

# Stakeholder Capitalism, Corporate Governance and Firm Value\*

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## Abstract

We consider the advantages and disadvantages of stakeholder-oriented firms that are concerned with employees and suppliers as well as shareholders compared to shareholder-oriented firms. Societies with stakeholder-oriented firms have higher prices, lower output, and can have greater firm value than shareholder-oriented societies. In some circumstances, firms may voluntarily choose to be stakeholder-oriented because this increases their value. Consumers that prefer to buy from stakeholder firms can also enforce a stakeholder society. Competition between stakeholder and shareholder firms in the context of globalization is relatively more attractive for shareholder firms than for stakeholder firms.

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# 1 Introduction

In their classic survey of corporate governance, Shleifer and Vishny (1997; p. 738) outline their focus in the following way: “Our perspective on corporate governance is a straightforward agency perspective, sometimes referred to as separation of ownership and control. We want to know how investors get the managers to give them back their money.” In the US and UK and many other Anglo-Saxon countries there is wide agreement that this is what corporate governance is about. The law is clear that shareholders are the owners of the firm and managers have a fiduciary (i.e., very strong) duty to act in their interests. Most of the literature has taken this perspective.

However, the objective of the firm depends very much on which country is being considered. In Germany the legal system is quite explicit that firms do not have a sole duty to pursue the interests of shareholders. They have the system of *co-determination*. In large corporations employees and shareholders have an equal number of seats on the supervisory board of the company (see Rieckers and Spindler (2004) and Schmidt (2004)). Here the firm will be run differently than in Anglo-Saxon countries where only shareholders count. Workers’ interests will also matter.

Germany is by no means the only country with co-determination. Wymeersch (1998) documents several other countries that have some form of co-determination. Austria has a system of co-determination similar to that in Germany. The Netherlands has a system known as the *structuurvennootschap*, that is applicable to all larger companies except for those with an international group structure such as Royal Dutch Shell and Unilever. Here the labor representation is indirect in that directors must have the confidence of employees. Members of the supervisory board must take care of “the interest of the company and its related enterprise” (Wymeersch (1998, p. 1144)).

In Denmark, Sweden, Luxembourg, and France there is employee representation on one-tier boards. In Denmark, a third of the board is elected by employees (with a minimum of two) in companies with more than 35 employees. In Sweden, companies with more than

25 employees must have two labor representatives appointed to the board, while companies with more than 1,000 employees must have three. The rights and duties of these board members are the same as all other board members. In Luxembourg, firms with more than 1,000 employees and some firms with a state connection have one third of the board elected by the employees. The system in France is different in that for firms with more than fifty workers two workers' representatives act as observers at board meetings. They do not have the right to vote. More conventional co-determination systems exist for privatized public sector firms and can be introduced voluntarily by firms. In Finland companies can also voluntarily adopt employee representation on the board. More than 300 companies have reportedly done this ((Wymmeersch (1998, p. 1141)).

Another type of worker participation in decision making is on the "enterprise council." These are concerned with employment conditions such as lay-offs and plant closures. Companies with at least 1,000 employees of which there are 150 or more in two or more EU countries must have a "European Works Council."

In Japan, the situation is yet again different from the US and UK. Managers do not have a fiduciary responsibility to shareholders. The legal obligation of directors is such that they may be liable for gross negligence in the performance of their duties, including the duty to supervise (Scott, 1998). In practice, it is widely accepted that they pursue the interests of a wide variety of stakeholders. This is well illustrated by a report of the annual meeting of the International Corporate Governance Network in Tokyo from the *Financial Times* of August 1, 2001.

Hiroshi Okuda, chairman of Toyota Motor Corporation and of the Japan Federation of Employers' Associations, told the assembled money managers that it would be irresponsible to run Japanese companies primarily in the interests of shareholders.

... Mr. Okuda made his point by telling guests what Japanese junior high school textbooks say about corporate social responsibility. Under Japanese company

law, they explain, shareholders are the owners of the corporation. But if corporations are run exclusively in the interests of shareholders, the business will be driven to pursue short-term profit at the expense of employment and spending on research and development.

To be sustainable, children are told, corporations must nurture relationships with stakeholders such as suppliers, employees and the local community. So whatever the legal position, the textbooks declare, the corporation does not belong to its owners.

... 'In Japan's case,' said Mr. Okuda, 'it is not enough to serve shareholders.'

The stark difference between Anglo-Saxon and other countries is underlined by surveys of managers (Yoshimori, 1995). Figure 1 shows the choices of senior managers at a sample of major corporations in Japan, Germany, France, the US, and the UK, between the following two alternatives:

- (a) A company exists for the interest of all stakeholders (dark bar).
- (b) Shareholder interest should be given the first priority (light bar).

In Japan the overwhelming response by 97% of those asked was that all stakeholders were important. Only 3% thought shareholders' interests should be put first. Germany and France are more like Japan in that 83% and 78%, respectively, viewed the firm as being for all stakeholders. At the other end of the spectrum, managers in the US and UK, by majorities of 76% and 71% respectively, stated that shareholders' interests should be given priority.

The same survey also asked the managers what their priorities were with regard to dividends and employee layoffs. They were asked to choose between the following specific alternatives:

- (a) Executives should maintain dividend payments, even if they must lay off a number of employees (dark bar).

(b) Executives should maintain stable employment, even if they must reduce dividends (light bar).

Figure 2 shows the results. There is again a sharp difference between Japan, Germany and France and the US and UK.

Despite the widely acknowledged differences across countries, most of the literature on corporate governance is concerned with the Anglo-Saxon view (see, e.g., Becht, Bolton, and Röell, 2003, for a survey). There has been relatively little study of the stakeholder view of corporate governance. In this paper our aim is to develop a simple model of stakeholder governance in the context of an imperfectly competitive product market when firms are concerned about their continuity. We start by considering a two-period duopoly model of differentiated products with Bertrand competition. As a benchmark we analyze the case where firms maximize the value accruing to shareholders. In the first period firms are subject to a random shock to their costs and if this is large enough they may be driven into bankruptcy. If both firms survive they repeat the competition in the second period. If only one survives that firm becomes a monopolist in the second period. In choosing their first period prices firms take into account the effects on first period profits as well as on the probability of surviving as a monopolist or as a duopolist.

We model stakeholder governance as firms putting weight in their objective function on the effects of bankruptcy on stakeholders other than shareholders. If firms do not survive, stakeholders face costs for searching for new opportunities. If firms survive, stakeholders earn rents from their relationships with firms. When firms put weight on stakeholders other than shareholders, the way in which they compete changes significantly. We show that the concern for stakeholders leads to a softening of competition. Firms charge higher prices and their probability of going bankrupt is reduced. Profits in the first period are increased and firm value at the initial date can be increased. Thus concern for other stakeholders can actually *benefit* shareholders through its effect on firm value. Of course, workers and other suppliers are also better off from the softening of competition. However, since prices are

higher not everybody is better off. In particular, consumers are worse off from the emphasis on stakeholders such as workers.

The fact that firm value can be increased by the concern for stakeholders raises the possibility that shareholders may actually be better off in equilibrium if they adopt a concern for other stakeholders. We show that this is in fact possible. In some circumstances firms can improve their shareholders' welfare by voluntarily choosing to take into account other stakeholders such as employees. In other circumstances where the appropriate conditions are not satisfied, how can concern for employees arise? One possibility is that consumers enforce this requirement by being more willing to buy from firms that care about stakeholders other than shareholders. Interestingly, this leads to the situation of self-enforcing societies where consumers induce firms to adopt stakeholder concerns.

With globalization it has become commonplace for domestic firms to compete with firms from other countries. One important issue in the face of such international competition is the nature of the competition between shareholder-oriented firms and stakeholder-oriented firms. If a stakeholder firm competes with a shareholder firm then the stakeholder firm sets a higher price than the shareholder firm. We show that starting from a situation with two stakeholder firms, if one becomes a shareholder firm, this leads to lower prices, greater output and lower first-period expected profits for the remaining stakeholder firm. In contrast, starting from a situation with two shareholder firms, if one becomes a stakeholder firm, the economy shows higher prices, lower output and higher first-period profits for the remaining shareholder firm.

