

Efficiency Gains and Structural Remedies in Merger Control

(Journal of Industrial Economics, December 2010)

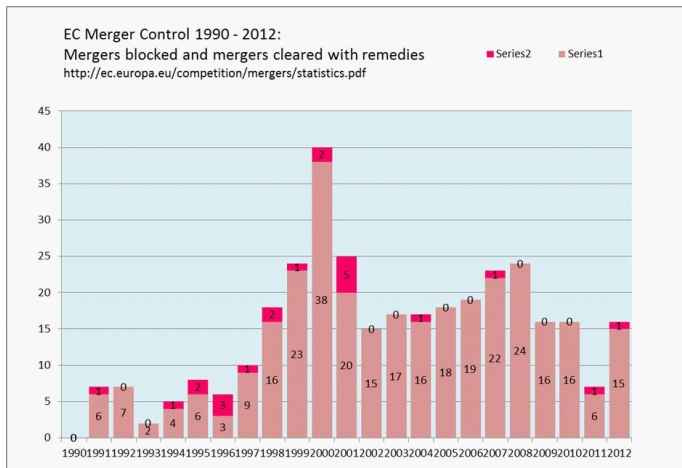
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June 19, 2013

Motivation

EU Statistics



- Merger remedies *increasingly important* in the EU and US
- Two types of Remedies:
 - **Structural remedies:** include divestiture of an entire ongoing business or partial divestiture (possibly a 'mix and match' of assets of the different firms involved).
 - **Non-structural remedies:** Firms' engagements not to abuse of certain assets available to them, including compulsory licensing or access to property rights.
 - **Purely behavioural:** Commitment to give non discriminatory access of key inputs to competitors (e.g. *Vivendi/Canal +/ Seagram*: a 5-years ceiling to the Universal production rights granted to Canal +)
 - **Contractual:** Commitment to license a technology to rivals (e.g. *Astra/Zeneca*: a 10-years grant to an independent distributor of the main alternative betablocker)
 - **Vertical Firewalls:** Commitment to segment the information flows within the company

- Structural remedies *preferred* by the EC (if feasible)
- **Divestitures**
 - Should give rise to a **viable new entity** (competitor)
 - Divestiture plan must offer a package of tangible and intangible assets, supply and sales agreements, customer lists, third party service agreements, technical assistance, etc.
 - EC may require to find an **up-front buyer**
 - An existing competitor in the same or in adjacent markets can be preferred as a purchaser of the divested assets: it has market knowledge and experience
- Possible **problems** with structural remedies:
 - Irreversibility
 - Joint dominance problems (e.g. due to multimarket contact)

Motivation

Objective of the paper

- Despite the wide literature on the impact of mergers on welfare, scarce attention has been devoted to merger remedies
- This paper focuses on the role of *structural remedies* in merger control
 - Cournot setting
 - Endogenous efficiency gains
 - Mergers should be submitted for approval to an Antitrust-Authority (AA), which:
 - is an active player of an endogenous mergers game (AA)
 - might require partial divestiture as a condition to clear a merger
 - Appraises the merger on the basis of its impact on consumers' surplus

- **Structural Remedies in a Cournot Framework**

- Medvedev (2004)
- Vergé (2010, JINDEC)

- **Endogenous Mergers**

- Nocke and Whinston (2010)
- Fauli-Oller (2000)
- Horn and Persson (2001a, 2001b)
- Gowrinsankaran (1999)

- **Endogenous Efficiency Gains**

- Perry and Porter (1985)
- Motta and Vasconcelos (2005)

Model Setup

Main ingredients

- 4 firms compete à la Cournot
- Firm i owns k_i of the industry capital, $\sum_{i=1}^4 k_i = K$
- Demand: $P(Q)$, where $P'(Q) < 0$ and $P'(Q) + QP''(Q) < 0$.
- Cost structure

$$C(q_i, k_i) = \frac{\alpha K}{k_i} q_i + k_i f,$$

where $\alpha \geq 0$ and $f > 0$

- If two firms merge:
 - endogenous efficiency gains (captured by α)
 - increase of fixed costs (captured by f): rules out further scale economies due to sharing of fixed costs (plant specific)

Model Setup

Main ingredients - Cont'd

- Status quo industry structure $\{1, 1, 1, 1\}$
- Firms allowed to merge before product market competition takes place
- Model encompasses an Antitrust Authority (AA) which:
 - Is an *active player*
 - Aims at maximizing consumers' welfare
 - Enlarged toolbox for merger control
 - Accept the merger unconditionally
 - Reject the merger
 - Partially accept the merger: it can require a divestiture to incumbent or to a new entrant

Model Setup

The Game

Before Cournot competition:

- ① One firm at the status quo industry structure is randomly selected and has the opportunity to propose a merger to the AA. This firm may propose a merger with all or a subset of its rivals;
- ② AA decides whether to authorize or not the proposed merger. At this stage, the AA can take three different decisions:
 - (i) unconditionally accept the proposed merger;
 - (ii) reject the proposed merger;
 - (iii) accept the merger subject to the condition that some units of the merged entity capital are divested to an incumbent rival firm or to a new firm which is attracted into the market

Assumption Mergers that can induce exit are assumed away.

