CORPORATE CONTROL AND BALANCE OF POWERS

Daron Acemoglu

94-22       June 1994
I am grateful to Olivier Blanchard, Patrick Bolton, Denis Gromb, Leonardo Felli, Oliver Hart, Owen Lamont, Ernst Maug, John Moore, Thomas Piketty, Steve Pischke, Andrew Scott, David Scharfstein, Jeremy Stein and Jean Tirole for helpful conversation and discussion. Early versions of this paper was presented at the LSE, University of Bristol, Southampton and York. I thank seminar participants. All remaining errors are naturally mine.
CORPORATE CONTROL AND BALANCE OF POWERS

Abstract

Most managers enjoy considerable discretion and protection from possible interventions which enables them to look after their own interests. This is often attributed to the dispersion of shareholders and regulations that deter effective outside interventions. This paper presents a model that has empire-building managers who have important effort choices. Because the manager is not the residual claimants of the relevant returns, in order to provide him with the right incentives, he needs to be given sufficient discretion and the opportunity to share some of the rents he creates. To achieve this, equilibrium organizational form separates control from ownership and tries to contain the manager’s empire-building incentives using performance contracts and the capital structure rather than more direct methods of control. Nevertheless, owners will often be unable to commit to managerial discretion because ownership of the assets gives them the right to decide to what use that asset will be put and thus the right to fire the manager. In this case, it will be necessary to choose a disperse ownership structure in order to create free-rider effects among shareholders and thus to commit them to be passive. Thus, the dispersion of ownership, rather than being the cause of the problem, may be a solution to a more serious one. Nevertheless, there will often be benefits to having large shareholders. In this case, the paper shows that an intermediate level of dispersion is the optimum.

First Version: July 1992
Current Version: June 1994

JEL Classification: D23, G32
Keywords: Incomplete Contracts, Separation of Ownership and Control, Property Rights, Managerial Discretion, Dispersion of Ownership, Decentralized versus Centralized Ownership
1) Introduction

Most corporations are run by managers who are not the residual claimants of the returns they generate and who can therefore be expected to deviate from value maximization. Shleifer and Vishny (1988, p.8) write; "A wealth of evidence suggests that managers often take actions that dramatically reduce the value of the firm. Witness, for example, the ability of managers to defeat hostile tender offers, even when shareholders stand to gain hundreds of millions of dollars from the bid, or the ability to undertake billion dollar oil exploration projects that the market treats as having negative present value (McConnell and Musceralla (1986))." Blanchard et al's (1993) recent study clearly documents how managers tend to spend the free-cash flow in non-value maximizing ways. In a sample of firms without profitable investment opportunities, windfall cash gains are never paid to shareholders and are often used in ways that appear far from value maximizing. These observations and many similar ones (see Jensen (1988)) suggest that managerial discretion is harmful to corporate performance. Popular press and "gurus" also seem to agree that managerial discretion is costly and that it should be limited. Michael Porter (1992, p.14) writes "Outside owners should be encouraged to hold larger stakes and to take a more active role in companies". Michael Jacobs' (1991) book is one of the many examples in the popular press that argue in favor of effective ownership and intervention in the "Warren Buffet style".

The diagnosis associated with the above line of reasoning is often that the passivity of disperse shareholders leads to excessive managerial discretion and the implicitly suggested remedy is to reduce the discretion of the manager - for instance by high debt claims (e.g. Jensen (1986)), the discipline of a board of directors (e.g. Fama and Jensen (1983)), or takeovers (e.g. Manne (1965)). In contrast, the main argument of our paper is that the discretion that the manager enjoys may actually have an important economic role and dispersion of ownership may be the way to secure such managerial discretion in equilibrium. Managers often have important decisions but are not the residual claimant of the returns they generate. This would lead to the wrong incentives when contracts are incomplete. One way of preventing this is to redistribute property rights so as to make the manager residual claimant using the insight that ownership transfers control rights and thus rents (Grossman and Hart (1986), Hart and Moore (1990a)). Yet, because in our set-up the manager does not have the resources to buy the relevant assets, this solution is not possible. Our suggestion starts with the well-known observation that the marriage of ownership and control need not be absolute. The manager can enjoy part of the rents generated by his effort choices even when he is not the owner of the assets as long as he is in control. Therefore, in order to ensure the right incentives, the manager must be given some discretion to enjoy rents within the organization. Obviously, there is a limit to the amount of rents that the manager should be given and the optimal organizational form should strive to achieve a balance of powers.

However, this is not the end but the beginning of the story. Incompleteness of contracts
also makes it difficult for the owners to relinquish part of the control associated with the ownership of the assets. Then anticipating the separation of ownership and control not to be credible, the manager will have no incentive to supply high effort and inefficiencies are increased. In many situations, the only way to achieve a credible divorce of ownership and control will be to further muddy the concept of ownership; in other words, to create a disperse ownership structure so that those shareholders who take control confer a positive externality on other shareholders. This will introduce a free-rider problem among shareholders and passifize them, giving enough breathing space to the manager. Thus, our suggestion is to reverse the conventional wisdom which takes the disperse ownership structure as given and argues that this leads to passive shareholders and to too much managerial discretion; in contrast, our claim is that a decentralized ownership structure may be chosen in order to make shareholders passive and provide the manager with sufficient discretion.

Our model is simple. There is free cash flow in the firm that the manager can misuse. Shareholders can prevent this non-value maximizing behavior in a number of ways. The first solution is tight control by the owners or by an independent board of directors. In this case, although the owners have delegated certain tasks to the manager, there will be little separation of ownership and control. Second, we can have "hands-off" (decentralized) ownership relying on performance contracts and capital structure to control the manager's discretion. Our first main result, Proposition 1, is that even to the extent that the first solution, effective owner control, is possible, it is often unattractive and a high degree of separation of ownership and control is preferred. This is because whenever the conflict is intense and they have the power, the owners will ignore the manager's interests. In particular, the ownership of the assets of the corporation gives them the right to replace the manager. If it is expensive to prevent the manager from consuming the free cash flow, the owners will prefer to fire him. But anticipating that he will be replaced, the manager will have less incentive to provide the right level of ex ante effort and more inefficiencies will be introduced.

Our second major result is contained in Proposition 2 which demonstrates that when owners cannot commit not to intervene, efficient organizational form requires a disperse ownership structure. Decentralized ownership introduces free-rider effects among owners and makes owner intervention unlikely. Thus, it is a credible way of committing to managerial discretion. Yet it is also well-known that large shareholders and centralized ownership will often have benefits, for instance better monitoring. In our basic model, intervention by shareholders has no role once optimal performance contracts are written for the manager. We then modify our assumptions and allow the possibility that the manager can pay-out some of the free-cash flow out if he wants to (say in the form of stock repurchases) and under this assumption, we derive our third important result; there will exist an optimal degree of ownership dispersion and in fact in
our particular model, with this optimal intermediate ownership structure, first-best is achieved.

We also use this framework to analyze the impact of takeover threat on organizational efficiency. The findings here are not surprising given our three main results above; takeovers are harmful if they disturb the balance of power, thus in equilibrium, there would always be some positive level of takeover defence mechanism. However, when there are benefits from monitoring that cannot be exploited by shareholders, there exists an interior solution for the optimal degree of takeover threat. This finding that owner intervention and takeover threat are substitutes is in line with the evidence in Shivdasani (1992) that when the board of directors holds significant stock in the company, takeovers are rare, and also in accord with the view that in Japan and Germany, takeovers are not necessary because other forms of control are very effective (e.g. Roe (1993)). However our main theoretical results also suggest caution in promoting takeovers and German-Japanese style owner intervention because the main problem is not only to control the manager but to achieve a balance of powers.

The plan of the paper is as follows. Next section describes the basic environment. Section 3 analyzes the equilibrium organizational form and shows that a high degree of separation of ownership and control, with incentive contracts for the manager and a moderate level of debt, will often be the equilibrium choice. Section 4 introduces the possibility of useful intervention by owners and derives the optimal degree of ownership dispersion, which is also shown to achieve the first-best in this model. Section 5 quickly applies this framework to the interaction between takeovers and organizational efficiency. Section 6 relates this paper to earlier literature and concludes.