As a robustness check, we consider the effect of having Cournot rather than Bertrand competition. It is shown that the same results hold except that firms will not find it worthwhile to voluntarily adopt concern for stakeholders.

Our paper is related to a number of other papers. Blinder (1993) models the objective function of Japanese firms as the weighted sum of shareholder profits and a function of employee earnings. He shows this leads firms to maximize revenue. In contrast, we put the firm-specific costs and benefits stakeholders receive in the objective function rather than

employee earnings. The stakeholders will earn their opportunity cost whether they have a relationship with the firm or not. We show that concern for stakeholders leads to a concern for survival and this softens competition.

Bris and Brisley (2005) show, among other things, that having lower investor protection for minority shareholders changes the way in which firms compete in a Cournot model. This leads to higher output and lower prices, which makes consumers better off and can improve social welfare. Sklivas (1987) shows that in oligopolistic industries shareholders can choose managerial incentives to alter the way in which firms compete. For both Bertrand and Cournot competition, he shows that firm value can be increased in this way. Fershtman and Judd (1987) also consider the interaction between managerial incentives and competition in oligopolistic markets. Among other things, they show that compensation contracts can optimally depend on things other than profits such as sales. There is a large literature on how debt affects competition that started with Brander and Lewis (1986). They show that debt acts as a precommitment device and changes the way in which firms compete. Allen (2000) contains a discussion of this literature. We assume pure equity finance and debt plays no role.

An important question concerns whether it is socially optimal for firms to pursue shareholder interests as in the Anglo-Saxon countries or whether adopting a stakeholder perspective can lead to a superior allocation of resources. We know from the fundamental theorems of welfare economics that in an Arrow-Debreu economy with perfect and complete markets, symmetric information, and perfect competition the allocation is Pareto efficient if firms maximize the wealth of shareholders. If any of these strong assumptions are violated then it is no longer clear that this objective leads to efficiency. Allen and Gale (2000, Chapter 12) and Allen (2005) have argued that changing firms' objective functions from just focusing on shareholder wealth can correct for market failures and lead to a Pareto superior allocation. They build on Aoki's seminal work on Japanese firms (see Aoki (1990) for an excellent survey of this literature). Allen and Gale develop an overlapping generations model of employees

where firms hire both young and old workers. All the employees and managers of the firm must reach consensus and cooperate for the firm to run efficiently. The necessity of this consensus and cooperation can provide incentives for the provision of effort. By choosing strategies that attract young employees, the senior managers ensure that the long-run viability of the firms is maintained and all employees and shareholders do well. Allen and Gale show that the broader focus on stakeholders leads to a Pareto improvement. Our analysis here is positive rather than normative.

In the managerial literature, Blair (1995) has suggested a framework for considering stakeholder governance. Her approach stresses the role of firm specific investments by employees and other stakeholders. She argues that these people should be given residual claimant status along with shareholders. O'Sullivan (2000) stresses the importance of building organizations that are able to continuously innovate and ensuring all stakeholders are involved in this process.

The remainder of the paper proceeds as follows. Section 2 presents a model analyzing the case where firms care about other stakeholders in addition to shareholders. Section 3 focuses on the incentives of firms to become stakeholder oriented and the possibility of having self-enforcing stakeholder economies. Section 4 looks at globalization where different types of firms start competing with each other. Section 5 considers the robustness of our results; and finally Section 6 concludes.

## 2 A Model of Stakeholder Capitalism

Consider first a simple one-period model where two firms,  $i \in \{A, B\}$ , offer differentiated products and compete in prices. Each firm  $i$  faces a demand curve given by

$$D_i = A - b_{ii}p_i + b_{ij}p_j$$

for  $j \neq i$ , where  $p_i$  and  $p_j$  are the prices charged by firm  $i$  and  $j$  respectively, and  $b_{ii}$  and  $b_{ij}$  depend on consumers' preferences over the good sold by firm  $i$  relative to that sold by firm  $j$ . We assume throughout that  $b_{ii} \geq b_{ij}$ , so that firm  $i$ 's demand is at least as sensitive to its own price as it is to the price charged by its competitor. Each firm  $i$  chooses its price to maximize profit as given by

$$\max_{p_i} \pi_i = \max_{p_i} (p_i - c) D_i(p_i) = \max_{p_i} (p_i - c) (A - b_{ii} p_i + b_{ij} p_j),$$

where the parameter  $c$  represents the marginal cost of producing one unit of output. We assume that  $c$  is the same for both firms. The first order condition for profit maximization gives

$$(A - b_{ii} p_i + b_{ij} p_j) - (p_i - c) b_{ii} = 0, \quad (1)$$

which yields

$$p_i = \frac{A + b_{ij} p_j + c b_{ii}}{2 b_{ii}}.$$

Given a similar expression for firm  $j$ , we can solve for the equilibrium prices  $\tilde{p}_i$  to obtain:

$$\tilde{p}_i = \frac{1}{b_{ii}} \left( A + \frac{2}{3} c b_{ii} + \frac{1}{3} c b_{ij} \right).$$

We now introduce bankruptcy by adding a second period, identical to the first. However, we also assume that firm  $i$  is subject to a shock to its marginal costs in period 1, so that  $c_i = \bar{c} + \epsilon_i$ , where  $\epsilon_i$  is distributed according to the distribution function  $F(\cdot)$ . For tractability, we assume that  $F$  is a symmetric distribution whose density function  $f$  is non-increasing in the absolute value of the shock.<sup>1</sup> Firm  $i$  can operate in period 2 only if its profit in the first period,  $\pi_{i1}$ , is nonnegative. This implies that firm  $i$  operates in period 2 only if  $\pi_{i1} \geq 0 \Leftrightarrow \epsilon_i \leq p_{i1} - \bar{c}$ . Denoting by  $\pi_2^M$  the profit that either firm earns if it is the sole surviving firm in period 2, so that it is a monopolist, and by  $\pi_2^D$  the profit obtained by each

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<sup>1</sup>Any symmetric bell-shaped distribution satisfies this condition, as well as a uniform distribution over a bounded support.

firm if both firms are still active, firm  $i$ 's maximization problem becomes

$$\begin{aligned} \max_{p_{i1}} \Pi_i &= E[\pi_{i1}] + \Pr(\epsilon_i \leq p_{i1} - \bar{c}) (1 - \Pr(\epsilon_j \leq p_{j1} - \bar{c})) \pi_2^M \\ &+ \Pr(\epsilon_i \leq p_{i1} - \bar{c}) \Pr(\epsilon_j \leq p_{j1} - \bar{c}) \pi_2^D. \end{aligned}$$

The first term represents the expected profit in the first period, the second term is the profit firm  $i$  obtains in the second period,  $\pi_2^M$ , when it is the only firm surviving times the probability of this event, and the last term is the profit  $\pi_2^D$  firm  $i$  obtains in the second period when both firms are still active, times the probability both firms survive. Both firms can also fail, in which case they get zero profits. Noting that  $\Pr(\epsilon_i \leq p_{i1} - \bar{c}) = F(p_{i1} - \bar{c})$ , the maximization problem can be written as

$$\begin{aligned} \max_{p_{i1}} \Pi_i &= E[\pi_{i1}] + F(p_{i1} - \bar{c}) (1 - F(p_{j1} - \bar{c})) \pi_2^M + F(p_{i1} - \bar{c}) F(p_{j1} - \bar{c}) \pi_2^D \quad (2) \\ &= E[\pi_{i1}] + F(p_{i1} - \bar{c}) ((1 - F(p_{j1} - \bar{c})) \pi_2^M + F(p_{j1} - \bar{c}) \pi_2^D). \end{aligned}$$

We assume throughout that  $\frac{\partial^2 \Pi_i}{\partial p_{j1} \partial p_{i1}} \geq 0$ , so that prices are strategic complements. This condition can be expressed as

$$\frac{\partial_i^2 \Pi_i}{\partial p_{j1} \partial p_{i1}} = \frac{\partial^2 E[\pi_{i1}]}{\partial p_{i1} \partial p_{j1}} - f(p_{i1} - \bar{c}) f(p_{j1} - \bar{c}) (\pi_2^M - \pi_2^D) \geq 0.$$

Note that  $\frac{\partial^2 E[\pi_{i1}]}{\partial p_{i1} \partial p_{j1}} = b_{ij} > 0$ . The second term, however, is negative because the incentive for firm  $i$  to survive when firm  $j$  does not survive introduces an element of strategic substitutability into the model. This condition therefore amounts to assuming that the effect on first period profits is greater than the incentive to prey on your rival.

