Inside vs Outside Ownership*

A Political Theory of the Firm

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Abstract

If contracting within the firm is incomplete, managers will expend resources on trying to appropriate a share of the surplus that is generated. We show that outside ownership may alleviate the deadweight losses associated with such costly distributional conflict, even if all it does is add another level of conflict. In case managers have to be provided with incentives to make firm-specific investments, there is a tradeoff between minimizing rent-seeking costs and maximizing output. This suggests, among other things, an explanation of why some firms are organized as partnerships and others as stock corporations. *Journal of Economic Literature* Classification Numbers: D23, D74, G32, G34, L22. Keywords: Outside ownership, rent-seeking, conflict, property rights, theory of the firm.

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[C]ovenants, without the sword, are but words, and of no strength to secure a man at all.

Thomas Hobbes, *Leviathan.*

1 Introduction

Suppose a group of agents by making a joint effort could produce something of value. Much of economic theory is based on the idea that such potential gains from trade would be fully exploited. Implicitly, we assume the existence of institutions that ensure the cooperation of all parties involved, such as complete contracts and their enforcement by a legal system. But in reality contracts are incomplete and courts less than omniscient, and any *ex ante* agreement, such as on how to split the surplus resulting from a joint activity, is subject to opportunistic behavior *ex post*. In this paper, we argue that outside ownership of firms may be an institution that fills in the gaps left by imperfect formal enforcement.

Consider the costs that arise from imperfect enforcement. In a joint undertaking, such as a partnership or cooperative, individuals may be able to divert part of the jointly produced surplus for their own uses. There are many examples in the legal literature.[1] A partner may use company money to finance private activities, but claim that the money was used for business purposes. Preparing to support such a claim before a court or an arbitrator, the partner may manipulate documents and accounting information, and hire lawyers or expert witnesses. Since the court has no information about the case apart from what is presented by the parties, the outcome depends partly on strategic, costly decisions by the parties themselves. Hence relying on courts to enforce contracts may in fact exarcerbate rather than reduce the total costs of conflict in a business transaction.

A second, perhaps not as obvious, cost of imperfect enforcement, arises since an agent may have to invest effort also in guarding his share of surplus against the first, appropriative type of activity on the part of others. As noted by Tullock [19], the social costs of theft are not just the resources diverted from productive activity into burglary, but also those used to put locks on doors.

To the extent that they involve costly time and effort, both types of activity are wasteful, since they only serve to reallocate income. Using an established term, we shall refer to such

[1]See, e.g., the textbook by Banks [2]. Chapter 16.2, entitled "The Obligation of Partners Not to Benefit Themselves at the Expense of their Co-Partners," contains numerous examples of partners engaging in self-dealing and fraud at the expense of other partners.

behavior as *rent-seeking*.[2]

Thomas Hobbes famously suggested that, but for the institution of government, all of society would be engaged in a wasteful war of every man against every man. Only by giving up their natural liberties to the Sovereign, who would then become a more fearsome threat, would citizens avoid internal conflict. Similarly, by selling the firm to outsiders, the members of a partnership involved in distributional conflict may improve on their situation—even if the only *de facto* right that comes with a share is the right to participate in the fight over the surplus.

There is nothing about outside ownership *per se* that guarantees that the outsiders get anything out of the firm.[3] The insiders in a firm control the accounting machinery. To force the insiders to distribute the produced surplus, the outsiders must first provide evidence that the surplus indeed exists. For instance, they must disentangle book earnings from true earnings. Outside ownership may therefore realistically be viewed as a distributional conflict where the insiders and outsiders fight over the surplus that is generated in the firm by investing costly resources in the covering and uncovering, respectively, of information about the true size of the surplus.

In this paper, we show that outside ownership may reduce total rent-seeking costs even though it adds another level of conflict. In equilibrium, the outsiders extract at least part of the firm's surplus. With less surplus left in the firm to fight about, less resources are wasted by the insiders in the subsequent internal distributional conflict. The outsiders take on the role of a "common enemy," forcing insiders to lower the amount spent on internal conflict. Of course, against this beneficial effect must be counted the extra resources now spent in the conflict between insiders and outsiders. We show that the net effect may well be positive.[4] The distributional conflict perspective therefore provides a rationale for outside owners who provide no productive input—indeed, in our model they only waste resources—or risk-sharing function, who perform no monitoring (in contrast with Alchian and Demsetz [1]), do not break the balanced-budget constraint (in contrast with Holmström [9]), and do not control important physical assets (in contrast with Grossman and Hart [6] and Hart and Moore [7]).

