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Passive partial ownership, sneaky takeovers, and merger control[☆]

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HIGHLIGHTS

- We examine the impact of PPOs on horizontal mergers.
- A PPO reduces the synergy requirement to make a merger beneficial for consumers.
- Antitrust authorities invite firms to use PPOs strategically (*sneaky takeover*).
- That is, merging firms use PPOs to get price increasing mergers approved.

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ABSTRACT

We analyze the impact of passive partial ownership (PPO) on horizontal mergers. We show that antitrust authorities ignoring the effects of previous PPO acquisitions invite *sneaky takeovers*: a PPO is strategically used prior to a full takeover to get a merger approved which is in fact detrimental to consumers.

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1. Introduction

In many merger cases the acquiring firm owns a passive partial ownership stake (PPO) in the target firm prior to the merger proposal. A PPO entitles the acquiring firm to benefit from the target firm's profits, while it does not involve any (or very limited) corporate control.[1] For example, the merger cases of Volkswagen/MAN (28.7%), Volkswagen/Scania (37.98%), and REWE/Wasgau (25.1%) all involved PPOs.[2] As PPOs usually do not give any sort of control, they are typically ignored by merger regulations.[3] However, having recognized the potential anticompetitive effects of PPOs, it is currently discussed in the EU whether or not to extend the scope of the Merger Regulation to explicitly consider PPOs (see EC, 2013).[4]

The anticompetitive (unilateral) effects of PPOs have been stressed earlier by, e.g., Reynolds and Snapp (1986) and Bresnahan

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[1] See, e.g., O'Brien and Salop (2000) and Foros et al. (2011).

[2] Notice that, after the merger, the acquirer held 53.71%, 68.6%, and 51%, respectively, of its target's shares.

[3] This is true for the European merger guidelines (see EC, 2013). The US horizontal merger guidelines, however, cover both partial acquisitions leading to corporate control and PPOs (DOJ, 2010).

[4] Recent competition reports have criticized that merger regulations typically ignore PPOs (see OECD, 2008; OFT, 2010).

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and Salop (1986).[5] However, none of these works asks how a PPO affects future merger outcomes. In this paper, we highlight a new argument in favor of a PPO control regime by linking the effects of PPOs and those of horizontal mergers leading to synergies.[6] We show that antitrust authorities (AAs), which do not account for PPO acquisitions, create incentives among firms to engage in *sneaky takeovers* which proceed in two steps. First, the acquiring firm abstains from proposing a full acquisition, as this would harm consumers. Rather, it strategically acquires a PPO which goes unnoticed by the AA. Second, the acquiring firm proposes a full takeover which will be accepted by the AA, as it now increases consumer surplus, although it is detrimental to consumers when evaluated in its entirety.

2. The model

Consider a homogeneous Cournot oligopoly where $n \geq 3$ firms indexed by $i \in I = \{1, \ldots, n\}$ compete in quantities q_i. Firms face an inverse demand function $p(Q)$, with $Q := \sum_i q_i$, and have identical and constant marginal costs $c \geq 0$. We invoke the following standard assumptions that guarantee existence and stability of a unique Cournot–Nash equilibrium (Shapiro, 1989): $p'(Q) < 0$, $Qp''(Q) + p'(Q) < 0$, and $lim_{Q\to\infty} p(Q) = 0$.[7]

Suppose that one firm $B \in I$ (the "buyer") holds a PPO in one of its rivals, labeled $T \in I \setminus \{B\}$ (the "target"). A PPO does not give B control over T, i.e., it cannot decide on T's output directly. Let $\sigma \in (0, \overline{\sigma}]$ denote the PPO held by B in T, with $\overline{\sigma} \leq 1/2$, where any $\sigma > \overline{\sigma}$ would allow B to control T.[8] It then follows that B's profit is given by

$$\Pi_B = \pi_B + \sigma \pi_T, \tag{1}$$

while T's profit is given by $\Pi_T = (1 - \sigma)\,\pi_T$, where $\pi_i = [p(Q) - c_i]q_i$, with $i \in \{B, T\}$, denotes i's operating profit. The remaining firms in the market (the "outsiders") denoted by $r \in I \setminus \{B, T\}$ neither hold an ownership share in one of their rivals nor are partially owned by one of them. An outsider's profit $\pi_r = [p(Q) - c_r]q_r$, with $Q_r := \sum_{r\in I\setminus\{B,T\}} q_r$, thus coincides with its operating profit. Finally, let $\pi_i^0 := \pi_i(\sigma = 0)$, with $i \in I$, denote i's profit if $\sigma = 0$.

When a merger occurs, we assume for convenience that B acquires all of T's assets and thus obtains full control over the merged firm M whose profit is $\pi_M = [p(\overline{Q}) - c_M]\overline{q}_M$, with upper bars indicating the post-merger case. Further, we suppose that M's marginal cost can be lower because of synergies s:[9] $c_M := c - s$, where $s \in [0, c]$. The AA approves a merger proposal if the post-merger price is not higher than the pre-merger price ("consumer standard").