We also assume the standard regularity condition (see Dixit, 1986) that  $\left| \frac{\frac{\partial^2 \Pi_i}{\partial p_{j1} \partial p_{i1}}}{\frac{\partial^2 \Pi_i}{\partial p_{i1}^2}} \right| < 1$ , which can be expressed as

$$\left| \frac{\frac{\partial^2 \Pi_i}{\partial p_{j1} \partial p_{i1}}}{\frac{\partial^2 \Pi_i}{\partial p_{i1}^2}} \right| = \left| \frac{b_{ij} - f(p_{i1} - \bar{c}) f(p_{j1} - \bar{c}) (\pi_2^M - \pi_2^D)}{b_{ii} + \frac{\partial f(p_{i1} - \bar{c})}{\partial p_{i1}} ((1 - F(p_{j1} - \bar{c})) \pi_2^M + F(p_{j1} - \bar{c}) \pi_2^D)} \right| < 1 \quad (3)$$

This condition imposes a restriction on the distribution  $F(\cdot)$  of the shock  $\epsilon$ , and implies well-behaved reaction functions for both firms.

Letting  $\widehat{p}_{i1}$  denote the equilibrium price for firm  $i$  in the first period, we have the following immediate result.

**Proposition 1** *The concern for survival into the second period leads to higher first period prices than in the one-period model, i.e.,  $\widehat{p}_{i1} > \widetilde{p}_i$ .*

**Proof:** Differentiating firm  $i$ 's expected profit with respect to  $p_{i1}$ , we have

$$\frac{\partial \Pi_i}{\partial p_{i1}} = \frac{\partial E[\pi_{i1}]}{\partial p_{i1}} + f(p_{i1} - \bar{c}) \left( (1 - F(p_{j1} - \bar{c})) \pi_2^M + F(p_{j1} - \bar{c}) \pi_2^D \right) = 0. \quad (4)$$

Since both  $f(p_{i1} - \bar{c})$  and  $\left( (1 - F(p_{j1} - \bar{c})) \pi_2^M + F(p_{j1} - \bar{c}) \pi_2^D \right)$  are positive,  $\partial^2 E[\pi_{i1}] / \partial^2 p_{i1} = -2b_{ii} < 0$ , the equilibrium price is higher than in the one-period case, as given by (1). The proposition follows.  $\square$

The intuition behind Proposition 1 is simple. The probability that a firm survives until period 2,  $\Pr(\epsilon_i \leq p_{i1} - \bar{c})$ , is increasing in the first-period price  $\widehat{p}_{i1}$ . Thus, the concern for survival induces firms to soften competition and charge higher prices than in the one-period model. As a consequence, each firm also produces less output. Whether or not this brings the firms closer to the monopoly price,  $p_i^M$ , depends on how strong the firms' incentives to survive until period 2 are. Denoting by  $\sigma_i$  the variance of the shock  $\epsilon_i$  to firm  $i$ 's marginal costs, we obtain the following:

**Corollary 1** *There exists a value of the shock variance,  $0 < \bar{\sigma}_i \leq \infty$ , such that firms' first period equilibrium prices are lower than the price charged by a single-period monopolist firm:  $\widehat{p}_{i1} < p_i^M$  for  $\sigma_i < \bar{\sigma}_i$  and  $\widehat{p}_{i1} > p_i^M$  for  $\sigma_i > \bar{\sigma}_i$ .*

**Proof:** Recall the FOC for profit maximization, equation (4):

$$\frac{\partial \Pi_i}{\partial p_{i1}} = \frac{\partial E[\pi_{i1}]}{\partial p_{i1}} + f(p_{i1} - \bar{c}) \left( (1 - F(p_{j1} - \bar{c})) \pi_2^M + F(p_{j1} - \bar{c}) \pi_2^D \right) = 0.$$

Denote  $p'_{i1} = \hat{p}_{i1}(\sigma'_i)$  as the value of the first period price that satisfies this expression with equality for a given variance  $\sigma'_i$ , and note that trivially  $p'_{i1} > \bar{c}$ . Since the second term,  $f(p'_{i1} - \bar{c}) \left( (1 - F(\hat{p}_{j1} - \bar{c})) \pi_2^M + F(\hat{p}_{j1} - \bar{c}) \pi_2^D \right)$ , is strictly positive whenever  $f(p'_{i1} - \bar{c}) > 0$ , this implies that, at equilibrium,  $\frac{\partial E[\pi_{i1}]}{\partial p_{i1}} < 0$ . Fix  $p'_{i1} > \bar{c}$ , and let the variance  $\sigma_i \rightarrow 0$ . We have that  $\lim_{\sigma_i \rightarrow 0} f(p'_{i1} - \bar{c}) = 0$ . Therefore, there is always a value  $\tilde{\sigma}_i$  such that, for any  $\sigma_i^1 < \tilde{\sigma}_i \leq \sigma_i^2$ ,  $f(p'_{i1} - \bar{c} | \sigma_i^1) \left( (1 - F(\hat{p}_{j1} - \bar{c})) \pi_2^M + F(\hat{p}_{j1} - \bar{c}) \pi_2^D \right) < f(p'_{i1} - \bar{c} | \sigma_i^2) \left( (1 - F(\hat{p}_{j1} - \bar{c})) \pi_2^M + F(\hat{p}_{j1} - \bar{c}) \pi_2^D \right)$ .

Consider now a value of the shock variance  $\sigma_i < \tilde{\sigma}_i$ . Given the fixed value  $p'_{i1}$ ,

$$\left. \frac{\partial \Pi_i}{\partial p_{i1}} \right|_{p_{i1}=p'_{i1}} = \left. \frac{\partial E[\pi_{i1}]}{\partial p_{i1}} \right|_{p_{i1}=p'_{i1}} + f(p'_{i1} - \bar{c} | \sigma_i) \left( (1 - F(\hat{p}_{j1} - \bar{c})) \pi_2^M + F(\hat{p}_{j1} - \bar{c}) \pi_2^D \right) < 0.$$

To restore equilibrium, the first period price  $p_{i1}$  must fall. To see this note that since  $\partial^2 E[\pi_{i1}] / \partial^2 p_{i1} < 0$ , a fall in  $p_{i1}$  increases  $\partial E[\pi_{i1}] / \partial p_{i1}$  (makes it less negative). Also since the density function of  $\epsilon_i$  is non-increasing in the absolute value of  $\epsilon_i$  and  $p'_{i1} - \bar{c} > 0$ , a reduction in  $p'_{i1}$  would increase  $f(p'_{i1} - \bar{c})$ . Thus, for  $\sigma_i < \tilde{\sigma}_i$ , the equilibrium price  $\hat{p}_{i1}(\sigma_i)$  falls as  $\sigma_i$  decreases and converges to the single-period equilibrium price  $\tilde{p}_i$  as  $\sigma_i \rightarrow 0$ . This establishes that there must exist some threshold  $\bar{\sigma}_i$  such that  $\hat{p}_{i1} < p_i^M$  for  $\sigma_i < \bar{\sigma}_i$ .  $\square$

When firms care about surviving until period 2, they set prices to maximize their expected profits across both periods. This means firms balance out the maximization of first period profits with minimizing the possibility of bankruptcy and thus increasing their chances of survival. When survival is very uncertain because marginal costs are highly volatile, firms set higher prices to guarantee survival, potentially setting a price in the first period higher than the monopoly price and reducing their profits in the first period. When survival is not very uncertain, firms set prices below the level chosen by a monopolist and they have higher first-period profits relative to the case when they care only about the single period. In what follows, we assume throughout that  $\sigma_i < \bar{\sigma}_i$ .

