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6 Are Large Shareholders Effective Monitors? An Investigation of Share Ownership and Corporate Performance

Richard J. Zeckhauser and John Pound

6.1 Introduction

Large shareholders, who hold a sizable fraction of all voting shares in publicly held corporations, may solve a fundamental problem of modern capital markets: the difficulty outside claim holders have in monitoring corporate management. For an individual shareholder, the costs of obtaining information may outweigh its benefits. In addition, the holdings of dispersed individual shareholders are too small to influence corporate outcomes, even if the benefits are great enough to provide adequate incentives to become informed.[1] Large shareholders potentially solve both of these problems. They can reap large benefits for themselves and other shareholders by becoming informed and possibly by influencing corporate outcomes because they hold a block of voting power.

In recent years, empirical studies have confirmed that the arrival of new large shareholders causes significant stock price increases in target corporations (Mikkelson and Ruback 1985; Holderness and Sheehan 1985). This pattern implies that the accumulation of a new, large position conveys significant benefits to other shareholders of the corporation. However, the most dramatic of these gains come when the large shareholder is perceived to be trying to gain control of the target firm. In this case, large shareholders convey benefits not because they engage in long-term monitoring and thereby insure against

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poor performance, but rather because their arrival indicates takeover pressure directed against the firm. They represent a one-time catalyst for sudden change in corporate structure or strategy.

An unanswered question—and perhaps one more fundamental to the broad process of corporate governance—is whether the ongoing presence of a large shareholder has significant effects on corporate performance, assuming no explicitly activist or control-oriented short-term plan. If large shareholders monitor corporate activity, they could deter managers from securing benefits at the expense of shareholders. (Managerial self-dealing arises because the shareholders are either unable to determine what is happening or powerless to stop the process.)

Our principal interest in this analysis is not self-dealing but another undesirable practice that arises from asymmetries in information between shareholder and manager, namely performance tilting. Let us assume that some aspects of firm performance (A) can readily be monitored by shareholders, whereas others (B) cannot. A manager intent on demonstrating that he is performing ably will tilt performance by fostering A at the expense of B. For example, A might be sales levels, which are attested to by accountants; B might be the training of young employees, an effort that affects the balance sheet or income statement only after many years. In this vein, managers are often criticized for paying too much attention to a short-term, bottom-line view.

Note that performance tilting involves neither diminution of managerial effort nor excess pay. If both A and B could be monitored, the manager would produce a more balanced portfolio of outputs. The shareholders would be better off, and, presumably, the manager would reap extra benefits as well.

As monitors—of self-dealing, performance tilting, or both—large shareholders would constitute a part of the incentive structure of the firm. They would interact with management and affect the formulation of corporate strategy. They would lessen the need for takeovers and other control-transferring activities by imposing discipline on corporate operations. To accomplish this, they need not issue any threats. As we will show, large shareholders may raise the value of the company merely by indicating that it is safe to take results at their face value, without worrying about managerial duplicity or distortion.

In this paper, we examine how large shareholders might affect long-term corporate performance, and whether they in fact do so. We first discuss the potential impact of large shareholders on corporate incentives and information flow. Our particular focus is on the much-discussed trade-off between short- and long-term performance. Our central argument is that current results are easier to observe than future prospects; hence they are overemphasized by managements that may no longer be in office when prospects become reality. A good example of this phenomenon relates to the choice of accounting methods for inventories. Assuming rising prices, first-in-first-out (FIFO) accounting results in higher stated earnings than last-in-first-out (LIFO) accounting. Higher stated earnings in turn means higher taxes and less money to reinvest

or pay dividends to the shareholders. (If a firm uses LIFO for tax purposes, it must also use LIFO for reporting purposes.) Even though the choice of accounting methods is easily observed, a management worried about maintaining announced share earnings, the most monitorable output quantity, might elect FIFO, reducing the short- and long-term cash flow of the corporation.

The choice of accounting methods bears a parallel to paying dividends, a costly measure, to signal the financial condition of the firm. Dividend signaling (if the practice exists) also sacrifices shareholder interests to convey favorable information to the market. In both cases a scrupulously honest, impartial monitor would avoid this waste and therefore benefit both shareholders and management.

Our empirical work employs cross-sectional data to infer the presence or absence of performance tilting. Our principal focus is on the possibility of excessive present orientation due to difficulties in monitoring the future. Thus, we test for systematic differences in expected future performance among firms with large shareholders, compared with firms in the same industries that do not have such shareholders. We also examine whether the presence of large shareholders affects corporate financial policies that are determined, in part, by the size of agency problems within the firm and, in part, by the need to signal future performance to the market.

We examine two financial policy choices that are frequently described as signaling instruments: dividend payouts and capital structure. High dividend payments, relative to industry norms, may be an attempt to signal higher future profits to the market (Bhattacharya 1979). Alternatively, by requiring the firm to go to the capital market more frequently, such payments could provide for monitoring (Rozeff 1982; Easterbrook 1984). If either of these forces is significant, large shareholders may reduce the need for dividend payments. At the opposite end of the scale, it has been alleged that in firms with unappealing prospects, self-aggrandizing managements may reinvest profits at below-market rates. (Supposedly, large oil companies invested in uneconomic exploration in the era before takeover threats curbed such action.) Large shareholders may force larger dividend payouts from such firms. Similarly, large shareholdings and leverage may be systematically related. The agency costs of debt (Jensen and Meckling 1976) may be affected by large shareholders. Alternatively, as with dividends, large shareholders may reduce the need for other financial signals of future performance (Ross 1977). Our tests thus provide indirect evidence on the hypothesis that dividends and leverage are used as signals.

In our tests, we distinguish firms operating in two types of industries: those in which capital and investments are highly firm specific and those in which they are not. When assets are unique to the firm and its management—when, for example, there is a high level of R&D activity—monitoring by shareholders will be difficult. When firms have assets that are specific to management, large shareholders cannot as easily improve performance even if they find that management's current performance is lacking. It is therefore harder, for ex-

ample, to restructure the asset base of a computer company than that of a steel or oil company. In addition, we conjecture that firms with a high degree of asset specificity are also likely to have a closed information structure—that is, the investment decisions of management are likely to be difficult to analyze. In these industries, we hypothesize, large shareholders are not likely to have a significant monitoring effect.[2] Our main results are as follows.

6.1.1 Earnings/Price Ratios

In industries with relatively low asset specificity and a relatively open information structure, including, for example, machinery, metal fabricating, and paper products, the presence of a large shareholder leads to significantly higher expected future performance. Across eleven such industries, we find that earnings/price (E/P) ratios for large-shareholder firms are lower by an average of approximately 10%. This indicates a higher average expected earnings growth rate in large-shareholder firms. In industries with high asset specificity and, implicitly, a closed information structure, including computers and pharmaceuticals, large shareholders are not associated with lower E/P ratios. This may suggest that when the nature of the firm's investment and production decisions make outside monitoring difficult, large shareholders cannot solve this problem.

6.1.2 Dividend Payout Rates

Within an industry, there is no significant difference in dividend payout rates between firms with and without large shareholders. This finding indicates that dividend payments and large shareholdings are not substitute forms of monitoring.

It also suggests that the predominant monitoring function of large shareholders is not to force increases in payout ratios. That might have been the case if the overriding agency problem solved by large shareholders were insufficient payouts from free cash flows. (Of course, it is conceivable that large shareholders force payouts up to industry norms from a level that would otherwise have been suboptimally low.)

6.1.3 Leverage Ratios

In industries with both open and closed information structures, the leverage ratio is not connected with the presence of a large shareholder. This implies that large shareholders do not guard against the agency costs of debt by deterring investments that compromise the interests of preexisting debtholders. Large shareholders are typically not also debtholders and thus probably lack the incentives to protect debtholder interests. Given the absence of such incentives, indeed, we might actually expect large shareholders to compete with bondholders over the use of corporate resources, with the shareholders pushing on average for more risky activities.

6.2 Large Shareholders and Corporate Oversight

Our central argument is that large outside shareholders can play an important role by monitoring management actions and influencing management decisions to favor shareholders, thereby improving the performance of a corporation and raising the price of its stock. We shall refer to this process as monitoring, but it should be understood to involve as well a decision-altering ingredient that may deter or compel management actions. Our monitor may well be a disciplinarian.

If monitoring can play this valuable role in reducing agency losses in the management-shareholder relationship, why do we not see large shareholders everywhere? What elements of performance will large shareholders affect? How is the market equilibrium established with large shareholders? What returns and costs do large shareholders reap and incur? Do large insider shareholders—presumably even more capable of monitoring—not play an equivalent role?

