Corporate Governance and Competition

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Abstract

The corporate governance systems operating in different countries are distinct. In the U.S. and U.K., it is often argued that the threat of takeover ensures managers act in the shareholders' interests. In countries such as Germany, Japan and France, it is suggested banks and other institutions act as monitors. There is some evidence that neither system is particularly effective. We argue that competition among firms may be more effective than either of these mechanisms in ensuring that resources are used efficiently.

1 Introduction

In most countries, managers of corporations are legally responsible to the shareholders. In their seminal contribution on the separation of ownership and control, Berle and Means (1932) argue that in practice managers do not pursue the interests of shareholders. Instead they pursue their own interests, which results in waste and inefficiency. The contrast between the legal rights of shareholders and the de facto control of managers highlighted by Berle and Means led to the development of the agency approach to corporate governance (see, among others, Coase (1937), Jensen and Meckling (1976), Fama and Jensen (1983a,b) and Hart (1995)). An excellent survey is contained in Shleifer and Vishny (1997).

The agency theory of corporate governance focuses on the question:

"*How can shareholders ensure that managers pursue the shareholders' interests.*"

We argue that this focus is much too narrow. A comparison of governance mechanisms in different countries and in different sectors of the economy suggests that an alternative approach is called for.

In Section 2, we review the actual operation of corporate governance in the U.S., U.K., Germany, France and Japan. In the U.S. and U.K., the mechanisms for ensuring that managers operate in the interests of shareholders are the strongest. The main internal governance system is the board of directors; the main external governance system is the market for corporate control. The effectiveness of both mechanisms has been widely questioned. There seems to be some evidence, particularly in recent years, that boards of directors are dominated by management and by the CEO in particular. Although stock market prices of acquirors and acquirees rise in aggregate when mergers and takeovers are announced, there is mixed evidence from studies of the ex post profitability of acquisitions based on accounting data regarding the effectiveness of takeovers in improving corporate performance.

The Japanese system of corporate governance lies at the other end of the spectrum from the U.S. and U.K. The expressed goal of managers in Japan is to pursue employment stability for workers rather than dividends for shareholders. The standard corporate governance mechanisms (the board of directors and the market for corporate control) exist in Japan; but their operation in practice has not successfully promoted the objective of implementing value creation for shareholders. The board of directors is typically a large, unwieldy group dominated by insiders. The prevalence of crossholdings of shares in Japan means that, even though there are no legal impediments, hostile takeovers do not occur in practice. It has been widely argued that the main bank system is a substitute for the standard Anglo-American corporate governance systems. This system involves a large bank, which is a major provider of funds to the firm, being responsible for monitoring its activities and ensuring the funds borrowed are efficiently invested. However, in practice the main bank only intervenes in times of financial crisis. Apart from this corporations are effectively autonomous and there is little if any pressure for performance through standard governance mechanisms.

Germany and France occupy an intermediate position between Japan, on the one hand, and the U.S. and U.K., on the other. In Germany and France, the interests of shareholders are supposed to be pursued by management, but not exclusively. The interests of

other stakeholders, in particular employees, are also important. In Germany, the system of co-determination formalizes this balance of interests and both the shareholders and the employees are represented on the supervisory board. In France, the attendance of employee representatives at board meetings as observers and extensive government ownership of industry has had a similar effect. In both countries, complex patterns of share ownership by holding companies and cross shareholdings severely limit the market for corporate control, as they do in Japan. Although hostile takeovers are legally permissible, they are very rare. Monitoring by financial institutions also appears to be limited. As in Japan, the explicit governance mechanisms to ensure corporate performance are weak.

Corporations represent only one type of economic organization. Non-profit organizations, which represent a significant portion of economic activity in all the countries considered, provide a particularly interesting example. They are the organizations which perhaps have the least outside discipline on their governance. Despite this lack of outside discipline, in many cases non-profit organizations compete directly and successfully with for-profit corporations.

At a broad-brush level, corporations in all the countries considered perform well and each country has examples of global leaders. The fact that the effectiveness of corporate governance mechanisms in ensuring corporate performance in Japan, Germany and France in particular is limited, together with the range of successful non-profit organizations in the U.S. and U.K. suggests that other factors are important. In Sections 3-5, we examine the role of competition in product markets as an alternative mechanism for ensuring corporate performance. The traditional view discussed in Section 3 is that competition from profit-maximizing firms will reduce managerial slack by forcing managerial firms to match the performance of entrepreneurial (profit-maximizing) firms. In Section 4 we shift the focus away from moral hazard (managerial slack) toward the question of which managerial team is most effective at using resources. In this view, competition serves to reveal managerial quality (through relative performance) and eliminate ineffective managements. It is not necessary to take over the inefficient firm in order to replace the management; its market can be taken over instead. In this way, competition provides a substitute for explicit governance mechanisms such as the market for corporate control. Section 5 provides a formal model of how competition works in this way.

Finally, Section 6 contains concluding remarks.

2 Different Concepts of the Firm

This section starts with a discussion of the legal definitions of the firm in the five countries. The second subsection looks at regulatory restrictions on share ownership and the resulting differences across countries. The third subsection considers the governance mechanisms analyzed in the literature and the fourth subsection contains a discussion of whose interests are pursued in practice. The final subsection considers non-profits and mutuals. Much of the information that is used comes from Charkham (1994), Prowse (1995) and from the 1996 report of a study group at The Institute of Fiscal and Monetary Policy of the Japanese Ministry of Finance.

2.1 Legal definitions of the Corporation

The precise legal details of the corporation differ somewhat across countries. The company law of the U.S. is similar to the company law of the U.K. because they share a common origin. The managers in both countries have a fiduciary duty to the shareholders. In other words, they have a strong legal requirement to act in the interests of shareholders. A classic illustration of this is provided by a case involving the Ford Motor Company early on in its history. Henry Ford announced a special dividend but said that it would be discontinued in the future in order to allow funds to be diverted for the benefit of employees. One of the major shareholders sued on the grounds that the corporation exists for the benefit of shareholders and the management did not have the right to pursue the interests of workers. The Ford Motor Company lost the case. (Subsequently it appeared that Henry Ford's announcement was designed to manipulate the stock price so that he could purchase blocks at a lower level than would otherwise be necessary!)

The channel through which shareholders exercise control of company affairs is the board of directors. The board is elected by the shareholders, typically on a one share-one vote basis. Sometimes multiple classes of shares exist, the main difference between classes being the number of votes each share has attached to it. The board of directors consists of a mix of outside directors and inside directors, the latter being the top executives of the firm. It is rare that the Chief Executive Officer (CEO) is not on the board. In both the U.S. and U.K. the CEO often acts as chairman as well. Once elected the board of directors specifies the business policies to be pursued by the firm. The role of management is to implement the policies determined by the board. Shareholders have very little say in the affairs of the company beyond electing directors. For example, it is the directors who decide on their own compensation, without any input from shareholders. A committee of outside directors determines the senior management's compensation. Except in unusual circumstances, such as a proxy fight, the outside directors are nominated by the incumbent management and thus typically owe their allegiance to the CEO. Table 1 shows the total number of directors and (in parentheses) the number of outside directors for a typical sample of large firms in each of the countries. The size of boards is roughly the same in the U.S. and the U.K., usually around 10-15 people. In the U.S., a majority are typically from outside the firm while in the U.K. a minority are from outside.

The U.S. Occupation Forces had a heavy influence on the development of the Japanese legal system and the structure of its institutions after the Second World War. As a result, Japan resembles the U.S. in terms of the legal form of corporations. Some important differences do exist, however. Historically, nonfinancial corporations faced elaborate restrictions which prevented them from establishing holding companies. One of the changes in the reform of the Japanese financial system, the so-called Big Bang, is to allow nonfinancial corporations to form holding companies. The rights of Japanese shareholders are in theory greater than those of shareholders in the U.S. and U.K. For example, in Japan it is easier for shareholders to nominate directors directly and to elect them. Also, management remuneration must be decided at general meetings of shareholders. These differences in rights and the role of the shareholders meeting has led to a unique feature of Japanese corporate life, namely, the

sokaiya. The *sokaiya* are racketeers who demand payments in exchange for not disrupting shareholders meetings.

Despite these differences in shareholders' rights, the structure of Japanese boards of directors is such that shareholders do not in fact have much influence. It can be seen from Table 1 that the size of Japanese boards is much larger than in other countries. There are a handful of outside directors, but they have very little influence. The overwhelming majority of directors are from inside the company. Their number is such that they include many people in addition to the most senior members of management. The nominations of individuals for positions as a director are essentially controlled by the company's CEO. This together with the unwieldy size of the board and its composition means CEOs hold tremendous power. Provided the financial position of a Japanese corporation is sound, it is essentially the CEO and those closest to him who control the company's affairs.

Germany has a very different type of governance structure than the U.S., U.K. or Japan. This is the system of *co-determination,* which has a long history. Pistor (1996) argues it arose in the late nineteenth century from an attempt to overcome the contradiction between the reality of industrialization and liberal ideas about the self-determination and the rights of individuals. Its legal origins date from 1891 when an amendment to the law on entrepreneurial activities (*Gewerbeordnung*) provided that workers' councils could be established on a voluntary basis. The Weimar Constitution formally recognized co-determination but the principle was suppressed by the Nazis. It steadily reemerged after the Second World War and currently the most important legislation governing it is the Co-determination Act (*Mitbestimmungsgesetz*) of 1976. This generally applies to companies with more than 2,000 employees.

Firms to which the Act applies have two boards, the supervisory board and the management board. The supervisory board is the controlling body. As outlined in Schneider-Lenné (1992) and Prowse (1995), half of its representatives are elected by shareholders and half by the employees. The shareholders' general meeting elects the shareholder representatives. Two-thirds of the employee representatives work for the company while the other third are trade union representatives. The supervisory board elects a chairman and deputy chairman from its members. A majority of two thirds of the votes is required for a candidate to be elected. If this is not attained in two polls, the shareholders elect the chairman from among themselves and the employee representatives similarly elect the deputy. As a result, the chairman is usually from the shareholder side while the deputy chairman is from the employee side. In the event of a tie in the voting of the supervisory board the chairman has a casting vote. It is in this sense that shareholders have ultimate control. However, members of the supervisory board legally must represent the interests of the company as a whole and not just the groups they represent. It can be seen from Table 1 supervisory boards are typically just over 20 people in size and so are slightly bigger than boards in the U.S. and U.K. but smaller than in Japan.

The management board is appointed by the supervisory board. Nobody can be a member of both boards and cross-company board memberships are restricted. The management board is responsible for the operation of the company while the supervisory board super-

vises its activities. The management board provides information to the supervisory board. This can obviously lead to abuse, because the management has an incentive to distort the information it provides to make the firm appear more successful than it actually is. This problem is often mitigated by the fact that the chairman of the supervisory board is a retired former CEO of the company, with wide experience of its operations and many informal contacts. Table 1 shows that the management board is usually fairly small, smaller than the supervisory board and the boards in other countries.

The German system provides an interesting contrast to the Anglo-American and Japanese systems. It is often argued that the dual board system better represents outside shareholders and ensures management must take account of their views. In addition, employees views are also represented and their bias is presumably to ensure the long run viability of the firm.

The French system contains elements of both the Anglo-American and the German systems. Firms can choose from two types of boards of directors. The first type, which is more common, is single-tiered as in the Anglo-American system. The board elects the président directeur-général (PDG), who is like a CEO but is more powerful. He or she has the sole right to 'represent' the company and is the only person who can delegate this power. Single-tiered boards mostly consist of outside directors who are shareholders and representatives from financial institutions with which the firm has transactional relationships. As in the Anglo-American model the board determines business policies which are then carried out by the PDG and management.

The second type of board has two tiers, as in Germany. The conseil de surveillance is like the German supervisory board except that employees do not have the right to representation. However, one unique feature of the French system, which makes it more akin to the German one, is that whichever type of board the firm has, the workers' representatives have the right to attend board meetings as observers in all companies with at least 50 employees. The conseil de surveillance appoints the directoire who have responsibility for the management of the company. One of the members of the directoire is designated président de directoire by the others.

It can be seen from Table 1 that the size of French boards is roughly similar to the U.S. Complete or partial government ownership of corporations is more common than in other countries and, as Table 1 indicates, in some cases this leads to government representation on boards.

2.2 Regulatory restrictions and the pattern of share ownership

In addition to having different legal structures for the firm, different countries also place different restrictions on the holding of shares by financial institutions and nonfinancial corporations. Table 2 summarizes these restrictions. These restrictions have had important implications for the countries' patterns of share ownership, which are shown in Table 3.

Restrictions on institutional holdings of shares are one area where the U.S. differs significantly from the U.K. In the U.S., the Glass-Steagall Act prevents banks from holding equity stakes in companies except in unusual circumstances, such as when the firm has gone

bankrupt. Insurance companies are regulated by state laws. New York State regulations affect a large proportion of companies, not only because many companies are headquartered there, but also because other states tend to follow New York's lead. Historically, New York regulations prevented insurers from holding any equity. However, in more recent times, life insurance companies have been able to hold a limited amount. To ensure diversification, mutual and pension funds are also restricted in the amount of any single stock they can own. It can be seen from Table 3 that these regulations have meant that the pattern of share ownership in the U.S. is significantly different from the pattern in other countries. Only a small amount of equity, 5%, is held by financial institutions whereas in the other countries the average holding is 29%. Instead, the proportion owned by individuals is much higher than elsewhere and the proportion owned by mutual and pension funds is higher than in Japan, Germany and France. The main restriction on the holding of shares by nonfinancial corporations is the requirement that this not restrict competition in any way. This has been interpreted fairly strictly. In a famous case, the Supreme Court forced Dupont to sell its 25% holding in General Motors and cut all other ties. The U.S.'s 14% ownership of shares by nonfinancial corporations is much lower than for Japan, Germany and France, but it is comparable to the U.K.

