

# Chapter 6: Takeovers

## Corporate Finance - MSc in Finance (BGSE)

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# Takeovers

- Definitions and stylised facts
- The gains and the costs of the takeovers
- Empirical evidence
- The theoretical discussion

## Definitions

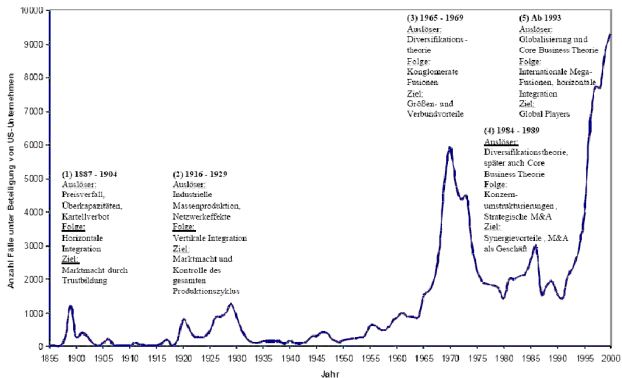
- Takeover: Transaction that transfers ownership from a group of individuals or firms to another, generally with the objective of introducing major changes in management and operations
- Bidder (acquiring individual or firm). Target (firm to be acquired)
- Bidder might offer cash, equity or other securities to the shareholders of the target in exchange for their shares (or for a part of the assets)
- Classification of takeovers:
  - Friendly vs. hostile (with/without target management approval). For hostile...
    - Buy shares in market and/or public tender offers for shares
    - Proxy contest (solicited by insurgent investors to replace management)
  - Merger vs. acquisitions
  - Going private transactions (shares purchased and delisted)

## Tender offers

- Purchase shares directly from shareholders, overcoming management opposition
- Types of tender offers
  - Conditional: not binding unless minimum number of shares tendered
  - Restricted: bidder not obliged to buy more than a pre-specified number
  - “any-or-all” offer: unconditional and unrestricted offer

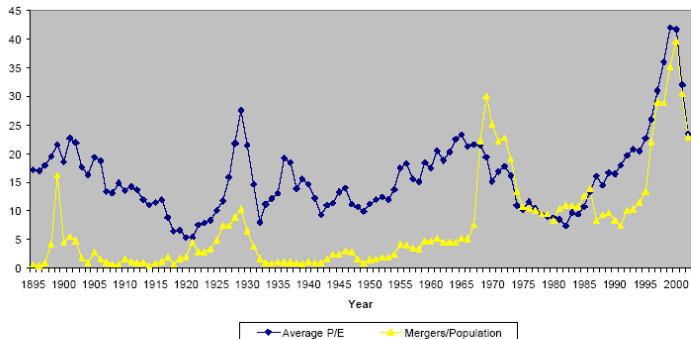
# Activity in the last century

## The Five Merger Waves



Source: FAZ / Müller-Stewens / Jansen

## Pro-cyclicality



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).

# Motives for takeovers: Tax gains and operating synergies

- 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
  - Eliminate coordination and bargaining issues in case of a vertical merger
  - Increase in market power (vs. suppliers, customers,...)
  - Increase in bargaining power (vs. workers,...)
  - Diversification? (good for investors?)

## Motives for takeovers: managerial gains

- Removing inefficiencies due to
  - Unable or too conservative management
  - Excessive private benefit taking
- Example:
  - Gulf in the 1980s was taken over by Chevron
  - Stock was trading at low values because of investment in negative NPV (oil exploration)
- Replace caring by ruthless managers (gains at a cost for employees)
- Usually hostile leading to break-ups and sometimes using large amount of debt (leveraged buyout)
- Not necessary to involve two firms nor even a change in management (management leveraged buyout)



## Motives for not taking over: the costs

- 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

## Why failures?

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

# Empirical evidence: the methods

- 1 Analysis of stock returns around the time of 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

Hirshleifer, 1995

- Target shareholders...
  - earn positive abnormal returns at announcement
  - receive large premia for their shares in successful takeovers
- Bidding shareholders earn zero or negative on average (bad mergers or too high premium)
- Joint (target and bidder) market value increases
- Uncertainty of success of tender offers is high. Success...
  - increases with bid premium
  - increases with bidder's initial shareholding (toehold)
- Multiple bidder contest produce higher abnormal returns
- Negative reaction to defense tactics (greenmail, poison pills,...)

