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The Scarcity of Effective Monitors and Its Implications For Corporate Takeovers and Ownership Structures*

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Abstract

Agency problems in firms are prevalent because effective corporate monitors are scarce. This paper presents a model that formalizes the scarcity of effective monitors and explores its implications for corporate monitoring mechanisms and ownership structures. We call the most effective monitors - wealthy investors with corporate governance ability - “restructuring specialists”. Their special monitoring ability is a scarce resource in the economy. These restructuring specialists are more effective monitors than coalitions of many small investors run by managers, which face their own agency problems that make them less effective at monitoring. The restructuring specialists have an incentive to acquire blocks for restructuring purposes only in those states of the world in which a restructuring increases firm value the most. This corresponds to a takeover. The restructuring specialists’ investment strategy is an important determinant of corporate ownership structures. Initially dispersed ownership can be optimal only if sufficient liquidity trading allows these special monitors to benefit from state-contingent block acquisitions. The extent of dispersed ownership also depends on the degree of monitoring superiority of the restructuring specialists and the capital available to them, as well as the likelihood that a restructuring may be needed. Firms with initially dispersed ownership and with a financial intermediary as a blockholder can coexist although they are otherwise identical. The model can explain several observations concerning ownership structures and monitoring mechanisms in different developed economies.

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I. Introduction

The dominant paradigm in corporate finance is that firms suffer from agency problems, because managers often behave in their own interests instead of maximizing firm value. These agency problems can be important only if there is a scarcity of effective monitors of management, which is assumed (at least implicitly) in most of the literature. One reason for this scarcity of effective monitors is that only very few large investors do not face agency problems themselves, which make them less effective at monitoring. Put differently, block positions constituting the concentrated wealth of principals, acting on their own, are rare and hence “agency-cost free capital” is scarce. In this paper we take this idea of the scarcity of effective monitors seriously and provide the first formal model exploring its implications. We show that the idea of scarce effective monitors by itself generates a rich set of implications for corporate ownership structures, disciplinary takeovers, and the role of financial intermediaries in monitoring.

Explaining equity ownership structures and monitoring mechanisms, such as whether there is an active takeover market or not, has proven difficult. The literature on corporate governance emphasizes the role of large blockholders in constraining inefficient decisions by managers. In contrast to dispersed small investors, large blockholders have sufficient incentives and power to monitor management and force a change in managerial strategy (a restructuring) that increases firm value (e.g., Shleifer and Vishny (1986)). There is indeed substantial empirical evidence documenting a positive role of large shareholders in corporate governance (see, for example, Kaplan and Minton (1994), Kang and Shivdasani (1995), Yafeh and Yosha (1995), and Gorton and Schmid (2001)). But, if large investors are effective corporate overseers, then such large investors should always be present. And if large investors are scarce, then such blockholders should be created by coalitions of small investors, as suggested, for example, by Diamond (1984). Our analysis begins by relaxing the assumption that large blockholders are homogenous; in particular, we assume that the most effective monitors, whom we call “restructuring specialists”, are better monitors than other blockholders but have only limited capital or wealth available to them. One might think of “restructuring specialists” as including certain rich individuals who have come to be known as “raiders” (Holderness and Sheehan (1985)) and “activist investors” (Bethel, Liebeskind, and Opler (1998)) such as the Bass brothers, the Belzberg family, Leon Black, the late Charles Bluhdorn, Carl Icahn, Irwin Jacobs, Kirk Kerkorian, Carl Lindner, David Murdock, and Victor Posner. With their own money at stake, these investors have the greatest incentive to monitor managers effectively. Perhaps, this category of investors might also include some managers of funds with high-powered incentives and a limited number of investors (so that their incentives are not too diluted), such as some vulture funds in the market for financially distressed firms. While many small investors can try to band together to create a large investor and hold blocks in firms by pooling their resources, the resulting funds, which we call financial intermediaries (and alternatively could be called institutional investors), cannot perfectly repli-

cate the restructuring specialists. They have agency problems that are similar to those in the firms they invest in. This makes them less effective monitors.¹ Analysis of how scarce restructuring specialist capital is allocated can explain many of the stylized facts about corporate ownership structures and monitoring mechanisms in different developed economies.

