International Journal of Industrial Organization 34 (2014) 9–24

Contents lists available at ScienceDirect

International Journal of Industrial Organization

journal homepage: www.elsevier.com/locate/ijio

Divesting ownership in a rival ☆

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ARTICLE INFO

Article history:
Received 6 March 2013
Received in revised form 9 January 2014
Accepted 18 February 2014
Available online 28 February 2014

JEL classification:
L41
L13

Keywords:
Oligopoly
Divestiture
Control
Preferred stock

ABSTRACT

We examine the consumer welfare effect of a firm's partial ownership of a competitor and compare the implications of alternative forms of divestiture. We identify conditions under which turning voting shares into non-voting shares is preferable to selling the shares to the firm's current shareholders (an option frequently chosen). We also show that selling the voting shares to a large independent shareholder is preferable to selling them to small shareholders. We provide additional theoretical results and apply them to the divestiture of Portugal Telecom's holdings in PTM.

1. Introduction

In 2006, British Sky Broadcasting Group (BSkyB), a UK pay-TV broadcaster, announced the acquisition of 17.9% of ITV, a UK free-to-air TV broadcaster. The UK Competition Commission concluded that such acquisition would lessen competition considerably, and ordered BSkyB to reduce its shareholding to below 7.5%. In a related example, until November 2007 Portugal Telecom (PT) held a 58% share of PT Multimedia (PTM), a combination of voting stock and non-voting stock. The two firms operated in several markets as the two main "competitors" (sometimes the sole competitors). Responding to government pressure that PT divests its share in PT Multimedia, PT's share in PT Multimedia was distributed to PT's shareholders.

These are just two of the many examples where a firm owns a share in a competitor. This situation raises a series of competition policy questions, including: (a) To what extent does partial ownership lessen competition and decrease consumer surplus? (b) What difference does it make whether the partial ownership consists of voting shares, as opposed to preferred (non-voting) stock? (c) If a divestiture of control rights is to take place, what is the best way to implement it: to sell the shares to a large shareholder, to sell the shares to small shareholders, to distribute the shares among the shareholders of the parent company in proportion to their holdings, or to turn the voting stock into preferred stock?

In this paper, we attempt to address question (c), and in the process shed some light on (a) and (b). We propose a basic framework whereby each shareholder cares for his financial interest, whereas each firm maximizes the combined interests of its controlling shareholders.

As a preliminary result, we establish a relation between consumer surplus under a price setting duopoly and the weights that each firm gives to its competitor's profits. We then apply this general result to examine the impact of alternative forms of divestiture. First, we show that turning a partial ownership from voting stock to preferred stock increases consumer welfare. In other words, while a financial interest in a competitor may lessen competition, a controlling share is even worse.

Next, we compare the relative merits — in terms of consumer surplus — of alternative divestiture options. In various recent cases,

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http://dx.doi.org/10.1016/j.ijindorg.2014.02.007
0167-7187/

divestiture has been implemented by the so-called "proportional" method, whereby firm A's controlling shares in firm B are transferred to the shareholders of firm A in proportion to shareholdings in firm A. We identify conditions under which this option performs worse — in terms of consumer surplus — than turning voting stock into preferred stock, which in turn performs worse than full divestiture (that is, selling the shares to a third party).

Regarding the option of full divestiture, we show that a sale to a large independent shareholder fares better than a sale to many small shareholders. Intuitively, a sale to a large shareholder increases the weight given to independent shareholders in the target firm; and this has the beneficial "countervailing" effect of increasing the weight given by the target firm to its own profit.

While these are our main results, we also provide additional sets of necessary and sufficient conditions to rank various divestiture options. Moreover, while our results are couched in terms of divestiture of partial competitor ownership, they also apply (with the appropriate sign change) to an increase in partial ownership.

1.1. Related literature

A number of authors have considered the impact of partial competitor ownership on the nature of oligopoly competition. In one of the earliest contributions, Reynolds and Snapp (1986) show that market output is lower when there is partial ownership. Bresnahan and Salop (1986) build on Reynolds and Snapp (1986) by introducing the distinction between financial interest and control. They consider a joint venture between two competitors and show that an independent joint venture is more competitive than any form of silent financial interest, which in turn is more competitive than limited joint control or full ownership or control by one parent.[1]

Flath (1992) contributes to this literature by considering both direct (as in the above papers) and indirect financial shareholding. Firm *A* indirectly holds shares in firm *C* if it holds shares in firm *B* and, in turn, firm *B* holds shares in firm *C*. The anticompetitive effects are greater in this case than when only direct holdings are considered.[2]

In a recent contribution, Karle et al. (2011) consider a private investor who initially owns a controlling stake in one of two competing firms and may acquire a (controlling or non-controlling) stake in the competitor, either directly (by making use of own funds) or indirectly (by inducing the controlled firm to do so). While there is some overlap with our analysis, their framework cannot be used to address the question we are interested in this paper, namely comparing various forms of divestiture.[3]

Although most of the literature focuses on unilateral effects of partial ownership, Gilo et al. (2006) look at the possibility of coordinated effects. Specifically, they analyze whether passive financial investments in rivals facilitate or hinder tacit collusion. Despite the fact that larger crossholdings may limit the punishment after deviation from a collusive arrangement (Malueg, 1992), Gilo et al. (2006) establish that an increase in financial ownership by a rival firm never hampers collusion.