It can be seen from Table 2 that the U.K. has far fewer formal regulations than the U.S. does. Banks can hold equity if they wish and need only obtain permission from the Bank of England if they are purchasing large blocks. Insurance companies are only limited by the need to diversify, which is a self-imposed limitation. With regard to holdings of nonfinancial corporations, the only limitation is that firms must not hold each other's shares to prevent a transfer of control. This lack of regulation in the U.K. creates a pattern of ownership in which financial institutions hold more and individuals less relative to the U.S. Compared to Japan, Germany and France, the holding of shares by nonfinancial corporations is much less and the holdings of pension funds much greater in the U.K..

As Tables 2 and 3 indicate, Japan, Germany and France are all somewhat similar in terms of the regulatory restrictions on shareholdings and the patterns of ownership. In all three countries banks can hold the equity of companies. There are regulations on the proportions of the equity of firms that banks can hold in Japan. In Germany and France there are restrictions on holdings of equity relative to bank capital. As mentioned above, holding companies were traditionally not permitted in Japan. In Germany and France there are limitations on the percentages of firms that can be owned.

Complex interactions of holding companies occur in both Germany and France. Van Hulle (1996) contains an account of European holding groups. In Japan, the interactions in terms of crossholdings are relatively simple. Figure 1 from Prowse (1995) shows the ownership tree of Daimler-Benz AG. Here the nature of the interactions between firms are necessarily somewhat more subtle than in Japan because of their complexity, but have similar effects.

2.3 Governance mechanisms

There are a number of ways in which the main issue of how shareholders can ensure managers act in their interests, has been answered in the literature. The most important of these are the following.

(i) The board of directors.
(ii) Executive compensation.
(iii) The market for corporate control.
(iv) Concentrated holdings and monitoring by financial institutions.
(v) Debt.

We consider each of these in turn.

(i) The board of directors

The board of directors is, in theory at least, the first method shareholders have to control managers and ensure the company is run in their interest. As discussed in Subsection 2.1 above, the way that boards are chosen and structured differs in significant ways across countries. In the U.S. and U.K. shareholders elect directors and have to rely on them to set business policies and supervise management. A balance of inside and outside directors on the board is supposed to ensure the board is at the same time knowledgeable about the company and independent from management. The extent to which this theory works in practice is widely debated. Since management, and in particular the CEO, effectively determines who is nominated for the board it is not entirely clear that the board is as independent as it might be. Mace (1971), Weisbach (1988) and Jensen (1989) document the weakness of U.S. boards in disciplining managers. Bhagat and Black (1998) survey the literature on the relationship between board composition and firm performance. The evidence indicates that firms with a majority of independent directors on their board do not perform better than firms without such boards. However, it does seem that having a moderate number of inside directors is associated with greater profitability.

In Japan the independence of the board of directors is mitigated by the large size of boards, the very limited number of outside directors, and the extreme power of the CEO to determine nominations for directors. Even though shareholders in theory have more power to control the board of directors than in other countries, this does not mean much in practice.

The two-tiered nature of German boards represents an attempt to formalize the different roles of outside and inside directors, since the supervisory board consists of people outside the current management while the management board consists of serving managers. Informational problems are minimized by including former managers on the supervisory board, though this dilutes the independence of the supervisory board. If the supervisory board contains former managers, how independent from current management can it be? Typically, the current management will have been chosen by the former management and many of the policies they will be implementing will have originated with the previous regime. There is also the complication that the supervisory board has employee representatives. It is interesting to note that in France, where both single-tiered and two-tiered boards are allowed, single-tiered boards tend to predominate.

Although the structure of boards is so different across countries, the limited empirical evidence available suggests that they are equally effective or ineffective at disciplining management. Kaplan (1994a,b) has conducted studies of the relationship between management turnover and various performance measures in Japan, Germany and the U.S. His findings indicate a similar relationship in each of the countries. Kang and Shivdasani (1995) confirm these results for Japan and also provide evidence on the effectiveness of different types of governance mechanisms. Among other things, they find that the presence of outside directors on the board has no effect on the sensitivity of top executive turnover to either earnings or stock-price performance. In contrast, concentrated equity ownership and ties to a main bank do have a positive effect. For Germany, Franks and Mayer (1997) find a strong relationship between poorly performing companies and turnover on management boards, but not with turnover on supervisory boards.

(ii) Executive compensation.
An additional method of ensuring that managers pursue the interests of shareholders is to structure compensation appropriately. Diamond and Verrecchia (1982) and Holmstrom and Tirole (1993) have developed models where the interaction of capital markets and contingent compensation achieve this. Provided investors have an incentive to gather information and stock market prices partially reflect this, incentives can be provided by making managers' compensation depend on the company's share price. Examples of the form which this dependence can take are direct ownership of shares, stock options and bonuses dependent on share price. Provided share prices contain enough information about the anticipated future profitability of the firm, effective automatic incentive systems can, in theory, be designed to ensure that managers maximize shareholder wealth.

Share prices are not the only contingency that can be used to motivate managers. Accounting-based performance measures are also frequently used. The advantage of the share price is that it is not as easily manipulable by management as accounting data. In addition to making compensation directly contingent on the share price, there is the possibility of dismissal for bad performance. If other firms perceive that the performance was due to incompetence, the manager may find it difficult to find another job. On the other hand, managers who perform extremely well may be bid away at higher compensation levels to other companies. The managerial labor market thus also plays an important part in providing incentives to managers.

In addition to providing incentives for increased effort, contingent compensation may have another, less desirable, effect. If executive compensation is sensitive to the share price and executives have limited liability, they will have an incentive to take excessive risks. They benefit greatly from good performance but the penalty they bear for poor performance is limited.

There has been some debate about the optimal sensitivity of executive compensation to the share price in practice. Jensen and Murphy (1993) confirm previous findings of a positive relationship between executive pay and performance in the U.S. and estimate CEO compensation varies by about \$3 for every \$1,000 change in firm value. They suggest that this

figure is much too small. Haubrich (1994) has calibrated an appropriately designed principal agent model which takes into account risk aversion and argues that a small sensitivity is optimal for reasonable parameter values. For other countries, the number of empirical studies is small. Kaplan (1994a,b) considers the sensitivity of pay and dismissal to performance in Germany and Japan. He finds that Germany and Japan are similar to the U.S. in this respect.

The dramatic increase in executive compensation in the U.S. in recent years, partly in response to arguments such as those of Jensen and Murphy, has led to the opposite concern of whether boards of directors have been captured and are paying themselves exorbitant amounts. It is interesting to note that there is a considerable difference in levels of compensation across countries. In the U.S., executive compensation is very high. At the other extreme, Japan executives appear to make a small fraction of what their counterparts in the U.S. do. The European countries lie in between these two extremes.

(iii) The market for corporate control

Manne (1965) argues that an active market for corporate control is essential for the efficient operation of capitalist economies. It allows able management teams to gain control of large amounts of resources in a small amount of time. Inefficient managers are removed and replaced with people who are better able to do the job. The existence of a market for corporate control also provides one means of disciplining managers. If a firm is pursuing policies which do not maximize shareholders' wealth it can be taken over and the managers replaced.

There are three ways in which the market for corporate control can operate, through proxy contests, friendly mergers and hostile takeovers. Proxy contests involve a group of shareholders trying to persuade the remaining shareholders to act in concert with them and unseat the existing board of directors. For example, if someone wishes to change a firm's policies, he can have himself and others with similar views voted onto the board of directors at a shareholders meeting. In order to do this, he solicits proxies from other shareholders which allows him to vote their shares. Proxy fights are usually difficult to win because holdings are often spread among many people. As a result, they do not occur very frequently in any of the countries under consideration. Recent theoretical analyses of proxy fights, which throw some light on the problems involved with shareholder voting, are Bhattacharya (1997), Yilmaz (1997) and Maug (1998).

Friendly mergers occur when both firms agree that combining them would be value creating. In this case there are a number of ways that the transaction can occur. There may be an exchange of stock or one firm may make a tender offer for the other's stock. Friendly mergers and takeovers occur in all the countries under consideration and account for most of the transaction volume that occurs. Prowse (1995) reports that in the U.S. friendly transactions constituted 82.2% of transactions, in the U.K. 62.9% and in the rest of Europe 90.4%.

The third way in which the market for corporate control can operate is through hostile takeovers. These occur when there is conflict between the acquirors and acquirees over the

price that should be paid, the effectiveness of the policies that will be implemented and so forth. Hostile tender offers allow the acquirors to go over the heads of the target management and appeal directly to their shareholders. This mechanism is potentially very important in ensuring an efficient allocation of resources in the way Manne (1965) suggests. However, as Hansmann (1996) points out, hostile tender offers first appeared in 1956 and were not widely used until the 1960's, so they are a relatively recent innovation. Corporations with widely held shares were a commonplace for many decades before that. It is not clear that hostile tender offers have induced a significant change in the efficiency with which corporations are managed.

Grossman and Hart (1980) have pointed to a problem with the operation of the takeover mechanism of corporate governance which may help to explain why takeovers are not more effective in disciplining management. Existing shareholders will have a strong incentive to free ride on raiders who plan to increase the value of the firm. If the price offered by the raider is below the price that the new policies will justify and the shareholder believes that the offer will succeed, then it is better for him to hold the shares than to tender them; but then every shareholder should hold onto the shares and the offer cannot succeed. On the other hand, if the shareholders believe that the offer will not succeed, they should tender their shares; but then the offer will succeed and, again, these beliefs are inconsistent with equilibrium. The only equilibrium is one in which the raider's offer price is equal to the price the new policies will justify. The problem is that in this equilibrium the raider's profit is zero before allowing for any costs incurred in undertaking the bid. If these costs are included, the profit will be negative and there will be no incentive to undertake any takeovers.

A number of solutions to the free-rider problem have been suggested. Grossman and Hart's (1980) solution is that corporate charters should be structured so that raiders can dilute minority shareholders' interests after the takeover occurs. This means the raider can offer a price below the post-takeover value of the firm to him and the bid will still succeed. Existing shareholders know that if they retain their shares, the raider will dilute their interest. Shleifer and Vishny (1986) pointed out that if the raider can acquire a block of stock before attempting a takeover at the low pre-takeover price there will be a profit on this block even if all the remaining shares are purchased at the full price justified by the raider's plans. Burkart (1995) shows that it is privately optimal for a large shareholder to overbid and this results in an inefficient equilibrium.

In addition to the Grossman and Hart free rider-problem, there are a number of other problems with the operation of the market for corporate control. A second problem arises because of competition among bidders. Suppose there are substantial (sunk) costs of identifying a takeover target initially. Once the takeover bid is announced other raiders will realize it is an attractive target and will bid. This competition will eliminate any profits by ensuring the target will sell at its full value. This means the initial bidder will realize a loss if the initial costs of identifying the target are taken into account. Unlike the free-rider problem, allowing ex post dilution will not have the desired effect of providing an incentive for takeovers. Competing raiders will take into account the benefits of dilution and include them in their bids. In contrast, owning a block of stock purchased at the pre-takeover price

will allow a raider to make a profit.

A third problem in the operation of the market for corporate control is the possibility of management entrenchment. Managers may be incompetent and want to prevent a takeover to preserve their jobs. There are a number of ways they can achieve this. First, they have a significant informational advantage over outsiders. For example, they may plausibly claim the raider is not offering enough and the firm would be better to continue under current policies or wait for another bidder. Secondly, there are a number of anti-takeover tactics that they can use. Examples in the U.S. are poison pills, staggered election of directors and dual class recapitalizations. Poison pills involve issuing rights to shareholders to buy stock in the company at a significantly reduced price in the event of a takeover. Staggered election of directors ensures that only a fraction of directors, often one third, can be replaced in any year. So, even if a raider acquires all the votes, it will still take some time to acquire control of the board. Dual class recapitalizations involve issuing a second class of share with superior voting rights and requiring they be exchanged for regular shares before being sold. This ensures votes become concentrated in managers' hands.

Despite all these problems, hostile takeovers do occur fairly frequently in the U.S. and U.K. Prowse (1995) points out that in the U.S. almost 10% of companies in the Fortune 500 in 1980 have since been acquired in a transaction that was hostile or started off as hostile. For the U.K., Franks and Mayer (1992) report that there were 35 successful hostile bids made over two years in the mid-1980's. This is much higher than in Germany, France or Japan. In Germany, Franks and Mayer (1993) report that there have only been three hostile takeovers between 1945 and 1994 and document them. Franks and Mayer (1997) document a substantial market in share stakes, but their analysis suggests such sales do not perform a disciplinary function. In Japan, Kester (1991) argues that there were no hostile takeovers among large firms in the 1945-1994 period. In France, hostile takeovers are also rare.

Why are there such differences in the number of hostile takeovers between the U.S. and U.K., on the one hand, and France, Germany and Japan, on the other? A common belief is that it is because of regulatory restrictions. In fact, there are few explicit restrictions on takeover attempts in Germany, France or Japan. In some ways, the regulations are more conducive to takeovers than in the U.S. and U.K. For example, in Germany the threshold at which a large equity stake must be disclosed is 25% compared to 5% in the U.S. and U.K. This means that the barriers caused by Grossman and Hart's free rider problem and competition among bidders should be less significant in Germany than in the U.S. and U.K.

A more plausible explanation for the difference in the occurrence of takeovers across countries is the prevalence of cross shareholdings in Japan and the structure of holding companies and cross shareholdings in Germany and France. The structure of ownership in these countries makes it difficult to acquire the number of shares necessary for a takeover.

Another important question is the extent to which the market for corporate control leads to an improvement in efficiency in the way Manne's (1965) argument suggests it should. There have been numerous empirical studies of takeovers in an attempt to understand whether they create value. Jensen (1993) estimates the total increase in the stock market value of target firms in the U.S. from 1976-90 to be $750 billion. It seems that the

increase in value for bidding firms was zero and possibly even negative. Overall, the stock market data suggests that total value (i.e., the sum of the target and bidding firms' values) did increase significantly. There is an issue of whether this was caused by the mergers and takeovers or was simply a reflection of a previous undervaluation in the stock market. Another possibility, suggested by Shleifer and Summers (1988), is that gains from takeovers may be the result of violating implicit contracts with workers and other suppliers.