Our setting is as follows. We assume a simple agency problem. Firms are run by managers who never want to change their strategy, although this may increase firm value. Hence, there may be a need for a restructuring imposed on management by outside investors in some states of the world. Because of free-rider problems among small shareholders, only an investor with a sufficiently large block can implement this restructuring. There are two types of potential blockholders. First, there are the restructuring specialists, who have a superior ability in restructuring firms. However, their wealth or the capital available to them is limited and hence is a scarce resource in the economy. Second, many small investors can pool their funds in financial intermediaries, who are large enough to be blockholders and restructure firms.

There are two ways to address the corporate control problem in our setting. First, a firm can have a permanent, or non-state contingent, blockholder who forces a restructuring in states in which this increases firm value, but is also a blockholder in states of the world in which a restructuring is not needed. Secondly, block holding can be state-contingent. In this second case, a firm can initially have a dispersed ownership structure. Then, in states of the world where monitoring is needed, it relies on the chance that a restructuring specialist will acquire a block and force a restructuring. Hence, there is a state-contingent allocation of the most effective principals. Firms' initial ownership structures are chosen to maximize the effectiveness of their restructuring policies. For an initially dispersed ownership to be optimal, the restructuring specialists must choose to allocate their capital to disciplinary block acquisitions in firms with dispersed ownership in those situations in which a restructuring may increase firm value. Otherwise, such firms would never be restructured, and hence firm value would be lower than if the firm had a permanent blockholder who implemented some restructuring even if his restructuring ability were limited.

For the takeover market to be active, the restructuring specialists must prefer state-contingent block acquisitions to being permanent blockholders (in which case they would be buying blocks in firms before it became clear whether a restructuring was needed).² While there are some costs to takeovers, we argue that there is one important advantage to such a state-contingent strategy: it allows investors to avoid investing in firms that turn out not to need a restructuring and where, as a consequence, their special

¹ Woidtke (2002) indicates that institutional investors of different types have different valuation effects.

² We often refer to a state-contingent block acquisition through trade with many small investors as a takeover (although it may not, and often does not, involve the purchase of a majority position, see Bethel, Liebeskind, and Opler (1998)).

monitoring ability would be wasted. Hence, if the *ex ante* likelihood that the firm will benefit from a restructuring is low enough, the restructuring specialists will invest their wealth in a state-contingent way.

There are two ways in which restructuring specialists can engage in state-contingent block acquisitions. They can assemble a block by trading with many small investors. Or, it may be more profitable for the restructuring specialists to acquire blocks from existing blockholders (i.e., from coalitions of small investors). If the restructuring specialists prefer block trades, firms with initially dispersed ownership may have no hope of being acquired and restructured by them. Then, dispersed ownership cannot be optimal. We show that only if there is sufficient liquidity trading in the secondary stock market the restructuring specialists will prefer to assemble blocks by trading with many small investors to engaging in block trades.

Even if the restructuring specialists buy blocks in firms with initially dispersed ownership, there are several disadvantages to having an initially dispersed ownership. Because the wealth of the restructuring specialists is scarce, they cannot take over all firms that may need a restructuring, and hence there is a chance that a firm with initially dispersed ownership is not restructured even if it is in a state in which it would benefit from a restructuring. Moreover, the restructuring specialists may only be able to acquire a limited stake in the firm, which may make them less effective at restructuring. Finally, the restructuring specialists will capture some of the surplus from trading with the liquidity traders, and investors need to be compensated for these transfers to the restructuring specialists when the entrepreneurs sell the initial equity. But there is one offsetting advantage of initially dispersed ownership: if such a firm is taken over by the restructuring specialists, it will benefit from the highest value restructuring policy possible, because the best monitors are only active in the takeover market. This is the only reason why dispersed ownership can be optimal in our setting. Put differently, if all blockholders were equally good at restructuring, no firm would have an initially dispersed ownership.

We determine the fraction of firms with initially dispersed ownership and with concentrated ownership. We show that dispersed and concentrated ownership can coexist for otherwise identical firms as long as the restructuring specialists are active in the takeover market. In this case, the more firms there are with an initially dispersed ownership, which rely on the takeover market for monitoring, the worse off each of them is. This is because they have to share the scarce monitoring resources of the restructuring specialists. They are taken over by the restructuring specialist only with a certain probability (determined endogenously in the model) below one. The fraction of firms relying on the takeover market adjusts so that all firms are indifferent between both monitoring mechanisms. Coexistence of dispersed and concentrated ownership is also generated by other papers in the literature. For instance, Chemmanur and Fulghieri (1994) develop a model for the debt market in which firms that are more likely to become distressed obtain loans from financial intermediaries while the other firms issue bonds to many small investors. In contrast

to that literature, we obtain coexistence of financial intermediaries and securities markets although all firms are identical. However, there are also parameter regions in which there are only firms with concentrated ownership or only firms with dispersed ownership.