The paper that is closest to ours is O'Brien and Salop (2000). They study the case when there is partial ownership which may or may not correspond to control. They evaluate the impact of such cross shareholdings by computing each firm's price pressure index (PPI): an increase in firm *i*'s PPI corresponds to an upward shift in its first-order condition; given constant rival prices, this leads to a higher price by firm *i*. Based on this methodology, they find the surprising result that obtaining control of a rival firm through partial ownership may be worse, in terms of welfare, than a complete merger between the two competitors.[4] Some of our results are consistent with those of O'Brien and Salop (2000). However, our framework allows us to consider additional ownership comparative statics they did not consider.

O'Brien and Salop focus on partial acquisitions that lead to various scenarios. However, the relationship between financial interest and control is not modeled. By distinguishing between voting stock and preferred stock, our approach addresses this issue and derives a series of policy relevant results. Moreover, unlike O'Brien and Salop we allow explicitly for the distinction between individuals as owners and firms as owners, raising the issue of direct and indirect control or financial interest. As our empirical application shows, this distinction is of practical interest.

1.2. Road map

The remainder of the paper is structured as follows. In Section 2 we present our formal framework. Section 3 includes some preliminary results (lemmas) which we then use in Section 4, where we present our main results. An extension to our basic framework, considering the case of common shareholders, is included in Section 5. In Section 6, we apply our analysis to the case of Portugal Telecom's (PT) divestiture of its share in PT Multimedia (PTM). Section 7 concludes the paper.

2. Formal approach

Consider an industry with two firms (*A* and *B*) and *N* relevant shareholders.[5] We explicitly consider the distinction between voting stock (i.e., shares with control rights) and preferred (non-voting) stock. Firm *i*'s total stock ($i = A,B$) is composed of a percentage V_i of voting stock and a percentage $1 - V_i$ of preferred stock. Shareholder *n* holds a share v_{in} of voting stock in firm *i* and a share s_{in} of preferred stock in firm *i*. Hence, shareholder *n* holds a percentage $t_{in} \equiv v_{in}V_i + s_{in}(1 - V_i)$ of firm *i*'s total stock.

Each firm's profit is distributed among shareholders proportionally to their total stock, regardless of whether it be voting stock or preferred stock. Hence, shareholder *n* receives a profit stream corresponding to a percentage t_{in} of firm *i*'s aggregate profit, Π_A. It follows that shareholder *n*'s payoff is given by $t_{in}\,\Pi_i + t_{jn}\,\Pi_j$.

In addition to individual shareholders, we also consider the possibility that firm *A* owns a share t_{B0} in firm *B*, which includes a share $v_{B0} > 0$ of voting stock.[6] It follows that, if π_i is firm *i*'s operating profit ($i = A,B$), then firm *A*'s aggregate profit (including cross-holdings) is given by $\Pi_A = \pi_A + t_{B0}\Pi_B$, whereas for firm *B* we have simply $\Pi_B = \pi_B$.

We follow O'Brien and Salop (2000) in assuming that each firm's objective function is a weighted sum of shareholders' payoffs. Additionally, we assume that the weight given by firm *i* to shareholder *n*'s payoff, w_{in}, is a function of shareholder *n*'s voting stock. In particular, let $w_{in} = f(v_{in})/\sum_{n=0}^{N} f(v_{in})$, where: $(i)\, f(0) = 0$; $(ii)\, \partial w_{in}/\partial v_{in} > 0$; $(iii)\quad f(v_{in})/f(v_{in'}) = f(\theta v_{in})/f(\theta v_{in'})$ for all $\theta \neq 0$ and $(iv)\, f(\theta v_{in}) + f((1-\theta)v_{in}) \leq f(v_{in})$ for all $\theta \in [0,1]$. We thus assume that a firm gives no weight to a

[1] Reitman (1994) considers the same ownership structure as Reynolds and Snapp (1986) in a conjectural variation model to discuss the incentives firms may have in participating in partial ownership arrangements. See also Alley (1997) for an application of a conjectural variation model with partial ownership arrangements and trade to the automobile industry.

[2] Dietzenbacher et al. (2000) extend these results to more than three firms and to Bertrand competition. They also provide an empirical application to the Dutch financial market. In related recent research, Micola and Bunn (2008) conducted a series of simulations to analyze the effects of crossholdings on the outcome of sealed bid-offer auctions with capacity constraints.

[3] Moreover, Karle et al. (2011) only consider two possible extreme cases regarding initial ownership structures in the target firm: one block holder or many small shareholders. In addition, all private investors are assumed not to have initially positions in more than one firm. Our present paper proposes a more general framework in both respects, which is important in terms of empirical application.

[4] In a recent contribution Foros et al. (2010) consider the case when the partial ownership of one firm in the other is endogenously determined.

[5] We allow for two types of shareholders, relevant shareholders and infinitesimal shareholders. Only the former are able to influence the firms' managers.

[6] Strictly speaking, firm *B* has, at most, $N + 1$ shareholders, if we include the competing firm as a shareholder.