Since, in general, there will be less of the surplus left in the firm with outsiders taking part of

[2]Alternative expressions are *safeguarding activities* (Williamson [24]), *influence activities* (Milgrom [13]), and *power-seeking activities* (Rajan and Zingales [15]).

[3]Indeed, the notion that managers are reluctant to pay out funds to investors is a fundamental motivation for the recent literature on corporate governance. See Shleifer and Vishny [16] for a survey.

[4]Wärneryd [22] uses a related effect to explain federalist structures of jurisdictional interaction.

it, insiders will face dulled incentives to make incontractible firm-specific (e.g., human capital) investments relative to the partnership model. Hence there may be a tradeoff between minimizing the cost of distributional conflict and maximizing surplus. This suggests an explanation of why many partnerships, such as law firms, medical practices, and accounting agencies, are found in areas where human capital investments are important. It also provides a possible explanation of why some firms that start out as partnerships or closed corporations eventually go public. Initially, marginal returns to firm-specific investments are typically high, implying that for incentive reasons inside ownership is the optimal ownership arrangement. With decreasing marginal returns to investment, however, there may come a time when the most profitable investment opportunities have been exhausted. At this point, reducing rent-seeking costs may be more important than promoting firm-specific investments, and going public may become optimal.

Our paper is related to, but differs in its focus from, some recent contributions on cooperatives. Both Hart and Moore [8] and Kremer [12] study the choice between inside and outside ownership. Hart and Moore focus on price and quality decisions in consumer cooperatives. Kremer discusses why egalitarian sharing rules are often found in practice in partnerships. In both papers, cooperatives are characterized by the use of voting procedures to make collective decisions. In contrast, we focus on costly decentralized conflict, but find, along with Kremer, that the importance of providing incentives for human capital investments is crucial in determining whether a partnership or outside ownership is optimal.

The rest of the paper is organized as follows. Section 2 examines distributional conflicts in partnerships. We show that introducing outside ownership may lower the total cost of distributional conflict in Section 3. The effect of outside ownership on the incentives for insiders to make firm-specific investments, and the resultant tradeoff, is discussed in Section 4. Section 5 discusses the relation between our approach and other theories of the firm, and concludes.

2 Partnerships

We study a firm with m indispensable managers. In this section, we assume the firm is organized as a partnership. We shall therefore sometimes refer to the managers as *partners*.

The production activity of the firm gives rise to a surplus Y given by

$$Y := (1-\theta)\,\bar{y} + \theta \sum_{i=1}^{m} e_i,$$

where $\bar{y}$ is a constant, e_i is the firm-specific (human capital) investment of manager i, and $\theta \in [0,1]$ is a parameter that measures the importance of managerial investments for the value

of output. For now, we shall assume that we have $\theta = 0$, i.e., that output is independent of firm-specific investments. We discuss the case where firm-specific investments matter in Section 4.

We assume that contractual incompleteness within the firm gives rise to a costly distributional conflict between the partners over the produced surplus. As we argue in the introduction, this may be because

1. a partner may divert part of the surplus to finance private activities, claiming that the money is used for business purposes, and

2. a partner may have to take action to safeguard his share against the appropriative activities of others.

To potentially support his claim before a court or arbitrator, partner i may invest costly resources (e.g., time and effort) of value r_i in the production of favorable evidence. We shall assume that the greater is a partner's rent-seeking effort relative to the sum total of such efforts, the greater is the share of the surplus that he can appropriate.