To summarize, the contribution of this paper is to formalize the idea of the scarcity of effective monitors and explore its implications. The scarcity of effective monitors generates a monitoring role for financial intermediaries despite their inability to perfectly replicate the most effective monitors as well as a role for disciplinary takeovers. To address this issue, we construct (to our knowledge the first) model that allows for principals with differing monitoring ability and for both institutional monitoring as well as monitoring through the takeover market. The allocation of scarce effective monitors can account for a number of stylized facts, including the cross-country dispersion in corporate ownership structures and the coexistence of dispersed and concentrated ownership within a country.

Our analysis gives a new explanation for the existence of dispersed ownership and reliance on the takeover market for restructuring. Existing theories explain the optimality of dispersed ownership typically by appealing to the associated risk diversification (Demsetz and Lehn (1985)) or liquidity benefits. In this literature dispersed ownership is seen as dominated by concentrated ownership from a corporate control perspective.³ Bolton and von Thadden (1998) argue that there is a trade-off between monitoring quality (which is better when the firm has a permanent blockholder) and investors' liquidity demand (having a permanent blockholder reduces liquidity). Dispersed ownership can be optimal only because there is an offsetting advantage not related to corporate control: more dispersed ownership increases liquidity, which investors value.⁴ Bolton and von Thadden (1998), like all other theoretical papers we are aware of, do not distinguish between different types of blockholders, the focus of our paper. While the diversification and liquidity arguments are plausible, they do not seem to provide the whole explanation for observed differences in corporate ownership structures. Given the size of the portfolios of many institutional investors, they should be able to hold large stakes in firms without substantially depriving their investors of the risk diversification and liquidity advantages associated with dispersed ownership.⁵ Moreover, these explanations cannot account for the observation that the most value-enhancing and severe restructuring activities are typically implemented after state-contingent block acquisitions, which is consistent with our model. This includes the dramatic and value-increasing restructurings after the hostile takeovers of the 1980s

³ An exception is Burkart, Gromb, and Panunzi (1997), which is discussed below.

⁴ Black (1992, p. 875) argues that it may be difficult to explain the lack of blockholding by financial intermediaries with a liquidity preference argument. He points out that one major reason for the existence of financial intermediaries is liquidity transformation.

⁵ Burkart, Gromb, and Panunzi (1997, p.695, fn.3) go further and argue that institutional investors could merge their funds and hence increase their ownership positions in a firm up to 100% ownership without increasing their risk exposure. Moreover, they suggest that the high ownership concentration observed in many countries suggest that a lack of diversification is not a dominant concern for many large investors.

(Bhagat, Shleifer, and Vishny (1990)), after disciplinary minority block acquisitions (Bethel, Liebeskind, and Opler (1998)), after block acquisitions by vulture investors in the market for financially distressed firms (Hotchkiss and Mooradian (1997)), and post-LBO restructurings (Kaplan (1989), Bhagat, Shleifer, and Vishny (1990)). This is in marked contrast to the relatively tame extent of monitoring by institutional investors in the U.S. (Karpoff, Malatesta, and Walkling (1996), Wahal (1996), Gillan and Starks (2000)) and even countries with more active financial blockholders, e.g., Japan (Kang and Shivdasani (1997)).

Burkart, Gromb, and Panunzi (1997) argue that even from a corporate control perspective, dispersed ownership may be optimal. This arises because concentrated ownership makes interference with management's actions more likely. This reduces firm-specific investments by management. In contrast to their paper, we argue that even from the perspective of *ex post* corporate control (without managerial *ex ante* investments) dispersed ownership can be optimal.⁶