Proposition (1)

There exists a unique pair (α_1, α_2) such that the consumer surplus maximizing market structure is $\{1, 1, 1, 1\}$ for $\alpha < \alpha_1$, $\{2, 2\}$ for $\alpha_1 \leq \alpha \leq \alpha_2$ and $\{4\}$ for $\alpha > \alpha_2$.

- Allocating capacity K equally between all firms in the industry leads to the largest output in a Cournot model
- Suppose a **two-firm merger** occurs
 - Before the merger, the best response function for the joint production of two (*separately owned*) assets is implicitly given by:

$$2P(Q_1 + Q_2) + P'(Q_1 + Q_2) Q_1 - 2\alpha K = 0$$

- After the merger, when the two *assets are owned by the same firm*, the joint best response function is generated from the following FOC:

$$P(Q_1 + Q_2) + P'(Q_1 + Q_2) Q_1 - \alpha K / 2 = 0.$$

Results

Consumer surplus maximizing market structure

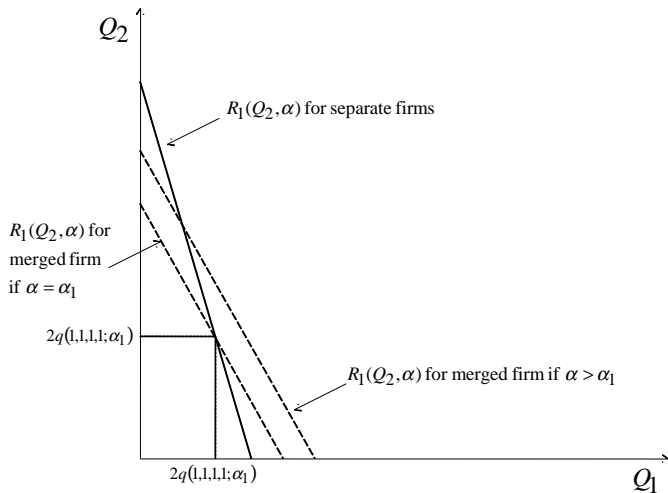


Figure: Two-firm Merger

What happens if there is a (second) catch-up merger?

- **At α_1 :**
 - merged firm resulting from the (first) two-firm merger produces the same amount as two separate firms at the status quo, $2q(1, 1, 1, 1; \alpha_1)$
 - if outsiders to the first (two-firm merger) merge, their best-response to $2q(1, 1, 1, 1; \alpha_1)$ will also be unchanged by the same argument
 - Hence, a **merger from $\{2, 1, 1\}$ to $\{2, 2\}$ will leave output unchanged**
- For a **higher** (lower) α , pivoted **best response curve shifts out** (in)
- The second **catch-up merger** also **increases output iff $\alpha > \alpha_1$**
 - Whenever a first two-firm merger is consumer surplus increasing, a subsequent catch up merger must be as well

Main Results

Consumer surplus maximizing market structure

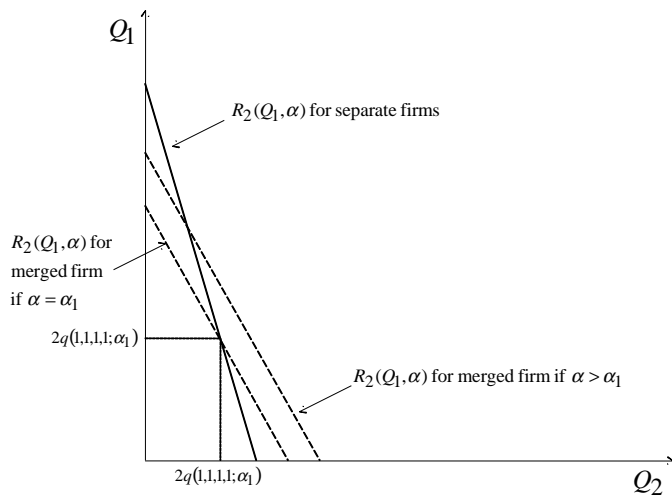


Figure: Catch up Merger

Assumption The divestiture mechanism attributes all bargaining power to the pre-approved buyer of the to-be-divested asset(s)

Proposition (2)

Let $\alpha < \alpha_2$. Then, the final equilibrium market structures induced by the proposed merger formation game are: (i) $\{1, 1, 1, 1\}$ (no merger) if $\alpha < \alpha_1$; and (ii) $\{2, 1, 1\}$ (two-firm merger) if instead $\alpha \geq \alpha_1$.

- Whenever $\alpha > \alpha_1$, after a catch up merger:
 - Total output increases
 - But the output of the firm outside this catch up merger *decreases*...
- Hence, the randomly selected firm at stage 1 embarks on a merger proposal for which it knows the AA *cannot* require restructuring through divestitures.