In particular, we assume partner i's share of the surplus is

$$\alpha_i := \begin{cases} r_i/R & \text{if } R > 0 \\ 1/m & \text{otherwise,} \end{cases}$$

where $R := \sum_j r_j$.[5]

For simplicity, we assume the managers are risk-neutral and that the disutility of expending r_i is simply r_i. Then partner i's utility is

$$u_i := \alpha_i Y - r_i.$$

We can now look for an equilibrium in rent-seeking expenditures. Clearly, there is no equilibrium such that nobody makes a positive expenditure, since an individual partner could then get the entire surplus by expending an arbitrarily small amount. The optimal rent-seeking expenditure of partner i, given the expenditure of everyone else, is therefore determined by his first order condition

$$\frac{\partial u_i}{\partial r_i} = \frac{R - r_i}{R^2} Y - 1 = 0.$$

[5]This particular *contest success function* was introduced by Tullock [20, 21] for the analysis of court proceedings and rent-seeking contests. There is now a vast literature on contest models. For example, Fullerton and McAfee [5] use the same success function, derived from more primitive assumptions, to discuss research contests. Baye, Kovenock, and de Vries [3] use the related success function where the highest bidder wins with certainty to study lobbying. For more general discussions of models of conflict of this nature, see, e.g., Skaperdas [17, 18], Dixit [4], and Nitzan [14].

Since this condition implies that equilibrium rent-seeking expenditures are the same for all partners, there is a unique equilibrium where each partner invests

$$r := \frac{m-1}{m^2}Y.$$

Hence total equilibrium rent-seeking expenditures are

$$R_I := mr = \frac{m-1}{m}Y.$$

and each partner receives the share

$$\alpha_i = \alpha := \frac{1}{m}$$

of surplus.

Equilibrium utilities may be expressed as fractions of the surplus Y. Defining

$$\delta_I := \frac{1}{m^2},$$

partner i's surplus share *net* of rent-seeking expenditures, his equilibrium utility under inside ownership is

$$\alpha Y - r = \delta_I Y.$$

Since everybody spends the same amount in equilibrium, the end result of the distributional conflict is the same division of surplus as if contracting were complete and the partners agreed to an egalitarian sharing rule. The resources spent on rent-seeking are wasted. The partners are trapped in a Prisoners' Dilemma-like situation of escalated rent-seeking. A repeated, long-term interaction might offer the possibility of sustaining a more cooperative outcome, but in the following we shall explore the effect of changes in the firm's ownership structure.

3 Outside Ownership

Suppose the partners sell the firm to one or more outsiders. We henceforth refer to the partners as *insiders*. Being the owners, the outsiders have a legal claim to the surplus that is generated. Since the insiders have control over the accounting machinery, this claim is generally worthless unless the owners can prove before a court that the surplus indeed exists. Hence we may think of outside ownership as a distributional conflict between the insiders and outsiders, where the parties take costly actions in covering and uncovering, respectively, information about the true size of the surplus. As with the partnership, it is still the case that the insiders must fight

against each other over what is left in the firm, but under outside ownership they must also fight as a collective against the outside owners.

The sequence of events is as follows. At date 1, the insiders decide whether to remain independent or sell the firm to one or more outsiders. At date 2, the insiders fight against the outsiders (if any) to retain as much as possible of the surplus within the firm. Finally, at date 3, the insiders fight among themselves over whatever has been retained in the firm.

It seems natural to model the higher-level contest between outsiders and insiders analogously with the inside contest, with the single difference that the share retained by the firm is a public good to the managers. Let s_i be the expenditure of manager i in the contest with outsiders and t_j the expenditure of outside owner j, and let S and T be the corresponding aggregate expenditures. We shall assume that the share of surplus remaining in the firm is

$$\beta := \begin{cases} S/(S+T) & \text{if } S+T>0 \\ 1/2 & \text{otherwise.} \end{cases}$$

Since we abstract from any resource constraints on rent-seeking activities, the problems of how much to expend at the different contest levels are independent of each other. Still, it is convenient for expository purposes to think of a time order where first the split of the original surplus between insiders and outsiders is determined, and insiders then fight over whatever they managed to retain from the first contest.

When deciding on their individual expenditures in the conflict with the outsiders, the insiders therefore take into account the anticipated outcome of the later internal conflict. Since βY is what will remain to be fought over inside the firm, each manager expects to ultimately receive $\alpha\beta Y$. Hence insider i's objective function in the conflict with the outsiders is

$$v_i := \alpha\beta Y - r - s_i = \delta_I \beta Y - s_i.$$

We assume the insiders make their expenditure decisions independently in the fight against the outsiders. Then insider i's optimal rent-seeking expenditure, given the rent-seeking expenditures of the outside owners and the other insiders, is given by the first-order condition

$$\frac{\partial v_i}{\partial s_i} = \frac{T}{(S+T)^2}\frac{Y}{m^2} - 1 = 0.$$

Since the surplus share is a public good to the insiders, the first order conditions only determine aggregate insider expenditure. Furthermore, this aggregate effort is suboptimal, since first order conditions for collectively optimal choices would have Y instead of Y/m^2.

