Structural links

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The main idea

- Firms impose externalities on each other:
  - Negative: competitive pressure
  - Positive: market expansion, network externalities
  - Positive: investment spillovers
  - Positive: investments/efforts in vertical structure
- Structural links allow firms to internalize the externalities
- The question is how the externalities affect consumers

Passive vs. controlling stakes

- Passive stakes: firm A gets a share in B's profit and hence internalizes its own effect on B
- Controlling stake: firm A can influence B's strategy
- A passive stake affects only the acquirer's strategy, while a controlling stake also affects the target's strategy
- If the rights of B's minority shareholders are protected effectively, A cannot choose B's strategy so as to transfer profits from B to A
- If the rights of B's minority shareholders are not effectively protected, then A will transfer wealth from B to A (negative externality on the minority shareholders)

Investments by firms vs. investments by controllers

- If A buys a stake in B and B buys a stake in A then we get a multiplier effect
- If A's controller invests in B, then what counts is the controller's stake in B relative to his stake in A
- This is like maximizing

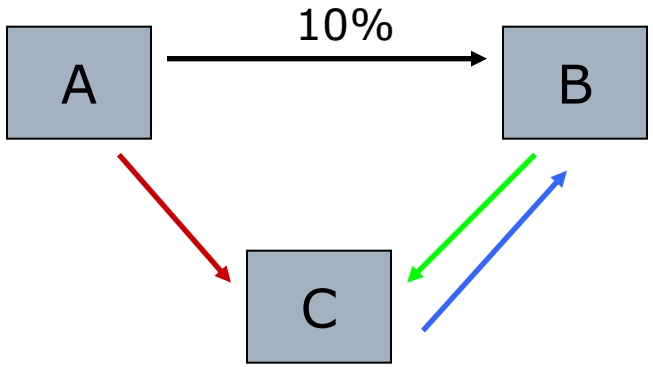
$$\alpha_A \pi_A + \alpha_B \pi_B$$

- If A's controller holds a stake in B and sells some of his stake in A, then the outcome is more collusive

$$\pi_A + \frac{\alpha_B}{\alpha_A} \pi_B$$

The multiplier effect

- Suppose that A buys a 10% stake in B
- If there are existing cross-holdings, the effective stake, α_{12}, may be more than 10%:



- Examples
  - If C has no stake in B (blue), then α_{12} = 10%
  - If C has a stake in B (blue) and either A or B have stake in C (red or green), we get multiplier effects
  - If blue and green are 30% and red is 10% in C, then α_{12} = 14.29%
  - If blue and green are 30% and red is 30% in C, then α_{12} = 20.88%

Horizontal links

Horizontal links

- Horizontal links allow firms to internalize the competitive pressure they impose on one another $\Rightarrow$ the acquirer becomes softer

- If the acquirer raises its price and consumers switch, the acquirer may still get a profit via its stake in the target
  - Unilateral effects
  - Coordinated effects

