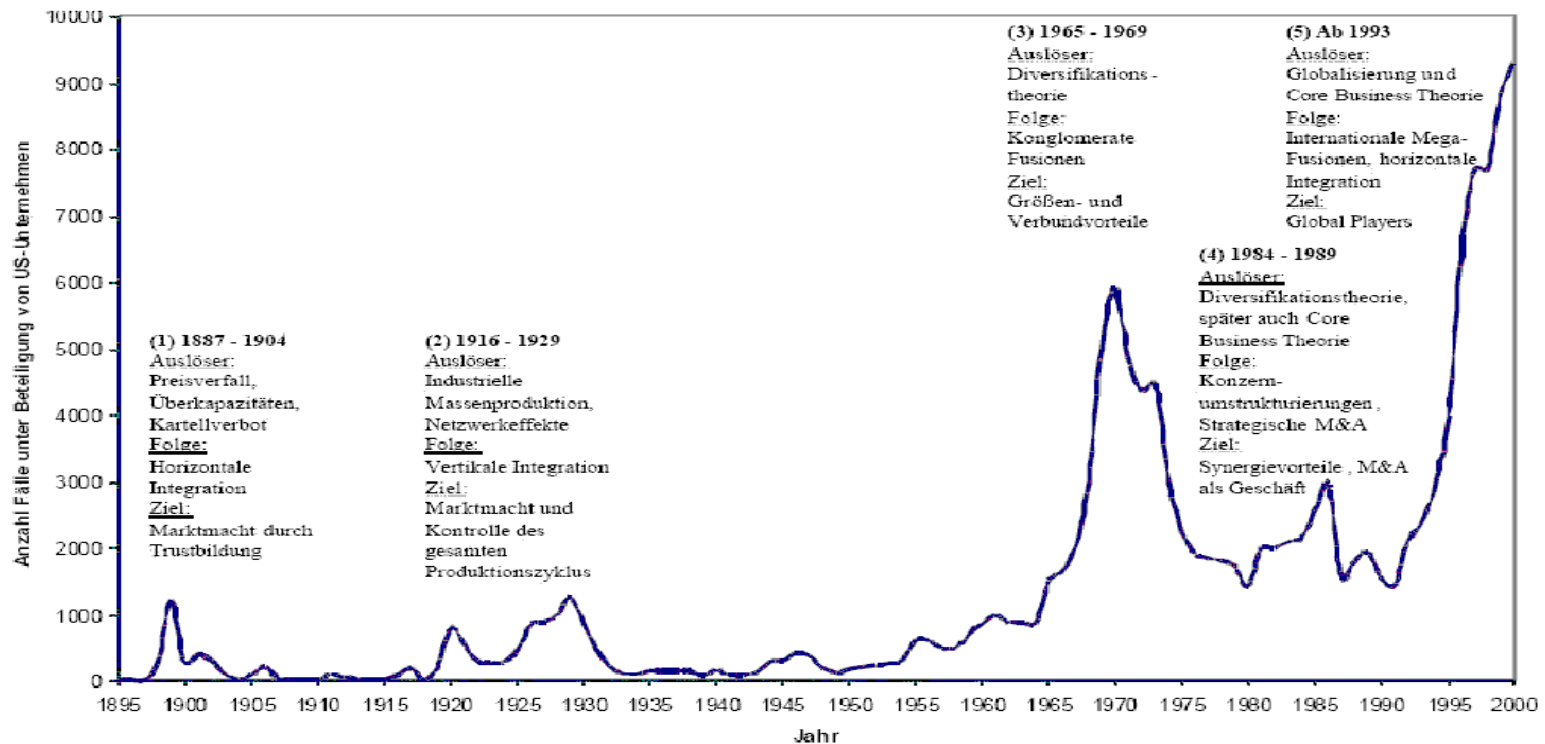

Topics in Corporate Finance

Chapter 9: Mergers and Acquisitions