3. PPOs, mergers, and consumer surplus

How does the effect of a merger on consumer surplus change when one of the merging firms holds a PPO in the other firm prior to the merger? Define $\Delta CS := CS\left(\overline{Q}^*\right) - CS\left(Q^*\right)$ (asterisks indicate equilibrium values) as the change in consumer surplus, where $CS\left(Q\right) = \int_0^Q \left[p(x) - p(Q)\right] dx$. Let $\widetilde{s}_{CS}$ denote the critical synergy level for which $\Delta CS \geq 0$ (< 0) if $s \geq \widetilde{s}_{CS}$ $(< \widetilde{s}_{CS})$. In the absence of a pre-merger PPO, Farrell and Shapiro (1990) have shown that $\Delta CS \geq 0$ if and only if the synergy level is larger than the pre-merger mark-up, i.e.,

$$s \geq s^0_{CS} := p(Q^*) - c, \tag{2}$$

where s^0_{CS} is the synergy level which would keep the price level constant after a merger when $\sigma = 0$.[10] If, however, B holds a PPO in T prior to the merger, then (2) becomes

$$s \geq \widetilde{s}_{CS} := p(Q^*) - c + \sigma p'(Q^*)q_T^*. \tag{3}$$

Comparing (2) and (3) reveals that σ has two opposing effects. First, it increases the pre-merger mark-up, as Q^* is reduced. Second, it links B's profit to T's profit which induces B to internalize the negative effects of an output expansion on T and is mirrored by $\sigma p'(Q^*)q_T^* < 0$. Overall, the latter effect dominates, so that (3) is less restrictive than (2) for any $\sigma > 0$.

Lemma 1. *The critical synergy level* $\widetilde{s}_{CS}$ *is decreasing in the PPO, i.e.,* $d\widetilde{s}_{CS}/d\sigma < 0$.

Proof. To sign $d\widetilde{s}_{CS}/d\sigma$, it is useful to examine

$$\frac{d\Delta CS}{d\sigma} = p'(Q^*)\frac{dQ^*}{d\sigma}Q^*.$$

Note that $dq_B^*/d\sigma < 0$, as $\partial^2\pi_B/\partial q_B\partial\sigma < 0$. From Farrell and Shapiro (1990, Lemma, p. 111), it follows that, in response, T and the outsiders will expand their outputs, but by less than q_B^* is reduced, so that $dQ^*/d\sigma < 0$ and thus $d\Delta CS/d\sigma > 0$ and $d\widetilde{s}_{CS}/d\sigma < 0$, respectively. ■

The result in Lemma 1 relies on the simple fact that the PPO negatively affects consumer surplus prior to the merger, whereas it does not affect consumer surplus after the merger. More importantly, it implies that a PPO can be used to relax the synergy requirement for a consumer surplus increasing merger.

4. Sneaky takeovers

We show that a PPO can be used to get a merger approved which would otherwise have been blocked by an AA applying a consumer surplus standard. We call such a strategy a *sneaky takeover*, as it aims at outplaying the AA. A necessary prerequisite for this to happen is that the AA ignores the effects of PPOs when evaluating proposed mergers (which is current practice at least in the EU). We initially consider a linear inverse demand schedule $p(Q) = a - Q$, with $a > c$. Notice that in this case profits and total output are given by Table 1.

Subsequently, we discuss the case of a general demand function.

For the linear case, we invoke the following assumption for a merger leading to synergies $\widehat{s}$, where we define s^0_M such that $\pi_M(s^0_M) = \pi^0_B + \pi^0_T$.

(A1). $s^0_M \leq \widehat{s} < s^0_{CS}$.

Assumption (A1) ensures that a proposed and thus profitable merger *without* a pre-merger PPO would be blocked by the AA, as it decreases consumer surplus.

The merger between B and T relies on the following takeover game. Suppose that B and T are each initially owned by a single shareholder.[11] In stage 1, B makes a take-it-or-leave-it offer to buy

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[5] For the coordinated effects of PPOs see, e.g., Malueg (1992) and Gilo et al. (2006).

[6] The latter have been analyzed by, e.g., Farrell and Shapiro (1990).

[7] Notice that $p'(Q) := dp(Q)/dQ$ and $p''(Q) := d^2p(Q)/dQ^2$.

[8] That is, σ reflects voting rights (e.g., common stocks), so that $\sigma > 1/2$ necessarily implies control. In reality, however, even smaller shares may suffice to exert control.

[9] That is, synergies can only be realized if two firms merge, while a PPO does not lead to any synergies. This view is also expressed in, e.g., Gilo (2000, p. 42) and EC (2013).

[10] Condition (2) mirrors M's incentive to increase its output level above the joint pre-merger output levels $q_B^* + q_T^*$ (when $\sigma = 0$).

[11] This allows us to abstract from free-rider problems among small shareholders à la Grossman and Hart (1980).

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