Chapter 10 Mergers and Entry Barriers

- Vertical merger
- Horizontal merger
- Entry Barrier

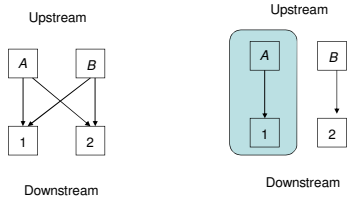
Mergers

- The terms *mergers*, *takeovers*, *acquisitions*, and *integration* describe a situation where independently owned firms join under the same ownership
- Three general categories of merger (Federal Trade Commission)
  - Horizontal merger: Firms in the same industry, producing identical or similar products and selling in the same geographical market, merge
  - Vertical merger: A firm producing an intermediate good merges with a firm producing the final good that use intermediate goods or two companies with seller-buyer relationship merge
  - Conglomerate merger: Firms producing less related products merge under the same ownership

Vertical merger

- The intermediated-good suppliers is called as upstream firm. The final-good producers as downstream firm
- Consider an industry structure in which there are two upstream firms selling an input to two downstream firms

Vertical merger (cont')



Vertical merger (cont')

- We assume that the demand for the good marketed in downstream market is given by linear demand $p=\alpha-q_1-q_2$
- c_1 and c_2 are the priced of input paid by firm 1 and 2 respectively
- Downstream competition

$$\Rightarrow \quad q_i = \frac{\alpha - 2c_i + c_j}{3} \qquad \pi_i = \frac{(\alpha - 2c_i + c_j)^2}{9} \qquad p = \frac{\alpha + c_1 + c_2}{3}$$

Vertical merger (cont')

- Upstream competition before the merger
  - Since the two upstream engage in a Bertrand price competition, price fall to their unit production cost which is assume to zero. Hence $c_1=c_2=0$

$$q_1 = q_2 = \frac{\alpha}{3}$$

$$\Rightarrow \quad \pi_1 = \pi_2 = \frac{\alpha^2}{9}$$

$$\pi_A = \pi_B = 0$$

Vertical merger (cont')

- Upstream and downstream merge ([*A*]+[1]=[*A*1])
  - The input cost of the merged firm *A*1 is zero (c_1=0)
  - The upstream firm *B* is now a monopoly in the factor market. Firm *B* choose c_2 that solves

$$\max_{c_2} \pi_B = c_2 q_2 = \frac{c_2(\alpha - 2c_2 + c_1)}{3}$$

$$\Rightarrow \quad c_2 = \frac{\alpha}{4}, q_1 = \frac{5\alpha}{12}, q_2 = \frac{\alpha}{6}, Q = \frac{7\alpha}{12}, p = \frac{5\alpha}{12} \quad \pi_{A1} = \frac{25\alpha^2}{144}, \pi_2 = \frac{\alpha^2}{36}$$

Vertical merger (cont')

Implication (1): quantity

$$q_1^m = \frac{5\alpha}{12} > \frac{\alpha}{3} = q_1 \quad q_2^m = \frac{\alpha}{6} < \frac{\alpha}{3} = q_2$$

Implication (2): profit

- Before firm A and 1 merge

$$\Rightarrow \quad \pi_A + \pi_1 = 0 + \frac{\alpha^2}{9} = \frac{\alpha^2}{9} \qquad \pi_B + \pi_2 = 0 + \frac{\alpha^2}{9} = \frac{\alpha^2}{9}$$

- Before firm *A* and 1 merge

$$\Rightarrow \quad \pi_{A1} = \frac{25\alpha^2}{144} > \frac{\alpha^2}{9} = \pi_A + \pi_1; \quad \pi_B^m + \pi_2^m = \frac{\alpha^2}{24} + \frac{\alpha^2}{36} = \frac{10\alpha^2}{144} < \frac{\alpha^2}{9} = \pi_B + \pi_2$$

Horizontal merger among firms producing complementary

- Demand for systems
  - A computer systems is defined as a combination of two complementary products called computers (*X*) and monitors (*Y*)
  - The price of a system is given by $p_s = p_x + p_y$
  - The aggregate consumer demand is given by $Q = \alpha - p_s = \alpha - (p_x + p_y)$

Horizontal merger among firms producing complementary (cont')

- Independently owned producing firms
  - The computers (firm *X*) and monitors (firm *Y*) are produced by different firms
  - Firm *X* chooses p_X and firm *Y* chooses p_Y to solve

$$\max_{p_X} \pi_X = p_X[\alpha - (p_X + p_Y)]$$

$$\max_{p_Y} \pi_Y = p_Y[\alpha - (p_X + p_Y)]$$

$$\Rightarrow \quad p_X = p_Y = \frac{\alpha}{3}, Q = \frac{\alpha}{3}, \pi_X = \pi_Y = \frac{\alpha^2}{9}$$

Horizontal merger among firms producing complementary (cont')

- Monopoly producing all components
  - Firm *X* and firm *Y* merge under a single ownership
  - The monopoly systems producer chiises a system price p_s that solve

$$\max_{p_S} \pi_X = p_S[\alpha - p_S]$$

$$\Rightarrow \quad p_S^M = \frac{\alpha}{2}, Q^M = \frac{\alpha}{2}, \pi_{XY}^M = \frac{\alpha^2}{4}$$

Implication : $p_S^M < p_S = p_X + p_Y$

$Q^M > Q$

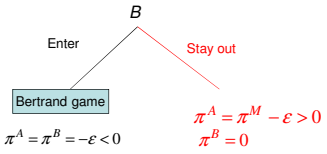
$\pi_{XY}^M > \pi_X + \pi_Y$

Entry Barriers

- There can be many reasons why entry may not occur (Bain 1956)
  - Absolute cost advantage of incumbent firms
  - Economies of scale
  - Product-differentiation advantage of incumbent firms, such as reputation and goodwill

Entry Barriers (cont')

- The existence of even small sunk costs (ε) can serve as an entry barrier so that the incumbent continues a monopoly profit



Entry Barriers (cont')

- A firm face a sunk cost ε but could receive an amount of $\Phi > 0$ upon exit ($\Phi < \varepsilon$)