As for the owners, we assume that whatever share of the surplus has been uncovered must be paid out as dividends.[6] If all $n \geq 1$ outsiders hold the same number of shares, outsider i's utility is

$$w_i := \frac{1}{n}(1-\beta)Y - t_i.$$

Assuming the outsiders make their expenditure decisions noncooperatively, outsider i's first-order condition for an optimal choice is

$$\frac{\partial w_i}{\partial t_i} = \frac{S}{(S+T)^2}\frac{Y}{n} - 1 = 0.$$

Again, we note that these first-order conditions only determine aggregate rent-seeking expenditures. Hence there is a continuum of equilibria, all involving the same aggregate expenditures from the respective groups. We focus on within-group symmetric equilibria. That is, we shall assume all insiders make the same equilibrium expenditure s, and all outsiders make the same equilibrium expenditure t. The first-order conditions then reduce to

$$\frac{ms}{(ms+nt)^2}\frac{Y}{n} - 1 = 0$$

and

$$\frac{nt}{(ms+nt)^2}\frac{Y}{m^2} - 1 = 0.$$

Solving this system of equations for s and t, we have that

$$s = \frac{n}{m\eta^2}Y,$$

where $\eta := m^2 + n$, and

$$t = \frac{m^2}{n\eta^2}Y.$$

The equilibrium share of surplus retained in the firm is therefore

$$\beta = \frac{n}{\eta}.$$

We note that the share retained in the firm is a strictly increasing function of the number of outside owners, and that it approaches 1 as the number of outsiders approaches infinity.

[6] Our qualitative results remain the same if we instead assume that the outsiders also fight among themselves over what they have collectively managed to extract from the firm. The analysis becomes more complicated, however, if we allow the outsiders to hold different numbers of shares. The outsiders then have different valuations of the share of surplus extracted. In general, only the outsider with the highest valuation (i.e., the largest number of shares) will be willing to expend a positive amount on conflict. Since equilibrium utilities then also differ among the outsiders, the determination of share prices becomes less straightforward. We leave further exploration of these matters for future work.

Intuitively, since monitoring the insiders is a public good, total resources expended by the outsiders in the distributional conflict with the insiders become less as the number of outsiders increases.

Insider i's equilibrium *ex post* utility under outside ownership is then

$$\frac{1}{m}\frac{n}{\eta}Y - s - r = \delta_O Y,$$

where $\delta_O := n(\eta - m)/m^2\eta^2$ is his surplus share *net* of rent-seeking expenditures when both the internal conflict and the conflict with the outsiders are taken into account.

Recall that total rent-seeking expenditures under inside ownership are

$$R_I = \frac{m-1}{m}Y.$$

Total rent-seeking expenditures under outside ownership, taking into account the resources expended by the insiders in fighting for individual shares over whatever is left in the firm, are

$$R_O := ms + nt + \frac{m-1}{m}\beta Y = \frac{n\,(m-1)+m}{m\eta}Y.$$

We have that

$$R_O < R_I \text{ for all } m > 1 \text{ and } n \geq 1.$$

If firm-specific investments are irrelevant, total rent-seeking costs are thus always lower under outside ownership than under inside ownership. While outside ownership entails additional rent-seeking expenditures of $ms+nt$ incurred in the conflict between the insiders and outside owners, it reduces the rent-seeking expenditures incurred in the internal conflict between the insiders by $mr\,(1-\beta)$.

Differentiating R_O with respect to n shows that total rent-seeking costs under outside ownership are strictly increasing in the number of outside owners. In particular, we have that

$$\lim_{n\to\infty} R_O = \frac{m-1}{m}.$$

As the number of outside owners approaches infinity, total rent-seeking costs under outside ownership approach total rent-seeking costs under inside ownership, and the share of surplus captured by the outsiders approaches zero. Hence from a distributional conflict perspective, a firm with a large number of outside owners (e.g., a widely held stock corporation) is like a closely held firm.