The model outlined below provides a framework in which to address these questions. Our principal interest is in the intuitive concepts. Thus, we shall rely on partial equilibrium analyses, focusing on one or two factors at a time. Our analysis is developed under four headings: upward-sloping supply curve, large shareholders, the nature of market equilibrium, and monitoring earnings flow and the E/P ratio effect.

6.2.1 The Upward-sloping Supply Curve

The cornerstone of our assumed market for the stock of a company is an upward-sloping supply curve: as one buys more stock the price of an additional share increases. We shall assume that buyers can be perfect monopsonists, purchasing their way up the supply curve.[3]

A number of factors may contribute to the upward slope. We shall mention four, by way of illustration. First, there is heterogeneity among sellers (e.g., different tax positions, different strategies of investing, and different perceptions about the appropriate price for the stock). Thus, their reservation prices differ. Second, inferences about private information can be based on purchases and sales. (The stock price incorporates available information, and a large purchase, e.g., implies the appropriate equilibrium price is higher than the one that previously prevailed.) Third, there may be limited supply of a stock that contributes useful market diversification. Fourth, changes may result from a large buyer's behavior (e.g., he may be considering a takeover or putting the stock in play; alternatively, people may just believe his monitoring will be beneficial to future performance).[4] Any one of these reasons would be sufficient to produce an upward-sloping supply curve. Let us leave aside for the moment the specifics of the supply curve and examine the benefits and costs that return to a large shareholder who monitors.

6.2.2 Large Shareholders

The protagonist in our model is a large shareholder, denoted LS, who assumes a substantial position and then monitors the performance of the company. Given his influential position, he improves that performance on behalf of all shareholders.

To simplify, we will assume that the large shareholder's only productive role is as a monitor. The increment that he offers in performance of the company, and hence stock price, is positively related to the size of his position. There is likely to be a range of increasing returns. Below some threshold he may not be given information or a board seat. Moreover, his own incentive to monitor increases proportionately with holdings. A hypothetical relationship between monitoring gain and size of position is shown as the dashed "large shareholder's marginal value curve" in figure 6.1. This curve shows the LS's average per share increment in value above current market price.

When LS sells out his holding, must he sell back down the supply curve? The answer will depend on how he sells out: Does he transfer a large block to a single purchaser (say, as part of a takeover) or merely put his stake on the market? If he has held the stock for a long time and reaped substantial dividends along the way, that element of his return, which is equal per share held, will tend to level the total return per share. (If LS intends to hold for only a short time, and if he must sell his holdings down the supply curve, then the dashed curve will begin to decline beyond some point.)

Conventional wisdom might suggest that the large shareholder should con-

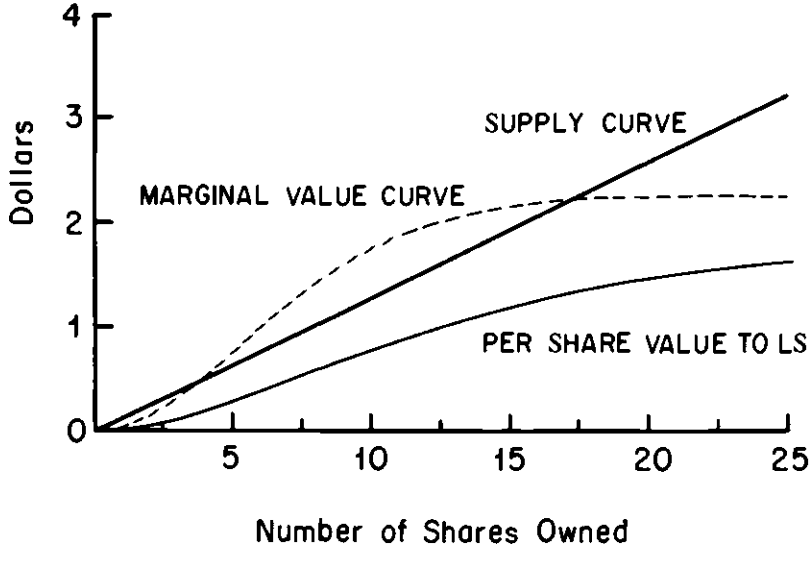

Fig. 6.1 Returns to large shareholder

tinue to purchase shares only so long as the market price is below his value for an additional share of stock, as indicated by the bottom curve in figure 6.1. This rule is not correct, however, for his purchases also influence the performance of the shares he already owns. Thus, he might be willing to pay \$41 for a stock that he believes is worth only \$40, if this additional purchase increases the value of his previous holdings by more than \$1 total.

For decision-making purposes, LS's only concern should be with his marginal valuation curve, which is indicated as the dashed line in the diagram. The third curve shown, which is solid, is the upward-sloping supply curve for the stock. Obviously, if the slope of the supply curve is sufficiently steep there will be no size of position that will enable the large shareholder to break even or make a profit. We illustrate the complementary case, where participation may be worthwhile, where the dashed (marginal benefit) curve crosses the solid (marginal cost) curve.

Let n be the number of shares LS buys, treated as a continuous variable. Consider the case in which each of LS's shares is worth the same, namely $V(n)$, with $P(n)$ being the cost of a marginal share. Thus $V(n)$ would be the dashed curve in the diagram and $P(n)$ the heavy curve. We are assuming that the large shareholder can buy his way up the supply curve. We would expect $P'(n) > 0$, and that $V'(n) > 0$ over the relevant range. Here LS wishes to maximize

$$(1) \qquad nV(n) - \int_0^n P(x)dx,$$

with respect to n. Taking the derivative and setting it equal to zero yields

$$(2) \qquad nV'(n) + V(n) - P(n) = 0,$$

or

$$(3) \qquad nV'(n) = P(n) - V(n).$$

The left-hand side of (3) gives the gain in value to all of LS's existing shares, namely the dashed curve. The right-hand side gives his immediate loss in value due to paying more than the stock is worth.[5]

It may be easier to think of n as the percentage of total available stock rather than as numbers of shares. Our formula implies that an individual who owned 8% of the stock in a company selling at 40 would buy additional stock at 41 if the gain in performance of the company for each percent purchased were ⅛ of a point.[6]

The LS's analysis would be the same if the increment in value associated with the size of his holding depended on factors other than monitoring. These could include private benefits relating, say, to a takeover, greenmail, or establishing beneficial business relationships. Then the monitoring gains would be

mostly a lagniappe. In what follows, we consider large purchases that are primarily designed to improve performance through monitoring.

Does the large shareholder incur costs beyond the money he must expend? Other shareholders will free ride on his shoulders, of course, but that is not a cost to the large shareholder, just a benefit for which he is unable to charge. A loss of diversification will be a significant cost for some large shareholders, say the offspring of the founder of the company, who will find themselves overconcentrated in the stock. This loss will be less severe for large pension funds or mutual funds, which may be able to take large positions in a number of companies and are likely to have holdings in other securities that are significant even in comparison with large positions within single companies.

6.2.3 The Nature of Market Equilibrium

The supply curve we described serves many classes of customers, including speculators, potential large shareholders, individuals who wish to bring information to the market, and sellers with other motivations, such as the need to finance a Porsche purchase.

Other Market Participants

An intriguing group of participants are those who bring information to the market. Some of them may have information of the form, "The price of stock X should be $50." The trouble with this type of information is that individuals with inconsistent beliefs can come into agreement on a market price either by buying or selling amounts so large that risk and/or capital constraints come into play or by curtailing their activities because they realize that the other players have contrary, possibly valid, information.

More often, we believe, information is of the type: "I know some good news about company X, which is unlikely to be fully reflected in the market price. The degree of underreflection is $1." With the latter type of information, the individual would expect to move the price by $1. But given all the noise associated with stock prices, it may be hard to tell when he has had that effect. And is his proper purchase 1,000 shares or 100,000 shares?

Let us take the most favorable situation, in which everyone understands the structure of the supply curve and thus knows how many shares must be purchased or sold in response to particular quantities of information. (Noise in securities markets might otherwise make this hard to determine.) This amount—in effect the local slope of the supply curve—would seem to be somewhat arbitrary. That is, the market could be in equilibrium if it took 1,000 shares to reflect a particular amount of information or if it took 100,000 shares, so long as everybody knew the number. This argument may have a familiar ring from other market situations. For example, only relative prices are determined through market processes, not the overall price level.

Fortunately, several additional mechanisms could help to define the supposedly arbitrary quantity "slope of supply curve." Say the market were highly

responsive, so that if someone had a substantial amount of negative information he would sell only a small number of shares, with the market price dropping quickly. We shall now argue that such a situation could not characterize the equilibrium.