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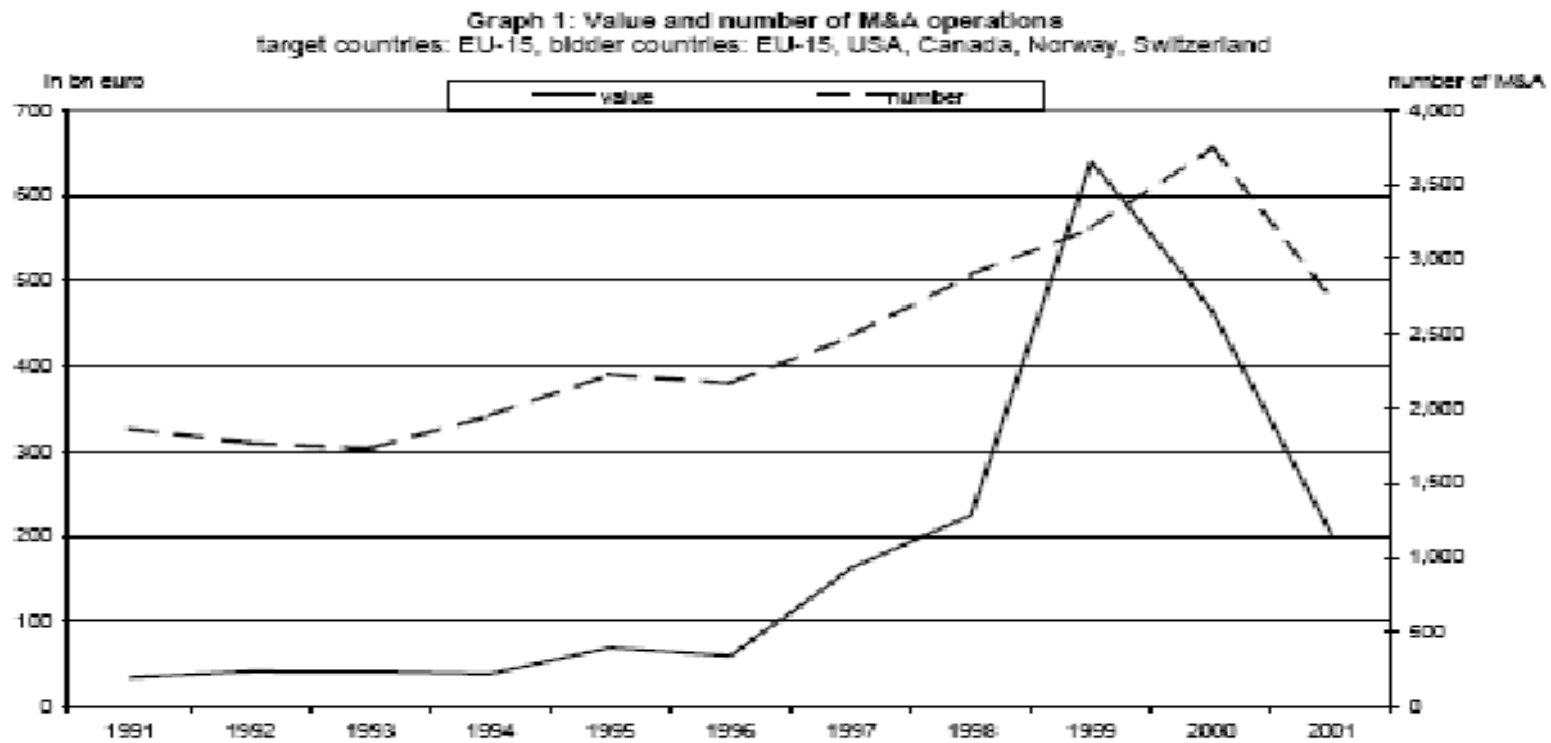
Merger activity in the US during the past century