We have assumed so far that firms maximize their expected profits, taking into account

only shareholder value. Consider now the case where firms also have concerns for other stakeholders. If a firm were to go bankrupt, its employees and suppliers would have to bear the costs of finding new jobs and customers. If the firm is interested in stakeholders as well as shareholders it will attach some weight to these costs in its objective function. This modifies the objective function for firm  $i$  as follows:

$$\begin{aligned} \max_{p_{i1}} \Omega_i &= \Pi_i - (1 - F(p_{i1} - \bar{c})) K_i \\ &= E[\pi_{i1}] + F(p_{i1} - \bar{c}) \left( (1 - F(p_{j1} - \bar{c})) \pi_2^M + F(p_{j1} - \bar{c}) \pi_2^D \right) - (1 - F(p_{i1} - \bar{c})) K_i, \end{aligned} \quad (5)$$

where for simplicity of notation,  $K_i$  combines the weighting the firm puts on stakeholder costs and the level of these costs.<sup>2</sup> In addition to the costs stakeholders incur in bankruptcy, they may also earn rents when the firm stays solvent. We could represent the weight the firm puts on these benefits to stakeholders by an additional term  $k_i$  in the objective function, received only if the firm survives across periods (i.e., with probability  $F(p_{i1} - \bar{c})$ ). As we shall see in Section 5 below, both terms have a similar effect. For the moment we therefore focus on the formulation in (5).

An important issue concerns the way in which (5) is implemented. As we saw in the introduction, in Germany codetermination requires that in large firms workers have representation on the supervisory board. This ensures that the organizational structure of decision making is such that workers' representatives have an important say in the strategic direction of the company. The objective function (5) is one way of capturing this. However, codetermination is not the only way to build concern for stakeholders into the organizational structure of the firm. The French requirement that workers' representatives be able to attend board meetings can change the way meetings are conducted. By requiring consensus in decision making processes as in Japan (see Aoki, 1990) it may be possible to have the firm put a weight on

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<sup>2</sup>This specification also corresponds to the case where firms explicitly internalize the negative externality their failure imposes on other parties who depend on the firm, such as employees. See Tirole (2006) for a recent discussion of stakeholder governance along these lines.

employees' interests directly. Another way is to give managers a certain degree of freedom in decision making. Since managers' interests are aligned in many ways with those of other employees and stakeholders in terms of the costs they incur if the firm goes bankrupt, this may be an effective way of implementing (5). O'Sullivan (2000) contains a discussion of how organizational structure can be designed to alter decision-making within the firm.

With (5) as the objective function for firms we have the following result.

**Proposition 2** *A concern for stakeholders leads firms to set higher prices, i.e.,  $\frac{\partial \hat{p}_{i1}(K_i)}{\partial K_i} > 0$ .*

**Proof:** Differentiating (5) with respect to  $p_{i1}$ , we have

$$\frac{\partial E[\pi_{i1}]}{\partial p_{i1}} + f(p_{i1} - \bar{c}) (K_i + (1 - F(p_{j1} - \bar{c})) \pi_2^M + F(p_{j1} - \bar{c}) \pi_2^D) = 0. \quad (6)$$

Since the second term,  $f(p_{i1} - \bar{c}) (K_i + (1 - F(p_{j1} - \bar{c})) \pi_2^M + F(p_{j1} - \bar{c}) \pi_2^D)$ , is positive and increasing in  $K_i$ , the equilibrium price must be increasing in  $K_i$ .  $\square$

Proposition 2 suggests that a concern for stakeholders serves to soften competition by increasing prices and reducing quantity in the first period. An interesting implication of this concern for stakeholders is that firms' production in stakeholder societies is further away from the efficiency benchmark provided by the perfect competition paradigm. In other words, the reduced competition induced by firms' concern for survival ( $K_i$ ) leads to greater markups over marginal cost, and thus lower output.

Whether or not firms themselves benefit depends on the magnitude of their concern for employees.

**Corollary 2** *There exists a value  $\bar{K}_i$  such that, for  $K_i < \bar{K}_i$ , firms have higher first-period expected profits when they care about stakeholders than when they maximize only shareholder value, i.e.,  $E[\pi_{i1}]|_{K_i > 0} > E[\pi_{i1}]|_{K_i = 0}$  for  $K_i < \bar{K}_i$  and  $E[\pi_{i1}]|_{K_i > 0} < E[\pi_{i1}]|_{K_i = 0}$  otherwise.*

**Proof:** As  $K_i \rightarrow 0$ , Proposition 1 establishes that the equilibrium first period price,  $\hat{p}_{i1}(K_i)$ , remains higher than the single period equilibrium price,  $\tilde{p}_i$ . Moreover, given our maintained

assumption that  $\sigma_i < \bar{\sigma}_i$ , Corollary 1 establishes that, as  $K_i \rightarrow 0$ ,  $\hat{p}_{i1}(K)$  is lower than the joint profit maximization price  $p_i^M$ , and is increasing in  $K_i$ . From the first order condition (6) for profit maximization, however, it is also clear that, as  $K_i \rightarrow \infty$ , the equilibrium price  $\hat{p}_{i1}(K_i)$  rises until demand for firm  $i$  converges to 0, so that  $E[\pi_{i1}] \rightarrow 0$ . Therefore, there must be some  $\bar{K}_i$  such that  $E[\pi_{i1}]$  is higher for  $K_i < \bar{K}_i$  and lower for  $K_i > \bar{K}_i$ .  $\square$

The result in Corollary 2 suggests that firms may have higher expected profits in the first period when they care about stakeholders. This occurs when the penalty  $K_i$  is not so high that the concern for stakeholders induces firms to increase prices so much that their sales, and consequently their profits, are hurt.

The corollary also gives rise to a result concerning the firm's overall market value. Since, for  $K_i < \bar{K}_i$  firm  $i$ 's profits are higher in the first period, and since its probability of surviving into the second period is increased for any positive value of  $K_i$ , it is possible that for  $K_i < \bar{K}_i$  firm  $i$ 's overall market value is increasing in  $K_i$ . The increase in the probability of surviving is good in terms of the increase in profits obtained as a duopolist but may be bad in terms of the reduction in profits as a monopolist because also firm  $j$  has a higher probability of survival. We summarize this in the following corollary.

**Corollary 3** *For  $K_i < \bar{K}_i$ , in a symmetric equilibrium firms will have higher overall market value when they care about stakeholders than when they maximize only shareholder value, i.e.,  $\Pi_i|_{K_i>0} > \Pi_i|_{K_i=0}$  for  $K_i < \bar{K}_i$  if*

$$(1 - 2F)\pi_2^M + 2F\pi_2^D > 0.$$

**Proof:** When the equilibrium is symmetric,  $K_i = K_j = K$  and  $p_{i1} = p_{j1}$ , which implies that  $F(p_{i1} - \bar{c}) = F(p_{j1} - \bar{c}) = F$ . Profits can then be written as

$$\Pi_i = E[\pi_{i1}] + F(1 - F)\pi_2^M + F^2\pi_2^D$$

The previous corollary establishes that  $F$  is increased by an increase in  $K$ . The derivative of profits with respect to  $F$ :

$$\frac{\partial \Pi_i}{\partial F} = (1 - 2F)\pi_2^M + 2F\pi_2^D.$$

This gives the condition above.  $\square$

The condition is clearly satisfied if  $\pi_2^M = \pi_2^D$ . It will not be satisfied if  $\pi_2^M$  is sufficiently large relative to  $\pi_2^D$ . The result thus illustrates that shareholders and stakeholders interests are not necessarily opposed but rather can be aligned.

