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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. With globalization entry by stakeholder firms is relatively more attractive than entry by shareholder firms for all societies.

JEL Classification: D02, D21, G34, L13, L21

Keywords: Firm Objective, Bankruptcy, Competition, Stakeholder Governance

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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, and most of the academic literature on governance has taken this perspective (see, e.g., Becht, Bolton, and Röell, 2003, for a more recent survey).

However, moving beyond the cases of the US and UK, firms' objectives depend very much on the country being considered, and often deviate significantly from the paradigm of shareholder value maximization. To provide one example, in Germany the legal system is quite explicit that firms do not have a sole duty to pursue the interests of shareholders. The Germans have the system of *co-determination*, in which employees and shareholders in large corporations have an equal number of seats on the supervisory board of the company, so that the interests of both must be taken into account (see Rieckers and Spindler, 2004, and Schmidt, 2004).

Germany is by no means the only country where the interests of parties other than just shareholders have bearing on companies' policies, and we document differences across a variety of countries in the next section. The common theme among these regimes, however, can be seen from surveys of managers reported in 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, in that in the former countries it is stakeholders' interests more generally - and in particular workers - that must be considered by firms.

In this paper our aim is to develop a simple model of stakeholder governance in the context of an imperfectly competitive product market where firms are concerned about their continuity. We start by considering a two-period duopoly model of differentiated products with price competition. In the first period firms are subject to a random shock to their costs and if this shock 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 into the second period.

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 of searching for new opportunities. If firms survive, stakeholders earn

rents from their relationships with firms. We show that when firms put weight on stakeholders other than shareholders, this concern leads to a softening of competition: firms charge higher prices and their probability of going bankrupt is reduced. Consequently, profits in the first period as well as total firm value can be increased. Thus a 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 and, in particular, consumers are worse off.

The fact that firm value can be increased by a concern for stakeholders raises the possibility that shareholders may actually want to put in place governance structures that commit them to adopt a concern for other stakeholders. We show that, when firms anticipate a sufficiently large reaction from their rivals, firms can improve their shareholders' welfare by voluntarily choosing to take into account other stakeholders. We also show that, even in circumstances where firms may not voluntarily adopt a stakeholder orientation, such governance structures may nevertheless arise endogenously if consumers are more willing to buy from firms that care about stakeholders other than shareholders.[1] Interestingly, this leads to a situation of self-enforcing societies where consumers induce firms to adopt stakeholder concerns, and consequently increase the value to shareholders.

We extend our framework to analyze issues related to globalization, where it has become commonplace for domestic firms to compete with firms from other countries. We show that regardless of the governance structure domestically, incumbent firms fare better with the entry of a stakeholder-oriented firm than with a shareholder-oriented firm. This suggests that firms in countries that are stakeholder friendly have greater incentives to oppose the entry of firms with shareholder-oriented governance structures than vice-versa. Similarly, the desire for governments to protect domestic firms from foreign competition is likely to be greatest for stakeholder economies facing potential entry by shareholder-oriented firms.

[1] An alternative could be that firms lobby to put in place government regulations requiring a more stakeholder-friendly approach to governance. Such political economy considerations may help explain the legal requirements of codetermination in Germany, among other countries. See Pagano and Volpin (2005) for a broader discussion of the interaction between employment protection and the electoral system.

Our paper is related to a number of strands of literature. 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 that having lower investor protection for minority shareholders changes the way in which firms compete, leading to higher output and lower prices. This 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 and 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. 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 starting 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). Our approach is similar in that stakeholder governance commits the firms to be less aggressive, but we abstract from any additional strategic considerations introduced by debt financing and instead assume the firm is purely equity financed.

Our focus is on the positive aspects of stakeholder governance, in particular on firm value and prices. There is also the welfare issue of 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 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 assumptions are violated then it is no longer clear that this ob-

jective leads to efficiency, and recent work by Allen and Gale (2000, Chapter 12) and Allen (2005) argues that changing firms' objective functions from just focusing on shareholder wealth can correct for market failures. They give an example of an overlapping generations model with young and old managers where requiring consensus as in Japanese firms (see Aoki, 1990) can lead to a Pareto superior allocation.

Tirole (2001) takes a more negative view of the desirability of adopting a stakeholder-oriented objective for the firm. He argues that there are no reliable measures of stakeholder welfare, with no analogs to either accounting measures such as firm profits or market-based measures such as a firm's stock price. If workers and other stakeholders have interests that diverge from those of shareholders, the lack of such measures makes it extremely difficult to charge managers with anything other than the pure maximization of firm value.