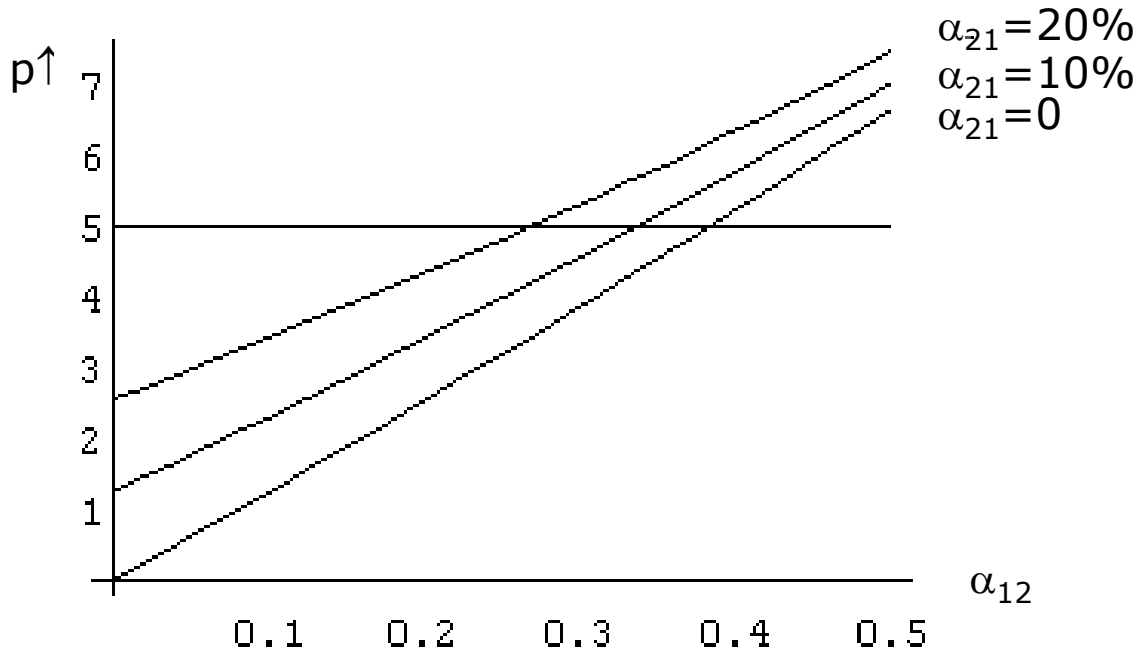
Unilateral effects - examples

- With cross investments, even passive stakes lead to a substantial price increases

- All examples involve linear demand and linear cost
  - Cournot competition: $p = 30-Q$, $c_i = 6q_i$
  - Price competition with differentiated goods: $q_i = 30-p_i-\sum_{j\neq i}p_j/2$, $c_i = 6q_i$

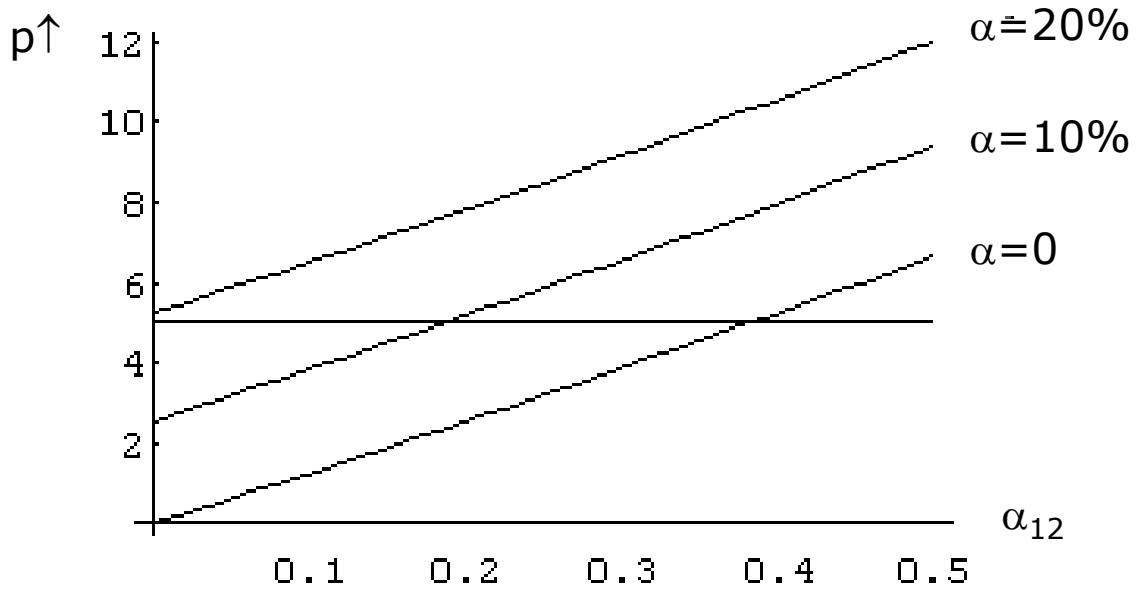
Example 1: Cournot with 3 firms

- Firm 1 acquires a stake α_{12} in 2; firm 2 holds a stake α_{21} in 1; firm 3 is not involved



