



movement up dd lead to price increase, and down demand curve DD when price is reduced

Movement up DD leads to price rise, down dd when price is reduced

Price elasticity of DD is bigger than dd  
 --> if company a changes price and company b too --> than dd up = small quantity change, if company a increase price and company b not --> than DD up = large quantity change (less demand)

A game occurs when there are two or more interacting decision takers (players) and each decision or combination of decisions involves a particular outcome (pay-off)

|       |         | Dick                                   |  |
|-------|---------|--|--|
|       |         | Deny                                   | Confess                                |
| Harry | Deny    | (1)<br>Dick: 3 years<br>Harry: 3 years | (2)<br>Dick: 2 years<br>Harry: 8 years |
|       | Confess | (3)<br>Dick: 8 years<br>Harry: 2 years | (4)<br>Dick: 4 years<br>Harry: 4 years |

choose strategy with the least bad outcome      Maximin strategy

Choose the best possible outcome

minimizing the possible loss while maximizing the potential gain.

2 firms are not talking to each other      A non-cooperation equilibrium

solution concept of a game involving two or more players, in which **each player is assumed to know the equilibrium strategies of the other players**, and no player has anything to gain by changing only his or her own strategy unilaterally  $\rightarrow$  e.g. both produce the same quantity and therefore achieve the best price

Dominant strategy equilibrium

**Oligopoly**

Small number of suppliers and entry or exit of the market is restricted

Few suppliers and many buyers

Homogeneous or differentiated products

### Barriers for market entry

Mutual interdependence between firms in the industry

Enough power to be not a price taker, but market rule companies out with too high prices

strategy based on "reaction of rivals"

Oligopolist considers firms own costs and demand as well as competitive reactions

Product differentiation



### Physical differences



### Differences in consumer perception

Entry limit pricing

set price as low as possible so that possible entrant can't enter the market due to too high costs -->  $\text{cost}(\text{entrant}) > \text{cost}(\text{existing company})$

Entry deterrent strategy

### Price leadership

Dominant firm price leadership

where one company has a competitive advantage (cost, product etc)

### Barometric price leadership

company which measures demand etc. and sets price and others follow (not necessary a dominant firm)

|                            |                                      |
|----------------------------|--------------------------------------|
| Collusive price leadership | collusion of price between companies |
|----------------------------|--------------------------------------|

|                    |                                |
|--------------------|--------------------------------|
| Explicit collusion | cartel or restrictive practice |
|--------------------|--------------------------------|

**Tacit collusion** take actions that minimise competitive response (avoid price attack etc.)

## Strategies

Tit-for-tat  
(Wie du mir so ich dir)

cooperating/cheating if other company  
cooperated/cheated in previous period

Trigger strategy

if cooperation breaks down and cheating occurs --> company adopts its NASH equilibrium strategy permanently

|        |            | Firm B                     |                            |
|--------|------------|----------------------------|----------------------------|
|        |            | Cheat                      | Co-operate                 |
| Firm A | Cheat      | (1)<br>A = 0<br>B = 0      | (2)<br>A = 6.0<br>B = -2.0 |
|        | Co-operate | (3)<br>A = -2.0<br>B = 6.0 | (4)<br>A = 3.0<br>B = 3.0  |

|        |            | Firm B                          |                               |
|--------|------------|---------------------------------|-------------------------------|
|        |            | Cheat                           | Co-operate                    |
| Firm A | Cheat      | (1)<br>$A = -1.0$<br>$B = -1.0$ | (2)<br>$A = 3.0$<br>$B = 0$   |
|        | Co-operate | (3)<br>$A = 0$<br>$B = 3.0$     | (4)<br>$A = 4.0$<br>$B = 4.0$ |