A number of studies have attempted to use accounting data to identify the reason why the value of the targets increased. For example, Ravenscraft and Scherer (1987) and Herman and Lowenstein (1988) have found little evidence that operating performance improves after takeovers. Franks and Meyer (1996) analyzed a sample of U.K. firms and found that hostile takeover targets did not underperform before acquisition, but were subject to the redeployment of assets afterwards. There are some studies, such as Kaplan (1989), Bhagat, Shleifer and Vishny (1990), Kaplan and Weisbach (1991) and Healey, Palepu and Ruback (1992; 1997) that do find changes and improvements in operations that can at least partially explain takeover premia. So, the evidence is mixed.

(iv) Concentrated holdings and monitoring by financial institutions

Stiglitz (1985) has argued that concentrated ownership of the firm's shares is one of the most important ways through which value maximization by firms can be ensured. At one extreme, a single person or family owns the firm and there are significant incentives to maximize its value. At the other extreme, shares are held by a large number of people, no one of whom holds a large stake. In this case, nobody has an incentive to monitor the management and ensure they are running the firm in the shareholders' interests. In the intermediate case, where one or more shareholders owns a large stake and many small shareholders hold a few shares, the large shareholders may have an incentive to monitor the firm's management and ensure it maximizes share value.

A number of recent theoretical analyses have considered important aspects of concentrated ownership. Burkart, Gromb and Panunzi (1997) consider the costs and benefits of monitoring by large shareholders. They show that such monitoring may restrict the misuse of resources ex post but may also blunt ex ante managerial initiative. There is a trade-off between control and initiative. Bolton and von Thadden (1998a,b) develop a framework to analyze the trade-off between liquidity and control. Ownership of a large block provides incentives to monitor, but also leads to a lack of liquidity. Pagano and Röell (1998) consider the trade-off between public and private ownership and monitoring. With private ownership, there is monitoring because of shareholder concentration, but no liquidity. Public ownership results in the costs of going public and less monitoring, but greater liquidity.

The differences in concentration of share ownership in the different countries are illustrated in Table 4. This shows the percentage of outstanding shares owned by the largest five shareholders in the U.S., U.K., Japan and Germany for a sample of large nonfinancial companies. The U.S. and U.K. have relatively low concentration, while Japan and particularly Germany have a high concentration. Table 5 shows the frequency of majority ownership and identity of the majority shareholder. In the U.K. in particular, and the U.S. to some

extent, majority ownership is mainly due to family and individual holdings of large blocks. Often the founding family retains a significant amount of the shares after the firm has gone public. In Japan, majority ownership is less frequent. The difference there between the concentration indicated by the largest five shareholders and majority ownership is probably due to the fact that holdings by banks and insurance companies of the shares in any one firm are restricted to 5% and 10%, respectively. In Germany, majority ownership, like the holdings of the largest five shareholders, is particularly high.

The importance of equity ownership by financial institutions in Japan and Germany and the lack of an effective market for corporate control has led to the suggestion that the agency problem in these countries is solved by financial institutions acting as the outside monitor for large corporations.

In Japan, this system of monitoring is known as the *main bank system*. According to Teranishi (1994) and Hoshi, Kashyap and Loveman (1994) this system grew out of the close relationships between banks and firms that were fostered by the way credit was allocated during the war. The main characteristics of this system are the long-term relationship between a bank and its client firm, the holding of both debt and equity by the bank, and the active intervention of the bank should its client become financially distressed. It has been widely argued that this main bank relationship ensures the bank acts as delegated monitor and helps to overcome the agency problem between managers and shareholders. Hoshi, Kashyap and Scharfstein (1990a, 1990b, 1993) provide evidence that the main bank system helps firms by easing liquidity constraints and reduces agency costs. They also document that firms reduced their bank ties in the 1980's as access to the bond market became easier. In contrast, Hayashi (1997) finds no evidence that main bank ties ease liquidity constraints. He suggests Hoshi, Kashyap and Scharfstein's results are probably due to the poor quality of their capital stock estimate. Kang and Shivdasani (1997) find that companies restructure to a greater extent in response to adverse circumstances the greater the ownership of the main bank. Aoki and Patrick (1994) contains a number of studies suggesting that until recently the effectiveness of the main bank system has been high. A dissenting view is contained in a paper by Ramseyer (1994) who suggests that the traditional emphasis in the literature on the importance of this system in achieving effective corporate governance is too strong. He argues that if the system really worked in the way described, explicit contracts should be used much more than they are in practice. Overall, the main bank system appears important in times of financial distress and less important when a firm is doing well.

In Germany, the data on concentration of ownership probably understate the significance of the banks' effective position. The reason is that many bank customers keep their shares 'on deposit' at banks and allow banks to exercise proxies on their behalf. As a result, banks control a higher proportion of voting equity and have more representation on boards of large industrial enterprises than their direct holdings suggest. A 1978 Monopoly Commission study found that, of the top 100 corporations, banks controlled the votes of nearly 40 percent of the equity and were represented on two thirds of the boards. German banks thus tend to have very close ties with industry and form long-run relationships with firms. This is known as the *hausbank* system. A number of studies have provided evidence on the effectiveness of

the outside monitoring of German banks. Elston (1993) finds firms with strong ties to a bank are not as tightly liquidity-constrained as firms with weaker ties. Cable (1985) and Gorton and Schmid (1996) find evidence that firms with a higher proportion of equity controlled by banks do better. This evidence is consistent with the hypothesis that bank involvement helps firms.

A number of issues arise in evaluating the effectiveness of banks as outside monitors in Japan and Germany. The first is that banks are themselves subject to the same agency problems as firms. Charkham (1994; p.36) points out that, in effect, the big three banks essentially control themselves: "At general meetings in recent years, Deutsche Bank held voting rights for 47.2 percent of its shares, Dresdner for 59.25 percent and Commerzbank for 30.29 percent". In addition, other large shareholders are often widely held themselves. Schreyögg and Steinman (1981) compare a sample of 300 large German firms according to whether there is concentration in terms of direct ownership or ultimate ownership taking into account the holding company structure. They find that in terms of ultimate ownership there is significantly less concentration. The problem is illustrated by Figure 1. Although it would appear at first sight that Daimler-Benz has concentrated ownership, the block shareholders are themselves held by groups of small shareholders.

Diamond (1984) has referred to this as the problem of "Who monitors the monitor?". In his model he suggests intermediaries can overcome this problem by having a diversified portfolio and promising a fixed return to depositors. If the intermediary does not monitor, then it will be unable to pay the promised return to depositors. Prowse (1995) suggests that there are a number of problems with the application of Diamond's argument to Japanese and German banks. First, the effect of deposit insurance is not considered. Second, in addition to debt, banks in these countries also have equity holdings which have significant non-diversifiable risk associated with them. This means a bank can claim bad outcomes are due to this risk rather than a lack of monitoring.

Edwards and Fischer (1994) have argued that in Germany the corporate governance role of banks has been overemphasized in the literature. They provide a variety of evidence that banks do not have the degree of influence as lenders, shareholders, or voters of proxies that is usually supposed. For example, they find that the number of votes controlled in a company is only weakly related to the number of representatives the bank has on the supervisory board.

Wenger and Kaserer (1998) point to Metallgesellschaft and Daimler-Benz as extreme examples of the failure of the German corporate governance system. Metallgesellschaft had losses of over one billion dollars when it wound up a large position in oil futures. This position had been undertaken as part of a plan to sell home heating oil in the U.S. at a fixed price. It appears that the supervisory board, despite being chaired by a representative of Deutsche Bank, did not fully understand the strategy until they were forced to by the sequence of events that unfolded. In the late 1980's and early 1990's, Daimler-Benz adopted a strategy of becoming a conglomerate, despite the fact that U.S. auto companies had already been unsuccessful with this strategy. Even though Daimler-Benz's supervisory board was chaired by Deutsche Bank's CEO, there was no attempt to prevent what turned out to be a

significant waste of resources.

Hellwig (1991) has also stressed the importance of moral hazard on the part of the monitoring bank and Hellwig (1998) discusses the possibility of collusion between the monitoring bank and the firms being monitored.

La Porta, Lopez-de-Silanes and Shleifer (1998) consider the incidence of widely held corporations in 27 wealthy economies, including those which are the focus of this paper. They find that, with the exception of countries such as the U.S. and U.K., where minority investors are well protected, corporations are not widely held but instead are controlled by families or the State. Another exception is Germany, where banks play a significant role in the governance of some large corporations through their ownership of shares. La Porta, Lopez-de-Silanes, Shleifer and Vishny (1998) suggest a possible reason for the common occurrence of large blocks of stock, which is different from the standard monitoring explanation. They find a negative correlation between the extent of minority shareholder protection and concentrated equity ownership. The implication is that, when legal protection is poor, the best protection against abuse of minority shareholders is to hold large blocks of stock.

(v) Debt

An important strand of the corporate governance literature has focused on the role of debt as a means of disciplining managers. Grossman and Hart (1982) were the first to argue that managers could commit themselves to working hard by using debt rather than equity. Similarly, Jensen's (1986) free cash flow theory suggested that debt could be used to prevent managers from squandering resources. In the late 1980's and early 1990's it was widely argued that leveraged buyouts (LBOs), in which managers or other groups purchased firms using a large proportion of debt financing, were an efficient response to agency problems. However, debt can have undesirable as well as desirable effects on managers' behavior. Jensen and Meckling (1976) pointed out that managers have an incentive to take risks and may even accept projects that destroy value, if significant amounts of debt are used. Myers (1977) pointed to the debt overhang problem, where firms may forego good projects if they have significant debt outstanding. The reason is that for a firm facing financial distress a large part of the returns to a good project go to bondholders.

One of the concerns of the literature on debt has been how lenders can ensure that borrowers actually make repayments on the debt they issue. One of the standard answers has been reputation. For example, Eaton and Gersovitz (1981), Allen (1983) and Diamond (1989) provide models of debt where reputation plays an important role in ensuring repayment. Bulow and Rogoff (1989) point out that reputation alone often will not work.

Hart and Moore (1989) and Hart (1995) have stressed the importance of the right to liquidate in the event of default as a method of ensuring repayment. The threat of liquidation ensures that some funds can always be extracted except in the final period. Their theory and its extensions provides a plausible theory of entrepreneurial firms but is not directly applicable to corporations because outside equity cannot be used. Fluck (1998) has shown how this framework can be extended to allow for infinitely-lived, outside equity by incorporating a right for equityholders to dismiss managment.

Perhaps the most important weakness of the argument that debt is important for ensuring effective governance in corporations is the fact that retained earnings are the most important source of finance for corporations (see, e.g., Mayer (1988)). Typically large corporations do not have a problem meeting their debt payments.

Discussion
Why are there such marked differences in corporate governance in different countries? Prowse (1990; 1995) has stressed that governance develops subject to legal and regulatory constraints. Roe (1994) has argued that in understanding the different structure of corporate governance across countries it is important to consider political factors in the development of the legal and system and regulation. In particular, he argues that the U.S. chose to have a financial system where the power of financial institutions such as banks and insurance companies was very limited. As a result they could not play a significant role in corporate governance. In Germany and Japan a different political climate allowed financial institutions to become involved in corporate governance.

Political factors are important without a doubt but there is a question of the extent of their importance. The U.K. presents an interesting contrast to the U.S. It has a similar separation of ownership and control in corporations but very different financial institutions. In particular, the banking system is concentrated and although the Bank of England has wide powers of intervention there are few if any explicit restrictions on the activities that banks may undertake as Table 2 indicates. Nevertheless banks have chosen not to become involved in corporate governance. Insurance companies have also not been barred from playing an important governance role but have not done so. If banks and insurance companies in the U.K. chose not to become involved in corporate governance then the same might be true in the U.S. if the banks and insurance companies there had had the ability to become involved. This comparison is difficult to reconcile with the idea that it is politics and legal and regulatory constraints that is the sole determinant of differences in corporate governance across countries.

2.4 Whose company is it in practice?

How important are these differences in governance mechanisms? To what extent are managers in different countries constrained by governance mechanisms to act in shareholders interests? One view is that governance mechanisms do not constrain firms very much, at least in some countries. For example, in Japan managers do not appear to view themselves as working for the shareholders. This is illustrated by the mission statement of Asahi Breweries contained in Table 6. The statement is revealing in that shareholders interests are only mentioned in the final section and seem fairly unimportant: "We at Asahi...desire to fulfill our responsibilities to the stockholders and the local communities in which we operate."

The view that Japanese corporations have relatively little responsibility towards their shareholders is confirmed in surveys of managers. Figure 2 shows the choices of senior managers at a sample of major corporations in the five countries between the following two alternatives:

(a) A company exists for the interest of all stakeholders (black bar).

(b) Shareholder interest should be given the first priority (grey bar).

In Japan the overwhelming response by 97.1% of those asked was that all stakeholders were important. Only 2.9% thought shareholders' interests should be put first. At the other end of the spectrum managers in the U.S. and U.K. by majorities of 75.6% and 70.5% respectively stated that shareholders were the most important stakeholders. Germany and France are more like Japan in that 82.7% and 78%, respectively, viewed the firm as being for all stakeholders.

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

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

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

Figure 3 shows the results. As before there is a sharp difference between Japan and the U.S. and U.K. with Germany and France closer to Japan but not quite as extreme.

The evidence on managers' views of the role of the firm is upheld by the way that wages are structured in the different countries. In the U.S. and U.K., wages are based on the nature of the job done. Employees' personal circumstances generally have no effect on their compensation. In Japan and Germany, it is common for people to be granted family allowances and special allowances for small children. In France, vacation allowances are common. These differences underline the fact that in the U.S. and U.K. the firm is designed to create wealth for shareholders whereas in Japan and to some extent Germany and France, it is a group of people working together (see p. 57 of the report of the study group of The Institute of Fiscal and Monetary Policy of the Japanese Ministry of Finance).

