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## ACTIVE OWNERSHIP RELATIONS IN OLIGOPOLY

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### Overview

Antitrust authorities oftentimes analyse partial ownership relations using one of two alternative assumptions. First, large ownership relations between firms, conveying control, are oftentimes regarded as a full merger, see Reynolds and Snapp (1986). Second, smaller ownership relations are analysed using an assumption of passive ownership. The second type of assumption is frequently applied in the electricity industry when illustrating how a tightly interwoven mesh of ownership-relations between firms lead to less efficient markets. With this paper I analyse how consumer surplus and producer surplus are affected and distributed among different agents, assuming partial active ownership relations. This assumption has, as far as the author knows, not been analysed within industrial economics earlier. However, the assumption of active ownership is regularly used in corporate governance, see Johnson et al (2000) and Shleifer and Vishny (1997).

When applying the assumption of active ownership in models of industrial economics, it is illustrated that the equilibrium outcome is worse for both producers (total producer surplus) and consumers than what a full merger would lead to. As a result, many of the ownership relations that are observed in deregulated electricity markets may in fact be worse than what a full merger between the entities would involve.

### Methods

The first part of the paper utilises the general theoretical set-up by Reynolds and Snapp (1986) and Farrell and Shapiro (1990), also applied in an algebraic example by Flath (1991). In contrast to Flath (1991), the results obtained in this paper are not restricted to algebraic examples, and the analysis is therefore conducted using only general descriptions of demand and cost relations. However, the results hinge on two assumptions. First, the acquiring firm is assumed to obtain control over the production resources in the partially acquired firm. Second, firms are described by increasing marginal costs. Both of these assumptions can be regarded as appropriate when analysing many of the observed partial ownership relations in the electricity markets, see Amundsen and Bergman (2001).

Data on the Norwegian electricity production sector (and if possible prior to the conference, the full Nordic market) has been gathered to illustrate the potential extent of active ownership relations between firms.

### Results

The paper first illustrates theoretically how a firm, which i) partially acquires a share in a competing firm, and ii) takes over control of the production resources in the partially acquired firm, has incentives to tunnel profits from the partially acquired firm. The intuition behind this result, is that the acquiring firm has incentives to reduce production in the acquired firm in order to elevate prices; at the same time the elevated prices give the acquiring firm incentives to increase production in its own (fully owned) production resources. As a result, the acquiring firm obtains higher profits, on expense of the minority shareholders in the partially acquired firm.

Second, it is demonstrated that when a firm, who has acquired a share in a competing firm and pursues a policy of tunnelling, social welfare is reduced compared to the case of a full acquisition (merger.) As a consequence, in an industry consisting of only two firms, the

equilibrium with partial ownership (and control over all production resources in the hands of the acquiring firm) leads to lower welfare than what the monopoly solution does!

Third, it is illustrated that the shareholders in the acquiring firms have incentives to acquire a share of the competing firm, provided that this ownership share is sufficiently high to gain control over the production resources. Also, it is illustrated that the shareholders in the acquired firm have strong incentives to sell their shares, since they would be worse off as minority shareholders. All of these results are in stark contrast to the literature on passive ownership relations. Finally, the model is used to illustrate how large firms in the Norwegian (Nordic) electricity production industry are able to exert market power via ownership relations in competing firms. Data on the Norwegian market used in the paper is

### **Conclusions**

The paper has two important policy implications related to liberalisation and regulation of electricity markets. First, competition authorities should not regard a full merger as the 'worst-case-scenario' when analysing partial acquisitions with transfer of control. Rather, the analysis presented in this paper illustrates that the society is worse off when active ownership relations are present. Second, when empirically and numerically analysing firms' behaviour in electricity markets, this paper demonstrates that production resources for large firms may seem to be producing more in line with perfect competition than what is expected. This is so since production from partially owned plants is withheld in order to elevate prices, a policy that also gives the acquiring firm incentives to increase its own production.

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