One final important point to notice is that even if having firms caring about stakeholders can be beneficial for both shareholders and other stakeholders, it may not enhance total welfare. The reason is that consumers are worse off due to the higher prices stakeholder firms charge and the consequent reduction in output.

### 3 Self-enforcing Stakeholder Societies

So far we have analyzed the effect of a concern for stakeholders on firms' equilibrium prices, quantities, and profits. In doing this we have taken as given that firms care about stakeholders. We now analyze whether adopting such a concern for employees and suppliers into the firm's objective function would indeed arise as an equilibrium result. That is, we endogenize the choice of  $K_i$  and consider whether firms find it optimal to adopt organizational structures that put weight on stakeholders and thus precommit to acting like a stakeholder firm. While incorporating  $K_i$  into firms' objective functions clearly softens competition and may increase profits, it may not be an equilibrium for firms to do this. The reason is that, when firm  $j$  cares about its stakeholders, it raises its price and lowers its output. Firm  $i$  in that case may have an incentive to commit to being aggressive by lowering its own price to capture a greater market share, which it achieves by choosing an appropriate organizational structure that commits it not to care about stakeholders.

We analyze here two cases. First, we study whether, absent any other consideration, a

firm would naturally choose to assign some positive weight to its general stakeholders in its objective functions. Second, we consider how consumers' desires to transact with "socially conscious" firms can alter the incentives for firms to become stakeholder-oriented.

### 3.1 Firms' Optimal Objective Functions

To analyze this issue, we extend the model slightly to introduce a first stage where we allow firms to choose  $K_i$ . We do this by assuming that at time  $t = 0$ , each firm chooses  $K_i$  as part of its objective function at  $t = 1$ . Then, conditional on each firm's date 0 choice of the weight to put on other stakeholders, at time  $t = 1$  each firm chooses a price to charge in the first period.

In order to precommit to the objective function chosen at the initial stage, firms must implement an appropriate decision making structure within the firm. As discussed above, putting workers' representatives on the board is one extreme way of doing this. Requiring consensus or allowing managers more autonomy are other ways to precommit to pursue broader objectives.

Solving the two-stage game by backward induction, for given  $K_i$  and  $K_j$ , firm  $i$ 's optimal price at  $t = 1$  is given by  $\hat{p}_{i1}(K_i, K_j)$ , exactly as found in the previous section. At  $t = 0$ , each firm then maximizes the objective function reflecting the market value of the firm with respect to  $K_i$ , after substituting in the equilibrium prices  $\hat{p}_{i1}(K_i, K_j)$ ,  $\hat{p}_{j1}(K_j, K_i)$ . For firm  $i$ , the objective is:

$$\max_{K_i} \hat{\Pi}_i = E[\pi_{i1}(\hat{p}_{i1}, \hat{p}_{j1})] + F(\hat{p}_{i1} - \bar{c}) \left( (1 - F(\hat{p}_{j1} - \bar{c})) \pi_2^M + F(\hat{p}_{j1} - \bar{c}) \pi_2^D \right),$$

where  $\hat{\Pi}_i = \Pi_i(\hat{p}_{i1}(K_i, K_j), \hat{p}_{j1}(K_i, K_j))$ .<sup>3</sup> In what follows, we focus on the symmetric case

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<sup>3</sup>Note that we assume throughout that, while the firm may implement a decision-making structure that explicitly incorporates a concern for workers, it still has as its objective the maximization of profits. An alternative specification would be that firms commit to bearing the costs of the externality their failure imposes on other stakeholders, as discussed in Tirole (2006). This could be formalized by assuming that the firm bears a cost of  $K_i$  in case of failure, which would be subtracted from the objective function above. All results go through under this alternative specification.

where  $b_{ii} = b_{jj}$  and  $b_{ij} = b_{ji}$ , and on the symmetric equilibrium in the choice of  $K_i$ .

**Proposition 3** *Firms voluntarily adopt a stakeholder approach to governance when the resulting marginal increase in total expected profits is positive, i.e.,  $K_i > 0$  for  $\left. \frac{\partial \Pi_i}{\partial K_i} \right|_{K_i=0, K_j=0} > 0$ .*

**Proof:** In a symmetric equilibrium, firms will choose a positive level of  $K_i$  if the marginal effect of an increase in  $K_i$  on the overall profit, evaluated at  $K_i = K_j = 0$ , is non-negative.

This derivative can be obtained by the envelope theorem as

$$\frac{\partial \widehat{\Pi}_i}{\partial K_i} = \frac{\partial E[\pi_{i1}(\widehat{p}_{i1}, \widehat{p}_{j1})]}{\partial \widehat{p}_{j1}} \frac{\partial \widehat{p}_{j1}}{\partial K_i} - F(\widehat{p}_{i1} - \bar{c}) \left( (\pi_2^M - \pi_2^D) f(\widehat{p}_{j1} - \bar{c}) \frac{\partial \widehat{p}_{j1}}{\partial K_i} \right) - f(\widehat{p}_{i1} - \bar{c}) K_i \frac{\partial \widehat{p}_{i1}}{\partial K_i}, \quad (7)$$

which we require to be non-negative when evaluated at  $K_i = K_j = 0$ .

The term  $\frac{\partial \widehat{p}_{j1}}{\partial K_i}$  can be written as  $\frac{\partial \widehat{p}_{j1}}{\partial K_i} = \frac{\partial \widehat{p}_{j1}}{\partial \widehat{p}_{i1}} \frac{\partial \widehat{p}_{i1}}{\partial K_i} > 0$ , since  $\frac{\partial \widehat{p}_{j1}}{\partial \widehat{p}_{i1}} > 0$  given prices are strategic complements and  $\frac{\partial \widehat{p}_{i1}}{\partial K_i} > 0$  from Proposition 2. The term  $\frac{\partial E[\pi_{i1}(\widehat{p}_{i1}, \widehat{p}_{j1})]}{\partial \widehat{p}_{j1}}$  is clearly positive. The last term is just zero for  $K_i = 0$ . Thus, the first term in (7) is positive while the second is negative so that if  $\frac{\partial E[\pi_{i1}(\widehat{p}_{i1}, \widehat{p}_{j1})]}{\partial \widehat{p}_{j1}}$  is sufficiently large, a positive level of  $K_i$  will be optimal.  $\square$

This result establishes that firms find it optimal to design organizational structures that put weight on stakeholders in the decisionmaking process when the strategic response of their competitors is sufficiently beneficial. To understand this better, recall that an increase in  $K_i$  makes firm  $i$  less aggressive and raises firm  $i$ 's price. This, however, also causes firm  $j$  to raise its own price. The net effect for firm  $i$  of firm  $j$ 's price increase is ambiguous since it increases the likelihood that firm  $j$  will also survive into the second period, thus reducing the chance that firm  $i$  earns monopolistic profits. Thus, only when firm  $j$ 's price increase has a sufficiently large effect on firm  $i$ 's first period profits to compensate them for their reduced chance of being a monopolist will firm  $i$  have an incentive to adopt a stakeholder concern by setting  $K_i > 0$ . By contrast, when this effect is smaller, firms do not choose to

care about stakeholders in equilibrium, despite the fact that doing so would allow them to soften competition. It bears noting, therefore, that absent other constraints on firm behavior, there is no guarantee that firms will choose to be concerned about stakeholders even if such a concern would raise each firm's price.