These differences in the role of the firm, together with the limited evidence on the effectiveness of internal and external governance mechanisms, raise the question of whether the traditional agency view of the firm is the correct way to think about companies. Before turning to this issue, we next consider the operation of non-profit organizations where, even in the U.S. and U.K., the specific goal of the organization is different from pursuing profit.

2.5 Non-Profits and Mutuals

Traditional neoclassical theory recognizes two types of organization. These are the profit-maximizing firm and the government. In reality the range of organizational forms encountered in most countries is significantly greater. Some of these, such as workers' cooperatives, represent a very small portion of economic activity. However, others are significant. Non-profit firms are important in many countries. In the U.S. non-profits are important in health care, education, social services and cultural activities. In these industries non-profits compete directly with for-profit organizations. Table 7 shows the main sectors where taxable and tax-exempt organizations co-exist and the relative shares of each (see also James and

Rose-Ackerman (1986) and Hansmann (1996)). It can be seen that in the sectors shown both forms of organization co-exist and successfully compete.

The industries where non-profits compete with for-profits have particularly interesting implications for corporate governance. As we have seen above standard views of corporate governance based on the agency theory of the firm suggest that governance mechanisms involving monitoring by outsiders are crucial in ensuring organizations are run efficiently. However, in the sectors in Tables 7, non-profits compete quite successfully with for-profits. The formal governance mechanisms in these non-profits appear very weak. There is no market for corporate control. There are typically self-perpetuating boards of trustees and directors who usually receive little if any compensation for their oversight facilities. However, these firms are able to successfully compete with for-profit entities which are subject to the full rigors of the market for corporate control and other disciplining devices.

The financial sector provides a particularly interesting example of the co-existence of different organizational forms. Hansmann (1996) points out that in the nineteenth century in the U.S. mutual savings banks were a very successful form of organization. The term mutual in their title is misleading since, in fact, they are legally non-profits. The depositors do not have the right to vote on the affairs of the bank and they are governed by self-perpetuating boards. Of course mutual organizations where the depositors formally control the organization are also important in the financial sector. Mutual savings and loans have this structure. In the insurance industry, mutual organizations are also important. Non-profits and mutuals have played a significant role in the financial sector not only in the U.S. but also in most other countries.

3 The Role of Competition

It has been argued (see, e.g., Alchian (1950) and Stigler (1958)) that competition in product markets is a very powerful force for ensuring good corporate governance. If the managers of a firm waste or consume large amounts of resources, the firm will be unable to compete and will go bankrupt. There seems little doubt that competition, particularly international competition, is a powerful force in disciplining management.

3.1 Managerial Slack

One idea studied in the corporate governance literature is that competition between different organizational *forms* may be helpful in limiting efficiency losses. If a family-owned business has the sole objective of maximizing share value, it may force all the corporations in that industry to do the same thing. An early attempt to model product-market competition as a mechanism to discipline managers is found in Hart (1983). On the supply side, Hart assumes that there is a large number of small firms. A fraction ν are traditional profit maximizers; these are called *entrepreneurial* firms. The remaining fraction $1-\nu$ are operated by managers who maximize their own interests; these are called *managerial* firms. The firms have identical cost functions $C(w, q, L)$, where w is the input price, q is the output level, and L is the level

of managerial effort. Managerial effort and input prices are assumed to be substitutes, in the sense that greater effort compensates for higher input costs:

$$C(w, q, L) = \hat{C}(\Phi(w, L), q).$$

The cost index $\Phi(w, L)$ is increasing in the input price w and decreasing in managerial effort L. Ex ante, the input prices are independently and identically distributed across firms. Ex post, there is no aggregate uncertainty: the cross-sectional distribution of input prices is non-stochastic and proportional to the ex ante probability distribution.

The manager takes output and input prices as given and decides how much output to produce and how much managerial effort to exert in order to maximize his own preferences. An incentive problem arises because the manager can observe his input price w and his effort L, but the shareholders cannot. Thus, a manager who faces a low input price may choose to shirk: instead of achieving high profits for the shareholders he exerts a low level of effort and claims that profits are low because the input price is high.

The manager's preferences are assumed to be additively separable in income and effort: the von Neumann-Morgenstern utility function is $H(U(I) - V(L))$, where I is the manager's income and L is his effort. The manager is infinitely risk averse: his utility-of-income function is very flat above $\bar{I}$ and very steep below $\bar{I}$. The manager's reservation utility is $\bar{U}$. In order to be acceptable to the manager, a managerial contract must guarantee the manager an income that is at least $\bar{I}$ and never call on the manager to make an effort greater than $\bar{L}$, where

$$U(\bar{I}) - V(\bar{L}) = H^{-1}(\bar{U}).$$

These restrictive assumptions are chosen to make the problem analytically tractable, but it turns out that they are crucial for the substantive results as well, as we shall see below.

Since the manager must be paid a fixed income and exert a fixed amount of effort to achieve his reservation utility, this is the only outcome that is consistent with efficiency. If the shareholders could observe the manager's effort L, they could achieve the first best by offering the manager a contract that pays him $\bar{I}$ as long as he exerts an effort $L = \bar{L}$. Since they cannot do this, they must settle for the second best. It is assumed that the shareholders know the distribution function $F(w)$ and the equilibrium product price p and can observe the firm's ex post profit level. Let $\pi(p, \Phi)$ denote the maximum profits when the product price is p and the cost index is Φ. If the manager follows the first best rule of setting $L = \bar{L}$, the profits vary between a low of $\pi(p, \Phi(w_{\max}, \bar{L}))$ and a high of $\pi(p, \Phi(w_{\min}, \bar{L}))$. The manager must receive a salary of $\bar{I}$ (otherwise he gets less than his reservation utility $\bar{U}$) and there is no point giving him more (since his utility function is flat above $\bar{I}$). Thus, the best that the owners can do is to offer him a salary of $\bar{I}$ as long as profits are equal to $\pi(p, \Phi(w_{\max}, \bar{L}))$ or greater. The managers will accept this contract, which requires them to work flat out (i.e., choose $L = \bar{L}$) when $w = w_{\max}$; but for any lower price $w < w_{\max}$ they can slack by taking less effort. Precisely, for any $w < w_{\max}$ the manager chooses $L(w)$ so that

$$\pi(p, \Phi(w, L(w))) = \pi(p, \Phi(w_{\max}, \bar{L})).$$

Under this contract, the equilibrium level of aggregate output will be strictly lower and the output price will be strictly higher than in the first best.

This analysis assumes that the input prices for different firms are independent, so the law of large numbers implies that there is no aggregate uncertainty. Suppose, on the other hand, that the input prices are perfectly correlated across firms. Then the equilibrium product price is stochastic and positively correlated with input prices. It is assumed that the shareholders cannot observe the equilibrium price or the profits of other firms in the industry. As before, it is optimal for the shareholders to pick some input price $\hat{w}$ and insist that the manager work flat out at that price. For any other price $w \neq \hat{w}$ the manager will continue to produce the same profits, but will engage in some slack.

The amount of managerial slack in an individual firm is measured by the proportional increase in input prices that could be absorbed without any change in profits if slack could be eliminated. The average amount of slack is denoted by X^{ind} in the market with independent input prices and X^{corr} in the market with perfectly correlated input prices. Given an equilibrium of the kind described above and some additional assumptions, it can be shown that $X^{corr} \leq X^{ind}$. In the independent case, the product price is constant across states of nature, because the cross-sectional distribution of input prices is non-stochastic. When an individual manager faces an input price $w < w_{\max}$, he can reduce his effort because he only needs to produce profits greater than or equal to $\pi(p, \Phi(w_{\max}, \bar{L}))$, the amount that he would produce by working flat out when the input price is $w_{\max}$. However, when input prices are perfectly correlated, there is a second effect to consider. Suppose that $\hat{p}$ is the product price in the state with the input price $\hat{w}$. In a state of nature where $w < \hat{w}$, the output price p will be lower than $\hat{p}$. This is because all the entrepreneurial firms also face a lower input price $w < \hat{w}$ and are producing more output, thus pushing down the output price. The manager has to exert more effort to compensate for the fall in the output price, and this effect offsets his ability to slack as a result of the fall in input price.

It can be shown that X^{ind} is the same as the amount of slack that would be realized in a monopolistic firm whose owners were faced by the same incentive problem in controlling the manager. In this sense, competition does not have an effect on managerial slack in the independent case. However, it can be shown that an increase in the fraction of entrepreneurial firms ν does reduce X^{corr}. The more entrepreneurial firms there are in the market, the stronger the incentive effect of competition on managers will be.

We remarked above that the simplifying assumptions about the managers' risk aversion turn out to be crucial for the substantive conclusions of Hart's analysis. Scharfstein (1988) shows that the result that increased competition reduces managerial slack can be reversed when the manager's marginal utility of income is strictly positive. Perhaps this should not be too surprising. Consider a different model, say a Cournot oligopoly model in which managerial effort is unobserved and the manager receives a fixed share of profits. Greater competition (in the form of a larger number of firms in the market) will reduce profits and hence the managers' incentive to work. There is a trade-off, of course, between the interest of the shareholders in greater profits and the interest of consumers in getting more output at a lower price, so this is not to say that greater competition is a bad thing. Still, it suggests

that the effects of competition will generally be ambiguous.

The role of the market in Hart (1984) and Scharfstein (1988) is to provide information. If the owners could observe the profits of the entrepreneurial firms, they could use that information as a benchmark to condition the rewards to the managers. This is the approach taken by Holmstrom (1982) and Nalebuff and Stiglitz (1983), for example. In Hart's model this information is unavailable, so an indirect channel must be used. Competition translates a fall in input prices into a fall in output prices, which in turn are translated into lower profits unless the managers work harder to keep profits up.

In a recent study, Schmidt (1997) addresses a related question in a model without hidden information. Schmidt (1997) observes that increased competition may threaten the survival of a firm by forcing it into bankruptcy and asks what effect this will have on managerial slack. Schmidt's model assumes that the manager is risk neutral and wealth-constrained and that he suffers a penalty (lost rents, foregone opportunities) when the firm goes bankrupt. The manager is required to engage in efforts that reduce future production costs. Costs are assumed to take on two values, high or low, and greater effort reduces the probability of high costs. The actual costs are observed after the manager has made the effort, and at that point the owner decides whether to liquidate the firm or not. Greater competition lowers the price that the firm receives for its output and, other things being equal, increases the risk that the owner will find it optimal to liquidate the firm.

Schmidt discovers that greater competition has two effects on the manager's optimal effort. The first is the threat-of-liquidation effect that we expect to find: the manager has a directly increased incentive to work harder to avoid liquidation. There is also an indirect effect, since the cost to the owner of providing incentives to take high effort is reduced. So the threat-of-liquidation effect unambiguously raises managerial effort.

The second effect is ambiguous and results from the fact that increased competition reduces profits and may reduce the benefits of a cost reduction. As a result, the owner may be disinclined to pay the manager the high rents necessary to achieve a cost reduction. If the value of a cost reduction is decreasing in the degree of competition, the net effect of increased competition may be to lower managerial effort.

The second effect occurs only if the manager is paid more than his reservation level. Schmidt (1997) cites a study by Aghion, Dewatripont, and Rey (1995) that treats a special case of his model. In their model, the manager is always paid his reservation level and so the effect of increased competition is unambiguous.

These studies describe a mechanism by which competition in the product market helps discipline managers, but they are restrictive in several respects:

- First, they all take the agency approach, in which the main obstacle to achieving efficiency is the principal-agent relationship between the manager and the shareholders. As we have indicated, some organizations appear to function successfully even in the absence of external governance mechanisms.

- Secondly, the focus of the models on cost minimization seems to be too narrow. While cost minimization may be a useful proxy for other important managerial activities, it

is not clear that this model captures all the important features of managerial behavior.

- Thirdly, casual empiricism suggests that "effort" is something that managers supply quite readily. The failure of management to maximize the shareholders' interests may come from other sources than lack of effort. With an alternative source of management failure, such as differences in inherent ability (adverse selection), risk shifting, or private benefits, the effects of competition may be different.

- Fourthly, the entrepreneurial firms that force the managers to provide greater effort are a *deus ex machina* in these models. What happens in industries where *all* the firms are managerial? Perhaps competition among managerial firms will only ensure that corporate governance is equally inefficient across firms. For example, if all the firms in a market are corporations which face an agency problem, they will all be able to survive if the inefficiencies associated with corporate governance problems affect all firms equally. Competition between them may not lead to full efficiency (Jensen and Meckling (1976)).

- Fifthly, the arguments of Hart and his followers assume that markets are perfectly competitive. As we have seen, things could be quite different in markets that are imperfectly competitive. Many markets in which Fortune 500 companies operate are oligopolistic. These companies compete on the product market, but it is not clear what effect imperfect competition has on managerial slack. Possibly collusion among a small number of firms will take the form of high levels of managerial slack rather than high monopoly profits.

Nonetheless, the idea that competition enhances the performance of managerial firms may have a broader application than these models suggest. We next review the empirical evidence on the effect of competition on performance. Although limited in quantity, this suggests that competition is important. We then go on to develop an alternative to the principal-agent approach.

3.2 The Effectiveness of Competition as a Control Mechanism

The empirical evidence on the role of competition in ensuring corporate performance is sparse. Nickell (1996) suggests that the most persuasive evidence consists of broad-brush observations. The first of these is the low level of productivity in Eastern Europe compared to Western Europe after competition was suppressed in the East under communist regimes. The second is the importance of domestic competition in ensuring that firms are internationally competitive, demonstrated by Porter (1990). The third is that deregulation is generally followed by productivity gains. Graham, Kaplan and Sibley (1983) document this for the case of the U.S. airline industry.