2) Description of the Environment

We will now describe a model designed to capture the presence of conflicting interests between the management and shareholders that cannot be completely resolved by an incentive contract. A manager is running a firm on behalf of a single owner. (Since we will later ask how the dispersion of ownership may be influenced by strategic considerations, we first consider the case of a single owner). The world consists of three periods t=0, 1 and 2 as shown in Figure 1. Table 1 summarizes all the variables used in this paper that are also later introduced in the text.

We assume that the owner makes a take-it-or-leave-it offer to the manager at t=0. The offer is a package consisting of an organizational form (and ownership structure), capital structure and incentive contract. The incentive contract relates the manager's reward to whether debt obligations have been met and to the final (t=2) returns of the firm that are verifiable. Next, the manager chooses an effort level (e=0 or 1) which influences the likelihood of the good state and undertakes the first project which for simplicity is assumed to cost zero. The human capital of this manager is essential for the project which implies that he is an "insider" and cannot be replaced
Figure 1
<table>
<thead>
<tr>
<th>Variable</th>
<th>Endogenous?</th>
<th>Definition</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>$e$</td>
<td>Yes</td>
<td>effort level of the manager</td>
<td>chosen at $t=0$, $e=0$ or $e=1$ non-contractible</td>
</tr>
<tr>
<td>$y_b$</td>
<td>No</td>
<td>return of the first project in the bad state</td>
<td></td>
</tr>
<tr>
<td>$y_g$</td>
<td>No</td>
<td>return of the first project in the good state</td>
<td></td>
</tr>
<tr>
<td>$q$</td>
<td>No</td>
<td>probability of the good state</td>
<td></td>
</tr>
<tr>
<td>$I$</td>
<td>No</td>
<td>investment required for the second project</td>
<td>$I &lt; y_b$, $I &lt; y_g - y_b$</td>
</tr>
<tr>
<td>$x$</td>
<td>No</td>
<td>return of the second project</td>
<td>$x &gt; (1 + \alpha)I$</td>
</tr>
<tr>
<td>$u^*$</td>
<td>No</td>
<td>reservation return of the manager when $e=1$</td>
<td>$\alpha I &lt; u^* &lt; \alpha I + q\alpha (y_g - y_b)$</td>
</tr>
<tr>
<td>$P$</td>
<td>Yes</td>
<td>amount of perks consumed by the manager</td>
<td>non-contractible consumed between $t=1$ and $t=2$.</td>
</tr>
<tr>
<td>$\alpha$</td>
<td>No</td>
<td>the marginal value of a $1 $ perk to the manager</td>
<td>$\alpha &lt; 1$</td>
</tr>
<tr>
<td>$y$</td>
<td>Yes</td>
<td>the final return of the firm</td>
<td>contractible</td>
</tr>
<tr>
<td>$w$</td>
<td>Yes</td>
<td>the salary of the manager</td>
<td></td>
</tr>
<tr>
<td>$\delta$</td>
<td>No</td>
<td>cost of replacing the manager</td>
<td>$\delta &lt; \alpha I$</td>
</tr>
<tr>
<td>$\gamma$</td>
<td>No</td>
<td>cost of intervention for a shareholder</td>
<td>small</td>
</tr>
<tr>
<td>$z$</td>
<td>Yes</td>
<td>the level of debt</td>
<td>high debt $z = y_g - I$ low debt $z = y_b - I$ chosen by the owners at $t=0$</td>
</tr>
<tr>
<td>$s$</td>
<td>Yes</td>
<td>severance pay</td>
<td>the manager receives this amount if he is replaced at $t=1$ chosen by the owners at $t=0$</td>
</tr>
<tr>
<td>$\mu$</td>
<td>Yes</td>
<td>proportion of shares of the largest shareholder</td>
<td>chosen by the owners at $t=0$</td>
</tr>
<tr>
<td>$\beta$</td>
<td>Yes</td>
<td>loss of value in the firm due to takeover</td>
<td>chosen at $t=0$ by introducing takeover defence mechanisms</td>
</tr>
<tr>
<td>$\sigma$</td>
<td>No</td>
<td>share of the owners of the takeover gains</td>
<td>$0 &lt; \sigma &lt; 1$</td>
</tr>
</tbody>
</table>
before \( t=1 \). The fact that organizational form and capital structure are chosen at the beginning is our way of formalizing that these are endogenous.

At date \( t=1 \), first the state of nature is revealed as either good or bad and then the return of the first project is realized\(^1\). At this point the return of the project is not yet verifiable nor is the state of nature, hence nothing is contractible (in contrast to \( t=2 \) where final returns are contractible). However, debt contracts with maturity \( t=1 \) can be written to induce the manager to pay-out some portion of the firm’s cash-flow. At \( t=1 \) a new (indivisible) investment project, that costs \( I \) and has certain return equal to \( x \), can also be undertaken. Crucially for all of our results, after \( t=1 \) the manager can use some portion of the returns already realized for his own benefit, i.e. consume them as perks, but he cannot consume the return of the second project that accrues at \( t=2 \). The consumption of perks can be either abusing an expense account, embezzlement or simply investing in low return but prestigious (empire-building) investments. Assuming that returns and actions at \( t=1 \) are non-contractible is certainly stylistic and simplifying. However, our results would hold in other environments where incompleteness of contracts prevents a perfect alignment of interests (for instance suppose payments at \( t=1 \) are contractible, our results would remain unchanged if shareholders can fire the manager after the state of nature is revealed but before the returns are realized).

It is also assumed that after \( t=1 \), the manager’s human capital is no longer essential and the owners (or some other claim-holders) may decide to replace him with another manager. This set-up will enable us to model the degree to which the manager has control over the organization. In practice, managers are rarely fired by the owners but we would like to allow for this possibility and investigate what the equilibrium degree of job security will be for managers. In this context, we allow for two possibilities:

**Scenario A:** whether the owners have the right to replace the manager may be determined by the governance structure chosen at \( t=0 \).

**Scenario B:** irrespective of the governance structure, the owners have the right to intervene and fire the manager at \( t=1 \), say by calling an Emergency General Meeting (EGM). We will assume that intervention has a small private cost \( \gamma \) for the shareholder who calls the EGM. \( \gamma \) can also be interpreted as the cost that a shareholder needs to incur to monitor the success of the company (e.g. read the annual report). Scenario B has a natural plausibility compared to A because ownership normally gives the right to decide who will use the assets and these rights cannot be surrendered easily. In what follows we will start with Scenario A because this will define the optimal degree of separation of ownership and control, but the case we are most interested in is

---

\(^1\) We model the state of nature to be revealed before the actual returns to allow for "dividend policy" in section 4; there the manager will be allowed to announce and commit to a level of dividend after the state of nature is revealed but before the free cash can be wasted.
Scenario B.

Finally, at \( t=2 \) the return of the second investment project is realized, the manager pays out the return of the second project together with what is left-over from the return of the first one and is rewarded according to these returns as specified by his incentive contract.

We also make the following assumptions. First, there is no discounting in this model and all agents are risk-neutral. The manager has no resources to buy the company or to pay an entry fee at the beginning of the relationship. At \( t=0 \), the manager can choose effort \( e \) equal to 0 or 1 (low or high effort). The reservation return of the manager (or cost of managerial effort) is equal to 0 if \( e=0 \), equal to \( u^* \) if \( e=1 \). If \( e=0 \), the first project has zero return. If \( e=1 \), there is a probability \( q \) that the state of nature will be good and the project will yield the amount \( y_g \) and with probability \( 1-q \), the state of nature will be bad and the return of the project is equal to the smaller amount \( y_b \). The second project is assumed to be always available and to yield the same return, \( x \), irrespective of the effort level of the manager and the state of nature. As described above, the manager can use the "free cash flow" in ways that do not enhance the value of the firm. We assume that every $1 of the firm's cash generates $\alpha$ of return for the manager where \( \alpha < 1 \). Thus the transformation of cash into perks is inefficient, for instance because direct theft is not possible and the manager has to use indirect methods to consume this cash flow. Perks can only be consumed during the life of the project (i.e. between \( t=1 \) and \( t=2 \)). Finally, replacing the manager costs \( \delta \) and the new manager can be chosen such that he cannot consume any perks. This assumption is quite crucial for our analysis since it makes the replacement of the first manager sufficiently attractive for the owner. Intuitively, we can argue that there are more than one type of managers. One kind is easy to control but also not very productive, while another type is essential for growth projects like the one undertaken at \( t=0 \), but is difficult to control. More simply, shareholders may be unable to tell apart good managers (who do not consume perks) from bad ones before they are put in place. With this interpretation, our model would only apply to firms that hired a "bad" manager to start with, since the owners of these firms will wish to try their luck once more in the managerial labor market at \( t=1 \). Alternatively it can also be argued that it takes time for managers to familiarize themselves with the organization of the firm and for a while they are unable to use company resources for their own interest; thus in the short-run, the owner will benefit from a new manager. Finally, it is also possible to interpret firing as an intervention by owners or other claim holders that reduces the (private) return of the manager by an amount \( \delta \) (similar to Dewatripont and Tirole (1992)) as well as preventing the consumption of perks. With this modification, all our results would remain unchanged if the reservation return of the manager is taken to be equal to \( u^* + \delta \).