The Five Merger Waves

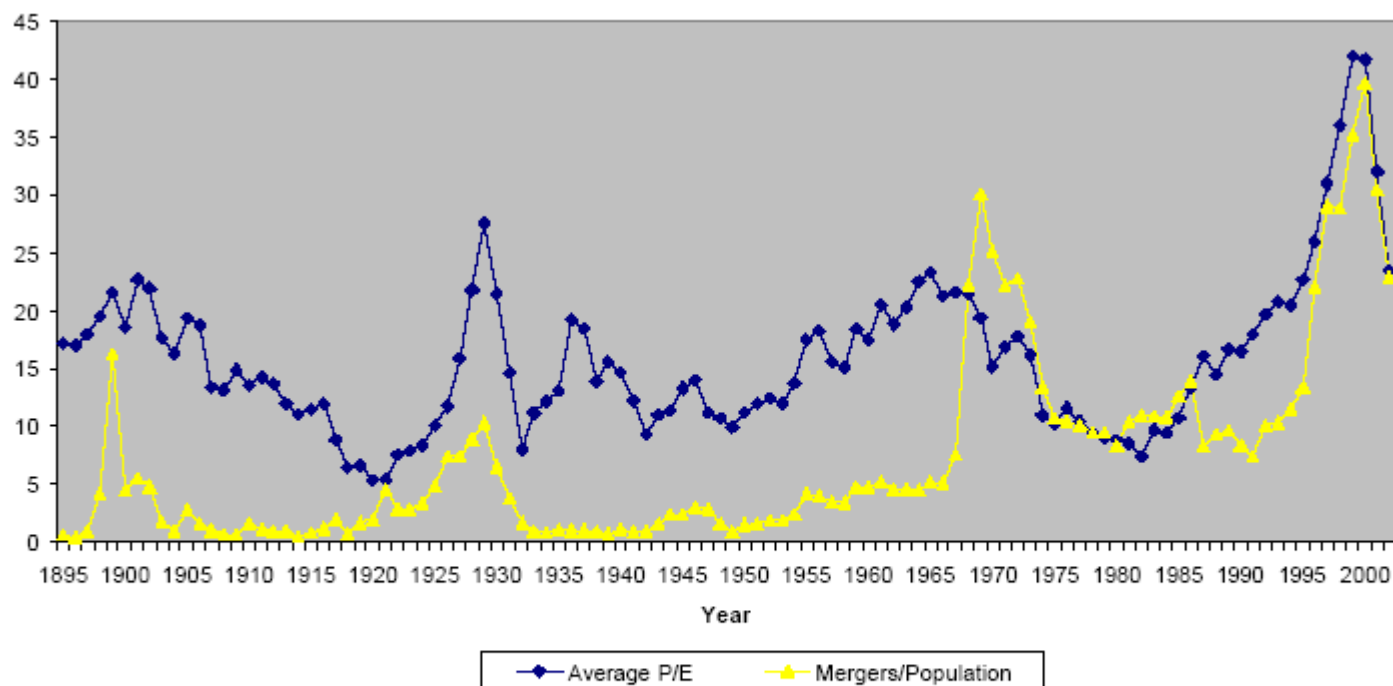


Source: FAZ / Müller-Stewens / Jansen

Mergers in Europe



Mergers come in waves and are pro-cyclical



Sources: Mergers: 1895-1920 from Nelson (1959); 1921-67 from FTC; 1968-2002 from M&A. *P/E* ratios: Homepage of Robert Shiller: <http://aida.econ.yale.edu/~shiller/data.htm>; for 2002 we use the average *P/E* ratio until July; mergers: number of mergers in the first 8 months multiplied by 1.5 Population: Statistical Abstract of United States (several years).

This chapter's Plan

- Evidence of merger activity
- Definitions and classifications
- Gains and losses from merging
- Empirical evidence
- Valuing (and financing) a takeover
- Bidding and defense takeover strategies

Definitions

- Merger: “A merger is a transaction in which assets of two or more firms are combined in a new firm”
- Acquisition: “Purchase of one firm (“target”) by another firm (“acquirer”)”
 - Friendly: made directly to the management
 - Hostile: making a tender offer to the shareholders
- Tender offer: “Offer to purchase a certain number of shares at a certain price and date”
- (Leveraged) buyout: “Individual or group arranges to buy the company (often with debt) and take it private”

Types of Mergers

- Vertical merger
 - Combination of firms at different stages of production
- Horizontal merger
 - Combinations of two firms in the same line of business
- Conglomerate merger
 - Firms in unrelated markets combine

Financial classification of M&A

- **Strategic acquisitions:**
 - Generate operating synergies (reduce competition, attain economies of scale or scope, R&D synergies...)
 - Most of them horizontal
- **Financial acquisitions:**
 - Bidder thinks that target is undervalued (due to different information or because of bad management)
 - Leveraged buyouts (e.g. RJR Nabisco)
- **Conglomerate acquisitions:**
 - Motivated by financial synergies (taxes, diversification...)
 - Example: ITT (communications, cars, TVs, hotels,...)