Firms' incentives to adopt a stakeholder approach to governance depend on the degree of competition in the first period as expressed by the size of the parameters  $b_{ii}$  and  $b_{ij}$  representing the sensitivity of the demand of firm  $i$  to its own price and the price charged by firm  $j$ , and the incentives to survive until period 2 as captured by the probability of survival  $F(\hat{p}_{i1} - \bar{c})$  and the profits  $\pi_2^M$  or  $\pi_2^D$  obtained. Note that there is always a value of  $\delta > 0$  such that, for  $\pi_2^M - \pi_2^D \leq \delta$ , Proposition 3 will be satisfied. To show that there are other cases where the condition in Proposition 3 is satisfied and firms adopt a concern for stakeholders, we provide an example. In particular, we assume that the shock  $\varepsilon_i$  is distributed according to a uniform distribution on  $[-1/2, +1/2]$  so that  $f(\hat{p}_{i1} - \bar{c}) = 1$ . For simplicity, we also assume that consumers have the same preferences over the good sold by firms  $i$  and  $j$  so that  $b_{ii} = b_{jj} = b_{ij} = b_{ji} = b$ . In this case Proposition 3 is satisfied when

$$b > (\pi_2^M - \pi_2^D) \frac{A + \pi_2^M}{A + \pi_2^D}.$$

Clearly, this is always satisfied when firms do not benefit from being monopolist in period 2 so that  $\pi_2^M = \pi_2^D$ . Note also that in this example strategic complementarity requires

$$b > (\pi_2^M - \pi_2^D).$$

This is a weaker condition since  $\pi_2^M \geq \pi_2^D$ .

### 3.2 Social Norms in Stakeholder Societies

When the conditions of Proposition 3 are not satisfied, it is not worthwhile for firms to choose to adopt a concern for stakeholders because of the direct effects on strategic interaction. Even

when this is the case, however, there may be “social norms” or “social concerns” that induce firms to become more stakeholder-oriented. To study this issue further and to capture one aspect of what may be meant by a “stakeholder society,” we here suppose that customers care directly about firms’ social concerns, and have a preference for buying from such firms. Specifically, assume that customers prefer to purchase from firms that commit to care not only about shareholder value, but also about their other stakeholders. This implies that if firm  $i$  cares relatively more about its employees and other stakeholders than firm  $j$ , then its demand will be less sensitive to changes in its own price: if firm  $i$ ’s demand in the first period is

$$D_{i1} = A - b_{ii}p_{i1} + b_{ij}p_{j1},$$

then  $b_{ii} < b_{jj}$  whenever  $K_i > K_j$ .

One simple way of incorporating this kind of preference by customers is to assume that  $b_{ii} = G(K_i, K_j)$ , with  $\frac{\partial G}{\partial K_i} < 0$  and  $\frac{\partial G}{\partial K_j} > 0$ . This means that firm  $i$ ’s demand becomes less sensitive to  $p_{i1}$  as firm  $i$  increases its concern for stakeholders, and more sensitive to  $p_{i1}$  as firm  $j$  increases such concern. Note that we make no assumption on whether overall demand will increase, but rather only that the share of the market that any given firm can obtain by incorporating  $K_i$  into its objective function may vary. Indeed, it could well be that if both firms care about stakeholders equally, then there is no effect on the demand they face. Formally, this can be implemented by assuming that  $G(K_i, K_j) = \bar{G}$  whenever  $K_i = K_j$ .

With this in mind, we can now solve the same maximization problem as before with respect to  $K_i$  as follows:

$$\max_{K_i} \hat{\Pi}_i = E[\pi_{i1}(\hat{p}_{i1}, \hat{p}_{j1}; K_i)] + F(\hat{p}_{i1} - \bar{c})((1 - F(\hat{p}_{j1} - \bar{c}))\pi_2^M + F(\hat{p}_{j1} - \bar{c})\pi_2^D),$$

where again where  $\hat{\Pi}_i = \Pi_i(\hat{p}_{i1}, \hat{p}_{j1})$ . We now obtain the following.

**Proposition 4** *When customers’ demand is sufficiently responsive to firms’ concern for stakeholders, firms always choose to adopt a stakeholder approach to governance, i.e., for*

$\left| \frac{\partial G}{\partial K_i} \right|$  sufficiently large,  $K_i^* > 0$ . Moreover,  $K_i^*$  is increasing in  $\left| \frac{\partial G}{\partial K_i} \right|$ .

**Proof:** The derivative of the firm's profit,  $\hat{\Pi}_i$ , with respect to  $K_i$ , is given by

$$\frac{\partial E[\pi_{i1}(\cdot)]}{\partial K_i} + \frac{\partial E[\pi_{i1}(\cdot)]}{\partial \hat{p}_{j1}} \frac{\partial \hat{p}_{j1}}{\partial K_i} - F(\hat{p}_{i1} - \bar{c}) \left( (\pi_2^M - \pi_2^D) f(\hat{p}_{j1} - \bar{c}) \frac{\partial \hat{p}_{j1}}{\partial K_i} \right) - f(\hat{p}_{i1} - \bar{c}) K_i \frac{\partial \hat{p}_{i1}}{\partial K_i}. \quad (8)$$

Note that there is an additional leading term relative to the case where  $b_{ii}$  is constant, as given by (7). This term is the direct effect of an increase in  $K_i$  on first period expected profits,  $\partial E[\pi_{i1}(\hat{p}_{i1}, \hat{p}_{j1}; K_i)] / \partial K_i$ ; and it is positive, as it represents the fact that, holding price constant, an increase in  $K_i$  decreases  $b_{ii}$ , and thus raises the (out of equilibrium) demand for firm  $i$ , raising firm  $i$ 's expected profit. Moreover,  $\frac{\partial E[\pi_{i1}(\cdot)]}{\partial K_i}$  is greater in magnitude the larger is  $\frac{\partial G}{\partial K_i}$ : the more responsive are customers to firms' concerns for their employees, the bigger will be the incentive for firms to take into account stakeholders. We can now follow an argument similar to that in Proposition 3 and evaluate (8) at  $K_i = 0$  to obtain the result.  $\square$

The proposition establishes that for  $\frac{\partial G}{\partial K_i}$  large enough in absolute value, it will always be the case that  $K_i^* > 0$  in equilibrium. In other words, when customers are sufficiently socially conscious, firms adopt a governance policy that focuses more generally on stakeholders rather than just shareholders. Moreover, the comparative statics result is that the more sensitive is consumers' demand to increases in firms' commitment to weighting stakeholders, the more will firms commit to providing this.

One conclusion that can be drawn from these cases is that stakeholder societies can be self-reinforcing in a wide range of situations. The fact that social norms exist that lead customers to prefer to do business with socially conscious firms makes firms want to be socially conscious. Since every firm does this, there need be no change in aggregate demand and sales, but there is an increase in prices and possibly in firms' profits as well. Firms thus compete with each other by setting up their organizational structures effectively so as to cooperate more. A result of the social concern by consumers, however, is that there is

a transfer from consumers to the firms and the workers. An interesting side note is that since output is reduced, the stakeholder society is also farther away from the efficiency of perfect competition, and this happens independently of whether firms' profits end up higher or lower.

## 4 Globalization and Firm Objectives

So far we have considered the case where firms operate in the same cultural or social environment and have analyzed the effects and the incentives for firms to adopt stakeholder concerns. We now consider the case where both shareholder and stakeholder firms operate together. In other words, we consider what happens when a shareholder firm competes with a stakeholder firm (and vice versa). We keep the number of firms constant throughout our analysis, assuming only that one firm changes from one governance structure to the other. This setup represents the case where a foreign firm that maximizes only shareholder value buys another firm in a foreign market where firms that care about stakeholders more generally operate. After the acquisition, the newly purchased firm simply adopts the parent company's governance structure. It can also represent the situation in which, in a given country or market, a firm tries to go against the current social and cultural norms and operates only maximizing shareholder value.

