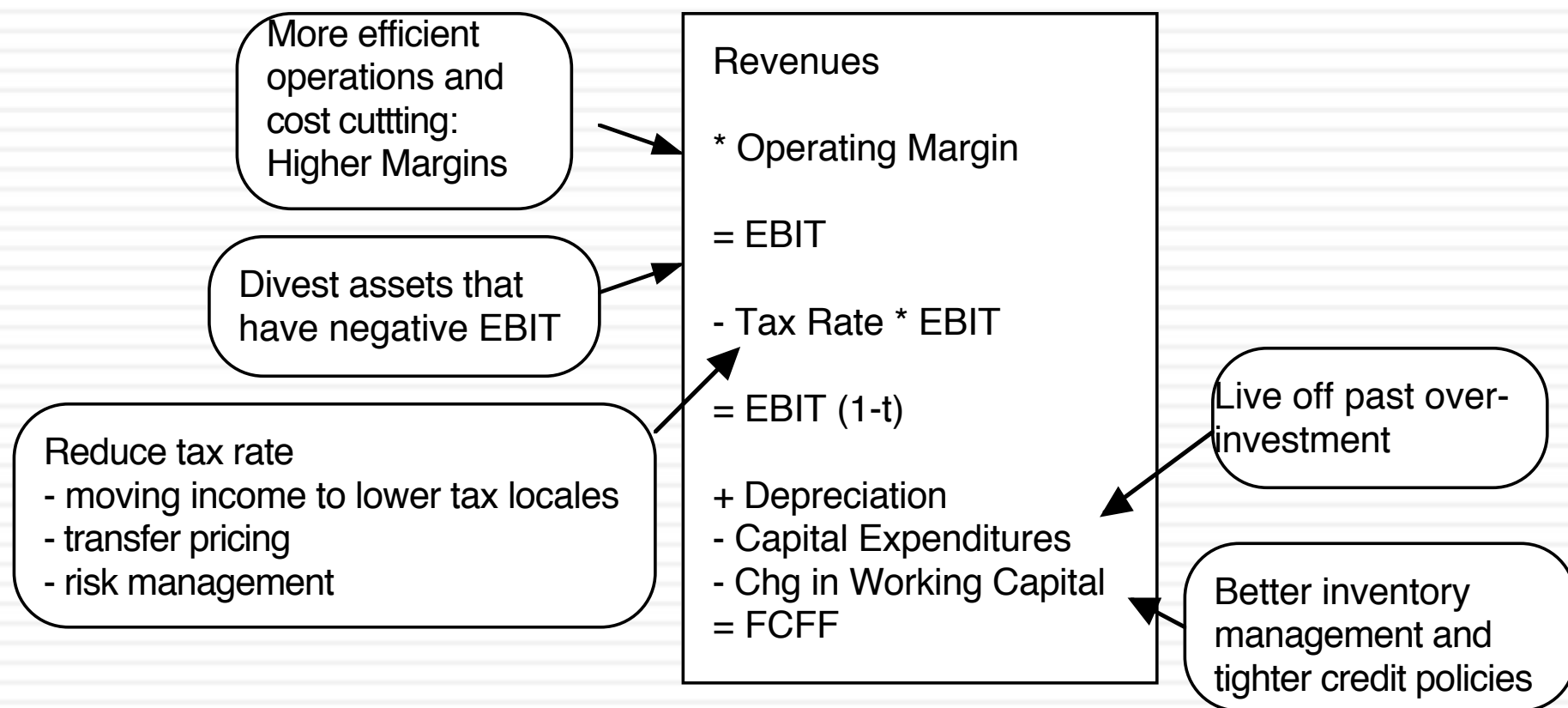
# The Paths to Value Creation

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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