However, in practice, firms in countries such as Germany where there is worker representation on boards do pursue stakeholder interests. Our approach to modeling this is that stakeholder firms will be more concerned about continuing in business than shareholder firms. In models with perfect competition or monopoly, workers and shareholders will in general have divergent interests. However, when firms compete strategically, shareholder wealth is increased precisely through the commitment value of charging a manager to deviate from pure value maximization. Along this dimension, therefore, shareholders' incentives are aligned with those of workers, and a commitment to a broader set of stakeholders can still be consistent with the ultimate objective of increasing shareholder value.

There is a large managerial literature on how stakeholder governance can be implemented. For example, Blair (1995) has suggested that firm-specific investments by employees and other stakeholders are crucial. 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. In the next section we discuss how gov-

ernance arrangements vary across countries, and provide some institutional details. Section 3 presents a model analyzing the case where firms care about other stakeholders in addition to shareholders. Section 4 focuses on the incentives of firms to become stakeholder oriented and the possibility of having self-enforcing stakeholder economies. Section 5 looks at globalization where different types of firms start competing with each other. Section 6 considers the robustness of our results; and finally Section 7 concludes.

2 Governance Arrangements in Different Countries

As discussed above, the system of co-determination in Germany provides a clear example of a country where firms' objectives encompass a broader set of stakeholders in the firm than merely those who own shares. However, Germany is by no means the only country with such a system. 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" (Wymmeersch, 1998, p. 1144).

In Denmark, Sweden, and Luxembourg, 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.'

It is readily seen that, while the specifics of the systems of governance in each country vary widely, they have as a common objective the inclusion of parties beyond shareholders into firms' decision-making processes. In particular, in many countries workers play a prominent role, being regarded as important stakeholders in the firm. The analysis that follows focuses on this aspect of what we term "stakeholder governance."

3 A Model of Stakeholder Governance

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

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

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

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

which yields

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

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

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

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 $c_i = \overline{c}+\epsilon_i$, where ϵ_i is distributed according to the distribution function $F(.)$. For tractability, we assume that F is a symmetric distribution whose density function f is non-increasing in the absolute value of the shock.[2] Firm i can operate in period 2 only if its profit in the first period, π_{i1}, is nonnegative or, equivalently, if the shock is not too large: $\pi_{i1} \geq 0 \Leftrightarrow \epsilon_i \leq p_{i1}-\overline{c}$. Denoting by π_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 π_2^D the profit obtained by each firm if both firms are still active, firm i's maximization problem becomes

$$\max_{p_{i1}} \Pi_i = E[\pi_{i1}] + \Pr(\epsilon_i \leq p_{i1} - \overline{c}) \left[(1 - \Pr(\epsilon_j \leq p_{j1} - \overline{c}))\, \pi_2^M + \Pr(\epsilon_j \leq p_{j1} - \overline{c})\pi_2^D\right].$$

The first term represents the expected profit in the first period, while the second term is the profit firm i obtains in the second period, which can be either π_2^M when it is the only firm surviving, or π_2^D if both firms are still active. Each term is multiplied by the probability the competing firm survives or not. The firm can also fail, in which case it gets zero profits.

[2] Any symmetric bell-shaped distribution satisfies this condition, as well as a uniform distribution over a bounded support.

Noting that $\Pr(\epsilon_i \leq p_{i1} - \overline{c}) = F(p_{i1} - \overline{c})$, the maximization problem can be written as

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

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

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

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. The condition therefore amounts to assuming that the effect on first period profits of an increase in a competitor's price is greater than the reduction in second period profit when the competitor also survives.

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

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

This condition 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

$$\frac{\partial \Pi_i}{\partial p_{i1}} = \frac{\partial E[\pi_{i1}]}{\partial p_{i1}} + f(p_{i1} - \overline{c}) \left((1 - F(p_{j1} - \overline{c})) \, \pi_2^M + F(p_{j1} - \overline{c}) \pi_2^D \right) = 0. \tag{3}$$

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

The intuition behind Proposition 1 is simple. The probability that a firm survives until period 2, $\Pr(\epsilon_i \leq p_{i1}-\overline{c})$, is increasing in the first-period price p_{i1}. Thus, the concern for survival softens competition and induces firms to 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 σ_i the variance of the shock ϵ_i to firm i's marginal costs, we can state the following:

Corollary 1 *There exists a value of the shock variance, $0 < \overline{\sigma}_i \leq \infty$, 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 $\sigma_i < \overline{\sigma}_i$.*

Proof: See appendix. □

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 much higher than the monopoly price. If the price chosen is too high, output can be reduced to such an extent that profits are lower in the first period. When survival is not as 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 $\sigma_i < \overline{\sigma}_i$.