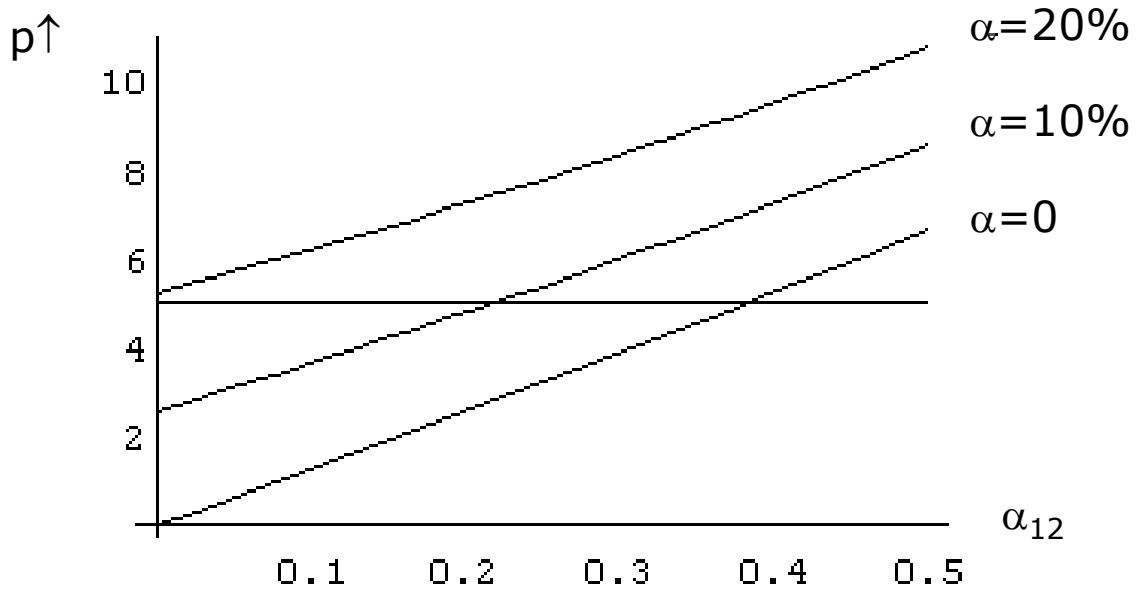
Example 2: Cournot with 3 firms

- Firm 1 acquires a stake α_{12} in firm 2; firm 2 holds a stake α in firm 3; firm 3 holds a stake α in firm 1