# Value Creation 1: Increase Cash Flows from Assets in Place

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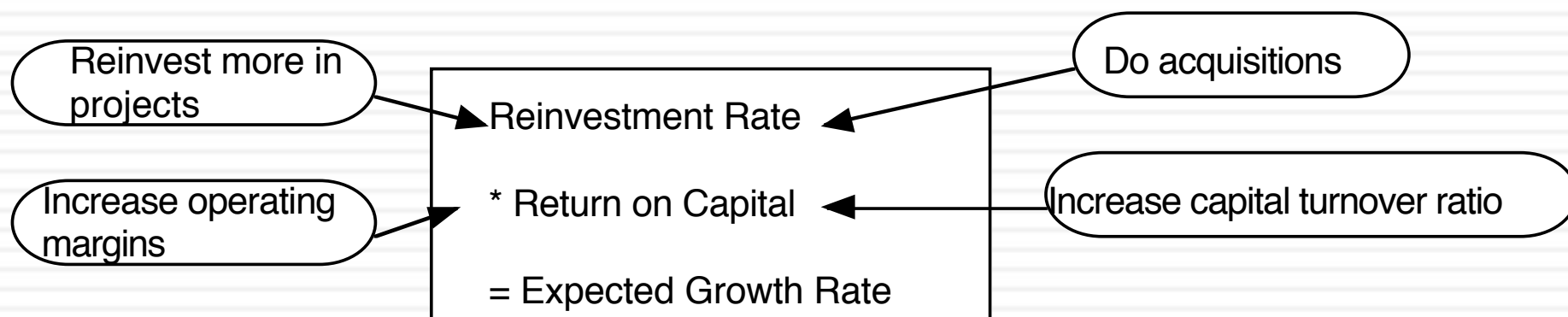
# Value Creation 2: Increase Value from Expected Growth

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## ***Pricing Strategies***

*Price Leader versus Volume Leader Strategies*

*Return on Capital = Operating Margin \* Capital Turnover Ratio*



## ***Game theory***

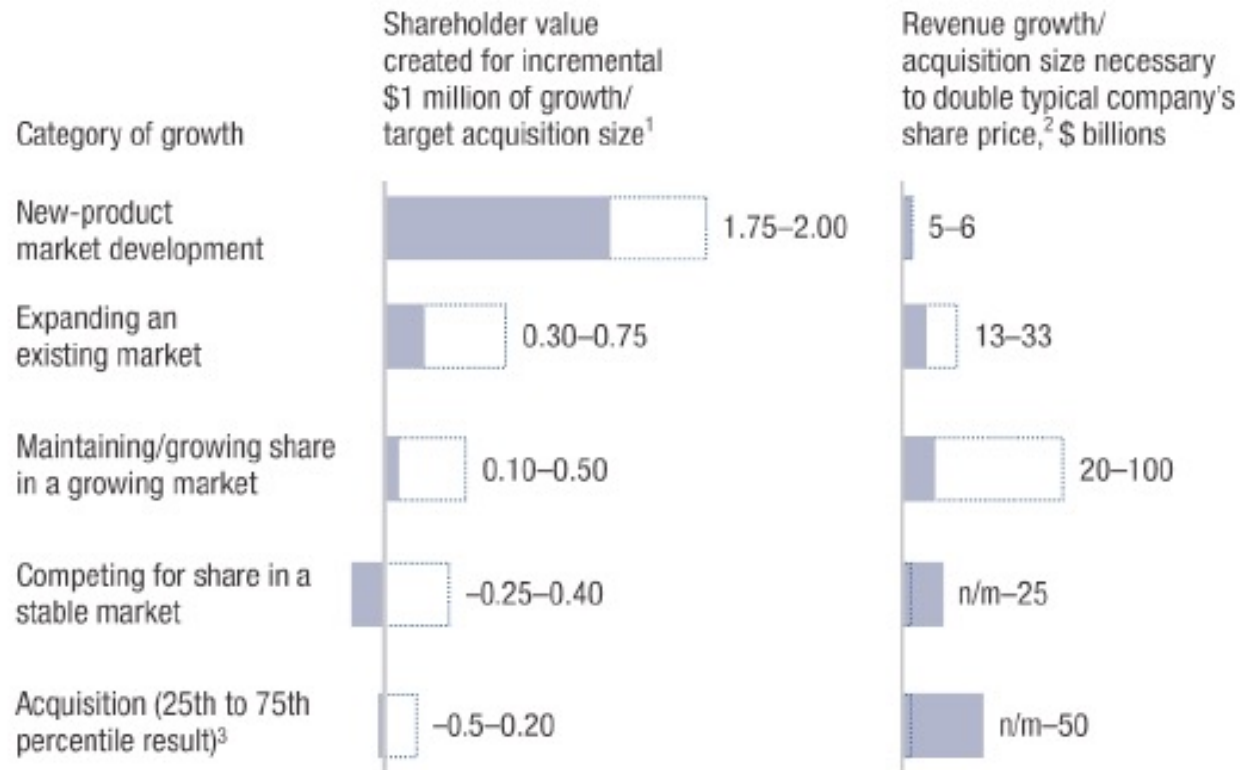
*How will your competitors react to your moves?*