Main Results

The Over-Fixing Problem

- Over-fixing then occurs when the anticipation of remedies prevents a Pareto improving merger to be proposed
 - Farrell (2003): over-fixing is essentially a hold-up problem
 - Over-fixing can only occur in this setting when a $\{3, 1\}$ or a $\{4\}$ merger is proposed

Lemma

There exists a unique pair (α_3, α_4) , where $\alpha_3 > \alpha_1$ and $\alpha_3 < \alpha_4 < \alpha_2$, such that:

- If $\alpha > \alpha_3$, consumer surplus increases relative to market structure $\{1, 1, 1, 1\}$ when a three-firm is unconditionally approved.*
- If $\alpha > \alpha_4$, consumer surplus increases relative to market structure $\{1, 1, 1, 1\}$ when a merger to monopoly is unconditionally approved.*

Main Results

The Over-Fixing Problem

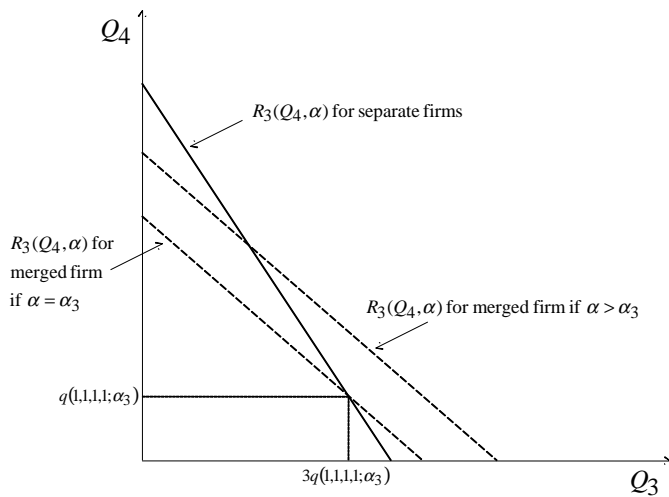


Figure: Three-firm Merger

Main Results

The Over-Fixing Problem

- When remedies can be requested, then for all $\alpha \in [\alpha_1, \alpha_2]$ the AA will always implement the $\{2, 2\}$ even knowing that:
 - A three-firm merger would be consumer surplus increasing if $\alpha > \alpha_3$
 - A four-firm merger would be consumer surplus increasing if $\alpha > \alpha_4$
- **Problem:** the AA insistence in over-fixing when remedies are available will, under some circumstances, induce *ex-ante inefficiencies* in the mergers proposed.

Proposition (4)

Let $\alpha < \alpha_2$. Then, there exists $\alpha^* > \alpha_3$ such that for all $\alpha \geq \alpha^*$, over-fixing leads to a final equilibrium market structure wherein consumer surplus is lower than in the equilibrium market structure that would result in case merger policy consisted of a rule that any consumer surplus increasing merger must be approved.

Dynamic merger game:

- In each period of the merger game
 - A random party is allowed to make a merger proposal and the AA decides to authorize or not the proposed merger
 - The merger game run until all feasible proposals are exhausted
 - Then firms set output
- Restriction: no party can make a proposal that has already been rejected
- Two different scenarios analysed:
 - Forward-looking AA
 - Myopic AA

Main Results

Sequential Merger Proposals

Proposition (5)

*A **forward-looking AA** is able to implement the consumer surplus maximizing market structure with a straight “up-or-down” merger policy.*

- The remedy option will have no impact on the final outcome
- The hold-up problem identified in the static analysis is somewhat artificial: it disappears in a dynamic merger game with sequential proposals

Proposition (6)

*The availability of remedies is necessary to make the **myopic merger policy** optimal*

- The remedy instrument is nevertheless necessary to make myopic merger policy optimal

● **Alternative Merger Proposals**

- Merger proposals in which firms approach the AA with two simultaneous transactions
- First one firm buys two or three others, then it sells a subset of the acquired assets to an incumbent rival or to (one or two) entrants
- **Result:** increase the number of channels through which the consumer surplus maximizing market structure can be implemented

● **Alternative Divestiture Mechanism**

- The AA requires a divestiture to any entrant, not specifying the identity of this entrant
- All potential entrants then simultaneously submit take-it-or-leave-it offers to the merging entity, specifying the price at which they would be willing to buy
- **Result:** the main results derived in the benchmark model under Assumption 3 extend to the case

● **Exit Inducing Mergers**

- Companion paper (Vasconcelos (2013, OEP))

- This paper studies the role of structural remedies in merger control
 - Cournot setting where mergers are motivated by prospective efficiency gains and must be submitted for approval to an AA
- Merger policy implications
 - 1 If mergers do not involve all firms in the industry, then merger remedies are shown to help the AA to increase consumer surplus only if assets are divested to competitors
 - 2 Whenever remedies can be requested, the AA tends to “over-fix” the anti-competitive effects created by mergers
 - 3 There are social costs to “over-fixing” the anticompetitive effects of a merger