Horizontal integration in the Dutch financial sector

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Abstract

In this paper, the consequences of cross-shareholding in an *n*-firm industry are analyzed. Our attention focuses on the case where firms have silent interests in each other. These interests can be direct or indirect. We analyze the effects of cross-shareholding on the price–cost margins in a Cournot and a Bertrand setting. In all cases, competition is reduced due to shareholding interlocks. As an empirical example the Dutch financial sector is used. Comparing the case of shareholding with the case of no-shareholding, the price–cost margins are found to be up to 2% higher in a Bertrand market, and at least 8% higher in a Cournot market. © 2000 Elsevier Science B.V. All rights reserved.

1. Introduction

Silent financial interests among firms through cross-shareholding are of relevance to these firms. Since the profit functions of the firms are linked via cross-shareholding, the firms may increase their individual and joint profits. When maximizing their profits, the firms take account of the effects their actions have on

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their competitors and customers. Silent interests thus induce collusive behavior and cartelizing effects, in the sense that competition reduces which leads to higher prices.

Several types of interests through shareholding can be distinguished in the literature. Vertical integration through financial links can be thought of as 'cooperation' of firms in the same production column (see, for example, Flath, 1989). Horizontal integration occurs when rivals implicitly collude due to their financial interests. Reynolds and Snapp (1986) and Bresnahan and Salop (1986) focus on joint ventures, which are a very stringent form of horizontal integration since firms have direct control over each other's production policies. In the case of silent financial interests, firms hold shares in their rivals but cannot control the output or price of any of its rivals. Flath (1991, 1992a) proposes a model for analyzing horizontal integration through silent interests. In contrast to the framework in Reynolds and Snapp (1986), Flath's model also takes the effects of indirect shareholding into account. This occurs, for example, when firm *A* owns shares in firm *B*, which owns shares in firm *C*. Although *A* has no direct interests in *C*, it does have indirect interests in *C*, namely through *B*.

In this paper we extend Flath's analysis (1992a) with three firms, to a general *n*-firm setting. We distinguish between an industry that is characterized by *n* Cournot oligopolists and an industry consisting of *n* Bertrand competitors. In the Cournot case, an upper and lower bound are obtained for the uniform price–cost margin in the presence of shareholding. It is further proved that increased shareholding leads to an increase in the price–cost margin, and, hence, in the industry's price. For Bertrand oligopolists, it is shown that shareholding raises the individual price–cost margin above the monopolist's margin.

Although the theoretical issues have received considerable attention in the literature on shareholding (see also Martin, 1993), empirical analyses are rare. An exception is Flath (1992b, 1993) who analyzes the extent of cross-shareholding for the six major *keiretsu* groups in Japan. Due to data limitations, however, a quantification of the effects of shareholding seems not possible. In this paper we present data on cross-shareholding among the five largest financial conglomerates in the Netherlands. The major findings of our empirical analysis are as follows. The uniform price–cost margins increase by at least 8% if the Cournot model applies. In the Bertrand case, the individual price–cost margins also increase, but rather marginally by 1–2%.

In our analysis we take the size of cross-shareholding as given. In the theoretical model, it is shown that cross-shareholding raises the firm's own profits. Consequently, one might wonder why any firm would *not* want cross-shareholding. Flath (1991) answers this question by modeling a two-stage game. In the first stage firms can purchase equity shares in other firms through an efficient stock market. In the second stage firms produce and sell, treating the pattern of cross-shareholding as given. Flath (1991) argues that acquiring shares is not rational for Cournot oligopolies but can be rational for Bertrand oligopolies. Since it is our aim to