*How will you react to your competitors' moves?*

# Value Creating Growth... Evaluating the Alternatives..

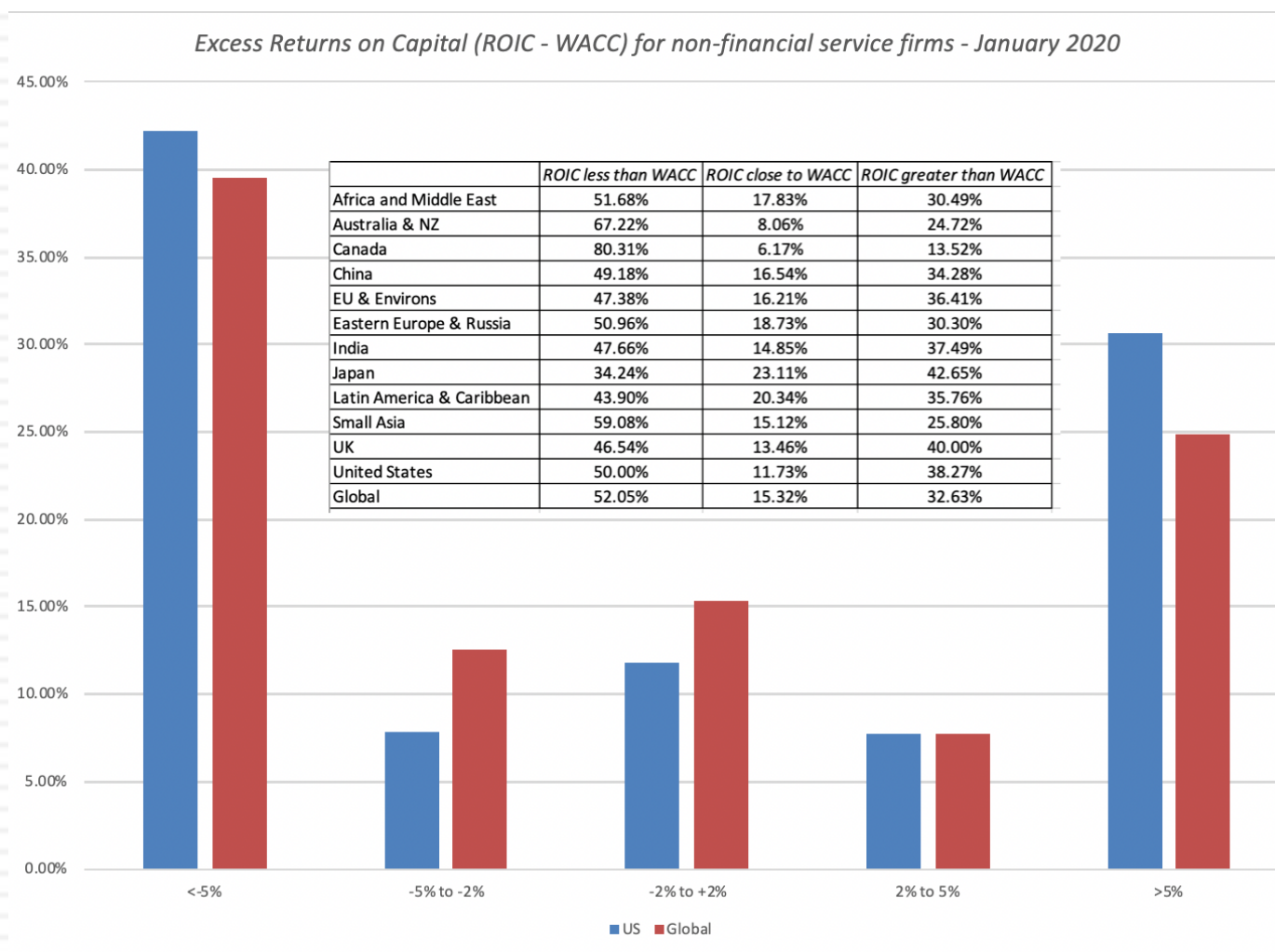
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## Modes of organic growth vary in value creation intensity— consumer goods industry