Our model sheds light on the differences in corporate ownership structures and monitoring mechanisms across developed countries. While in countries such as Germany and Japan most firms have at least one large blockholder, most firms in the U.S. and U.K. do not.⁷ Our model points to several factors that may explain the differences. First, the stock markets in Germany and Japan may exhibit lower liquidity than in the U.S. and U.K. This reduces the incentive of the restructuring specialists to be active in the takeover market. Hence, dispersed ownership is less attractive from a corporate control perspective. An alternative explanation within our model is that institutional investors in the U.S. and U.K. are worse at monitoring than in Germany and Japan. One reason for this is that there are more regulations that hamper their ability to be active in corporate governance in the U.S. and, to a lesser extent, in the U.K. (see Roe (1990) and Black and Coffee (1994)). Alternatively, cross-country differences in ownership structures have been explained by appealing to differing liquidity demands and patience by investors (Bolton and von Thadden (1998)) and by differences in corporate law. La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1998) argue that in countries with weak legal protection (typically civil law countries) dispersed ownership is less likely than in countries with better investor protection and find evidence for this hypothesis. Our model applies to countries in which investor protection is strong enough to make dispersed ownership a feasible option.

We can also explain the coexistence of dispersed and concentrated ownership within countries such as the U.S. and U.K. This observation might appear puzzling on first sight because one might think that all firms should have the same – the most efficient - corporate ownership structure. Our model is also consis-

⁶ We focus on the beneficial rather than potentially detrimental role of large shareholders. Here we follow the vast literature inspired by Berle and Means (1932), including Shleifer and Vishny (1986), Demsetz and Lehn (1985), Admati, Pfleiderer, and Zechner (1994), Bolton and von Thadden (1998), Kahn and Winton (1998), and Maug (1998).

⁷ More precise evidence is discussed in section V.

tent with the prominence of raiders or funds that specialize in block acquisitions to implement a restructuring such as vulture funds in the U.S. and U.K. and their less prominent role in Germany and Japan. These and some additional implications are discussed in more detail in section V.

The remainder of the paper is structured as follows. In Section II, we present the model. Section III analyzes the model and characterizes the optimal investment strategies of the restructuring specialist and the financial intermediaries. It also determines the equilibrium firm ownership structures at date 0. Section IV derives implications of our analysis for corporate ownership structures and takeover activity. Section V discusses some empirical implications and how the model relates to certain empirical regularities. Section VI concludes.

II. The Model

There are three dates in the model economy: 0, 1, and 2. All agents are risk neutral. At date 0, a continuum of identical entrepreneurs with total measure one seek to finance their projects. Each firm is run by a manager and finances its project exclusively with equity. There are two types of potential investors. There is a single investor with special monitoring skills, whom we call a “Restructuring Specialist”. There is a continuum of small investors without special monitoring skills. It takes many small investors to finance the project of any one firm, but the Restructuring Specialist has enough wealth to finance a strictly positive measure of firms. However, his wealth is limited and he cannot raise additional funds through outside financing, since this would dilute his incentives to monitor effectively. Small investors can invest as individuals or they can pool their wealth into funds, which we shall call financial intermediaries. A financial intermediary has enough wealth to be a blockholder.

At date 1 a public signal arrives concerning each firm: there is either good news or bad news about the firm’s final date 2 payoff. Bad news means that the date 2 payoff will be low unless the firm is restructured. “Restructuring” means taking actions that might improve the firm’s date 2 payoff. Managers never voluntarily restructure their firms; only blockholders can restructure.

The Restructuring Specialist is more effective at restructuring than the financial intermediaries: the payoff under a restructuring implemented by the Restructuring Specialist is higher than under a restructuring implemented by a financial intermediary. Investors can acquire blocks either at date 0, before the realization of the state of the world, or at date 1, after the realization of the state.

At date 2 firms with blockholders desiring to restructure are restructured followed by the realization of final payoffs. Figure 1 shows the sequence of events.

A. Detailed Assumptions

Each entrepreneur has a business idea, but needs to obtain financing (in the amount I) and a professional manager to run the firm (though this is not explicitly modeled). While managers run the firm after date 0, entrepreneurs make the initial decision about the source of financing. All firms are financed exclusively with equity. Entrepreneurs auction off the equity to maximize their payoffs. In the auction, each investor specifies the fraction of the firm that he is bidding for and the price he will pay for that fraction. The entrepreneur allocates the shares to the bidders by picking the combination of bids that maximizes his payoffs. The equity is purchased by small individual investors, or blocks are purchased by financial intermediaries, or blocks are purchased by the Restructuring Specialist. While all firms are identical *ex ante*, after selling their equity their publicly observed equity ownership structures may differ, as will be seen.