It follows that total rent-seeking costs are minimized by having a single outside owner. As we discuss in the next section, this does not automatically imply that the optimal ownership

structure is always to have a single outsider. If managerial human capital investments are important, a relatively larger share of surplus may have to be retained in the firm in order to give managers incentives. Note that there is a free-rider problem among the outsiders. In particular, since when the number of outsiders increases, the individual return to an increase in the outside share falls, we have that

$$\frac{\partial \delta_O}{\partial n} = \frac{1}{m} \frac{n(m+1) + m^2(m-1)}{\eta^3} > 0.$$

That is, the share of output ultimately consumed by an individual manager is a strictly increasing function of the number of outside owners. Hence inside ownership or outside ownership with more than one owner may be optimal in such a setting. If we have $\theta = 0$, however, i.e., human capital investments play no role, then clearly outside ownership (with a single outsider) is efficient.

Intuitively, the benefit from having outside owners is that they withdraw part of the surplus from the firm. Since this means there is less left to fight over, this reduces the amount of resources wasted in the internal distributional conflict between the insiders. Having a single outside owner maximizes the amount withdrawn as it overcomes the free-rider problem in monitoring.

We summarize our findings on total rent-seeking costs in the following proposition.

Proposition 1 *Total rent-seeking expenditures are strictly less under outside ownership than under inside ownership. In particular, if output is independent of firm-specific investments, outside ownership with a single owner is the optimal ownership structure.*

In the above analysis, the beneficial effect of outside ownership is reinforced by the fact that the insiders face a free-rider problem in contributing to the contest with the outsiders, implying that only a relatively small share of the surplus is being retained within the firm. It can be shown, however, that Proposition 1 continues to hold if the fighting against the outsiders is delegated to a single insider and the cost of fighting is split equally between the insiders.

If capital markets are perfectly competitive, the insiders can extract the full efficiency gain from selling the firm to outsiders as then the outsiders can be made to pay exactly their (aggregate) net gain

$$(1-\beta)\, Y - nt = \frac{m^2\,(\eta-1)}{\eta^2} Y.$$

Accordingly, if all insiders have an equal share in the firm *ex ante*, insider i's *ex ante* utility (which includes his share in the proceeds from the sale of ownership rights) is

$$\left(\delta_O + \frac{1}{m}\frac{m^2\,(\eta-1)}{\eta^2}\right) Y = \frac{m^3 - m + n}{m^2 \eta} Y,$$

which, as expected, is strictly greater than his utility $\delta_I Y = Y/m^2$ under inside ownership.

4 Incentives for Firm-Specific Investments

We have seen how introducing outside owners lowers rent-seeking costs in the firm. The benefit from having outsiders is that the outsiders extract part of the firm's surplus. Since there is now less left to fight over within the firm, this reduces the amount of resources wasted in the distributional conflict between the insiders. Even though additional resources are wasted at the new conflict level, in our model the overall effect is positive.

The net effect is not so clear if the insiders have to be provided with incentives to make firm-specific investments at an interim stage (i e, before the distributional conflicts take place but after shares have been sold). Since managers receive a smaller share of the total surplus when there are outside owners, their incentives to make firm-specific investments are dulled. Hence in choosing an optimal ownership structure, there is a tradeoff between minimizing rent-seeking costs and providing investment incentives. In what follows, we take a step back and consider the determination of these incentives.

Suppose the insiders noncooperatively choose their firm-specific investment levels e_i. The objective function of insider i is

$$\delta\left(\left(1-\theta\right)\bar{y}+\theta\sum_{i=1}^{m}e_i\right)-c\left(e_i\right),$$

where $\delta \in \{\delta_I, \delta_O\}$ is his net surplus share as determined in the subsequent distributional conflict(s), and c is an increasing, strictly convex function.

There is then a unique equilibrium in which all insiders make the same investment e given by

$$\delta\theta = c'\left(e\right).$$

Since c' is increasing, the noncooperatively selected investment levels are strictly lower than the collectively optimal level $e^\star$ given by

$$\theta = c'(e^\star).$$

This is, of course, an instance of the standard holdup problem discussed by, e.g., Williamson [23, 24], Klein *et al.* [11], and Grossman and Hart [6]. Anticipating that they must share part of the surplus with the other insiders (and possibly also with outsiders), the insiders underinvest. In the present case, this problem is exarcerbated since the sharing takes place through costly conflict, which means that individual shares do not sum up to 1.