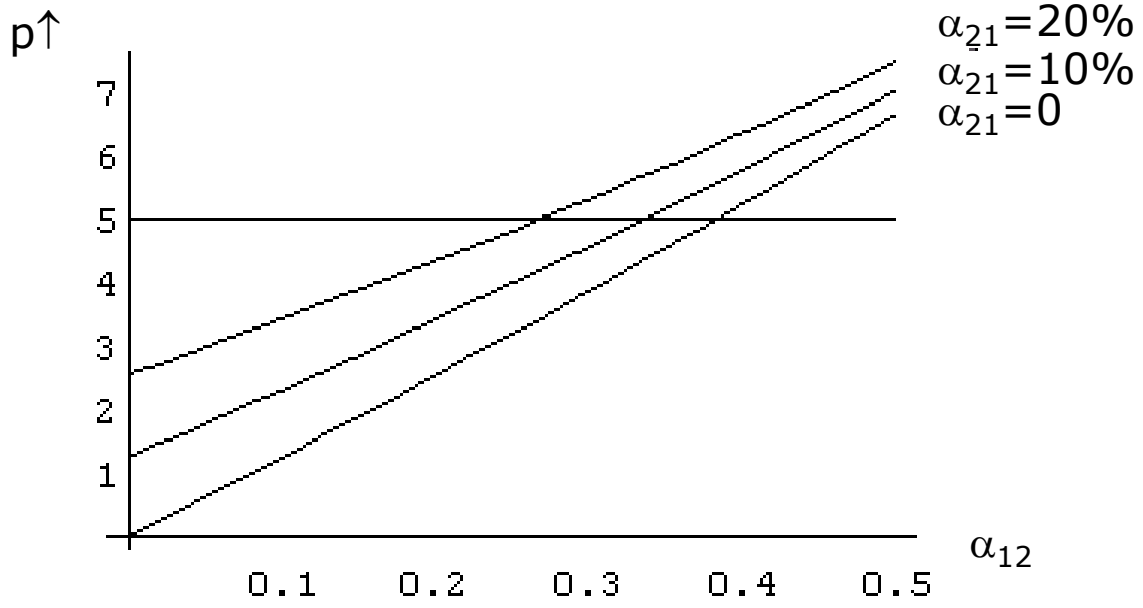
Example 3: Cournot with 3 firms

- Firm 1 acquires a stake α_{12} in firm 2; firms 2 and 3 hold a stake α in firm 1



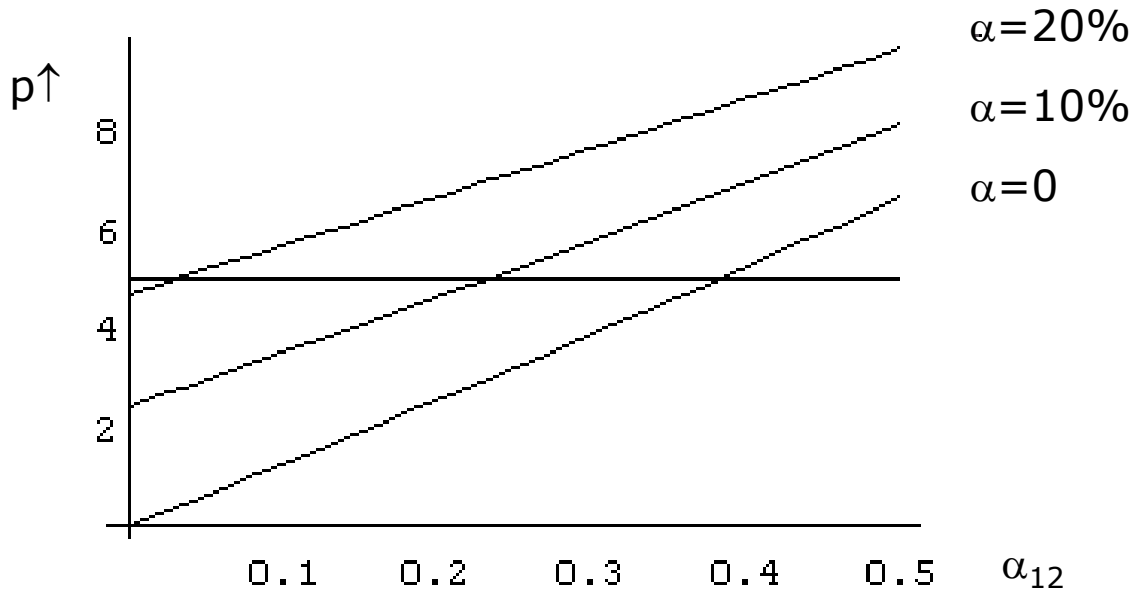
Example 4: Cournot with 3 firms

- Firm 1's controller acquires a stake α_{12} in 2; firm 2's controller holds a stake α_{21} in 1; firm 3 is not involved