A number of studies have provided detailed evidence of the effect of competition on performance. One question is the effect of competition on innovation. Geroski (1990) and

Blundell, Griffith and Van Reenen (1995) find that the more concentrated an industry and the higher are other measures of monopoly power the lower is the rate of innovation. Another is the relationship between competition and technical efficiency. Caves and Barton (1990), Green and Mayes (1991) and Caves (1992) find that above a certain level of market concentration technical efficiency is reduced. Caves (1980) points to the evidence in the management literature that competition leads to more efficient decision-making structures in firms. Finally, Nickell (1996) and Nickell, Nicolitsas and Dryden (1997) find evidence that the higher is the level of competition the higher is the level of growth in productivity. Moreover, the latter paper documents that competition is a substitute for other corporate governance mechanisms.

4 An Evolutionary Approach

The neoclassical theory of the firm regards the firm as a collection of input and outputs. The role of the manager is simply to make the choice that maximizes profits. Coase (1937) introduced the notion of transaction costs to explain the existence and the size of the firm. Jensen and Meckling (1976) introduced the agency-cost approach. Williamson (1985) explained the nature of the firm in terms of strategic problems and, subsequently, Grossman and Hart (1986) developed the theory of the firm in terms of the control of assets. All of the recent approaches stress a struggle for control between insiders and outsiders who have conflicting interests. Jensen (1986) and Hart and Moore (1989) stress the struggle between managers and shareholders or external claimants for the control of earnings. Our perspective on the firm is rather different. It seems to us that the agency approach, broadly defined, is somewhat exaggerated and hard to reconcile with the successful performance (by some standards) of actual firms. This alternative perspective can be summarized in the following points:

- In the United States, at least, the upper level of management is remarkable for the amount of effort it makes. While there may be some conflict of interest between shareholders and managers, it appears to be the case that managers do regard the success of the firm, as measured by earnings or growth, as part of their own objective function. Managers, in other words, work hard and appear to be quite "entrepreneurial".

- A manager, at the top level, is not merely an employee who exerts effort on behalf of an absentee employer, the shareholders. The top managers in a company act like entrepreneurs. They choose the direction of the firm and assign crucial tasks to their subordinates. They identify new opportunities and coordinate the managerial team as it seeks to exploit these opportunities. In this sense, the manager in our view is very similar to Frank Knight's entrepreneur (Knight (1964)).

- Shareholders may not know better than the manager what needs to be done. A manager is not merely a stand-in for the shareholder, making decisions that the shareholder could make for him or herself. The manager has entrepreneurial skills that the shareholder in

all probability lacks. The major concern for the shareholder is likely to be not whether the manager is working hard enough (his colleagues will see to that), or whether the manager is following instructions, but whether the manager has "the right stuff", the entrepreneurial skills and talents to achieve success for the firm.

To the extent that shareholders have a view about the suitability of the management of a company, they can express it through the stock market, buying shares in companies whose management is "undervalued" and selling shares in companies whose management is "overvalued". This vote of confidence may be the only way of expressing their information about the quality and performance of the management, given the absence of effective mechanisms for replacing or disciplining management. However, even this view may overstate the role of shareholders in choosing management. There may be important cases where the shareholders' information about the competence or skill of management is very limited because of lack of experience. This will be particularly true of start-up companies with a new and relatively inexperienced management. It may also be true of an established company with an experienced management when the company is undertaking an expansion into a new area, for example, developing a highly innovative product or diversifying into an unrelated market. In these cases, it may not be possible for shareholders to say with any degree of confidence which managements will succeed and which will fail.

This view does not require us to assume that shareholders are stupid or that managers have superior information about their own competence. It may be that no one knows what is the optimal strategy for the firm. More precisely, there may be a lack of common knowledge about the optimal strategy so that, while each potential manager thinks his strategy would be the best, equally well informed shareholders and potential managers may disagree. In this case, the issue is not how to give the shareholders control but how to decide who ought to be given control. As we have argued in Allen and Gale (1999), one of the functions of a stock market is to match managers and shareholders with similar views of the world, in cases where there is diversity of opinion, that is, individuals agree to disagree. Placing a company in the hands of a manager and giving him freedom to manage may be the only way to determine whether a particular strategy or style of management is going to be successful. In other words, trial and error is the only way to identify the best management. Managers may be no better able to distinguish skill levels than shareholders; alternatively, the managers may all think they are brilliant, which is not much more helpful. This is different from the adverse selection problem that arises when managers know their skill levels but shareholders do not. In a world with diversity of opinion, clever incentive schemes and selection processes tend not to be very effective.

There are costs as well as benefits of control. Burkart, Gromb and Panunzi (1997) argue that too much monitoring (without commitment to reward the manager) will rob the manager of the incentives to make effort on behalf of the shareholders. Allen and Gale (forthcoming) argue that superior information about the running of the firm may make it optimal to give the manager "almost complete" discretion about the running of the firm, even if the manager has private benefits that cause his interests and preferences to diverge systematically from those of the shareholders. Here we focus on the question of which manager is best suited

to run the firm. A manager is regarded as a highly motivated automaton, who will run the firm in the way that he is "programmed" to run it. He probably feels that this is the best way to run the firm, but that is irrelevant. From the point of view of shareholders and other stakeholders, the relevant question is how things will turn out under this or that choice of manager.

In a dynamic market, one with constantly changing products, processes, and prices, it may not be possible to say with precision at any point in time which management is best suited to succeed in the future. From this point of view, the absence of effective discipline through takeovers may not be a drawback. The theory of the takeover as a means of disciplining management rests on the assumption that there exists a raider who knows how to run the firm more efficiently. There may well be lots of people who think that they can run the firm more efficiently, but they are not necessarily right in believing that. More precisely, it may not be common knowledge that a given raider will do better. If the raider is investing his own money, their is no reason why he should not try to take over the firm and run it as he sees fit. But if he is investing someone else's money, it is not clear why his (uninformed) backers should believe that he will do a better job. In fact, an unnoticed obstacle to the takeover as a management discipline device may be the difficulty of putting together a coalition of investors who can agree on a better strategy with some confidence.

It is precisely in this case, where the information of outsiders is limited, that competition in the product market is most important. In the absence of well informed shareholders and effective means of controlling management decisions, competition among companies has two functions; it disciplines managements and at the same time reveals which managements are the strongest. The company with the strongest management will develop the best products, produce the highest earnings and growth and drive companies with weaker management out of business or, at least, leave them with a much smaller share of the market.

In the absence of good information about the preferred management strategy, the second best optimum may be to let various managements compete and see which one succeeds. This suggests an evolutionary perspective in which competition does not merely lead to static value maximization asymptotically as time goes to infinity, but actually leads to incentive-efficient selection of managements in the short run.

Evolutionary arguments have been used in the past to suggest that competition among firms will select a population of firms that maximize profits (or value), even if none of them consciously make the attempt to do this (Friedman (1953), Machlup (1967)). Some recent models have confirmed this hypothesis under particular assumptions (Luo (1995)). Others (Radner (1995)) have found, not surprisingly, that firms that maximize other objectives, such as probability of survival, may last longer on average and gradually come to dominate the population. The analysis of Radner (1995) considers the survival of a firm that accumulates capital until its net worth is zero (the bankruptcy point). Firms are subject to exogenous "productivity" shocks, but there is no direct competition among firms. There does not seem to be any general theoretical justification for the Friedman-Machlup hypothesis, but it may be that within particular, empirically relevant, environments it can be shown to hold.

Our view differs from the traditional application of evolutionary ideas in several respects:

- We have in mind a particular kind of competition, where firms compete for control of a market or compete to develop a new or better product before its rivals. In a dynamic market, this kind of competition may have a winner-take-all characteristic, where one product or management style or form of organization may drive out others.

- Fixed costs are important in most modern industries, and this also reinforces the winner-take-all characteristic of competition. Fixed costs also make growth important. When firms are growing this helps to ensure shareholders receive a return since assets are being acquired.

The form of competition is important. As we noted above, competition does not merely take the relatively innocuous form of reducing prices and profits. A firm can lose its entire market to a stronger competitor. In fact, this kind of competition may be seen as an alternative to the takeover. Instead of having a raider take control of the assets of a company with a weak management, replace the management, and change the target firm's strategy, a competing firm takes control of the market of a company with a weak management and dispenses with the whole firm.

It may be argued that this form of discipline is inefficient to the extent that it wastes the assets (physical and human capital) of the now defunct firm. But this argument is not necessarily correct. If the defunct firm has assets that are specific to a product or technology that failed, the assets would have to be abandoned in a takeover as well. If the assets are non-specific, they can be used by the firm that takes over the market too. So taking over the firm's market need not be any less effective than taking over the firm itself.

Finally, we need to mention the internal finance problem. The absence of effective external controls on managers and the reliance of the typical firm on internally generated funds (retained earnings) for investment purposes, means that the managerial firm is largely autonomous. This is even more true in countries like Japan and Germany than it is in the U.S. and the U.K. There may be some reason to expect companies that have been very successful in the past to have an entrepreneurial team of managers and to be successful in the future. Therefore, a firm that has generated large amounts of cash may be very good at identifying and exploiting opportunities for investment. To the extent that there is a good match between the earnings generated in the past and the profitability of investment in the firm, this system of financing investment internally through retained earnings may be fairly efficient.

In a dynamic market, however, where the environment is constantly changing, the possibility of a serious mismatch between the allocation of funds and the allocation of investment opportunities cannot be ignored. There will be start-up companies with little cash and great opportunities for growth and mature companies with a lot of cash and limited opportunities for growth. The crucial question is whether this mismatch can be identified or, more precisely, whether it is common knowledge, and hence whether anything can be done about it. For the same reasons that we earlier questioned the efficiency of the takeover mechanism, even if it were effective in changing managements, we here question the possibility of improving on internal finance. In both cases, an improvement assumes that outsiders (shareholders,

raiders) have better information about the right choice than management and can agree on what should be done. If this assumption is not satisfied, internal finance may be the best that can be done subject to the diversity of opinion that characterizes the stock market.

5 Competition for Markets: A Parable

In his seminal contribution on the role of takeovers in corporate governance, Manne (1965) conceived of firms as being run by management teams of different qualities. The takeover was conceived of as a mechanism for displacing underperforming management teams. A firm that was being run by a good team could take over a firm that was being run by a bad team, get rid of the bad team, and improve the firm's performance. We also think the quality of the management team is crucial to the success of the firm, but competition in the product market plays the role of takeovers: the firm with the stronger management team captures the product market from the firm with the weaker management team. A simple formal example will clarify these ideas and provide a test of theoretical coherence.

Firms are set up by teams of managers. There is an exogenously specified set of teams $i = 1, ..., n$ and each team sets up a single firm. The aim of the firm/team is to develop a product that will be produced and sold in the future. The value of the product depends on the amount of capital invested and on the quality of the management team.

There are two dates, $t = 0, 1$. At date 0, the management of firm i chooses an amount of capital $k_i \geq 0$ to invest in the development of a product. Investment in the firm is provided by a large number of risk-neutral, outside investors, who play no active role in the management of the firm. The opportunity cost of capital is denoted by R: for every unit of capital invested at date 0 the investors give up a safe return of R units at date 1.

At date 0 there is uncertainty about the quality of the management team and the decisions they make. However, there is no *asymmetry* of information: managers and investors have the same information about the quality of the management team and, hence, about the future payoffs of the firm. This uncertainty is resolved at date 1 when the quality of the management teams and their products is revealed. Uncertainty about the quality of the teams is represented by the state of nature ω, which is unknown at date 0 and becomes common knowledge at date 1.

The value of the product developed by team i is given by $V_i(k_i, \omega)$. Because there is symmetric information about the quality of the team, insiders and outsiders know the function $V_i(\cdot)$ and the investment k_i and have the same probability distribution $F(\cdot)$ over the states of nature ω. We assume that $V(0, \omega) = 0$ for all ω so capital is essential to the development of a useful product. In general, the more capital that is provided the greater is the probability that the value of the product is high. We assume that once the new product is developed it can be produced at constant marginal cost and, without essential loss of generality, we set the marginal cost equal to zero.

Managers are assumed to be risk neutral and maximize the expected terminal value of the investors' net wealth. Note that there is no moral hazard problem. The managers work

as hard as they can to maximize the expected returns of the investors. They also commit to pay all the profits to the investors.

At date 1 there is assumed to be a continuum of identical consumers whose measure is normalized to one. Each consumer wants to consume at most one unit of a new product.

5.1 Equilibrium

At date 0 the firms jointly choose their investment strategies $k = (k_1, ..., k_n)$. At the beginning of date 1, the state of nature ω is realized and the firms observe the quality of the product they have developed

$$V(k, \omega) = (V_1(k_1, \omega), ..., V_n(k_n, \omega)).$$

Then the firms engage in Bertrand competition. Since the qualities are continuously distributed (for $k_i > 0$) the probability of ties can be ignored. Then Bertrand competition will lead to an outcome in which the best product captures the entire market and the price charged for this product is equal to the difference between the value of the first and second-best products. The price for every other product is zero. At this price, consumers are indifferent between the first and second-best products, but they will demand only the first-best product in equilibrium (if a positive fraction of consumers were expected to choose the second-best product, the firm with the first-best product would have chosen a slightly lower price to capture the entire market). Formally, for any firm i let

$$V_{-i}(k_{-i}, \omega) = (V_1(k_1, \omega), ..., V_{i-1}(k_{i-1}, \omega), V_{i+1}(k_{i+1}, \omega), ..., V_n(k_n, \omega))$$

denote the vector of the qualities of goods $j \neq i$; let

$$k_{-i} = (k_1, ..., k_{i-1}, k_{i+1}, ..., k_n)$$

denote the allocation of investment in goods $j \neq i$; and let

$$V^*_{-i}(k_{-i}, \omega) = \max_{j \neq i} \{V_j(k_j, \omega)\}$$

denote the highest value in the vector $V_{-i}(k_{-i}, \omega)$. Then, in the second-period equilibrium, the price charged for the i-th product is denoted by $p_i(k, \omega)$ and satisfies

$$p_i(k, \omega) = \max\{V_i(k, \omega) - V^*_{-i}(k_{-i}, \omega), 0\}, \forall i.$$

Since the demand is equal to one for the best product and zero for the rest, the revenue of firm i is also equal to $p_i(k, \omega)$.