# Sometimes, growing less is the answer...

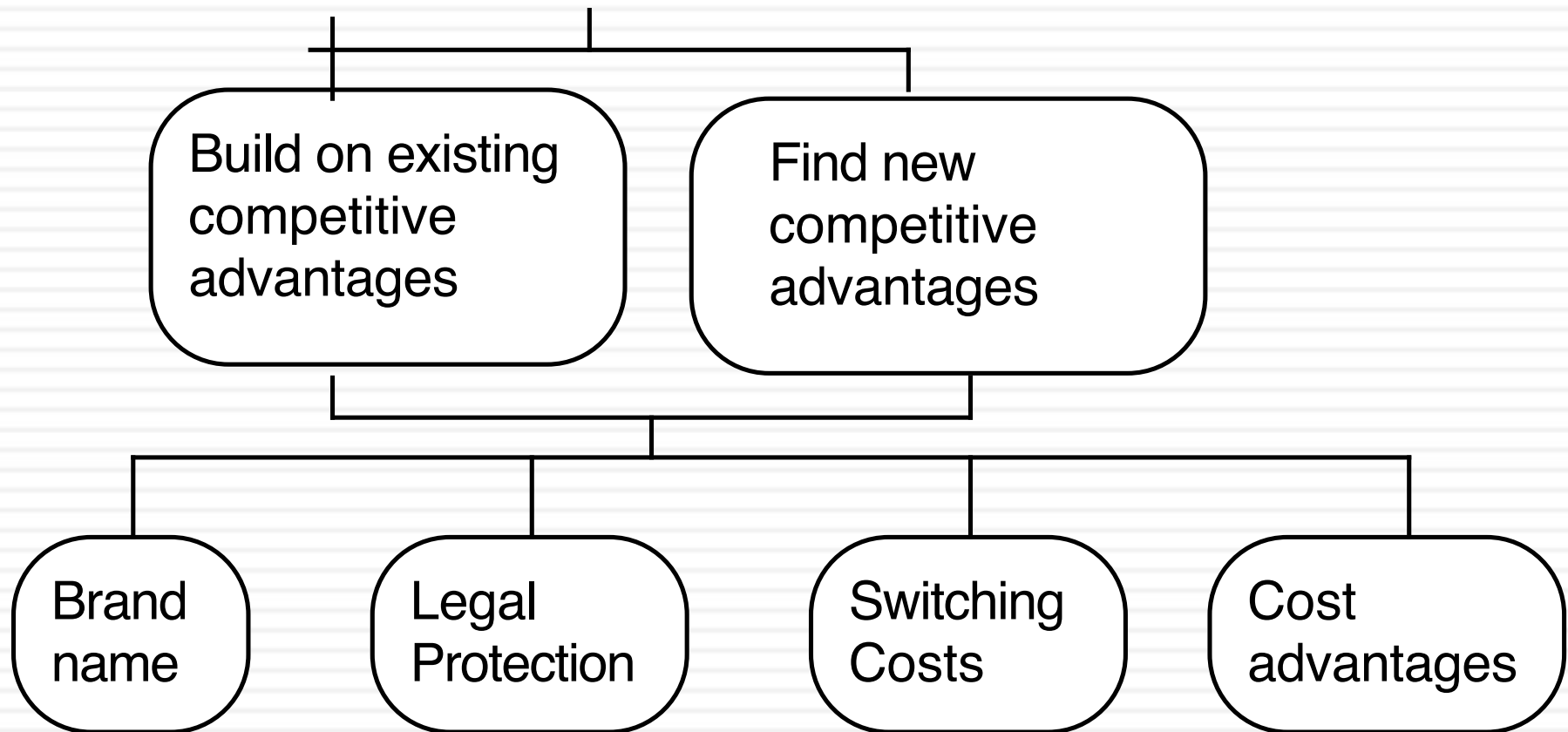
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### III. Building Competitive Advantages: Increase length of the growth period