Some individuals buy or sell shares for reasons other than bringing information to the market, say, because an estate is being settled, or because they are trading on an uninformed basis, or they are selling all their holdings after listening to John Granville. Under the circumstances described, movements from their purchases (sales) would tend to push the market price of the stock up (down) too much. Arbitragers would recognize that a substantial proportion of price movement in the stock was due to noninformational sales and would correct the market accordingly. Thus, the equilibrium would be altered to become less responsive. (The role of these uninformed traders resembles that of hedgers in providing stability in a conventional hedgers-speculators model.)

A second equilibrating mechanism could be the ability of potential market participants to gather information. If the market were too responsive, then people who acquired information would not be able to reap much profit. Information purchases would diminish. As less information was purchased, a smaller proportion of the activity on the exchange would be due to information. Actions of arbitragers would flatten the supply curve until equilibrium was reached.

Some of the purchases and sales in the market for a stock are true signals. They might be labeled action shares (shares that might do something such as launch a takeover) and knowledge shares (shares that know something). Noise shares are those that are sold by uninformed traders, estates that must be liquidated, and so on. Noise shares are likely to be less affected by the slope of the supply curve than signal shares. Figure 6.2 shows the relationship between the quantities of these different types of shares and the slope of the supply curve.

The Equilibrium Number of Large Shareholders

Let us now turn to the market equilibrium. Arbitragers try to deduce information from market movements. If there is a high signal-to-noise ratio among purchases, then the arbitragers will help to establish a steep slope for the supply curve in the market. This behavior pattern is represented as the arbitrage relationship curve in figure 6.3. The market response curve in that diagram is computed from figure 6.2, where knowledge shares and action shares are amalgamated as the signal component. The intersection of these two curves simultaneously determines the slope of the supply curve and the signal-to-noise ratio in the market.

In the real world, many companies do not have large shareholders. (In two-thirds of the companies we sampled for our empirical work, no shareholder owned over 15% of the shares). One possibility is that there are just not

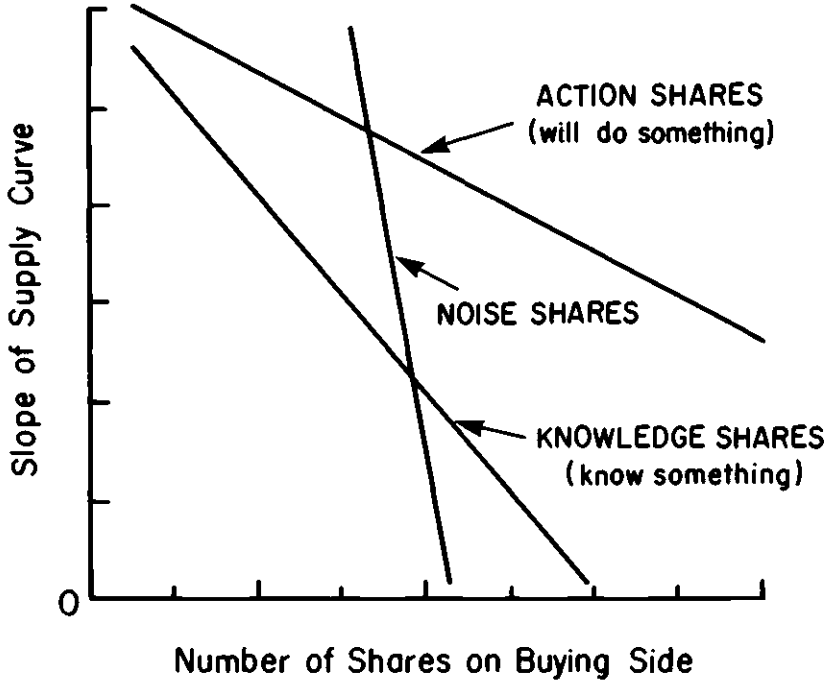

Fig. 6.2 Different types of shares as a function of slope of supply curve

enough large players to go around. That explanation is inconsistent with the anecdotal evidence about securities markets. Indeed, there are many large players—such as hundreds of pension and mutual funds—that do not attempt to take monitoring positions in any specific companies.

A more persuasive explanation, we believe, is that some special and scarce skill may be required to produce an upward-sloping curve of the type presented in figure 6.1: that is, the ability to monitor may potentially earn significant rents. Moreover, different holders will be better able to monitor different companies. For some companies no one may be a sufficiently effective monitor to overcome the market-moving costs of securing and disposing of a large position.

Our empirical analysis suggests a third possibility. Some companies do not need (will not yield significant gains to) a large-shareholder monitor. Some companies may already be run effectively on behalf of shareholders and may be expected to be run effectively in the future, perhaps because they have particularly transparent information structures. Alternatively, a company's operations may be so difficult to understand—so "opaque"—that even a large shareholder could not monitor it effectively. Companies with substantial R&D components may often fall into this category. Such companies may still have large shareholders, but not primarily for monitoring reasons (e.g., large

downstream firms frequently take large holdings in high tech firms in order to understand, anticipate, and contract for technological innovations). As we discuss below, a fourth reason for the paucity of large shareholders may be that a steep supply curve makes it not worthwhile for large-shareholder monitors to enter.

6.2.4 The Monitoring Process

When large shareholders monitor, how do they increase the value of the company? Their basic role, we believe, is to change the actions of the management. We are concerned with monitoring of (1) self-serving behavior and (2) performance slanting.

Self-serving behavior favors management at the expense of shareholders. In economic models such behavior has been called shirking (in an allusion to the moral-hazard literature), suggesting that, without monitoring, managements do not work as hard as they should. Casual observation of corporate executives, however, suggests that indolence is not a major problem. Shareholders are more likely to be hurt by management's choosing to pay itself more than would be required by competitive conditions. Two factors allow managers to overpay themselves: (1) agenda control (management and its board supporters make the proposals, while shareholders, despite ostensible

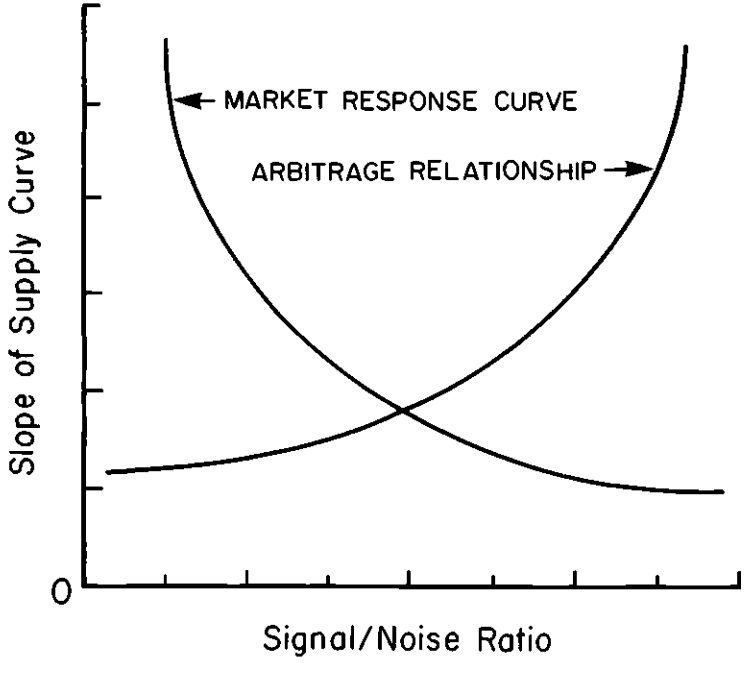

Fig. 6.3 Determination of market equilibrium slope and signal-to-noise ratio

control, have no way to coordinate themselves to oppose); and (2) impenetrability (e.g., compensation arrangements have become so complex that shareholders cannot readily determine what executives are paid).[7]

Performance slanting is the central concern in this analysis. Managements wish to demonstrate that they are performing effectively. If all information flowed freely, and if management could be penalized for poor performance, then trade-offs among corporate accomplishments would be brought more into accord with shareholder preferences. For example, to determine how much the company should spend on maintenance to save future repairs, managers would just use their shareholders' discount rate and undertake any projects with a positive present value. This prescription is fine so long as shareholders can monitor all of the outputs. However, some outputs are more easily observed than others.