As far as the governance structures go, we will consider two cases. The first corresponds to a managerial organization in which as long as the manager fulfills the terms of his contract, the
owner has no direct control. We refer to this as managerial discretion. In contrast, the second gives the owner the discretion to fire the manager at $t=1$. We refer to this as owner controlled organization. In our model all other organizational forms are no different than these two simple cases. We will start by assuming that the allocation of discretion is contractible (scenario A) and later return to scenario B where the owner will not be able to choose directly between the two governance structures.

The capital structures we discuss are also very simple. As it will be clear later, long-term debt contracts have no role in this model since at $t=2$ incentive contracts conditional upon final returns of the firm can be written. Therefore, only debt contracts that mature at $t=1$ need to be considered (see footnote 6 for a caveat). We assume that at $t=0$, the owner sells debt contracts in a competitive market. A debt contract amounts to a promise to pay $z$ at $t=1$. This payment is not conditional upon the state of nature since this is not verifiable. Rational investors will correctly realize what the manager will pay in the two states and value this debt contract accordingly. Thus shareholders will always receive the value of the company but this value may be influenced by the size of the debt obligations. Since the owner is not credit constrained, an alternative is to think that she holds the debt contracts herself and this interpretation will simplify the exposition. Our results would remain unchanged as long as the debt market remained competitive, even if a new class of claim-holders were introduced\(^2\).

3) Analysis of the Basic Model

We start by stating our assumptions about the variables defined and discussed in the previous section (see also Table 1).

**Assumption 1:** $x>(1+\alpha)I$.

For the second project to be undertaken, we need to leave a minimum amount $I$ as cash in the firm. We therefore need to prevent the manager from consuming this amount in the form of perks. This will cost a minimum of $\alpha I$ since the manager can obtain exactly this amount by consuming $I$. It is therefore profitable to undertake the second project despite this additional cost.

**Assumption 2:** $I<y_b$ and $I<y_g-y_b$.

The first part of this assumption tells us that even when the state of nature is bad, there is sufficient cash in the firm to undertake the second project. The second part makes sure that when we choose a debt level equal to $y_g-I$ (see below), the firm defaults in the bad state.

**Assumption 3:** $\alpha I > \delta + \gamma$.

\(^2\) In other words, it does not matter for our purposes that the owner and the debt-holder are the same people or not. Such separation may sometimes be important due to other forms of incompleteness of contracts as shown in Dewatripont and Tirole (1992) or due to general equilibrium interactions as in Acemoglu (1993).
Bearing in mind that \( \delta \) is the cost of replacing the manager, this assumption implies that in the absence of additional costs, it will be in the interest of the owner to replace the manager ex post, even when an additional cost of intervention \( \gamma \) is incurred. Without this assumption, shareholders will never find it profitable to replace the manager and we will not be able to discuss the optimal degree of separation of ownership and control.

Assumption 4: \( aI < u^* < aI + q\alpha(y_g - y_b) \).

The left-hand side of this inequality tells us that if the manager is only paid \( aI \) in each state (the minimum payment necessary for the second project to be undertaken), this will not be sufficient to compensate her for choosing the high effort level and she needs to be paid something additional. The right-hand side of the inequality tells us that if additionally she gets to consume the difference between the low and high returns in the good state, this will more than cover her reservation return. Since \( a < 1 \), it also implies that it is worthwhile for the owners to induce the manager to choose the high effort level, \( e = 1 \).

Next denote the salary of the manager in the first period as \( w_1 \) and recall that this can only be conditioned upon whether the manager has serviced the debt obligations but not directly on the realization of the state. The second period salary, \( w_2(y) \), can be contingent upon the final returns of the project denoted by \( y \). The manager’s expected return will be \( aEP + Ew_1 + Ew_2(y) \) where \( P \) is the amount of the perks consumed and \( E(. \) is the expectations operator. This expected return needs to be larger than the relevant reservation return and because of the resource constraints, the salaries have to be non-negative.

**Proposition 0 (Most Preferred Outcome):**

In the most preferred scenario for the owner, the manager would choose \( e = 1 \) and will be paid his reservation return. The owner’s return would be

\[
\Pi_{FB} = qy_g^* + (1-q)y_b^* x - I - u^*
\]

\( \Pi_{FB} \) is the highest (first-best) return that the owner can achieve and while choosing the organizational form and the capital structure, the owner will strive to reach this amount. We next analyze the optimal contracts under different organizational forms, determine the maximum payoff that owners can expect and then proceed to the analysis of equilibrium organizational form.
Lemma 1 (Full Managerial Discretion Without Debt):

With full managerial discretion and without debt contracts, the manager is offered

\[ \begin{align*}
    w_1 &= 0 \\
    w_2(y) &= \begin{cases} 
        0 & \text{if } y < y_b + x - I \\
        ay_b & \text{if } y_b + x - I \leq y < y_g + x - I \\
        ay_g & \text{if } y = y_g + x - I
    \end{cases}
\end{align*} \]

(2)

He chooses \( e = 1 \) and retains control in both states. The return of the owner is

\[ \Pi_M = q(1 - \alpha)y_g^*(1 - q)(1 - \alpha)y_b^*x - I \]

(3)

Proof: Suppose the return of the project is \( y_b \). Without an incentive contract the manager can consume all of this as perks and get \( ay_b \). To encourage him to undertake the second investment and not to consume any perks, the incentive contract must pay him at least this amount. If the investment project is undertaken and no perks are consumed, the return of the project at \( t = 2 \) will be \( y_b + x - I \); this explains the first two components of \( w_2 \). Similarly, when the return is \( y_g \), the manager needs to be paid at least \( ay_g \). Since the manager is receiving more than his reservation return (assumption 4), he prefers to exert effort \( e = 1 \) and \( w_1 \) is set equal to zero (as it cannot be negative). The expression for \( \Pi_M \) is straightforward. QED

This case corresponds to a very high degree of separation of ownership and control. There is no "hard" mechanism for the control of the manager, and the owner has no opportunity to intervene. As a result, the manager has full discretion and the only way to prevent him from misusing the company funds is to write an incentive contract. But since the manager does not have any funds to pay an entry fee, this amounts to paying him a rent or an "efficiency salary", not too dissimilar to an efficiency wage à la Shapiro and Stiglitz (1984). Although there is no social inefficiency in this case, the owner is not entirely happy because part of her potential returns are being paid to the manager\(^3\). This implies that the owner may like to choose a different organizational form in order to reduce this rent.