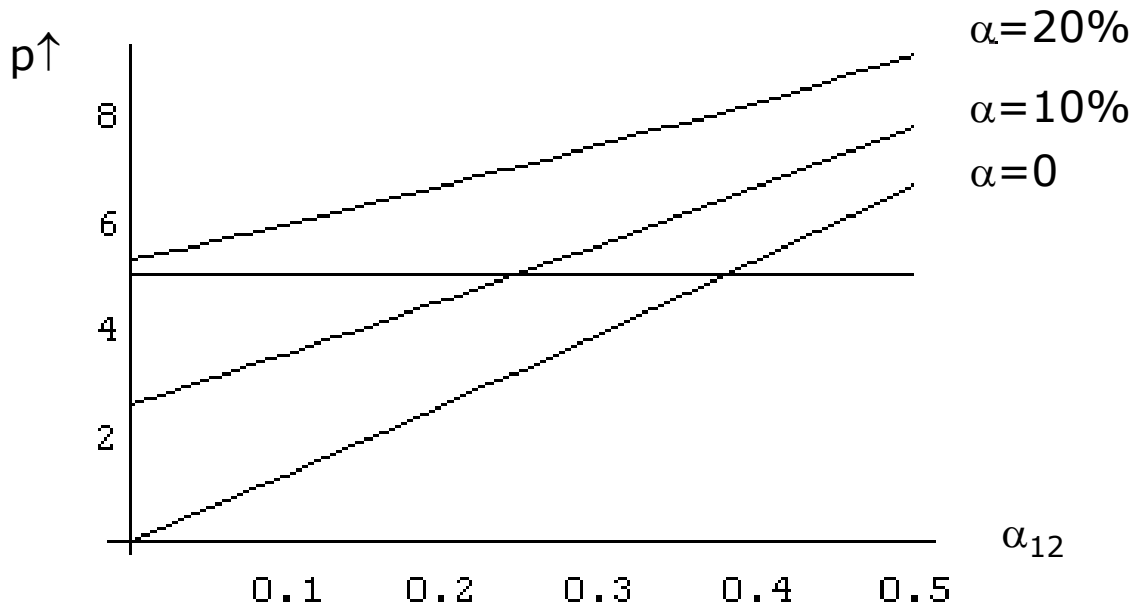
Example 5: Cournot with 3 firms

- Firm 1's controller acquires a stake α_{12} in firm 2; firm 2's controller holds a stake α in firm 3; firm 3's controller holds a stake α in firm 1



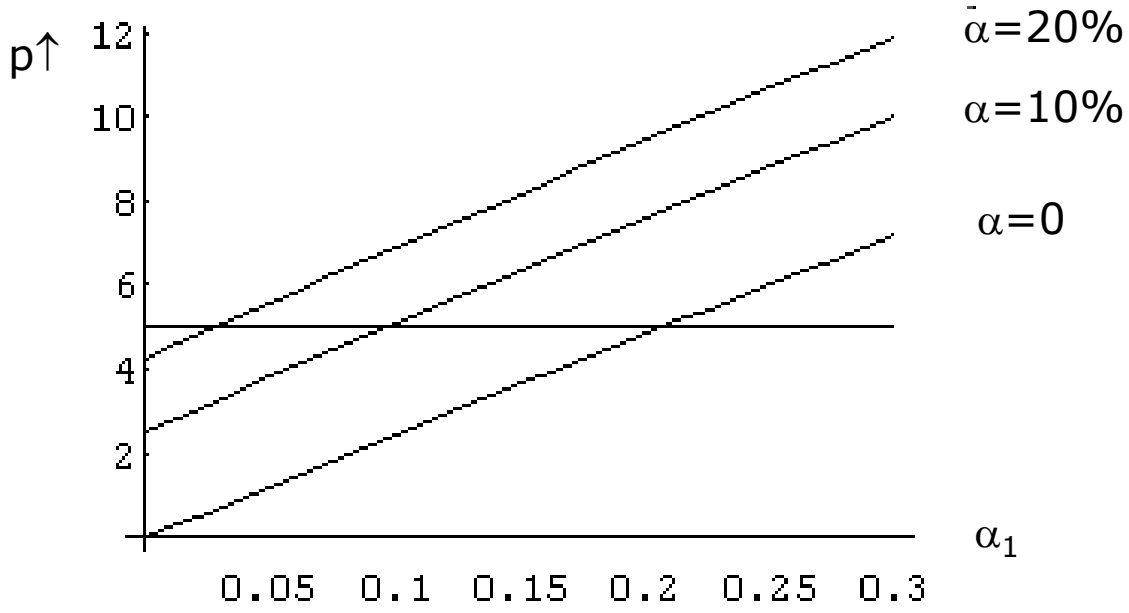
Example 6: Cournot with 3 firms

- Firm 1's controller acquires a stake α_{12} in firm 2; the controllers of firms 2 and 3 hold a stake α in firm 1



Example 7: Differ. goods, price competition, 3 firms

- Firm 1's controller buys a stake α_{12} in 2; the controllers of firms 2 and 3 hold a stake α in firm 1