Takeover Gains (1)

- Tax gains:
 - Increase leverage
 - Tax shields from losses in one of the firms
- Operating synergies:
 - Improve productivity or cut costs, e.g. in R&D or advertising (economies of scale)
 - Eliminate coordination and bargaining issues in case of a vertical merger
 - Reduce competition in horizontal mergers
 - Combination of distribution networks
 - Diversification? (e.g. tobacco buying food companies)

Takeover Gains (2)

- Management incentives and takeovers:
 - If managers' interests deviate from shareholders' takeovers can correct that
 - Example: Gulf in the 1980s was taken over by Chevron. Stock was trading at low values because of investment in negative NPV (oil exploration)
 - Sometimes replacing caring by ruthless managers (gains at a cost for employees)
 - Usually hostile leading to break-ups and sometimes using large amount of debt (leverage buyout)
 - Not necessary to involve two firms nor even a change in management (management leverage buyout)

Takeover Gains (3)

- Financial synergies:
 - Diversification is not generally a good reason because it is cheaper for shareholders to diversify themselves (CAPM and APT)
 - However, merging two companies can bypass paying personal taxes before reinvesting
 - In addition, problem of information may impede transfers

Takeover Gains (Summary)

- Do the benefits offset the costs?
- Can the benefits be obtained otherwise?
 - Tax gains
 - Joint marketing agreement to use distribution networks of each other
 - However, an explicit contract may be too complicated or costly to write

Costs of Merging

- Hierarchical structure of organisation (Meyer et al., 1992)
- Divisional rent seeking (Sharfstein and Stein, 2000)
- Coordination problems in large organisations (Van Huyck et al., 1990)
- Cost of integrating two companies with different production processes, accounting methods or corporate cultures
- Misallocation of capital can also occur, decreasing value
- Mergers reduce information content of stock markets

Empirical Evidence: Methods

1. Analysis of the stock returns around the time of the tender or merger offer
2. Are diversified firms more valuable than non-diversified firms?
3. Did profits (of the target) increase after merging?

Event Studies

- Target shareholders are offered a premium and therefore gain from a takeover (10-50%)
- Bidder shareholders tend to be negative (bad mergers or too high premium)
 - Market reaction can contain other (primarily positive) information about bidder
 - Bidders buying in cash instead of own shares experienced higher returns (again cash good and shares bad signals)
 - Bids can also provide (primarily positive) information about the target (targets on failed mergers trade at a premium)

Diversification Studies

- Diversification increased from 60s and peaked in the late 70s
- Empirically, diversification lowers value
- However, this significantly depends on the period in time (Morck et al. 90) :
 - Diversifying acquisitions had lower returns in the 80's (-) than in the 70s
 - Non-diversifying acquisitions had higher returns in the 80's (7%) than in the 70s (1%)

Accounting Studies

- Compare profits of merged firms (or business units) with respect to a control group
- On average profits of the acquired units till 1975 declined (Ravenscraft and Scherer 87)
- Problems:
 - Accounting data
 - Total value of the firm may be higher still
 - Targets may already be firms with poor prospects (low Tobin's q)
- Studies on recent merger performance tend to offer more positive numbers (Andrade et al. 2001)

Why failures?

1. **Bad luck**
 - When realization lower than expectations
→ Failure because of bad luck

2. **Empire Building**
 - Managers maximise own utility, not shareholders'
 - This utility is typically linked with growth and size of assets
 - Gugler et al. (2003): Around 15% of all mergers and 35% of all failures

3. **Hubris and bounded rationality**
 - Being over-optimistic about efficiency gains (Booz-Allen & Hamilton, 1999).
 - Not foreseeing cultural conflict and post-merger problems (Weber and Cameron, 2003).
 - Interaction of synergies and agency conflicts can lead to coordination problems (Fulghieri and Hodrick, 2003)
→ Managers foresee “good equilibrium”, but end up in “bad equilibrium”.
 - Gugler et al. (2003): Around 28% of all mergers and 65% of all failures