Payoffs on the project occur at date 2. Payoffs depend on whether the firm is in the good state (receives good news) or in the bad state (receives bad news) at date 1 and on whether the firm is restructured (if it is in the bad state). The state is publicly observable. The probability of receiving bad news at date 1 is δ (with probability $1 - \delta$ good news is received).⁸ A firm that receives bad news will be called “distressed.”⁹ Date 2 payoffs are as follows:

A1. Project Payoffs. Firms that received good news at date 1 receive R at date 2 for sure. It is never optimal to restructure these good firms. Firms that receive bad news receive a payoff of zero if they are not restructured. Their payoff is $H(\gamma) > 0$ if they are restructured, where γ is the fraction of the firm’s equity owned by the largest blockholder.¹⁰

The size of blocks is important because restructuring outcomes are affected by the concentration of ownership at date 2; outcomes are increasing in the blockholder’s ownership fraction. A larger block may give the investor more incentives to improve firm value, because the investor receives a larger fraction of the firm’s cash flows. Alternatively, a larger ownership fraction may give the investor more control rights and hence power to force the firm to make more efficient decisions. This is formalized in:

⁸ In the following, probabilities such as δ are treated both as a probability for an event to happen to an individual firm and the fraction of firms at date 1 that actually experience this event. Of course, with a continuum of firms, there are some well-known technical problems with an appeal to a law of large numbers. For a discussion of these problems and solutions to them, see Judd (1985) and Feldman and Gilles (1985).

⁹ It should be noted that the important point about the “distressed” state is that agency conflicts are severe in this state of the world: a restructuring implemented by an outsider may be needed because the manager is unwilling to implement a restructuring even if it would be value increasing. This “bad news” state could describe a number of different situations. For example, it could be interpreted as a firm in a mature industry that has excess cash that management is unwilling to pay out to shareholders and instead is inclined to invest in negative NPV projects (see Jensen (1986)). We use the term “distress” only for convenience and do not mean to imply that our analysis is restricted to economically distressed firms.

¹⁰ We will see below that each firm has at most one blockholder in equilibrium.

A2. Effects of Block Size. $\partial H / \partial \gamma > 0$.

Assumption A2 says that firm value, given a restructuring, is increasing in block size. This assumption is stronger than what we need and is made to simplify the date 0 ownership structure. It implies that if there is a date 0 blockholder, there is only one date 0 blockholder who owns the entire firm.¹¹ Note that in the following we often write H as an abbreviation for $H(1)$. We also assume that the payoff in the high state (R) is higher than the highest possible payoff in the low state, $H(1) < R$. Blockholders may be useful because:

A3. Entrenched Management and Blockholders. Managers never voluntarily restructure their firms. Furthermore, a block shareholder is necessary to implement a restructuring because small investors cannot coordinate (due to free-rider problems).

There are two possible types of blockholders: The Restructuring Specialist has sufficient wealth to be a blockholder in a positive measure of firms. Small investors individually cannot buy blocks. Small investors, however, can attempt to synthetically create a large investor by forming a financial intermediary. This financial intermediary can be a blockholder.

We assume that the Restructuring Specialist is better at restructuring than financial intermediaries: (note that the superscript “S” stands for (restructuring) “specialist” while the superscript “N” stands for “nonspecialist”)

A4. Restructuring Superiority of the Restructuring Specialist. The payoff under a restructuring performed by the Restructuring Specialist (H^S) is higher than the payoff under a restructuring performed by a financial intermediary (H^N): $H^S(\gamma) > H^N(\gamma)$ for all γ .

At date 1 shares of all firms may be traded. The Restructuring Specialist or a financial intermediary can acquire a block of a firm’s equity from a blockholder (in the block market) or assemble a block by buying shares from many small investors. Such a date 1 block acquisition involves costs c per measure 1 of firms in addition to the price that has to be paid for the shares. If an investor buys from an existing blockholder, he makes a take-it-or-leave-it offer to the blockholder and the blockholder in turn accepts or

¹¹ Zwiebel (1995) provides an analysis of the benefits of partial blockholding and coalitions among several blockholders.

rejects the offer. When buying from many small investors, there is the potential for the well-known free-rider problem (Grossman and Hart (1980)). In our setting, this is alleviated through liquidity trading so that an investor can buy the shares at a price that does not fully reflect the value created by his anticipated restructuring activity. Some noise or liquidity trading is a standard way in the literature to get around the Grossman-Hart free-rider problem (see Kyle and Vila (1991) and Bolton and von Thadden (1998)).¹² In particular, we assume:

A5. Liquidity Trade. At date 1, fraction $\lambda < 1$ of the small investors have to sell the shares of any distressed firm due to liquidity needs.