We have assumed so far that firms maximize their expected profits, taking into account only shareholder value. We now introduce a concern 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 other than shareholders it will attach some weight to these costs in its objective function. This modifies the objective function for firm i as follows:

$$\begin{aligned} \max_{p_{i1}} \Omega_i &= \Pi_i - (1 - F(p_{i1} - \overline{c}))\, K_i \qquad (4) \\ &= E[\pi_{i1}] + F(p_{i1} - \overline{c}) \left((1 - F(p_{j1} - \overline{c}))\, \pi_2^M + F(p_{j1} - \overline{c}) \pi_2^D \right) - (1 - F(p_{i1} - \overline{c}))\, K_i, \end{aligned}$$

where for simplicity of notation, K_i combines the weighting the firm puts on stakeholder costs and the level of these costs.[3] 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 positive term k_i in the objective function, received only if the firm survives across periods (i.e., with probability $F(p_{i1} - \overline{c})$). As we shall see in Section 6 below, such a term has a similar effect to that studied here. For the moment we therefore focus on the formulation in (4).

An important issue concerns the way in which (4) is implemented. As discussed 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 (4) 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 employees' interests directly. Another way is to give managers a certain

[3]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.

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 (4). O'Sullivan (2000) contains a discussion of how organizational structure can be designed to alter decision-making within the firm.

With (4) 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.,* $\frac{\partial \widehat{p}_{i1}(K_i)}{\partial K_i} > 0$.

Proof: Differentiating (4) with respect to p_{i1}, we have

$$\frac{\partial E[\pi_{i1}]}{\partial p_{i1}} + f(p_{i1} - \overline{c}) \left(K_i + (1 - F(p_{j1} - \overline{c}))\, \pi_2^M + F(p_{j1} - \overline{c}) \pi_2^D \right) = 0. \tag{5}$$

Since the second term, $f(p_{i1} - \overline{c}) \left(K_i + (1 - F(p_{j1} - \overline{c}))\, \pi_2^M + F(p_{j1} - \overline{c}) \pi_2^D \right)$, is positive and increasing in K_i, the equilibrium price must be increasing in K_i (Milgrom and Roberts, 1990, 1994). □

Proposition 2 establishes 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 reduction in 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* $\overline{K_i}$ *such that, for* $K_i < \overline{K}_i$*, 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* $K_i < \overline{K}_i$ *and* $E[\pi_{i1}]|_{K_i>0} < E[\pi_{i1}]|_{K_i=0}$ *otherwise.*

Proof: See appendix. □

The result in Corollary 2 shows 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 too high. When K_i is very large, 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 $K_i < \overline{K}_i$ 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 $K_i < \overline{K}_i$ 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 $K_i = K < \overline{K}$, 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., $\Pi_i|_{K>0} > \Pi_i|_{K=0}$ for $K < \overline{K}$, 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. □

While clearly $F(.)$ depends on p_{i1} and is therefore endogenous, the condition can nevertheless be satisfied if $\pi_2^M = \pi_2^D$. It will not be satisfied if π_2^M is sufficiently large relative to π_2^D. The result thus illustrates that shareholders and stakeholders interests are not necessarily opposed but rather can be aligned since the increase in profits benefits the shareholders and the increase in the probability of survival benefits its other stakeholders.

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.

4 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 exogenously specified firms' objective functions, taking as given that firms care about stakeholders, either from convention or because of legal requirements such as codetermination. 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 act 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.

4.1 Firms' Optimal Objective Functions

We extend here the model to introduce a first stage where we allow firms to choose K_i. Assume that at time $t = 0$, each firm chooses the weight K_i that it places on stakeholder concerns as part of its objective function. Then, conditional on each firm's date 0 choice of K_i, 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 $\widehat{p}_{i1}(K_i, K_j)$, 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 $\widehat{p}_{i1}(K_i, K_j)$, $\widehat{p}_{j1}(K_j, K_i)$. For firm i, the objective is:

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

where $\widehat{\Pi}_i = \Pi_i(\widehat{p}_{i1}(K_i, K_j), \widehat{p}_{j1}(K_i, K_j))$.[4] In what follows, we focus 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.

Proposition 3 *Both firms voluntarily adopt a stakeholder approach to governance when the*

[4]We assume throughout this section that, while the firm may implement a decision-making structure that explicitly incorporates a concern for workers, it still has as its objective the ex ante 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 as specified in equation (4), which would be subtracted from the objective function above. All results go through under this alternative specification.

resulting marginal increase in expected profits is positive, i.e., $K_i > 0$ *for* $\frac{\partial \Pi_i}{\partial K_i}\Big|_{\substack{K_i=0 \\ K_j=0}} > 0$.