Coordinated effects

- The main idea:
  - By undercutting, A hurts its stake in B $\Rightarrow$ A has a weaker incentive to deviate
  - By investing in efficient rivals, A earns higher profits following a break down of collusion $\Rightarrow$ A has a stronger incentive to deviate

- The overall effect is not obvious

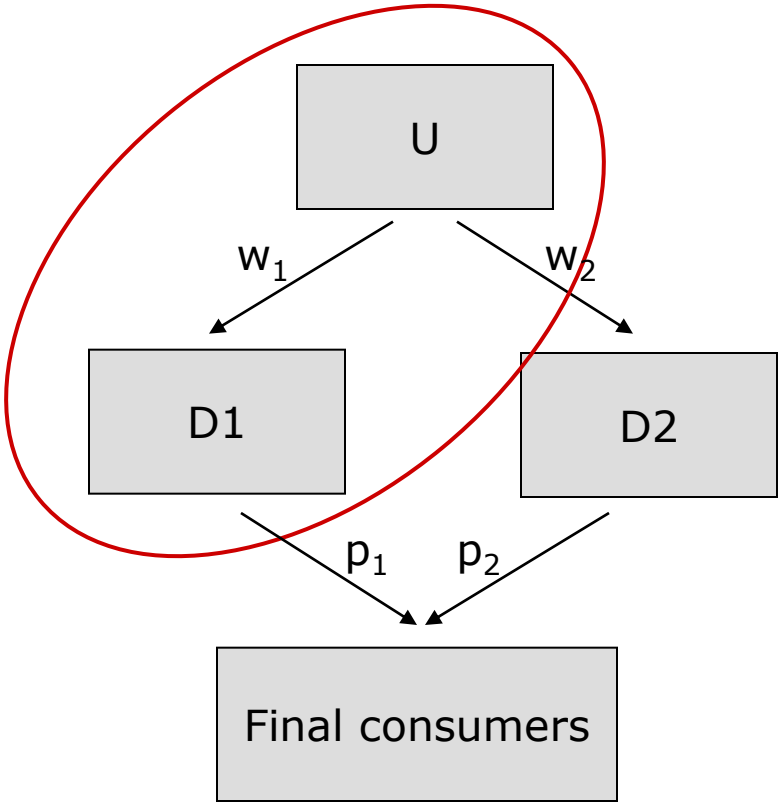
Coordinated effects

- Gilo, Moshe, and Spiegel (RJE 2006): An increase in A's stake in B, always facilitates tacit collusion, except for 3 special cases:
  - No effect if the industry maverick does not have a direct or an indirect stake in firm A
  - No effect if B is the industry maverick
  - Collusion may be hindered if B's controller holds a stake in A
- These results were established under the assumption that firms are symmetric
- Gilo, Spiegel, and Temurshoev confirm these results in the case of firms with asymmetric marginal costs
  - We also show that collusion will be at a higher price if the maverick invests in less efficient firms (less efficient firms prefer a higher collusive price)
- Partial ownership that leads to collusion is worse than a merger to monopoly!
  - A monopoly will only operate the most efficient firm and will set the "efficient" monopoly price; collusion will be at a higher price

Vertical links

The model

- U sells an input to D1 and D2 that use it to produce a final product



Externalities in a vertical structure

- D1 and D2 impose competitive externalities on each other
- Investment by D1 imposes a positive externality on U (D1 buys more inputs or is willing to pay a higher price for inputs)
- Higher sales by D1 impose a negative externality on U by depressing sales to D2
- Higher sales by U to D2 impose a negative externality on D1
- A stake of D1 in U or of U in D1 allows the firms to internalize the externalities
- In case of controlling stakes, the acquirer can use the target to foreclose rivals and increase its own profit: a negative externality on the target's minority shareholders

General results

- In the case of downstream foreclosure:
  - Partial backward integration is worse than full integration
  - Partial forward integration is better than full integration

Controlling vs. passive stakes

- With control over U, D1 can foreclose D2
- The price at which the input is sold to D2 will increase to compensate D1 for the loss of downstream profits
- Passive investment of D1 in U may be worse for consumers than controlling investment!
  - D2 invests more when D1 has a passive stake in U but D1 may invest less