Current profits are observable and are defined according to accounting convention. Future profits are always speculative. Managements are usually optimistic but cautious about making specific predictions, particularly given the current litigious environment. It is often alleged that the American economy suffers because stock buyers pay too much attention to the latest quarterly earnings reports. Assuming this to be the case, the manager who can boost current profits by $1 at the expense of $3 in five years might do so, even if the shareholders' trade-off would be $1 for $2. The manager might not be around to reap the benefits of those higher profits, and he does not have a way to demonstrate today that profits will be higher subsequently. If he did, presumably that information would be incorporated into the stock price.[8]

If the manager knew he would be around for the long run, he would have little interest in pushing up today's stock price, p, at the expense of the future price. But he may not know his future. Moreover, his tenure prospects diminish with the stock price. Say his probability of being retained is $q(p)$, where $q' > 0$. Given that most managers have substantial amounts of firm-specific capital, the value of q' need not be great for the manager to be willing to tilt earnings substantially on behalf of today's stock price.[9]

Consider a company with a management that wishes to maximize current stock price. For the purposes of this example, management, like its shareholders, is risk neutral. Management confronts a production possibility frontier relating current earnings, c, and discounted expected future earnings, f. Call this relationship $f = F(c)$.

Let us first consider a situation where this curve is known, say the solid curve in figure 6.4. With the stock price, p, equal to $c + f$, the management chooses to operate at point E, where the slope of the production possibility curve is -1. Stockholders know only about c, but they draw correct inferences about f. If management reports higher than expected first-period earnings, say c', stockholders will know that management is beggaring the future to boost present earnings by operating at D. Future earnings would be predicted as f'. The share price will fall.

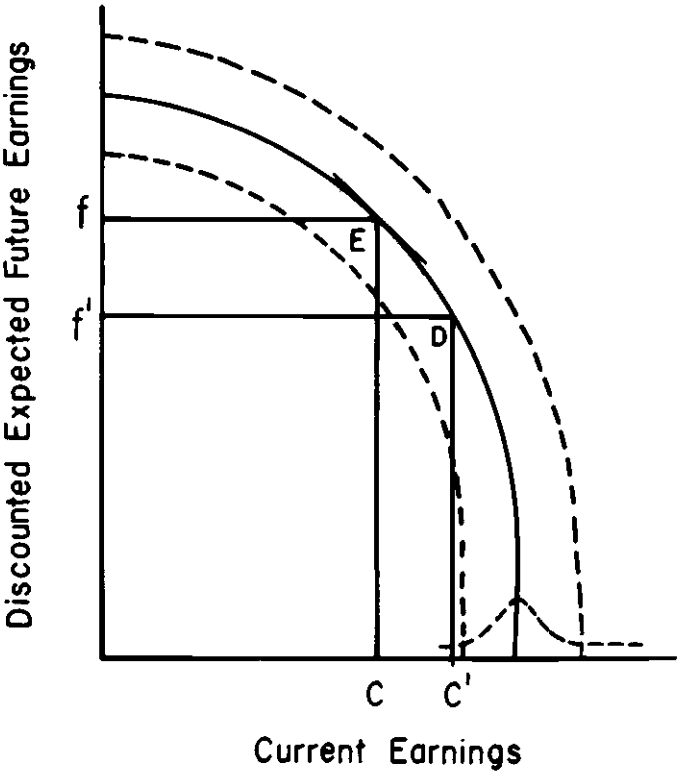

Fig. 6.4 Potential trade-offs between current and discounted future earnings

But this seems a strange story. An announcement of higher than expected current earnings usually boosts rather than diminishes stock price. Present earnings convey a strong message about the overall well-being of the company, the success of its products, its manufacturing prowess, and so on. This signal overwhelms the negative inference that higher earnings send about borrowing from the future. The correct diagram would not have a single production possibility frontier, but rather a distribution of such curves. Such additional production possibility frontiers are shown by the dashed curves in figure 6.4; the dashed bell-shaped curve shows their distribution.

Note the inherent asymmetry of information in this situation. The stockholder does not know management's observation, s, about the state of the world. With the certainty formulation, we had the management select c to maximize p given that $f = F(c)$, where $F(c)$ was assumed to be known to stockholders. Once uncertainty enters the picture, we have a more complex situation. Now $f = G(c,s)$, which collapses to a one-variable formulation $f = F(c)$ in the special cases of no uncertainty or where s is known. We shall assume that G is well behaved, so that the production possibility frontier is

convex and the value of c for which $G_1 = k$ increases with increases in s; that is, the production possibility curve does not shift out too unevenly. (This requires that $G_{12} > 0$, given that $G_{11} < 0$.)

Assume that managers are faithfully reproducing shareholder wishes. They will trade off \$1 of current earnings for \$1 of future earnings. The greater is s, the greater will be their choice of c. The unraveling shareholders will project future earnings, f^*, according to an upward-sloping function of c—call it the revelation curve $f^* = R(c)$. A 2-period model is sufficient to make our general point. The sequence of events is as follows: (1) the uncertainty on s is resolved, and managers, but not shareholders, are informed; (2) managers select c; (3) shareholders infer f from $f^* = R(c)$, where $R' > 0$; (4) a share price is determined as $p = c + f$; (5) future earnings f are revealed.

A manager knowing s has conflicting incentives when selecting c. Given a particular $R(c)$, increasing c will raise share price because both c and f^* will be increased. Let us say the manager is going to be in office only for this single period, knows that shareholders are using $R(c)$, and would be rewarded with some bonus that depends on c or p. He will simply maximize c. Shareholders, of course, will be disappointed next period when f turns out to be below the value suggested by $R(c)$. Shareholders will quickly learn that a departing manager cannot be relied upon to produce the behavior underlying $R(c)$.

Most managers, in fact, are likely to be around next year, and hence have some concern about f. However, as long as there is some probability that they will leave, they will put too much emphasis on current price, hence current earnings. This distortion will be greater if their probability of departure is related to c or p.

Say managers wish to maximize $c + qf$, where q is the probability that they are around in the second period, with the form $q = Q(c)$, with $dq/dc > 0$.[10] Differentiating this expression with respect to c and setting the result equal to 0 gives $f/c = -[1 + (dq/dc)f]/q$.

It would be optimal for the shareholders to set $f/c = -1$, that is, to trade off one future dollar for one current dollar. Here q is less than 1, f and dq/dc are positive, all of which implies $f/c < -1$; more than \$1 of future earnings will be traded for \$1 of current earnings. Shareholders are not fooled, of course. They will simply employ a more pessimistic revelation function, where a lower f^* is projected for every c. The more likely shareholders think the manager is to leave, the more closely his departure is related to current earnings or share price, the more pessimistic the revelation function will be.

This formulation assumes that shareholders can monitor only c. In fact they may have some direct information about s or f. As long as shareholders are less than perfectly informed, however, c will be an informative signal about s. The forces outlined here will lead managers to select a c that is too great.

Take a simple numerical example. Say that earnings prospects s define the relationship

$$s = c^2 + f^2,$$
$$\text{so that } f = (s - c^2)^{1/2}.$$

If the manager is seeking to maximize $c + f$, he will simply set

$$c = f = (s/2)^{1/2}.$$

Shareholders will untangle this relationship and infer that $f^* = c$, and p will be set in the market to equal $c + f^*$. Expectations will be realized. By contrast, consider the manager seeking to maximize $c + qf$. To simplify, we assume q is constant and independent of c. He will set

$$cq = (s - c^2)^{1/2},$$

or

$$c = [s/(1 + q^2)]^{1/2}.$$

If $q < 1$, say because the manager might leave, then c will be set "too high" for shareholder interests. Assume that shareholders know q; they will disentangle this information, of course. Rather than assessing $f^* = c$, as they would if q were 1, they will set $f^* = q[s/(1 + q^2)]^{1/2}$, or $f^* = qc$.

The information is disentangled, but the distortion persists. Moreover, the stock price, $p = c + f$, will appropriately reflect prospects consistent with the efficient market theory. It might seem that if the shareholders understood the situation, they could correct the management's incentives. However, as long as payment is based on current earnings and stock price, nothing can be done. If shareholders are worried about tilting to the present, they might give a larger bonus for lower current earnings. But this would defeat another purpose of the arrangement from which we have abstracted. Presumably, the manager's compensation (and possible tenure) is based on earnings or share price at least in part to give him an incentive to work harder. If he is rewarded for lower current earnings, he could simply slack off or even destroy earnings. The only arrangement that works is to assure him a bonus that depends on f as well as c, even if he should depart before f is realized.

The essence of the problem is that current earnings are informative about s. Unless shareholders know s for sure, any bonus arrangement based on current earnings or current share price will induce an earnings tilt toward the present, even though all information is fully disentangled and the share price reflects value.