Lemma 2 (Owner Control Without Debt):

With owner control without debt, the manager is always replaced at \( t = 1 \), thus chooses \( e = 0 \) and is paid \( w_1 = 0 \). The first project is not undertaken, and at \( t = 1 \) a new manager is hired. The owner makes

\[ \Pi_O = x - \delta - \gamma - I \]

(4)

\(^3\) Of course the result that there is no inefficiency is due to the simplicity of our model. In general, in the absence of "hard" controls on the manager there will be important inefficiencies. For instance, since returns are lower, fewer corporation will be willing to undertake the first investment. This is also the reason why we refer to \( \Pi_{FB} \) as the first-nest result.
Proof: The manager cannot commit not to consume whatever is left in the firm. He thus needs to be paid a minimum of \( a_1 \) which is larger than \( \delta + \gamma \). It follows that, irrespective of the effort level and the state of nature, the owner will always prefer to replace the manager at \( t=1 \). As a result, the manager has no incentive to choose \( e=1 \) because his return, \( w_t \), does not depend on his effort. Therefore he is not paid anything and the return of the first project is zero. QED

This case is the opposite of Lemma 1. Although the manager and the owner are separate agents, there is no separation of ownership and control, so the manager realizes that when his interests conflict with those of the owner, his interests will be ignored. More specifically, Assumption 3 implies that the owner will find it profitable to replace the manager irrespective of the state of nature. As a result the manager has no interest in supplying the high effort level and demands his payment in advance (i.e. at \( t=1 \) before being fired). We thus get a very stark result that with owner control and without any other instrument, the outcome is very inefficient. Note a very important assumption; the salary of the manager cannot be conditioned upon the realization of the returns after he leaves the company. In practice there is a common mechanism that can be used to make the payment of the manager conditional upon the returns after he leaves: to give him stock options that will not be lost even if he is fired. We are thus assuming that such stock options cannot be used. In our set-up there are good reasons for not relying too much on such instruments. First, if the replaced manager could sell his stock options in an uninformed market (i.e. a market that does not observe his initial effort level), stock options will provide no benefit. Second, suppose that the second manager who is hired also needs to be given the right incentives. Yet, if the discharged manager has substantial stock options on the company, the owner may find it profitable not to give expensive direct incentives to the second manager but may choose to make a side-deal with him at the expense of the discharged manager. (In other words, giving the right incentives to the second manager would create a positive externality on the first manager which the owner will not internalize). This kind of considerations will in general limit the extent to which stock options can be used when the manager is expected to quit\(^4\). An alternative to stock options is severance pay for a manager who is discharged which we will analyze later.

The above results are restrictive as they do not incorporate debt contracts. The role of debt will be different in the two organizational forms. Therefore our analysis will illustrate two related benefits of debt contracts for control purposes.

\(^4\) Stock options in practice are used more commonly as incentive contracts with directors or managers during their tenure with the company rather than as a method of inducing them to care about the value of the company once they are fired. Alternatively, if we adopt Dewatripont and Tirole (1992)'s assumption that intervention reduces the private benefits of the manager, stock options will not solve the incentive problem. The advantage of our set-up relative to those that rely on private benefits and the absence of performance contracts is that it emphasizes which contracts can actually solve the problem. For instance in this case rather than returns being non-contractible as in Hart and Moore (1990a,b), we just need the manager's remuneration not to depend upon the firm's performance after he leaves.
Lemma 3 (Owner Control With Debt):
With owner control, the optimal contract would impose a debt obligation of \( z = y_g \) on the manager and contingent upon the payment of the debt the manager would be paid \( w_i = u^*/q \) and \( w_i = 0 \) otherwise. The return of the owner is

\[
\Pi_{OD} = q y_g^*(1-q) y_b^* - u^* - \delta - \gamma - I
\]

Proof: The above contact induces the manager to supply \( c = 1 \), thus \( \Pi_{OD} > \Pi_O \). He is paid exactly his reservation return but is always replaced. This imposes an additional cost \( \delta + \gamma \) on the owner. QED

This illustrates the first use of debt similar to Aghion and Bolton (1992), Hart and Moore (1989) and Dewatripont and Tirole (1992). The problem in Lemma 2 was that due to lack of job security, the manager had no interest in supplying a high effort level. Debt makes the return of the manager contingent upon his action (and the state of nature), therefore, if set at an appropriate (intermediate) level, it can give incentives to choose the right level of effort and so, \( \Pi_{OD} > \Pi_O \).

We next turn to managerial discretion. Here the role of debt would be to get the excess cash flow out of the firm as in Jensen (1986), Stultz (1991) and Hart and Moore (1990b). There are three possibilities; (i) the owner can choose a very high level of debt such that the manager always defaults, but this would put control in the hands of the owner in both states so we go back to the case with owner control. Therefore without loss of generality, we only concentrate on the other two possibilities: (ii) the debt-level can be low enough that the manager is never forced to default. But, the owner also wants the second project to be undertaken so she has to leave I in the firm and hence, a low level of debt would correspond to \( z = y_g - I \). (iii) the debt level can be chosen sufficiently high that the manager is forced to default in the bad state but not in the good state, thus a high level of debt is \( z = y_g \). We will analyze these two possibilities separately, starting with high debt.

---

5 However differently from these papers, it does not keep control in the hands of the manager. Thus this contract can also be interpreted as a "coarse" incentive contract rather than debt. This feature is not shared by other debt contracts that will be considered in this paper.

6 Another possibility would be to set \( z = y_g \) but also promise to inject I in the bad state. However, there may now be an ex post hold-up problem as the owner can try to force the manager out. The manager’s contract would pay him nothing when the returns at \( t = 2 \) are equal to 0 and this would be the case if the owner does not put I back into the firm. She may thus be able to induce the manager to quit very cheaply. In other words, since the asset is worth more in someone else’s hands than the manager’s, the owner would try to end the manager’s tenure. Not to complicate the analysis we are not considering this case. An alternative for the manager in this case may be to go to the debt market and raise money with debt contracts that mature at \( t = 2 \); however in a more general model, outside debt holders may also want to replace the manager before injecting money into the firm. If the possible hold-up problem is avoided in one way or the other, then our analysis would still apply but the exact form of the assumptions and the contracts would need to change. For instance, in this case the second part of assumption 4 would become \( u^* < \alpha I + q \alpha (y_g - y_{hi} - I) \), etc.
Lemma 4 (Managerial Discretion With High Debt):
With managerial control and z=y_g-I, the manager is offered the following incentive contract
\[ w_1=0 \]
\[ w_2(y)=0 \quad \text{if } y<x \]
\[ w_2(y)=\frac{u^*}{q} \quad \text{if } y=x \]
and chooses e=1. When the state of nature is good the manager retains control and when the state is bad, the owner resumes control and replaces him. The owner’s expected return is
\[ \Pi_{MHD}=qy_g+(1-q)y_b+x-I-u^*-(1-q)(\delta+\gamma) \]
which is strictly greater than \( \Pi_M, \Pi_O, \Pi_{OD} \).

Proof: The manager can only meet the debt payments in the good state. His salary in this state is chosen to meet his reservation return and to make the high effort choice sufficiently attractive. Since he is only paid his reservation return, when \( w_1>0 \), he would prefer \( e=0 \), thus \( w_1=0 \) and all compensation has to be paid in the second period. The expected value of his salary is \( u^* \) and the owner also incurs the cost of replacement, \( \delta \) and intervention, \( \gamma \), in the bad state. QED

We saw above that the owner cannot commit not to replace the manager when she has the discretion and organizational efficiency deteriorates as a consequence. This is the problem that managerial discretion avoids. As a result, when she can do so, the owner will choose a high degree of separation of ownership and control and try to contain the manager’s non-value maximizing objectives by using incentive contracts and the capital structure rather than direct intervention. With high debt, the manager retains control in the good state but is forced to default in the bad state.

Lemma 5 (Managerial Discretion With Low Debt):
With managerial control and z=y_b-I, the manager is offered the following incentive contract
\[ w_1=0 \]
\[ w_2(y)=0 \quad \text{if } y<x \]
\[ w_2(y)=y \quad \text{if } x\leq y<y_g-y_b+x \]
\[ w_2(y)=\alpha I-\alpha(y_g-y_b) \quad \text{if } y=y_g-y_b+x \]
The manager chooses \( e=1 \), retains control in both states and the owner’s return is
\[ \Pi_{MLD}=qy_g+(1-q)y_b+x-I-\alpha I-\alpha(y_g-y_b) \]

Proof: The manager can retain control in both states by making the debt payments. If he does not meet these obligations, he is immediately replaced and gets zero. Hence he prefers to service the debt. When the state is bad, there is only an amount \( I \) in the firm so he is paid \( \alpha I \) and when the state is good, he needs to be paid an additional \( \alpha(y_g-y_b) \). Assumption 4 implies that he is paid more than his reservation return so \( w_1=0 \). QED

Because a low level of debt is chosen, there is still excess cash and the manager is again
offered an attractive incentive contract in order to prevent him from consuming this cash. Nevertheless, a low level of debt is useful because it always retains control in the hands of the manager (in contrast to high debt which forces default in the bad state). The owner's return is less than $\Pi_{FB}$ (and larger than $\Pi_O$, $\Pi_m$ and $\Pi_{OD}$), thus, though better than owner control, managerial discretion with debt is not perfect either. At this point we can also compare our result to the standard agency intuition that debt imposes a hard claim on the management (or sometimes on the entrepreneur). In our context, although debt imposes such a hard claim on the manager, the sword cuts two ways; debt also prevents too frequent interventions by outsiders (compared to owner control) since when the manager makes the required payments, he retains control. Therefore, debt provides a balance of powers rather than unilateral control. This result illustrates our first claim that when management is delegated to agents who are not the residual claimants, it is often preferable to choose a high degree of separation of ownership and control so as to provide discretion to those agents. Expressed alternatively, since the manager is not the residual claimant and does not have the resources to buy the necessary assets, it is better to give him sufficient discretion so as to ensure that he can to some degree look after his own interests and so has an incentive to supply high effort.