Empirical Evidence: LBOs

- Buy a public company using a lot of debt and transformed it into a private company
- Common in the 70's and 80's
- High increase in stock price suggesting increased management incentives
 - High premia for low growth-high cash (suggesting reduction of tendency to overinvest)
 - Higher cash flows and productivity levels despite some defaults

Financing Acquisitions

- Acquisitions may be paid in...
 - Cash (probably borrowing or issuing debt)
 - Own shares (very common in the 90s)
 - A combination of the two
- Need to take into account...
 - Taxes and accounting issues
 - Their current debt ratios
 - Private information about over/undervaluation of the bidder and target (see later!)

Bidding Strategies in (Hostile) Takeovers

- Sometimes firms bid for part of the firm
 - Not necessary to buy all firm to introduce changes
 - Need to pay high prices to some investors
- In theory, there is also a free-rider problem (Grossman and Hart 80):
 - Outside bidder can improve share price from \$20 to \$30
 - Makes a conditional tender offer for 51% of shares at \$25
 - Would you tender? Would it be successful? Is it efficient?
 - What does the bidder needs to offer? Would it offer that?

Solutions to the Problem (1)

- Buy secretly from the open market:
 - Legal maximum 5%
 - Profit from the increase in price on those shares
- Presence of another large shareholder:
 - If one affects the probability of success, it might be optimal to tender at a lower price
 - Example: if tendering (success for sure) and not tendering (only 50%), accept tender if price > 25
 - Large shareholders may appear during the offer (“risk arbitrageurs”)

Solutions to the Problem (2)

- If bidder benefits more from the shares than the market, then she may pay full price
- Two-tiered offers:
 - Minority shareholders may be forced to sell shares
 - Tender offer accompanied with a price that will be paid to the remaining shares (if successful)
 - Generally lower value than the tendering price and therefore shareholders could be forced to sell
 - Nowadays, regulations in place

Management Defenses

- **Paying greenmail:**
 - Buying back bidder's stock at a premium conditional on suspending bid
- **Supermajority rules:**
 - Firms may have rules saying that more than 50% of shares are necessary to gain control
- **Poison pills:**
 - Provide rights to not-tendering shareholders
 - e.g. right to buy firm's stock at discount if there is a merger
- **Lobbying for anti-takeover legislation:**
 - e.g. prevention of voting all of your shares (max 20%)
 - or allowing directors to consider rights of employees,...
- **Are these defenses good for shareholders?**

Valuing Acquisitions

- Mergers affect significantly operating strategy and financial structure
- Selection of targets important task
- Target firm needs to provide higher value than its current stock market price (synergies)

Valuing Acquisitions

- Manager of Firm A studying the possibility of buying Firm B

- Are there gains?

$$\text{Gain} = PV_{AB} - (PV_A + PV_B) = \Delta PV_{AB}$$

- What are the costs?

$$\text{Cost} = \text{Cash paid} - PV_B$$

- Go ahead when...

$$\text{NPV} = \text{Gain} - \text{Cost} = \Delta PV_{AB} - (\text{Cash paid} - PV_B) > 0$$

Example

- Firm A has \$200m value and B has \$50m and if they merge, they realise \$20m in cost savings

$$PV_A = \$200m \quad PV_B = \$50m$$

$$\text{Gain} = \Delta PV_{AB} = \$25m$$

$$PV_{AB} = \$275m$$

- Suppose that B can be bought for \$65m

$$\text{Cost} = \text{Cash paid} - PV_B = 65 - 50 = \$15m$$

Gain of B shareholders = Cost of acquisition

- NPV to A's shareholders:

$$NPV = 25 - 15 = \$10m$$

(overall gain minus gain from B shareholders)

Example (Continued)

- In other words, their gain can be written as:

$$\begin{aligned} \text{NPV} &= \text{wealth with merger} - \text{wealth without} \\ &= (PV_{AB} - \text{cash}) - PV_A = 275 - 65 - 200 = + \$10\text{m} \end{aligned}$$

- If the companies are publicly traded, what happens to the stock of the two companies on the announcement day?
- How would you interpret the fact that acquirer stock falls on the announcement day?