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 positive. This derivative can be obtained by the envelope theorem as

$$\frac{\partial \widehat{\Pi}_i}{\partial K_i} = \frac{\partial E[\pi_{i1}(\widehat{p}_{i1}, \widehat{p}_{j1})]}{\partial \widehat{p}_{j1}} \frac{\partial \widehat{p}_{j1}}{\partial K_i} - F(\widehat{p}_{i1} - \overline{c}) \left(\left(\pi_2^M - \pi_2^D\right) f(\widehat{p}_{j1} - \overline{c}) \frac{\partial \widehat{p}_{j1}}{\partial K_i} \right) - f(\widehat{p}_{i1} - \overline{c}) K_i \frac{\partial \widehat{p}_{i1}}{\partial K_i}, \tag{6}$$

which we require to be positive 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 (6) 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. □

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 firm i for its 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 and profit.

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. They also depend on the incentives to survive until period 2 as captured by the probability of survival $F(\widehat{p}_{i1} - \overline{c})$ and the profits π_2^M or π_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 ε_i is distributed according to a uniform distribution on $[-1/2, +1/2]$ so that $f(\widehat{p}_{i1} - \overline{c}) = 1$. For simplicity, we also assume that consumers have the same sensitivity to changes in the price of goods 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 monopolists 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 $\frac{A+\pi_2^M}{A+\pi_2^D} > 1$.

4.2 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 $G(K_i, K_j) = \overline{G}$ 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:

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

where again $\widehat{\Pi}_i = \Pi_i(\widehat{p}_{i1}, \widehat{p}_{j1})$. 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, $\widehat{\Pi}_i$, with respect to K_i, is given by

$$\frac{\partial E[\pi_{i1}(.)]}{\partial K_i} + \frac{\partial E[\pi_{i1}(.)]}{\partial \widehat{p}_{j1}}\frac{\partial \widehat{p}_{j1}}{\partial K_i} - F(\widehat{p}_{i1} - \overline{c})\left(\left(\pi_2^M - \pi_2^D\right) f(\widehat{p}_{j1} - \overline{c})\frac{\partial \widehat{p}_{j1}}{\partial K_i}\right) - f(\widehat{p}_{i1} - \overline{c})K_i\frac{\partial \widehat{p}_{i1}}{\partial K_i}. \quad (7)$$

Note that there is an additional leading term relative to the case where b_{ii} is constant, as given by (6). This term is the direct effect of an increase in K_i on first period expected profits, $\partial E[\pi_{i1}(\widehat{p}_{i1}, \widehat{p}_{j1}; K_i)]/\partial K_i$. This term 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, $\frac{\partial E[\pi_{i1}(.)]}{\partial K_i}$ is greater in magnitude the larger is $\frac{\partial G}{\partial K_i}$. We can now follow an argument similar to that in Proposition 3 and evaluate (7) 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 so as to in essence 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.

5 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 a setting where firms in their domestic market all operate in a similar fashion, being all either purely shareholder oriented, or all having similar stakeholder concerns, and they face the entry of an additional firm with possibly different objectives. We have in mind a situation where a foreign firm enters into a new market where the goals of the domestic firms may be different from those of the foreign entrant. In particular, this describes the case where a stakeholder oriented market, such as Japan, for instance, faces entry of a U.S. style firm whose primary concern is to maximize shareholder value. Conversely, it also captures situations where shareholder friendly markets face the entry of a firm whose objectives are to generate value for stakeholders more generally.

Suppose that there are N symmetric firms with $K_i = K \geq 0$ for $i = 1, ..., N$. These firms can all therefore be either purely shareholder oriented, or stakeholder oriented to the extent given by K. There is an $N+1$ firm that enters, with $K_{N+1} \geq 0$, so that the entrant firm can also be either shareholder or stakeholder oriented.

Since the N incumbent firms are symmetric, we will restrict our analysis to equilibria where these N firms all behave symmetrically, although the $N+1$ firm may behave differently. Define $p^N = p_{i1}$, which is just the first period price set by a representative firm $i = 1, ..., N$. We begin by characterizing the expected profits for firm i. For ease of notation, define π_2^n as the expected profit for (a representative) firm i when n firms are active at time 2. Trivially, we have that $\pi_2^n > \pi_2^{n+1}$ for $n \leq N-1$. Absent the entrant, $N+1$st firm, and focusing on an equilibrium with symmetric prices, we can now write

$$\begin{aligned}\Pi_i(N) &= E[\pi_{i1}] - (1 - F(p_{i1} - \overline{c}))\, K_i \\ &\quad + F(p_{i1} - \overline{c}) \left[\sum_{j=0}^{N-1} \binom{N-1}{j} F(p^N - \overline{c})^j \left(1 - F(p^N - \overline{c})\right)^{N-1-j} \pi_2^{j+1} \right],\end{aligned}$$

where $p_{i1} = p^N$ in equilibrium given the symmetry assumption.