At the first date, we look for a Nash equilibrium in the investment levels. The i-th team chooses k_i to maximize $E[p_i(k_i, k_{-i}, \omega)] - Rk_i$, taking as given the investment levels of the other management teams, k_{-i}. So a Nash equilibrium is a vector k^* such that

$$k^*_i \in \arg\max_{k_i \geq 0} \{E[p_i(k_i, k^*_{-i}, \omega)] - Rk_i\},$$

for each i.

5.2 Optimum

Since the cost of production at date 1 is zero, the surplus generated by consuming the i-th product is $V_i(k_i, \omega)$. Surplus is maximized by having all consumers consume the best product, so the total surplus at date 1 is

$$V^*(k, \omega) \equiv \max_{i=1,\ldots,n} \{V_i(k_i, \omega)\}.$$

Assuming that the consumers are also risk neutral and that lump sum transfers are possible, the first-best efficient allocation is found by maximizing net surplus, that is, by solving the planner's problem:

$$\max_{k \geq \mathbf{0}} V^*(k) - R \sum_{i=1}^{n} k_i,$$

where $V^*(k) \equiv E[V^*(k, \omega)]$ is the expected value of $V^*(k, \omega)$.

Define $V^*_{-i}(k_{-i}) \equiv E[V^*_{-i}(k_{-i}, \omega)]$. Then the objective function $V^*(k)$ can be written equivalently as

$$\begin{aligned} V^*(k) &= E[\max\{V_i(k_i, \omega) - V^*_{-i}(k_{-i}, \omega), 0\} + V^*_{-i}(k_{-i}, \omega)] \\ &= E[\max\{V_i(k_i, \omega) - V^*_{-i}(k_{-i}, \omega), 0\}] + V^*_{-i}(k_{-i}) \end{aligned}$$

and the planner's problem can be rewritten equivalently as

$$\max_{k \geq \mathbf{0}} E[\max\{V_i(k_i, \omega) - V^*_{-i}(k_{-i}, \omega), 0\}] + V^*_{-i}(k_{-i}) - R \sum_{i=1}^{n} k_i$$

Suppose that k^* is a solution to the planner's problem above. A necessary condition is that k^*_i maximizes

$$\begin{aligned} & E[\max\{V_i(k_i, \omega) - V^*_{-i}(k^*_{-i}, \omega), 0\}] - Rk_i \\ = \; & E[p_i(k_i, k^*_{-i}, \omega)] - Rk_i. \end{aligned}$$

But this means that k^*_i satisfies the equilibrium condition for the firm's choice of k_i. Hence, we have the following result.

Proposition 1 *If k^* is a solution to the planner's problem, then k^* is a Nash equilibrium of the firms' investment "game".*

The proposition tells us that an optimum can be decentralized as a market equilibrium through the uncoordinated investment decisions of the firms. The converse may not be true, however. A market equilibrium, in which each firm maximizes expected present value, need not be an optimum. Here is a trivial example to illustrate this. For ease of exposition it is kept very simple. With a few changes, it could be made to satisfy the assumptions of the model.

Suppose there are two firms $i = 1, 2$ and that for each firm a fixed cost $F > 0$ is required to produce a good of value $\bar{V}$ (there is no uncertainty). Innovation is efficient because $\bar{V} > RF$, but there is no point in having both firms innovate. There are two asymmetric Nash equilibria in which precisely one of the firms innovates (and earns the monopoly profits $\bar{V} - RF$) and the other remains passive. Both of these equilibria are efficient. There is also a symmetric, mixed-strategy equilibrium, in which both firms innovate with probability $0 < \lambda < 1$. If a firm innovates it must pay the fixed cost F at date 0; but it only earns positive revenue at the second date if the other firm fails to innovate, which happens with probability $(1 - \lambda)$. If both firms innovate, they engage in Bertrand competition at the second date and both earn zero revenue. Thus, the expected profits from innovating are $(1 - \lambda)\bar{V} - RF$ and this is equal to the profit from not innovating if and only if

$$\begin{aligned} & (1 - \lambda)\bar{V} - RF = 0 \\ \Longrightarrow \quad & (1 - \lambda) = \tfrac{RF}{\bar{V}} \in (0, 1). \end{aligned}$$

The Nash equilibrium defined by this equation is inefficient because there is a positive probability λ^2 that both firms innovate and a positive probability $(1 - \lambda)^2$ that neither firm innovates.

Without symmetry, we can have inefficient pure strategy equilibria. For example, suppose that there are two firms $i = 1, 2$ and that firm 1 is more efficient than firm 2: each can produce a product of value $\bar{V}$ but the cost is higher for firm 2, that is, $F_1 < F_2$. Suppose that $RF_2 < \bar{V}$ so that both firms can produce positive surplus. Then there are two pure strategy equilibria, an efficient one in which firm 1 develops the new product and firm 2 does not, and an inefficient equilibrium in which firm 2 develops the product and firm 1 does not.

5.3 Learning and Evolution

The simple model underlying Proposition 1 captures the idea that in a winner-takes-all environment, equilibrium can be efficient. With Bertrand pricing and inelastic demand, the market is a kind of *Vickrey mechanism* that awards the winner with revenue exactly equal to his marginal contribution to the surplus in the economy. Although the framework is special, it is worth noting that Proposition 1 does not require any special assumptions on the development technology $V_i(\cdot)$ or on the distribution of the state of nature ω. Nonetheless, the static version of the model ignores many of the interesting questions of corporate governance, which require a multiperiod framework for their analysis.

Suppose there is a finite sequence of dates $t = 0, 1, ..., T$ and that firms can invest at date $t < T$ to develop new products at date $t + 1$. As before, there are n firms $i = 1, ..., n$ and the investment of firm i at date t is denoted by k_{it}. The state of nature $\omega = (\omega_0, \omega_1, ..., \omega_{T-1})$ is composed of T components, where ω_t represents the uncertainty in the development process at date t. The management teams have symmetric beliefs about the distribution of ω_t at date 0 and that they all receive the same information at date $t > 0$. The value of the good developed at date t is denoted by $V_i(k_{it}, \omega_t)$. Note that the value of the product depends only on the component ω and not on the full vector ω as before. The function $V_i(\cdot)$ does not

depend explicitly on t but there is no loss of generality in this since we have not specified the distribution of ω_t.

Once the new goods are available at dates t, the firms compete in Bertrand fashion for the unit demand from consumers. There is no discounting over time, so the firms seek to maximize the sum of their expected net profits over the T dates.

Each period is thought of as a development cycle in which a new generation of goods appears. There is no competition between the goods developed at date t and date $t+1$. Thus, at each date t the firms are playing the same game; only the distribution of ω_t has changed. At each date equilibrium is defined in the same way as in the previous section.

The distribution of ω_t changes over time for two reasons. First, there may be exogenous changes over time (technological progress). Secondly, the observation of the quality of the products developed by the firms at date t reveals something about the state ω_t and this will change the conditional distribution of ω_{t+1} to the extent that ω_t and ω_{t+1} are correlated. For example, suppose that $\omega_t = (\omega_{1t}, ..., \omega_{nt})$, where ω_{it} is a noisy signal of the quality of firm i's management team and let

$$\log \omega_{it} = t \log A + \log \theta_i + \log \varepsilon_{it}$$

where $t \log A$ is a deterministic trend term representing technological progress ($A \geq 1$), $\log \theta_i \sim N(\mu_i, \sigma_i^2)$ is the true quality of the management team, uncertain but constant over time, and $\log \varepsilon_{it} \sim N(0, \sigma_\varepsilon^2)$ is a noise term.

In what follows, assume that the technology is given by

$$V_i(k_{it}, \omega_t) = v_i(k_i)\omega_{it}.$$

Then observing the value of $V_i(k_{it}, \omega_t)$ is equivalent to observing ω_{it}, a noisy signal of θ_i, and all the management teams will update their beliefs symmetrically. The investment decision at date t is conditioned on all the information that has become available over time. If firm i has developed products with low values, the probability distribution of θ_i will be shifted to the left; if it has developed high-value products, the probability distribution of θ_i will be shifted to the right. Other things being equal, the optimal and equilibrium investment in firm i will increase or decrease as the public estimate of the quality of that firm's management improves or worsens. In this sense, the industry evolves: better managements get higher investment and worse managements get lower investment over time. Some firms may have to shut down altogether.

As long as $k_{it} > 0$ for all dates $t < T$, the information revealed at each date is independent of the value of k_{it}. Positive investment is optimal, for example, if

$$v_i'(k_{it}) \to \infty \text{ as } k_{it} \to 0, \forall i,$$

because the distributions of ω_{it} are unbounded. Consequently, the surplus maximization problem at each date is independent of the others and solving the static problem at each date yields an optimum over the $T+1$-period horizon. Conversely, if $k^* = (k_0^*, ..., k_{T-1}^*) \gg 0$ is an optimum then it must be an equilibrium, by the argument used to prove Proposition

1, since each firm maximizes long-run profits if and only if it maximizes profits at each date. Hence, we have the following result.

Proposition 2 *Suppose that k^* is a solution to the planner's problem of maximizing surplus over a $T+1$-period horizon and suppose that $k^*_{it} > 0$ for every i and $t < T$. Then k^* is a subgame perfect equilibrium of the firms' investment "game".*

As we stressed at the outset, our focus is on selection rather than moral hazard. To make this clear we have adopted the extreme assumptions that every management teams works "flat out" and seeks to maximize the interests of their shareholders by maximizing net present value. Furthermore, managers and investors have symmetric information about the quality of management teams and the value of the strategies they follow. The crucial problem is to identify the best managements and this can only be done by experience, by observing the outcome of their managerial strategies.

So far, we have not mentioned the thorny problem of internal finance in this context. It has been implicitly assumed that management does whatever it can to maximize the expected wealth of the outside investors, including re-allocating the profits from the first round of profit development in the firms that are expected to be the most profitable in the second round. So if firm i develops the best product at date t and earns large profits, but does not have good prospects at date $t+1$, those profits will be turned over to some other firm j to invest in its own development projects. There are conditions in which 100% internal financing is optimal. For example, if the highest quality management team earns the highest profits at date $t+1$ because it developed the best product at date t then it may be optimal for this firm to re-invest its profits in product development at date $t+1$. These are extreme conditions, however, and in general things will be much more complicated. The firm that has the largest pot of cash at date $t+1$ may not have the best ideas for developing a new product. How can we get this firm to give up its cash to allow another entrepreneur the chance to develop a better product. How do we get Bill Gates to invest his money to Sun Microsystems to develop Java? There may be a role for Anti-Trust Policy to break up monopolies at some point.

Inefficient internal finance appears to be a problem in diversified firms. Lamont (1997) found that investment by oil companies in non-oil divisions was reduced when oil prices fell sharply in 1986. His evidence was consistent with diversified companies overinvesting and subsidizing underperforming segments of the firm. Shin and Stulz (1998) consider a wide range of firms operating in multiple businesses. They also find evidence of cross-subsidization and argue this is inefficient because it is unrelated to the investment opportunities of the divisions as measured by Tobin's Q. Berger and Ofek (1995) find that diversified firms sell at a discount and identify the extent of the discount with the extent to which divisions invest in low-Q industries. Finally, Scharfstein (1998) provides evidence of "socialism" in capital allocation in conglomerates. Divisions in high-Q manufacturing industries tend to invest less than stand-alone peers while in low-Q manufacturing industries the reverse is true. All this suggests that internal capital markets may allocate resources worse than external markets.

This problem is more complicated if we recognize that there may be *diversity of opinion* about what is the best product or the best strategy for developing a better product (see Allen and Gale (1999)). In the presence of diversity of opinion, the efficient allocation depends on the beliefs of the individuals involved. Because of the divergence of their beliefs, it is harder to make everyone better off, there are more efficient allocations and this increases the possibility that the market equilibrium is efficient. These are issues that cannot be pursued here, but it indicates the difficulty of passing judgement on efficiency of the allocation of resources we observe in a world of autonomous management teams.

5.4 Competition within the Product Cycle

The assumption that a single period corresponds to a complete product cycle is crucial. If the products developed in one period compete with the products developed in the next period, things become much more complicated. The fact that a good product has been developed at date t makes it harder to develop a profitable new product at date $t+1$. The bar has been raised and any new product must exceed the value of the existing product to capture the market. It may well happen that the product developed at the first date t is so good that it is not worthwhile for any firm to invest in developing a product at date t. In this framework there many not exist any subgame perfect equilibrium that is efficient. A three-period example will make this point.

There are two identical firms $i = 1, 2$. There is no uncertainty: $\omega_0 = 0$ and $\omega_1 = 1$. At date 0 the development technology is

$$V_i(k_i, \omega_0) = \begin{cases} 5 & k_i \geq 9 \\ 0 & k_i < 9 \end{cases}$$

and at date 1 it is

$$V_i(k_i, \omega_1) = \begin{cases} 5 & k_i \geq 2 \\ 0 & k_i < 2 \end{cases}.$$

The only function of the states here is to shift the technology, making it more efficient at date 1 than at date 0. The opportunity cost of investment is $R = 1$. Since the technology is deterministic, there is no advantage to having both firms invest at a single date. The question is whether to invest 9 at date 0 or 2 at date 1. The former yields a surplus of $2 \times 5 - 9 = 1$ and the latter a surplus of $5 - 2 = 3$ so the efficient decision is to develop the product at date 1. However, there is no subgame perfect equilibrium that achieves this. Suppose that firm i invests $k_i = 2$ at date 1 in equilibrium and that no firm invests at date 0. Then firm $j \neq i$ earns zero profits and can do better by investing $k_j = 9$ at date 1. To see this, note that once firm j has developed the product, firm i's best response at date 1 is to invest $k_i = 0$, because if firm i also develops the product they will both earn no revenue at date 2 as a result of Bertrand competition and that means that firm i's profit is $0 - 2 = -2$. By pre-empting firm i, firm j captures all the surplus and earns a profit of $2 \times 5 - 9 = 1$, which is greater than 0.