Since both high and low debt levels have costs and benefits, depending on the values of the parameters, one or the other may be preferred. The cost of high debt is the additional payment, $\delta + \gamma$, that needs to be made and the cost of low debt level is that the manager is being paid a rent over his reservation return. In particular, the following result directly follows from Lemmas 4 and 5:

**Proposition 1 (Equilibrium Organizational Form and Capital Structure):**

If $u^*+(1-q)(\delta+\gamma) > \alpha I +q\alpha (y_g-y_b)$, then managerial discretion with low debt is the preferred organizational structure. Otherwise managerial discretion with high debt level is preferred.

As we know from Lemma 4, $\Pi_{MHD}$ is larger than what the owner would obtain with other organizational forms and financial structures, except $\Pi_{MLD}$; managerial discretion with either high or low debt is therefore optimal. From this proposition we can see that a high debt level is more likely, the higher is the difference between $y_g-y_b$, the higher are $\alpha$ and $I$, and the lower are $u^*$, $\delta$ and $\gamma$. These results are quite intuitive and except for the balance of power aspect, on the whole similar to those of a number of other agency models of capital structure (see Harris and Raviv (1990) for references). The larger is $y_g$ relative to $y_b$, the more excess cash low debt leaves in the firm and the higher is $\alpha$, the more costly is to induce the manager to maximize net present value in the presence of this free cash flow. Both of these make a high level of debt more desirable. Since $\delta+\gamma$ is the cost of replacing the manager, it is not surprising that it discourages high debt.
However, an increase in $u^*$ also discourages high debt. To see this, recall that the benefit of debt is to avoid the efficiency salary. Ceteris paribus, as the reservation return of the manager goes up, the efficiency salary falls and there is less need for a high level of debt.

Our assumption so far has been that the owner can commit not to intervene at $t=1$. However, the residual rights of control associated with ownership also give the right to fire the employees of the firm provided that the pre-specified compensations are paid. The owner may therefore be unable to commit not to intervene and fire the manager at $t=1$ (scenario B). In this case, we will end-up with the result of Lemma 3, rather than the more desirable outcomes of Lemmas 4 or 5.

There may be two ways of preventing this problem\(^7\). First, we may prepare a compensation package for the manager such that it is not harmful to him to be fired and more importantly, it is not beneficial to the owner to fire him. Thus, the contract at $t=0$ specifies a severance (lay-off) pay for the manager equal to $s$ and it is only profitable for the owners to replace the manager if the rent paid when he retains control is greater than the cost of replacing him, $\delta + s + \gamma$ (note that the severance pay is only conditional upon whether the manager is fired or not, and also that when the owner decides to intervene she incurs $\gamma$). The next result shows that in our model severance pay will not be used because it distorts the ex ante effort level of the manager.

**Lemma 6 (Disincentive Effects of Compensation Packages):**

If a compensation package offers the manager a positive severance pay, he would choose $e=0$. Thus in equilibrium, the owner chooses $s=0$.

**Proof:** Suppose that the preferred organizational form is managerial control with high debt. Can we deter the owner from intervening by having $s>0$? In Lemma 4 the manager received his reservation return. Then provided that $s$ is positive, he would be strictly better off by choosing $e=0$ and being replaced at $t=1$. Therefore we cannot choose $s>0$ if we want to implement the outcome of Lemma 4\(^8\). Alternatively suppose the preferred organizational form is managerial control and low debt as in Lemma 5. In this case we need a severance pay, $s$ such that the owner never finds it profitable to intervene, thus $s \geq al+a(y^g-y^b)-\delta-\gamma$. But when he keeps control, the manager receives a rent equal to $al+qa(y^g-y^b)-u^*$ which is smaller than $al+a(y^g-y^b)-\delta-\gamma$ (since $\gamma$ is small) and the manager prefers to choose $e=0$ and receive $s$. QED

This lemma establishes that the role of severance pay is extremely limited in our model. The reason is that severance pay amounts to rewarding the manager in the case where he is

---

\(^7\) Another obvious candidate is reputation in repeated interactions but we will not pursue this here.

\(^8\) It may be conjectured that we can solve the problem by increasing the rent of the manager when he stays with the firm. However, this would increase the willingness of the owner to fire the manager and thus increase the required severance pay 1-to-1.
replaced and, when this reward is high, he will have no incentive to exert the high effort level. The second way of achieving owner control is to increase the dispersion of ownership in order to passify the shareholders. The intuition is simple. When a shareholder intervenes ex post, all shareholders benefit, thus she is creating a positive externality. A large shareholder would be internalizing a substantial part of this external effect. In contrast, if the largest shareholder is small, the cost may outweigh the benefit and each shareholder may prefer to be passive. In particular let us suppose that at \( t=0 \), the owner sells the shares of the company; she is still the largest shareholder (without any loss of generality) but only owns a proportion \( \mu \) of the company. Calling an EGM will only be profitable for her if \( \mu(aI-\delta) \geq \gamma \) or if \( \mu(aI+\alpha(y_e-y_b)) \geq \gamma \), depending on the state of nature. Thus provided that we choose \( \mu \) low enough, we will create a sufficiently serious free-rider problem among the shareholders and intervention will not take place. Therefore:

**Proposition 2 (Optimal Dispersion of Ownership):**

Suppose that the owner cannot commit not to intervene at \( t=1 \). If \( u+(1-q)(\delta+\gamma) > \alpha I + q \alpha (y_e-y_b) \), then at \( t=0 \) the owner will choose a low debt level, a disperse ownership such that the largest shareholder has \( \mu \) less than \( \frac{\gamma}{\alpha I+\alpha(y_e-y_b) - \delta} \) and the shareholders receive the highest possible return in this case, \( \Pi_{MLD} \). Otherwise, there is a high debt level, the largest shareholder owns \( \mu \) less than \( \frac{\gamma}{\alpha I-\delta} \) of the shares and the owners receive the highest possible return, \( \Pi_{MHD} \).

This proposition shows that the main trade-off can be thought to be between concentrated (centralized) ownership which leads to frequent intervention and disperse (decentralized) ownership which gives significant discretion to the manager and thus requires other methods of control (such as debt and performance contracts). Intuitively, we would like to make the managers the residual claimant but we cannot redistribute property rights. Instead, this is achieved *de facto* by reducing the control rights of the owners and one way of doing this is to muddy the concept of ownership by creating a disperse (decentralized) ownership structure. Our theory

---

9 An alternative that avoids this problem is to write a contract that burns money when the manager is replaced. This will make it costly to fire the manager without giving the wrong incentives to him. We assume that such contracts cannot be written. First it is not possible to write such wasteful contracts and then implement them ex post. Secondly, intervention by shareholders may take non-contractible forms such as reducing the influence of the manager, etc.

10 Here we are discussing the optimal dispersion of ownership and control in the absence of dividend policy as defined in the next section. In the presence of dividend policy, dispersion of ownership can help us achieve more than full managerial discretion.

11 Viewing the trade-off in this way suggests that leveraged buy-outs will actually be very beneficial since they allow the manager sufficient discretion while also imposing hard debt claims on him. I am grateful Jeremy Stein on this point. It can also be noted that a substantial part of the evidence on the correlation between leverage and performance comes from LBOs. (e.g. Dann (1992)).
therefore suggests that the required balance of power between the manager and the shareholders is not only an important determinant of capital structure and incentive contracts but also of the ownership structure. Dispersion of ownership may be necessary to create free-rider effects and thus commit shareholders to passivity. This further emphasizes that the need for a balance of power may endogenously determine the degree to which control is separated form ownership. It also reverses the conventional wisdom that managers have substantial discretion because ownership is disperse. In our model, ownership has to be disperse to allow the owners to commit to sufficient managerial discretion.