Proposition 5 *p^N is increasing in K_{N+1}.*

Proof: With the entry of firm $N+1$, we can write firm i's profit, $\Pi_i(N+1)$, as

$$\begin{array}{l} E[\pi_{i1}] - (1 - F(p_{i1} - \overline{c}))\, K_i \\ +F(p_{i1} - \overline{c}) \left(\begin{array}{c} (1 - F(p_{N+1,1} - \overline{c})) \left[\sum_{j=0}^{N-1} \binom{N-1}{j} F(p^N - \overline{c})^j \left(1 - F(p^N - \overline{c})\right)^{N-1-j} \pi_2^{j+1} \right] \\ +F(p_{N+1,1} - \overline{c}) \left[\sum_{j=0}^{N-1} \binom{N-1}{j} F(p^N - \overline{c})^j \left(1 - F(p^N - \overline{c})\right)^{N-1-j} \pi_2^{j+2} \right] \end{array} \right). \end{array}$$

Similarly, we can write the profit for the entrant, Π_{N+1}, as

$$\begin{array}{l} E[\pi_{N+1,1}] - (1 - F(p_{N+1,1} - \overline{c}))\, K_{N+1} \\ +F(p_{N+1,1} - \overline{c}) \left[\sum_{j=0}^{N} \binom{N}{j} F(p^N - \overline{c})^j \left(1 - F(p^N - \overline{c})\right)^{N-j} \pi_2^{j+1} \right]. \end{array}$$

Note that the derivative of Π_{N+1} with respect to $p_{N+1,1}$ is

$$\frac{\partial E[\pi_{N+1,1}]}{\partial p_{N+1,1}} + f(p_{N+1,1} - \overline{c}) \left[\sum_{j=0}^{N} \binom{N}{j} F(p^N - \overline{c})^j \left(1 - F(p^N - \overline{c})\right)^{N-j} \pi_2^{j+1} \right] + f(p_{N+1,1} - \overline{c}) K_{N+1}.$$

Setting this equal to 0 characterizes the equilibrium price for firm $N+1$, $\widehat{p}_{N+1,1}$. Since the last term, $f(p_{N+1,1} - \overline{c})K_{N+1}$, is clearly positive, we have that $\widehat{p}_{N+1,1}$ must be increasing in K_{N+1}. Since prices for all $N+1$ firms are strategic complements, p^N must also be increasing in K_{N+1}. □

Proposition 6 *First period expected profit for the incumbent firms, $E[\pi_{i1}]$, is increasing in K_{N+1}.*

Proof: To show that $E[\pi_{i1}]$ is increasing in K_{N+1}, simply note that each firm's profit increases when the price of all firms, p_{i1}, $i = 1, ..., N+1$, increases. But Proposition 5 establishes that p^N, as well as $\widehat{p}_{N+1,1}$, the price for the entrant firm, are all increasing in K_{N+1}. □

These two results together imply that, whether the incumbent firms are purely shareholder oriented or if they care at all about other stakeholders, when an additional firm enters, the resulting price will be higher the more stakeholder friendly is the entrant firm. Similarly, the incumbent firms' profits will be higher the more stakeholder friendly is the entrant firm. Therefore, conditional on entry, incumbent firms prefer that more stakeholder oriented firms enter. The flipside, of course, is that stakeholder oriented firms are most hurt by the entry of a shareholder firm relative to having another stakeholder firm enter.

One implication of our findings is that firms with a focus on the maximization of only shareholder value are likely to encounter greater resistance when entering a new market than would firms that are more stakeholder friendly, since the entry of the former is more detrimental to incumbent firms. This resistance may come either directly from the existing firms, or from government policies geared toward protecting domestic firms from the threat of foreign entry. Since the entry of a shareholder firm reduces the profitability of domestic firms more than the entry of a stakeholder firm, shareholder firms may find it more difficult to enter. Moreover, this resistance is likely to be greatest in countries where stakeholder governance is the norm, since the firms in these countries are the ones most likely to be affected by the entry of firms with only a shareholder focus.