This pre-emption motive does not occur in the two-period version of the model because firms choose their investments at the same time. The three-period example above is special, but the fact that development activity in the current period affects future investment in development is a robust feature of models with more than two periods when successive generations of products compete directly.

An interesting question is whether there are particular classes of games in which an analogue of Proposition 1 holds. One example will make this possibility clear. Suppose we have a structure like a patent race in which the firms compete to produce a product of fixed value $\bar{V}$. At each period, either one of the firms has produced this product and the game stops, or the product is not yet developed and the game continues. Then conditional on the game continuing, there is no competing product in existence and the structure of the game does not change over time, except that the time horizon gets shorter and the potential surplus shrinks proportionately.

Given that product-market competition is one of the more plausible governance mechanisms, it is surprising how little formal analysis has been done in this area. Much work remains to be done on this topic.

6 Concluding Remarks

Since Berle and Means (1932) pointed to the separation of ownership and control in the modern corporation, the literature on corporate governance has concentrated on the agency problem between shareholders and managers. It has been widely agreed that the board of directors is an ineffective way of overcoming this problem. The focus instead has been on external governance mechanisms. As we have seen the theoretical and empirical evidence suggests they do not work very well.

In the U.S. and U.K. the main external mechanism is the market for corporate control. The three ways in which this operates are through proxy contexts, friendly mergers and hostile takeovers. Like boards of directors, proxy contests are also widely agreed to be ineffective as a means of disciplining managers. Friendly mergers allow efficiency gains to be made but do not solve the agency problem. This leaves hostile takeovers as the main way in which managers can be disciplined. However, as Hansmann (1996) points out these are a relatively recent invention and were not widely used until the 1960's. The efficiency of firms did not apparently change very much at this juncture. There are also theoretical problems with the operation of the takeover mechanism such as the Grossman and Hart (1980) free-rider problem which were detailed above. Finally, the empirical evidence is mixed. There are increases in stock market values as a result of mergers and takeovers but it is not clear why these increases occur. The evidence from studies of accounting data suggest changes in operating efficiency are hard to find. Alternative explanations are that the increase in stock values is due to a recognition by the market of previous undervaluation or a transfer from other stakeholders as suggested by Shleifer and Summers (1988).

In Japan and Germany, the absence of a market for corporate control has led to an alternative theory of how the agency problem is overcome. In Japan it has been suggested

that the main bank system performs this role. The idea is that a firm's major bank, which is typically also a holder of a block of equity, can exercise considerable influence. In Germany, the *hausbank* system operates in a similar way. The main difference is that in addition to loans and the direct ownership of equity German banks are also able to vote the proxies of customers' shares. How effective are these mechanisms in ensuring managers pursue shareholders' interests? At a theoretical level there is an issue of why the banks should undertake the role of pursuing shareholder value maximization. As with the corporations themselves, they are public companies and there seems no reason why they do not also suffer from an agency problem. An illustration is the fact that the managers of the big three German universal banks have proxies for such a large proportion of their own bank's shares that they have effective voting control. At an empirical level the evidence for the effectiveness of this type of system is that when a firm does have financial problems its main bank or hausbank does intervene and the firm is able to do better than firms in a similar situation that do not have a link to a bank. Otherwise, there is little evidence of involvement.

Another focus of the literature on corporate governance has been on the use of debt finance as a mechanism for overcoming the agency problem. Grossman and Hart (1982), Jensen (1986) and others argue that by forcing the firm to pay out large amounts of their earnings as interest on debt managers are committing to work hard and avoid squandering shareholders' money. Again this argument is not entirely persuasive. Empirically, the problem is that the most common form of finance is retained earnings. Debt is relatively little used. Most corporations have very little difficulty meeting their interest payments.

In the countries considered there are many types of private organization other than for-profit corporations. These include non-profit firms. The governance mechanisms for these organizations provide additional insights. There is no market for corporate control and no external monitoring by financial institutions. The only apparent external oversight is through boards of trustees and directors. Despite this lack of a solution to the agency problem, these organizations are able to compete with for-profit corporations and in some sectors such as higher education are dominant.

To summarize, the standard corporate governance mechanisms that are the focus of much of the literature do not appear to work very effectively. However, despite this lack of outside discipline and monitoring most firms seem to operate fairly efficiently. In all the countries considered there are many firms which compete effectively in international markets and their shareholders have historically received high rates of return. Many non-profits also compete effectively with for-profit organizations.

How can firms operate efficiently and generate returns for shareholders when standard corporate governance mechanisms are ineffective? We have argued that a broader perspective than the standard agency view of governance is necessary. What is crucial is dynamic competition in product markets. In order for firms to survive in competitive markets in constantly changing environments they must have entrepreneurial management teams that do more than cost minimize. They must make good decisions about the future direction the firm should move in. Managers are more than just stand-ins for shareholders, they must take the initiative. In such circumstances there is likely to be considerable diversity

of opinion and the standard agency framework is not valid. Monitoring by potential raiders and managers is not relevant. The best that may be achievable is to allow management teams to compete and see which are successful and survive. Rather than having a raider take over an ineffective firm and change its policies what happens is that the best firms take over the market. This broader view can explain why firms with such different explicit internal and external governance mechanisms are able to operate reasonably efficiently and provide a return to shareholders.

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Table 1

Number of Members on Boards of Directors

U.S.[1]			U.K.[1]			Japan[1]			France[1]			Germany[2]		
Ford	15	(10)	Glaxo	16	(7)	Toyota	60	(1)	Saint Gobain	16		Hoechst	21	11
IBM	14	(11)	Hanson	19	(8)	Hitachi	36	(3)	AGF	19	(5)	BASF	28	10
Exxon	12	(9)	Guinness	10	(6)	Matsushita	37	(6)	Usinor Sacilor	21	(5)	Robert Bosch	20	11
Mobil	16	(10)	British Airways	10	(6)	Nissan	49	(5)	Alcatel Alsthom	15		Krupp	22	7
Philip Morris	16	(4)	Allied Domecq	12	(4)	Toshiba	40	(3)	Elf Aquitaine	11		Bayer	22	11
RJR Nabisco	9	(6)	Grand Metropolitan	14	(1)	Honda	37	(3)	Renault	18		Daimler Benz	20	8
Texaco	13	(11)	BTR	10	(4)	Sony	41	(6)	Thomson	8		Volkswagen	20	7
Johnson & Johnson	14	(12)	Associated British Foods	7	(1)	NEC	42	(5)				Thyssen	23	27
GAP	11	(8)	British Steel	8	(0)	Fujitsu	36	(7)				Siemens	20	15
						Mitsubishi Electric	37	(3)						
						Mitsubishi Motors	43	(4)						
						Mitsubishi Heavy Industries	43	(3)						
						Nippon Steel	53	(1)						
						Mazda	45	(8)						
						Nippon Oil	22	(0)						

Notes: 1. Figures in parentheses:

U.S.: Outside directors

U.K.: Non-executive (outside) directors

Japan: Outside directors (including cross directorships)

France: Directors from the Government

2. For Germany the first column represents the members of the Supervisory Board and the second is the members of the Management Board.

Source: Institute of Fiscal and Monetary Policy (1996), Chart III-3-3, p.69.

Table 2

Regulations on Shareholding of Financial Institutions and Nonfinancial Corporations

	U.S.	U.K.
Banks	Banks: Cannot hold shares of other corporations (Glass-Steagall Act). Bank holding companies: Holdings are limited to a maximum of 5% of the shares of nonfinancial corporations Trusts: Holdings are limited to a maximum of 10% of the fund's assets in any one company's shares.	No special regulations on holdings. However, in the case of large volume acquisitions of shares, advance permission of the bank of England is required. A report to the Bank of England is required when exposure (all claims including shares invested) exceeds 10% of a bank's total capital. (See note 1.)
Life Insurance Companies	Varies by state. For instance, under New York State Law (which applies to 60% of all insurance companies), investments must be less than 20% of assets or a maximum of 50% of surpluses. Holdings of the shares of any single company are limited to 2% of total assets.	Voluntary self-limitation of holding of stock in any single company (normally 2.5% of assets), for the purpose of portfolio diversification. A maximum (normally 5% of assets) is imposed on the amount of stock in any single company which a pension fund or insurance company can hold on its own.
Other Insurance Companies	Prohibition on holding a non-insurance company in its entirety.	Same as above
Mutual Funds	Tax penalty imposed on holdings in excess of 10% of the stock of any single company.	Under laws regulating financial services holding of stock for the purpose of controlling a company is prohibited.
Pension Funds	Under the Employee Retirement Income Securities Act, investment diversification is required. Holdings in excess of 10% of the pension fund's own stock are prohibited.	Same as for insurance companies.
Other	Holding of stock which results in restricting competition is prohibited.	Under "The City Code on Takeovers and Mergers," the mutual holding of shares the purpose of which is to prevent the transfer of control of stock is prohibited.

Table 2 (cont.)

	Japan	France	Germany
Banks	Under Article 11 of the Anti-Monopoly Law holdings are limited to 5% of the total number of issued shares of a domestic company.	The holding of shares of any single nonfinancial corporation is limited to a maximum of 15% of the bank's capital. Total holdings of all shares cannot exceed 60% of all the bank's capital.	Holdings greater than 10% are permitted, but only up to the value of the bank's capital. (See note 1).
Life Insurance Companies	Under the Anti-Monopoly Law, holdings are limited to a maximum of 10% of the total number of issued shares of any single company.		Holding of shares up to 20% of total assets is permitted.
Other Insurance Companies	Same as above.		No regulations.
Mutual Funds	No regulations.		No regulations.
Pension Funds			No regulations.
Other	Establishment of holding companies is prohibited (Article 9 of the Anti-Monopoly Law). A subsidiary whose parent company owns more than half of its stock cannot hold stock in its parent company (Commercial Code Article 211 [2]). When one company controls another through shareholdings the controlled company has no voting rights with respect to the controlling company's stock (Commercial Code, Article 241 [3]). A corporation which engages in nonfinancial business and has capital assets worth at least 10 billion yen, or net assets worth at least 30 billion yen, is prohibited from holding shares in domestic companies exceeding the value of its capital or net assets, whichever is greater (Anti-Monopoly Law, Article 9 [2]). (See note 2.)	A company can hold a maximum of 10% of the total number of issued shares of another company. Subsidiaries can also hold up to 10% of the stock of parent companies but cannot vote.	A subsidiary whose parent company owns more than half of its stock cannot hold stock in its parent company. Mutual holding of shares is possible, but voting rights are limited to 25% of all voting rights, even when a company owns more than 25% of the stock of another company. Establishment of holding companies is permitted (in the case of pure holding companies and management holding companies).

Notes: 1. The U.K. and Germany are scheduled to make modifications to their regulations as EU integration progresses.
2. Japan is scheduled to make changes to its laws on holding companies as part of the 'Big Bang' reform of its financial system.

Source: Institute of Fiscal and Monetary Policy (1996), Chart III-2-3, p. 60.

Table 3

Comparison of Shareholders by Sector
(% of Total)

	Individuals	Pension funds, etc.	Financial Institutions	Nonfinancial Corporations	Public sector	Foreign individuals and institutions	Other
U.S.	50	20	5	14	0	5	6
U.K.	20	31	30	3	4	12	
Japan	23		41	25	1	4	6
France	34		23	21	2	20	
Germany	17		22	42	5	14	

Notes: 1. Data is for 1990 except for France which is for 1992.

Source: Prowse (1995), Table 2, p. 13 for U.S. and Institute of Fiscal and Monetary Policy (1996), Chart III-2-1, p. 59 for the other countries.

Table 4

Summary Statistics of Ownership Concentration of Large Nonfinancial Corporations
Percentage of Outstanding Shares Owned by the Largest Five Shareholders

	U.S.	U.K.	Japan	Germany
Mean	25.4	20.9	33.1	41.5
Median	20.9	15.1	29.7	37.0
Standard deviation	16.0	16.0	13.8	14.5
Minimum	1.3	5.0	10.9	15.0
Maximum	87.1	87.7	85.0	89.6
Mean firm size (millions of US$, 1980)[1]	3,505	1,031	1,835	3,483
Mean firm size (millions of US$, 1980)[2]	1,287	N.A.	811	1,497

Notes: 1. Measured by total assets.
2. Measured by market value of equity.
3. Samples: U.S.: 457 nonfinancial corporations in 1980.
U.K.: 85 manufacturing corporations in 1970.
Japan: 143 mining and manufacturing corporations in 1984.
Germany: 41 nonfinancial corporations in 1990.

Source: Prowse (1995), Table 9, p. 25.

Table 5

Frequency of Majority Ownership and the Identity of the Majority Shareholder
(%)

	U.S.	U.K.	Japan	Germany
Frequency of majority ownership[1]	10.8	9.8	8.4	25.1
Identity of majority owner:[2]				
Individual	5.1	6.7	2.1	6.4
Financial Institution	5.7	0	3.6	3.7
Nonfinancial firm		1.8	2.7	8.7
Other[3]		1.3	N.A.	6.4

Notes: 1. Number of majority-owned firms as a percentage of total number of firms in the sample. For the U.S., number of majority-owned firms identified from the total of all listed companies.
2. Number of firms majority-owned by a certain shareholder class as a percentage of all firms in the sample.
3. Includes foreign and government majority-owned companies. For Japan, foreign-owned companies are subsumed in the other categories.

Source: Prowse (1995), Table 10, p. 29.

Table 6

ASAHI BREWERIES, LTD.

Corporate Philosophy of Asahi Breweries, Ltd.

We at Asahi Breweries, Ltd., through our business activities including alcoholic and nonalcoholic beverages, food and pharmaceuticals, wish to contribute to the health and well-being of people the world over. By thus contributing to society as a whole, the company seeks to attain the trust and confidence of the consumer and develop still further.

1. Consumer Orientation

Identifying the best interests of consumers, we endeavor to meet their demands by creating products suited for contemporary tastes and lifestyles.