Since we have that

$$\frac{\partial e}{\partial \delta} = \frac{\theta}{c''} > 0 \text{ for } \theta > 0$$

equilibrium investments are strictly increasing in the share retained by each manager. (Equilibrium investment for $\theta = 0$ is naturally 0.)

Hence since we have $\delta_O < \delta_I$ for any finite number n of outsiders, the total surplus under outside ownership is strictly lower than under inside ownership. We have already noted that δ_O is increasing in n. In the limit, we have that

$$\lim_{n \to \infty} \delta_O = \delta_I.$$

Thus with respect both to mitigating the costs of distributional conflict and to providing insiders with incentives to make firm-specific investments, a firm with a very large number of outside owners is like a firm with no outside owner at all.

Again, the cost of outside ownership is that it dulls the incentives for insiders to make firm-specific investments, thus leading to a lower surplus. The benefit is that, given whatever surplus has been produced, the total amount of resources wasted in the conflict(s) over the surplus is strictly less than under inside ownership. Trading off the costs and benefits, we can determine an optimal ownership structure.

When deciding whether to sell shares to outsiders or not, the managers consider the value of the firm, i.e., the value of output minus managerial investment and rent-seeking costs, under the different possible arrangements. Under inside ownership, the value of the firm is

$$V_I := \left(1 - \frac{m-1}{m}\right) Y(e(\delta_I)) - mc(e(\delta_I)).$$

Under outside ownership with n outsiders, it is

$$V_O := \left(1 - \frac{m-n+mn}{m\eta}\right) Y(e(\delta_O)) - mc(e(\delta_O)).$$

Assume we have $\theta > 0$ and, as a first step, consider the problem of selecting the optimal number of outsiders given outside ownership. Since V_O is not necessarily a concave function of n, the optimum is not readily characterized.

It is easily seen, however, that the optimal number of outsiders may be greater than 1. Suppose there was a single outsider. As we have already seen, this corresponds to minimal total rent-seeking costs. However, since the share of each individual manager under outside ownership is strictly lower than under inside ownership, managers have less incentive to invest in human capital than under inside ownership, and hence the value of output is lower. Adding

more outsiders will i) increase δ_O, leading to more output as managers' incentives improve, and ii) increase total rent-seeking costs. The net effect may be positive. Hence the optimum number of outsiders may be greater than one.

The complete problem consists of comparing the net value of the firm under inside ownership with that under outside ownership with the *optimal* number of outsiders. In the following, we present a specific numerical example with quadratic cost function. This example has the property that there is a threshold value of θ such that for all values of θ below the threshold, outside ownership is optimal, and for all values above the threshold, inside ownership is optimal. This reflects the basic intuition that outside ownership may not be desirable if firm-specific investments are important.

Suppose we have $c(e_i) = e_i^2/2$, $m = 2$ and $\overline{y} = 5$. To evaluate whether inside ownership or outside ownership is optimal, we consider the difference in net firm values $V_O - V_I$. The net firm value under inside ownership is

$$V_I = \frac{5 - 5\theta}{2} + \theta e(\delta_I) - (e(\delta_I))^2,$$

and the net firm value under outside ownership is

$$V_O = \left(\frac{5 - 5\theta}{2} + \theta e(\delta_O)\right)\frac{n+6}{n+4} - (e(\delta_O))^2.$$

Given the cost function $c(e) = e^2/2$, equilibrium effort is determined by the first-order condition

$$\theta\delta = e.$$

Hence we obtain

$$V_O - V_I = (1-\theta)\frac{5}{4+n} - \theta^2\frac{n^3 + 29n^2 + 144n + 192}{4(4+n)^4}.$$

Figures 1–4 show the graph of $V_O - V_I$ for different values of θ. As expected, in all the examples the difference $V_O - V_I$ converges to zero as n approaches infinity.