Our framework can also be used to understand an additional important aspect of globalization, which is the acquisition of a domestic firm by a foreign institution. For instance, our analysis can be applied to situations where a 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. Similarly, it can also be useful for studying situations 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.

To study this aspect of globalization, we now consider the case where both shareholder and stakeholder firms operate together, but keep the number of firms constant - and equal

to two for simplicity - assuming only that one firm changes from one governance structure to the other. Formally, assume that firm i is a stakeholder firm with $K_i > 0$, while firm j maximizes only shareholder value (i.e., $K_j = 0$). We can now state the following.

Proposition 7 *The stakeholder firm sets a higher price than the competing shareholder firm, i.e.,* $\widehat{p}_{i1} > \widehat{p}_{j1}$.

Proof: The first order conditions are identical to (5). Condition (2) 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). □

The result in Proposition 7 states that the stakeholder firm would charge a higher price and, as a consequence, have a lower market share (i.e., lower quantity produced) 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 situation prior to the acquisition, in which $K_j > 0$. For this, we have:

Proposition 8 *Stakeholder firms set higher prices when competing with other stakeholder firms than when competing with shareholder firms:* $\widehat{p}_{i1}|_{K_j>0} > \widehat{p}_{i1}|_{K_j=0}$.

Proof: See appendix. □

The intuition behind these last results hinges once again on the effect of the concern for stakeholders on firms' incentives in setting prices. Given that firms compete in strategic complements, the stakeholder firm "follows" its rival in setting a price lower than when its rival was a stakeholder firm. However, as stated in Proposition 7 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 imply that the acquisition of a stakeholder

firm by a shareholder firm leads to lower overall prices. While this is likely as well to lead to greater output, the domestic stakeholder firm clearly loses market share to the foreign acquirer.

6 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 quantity rather than price competition.

6.1 Alternative Concerns for Stakeholders

So far we have considered that firms take account of stakeholder concerns by choosing an organizational structure where stakeholders' 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, as was briefly mentioned in Section 3. 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 $F(p_{i1} - \overline{c})k_i$ to its profit when it stays solvent. With this modification firm i's objective becomes

$$\begin{aligned} \max_{p_{i1}} \Omega_i &= \Pi_i(k_i) + F(p_{i1} - \overline{c})k_i \\ &= E[\pi_{i1}] + F(p_{i1} - \overline{c}) \left((1 - F(p_{j1} - \overline{c}))\, \pi_2^M + F(p_{j1} - \overline{c})\pi_2^D \right) + F(p_{i1} - \overline{c})k_i. \quad (8) \end{aligned}$$

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

6.2 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: $c_i = \overline{c} + \epsilon_i$. Note that $\pi_{i1} \geq 0 \Leftrightarrow \epsilon_i \leq P_{i1} - \overline{c}$, so that the probability this condition is satisfied is just $\Pr(\epsilon_i \leq P_{i1} - \overline{c}) = F(P_{i1} - \overline{c})$.

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

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

The FOC is given by

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

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, $\widehat{q}_{i1}$, will be decreasing in K_i. As a result, the first period price, P_{i1}, will be increasing in K_i, thus confirming this result from the model of price competition.

We next extend the model to allow firms to choose K_i in similar fashion 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 $\widehat{q}_{i1}(K_i, K_j)$. At $t = 0$, each firm then maximizes its overall profits with respect to K_i:

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

where $\widehat{\Pi}_i = \Pi_i(\widehat{q}_{i1}, \widehat{q}_{j1})$, and $\widehat{P}_{i1} = P_{i1}(\widehat{q}_{i1}, \widehat{q}_{j1})$. 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

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

The term $\frac{\partial \widehat{q}_{j1}}{\partial K_i}$ can be written as $\frac{\partial \widehat{q}_{j1}}{\partial K_i} = \frac{\partial \widehat{q}_{j1}}{\partial q_{i1}}\frac{\partial \widehat{q}_{i1}}{\partial K_i} > 0$ since $\frac{\partial \widehat{q}_{j1}}{\partial q_{i1}} < 0$ (strategic substitutes) and $\frac{\partial \widehat{q}_{i1}}{\partial K_i} < 0$ from the discussion above. Since $\frac{\partial E[\pi_{i1}(.)]}{\partial q_{j1}} < 0$, the first term is strictly negative. For the rest, note that $\frac{\partial \widehat{P}_{i1}}{\partial q_{j1}}$, $\frac{\partial \widehat{P}_{j1}}{\partial q_{j1}} < 0$ since a greater quantity by either firm reduces the price each firm obtains. Since $\frac{\partial \widehat{q}_{j1}}{\partial K_i} > 0$, this implies that all remaining terms are also negative, so that $\frac{\partial \widehat{\Pi}_i}{\partial K_i} < 0$ 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, despite the fact that doing so would raise both firms' profits.