What if the merger is anticipated?

- Cost of the merger is the premium wrt seller's stand-alone value
- How can that value be determined?
 - For public company, compute market value!
- What if the merger is anticipated?
 - Market value may be higher than the “intrinsic” value because investors expect somebody to acquire the firm
 - Market price = Intrinsic price + Prob (takeover) * E(premium)
 - Intrinsic value may be lower and therefore the costs of merging may be higher!
 - Merger may not be profitable after all!

Example (Continued)

- Suppose that, before the merger,

	Firm A	Firm B
Market price per share	\$200	\$100
Number of shares	1,000,000	500,000
Market value of the firm	\$200m	\$50m

- If price only reflects value as separate entity:
$$\text{Cost} = \text{Cash paid} - PV_B = 65 - 50 = \$15\text{m}$$
- If price has gone up because of takeover rumors by \$12, the intrinsic value is overstated by \$6m:
$$\text{Cost} = \text{Cash paid} - PV_B = 65 - 44 = \$21\text{m}$$

What if it is Financed with Stock?

- Cost depends on the value of shares in the new company received by target shareholders (N):

$$\text{Cost} = N \times P_{AB} - PV_B$$

(price after the announcement!)

- Example: if A offers 325,000 shares (0.325m)

- Is the cost \$15m? i.e.

$$\text{Cost} = 0.325 \times 200 - 50 = \$15\text{m (No!! Share price will go up!)}$$

- Total value: \$275m. Shares out: 1.325m. $P_{AB} = 275/1.325 = \$207.55$ and...

$$\text{Cost} = 0.325 \times 207.55 - 50 = \$17.45\text{m}$$

- Indeed, gains for B's shareholders (holding fraction x of AB):

$$xPV_{AB} - PV_B = .325/1.325 \times 275 - 50 = \$17.45\text{m} = \text{Costs}$$

Cash or Stock?

- First, costs of merging...
 - Do not depend on the gains if only cash is paid
 - Do depend on the gains if stock is paid
- Second, stock financing mitigates overvaluation or undervaluation problems:
 - If, for example, Firm A overvalues B it might offer a too generous risk premium
 - If the offer is in stock, the burden is shared between shareholders of A and B because lower P_{AB}

Further: Asymmetric Information

- A's managers have more information about firm's value than market
- Example: if they think that AB shares..
 - Will be really worth \$215 (\$7.45 higher) and the stock is financed with stock:
$$\text{Cost} = 0.325 \times 214 - 50 = \$19.88\text{m}$$
 - Therefore they will tend to finance it in cash
- A's managers prefer cash when market overvalues A and stock when market undervalues!
- Acquirer shares fall on stock-financed announcements (and by much more than cash-financed) (Andrade et al 2001)

Mechanics of a Merger

- Mergers and antitrust law:
 - All mergers should be reported
 - Antitrust authorities can forbid mergers if deemed anticompetitive
- Merging in practice:
 - Merge: one company assumes all assets and liabilities of the other (need 50% approval)
 - Buy stock for cash or shares (no need to deal with target's management)
 - Buy some or all the other firm's assets (payment to the firm!)

Corporate Restructuring

- We have seen...
 - Mergers
 - Leveraged buyouts
- But there are many other mechanisms for changing ownership and control:
 - Spin-offs
 - Carve-outs
 - Privatisations
 - Workouts
 - Bankruptcy

Corporate Restructuring

- ***Spin off*** -- debut independent company created by detaching part of a parent company's assets and operations.
- ***Carve-outs***-- similar to spin offs, except that shares in the new company are not given to existing shareholders but sold in a public offering.
- ***Privatisation*** -- the sale of a government-owned company to private investors.