6.2.5 Overcoming Performance Slanting

Is there any way out of this dilemma, in which value is lost although all information is revealed? One way around this problem would be to raise the value of q and reduce its responsiveness to current earnings. (The example of the previous section had q as constant, and thus avoided this problem.) Guar-

anteeing the manager tenure or making tenure independent of performance would hardly seem desirable, however. Two basic types of approaches might ameliorate the problem: pushing management incentives toward longer-term performance and improving the information flow.

Management incentives can be better aligned with those of shareholders if managers' pay is based not on present earnings and present stock prices, but on future stock price. Stock options are the obvious mechanism, though management should be prohibited from selling the stock for a period of time (perhaps lengthy) after its purchase. (Stock itself gives less incentive for a given size of bonus to the manager.) However, responsibilities and compensation cannot always wait until all of the information is in. If current earnings are increased, an executive's salary (granted options) or expected tenure would be expected to increase as well. Some degree of performance tilting must be expected.

The second approach would be to convey additional information about s.[11] This will be directly costly, say, because additional accounting fees are required, to attest to the maintenance level of the facility or the R&D-related prospects for eventual new products, or to chronicle employee morale. Indirect costs will come from revealing valuable information to competitors. There is another possibility. Shareholders may gain information about s, or assurances that earnings are not being tilted, through the presence of a monitor.

6.2.6 Insider Monitors

Could insiders be trusted to monitor? In some circumstances the answer is yes. If their shareholdings are exceptionally large relative to other elements of their compensation, or if their reputation as effective managers weighs heavily relative to their financial returns, or if they can develop a reputation for future orientation, there may be a chance. No one thinks a Warren Buffett or Lawrence Tisch is indifferent to long-term share price performance. But they are exceptional investors, with secure tenure, massive holdings, and international reputations.

Obviously, insiders cannot be trusted to monitor management perks. But what about the more intriguing problem of earnings tilts? Suppose insiders were given stock options and everyone believed that they would therefore appropriately weight the future. This would boost equilibrium price/earnings (P/E) ratios, which in turn would increase the insiders' incentive to boost present earnings at the expense of the future. Only if we could provide the insiders with secure tenure and require them to hold their options for a long time could we have any assurance that they would provide appropriately for future earnings. A manager's reputation for sufficient future orientation would be valuable, but it is difficult to see how such reputations could develop within many companies.[12]

6.2.7 Outside Monitors

Notice that the performance-tilting management does not benefit from shareholders' inability to monitor perfectly.[13] Managers would be better off if they could demonstrate or warranty their beliefs to the public. More insightful accounting procedures might help, though it is hard to see how accountants could measure employee morale or the expected returns from R&D expenditures. Undoubtedly helpful would be a monitor who was allowed to see, and who had the incentive to review, a great deal of (possibly inside) information about the company.

The monitoring large shareholder thus enters the scene. He can review future plans in detail, looking at data that are difficult to comprehend or would hurt the company if released to the world at large. And he must have the incentive to take action, such as fostering a takeover, blowing the whistle (as H. Ross Perot did with General Motors), or merely selling his stock quietly if management refuses to respond appropriately. With a takeover, management is out of a job. A blown whistle or the information that a large monitoring block has been sold can also punish management by depressing the share price.

In the model we have sketched, the ability to demonstrate to a monitor that future earnings will be higher is an advantage to management. There will be no need to tilt earnings. For any reasonable compensation schedule, managers will be better off financially for having such a monitor, for he provides them with a mechanism to verify reported information and make commitments. Under these circumstances, discounted expected future earnings will be greater for any given level of current earnings. The observable effect should be an increase in the P/E ratio. We test for this prediction below. Our model would also predict that in the presence of a monitoring large shareholder, other costly devices that signal future success might be used less extensively.

6.2.8 Summary

Our central empirical hypothesis is that, other factors equal, firms with large outside shareholders will have a higher price relative to their reported earnings. Our primary empirical test is thus to ask whether the presence of large insider shareholders shifts the relationship between company earnings and stock price. Large shareholders might be able to assess managements' efforts to boost training, promote R&D, or postpone sales so as to yield greater profits subsequently. A monitoring shareholder might also encourage management to defer earnings so that the government could not take an early tax bite. In sum, when a company acquires a monitor, earnings will be pushed more toward the future, and the sum of current plus expected discounted future earnings should increase. Recognition of this effect would tend to raise the price associated with any given level of earnings.

6.3 Sample

To test the relationship between large shareholdings, corporate performance, and corporate financial structure, we drew a sample of 286 firms, dispersed across 22 industries. Of these industries, we classified 11 as likely to have low asset specificity and an open information structure and 11 as likely to exhibit high asset specificity and a relatively closed information structure.

Our sample was based on the Value Line Investment Survey, whose industry classifications are generally more reliable than rules based on SIC codes and other quantifiable measures. In addition, Value Line's data on ownership, price, and accounting performance are consistent and can be used for comparisons both within and across industries.

We began by sampling randomly from industries in which Value Line followed more than eight firms. We included an industry in the sample if there was at least one firm in which a single outside shareholder owned more than 15% of total common stock. We continued this industry-by-industry sampling regimen through 22 industries, a number we believed would be sufficient.

We used a 15% threshold because this level of ownership seemed likely to imply significant voting power over the company. A number of corporate charter provisions and state laws give 15% owners an effective veto over major corporate decisions. Examples are corporate supermajority provisions and the new Delaware state antitakeover code. In addition, 15% appears to verge on an ownership level that many analysts construe to have serious control implications. For example, many states have recently passed so-called control share acquisition provisions, which stipulate that shareholders passing a 20% ownership threshold are considered to have a clear control intent. Thus, the structure of corporate charters and state laws both suggest that if any large shareholders exhibit a significant monitoring or control effect over the corporation, this effect should certainly be observable when the large shareholders own a stake more than 15% of voting equity.

Neither the structure of corporate law nor the structure of corporate charters would necessarily suggest that, in equilibrium, a 5% ownership stake would be sufficient to have a significant impact on management. Indeed the only reason that 5% ownership has been hypothesized to be important is because the disclosure laws required potential corporate acquirers to disclose their acquisition program to the market at the 5% ownership threshold. (We investigated the shareholdings-performance relationship for those firms in our sample with large shareholders who had between 5% and 15% ownership; no relationship was apparent.)

We next partitioned our sample of 22 industries according to the information and asset structure of the industry. This classification effort is necessarily judgmental and somewhat qualitative. However, we attempted to make it rigorous by the following methodology. For each industry, we gathered data on research and development expenditures and sales ratios for 1988, for all firms

listed in the relevant SIC code in the Compustat database. We then used the R&D/sales ratio as a proxy for the information structure of the industry. We assumed that the higher the R&D intensity of firms in the industry, the more closed is the information structure, and the more difficult would be outside monitoring. The idea is similar to the asset-specificity concept described in Titman and Wessels (1988). They hypothesize that with higher R&D/sales ratios, debt is riskier because assets are more management specific and less liquid. Similarly, we hypothesize that the higher are R&D/sales, the more difficult it is for outsiders to make detailed assessments of the corporation's likely future performance.

The industries in our sample are listed in table 6.1. Open and closed information structure industries are listed separately. The dividing line was set at an R&D intensity of 1% of sales. That is, industries with average R&D/sales

Table 6.1 **Sample Industries**

Industry	No. of Firms	No. with Large Shareholders	% with Large Shareholders	Average R&D/Sales Ratios	% Reporting R&D
	A. Transparent Industries (Easy to Monitor)				
Apparel	12	4	33	.14	07
Building materials	13	6	46	1.40	14
Food processing	16	7	44	.50	25
Metal fabricating	12	5	42	.80	48
Paper products	13	4	31	.35	35
Petroleum	11	4	36	.50	47
Publishing	11	4	36	.44	09
Restaurants	13	4	31	.00	00
Retail stores	18	9	50	.00	00
Telecommunications	8	3	38	.45	11
Textiles	8	3	38	.41	26
	B. Opaque Industries (Difficult to Monitor)				
Aerospace	18	6	33	4.0	100
Chemical manufacturing	13	5	38	4.2	100
Computer software	13	3	23	14.0	80
Computers	13	1	8	9.0	67
Drugs	9	1	11	31.0	59
Electronics	17	6	35	3.0	64
Machinery	14	3	21	2.5	54
Medical supplies	15	5	33	56.0	64
Office equipment	14	5	36	1.0	61
Precision instruments	14	4	29	6.0	69
Semiconductors	11	3	27	7.0	68

Source: Value Line Investment Survey.
Note: A large shareholder is defined as a single entity owning 15% or more of the outstanding voting stock of the corporation.

ratios above 1% are characterized as opaque, while industries with averages below 1% we labeled transparent. The same division results when the industries are grouped according to whether at least half of the firms report any R&D expenditure (last column of table 6.1). Firms reporting no R&D expenditures enter our average calculation as zero observations. The table shows, for each industry, the number of firms with a large (over 15%) shareholder and the percentage of the industry sample with such a shareholder.