In Figure 1, where we have $\theta = .8$, the difference $V_O - V_I$ is positive and strictly decreasing for all $n \geq 1$, implying that outside ownership with a single owner is the optimal ownership structure.

Increasing θ to .88, as in Figure 2, we find that outside ownership is still the dominant ownership structure, but the optimal number of outside owners is strictly greater than 1. At $\theta = .88$, for example, the optimal number of outside owners is $n \approx 8$. Intuitively, as firm-specific investments become more important, enlarging the number of outside owners, thereby reducing the share of the surplus that is withdrawn from the firm, is desirable.

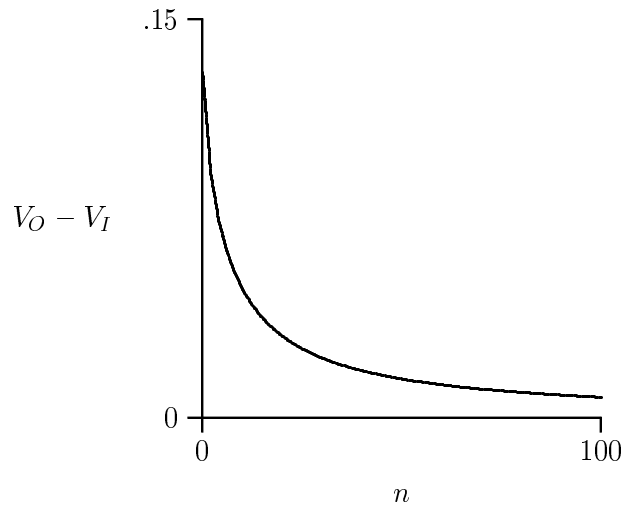

Figure 1: $\theta = .8$.

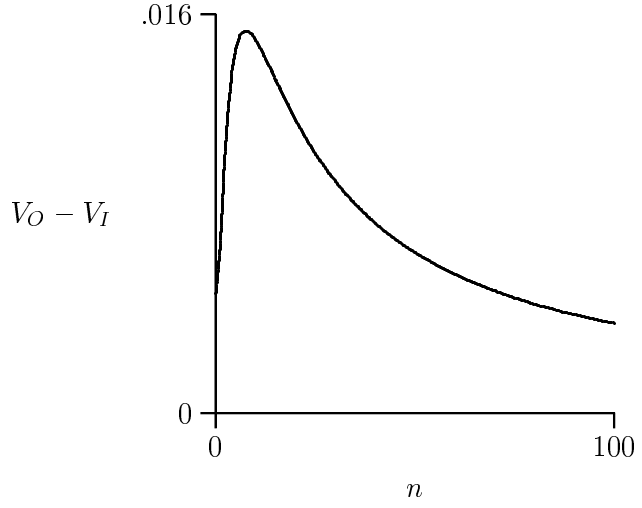

Figure 2: $\theta = .88$.

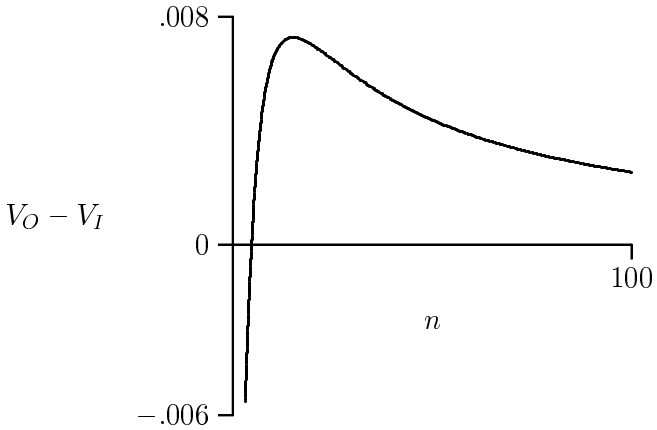

Figure 3: $\theta = .9$.