## Caution with the event studies

- Market reaction can contain other (primarily positive) information about bidder and target
  - Bidders buying in cash instead of own shares experienced higher returns (again cash good and shares bad signals)
  - 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 depends on the period in time (Morck et al. 90) :
  - Diversifying acquisitions: lower returns in the 80's (-) than in the 70s
  - Non-diversifying acquisitions: higher returns in the 80's (7%) than in the 70s (1%)

## Accounting studies

- Compare profits of merged firms with a control group
- On average profits of the acquired units decline (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  $q$ )
- Recent studies more positive (Andrade et al. 2001)

## Bidding strategies in hostile takeovers

- 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 need to offer? Would it offer that?



# Can value improving takeovers occur and succeed?

- Single-bidder tender offers
  - Atomistic shareholders create free-rider problem
  - Solutions:
    - Dilution (Grossman and Hart, 1980)
    - Toeholds (Shleifer and Vishny, 1986)
    - Pivotal shareholders (Bagnoli and Lipman, 1988)
- Multiple bidder contests
  - Insufficient competition reduces target shareholder gains
  - Excessive competition decreases incentives to take over:
    - English auction models
    - Costly investigation (Fihman, 1988)

# The free-rider problem

Grossman and Hart, 1980

- Value of the target  $v$ :
  - If incumbent manager keeps control: (normalised to) 0
  - If potential risk-neutral bidder gets control: (improvement of)  $\theta > 0$
- Bidder...
  - Needs a fraction  $\eta > 0$  of the shares to get control (may be 0.51)
  - Owns a fraction  $\alpha \in [0, \eta)$  of the shares
  - Considers a conditional unrestricted offer at price (=premium)  $b$
  - Needs to pay  $c$  to bid (takeover efficient iff  $\theta > c$ )

- Risk neutral shareholder  $i$  accepts iff

$$b \geq E[v \mid i \text{ retains}]$$

- The right-hand side depends on...
  - Probability of being pivotal
  - Whether shareholders know  $\theta$
  - Discrimination against (*dilution*) of non-tendering shareholders

## The non-pivotal shareholder model

- Assume:
  - No shareholder is pivotal; shareholders know  $\theta$ ; dilution rate  $\delta \in [0, 1]$
- A shareholder should tender iff

$$b \geq (1 - \delta)\theta$$

- Bidder would offer  $b = (1 - \delta)\theta$  with (unrestricted offer) profits

$$(1 - \alpha)(\theta - b) + \alpha\theta - c = (1 - \alpha)\theta\delta + \alpha\theta - c$$

and therefore the offer will be made as long as this is positive or iff

$$\theta > \frac{c}{(1 - \alpha)\delta + \alpha} \equiv \hat{\theta}$$

- Notice that
  - $\hat{\theta}$  is decreasing in  $\alpha$ , decreasing in  $\delta$ , increasing in  $c$
  - $\hat{\theta}$  is infinite if  $\delta = 0$  and  $\alpha = 0$
  - $\hat{\theta} > c$  : activity is suboptimal (bidder pay costs, target benefits)

# Dilution

- Where does it come from?
  - Salaries or shares granted to new management
  - Sale of target assets or output at below market prices to a firm owned by bidder
  - Two-tiered offers:
    - Minority (non-tendering) shareholders forced to sell (if offer successful)
    - Accompany offer with price that will be paid to the remaining shares
    - Lower value than the tendering price: shareholders tender!