While our 1% cutoff is obviously somewhat arbitrary, its results are roughly consistent with an intuitive assessment of the information structure of the industries in our sample. Included in the opaque category are industries such as drugs, computers, and chemicals. The transparent industries include food, apparel, and textiles, among others. As we show in the next section, raising the transparency cutoff—to 5% R&D intensity, for example—does not materially affect our results. The use of the R&D/sales measure to stratify industries by information structure thus appears to create relatively little sensitivity or arbitrariness.

Only one industry in our sample, building materials, involves any classification judgment. This industry is relatively small, including only 14 firms under the Compustat classification. One small firm reports an R&D/sales ratio of 20%, while the other firms, many much larger, report no R&D expenditures. Nominally, the weighted average R&D/sales ratio for this industry is 1.4%, and it should thus be included in the opaque category. But it seems clear that the mean is the wrong measure in this case, and we include this industry in the transparent category. (It clearly falls into that category if we consider the percentage of firms reporting R&D expenditures.) Industry descriptions by analysts, such as Value Line, confirm that this industry is not characterized by research or technology-intensive activity.

6.4 Large Shareholders and Expected Performance

To examine the difference in expected performance between firms with and without large shareholders, we concentrate on one widely used measure of corporate performance—E/P ratios. (Because earnings can sometimes be negative, or sufficiently close to zero that price/earnings ratios are meaningless, the earnings/price ratio provides a more meaningful fignre.) The E/P ratios indicate expected earnings growth rates. Other cross-sectional measures, such as price/book ratios and Tobin's q (which is usually derived from book value calculations), are generally less reliable because they involve implicit assumptions about asset value. So long as E/P ratios are adjusted to remove extraordinary items, they provide a more consistent picture of the discount placed on current and future profits by the market.

To calculate E/P ratios across the sample, we take the last full fiscal year of earnings—1988 in virtually all cases—and divide it by the market price of the company's stock on the date of issue of the first-quarter 1989 Value Line

report for that industry. This yields an E/P ratio for each firm. We then take an unweighted average of E/P ratios for the relevant sample (e.g., metal industry firms with large shareholders).

To test for differences in E/P ratios for firms with and without large shareholders, we aggregate the data in two different ways. First, we calculate for each industry the average E/P ratio for large-shareholder firms and the average for firms without a large shareholder. We then take the difference between these averages for each industry and calculate the average difference across the industries in our sample. This calculation weights each industry average equally in the comparison, rather than weighting each firm in the larger sample.

Next, we standardize E/P ratios for firms within each industry by dividing each firm's E/P ratio by the industry mean E/P. Using these standardized ratios, we pool all firms that have a large shareholder, and those that do not, to form two large samples. We then calculate average standardized E/P ratios for these large samples. This comparison weights each firm, rather than each industry group, equally.

We perform these two tests separately for each of our two broad industry samples—open-information-structure (transparent) firms and closed-information-structure (opaque) firms. Because we expect large shareholders to have different effects in these two types of industries, we do not pool the data from these two industry categories (although the tables allow direct comparison of the results across the two subsamples).

Table 6.2 displays the E/P ratios for firms with and without large shareholders for each of the 22 industries in our sample. We find quite large differences in E/P ratio for the 11 open-information-structure industries, with E/P ratios being substantially lower in the presence of a large shareholder (pt. A). The pattern for the 11 closed-information-structure industries (pt. B) is considerably less strong. The sign of the effect is the same for most of the industries, but the average magnitude is smaller.

Table 6.3 presents our two statistical tests for systematic differences in E/P ratios for firms with and without a large shareholder. For the open-information-structure industries, the test statistics reject the hypothesis of equal average E/P ratios at the 5% level. In contrast, for the closed-information-structure industries, neither test allows rejection of the hypothesis that E/P ratios are equal in the presence and absence of a large shareholder.[14]

In opaque industries, which are much less hospitable to the type of monitoring that we describe, approximately 27% of our sample firms have large shareholders. Presumably these shareholders are there for some other reason, perhaps because of history (e.g., the heirs of the founding family), or the need to foster business relationships, or to spur new business developments. Presumably some large shareholders are present in transparent industries also for nonmonitoring reasons. If so, the differences that we observe understate the

actual returns to monitoring. If only half of the large shareholders in our transparent industry sample are monitors, for example, then the differences that we find may represent half of the effects of monitoring. (This of course assumes that nonmonitoring large shareholders do not affect the variables that we are studying).

These data imply that the hypotheses advanced in Section 6.2 have some merit. Corporations in which there is a large shareholder in the ownership

Table 6.2 **Earnings/Price Ratio (E/P) for 22 Industries**

Industry	E/P with Large Holder	E/P without Large Holder	Difference
	A. Transparent Industries (Easy to Monitor)		
Apparel	9.74	10.21	.27
Building materials	15.02	17.35	2.33
Food processing	7.98	7.94	−.03
Metal fabricating	9.77	10.29	.52
Paper products	13.89	13.50	−.39
Petroleum (integrated)	9.49	9.49	.00
Publishing	5.66	7.40	1.74
Restaurants	11.91	11.68	−.23
Retail stores	11.78	14.27	2.49
Telecommunications equipment	10.15	13.50	3.35
Textiles	5.90	8.89	2.99
Average			1.19
Standard error			.42
t-statistic			2.81
	B. Opaque Industries (Difficult to Monitor)		
Aerospace	15.14	14.46	−.68
Chemical manufacturing	8.32	8.94	.62
Computer software	13.98	14.34	.36
Computers	15.63	15.63	.00
Drugs	9.84	10.78	.94
Electronics	14.44	14.58	.14
Machinery	7.89	8.63	.74
Medical supplies	12.10	12.46	.36
Office equipment	14.11	13.15	.96
Precision instruments	12.79	12.25	.54
Semiconductors	14.08	15.46	1.38
Average	.22		
Standard error	.21		
t-statistic	.99		

Source: Value Line Investment Survey.
Note: A large shareholder is defined as a single entity owning 15% or more of the outstanding voting stock of the corporation.

Table 6.3 Comparison of Standardized E/P Ratios for 286 Firms

Sample	Average E/P (%)	No. of Firms
	A. Transparent Industries (Easy to Monitor)	
With large shareholder	93.81	53
Without large shareholder	104.00	82
	B. Opaque Industries (Difficult to Monitor)	
With large shareholder	99.12	42
Without large shareholder	100.32	109

Note: *t*-statistic for hypothesis that there is no difference between the sample means in part A is 2.87; in part B 0.31. E/P ratios were standardized within each industry by dividing each firm's E/P ratio by the industry average and multiplying by 100.

pool display, on a cross-sectional basis, a higher market premium, indicating a higher level of anticipated future performance relative to present performance. This suggests an ongoing beneficial governance effect arising from the presence of large shareholders. It also suggests that the market recognizes the expected effects of large shareholders on fundamental corporate performance, and incorporates that effect into security prices. In other words, large shareholders are interpreted by the market as signals of higher future performance, relative to the currently observed level of profits.

6.5 Large Shareholders and Dividend Payout Decisions

At least three primary hypotheses may be advanced about how the presence of large shareholders affects dividend payouts. First, dividend payouts may constitute an alternative form of capital market monitoring (Easterbrook 1984; Rozeff 1982). Corporations with high payout rates will be forced to go to the market relatively more often to secure funds for new investment. This subjects the investment decisions to outside scrutiny. Thus, when large shareholders are not present in the ownership pool, the market may demand other forms of monitoring—such as dividend payouts—as substitutes. We might expect to observe an inverse relationship between dividend payouts and the presence of large shareholders.

Second, a primary policing function of large shareholders may be to increase dividend payout rates. Perhaps large shareholders do not monitor management decisions themselves, but rather change corporate payout policies so that management can be monitored by the appropriate parties. If this is the case, then large shareholders would force an increase in dividend payouts so that firms would be forced to go outside to raise investment funds and thereby subject themselves to capital market monitoring. An alternative possibility is that large shareholders counter a tendency to excessive retention of cash flow

by management, due to a preference to reinvest and build the size of the corporation, and hence expand the domain under their control (Jensen 1986). Under this hypothesis, higher dividend payout rates are not a monitoring device, but an end in themselves.