4) Benefits from Owner Intervention and Optimal Dispersion of Ownership

In the basic model analyzed above, owner intervention is never beneficial. This is because whenever the owners have the right to intervene they want to replace the manager and this distorts ex ante incentives. However, this set-up was chosen in order to highlight the main result of the paper that disperse ownership has important benefits from the point of view of organizational efficiency. It is straightforward to introduce benefits of large shareholders and thus obtain an intermediate level of dispersion as the equilibrium (or the optimum). This is what we will do in this section. Yet, rather than introduce new features to the model, we will relax an assumption of our analysis so far that was made for convenience. In the basic model, the only way that the free-cash flow could be gotten outside the firm was by debt servicing. However, there is no reason why the manager should be unable to pay out some of the cash voluntarily. In this section we will allow for this possibility which we think of as "dividend policy" or stock repurchases by the manager. Note however that these names are chosen mostly for convenience since dividends and stock repurchases in practice have many other roles and characteristics that our analysis does not capture (also see footnote 13). First note that since the state of nature is still non-contractible, a dividend contract conditional upon the state of nature cannot be written. However, the manager may choose the level of dividend to be paid out after the state of nature is revealed. If dividends are determined at the same time as the consumption of perks, the manager will have no interest in paying out dividends and we go back to the results of the previous section. The alternative is that as soon as the state of nature is revealed, the manager can precommit to paying-out a certain amount of dividend and cannot renege on this when the returns are actually realized (see Figure 1). It is such precommitment that we refer to as "dividend

---

12 If the board of directors represent the shareholders' interests, passivity may not be possible even with disperse ownership, thus our theory also suggests that there may be an optimal degree of "congruence" between the interests of the board of directors and the shareholders. I hope to pursue this in future work.
policy\textsuperscript{13}. Precommitment may take a very simple form; for instance if the manager announces a dividend level and then does not pay this, the owner and other claim-holders may intervene, fire the manager or even sue him. This interpretation emphasizes that institutional factors will determine whether dividend policy can play this role or not\textsuperscript{14}.

**Proposition 3 (Optimal Dispersion of Ownership)**

In the presence of "dividend policy", the debt level is set at \( z = y_b - 1 \), the largest shareholder holds a proportion \( \mu = \mu^* = \frac{\gamma q}{u^* - (1-q)\alpha l - q \delta} \) of the total shares and the manager is offered the following contract:

\[
\begin{align*}
    w_1 &= 0, & \text{if } y < x \\
    w_2(y) &= 0, & \text{if } x \leq y < x - \frac{\delta + \gamma / \mu^*}{\alpha} \\
    w_2(y) &= \alpha I, & \text{if } x - \frac{\delta + \gamma / \mu^*}{\alpha} \leq y < x \\
    w_2(y) &= \delta + \frac{\gamma}{\mu^*}, & \text{if } y \leq x - \frac{\delta + \gamma / \mu^*}{\alpha}
\end{align*}
\]

(10)

the manager chooses \( e = 1 \), always makes the debt payment at \( t = 1 \) and in the good state pays-out \( y_g - \frac{u^* - (1-q)\alpha l}{\alpha q} \). There is never any intervention and the owners receive \( \Pi_{FB} \).

**Proof:** The largest shareholder will want to intervene when her benefit is greater than \( \gamma \). This will be the case when \( \mu (w_2(y) - \delta) > \gamma \). By intervening the company saves \( w_2(y) \) and loses \( \delta \) and the largest shareholder gets a proportion \( \mu \) of this. For the first-best to be achieved the manager needs to be paid exactly his reservation return. Since in the bad state he is paid \( \alpha I \), for the first-best, his salary in the good state needs to be reduced to \( u^* - (1-q)\alpha l / q \). But when \( \mu = \mu^* \) and the manager signs contract (10), in equilibrium, he is exactly paid his reservation return. In the bad state the largest shareholder finds it profitable not to intervene, but she would do so in the good state unless some money is paid out. Anticipating this, the manager is forced to pay just enough to make the largest shareholder not intervene and thus needs to pay-out \( y_g - \frac{u^* - (1-q)\alpha l / q}{\alpha} \) which leaves just enough to satisfy the terms of his contract and in the good state, he receives \( w_2 = \frac{u^* - (1-q)\alpha l / q}{\alpha} \). Also knowing ex ante that he will be able to receive his reservation return, the manager accepts the contract and chooses high effort. QED

This proposition therefore determines the optimal dispersion of ownership by balancing

\textsuperscript{13} As this discussion makes clear, "dividends" will only be useful when they are quite flexible. Since many financial economists view dividends as quite inflexible, stock repurchases may correspond more closely to what we call "dividends" here. Alternatively, if the manager has sufficiently long-horizon and has the discretion to choose the debt level each period, this choice may also act similar to dividends here; when there is excess cash flow, the manager would choose a high level of debt to prevent intervention. Also as a word of caution note that Blanchard et al (1993) in their empirical investigation find that in their sample of firms the excess cash flow was never paid to the shareholders but was instead wasted in a number of different ways.

\textsuperscript{14} Even when paying out cash is not an option, large shareholders will have other monitoring benefits and a similar result to Proposition 3 can be obtained by incorporating these.
the beneficial effects of owner intervention (i.e. centralized ownership reduces the rents that the manager has to be paid) and the costs of such intervention (i.e. distortions in the ex ante effort choices).

5) Application: The Threat of Takeovers and Organizational Efficiency

We now turn to an application of these ideas. Let us suppose that takeovers are possible and that a raider can make an offer to the shareholders at any stage of the firm's life. This is a potentially important application because of two reasons. First, takeovers often change the balance of powers within the organization thus their impact on organizational efficiency requires explicit attention to the costs and benefits of the pre-existing balances. Secondly, a number of economists are skeptical that large shareholders can be effective monitors and attribute the monitoring role to raiders (e.g. Manne (1965), Jensen (1986,1988), Scharfstein (1988)). According to this view if there is too much excess cash flow in the firm, a raider can make an attractive offer to the shareholders and acquire the company.

We model takeovers in a very simple way. The raider has to incur the cost of replacing the manager, δ and there is also an additional cost of takeover incurred in the process of acquisition (a deadweight loss in the value of the firm). We denote this cost by β (and also ignore the cost of intervention, γ). As to the issue of how to share the gains from takeover, we simply assume that the owners receive a proportion σ of the net gains (i.e. after β is deducted) and the rest goes to the raider. Empirical evidence suggests that σ is close to 1, but our results do not depend on the value of σ (as long as there are no significant sunk costs incurred by the raider, see below). Also note that in order to focus attention on the interaction between takeovers and organizational form, we are assuming in this section that either Scenario A applies and the owners can choose the governance structure that most suits them or that Scenario B applies and the owners have already sold shares to achieve managerial discretion through dispersion of ownership. Therefore, in this section, we will completely ignore issues related to owner intervention. Also note that even if there are many owners, they all share the same preferences regarding organizational structure and we can treat them as one owner in so far as decisions at t=0 are concerned.

Since the incumbent manager's human capital is essential, a takeover can only happen at or after t=1. However, if a takeover is expected to happen after t=1, the manager will consume all the perks before this takeover offer, thus the raider must make his offer at t=1, before perks can be consumed by the manager. At this point, the state of nature is already revealed so the raider's offer can be conditioned on this. In this process, there will also be costs associated with takeover defense mechanisms. We include these costs in β which is first taken as given. We will later discuss the equilibrium choice of takeover defense mechanisms to endogenize β.

A simple conjecture may be that the threat of takeover will improve welfare in this model,
especially when $\beta$ is small and thus when the ex post efficiency gains of takeovers are large. The intuition would be that the raider observes the state of nature thus can make his offer state contingent; this flexibility of takeovers would complement debt and performance contracts and hence, eliminate inefficiencies (say for example as $\beta$ becomes arbitrarily small). This intuition is not correct, precisely because the problem in our model is not only to control the manager but to balance powers, i.e. also to give the manager sufficient discretion. Debt contracts were useful because they controlled both the manager and the owner. However, the initial contract between the owner and the manager does not bind the raider who will tend to intervene too frequently, nor can this contract commit the owner not to accept future offers.