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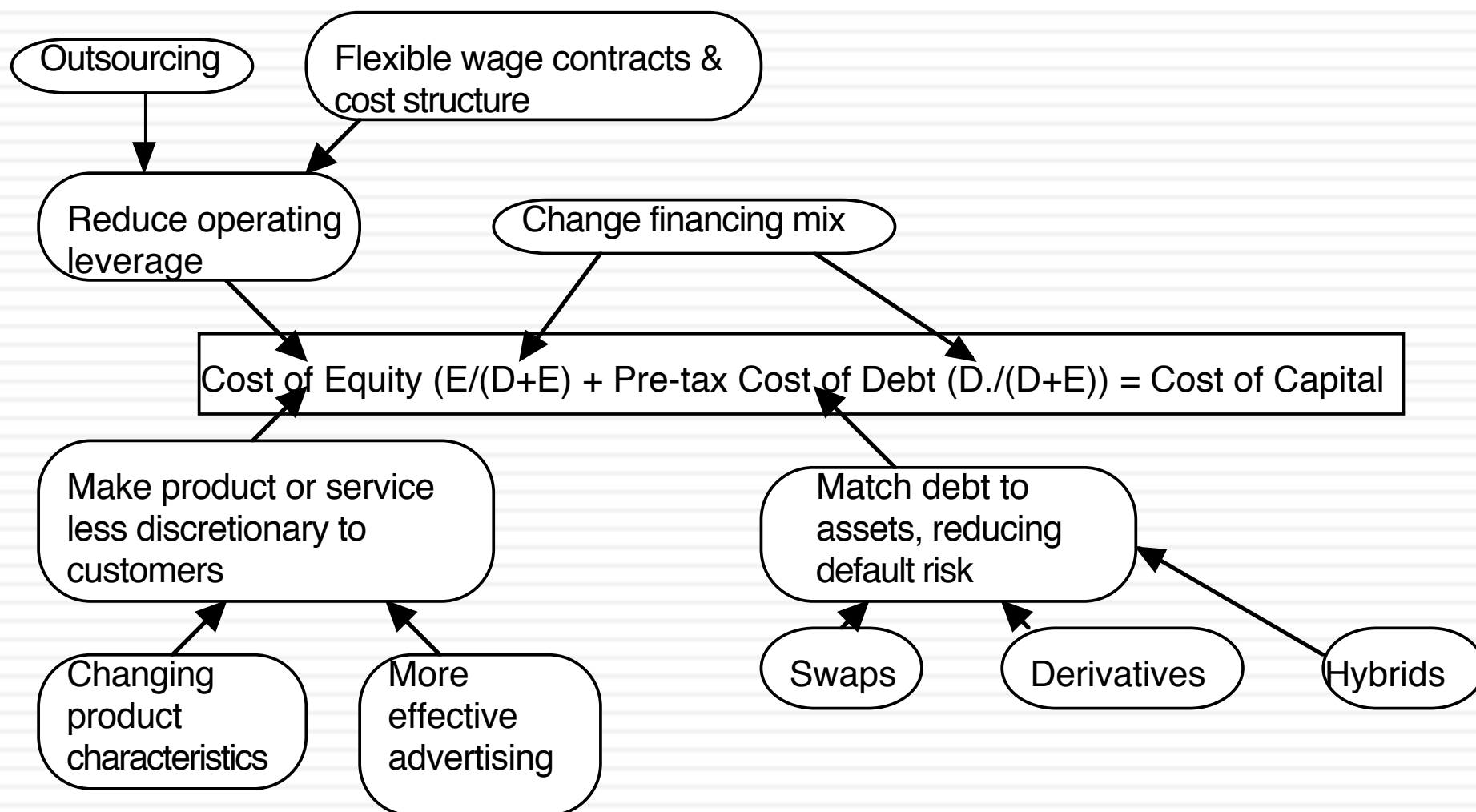
*Increase length of growth period*