Formally, assume that firm  $i$  is a stakeholder firm with an objective function given by

$$\begin{aligned}
 \max_{p_{i1}} \Omega_i &= \Pi_i - (1 - F(p_{i1} - \bar{c})) K_i \\
 &= E[\pi_{i1}] + F(p_{i1} - \bar{c}) \left( (1 - F(p_{j1} - \bar{c})) \pi_2^M + F(p_{j1} - \bar{c}) \pi_2^D \right) \\
 &\quad - (1 - F(p_{i1} - \bar{c})) K_i,
 \end{aligned}$$

while firm  $j$  maximizes shareholder value and has expected profit

$$\max_{p_{j1}} \Pi_j = E[\pi_{j1}] + F(p_{j1} - \bar{c}) \left( (1 - F(p_{i1} - \bar{c})) \pi_2^M + F(p_{i1} - \bar{c}) \pi_2^D \right).$$

We have:

**Proposition 5** *The stakeholder firm sets higher prices than the competing shareholder firm, i.e.,  $\hat{p}_{i1}(K_i) > \hat{p}_{j1}$ .*

**Proof:** Condition (3) implies that, since firm  $i$  places more weight on surviving into the second period than firm  $j$ , in equilibrium it will also set a higher price (for details, see Dixit, 1986).  $\square$

The result in Proposition 5 states that the stakeholder firm would charge a higher price and, as a consequence, have a lower market share than the firm maximizing only shareholder value. From this, it follows that the stakeholder firm loses market share to the shareholder firm who is solely concerned with maximizing shareholder value and therefore is willing to offer a lower price.

We can say something further by comparing the solution above to the case where both firms have adopted stakeholder governance, represented by the variables  $K_i$  and  $K_j$ , and assuming that both are positive.

**Proposition 6** *Stakeholder firms set higher prices when competing with other stakeholder firms than when competing with shareholder firms, i.e.,  $\hat{p}_{i1}(K_i, K_j) > \hat{p}_{i1}(K_i, 0)$ .*

**Proof:** The two first order conditions for the stakeholder firm  $i$  and the shareholder firm  $j$  are

$$\frac{\partial E[\pi_{i1}]}{\partial p_{i1}} + f(p_{i1} - \bar{c}) \left( K_i + (1 - F(p_{j1} - \bar{c})) \pi_2^M + F(p_{j1} - \bar{c}) \pi_2^D \right) = 0 \quad (9)$$

and

$$\frac{\partial E[\pi_{j1}]}{\partial p_{j1}} + f(p_{j1} - \bar{c}) \left( (1 - F(p_{i1} - \bar{c})) \pi_2^M + F(p_{i1} - \bar{c}) \pi_2^D \right) = 0. \quad (10)$$

Note first that the first order condition in equation (9) implies a higher price than that in (10) due to the term  $f(p_{i1} - \bar{c})K_i$ . More generally, we observe that

$$\frac{\partial^2 \Pi_i}{\partial K_i \partial p_{i1}} = \frac{\partial^2 E[\pi_{i1}]}{\partial p_{i1} \partial K_i} + f(p_{i1} - \bar{c}) > 0.$$

Coupled with the assumption that prices are strategic complements, we can apply the results from Milgrom and Roberts (1990, 1994) to show that prices must be higher when the stakeholder firm competes with another stakeholder firm than when it competes with a shareholder firm, so that  $\hat{p}_{i1}(K_i, K_j) > \hat{p}_{i1}(K_i, 0)$ , as in the proposition.  $\square$

The intuition behind these last results hinges once again on the assumption of strategic complementarity and the effect of the concern for stakeholder  $K_i$  on firms' incentives in setting prices. Given that firms compete in strategic complements, the stakeholder firm "follows" the shareholder firm and sets a lower price than when it competes with another stakeholder firm. As stated in Proposition 5 above, the concern for stakeholders prevents the stakeholder firm from reducing its price to the level charged by the shareholder firm. Taken together these results have an interesting implication concerning the change of a stakeholder firm into a shareholder firm in an otherwise stakeholder market.

**Corollary 4** *The change of a stakeholder firm into a shareholder firm where the other firm remains a stakeholder firm leads to lower prices and greater output, but it reduces stakeholder firms' first-period expected profits.*

This corollary suggests that firms that change from stakeholder to shareholder objectives should face opposition by other firms.

In line with this, we compare also the solution of Proposition 5 with the case where both firms only care about shareholder value.

**Proposition 7** *A shareholder firm sets a higher price and produces less when competing with a stakeholder firm than when competing with another shareholder firm,  $\hat{p}_{j1}(0, K_i) >$*

$\widehat{p}_{j1}(0,0)$ .

**Proof:** The proof of this result is formally equivalent to that for Proposition 6 and is therefore omitted.  $\square$

The intuition behind this result is as before. Shareholder firms set higher prices when competing with stakeholder firms than when competing only among each other because the concern of the other firms for stakeholders allows them also to soften competition. As a consequence, a firm that is only concerned about shareholders does better by competing with a stakeholder firm than with another shareholder firm. This can be seen by noting first that, if  $K_i = K_j = 0$ ,  $\widehat{p}_{i1}$  and  $\widehat{p}_{j1}$  are lower than in the case where  $K_i$  is positive. Second, since firm  $i$  charges a higher price when  $K_i > 0$ , the residual demand faced by firm  $j$  is higher than if  $K_i = 0$ , allowing firm  $j$  to optimally raise its price and obtain higher profits as a result. We have then the following implication.

**Corollary 5** *The change of a shareholder firm into a stakeholder firm while the other firm remains a shareholder firm leads to higher prices, lower output, and higher expected profits for the shareholder firm.*

## 5 Robustness

In this section we consider two checks on the robustness of our results. The first concerns the way we model firms' concern for stakeholders. The second considers the effect of having Cournot rather than Bertrand competition.

### 5.1 Alternative Concerns for Stakeholders

So far we have considered that firms take account of stakeholder concerns by choosing an organizational structure where their interests are taken into account. Formally, we have

assumed that firms weight the loss that stakeholders other than shareholders suffer in case their firms go bankrupt. We now consider another possible way of modelling stakeholders' interests briefly mentioned in Section 2. Specifically, we consider that employees, suppliers and other stakeholders receive rents from the relationship with the firm. We model the firm's concern for these stakeholders by adding the term  $F(p_{i1} - \bar{c})k_i$  to its profit when it stays solvent. With this modification firm  $i$ 's objective becomes

$$\begin{aligned} \max_{p_{i1}} \Omega_i &= \Pi_i(k_i) + F(p_{i1} - \bar{c})k_i & (11) \\ &= E[\pi_{i1}] + F(p_{i1} - \bar{c}) \left( (1 - F(p_{j1} - \bar{c})) \pi_2^M + F(p_{j1} - \bar{c}) \pi_2^D \right) + F(p_{i1} - \bar{c})k_i & (12) \end{aligned}$$

It is straightforward to see that this alternative way of modelling stakeholders' does not affect firm  $i$ 's pricing. As in the basic model, the concern for stakeholders leads firms to increased prices relative to those in the two-period model and to the same level as in Proposition 2. Similarly for the other propositions.

## 5.2 Model of Quantity Competition

Consider a variant of the model above where firms compete by choosing the quantity they want to produce instead of the price at which to sell. Specifically, firm  $i$ 's demand function in period  $t$  is given by

$$P_{it} = A - b_{ii}q_{it} - b_{ij}q_{jt}$$

Expected profits in period  $t$  are then given by

$$\pi_{it} = (P_{it} - c_i) q_{it} = (A - b_{ii}q_{it} - b_{ij}q_{jt} - c_i) q_{it}$$

With two periods, we assume that each firm is subject to a shock to its marginal cost in period 1:  $c_i = \bar{c} + \epsilon_i$ . Note that  $\pi_{i1} \geq 0 \Leftrightarrow \epsilon_i \leq P_{i1} - \bar{c}$ , so that the probability this condition is satisfied is just  $\Pr(\epsilon_i \leq P_{i1} - \bar{c}) = F(P_{i1} - \bar{c})$ .

