

Efficiency Gains and Structural Remedies in Merger Control

(Journal of Industrial Economics, December 2010)

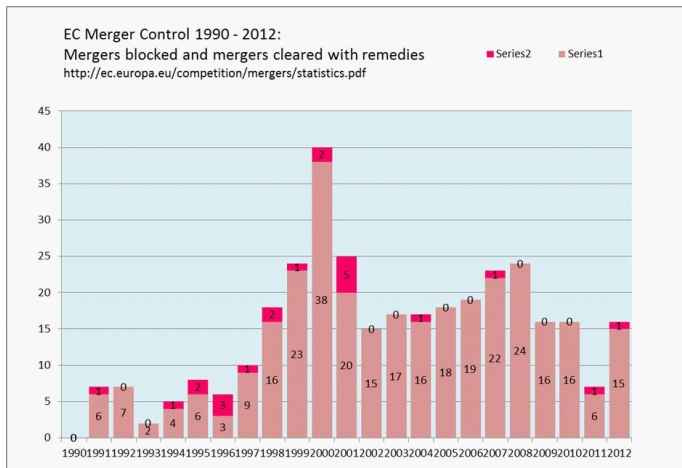
Helder Vasconcelos

Universidade do Porto and CEPR

Bergen Center for Competition Law and Economics
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

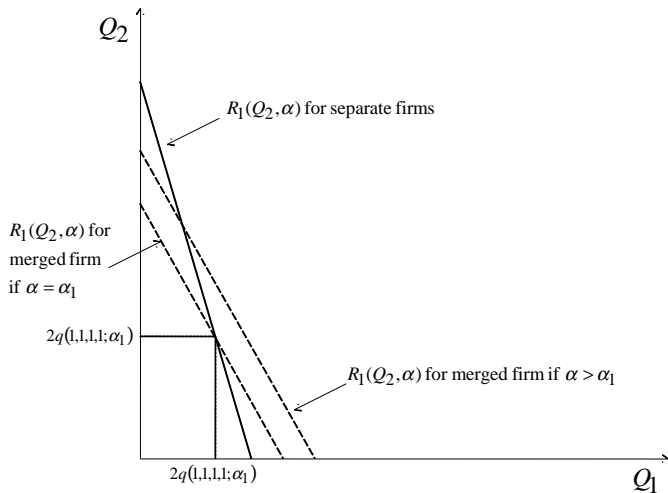


Figure: Two-firm Merger

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

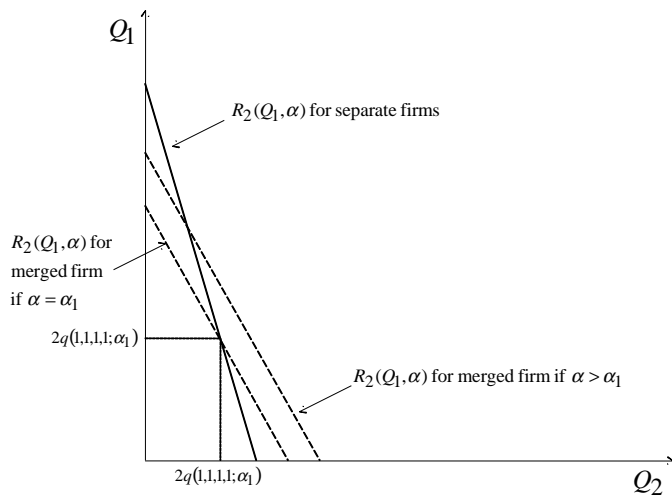


Figure: Catch up Merger

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

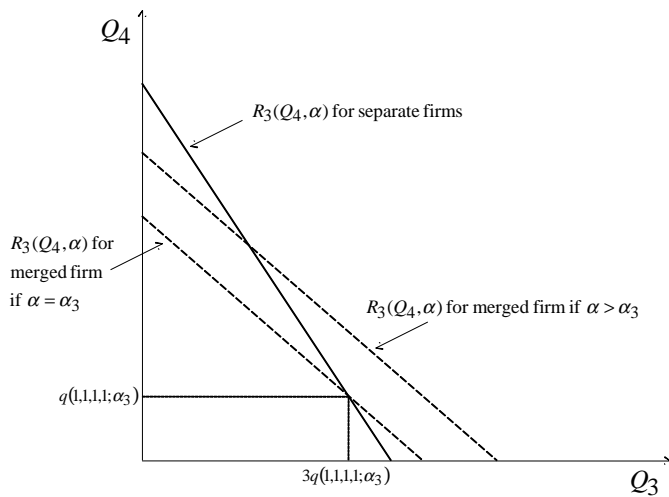


Figure: Three-firm Merger

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