2. Quality First

Open to consumer opinion of our products, we consistently enhance quality level and extend technological capabilities in order to market the finest products in the industry.

3. Respect for Human Values

Our Company firmly believes that human beings are the core of the business, and follows the principle of human values through developing human resources and implementing fair personnel management. Each employee is encouraged to fully utilize his or her own potential, and work to realize an open, positive thinking corporate culture.

4. True Partnership Between Labor and Management

Our Company aims to strengthen harmonious relations between labor and management based on mutual understanding and trust. Both parties work hand in hand for corporate development as well as the welfare of all employees.

5. Cooperation with Business Associates

We seek to build strong relations with all our business associates and affiliates in a spirit of co-existence and co-prosperity based in mutual trust. At the same time, we are determined to accept and fulfil our responsibilities as the core of the Asahi group of companies.

6. Social Responsibilities

We at Asahi, through securing and expanding the base of our operations, desire to fulfill our responsibilities to stockholders and the local communities in which we operate. Also in carrying out business activities, we sincerely observe the moral principles of management based on social standards.

Source: Asahi Breweries, Ltd. Case, 1989, Harvard Business School, 9-389-114.

Table 7

Service Industries Where Taxable and Non-taxable Firms Co-exist: U.S. Totals 1992[1]

SIC Codes	Kind of business or operation	Taxable Firms[2] Establishments (number)	Taxable Firms[2] Receipts[4] ($1,000)	Tax-exempt Firms[3] Establishments (number)	Tax-exempt Firms[3] Revenue[5] ($1,000)	Tax-exempt Firms' Share of Total Establishments (%)	Tax-exempt Firms' Share of Total Revenue (%)
Health Services:							
8011	General medical clinics	4,736	12,590,420	3,187	16,548,253	40	57
8021	Dental clinics	604	351,169	115	73,640	16	17
805	Nursing and personal care facilities	14,954	33,989,607	5,925	15,220,487	28	31
8062	General medical and surgical hospitals	704	24,162,290	4,920	254,391,214	87	91
8063, 9	Specialty Hospitals	699	6,920,685	797	25,344,022	53	79
808	Home health care services	8,045	10,413,844	2,215	5,713,903	22	35
809	Misc. health and allied services, n.e.c.	11,457	9,604,620	6,492	7,122,298	36	43
Educational Services:							
823	Libraries	232	30,141	1,572	527,347	87	95
824	Vocational schools	4,615	3,892,230	1,052	548,601	19	12
829	Schools and educational services, n.e.c.	9,888	3,320,018	3,659	1,897,224	27	36
Social Services:							
83	Total	59,123	13,349,165	81,726	53,671,936	58	80
835	Child day care services	35,327	5,269,980	15,970	3,691,637	31	41
832,3,6,9	Other social services	23,796	8,079,185	65,756	49,980,299	73	86
R & D, Management and Related Services:							
8731	Commercial physical & biological research	3,826	11,788,343	344	4,978,474	8	30
8732	Commercial economical, sociological and educational research	5,165	6,138,318	536	352,374	9	5
8734	Testing laboratories	4,540	4,763,614	164	371,169	3	7

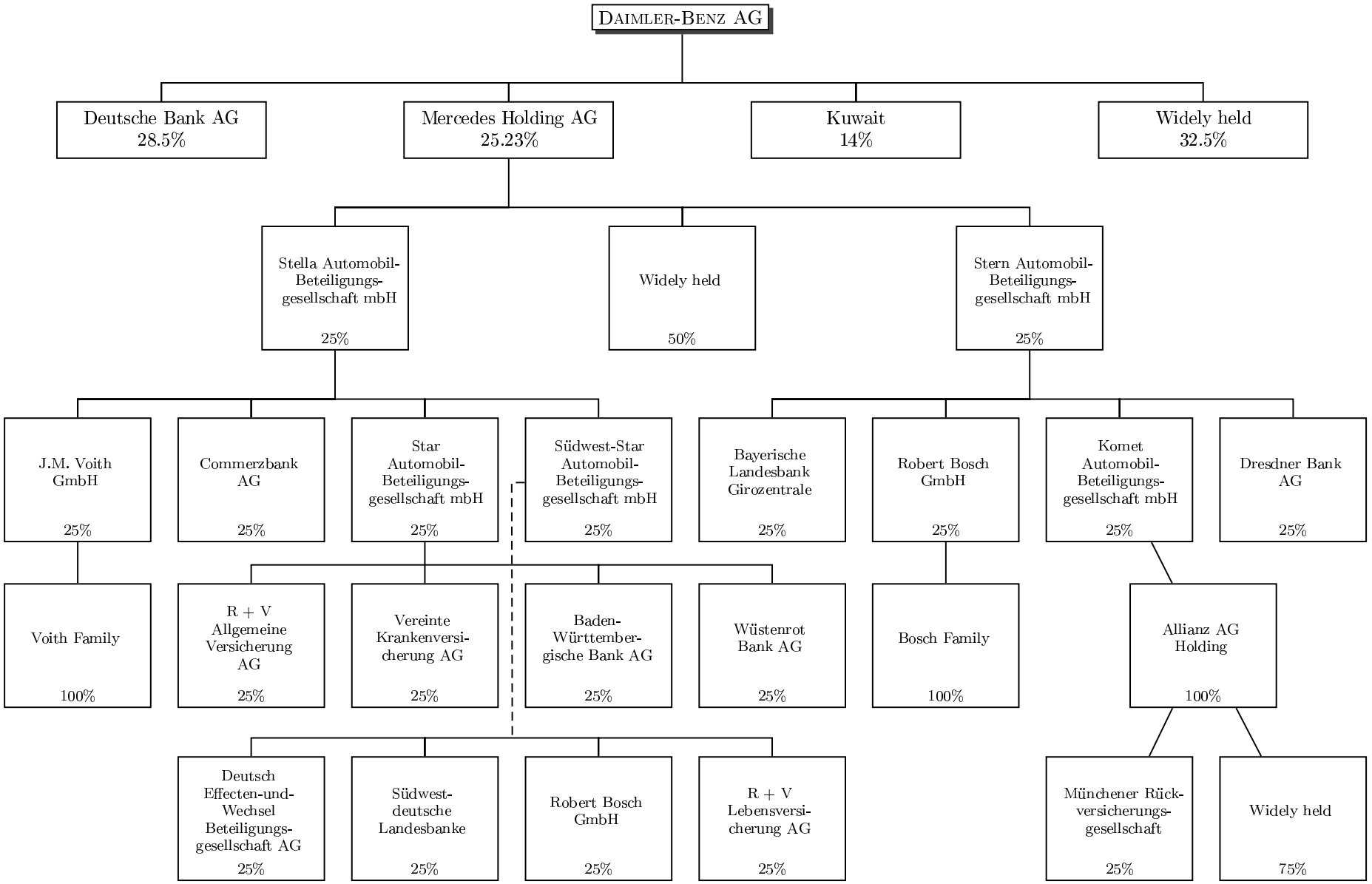
8741	Management services	19,733	21,728,354	453	598,290	2	3
8742	Management consulting services	33,762	22,628,984	342	326,373	1	1
8743	Public relations services	5,103	2,890,250	205	63,935	4	2
8748	Business consulting services, n.e.c.	12,628	4,573,223	694	1,258,292	5	22
Amusement, Recreation and Related Services:							
7922	Theatrical producers and misc. services	4,255	4,433,701	1,669	1,296,809	28	23
7929	Bands, orchestras, actors and other entertainers and entertainment groups	5,831	4,191,788	1,420	1,522,885	20	27
7991	Gymnasiums and athletic clubs	1,697	880,109	183	145,255	10	14
7997	Membership sports and recreation clubs	7,275	5,018,717	7,452	5,609,613	51	53
841	Museums and art galleries	356	134,612	2,749	2,602,725	89	95
842	Arboreta & botanical or zoological gardens	119	57,085	329	595,818	73	91
7032	Sporting and recreational camps	1,840	603,079	1,205	373,727	40	38

Source: " The 1992 Census of Service Industries": United States. U.S. Department of Commerce, Bureau of the Census.

1. For detailed definition of terms, refer to the source cited above.
2. The two classifications are based on the Federal income tax filing requirement for the establishment or organization. Establishments which indicated that all or part of their income was exempt from Federal income income tax under provisions of Section 501 of the IRS code were classified as tax-exempt; establishments indicating no such exemption were classfied as taxable. All government-operated hospitals were classified as tax-exempt.
3. The basic dollar volume measure for taxable service establishments includes receipts from customers or clients for services rendered, from the use of facilities, and from merchandise sold during 1992, except for health practitioners and legal, architectural, engineering and surveying services, which reported on a cash basis. Receipts are net after deductions for refunds and allowance for merchandise returned by customers. They do not include taxes collected from customers and remitted directly to a local, state or Federal tax agency, nor do they include income from contributions, gifts, grants, dividends, interest and investments; or sale or rental of real estate.
4. Basic Dollar volume measure for tax-exempt firms. Includes revenue from customers or clients for services rendered and merchandise sold during 1992. Also included are income from interest, dividends, gifts, grants, rents, royalties, etc. Receipts from taxable business activities of firms exempt from Federal income tax (unrelated business income) are also included in revenue. Revenue does not include taxes collected and directly paid, sale of real estate, investments or other assets.
5. N.E.C. : Not elsewhere classified.

Figure 1

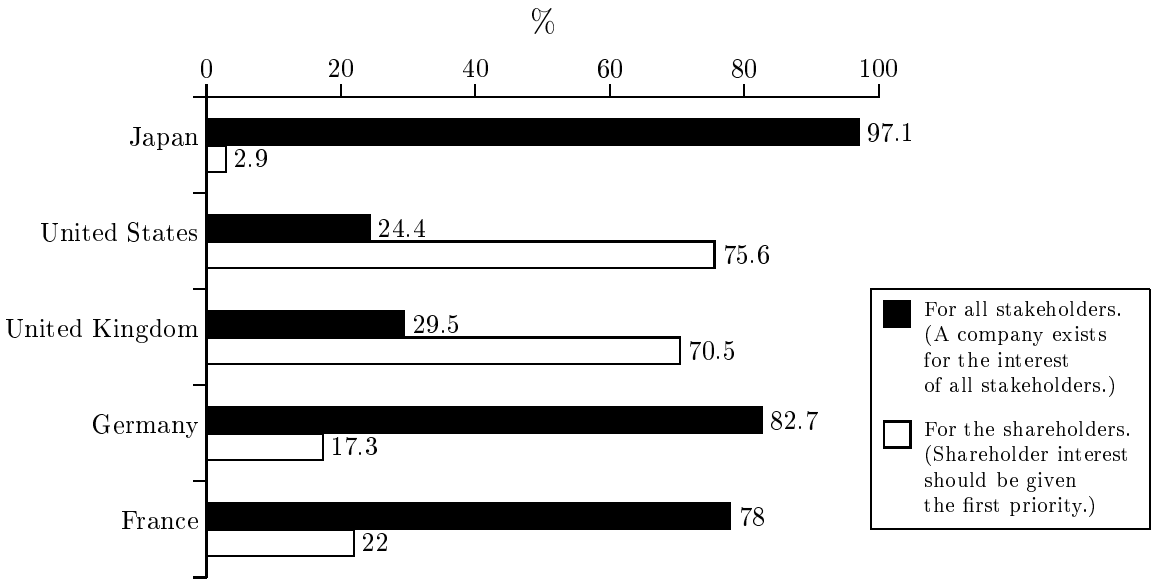
Ownership Tree of Daimler-Benz AG



Source: Prowse (1995)

Figure 2

Whose Company Is It?



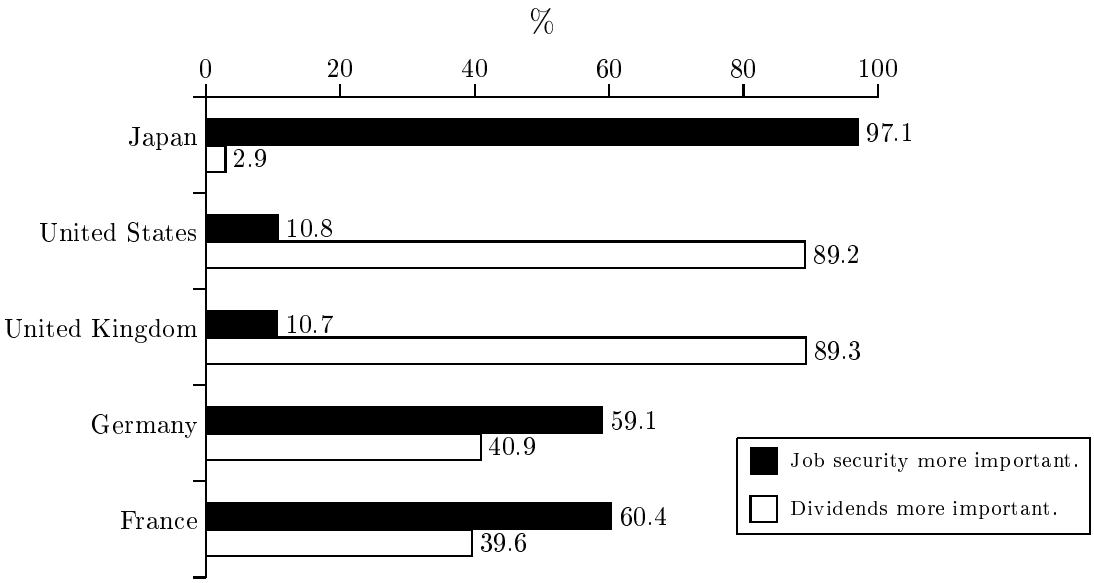
Number of firms surveyed: Japan, 68; United States, 82; United Kingdom, 78; Germany, 110; France, 50.

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

From: Institute of Fiscal and Monetary Policy (1996), Chart III-1-2, p. 57.

Figure 3

Job Security or Dividends



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

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

From: Institute of Fiscal and Monetary Policy (1996), Chart III-4-6, p. 84.