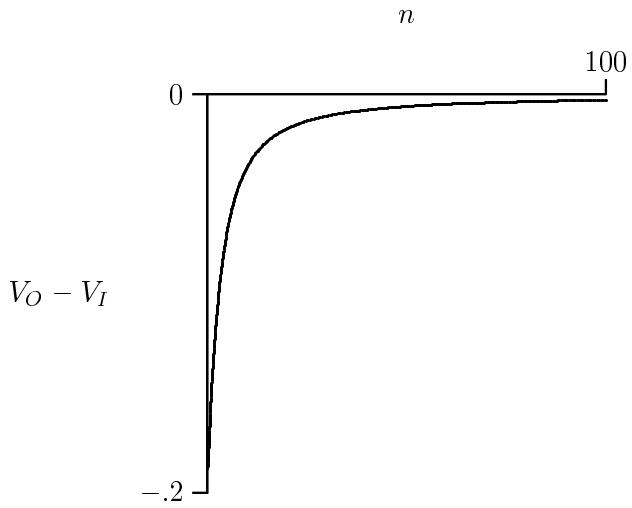

Figure 4: $\theta = 1$.

In Figure 3, where we have further increased θ to .9, there is a threshold $\overline{n} > 1$ such that the difference $V_O - V_I$ is positive for all $n \geq \overline{n}$ and negative for all $n < \overline{n}$. Hence the optimal number of outside owners is again strictly greater than 1.

At $\theta = 1$, as in Figure 4, inside ownership dominates outside ownership for all $n \geq 1$. Here, firm-specific investments are so important that merely enlarging the number of outside owners is not enough to provide the insiders with sufficient incentives to invest. The optimal ownership arrangement is therefore to have no outside owner at all.

From a dynamic perspective, this example suggests why firms may go from being partnerships to being corporations over time, a not uncommon phenomenon. Firm-specific investments by founders may have an especially important role to play at the outset of a project. Hence it may be efficient to provide the members of the firm with relatively powerful incentives. Later on, such investment opportunities may become exhausted. At this point, the objective of minimizing rent-seeking costs through outside ownership may become dominant.

5 The Theory of the Firm

Why are some firms owned by insiders (e.g., partners) and others by outsiders not involved in the firm's business? The received literature on this fundamental question focuses mainly on the problem of providing the participants in a firm with the right incentives for productive activities.

Alchian and Demsetz [1] argue that in partnerships, free-rider problems lead to an undersupply of productive inputs. In view of this problem, it may be optimal to bring in a third party to monitor the activities of the insiders. To provide this outsider with the correct incentives, he

should be entitled to the firm's residual income, which makes him effectively the firm's owner.

Alternatively, the insiders could write an incentive contract, which, if designed appropriately, induces each agent to supply the efficient amount of effort. Such an incentive contract, however, requires bonuses and penalties that occasionally deviate from the produced surplus. As a solution, Holmström [9] suggests that the firm hire an outsider whose only role is to break the budget-balancing constraint. As with Alchian and Demsetz, outside ownership in this theory entails only benefits, no costs.

More recently, Grossman and Hart [6] and Hart and Moore [7] emphasize the costs and benefits of ownership of indispensable physical assets in providing incentives for one party while diminishing the incentives for another party. There is no meaningful distinction between inside and outside ownership in terms of this theory, and it seems to apply mainly to entrepreneurial firms.

In contrast, the present paper addresses the question of inside versus outside ownership in a setting where contractual incompleteness in firms leads to costly distributional conflicts over the produced surplus. We show that outside ownership may ameliorate the cost of such conflict even though it adds a second conflict where the outsiders fight against the insiders. In this conflict, the insiders invest costly resources in, for example, the manipulation of accounting data, claiming that the surplus is low, whereas the outsiders as the legal claimants to the firm's surplus invest resources in proving the contrary. In equilibrium, the outsiders always manage to extract at least part of the surplus, implying that less resources are wasted in the subsequent distributional conflict between the insiders. Hence the owners of a firm may play a role similar to Hobbes's Leviathan in presenting the insiders with an outside threat or common enemy sufficient to lessen their internal squabblings.

In our analysis, outside ownership plays a role much like that of debt. There is a literature in corporate finance about the role of debt in forcing managers to pay out funds, thereby reducing the amount of funds invested in negative net present value projects (Jensen [10]). In our model, it makes no difference whether the insiders take on debt or sell the firm to outsiders. As the insiders are generally reluctant to pay out funds, they will default on repaying the debt, implying that the debtholders effectively become the firm's new outside owners. In the same fashion as the outside owners in our model, the former debtholders must then engage in a contest with the insiders over the distribution of the surplus.

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