Third, and implicit in our arguments of Section 6.2, dividends may be a signal sent by management to inform the market of higher expected future profits.[15] If the primary function of dividends is to signal, then there may be less need for dividends in the presence of a large shareholder, because the large shareholder is a substitute (and more credible) signal of good future performance. This could imply that firms with large shareholders should have lower dividends than similar firms without large shareholders.

To investigate dividend payout behavior, we calculate dividend payout rates as a function of current earnings for each firm. That is, we look at the rate of voluntary dividend payout as a fraction of current after-tax profits, which represent the available pool of corporate resources that management can either pay out or retain for internal use.

To compare dividend payout rates, we use the same statistical tests as we described in the previous section. We first look at the average difference in dividend payout rates within each industry, comparing firms with and without large shareholders, and take the average of this difference over the industries in our sample. This approach weights each industry equally in the test. Next, we standardize dividend payout rates within each industry by the industry mean, and pool observations across industries. This comparison weights each firm equally.

Tables 6.4 and 6.5 present summary data on the dividend payout rates across our sample of industries. Payout data for firms with and without large shareholders are given in table 6.4. Table 6.5 presents summary tests for differences in payout rates. The presence or absence of large shareholders seems to make no significant difference in dividend payout rates across either opaque or transparent industries. (We have not investigated the tax status of large shareholders, which might make them more or less eager than the average shareholder for dividend payouts.)

Along the lines of our earlier discussion, these results are open to several interpretations. They certainly do not imply that large shareholders and dividend payouts are alternative forms of monitoring. The results are consistent with the hypothesis that large shareholders enforce higher dividend payouts, but only if the hypothesis is more specifically that large shareholders bring below-average dividend payout levels up to industry norms. The results do suggest, however, that in the presence of a large shareholder, higher dividends do not have a useful role as a signal of higher expected future profits, assuming they perform this function in the absence of such a shareholder. Firms with large shareholders are expected to have differentially higher future profit rates, and this mitigates the need for other financial policies to convey this information to the market.

Table 6.4 Average Dividend Payout Ratios for 286 Firms in 22 Industries

Industry	Payout with Large Holder	Payout without Large Holder	Difference
Apparel	.39	.36	−.03
Building materials	.25	.26	.01
Food processing	.51	.46	−.05
Metal fabricating	.36	.38	.02
Paper products	.31	.25	−.06
Petroleum (integrated)	.37	.43	.06
Publishing	.38	.50	.12
Restaurants	.06	.13	.07
Retail stores	.21	.16	−.05
Telecommunications equipment	.07	.01	−.06
Textiles	.85	.32	−.54
Average			−.05
Standard error			.05
t-statistic			−1.00
	B. Opaque Industries (Difficult to Monitor)		
Aerospace	.26	.22	−.04
Chemical manufacturing	.55	.58	.03
Computer software	.07	.05	−.02
Computers	.20	.02	−.18
Drugs	.44	.25	−.19
Electronics	.13	.12	−.01
Machinery	.26	.34	.08
Medical supplies	.08	.14	.06
Office equipment	.33	.30	−.03
Precision instruments	.03	.14	.11
Semiconductors	.01	.05	.04
Average			−.01
Standard error			.03
t-statistic			−.33

Note: Large holder is defined as a single entity owning more than 15% of outstanding voting stock. Dividend payout ratio is calculated by dividing the last full fiscal year's per share dividend payment by the last full fiscal year's earnings per share.

6.6 Large Shareholders and Capital Structure

How might large shareholders affect corporate capital structure? Conceivably, large outside shareholders may solve the monitoring problem that creates agency costs from debt financing. Specifically, large shareholders' monitoring may ensure that management does not shift the firm's investment policies away from those projects preferred by (and expected by) debtholders. If large shareholders do lower the agency costs of debt in this way, firms with a large shareholder in the ownership pool should have lower costs of debt capital. This, in turn, implies that leverage ratios should be higher for firms with large

Table 6.5 **Comparison of Standardized Dividend Payout Ratios for Pooled Sample of 286 Firms**

Sample	Average Dividend Payout (%)	No. of Firms
	A. Transparent Industries (Easy to Monitor)	
With large shareholder	111.51	53
Without large shareholder	92.56	82
	B. Opaque Industries (Difficult to Monitor)	
With large shareholder	98.02	42
Without large shareholder	100.76	109

Note: t-statistic for hypothesis that there is no difference between the sample means in part A is 1.71; in part B 0.21. Payout ratios were standardized within each industry by dividing each firm's dividend payout ratio by the industry average and multiplying by 100. Dividend payout ratios were calculated for each firm by dividing the last full fiscal year's dividend payout per share by the last full fiscal year's earnings per share.

shareholders than for other firms in the same industries without large shareholders.

However, large shareholders will perform this role only if they have the right incentives. In the United States, national laws prevent some major debtholders (e.g., banks) from also being large shareholders. In addition, institutional investors, who are typically large debtholders and large shareholders, typically administer their debt and equity holdings through different channels. For example, most investment companies offer bond mutual funds and stock mutual funds, but there are relatively few combined funds. Thus, because of these structural problems, it seems unlikely that large shareholders in the United States will have the incentives to solve the agency cost problem for debtholders. In fact, large shareholders may compete against debtholders. If they can push the firm to partially expropriate debtholders, inefficient financial policies will result. But efficiency could be enhanced, for example, if the presence of large shareholders creates a balance of power with debtholders, whose ownership tends to be more concentrated.

A second hypothesis is that, as with dividends, the presence of large shareholders mitigates against the corporation's tendency to assume debt as a signal of differentially better expected future performance. A high level of debt has been seen as a particularly credible signal because it puts management's control of the company directly at risk should they fail to meet the performance guarantee (Ross 1977; Gilson 1989). If the presence of a large shareholder is an effective signal, the firm may be able to avoid additional debt commitments, increasing its financial flexibility while still conveying information about superior future performance to the market.[16]

We test these propositions using our samples of large-shareholder and no-

large-shareholder firms. Once again, to examine differences in leverage we compute two complementary tests for our large-shareholder and no-large-shareholder samples. First, we calculate the difference in leverage within each industry, and then take an unweighted average across industries. This weights each industry equally in the calculation. Next, we standardize statistics and pool all firms in the sample. This weights each firm equally in the average.

Tables 6.6 and 6.7 display these data. Industry-specific ratios are shown in table 6.6, which breaks out firms with and without large shareholders. Table

Table 6.6 **Average Leverage Ratios for 286 Firms in 22 Industries**

Industry	Leverage with Large Holder	Leverage without Large Holder	Difference
	A. Transparent Industries (Easy to Monitor)		
Apparel	.275	.254	−.023
Building materials	.291	.236	−.055
Food processing	.113	.139	.026
Metal fabricating	.219	.260	.041
Paper products	.287	.253	−.034
Petroleum (integrated)	.265	.334	.069
Publishing	.039	.120	.081
Restaurants	.093	.266	.172
Retail stores	.226	.191	−.036
Telecommunications equipment	.085	.185	.100
Textiles	.342	.310	−.032
Average			.03
Standard error			.02
t-statistic			1.50
	B. Opaque Industries (Difficult to Monitor)		
Aerospace	.224	.272	.046
Chemical manufacturing	.123	.125	.002
Computer software	.202	.151	−.050
Computers	.268	.191	−.076
Drugs	.025	.213	.188
Electronics	.188	.179	−.009
Machinery	.182	.250	.068
Medical supplies	.122	.296	.174
Office equipment	.116	.141	.025
Precision instruments	.161	.134	−.027
Semiconductors	.230	.228	−.002
Average			.03
Standard error			.03
t-statistic			1.00

Note: Large holder is defined as single entity owning more than 15% of outstanding voting stock. Leverage ratio for each firm is calculated by dividing the book value of total debt by the book value of total debt plus the market value of equity.

Table 6.7 **Comparison of Standardized Leverage Ratios for Pooled Sample of 286 Firms**

Sample	Average Leverage Ratio (%)	No. of Firms
	A. Transparent Industries (Easy to Monitor)	
With large shareholder	89.80	53
Without large shareholder	106.59	82
	B. Opaque Industries (Difficult to Monitor)	
With large shareholder	91.61	42
Without large shareholder	103.26	109

Note: *t*-statistic for hypothesis that there is no difference between the sample means in part A is 1.71; in part B 1.16. Leverage ratios were standardized within each industry by dividing each firm's leverage ratio by the industry average and multiplying by 100. Leverage ratio for each firm was calculated by dividing the book value of total debt by the book value of total debt plus the market value of equity.