The total cost of takeover is $\delta + \beta$ where the first component is what the raider pays for a new manager (or opportunity cost if he runs the company himself). If the future compensation of the manager is greater than this amount, a raider will always initiate a takeover and fire the manager. In other words, the threat of takeover puts a cap on how much more than his replacement cost the manager can receive.

**Lemma 7 (Takeovers and Organizational Form):**
Suppose dividend policy is not possible. If $\beta < aI - \delta$, takeovers happen whenever there is managerial discretion. In this case, the equilibrium organizational form is owner control with debt and the owners obtain $\Pi_{OD}$. If $aI - \delta < \alpha a(y - y_b) - \delta$, the equilibrium organizational form is managerial control with high debt and the owners' pay-off is $\Pi_{MHD}$.

**Proof:** First consider $\beta < aI - \delta$, a takeover takes place whenever the manager is in control. Suppose we have managerial control with low debt and contract (4). In this case without a takeover, the owner will make $y_0 + x - (1 + \alpha)I$ in the bad state. After the state of nature is revealed as bad, the raider can offer a price of $R_\delta = y_\delta + x - I + \sigma(aI - \delta - \beta)$, replace the manager and make $y_b + x - I - \delta$, thus the owner will accept this offer. A similar argument applies when the state of nature is good with tender offer at price $R_\delta = y_\delta + x - I + \sigma(aI + \alpha(y - y_b) - \delta - \beta)$. It is anticipated at $t=0$ that a takeover will take place at $t=1$ and the manager will be replaced. As a result, the manager will demand his payment at $t=1$ and will have no incentive to supply the high effort level. Consequently in the presence of takeover threat, managerial discretion with low or high debt will yield $\Pi_0$ which is less than $\Pi_{OD}$. Therefore, owner control with debt is preferred and the equilibrium return is $\Pi_{OD}$.

Now take $aI - \delta < \alpha a(y - y_b) - \delta$, takeovers only happen when there is more than $aI$ in the firm. If we use a low debt level, takeovers take place in the good state and the manager would demand additional compensation. However with high debt level, there is never more than $aI$ in the firm so takeovers never take place. Therefore, owners choose high debt and receive $\Pi_{MHD}$.

QED

---

15 We have a model of perfect information with non-contractible variables. So as well as the manager and the owner, the raider too has full information. Nevertheless we assume that contractual incompleteness in this world also rules out complex implementation mechanisms whereby the manager's reward is conditioned upon a report by the raider.
Intuitively, in the case where takeovers are cheap, they will take place whenever the manager is paid more than his replacement cost. The manager therefore anticipates to be fired and he has no incentive to supply the high effort level unless we condition his first period salary upon his effort. As a result, we effectively go back to owner control with debt (\(P_{OD}\)) which is less attractive than other organizational forms. We thus obtain the result that when takeovers are ex post efficient\(^\text{16}\), they may be most harmful. The underlying reason is that, as argued above, efficient organizational form requires a balance of powers and the manager to benefit from the rents he creates. In the presence of cheap takeovers, the owner and the manager cannot make sure at \(t=0\) that a takeover, that will distort this balance, does not take place at \(t=1\) and giving the right incentives to the manager becomes more expensive. Similarly, with takeovers that have moderate costs, having too much cash in the firm leads to takeovers and anticipating this the manager exerts no effort. Therefore, owners are forced to choose a high level of debt in order to reduce the free cash flow in the firm even when they would not have liked to do so in the absence of takeover threat.

From this discussion, we can state;

**Proposition 4 (Optimal Takeover Defense Mechanism):**

Suppose dividend policy is not possible and the owners can choose the level of \(\beta\) without any cost. If \(u^+(1-q)\delta > \alpha l + q\alpha(y_g - y_b)\), they would set \(\beta = \alpha l + \alpha(y_g - y_b) - \delta\). Otherwise, they would set \(\beta = \alpha I - \delta\).

If the owners can choose to make takeovers more costly, they would do so. In particular, when the optimal organizational form is managerial discretion with low debt, we would never want the takeover threat to be effective, thus the owners would choose to make takeovers prohibitively expensive. Alternatively, if the optimal organizational form is managerial discretion with high debt, moderately expensive takeovers are sufficient because the owners can fend off the threat of takeover with a high debt obligation. Therefore, as long as \(\beta\) can be chosen freely there is no market failure in this economy and the second-best (given the institutional and contracting restrictions) is achieved. In particular in this economy, there is no need for the government to intervene in order to reduce the cost of takeovers because the takeover defense mechanisms are instituted efficiently. Our analysis also makes an interesting prediction regarding the interaction between debt and takeovers. A simple conjecture would be that these two mechanisms are complements thus when takeover threat is effective we expect less debt. However, in the absence of "dividend policy" we obtain the opposite result that when takeover threat is effective,

\(^{16}\text{That is } \beta \text{ is small and there are large improvements in returns after a takeover. In fact the same result would apply if } \beta \text{ were negative, i.e. an improvement in the value of the firm after takeover, as long as it is not too large in absolute value.}\)
shareholders prefer a higher amount of debt (i.e. high instead of low debt); the intuition is related to the fact that takeovers lead to organizational inefficiency thus the company may reduce the threat of takeover by choosing a high level of debt.

We should also ask whether and how $\beta$ can be manipulated by private agents. Golden parachutes that compensate the manager in case of a hostile takeover may be useful here but with our assumptions, these will run into the same problems as severance payments in Lemma 6. In general, what this implies is that although some degree of takeover defense can be achieved with golden parachutes, these may fail to take us all the way to the desired level of defense since there will often be adverse incentive effects of paying the manager when he is replaced. Thus poison pills, or other mechanisms which on first sight appear very inefficient\textsuperscript{17}, may be used as part of an equilibrium strategy by the owner in order to commit not to intervene. Also if there are certain sunk costs that the raider needs to incur, $\sigma$ may matter. In particular, in the presence of atomistic ownership, Grossman and Hart (1980) showed that each shareholder would want to receive the full premium from takeovers. This implies that $\sigma$ would be very close to 1 and the raider would not be able to recover its sunk costs. As a result, the dispersion of ownership may again be used as a commitment device by the owners but this time, it is a commitment not to accept a hostile takeover bid (rather than not to intervene themselves).

Finally, when dividend policy is possible, similar to owner intervention the threat of takeover has a beneficial role too and we can state (proof omitted but similar to that of Proposition 3);

**Proposition 5 (Optimal Takeover Threat):**
In the presence of "dividend policy", if the owners could choose, the level of $\beta$ at no cost, they would set $\beta = \frac{u^* - (1-q)\alpha I - q\delta}{q}$ and receive $\Pi_{PB}$.

It follows that with "dividend policy", we can achieve the first-best in this environment and in contrast to the case without dividend policy, takeover threat is not always harmful. Nevertheless, takeovers are only useful when they are sufficiently costly and thus when they can be prevented. This is not because the cost of takeover, $\beta$, is incurred (as it can be seen from the case with a very small value of $\beta$), but because the anticipation that a takeover will take place disrupts the organizational form and makes it more costly to provide the right incentives to the manager.

\textsuperscript{17} Jensen (1988) for the arguments against poison pills. But note that mechanisms such as "greenmail" that bribe the raider will never be in the interest of the owners.
6) Discussion of the Results, Relation to Earlier Literature and Concluding Comments

We have outlined a theory where organizational form is chosen optimally in order to balance the powers of parties with conflicting interests. The problem is a general one because the interests of different claim holders, various groups of managers and workers need to be balanced. We have illustrated this in a very simple and stylistic model with an owner and a manager as her imperfect agent. The basic conflict is that the manager can use the cash in the corporation in ways that do not enhance the value of the firm. In this context, both managerial discretion and owner control have costs. If control is in the hands of the owners, they will intervene too frequently and the manager will not be rewarded for his effort. We argued that this corresponds naturally to the case in which there is concentrated ownership (similar to the case in Germany and Japan). The alternative is to have disperse and passive ownership as we observe in the US and the UK. In this case, the manager is made a de facto residual claimant because he enjoys more perks or more compensation when the company is successful and he can be easily induced to supply high effort. The paper argues that this second alternative and a high degree of managerial discretion will often be preferable, thus trying to increase the degree of owner and outsider intervention may be counter-productive.