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 $G(K_i, K_j) = \overline{G}$ 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, $\left.\frac{\partial \widehat{\Pi}_i}{\partial K_i}\right|_{K_i=0} > 0$, and choosing a positive K_i will be optimal, thus confirming the results from Section 4.2.

7 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 and 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 may be 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 structures since this increases their value compared to just focusing on shareholders. One way of doing this is to give managers some latitude since as employees 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 to do business with such firms. Consistent with our model, there is recent evidence that employee representation on supervisory boards increases firm efficiency and market value (Fauver and Fuerst, 2006). An open question, however, is whether the pricing policies of firms differ systematically as a function of their governance structure, as predicted here, or whether the higher value accruing to firms with employee representation stems from other sources.

An important issue in the context of globalization concerns the effect of entry by stakeholder-oriented firms into shareholder-oriented societies and vice-versa. We show that all incumbent firms whether they are stakeholder- or shareholder-oriented prefer a stakeholder firm to enter rather than a shareholder firm. This raises a clear political economy perspective on firm governance, in that countries that are focused on a broader set of stakeholders are more

likely to resist the entry of shareholder-oriented firms. This resistance can be either through direct opposition by incumbent firms, or through government policies aimed at protecting domestic firms. Studying the broader implications of this perspective is an interesting avenue for future research.

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 a 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 consumers. 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.

A Omitted Proofs

Proof of Corollary 1: Recall the FOC for profit maximization, equation (3):

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

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

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

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

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 ϵ_i is non-increasing in the absolute value of ϵ_i and $p'_{i1} - \overline{c} > 0$, a reduction in p'_{i1} would increase $f(p'_{i1} - \overline{c})$. Thus, for $\sigma_i < \widetilde{\sigma}_i$, the equilibrium price $\widehat{p}_{i1}(\sigma_i)$ falls as σ_i decreases and converges to the single-period equilibrium price $\widetilde{p}_i$ as $\sigma_i \to 0$. This establishes that there must exist some threshold $\overline{\sigma}_i$ such that $\widehat{p}_{i1} < p_i^M$ for $\sigma_i < \overline{\sigma}_i$. $\square$

Proof of Corollary 2: As $K_i \to 0$, Proposition 1 establishes that the equilibrium first period price, $\widehat{p}_{i1}(K_i)$, remains higher than the single period equilibrium price, $\widetilde{p}_i$. Moreover, given our maintained assumption that $\sigma_i < \overline{\sigma}_i$, Corollary 1 establishes that, as $K_i \to 0$, $\widehat{p}_{i1}(K)$ is lower than the joint profit maximization price p_i^M, and is increasing in K_i. From the first order condition (5) for profit maximization, however, it is also clear that, as $K_i \to \infty$,

the equilibrium price $\widehat{p}_{i1}(K_i)$ rises until demand for firm i converges to 0, so that $E[\pi_{i1}] \to 0$. Therefore, there must be some $\overline{K_i}$ such that $E[\pi_{i1}]$ is higher for $K_i < \overline{K}_i$ and lower for $K_i > \overline{K}_i$. $\square$

Proof of Proposition 8: The two first order conditions for the stakeholder firm i and the shareholder firm j are

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

and

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

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

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

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 $\widehat{p}_{i1}|_{K_j>0} > \widehat{p}_{i1}|_{K_j=0}$, as in the proposition. $\square$