# Value Creation 4: Reduce Cost of Capital

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# SAP: Status Quo

Avg Reinvestment rate = 36.94%

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  
57.42%

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

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%

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

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

Cost of Equity  
8.77%

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

Weights  
E = 98.6% D = 1.4%

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%

# SAP : Optimal Capital Structure

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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)  
 $.70 \times .1993 = .1144$   
**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	1	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	6402
EBIT(1-t)	1,614	1,839	2,097	2,390	2,724	3,047	3,345	3,600	3,799	3,929	4161
- Reinvest	1,130	1,288	1,468	1,673	1,907	2,011	2,074	2,089	2,052	1,965	2263
= FCFF	484	552	629	717	817	1,036	1,271	1,512	1,747	1,963	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

Return on Capital  
4.06%

## 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)  
 $.2645 \times .0406 = .0107$   
1.07%

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> =  $104 / (.0676 - .03) = 2714$

	1	2	3	4	5	Term Yr
EBIT (1-t)	\$165	\$167	\$169	\$173	\$178	184
- Reinvestment	\$44	\$44	\$51	\$64	\$79	82
FCFF	\$121	\$123	\$118	\$109	\$99	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%

Riskfree Rate:  
Riskfree rate = 4.10%

+

Beta  
1.10

x

Risk Premium  
4%

Unlevered Beta for  
Sectors: 0.80

Firm's D/E  
Ratio: 21.35%

Mature risk  
premium  
4%

Country  
Equity Prem  
0%

# Blockbuster: Restructured

Return on Capital  
6.20%

## 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)  
 $.1732 \times .0620 = .0107$   
1.07%

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> =  $156 / (.0676 - .03) = 4145$

	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%

Riskfree Rate:  
Riskfree rate = 4.10%

+

Beta  
1.10

x

Risk Premium  
4%

Unlevered Beta for  
Sectors: 0.80

Firm's D/E  
Ratio: 21.35%

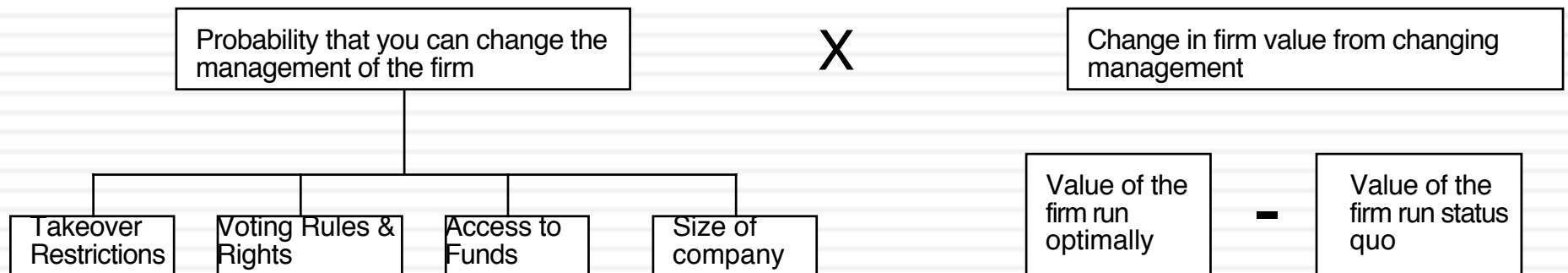
Mature risk  
premium  
4%

Country  
Equity Prem  
0%

# The Expected Value of Control

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## The Value of Control



## 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, since 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.
  - ▣  $\text{Market value} = \text{Status quo value} + (\text{Optimal value} - \text{Status quo value}) * \text{Probability of management changing}$
- 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?

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

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- 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 + 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

# Value of stock in a publicly traded firm

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- When a firm is badly managed, the market still assesses the probability that it will be run better in the future and attaches a value of control to the stock price today:

$$\text{Value per share} = \frac{\text{Status Quo Value} + \text{Probability of control change (Optimal - Status Quo Value)}}{\text{Number of shares outstanding}}$$

- With voting shares and non-voting shares, a disproportionate share of the value of control will go to the voting shares. In the extreme scenario where non-voting shares are completely unprotected:

$$\text{Value per non - voting share} = \frac{\text{Status Quo Value}}{\# \text{ Voting Shares} + \# \text{ Non - voting shares}}$$

$$\text{Value per voting share} = \text{Value of non - voting share} + \frac{\text{Probability of control change (Optimal - Status Quo Value)}}{\# \text{ Voting Shares}}$$

### 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.

## 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.