# Asymmetric information case

Shleifer and Vishny, 1986

- Bidder knows  $\theta$  but nobody else does
- Shleifer and Vishny show that there is an equilibrium where...
  - all bidders make same bid  $b$
  - bidders with  $\theta > \theta^*$  make bid and those with  $\theta < \theta^*$  do not
  - $\theta$  affects decision on making an offer but not the bid price
- In complete info, if  $\delta = 0$ , bidders don't profit from tendered shares
- Here, bidders...
  - on average do not profit on tendered shares
  - with good improvements ( $\theta > b$ ) profit
  - with not so good improvements ( $b > \theta > \theta^*$ ) lose on tendered shares (they make offer because they gain more from improvements in  $\alpha$ )

# The pivotal shareholder model

Bagnoli and Lipman, 1988

- Non-pivotal shareholder assumption not very reasonable
  - If number of shareholders is finite (even if large) some may be pivotal
  - $E[v \mid i \text{ retains}]$  might really depend on  $i$ 's decision
  - Then, dilution or initial shareholding not necessary for success
- Denote:
  - $I$  number of target shareholders,  $i = 1, \dots, I$
  - $N$  number of target shares
  - $n_i$  number of shares of shareholder  $i$
  - $K$  number of shares needed for control  $K < N$
- Assume the following timeline:
  - (1) bidder decides if to make (unconditional) bid offer at a given  $b$
  - (2) if she bids, each  $i$  chooses number of tendered shares ( $0 \leq s_i \leq n_i$ )

# An equilibrium

- Suppose the following “strategy”:
  - Bidder bids  $b \in (0, \theta - c/K)$
  - Target shareholders tender  $(s_1, \dots, s_I)$  such that  $s_1 + s_2 + \dots + s_I = K$
  - Offer succeeds!  $E[v \mid i \text{ tenders } s_i] = \theta$
- Would anyone have an incentive to change her own strategy?
  - Take any shareholder  $i$  If she reduces tendered shares to  $s'_i < s_i$  then
    - Offer fails.  $E[v \mid i \text{ tenders } s'_i] = 0$ . Lose  $\theta$  on retained/ $b$  on tendered
  - If she increases her tendered shares to  $s'_i > s_i$  then
    - Offer succeeds.  $E[v \mid i \text{ tenders } s'_i] = \theta$ . Lose  $\theta - b$  on sold shares
  - Bidder happy to make the bid, given that  $c < (\theta - b) K$

# Remarks

- We have...
  - Multiple equilibria: many combinations might add up to  $K$
  - All shareholders  $i$  such that  $s_i > 0$  are “pivotal”
  - Pivotality requires a lot of coordination
  - Reasonable only for firms with large shareholders
- A strategy  $(s_1, \dots, s_I)$  s.t.  $s_1 + s_2 + \dots + s_I \neq K$  not equilibrium:
  - If  $< K$ , then any shareholder with  $s_i < n_i$  would prefer higher  $s_i$
  - If  $> K$ , then any shareholder with  $s_i > 0$  would prefer lower  $s_i$



# Competitive bidding (1)

- Many takeovers involve multiple bidders
- Studies typically assume that target will accept highest offer
- Competition has consequences on
  - Efficiency: will the bidder with the largest improvement win?
  - Profits: will the target shareholders benefit?
- The “ratchet” solution of a standard English auction
  - Bidders costlessly make offers and counteroffers
  - Each bid is incrementally higher than previous up to a point
  - Bidder with highest valuation wins; price = valuation of 2nd highest

## Competitive bidding (2)

- Example: Two bidders  $j = 1, 2$ 
  - Valuations:  $\theta_1 = 80$ ,  $\theta_2$  can be 0, 30 or 100
  - Results:
    - $j = 1$  wins, buying at  $b = 0$  if  $\theta_2 = 0$
    - $j = 1$  wins, buying at  $b = 30$  if  $\theta_2 = 30$
    - $j = 2$  wins, buying at  $b = 80$  if  $\theta_2 = 100$
- Conventional English auction sensitive to small bidding costs
  - Assume small bidding costs and  $\theta_2 = 30$
  - 2 will quit in beginning and 1 will win buying it at 0
- In reality
  - Initial bids are made at a substantial premium
  - Successive bids involve significant increases
- Fishman (1988): premia might be used to deter competitors