The idea that organizations have a role in balancing conflicting interests can be traced back at least to Herbert Simon (1951) and to Ronald Coase (1937). It is also implicit in a number of recent contributions to organization theory such as Aghion and Bolton (1992) and Dewatripont and Tirole (1992) when they search for contingent control structures. Aghion and Bolton (1992) discuss how to allocate control rights between an entrepreneur in need of finance and a wealthy investor (see also Zender (1991)). Dewatripont and Tirole (1992) show that outside claim holders may be too soft or too hard on the manager depending upon their claims and we can get close to the right balance with a contingent claim structure. Our analysis in section 3 has a number of similarities to these two papers. However, these authors do not emphasize the need for balance of powers. In particular, our first major result that a high degree of separation of ownership and control (or separation of income and control rights) may endogenously arise in equilibrium in order to contain the owners’ incentive to interfere is new. Additionally, our main focus, the issue of ownership structure, is not discussed in this literature and the necessity to create a disperse ownership structure to improve organizational efficiency by creating free-rider effects is also a new result of our paper.

This result arises naturally in our model because, as in Grossman and Hart (1986) and Hart and Moore (1990a), property rights do not only give rights to the income of the asset but also rights to decide how to use that asset. In Hart and Moore (1990a) property rights are

---

18 This section is not meant to summarize nor to be representative of the large and rich literature on financial contracting. An excellent summary can be found in Harris and Raviv (1990).
redistributed in order to improve investment incentives. We focus on a different question by assuming that property rights cannot be directly redistributed (because of the resource constraints). In this case, the owner may have too much power (or control) and anticipating that he will not directly benefit from his effort, the manager will be unwilling to supply high effort. It is therefore necessary to balance powers so that the manager has sufficient discretion and the right incentives. This is done by separating ownership and control rights which go hand in hand in Hart and Moore's analysis. The manager is allowed to obtain some of the rents of his high effort, thus he becomes a de facto residual claimant. However, securing managerial discretion is a difficult task because ex post the owners would like to reduce the rents that the manager receives, thus in equilibrium the control rights of the owners need to be weakened by creating a disperse ownership structure. Thus in our model separation of ownership and control is endogenous because property rights cannot be changed directly. However, control by owners is often useful too, thus centralized ownership has its benefits as well as its costs. When we incorporate these benefits, we obtain an interior optimum for the degree of ownership dispersion.

A number of very recent papers are also related to our paper. The idea that separation of ownership and control is endogenous is also in Acemoglu (1993) but there, it is the interaction between the owner and outside investors and the general equilibrium considerations that necessitate such a separation whereas here it is a commitment by the owner not to intervene at the expense of the manager. Aghion and Tirole (1994) investigate the division between formal and real authority in a principal-agent relationship. In their model, the extent of the principal's information relative to that of the agent is the key determinant of real authority and the similarity to our paper is that too much information (and authority) is not optimal for the principal. Additional to the main differences in approach, in their paper issues related to property rights and dispersion of ownership do not arise. They instead discuss the boundaries of the firm, urgency and possible overload of tasks. Also, the implications related to takeover, dividends, capital structure and managerial compensation are not derived nor discussed in their paper. The interaction between managerial incentives and the size of the largest shareholder is discussed in Burkart, Gromb and Panunzi (1994) who derive costs and benefits of large shareholders, but this paper too is related to informational issues along the lines of Aghion and Tirole (1994). The paper by Gertner, Scharfstein and Stein (1994) is also related. They discuss internal versus external (or centralized versus decentralized financing) and show that the internal financing leads to more monitoring and to more effective exercise of residual rights of control whereas external financing allows more freedom to the manager. Finally, the paper by Holmstrom and Tirole (1993) emphasizes the role of stock market as a method of transmitting private information that is useful in controlling managers. Their conclusion is that a disperse ownership may be required in order to benefit from the monitoring role of the stock market. In our model a disperse ownership is
required not due to the presence of private information but to achieve shareholder passivity. The two roles of disperse ownership may well be complementary in practice and they both highlight benefits of widespread share ownership in capitalist economies.

Section 5 of our paper is also related to Shleifer and Summers (1988). They argue that the observed gains of takeovers come from breach of implicit contracts with workers. Our application can be thought in the same terms with the contract of the manager (instead of the workers) being breached. However, there are some important differences. First, since Shleifer and Summers deal with the relationship between the owners and the workers, managerial discretion is not an issue. We start with an equilibrium model where the manager looks after his own interests and show that even in this setting a high degree of managerial discretion may be necessary. Given these, their paper does not have implications about the ownership structure and property rights. Second, in our model the anticipation of the possibility of breach is the reason why organizational efficiency may be disrupted. This has stronger implications for the interpretation of the findings that takeovers lead to efficiency gains. According to our theory, they may genuinely improve organizational efficiency ex post because the manager has a tendency to act opportunistically, but the anticipation that takeovers will take place creates a more than offsetting loss of organizational efficiency ex ante. Finally, in contrast to Shleifer and Summers, we also show that takeover may actually improve welfare provided that they are sufficiently costly. We provide conditions for such a beneficial role of takeovers and show that "dividend policy" is crucial in this process; this link between the beneficial role of takeovers and dividend policy is also new.

Since cheap takeovers are always harmful, our model provides an explanation for why takeover defense mechanisms are so common place and why the takeover wave of the 80s may have come to an abrupt end. The suggestion that takeover defense mechanisms may be optimally instituted rather than an example of market failure is also in Hirshleifer and Titman (1990) who view these as a tool to obtain a better price from the raider and realize profitable merger opportunities. In our model, takeover defense mechanisms lead to improved organizational efficiency and greater social welfare by making takeovers more costly. Yet our results are not inconsistent with the evidence that sectors subject to more takeover threat are more efficient (e.g. Schranz (1993)) as well as the positive price effects of share tender offers (e.g. Jarell et al (1988)) since takeovers are ex post efficient. Our approach also implies that takeover threat should lead to more efficiency gains in sectors where a flexible dividend policy can be used and that in all cases, the anticipation of actual takeovers should lead to ex ante inefficiencies. There are also additional implications about managerial pay, takeover threat and dividend policy, for instance that managerial pay should be less sensitive to firm performance in the presence of effective takeover threat and dividend policy. Although model specific, these implications may be interesting to investigate.
Finally our paper formalizes Jensen (1986)'s suggestion that dividend policy is a way of getting excess cash out of the firm, explains why managers who are cash constrained and have alternative uses for the free cash flow may nevertheless find it profitable to pay out dividend and lays down conditions for this to be an equilibrium. In particular, dividends need to be a flexible tool but the manager must be unable to renege on the promise to pay a certain amount as dividends. However, Jensen views dividend policy as an inferior mechanism to debt since it is less "hard". We propose a new role for pay-out policies in the internal organization of the firm where their comparative advantage is precisely that they are not as "hard" as debt but more flexible. We thus show how dividends may interact with the right degree of intervention (by a raider or shareholders) to bring about more efficiency.

To construct a dynamic incomplete contract model for the adverse effects of giving too much power to one party was not the only modelling strategy for our purpose. An alternative line of attack would have been to build on the influence costs and multi-task literature of Milgrom (1988) and Holmstrom and Milgrom (1992). In this context, if we give too much power to the owner, the manager may engage in non-productive activities in order to increase his influence and pay-off, and an organizational form in which there is a balance of power may be preferred. We have chosen the model of this paper because it appears to be the simplest one to capture many of the issues and to adapt naturally to the analysis of the effects of ownership structure and takeovers on organizational form. The disadvantage is that our model is very stylized and a number of simplifying assumptions had to be made. To incorporate these effects into a more formal multi-task contracting framework as well as a careful empirical analysis of these effects (for instance by comparing periods of low and high owner control and takeover activity) are issues left for future work. Another interesting area to pursue in future work is the interaction of the conflict between the workers and the organization and that between the claim holders and the management.
References
Aghion, P. and J. Tirole (1994); "Formal and Real Authority in Organizations" Mimeo.
Blanchard, O., F. Lopez-de-Silanes and A. Shleifer (1993); "What Do Firms Do With Cash Windfalls?" NBER Working Paper No. 4258
Burkart, M., D. Gromb and F. Panunzi (1994); "Large Shareholders, Monitoring and Fiduciary Duty" unfinished manuscript, London School of Economics/MIT.
Gertner, R., D. Scharfstein and J. Stein (1994); "Internal versus External Capital Markets" mimeo.