The objective for firm  $i$  is now to maximize  $\Pi_i - (1 - F(P_{i1} - \bar{c})) K_i$  with respect to  $q_{i1}$ :

$$\max_{q_{i1}} E[\pi_{i1}] + F(P_{i1} - \bar{c}) \left( (1 - F(P_{j1} - \bar{c})) \pi_2^M + F(P_{j1} - \bar{c}) \pi_2^D \right) - (1 - F(P_{i1} - \bar{c})) K_i$$

The FOC is given by

$$\frac{\partial E[\pi_{i1}]}{\partial q_{i1}} + f(P_{i1} - \bar{c}) \frac{\partial P_{i1}}{\partial q_{i1}} \left( K_i + (1 - F(P_{j1} - \bar{c})) \pi_2^M + F(P_{j1} - \bar{c}) \pi_2^D \right) = 0$$

Note that, for the second term,  $\frac{\partial P_{i1}}{\partial q_{i1}} < 0$ , but that all other terms are positive, implying that the entire second term is negative. Moreover, the absolute value of this expression is increasing in  $K_i$ , so that the equilibrium first period quantity choice,  $\hat{q}_{i1}$ , will be decreasing in  $K_i$ . As a result, the first period price,  $P_{i1}$ , will be increasing in  $K_i$ , thus confirming our results from the model of price competition.

We next extend the model to allow firms to choose  $K_i$  similarly to Section 3. Assume that at time  $t = 0$  each firm chooses  $K_i$ . Then, conditional on each firm's choice of  $K_i$ , at time  $t = 1$  each firm chooses how much to produce in the first period. Solving by backward induction, firm  $i$ 's optimal quantity choice at  $t = 1$ , for given  $K_i$  and  $K_j$ , is  $\hat{q}_{i1}(K_i, K_j)$ . At  $t = 0$ , each firm then maximizes its overall profits with respect to  $K_i$ :

$$\max_{K_i} \hat{\Pi}_i = E[\pi_{i1}(\hat{q}_{i1}, \hat{q}_{j1})] + F(\hat{P}_{i1} - \bar{c}) \left( \left( 1 - F(\hat{P}_{j1} - \bar{c}) \right) \pi_2^M + F(\hat{P}_{j1} - \bar{c}) \pi_2^D \right)$$

where  $\hat{\Pi}_i = \Pi_i(\hat{q}_{i1}, \hat{q}_{j1})$ , and  $\hat{P}_{i1} = P_{i1}(\hat{q}_{i1}, \hat{q}_{j1})$ . We focus again on the symmetric case where  $b_{ii} = b_{jj}$  and  $b_{ij} = b_{ji}$ , and on the symmetric equilibrium in the choice of  $K_i$ .

The derivative of expected profits with respect to  $K_i$  is given by

$$\begin{aligned} \frac{\partial \hat{\Pi}_i}{\partial K_i} &= \frac{\partial E[\pi_{i1}(\hat{q}_{i1}, \hat{q}_{j1})]}{\partial q_{j1}} \frac{\partial \hat{q}_{j1}}{\partial K_i} + f(\hat{P}_{i1} - \bar{c}) \frac{\partial \hat{P}_{i1}}{\partial q_{j1}} \frac{\partial \hat{q}_{j1}}{\partial K_i} \left( \left( 1 - F(\hat{P}_{j1} - \bar{c}) \right) \pi_2^M + F(\hat{P}_{j1} - \bar{c}) \pi_2^D \right) \\ &\quad + F(\hat{P}_{i1} - \bar{c}) \left( \pi_2^D - \pi_2^M \right) f(\hat{P}_{j1} - \bar{c}) \frac{\partial \hat{P}_{j1}}{\partial q_{j1}} \frac{\partial \hat{q}_{j1}}{\partial K_i} - f(\hat{P}_{i1} - \bar{c}) K_i \frac{\partial \hat{P}_{i1}}{\partial \hat{q}_{i1}} \frac{\partial \hat{q}_{i1}}{\partial K_i}. \end{aligned}$$

The term  $\frac{\partial \hat{q}_{j1}}{\partial K_i}$  can be written as  $\frac{\partial \hat{q}_{j1}}{\partial K_i} = \frac{\partial \hat{q}_{j1}}{\partial q_{i1}} \frac{\partial \hat{q}_{i1}}{\partial K_i} > 0$  since  $\frac{\partial \hat{q}_{j1}}{\partial q_{i1}} < 0$  (strategic substitutes) and  $\frac{\partial \hat{q}_{i1}}{\partial K_i} < 0$  from the discussion above. Since  $\frac{\partial E[\pi_{i1}(\cdot)]}{\partial q_{j1}} < 0$ , the first term is strictly negative. For the rest, note that  $\frac{\partial \hat{P}_{i1}}{\partial q_{j1}}, \frac{\partial \hat{P}_{j1}}{\partial q_{j1}} < 0$  since a greater quantity by either firm reduces the price each firm obtains. Since  $\frac{\partial \hat{q}_{j1}}{\partial K_i} > 0$ , this implies that all remaining terms are also negative, so that  $\frac{\partial \hat{\pi}_i}{\partial K_i} < 0$  for all  $K_i > 0$ . We have therefore established that when firms compete in their choice of quantities to produce, no firm would voluntarily choose a positive  $K_i$  in equilibrium.

As a final point, we analyze the case where a social norm exists that induces firms to become more stakeholder-oriented. We incorporate this by assuming, as above, that  $b_{ii} = G(K_i, K_j)$ , with  $\frac{\partial G}{\partial K_i} < 0$  and  $\frac{\partial G}{\partial K_j} > 0$ , and that  $G(K_i, K_j) = \bar{G}$  for  $K_i = K_j$ . It is straightforward to show that, as for the case where firms compete in prices, the more responsive are customers to firms' concerns for their employees, the bigger will be the incentive for firms to take into account stakeholders. Therefore, for  $\frac{\partial G}{\partial K_i}$  sufficiently large,  $\left. \frac{\partial \hat{\pi}_i}{\partial K_i} \right|_{K_i=0} > 0$ , and choosing a positive  $K_i$  will be optimal, thus confirming the results from Section 3.2.

## 6 Concluding Remarks

Most of the literature on corporate governance is concerned with ensuring that the firm is operated in the interests of shareholders. However, in many countries firms are not only concerned with shareholders but also other stakeholders such as employees and suppliers. In this paper we have developed a model of stakeholder capitalism. We have shown that both firms and stakeholders can be made better off if firms adopt a concern for stakeholders. However, one result of this change is that prices can be higher so consumers are worse off.

In a country such as Germany, concern for employees is embedded into the structure of corporations through codetermination. This mandates worker representation on the supervisory boards of large corporations. Even when such concern is not mandated by law, we show that there exist circumstances where firms will voluntarily want to embed concern for

stakeholders in their organizational structure since this increases their value compared to just focusing on shareholders. One way of doing this is to give managers some latitude since as an employee of the firm their basic incentives are somewhat aligned with the workers and other stakeholders. Even in other circumstances where firm value is not directly increased in this way, firms may voluntarily adopt concern for stakeholders if consumers prefer such firms.

An important issue in the context of globalization concerns the nature of competition between shareholder-oriented firms and stakeholder-oriented firms. We show that if a stakeholder firm changes into a shareholder firm in a market where the other firm remains a stakeholder firm, this leads to lower prices, greater output and the remaining stakeholder firm's value is reduced. Firms in countries that primarily have stakeholder firms are likely to resist a stakeholder firm transforming itself into a shareholder firm. On the other hand, the change of a shareholder firm into a stakeholder firm while the other firm remains a shareholder firm leads to higher prices and higher expected profits for the remaining shareholder firm. As a result firms in shareholder-oriented countries are more likely to welcome the transformation of rivals into stakeholder firms.

It was shown that most of the results hold in a model with Cournot competition rather than Bertrand competition. The exception is the result that firms may in some circumstances voluntarily adopt stakeholder objective functions. With Cournot competition this never happens.

The model we have used for the product market is clearly a very simple one. Many other features could be added. The point of using a simple model was to illustrate that concern for stakeholders can lead shareholders to be better off. In fact they may voluntarily choose to adopt concern for stakeholders. These results should hold in more general models of the product market.

We have treated shareholders, stakeholders, and consumers as different groups. In practice, of course, there is a large overlap between them. For example, workers are also con-

sumers. One issue is whether concern for stakeholders can be welfare improving compared to firms focusing on shareholders alone. Given that there are deadweight costs and rents this is a possibility. If so, how broad are these circumstances? We leave these important issues for future research.

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