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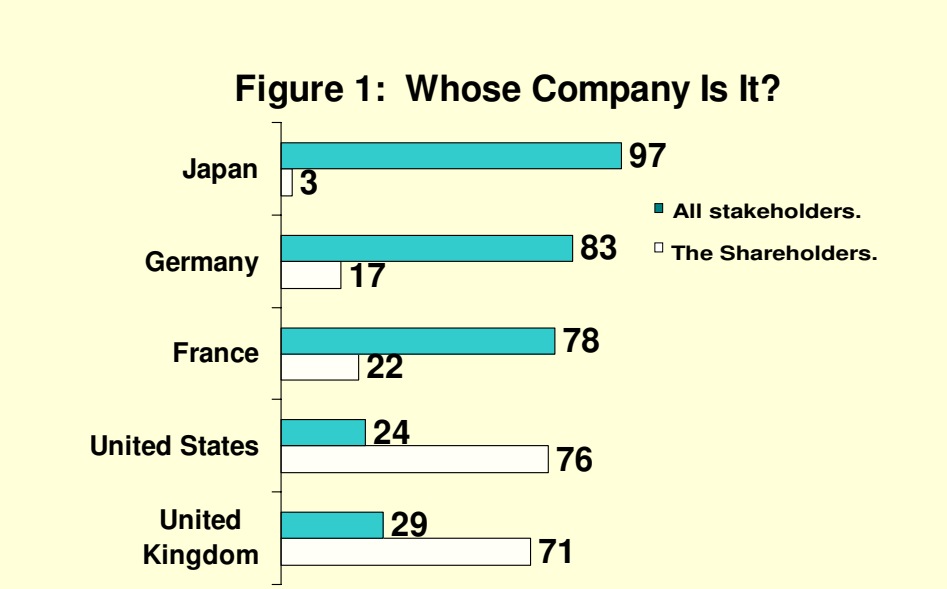
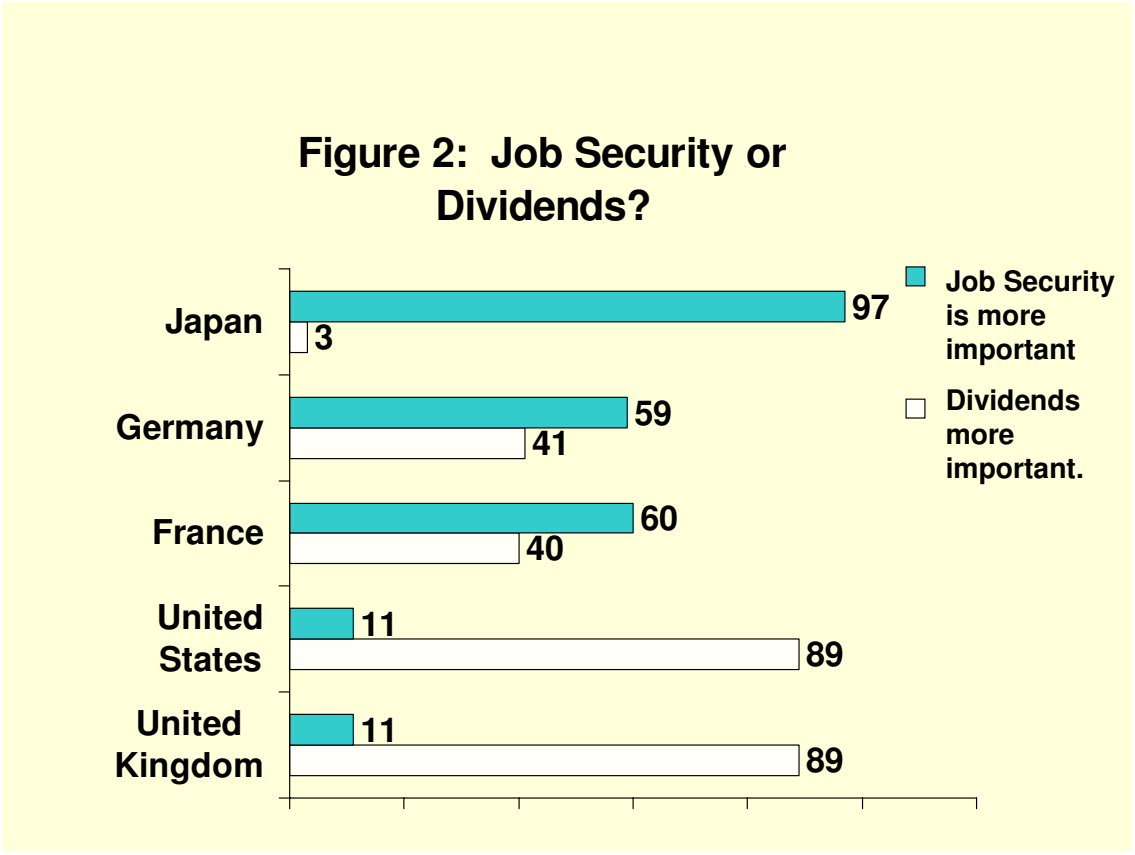


Number of firms surveyed: Japan, 68; United States, 82; United Kingdom, 78; Germany, 100; France, 50.

Source: Masaru Yoshimori, "Whose Company Is It? The Concept of the Corporation in Japan and the West." *Long Range Planning*, Vol. 28, No. 4, pp. 33-44, 1995



Number of firms surveyed: Japan, 68; United States, 83; United Kingdom, 75; Germany, 105; France 68

Source: Masaru Yoshimori, "Whose Company Is It? The Concept of the Corporation in Japan and the West." *Long Range Planning*, Vol. 28, No. 4, pp. 33-44, 1995

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