6.7 gives summary and test statistics for the two full-sample tests. These data show no significant difference in average leverage ratio in the presence of large shareholders, in firms with either open or closed information structures. Leverage ratio differences in the presence of large shareholders are small in economic terms.

Large shareholders apparently perform a monitoring function only for equity owners and do not seem to have a positive impact on debtholders, or to reduce the agency costs of debt. This is probably because of the effective separation of equity and debt management in major U.S. financial institutions, which is partially (but not entirely) due to regulatory constraints. Managers of large equity positions are typically not also concemed with the value of large debt holdings, even if the same institution holds a large debt position in the firm in question.

The data also suggest that, consistent with the hypotheses advanced in Section 6.2, the presence of a large shareholder may reduce the need to signal differentially higher future performance through corporate financial policy. Firms in the large-shareholder sample have higher expected earnings growth rates, yet do not signal these rates to the market through leverage ratios.

6.7 Conclusion

This study investigates the effects of large outside shareholders on corporate performance and corporate financial policy. The first portion of the paper presents a theoretical model that reveals the incentives for monitoring by large shareholders and the nature of market equilibrium with monitors. In particular, the presence of large-shareholder monitors is hypothesized to discourage

tilting of performance toward present results. Higher price earnings ratios are the natural result.

Our empirical study employs a sample of firms from 22 industries to test whether the presence of large shareholders is associated with systematic differences in expected earnings growth, dividend payout ratios, or leverage ratios. We break our sample of firms into two types of industries: those in which the information structure of firms makes it possible to monitor management's investment decisions; and those in which outside monitoring, even by a large shareholder, may be exceedingly difficult or impossible. We hypothesize that, if large shareholders are to have a significant effect, it will be seen in the former rather than the latter type of firms.

Overall, we find that in 11 industries with a relatively open information structure, large shareholders are associated with significantly higher expected earnings growth rates. Using earnings/price ratios to measure expected earnings growth, we find about a 10% difference associated with the presence of large holders. This difference is not present in 11 industries with relatively closed information structures, suggesting that these firms are more difficult to monitor. Given that in transparent industries there are also likely to be large shareholders whose primary purpose is not monitoring, our assessed difference is likely to understate the effects of monitoring.

Across all industries in our sample, we find no significant differences in dividend payout ratios in the presence and absence of large shareholders. These results are consistent with the hypothesis that higher earnings prospects are signaled by the presence of large shareholders, and hence that these firms do not need to make higher-than-average dividend payments as an additional signal to the market. The results do not imply that dividends and large shareholdings are alternative forms of monitoring, or that the principal role of large shareholders is to force an increase in dividend payout rates. Nor do they indicate that not paying dividends is necessarily self-dealing on the part of management.

Finally, we find no difference in leverage ratio in the presence or absence of large shareholders for any type of industry that we examine. Once again, this result is consistent with the hypothesis that large shareholders are a substitute form of signal of future performance. In transparent industries, the presence of a large shareholder signals differentially better future performance, and hence there is less need to assume higher than average-debt-loads to alert the market to the good performance prospects. The results also suggest that large shareholders do not lower the agency costs associated with debt financing, by monitoring so as to protect debtholders' interests. This is not surprising, because in the U.S. market large equity and debt holdings are typically managed independently.

Onr data support the view that large holders help to solve an informational problem in capital markets by monitoring management—and not merely during a takeover process. Large but passive long-term holders seem to have a

significant ongoing effect on corporate governance and performance. Large shareholders can be viewed, quite contrary to common public perceptions, as particularly patient investors. By certifying future-oriented information, they allow management to concentrate more on the long term, without demanding that the corporation adopt costly financial strategies involving dividends or debt to signal directly its long-term commitments.

Our empirical results beg a fundamental question, however. If large shareholders significantly improve corporate performance, why do all firms not have a large shareholder? Or, put another way, what motivates large shareholders to take positions in particular firms? Surely if the market were fully efficient, large shareholders would be most likely to take positions in firms that would otherwise exhibit poor performance, thereby bringing their performance closer to industry norms. In this case, with the presence of large shareholders being determined within the process, the systematic performance differences that we have documented might not exist. (If the poor-performance-attracts-large-shareholders phenomenon is significant, our findings understate the contribution of large shareholders.)

Fortunately for our empirical studies, there are widely differing structural incentives for large shareholders to take positions in particular firms. A steeper supply curve, which might come about because substantial new information was regularly supplied to the market, could be a deterrent, as might various aspects of the firm's corporate governance and corporate control profile. For example, large shareholders might be less likely to take positions in forms that bristle with antitakeover devices; if performance deteriorates the large shareholder has little recourse but to sell back down the supply curve. An investigation of what determines the structure of large share ownership constitutes a promising avenue for further exploration of the relationship between share ownership and corporate performance.

Our theoretical discussion suggests that management will have an incentive to tilt earnings toward the present and that outside monitors can ameliorate this distortion. Our empirical analysis does not conclusively prove any particular hypothesis. However, it is consistent with our theory. Firms with large shareholders command lower E/P ratios than those without, which implies a brighter future relative to the present. In the final assessment, large shareholders may free management to pursue beneficial policies. As is often the case, there are strong elements of symbiosis in the relationship between the monitor and the monitored.

Notes

1. Olson (1971) discusses the dilemma that leads voluntary efforts to underprovision when the beneficiaries are small and dispersed.
2. A more refined hypothesis might suggest that some firms would be so transparent

that they can be monitored even by dispersed shareholders, and that large shareholders play their most significant role with relatively, but not fully, transparent firms.

3. In most circumstances, purchases will be made in blocks, pushing up the price of inframarginal shares within each block. If the blocks themselves are small relative to the total purchase, this effect will not be significant.

4. For evidence that this does indeed occur, see Pound and Zeckhauser (1990), Mikkelson and Ruback (1985), and Holderness and Sheehan (1985).

5. The discrete version of (3) is $(n - 1)[V(n) - V(n - 1)] \geq P(n) - V(n)$.

6. We recognize that this result may appear counterintuitive to some potential large shareholders. All of the essential points in our model obtain even if large shareholders do not purchase beyond the point (if any) where value falls below price. In the diagram shown, this restriction would exclude a large shareholder even though his participation would be profitable. Even when value exceeds price at some point, there is likely to be a minimum purchase required to break even because there is an initial range in which purchases lose money.

7. A typical 10K form will list a variety of stock options and pension benefits as well as salary. Salary captures the most attention and is most easily interpreted. Hence we suspect that compensation is increasingly being provided through indirect means.

8. For a recent discussion of the hypothesis that management may focus on the short term, see Stein (1988, 1989).

9. We should make clear that the market is not "fooled" by this tilting; it expects managers to operate with a higher effective discount rate than would shareholders. Moreover, if a manager could demonstrate a future orientation, leaving dividends aside, this would raise the present stock price. The rate of appreciation in the stock price, however, would be no different from that for a company with fiercely present-oriented managers.

10. This formulation is purely for illustration. This would be the objective of a risk-neutral manager who was paid a bonus in proportion to earnings and, if fired, would receive the same salary elsewhere, but would have no bonus prospects.

11. In practice some elements contributing to the prospects of the firm can be monitored more easily than others. Retained earnings or a new building are easy to observe. Improved employee training or better relations with customers are less evident. Our theory would suggest that when providing for the future, managements would focus disproportionately on benefits that can be observed, then on those that can be inferred, and finally on those that are not revealed.

12. For an analysis of inside ownership and market valuation, see Morck, Shleifer, and Vishny (1988).

13. Some of the ideas outlined in this section are treated in greater detail in Zeckhauser and Marks (1989).

14. Our original analysis included a twenty-third industry, Canadian energy, which was subsequently deleted because the Compustat files on which we base our R&D/sales criterion include no separate industry classification for these firms. Assuming that this industry would have an R&D/sales ratio roughly in line with that for U.S. petroleum, it would belong in our transparent sample. Its inclusion would strengthen our results. Canadian energy has an E/P ratio with large shareholders of 8.88, an E/P without large shareholders of 13.52, producing a difference of 4.64, which is by far the largest difference among the industries in our sample.

15. It is true, however, that if the future is bright, then ceteris paribus, both management and shareholders would wish to pay out lower dividends and concentrate on investment. Thus, if dividends are used to signal, this use may conflict with the optimal full-information strategy of the company.

16. In contrast to the situation with dividends, brighter future prospects mean that greater leverage is less costly. Leverage signaling, in effect, cuts in the right direction.

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