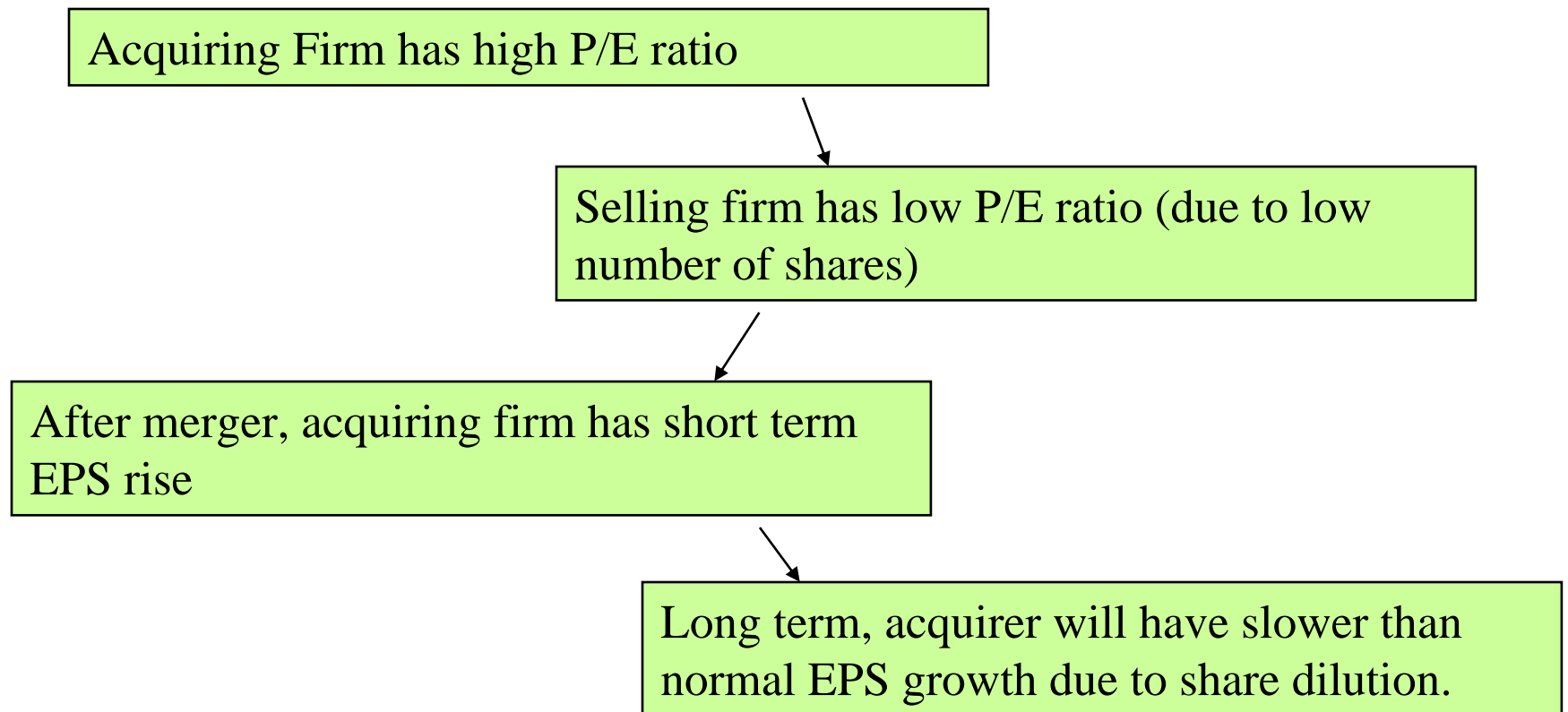
Privatization

■ Motives for *Privatization*

1. Increased efficiency
2. Share ownership
3. Revenue for the government

Dubious Reasons for Mergers

The Bootstrap Game



Dubious Reasons for Mergers

The Bootstrap Game

	World Enterprises (before merger)		Muck and Slurry	World Enterprises (after buying Muck and Slurry)		
EPS	\$	2.00	\$	2.00	\$	2.67
Price per share	\$	40.00	\$	20.00	\$	40.00
P/E Ratio		20		10		15
Number of shares		100,000		100,000		150,000
Total earnings	\$	200,000	\$	200,000	\$	400,000
Total market value	\$	4,000,000	\$	2,000,000	\$	6,000,000
Current earnings per dollar invested in stock	\$	0.05	\$	0.10	\$	0.067

Dubious Reasons for Mergers

Earnings per
dollar invested
(log scale)