The price at which an investor can buy shares from small investors at date 1 is modeled in reduced form by assuming that the small investor receives a fraction $1 - \alpha$ of the surplus (the difference in the value of the firm with and without a blockholder) and the buyer receives a fraction α of the surplus. This could be a reduced form for a liquidity trading mechanism as well as the outcome of a bargaining process.¹³

We assume that small investors are competitive whether they act as individuals or form financial intermediaries.¹⁴ Hence, at date 0 shares are priced such that individual small investors and financial intermediaries make zero profits. However, if the Restructuring Specialist supplies funds by himself, he can extract the difference between the equity value of the firm that obtains funds from him and the equity value of a firm that obtains funds from a financial intermediary. This extreme assumption on the bargaining power of the Restructuring Specialist simplifies the analysis, but could be relaxed without changing the qualitative results of the analysis.

Finally, we assume that it is impossible to sell some shares at date 1 and then acquire other shares at date 1 with the proceeds from the sale. This assumption makes the distinction between taking a position at date 0 and taking a position at date 1 meaningful. It ensures that buying shares at date 0 and then selling shares of firms receiving good news in order to acquire shares of firms receiving bad news (because they may need a restructuring) is not a dominant strategy for the Restructuring Specialist. Hence, there is a cost to taking a position at date 0. This assumption is discussed in more detail below. It models in a simple way that the opportunity cost of investing in firms that have not realized their state is that it ties up the

¹² Sometimes the liquidity sellers are called “early consumers” who derive utility only from date 1 consumption and liquidity buyers “late consumers” who derive utility only from date 2 consumption.

¹³ In an earlier version of the paper, we explicitly modeled a liquidity trading price formation mechanism. The main results were identical to our results in this version of the paper.

¹⁴ The model does not determine the size of the financial intermediaries. However, we assume that if small investors form funds, then there are many such financial intermediaries that are competing with each other.

scarce capital of the Restructuring Specialist at least for some time in firms that turn out not to need a restructuring.

B. Discussion of Assumptions

We focus on two differences between the Restructuring Specialist and the synthetic large investors created by the small investors, the financial intermediaries. First, the Restructuring Specialist is scarce. In contrast, small investors and their financial intermediaries are competitive. This means that the Restructuring Specialist has some bargaining power. If the Restructuring Specialist buys blocks of shares at date 0, he can extract surplus from his potential future restructuring services. In contrast, small investors and their financial intermediaries compete for shares at date 0. Second, the Restructuring Specialist is better at restructuring than the financial intermediaries. Our model does not explain why some investors are better at restructuring than others, but takes this as given. There are various reasons why some investors may be better at restructuring than others. They may have better skills or have gained valuable experience in the restructuring field. Incentives also play a role in determining an investor's restructuring capabilities. For instance, managers of large institutional funds with well-diversified portfolios presumably have relatively weak incentives to induce firms to implement value-increasing changes (see, e.g., Romano (1993) and Murphy and Van Nuys (1994)). First, such managers typically obtain only a minimal fraction of the gains from the value improvement. Second, any effort focusing on a single company will affect the value of the portfolio only marginally. Moreover, Brickley, Lease, and Smith (1988) argue that some institutional investors are likely to side with management because of conflicts-of-interest stemming from existing business relationships with the firms they hold equity stakes in. They find evidence from voting behavior in proxy contests that is consistent with their hypothesis. In contrast, an individual wealthy investor does not face such conflicts-of-interest and obtains the bulk of the gains from his restructuring activity. Funds with a limited number of wealthy investors are somewhere in between these two extremes. For instance, many vulture funds provide their managers with strong incentives to maximize the value of their investments. We do not allow the small investors to invest with the Restructuring Specialist because a limited investor base is a crucial determinant of the ability of the Restructuring Specialist to effectively restructure. Otherwise, the Restructuring Specialist's incentives are diluted, since he manages other investors' money.

The restructuring at date 2 may take the form of asset sales, a divestiture of a business line, or a change in business strategy. We assume that incumbent managers are averse to restructuring. One rationale for this is that these managers want to preserve projects that provide private benefits ("pet projects") or that may help to entrench them (see Shleifer and Vishny (1989)). Clearly we implicitly have to assume that contracts cannot fully eliminate managerial restructuring aversion.

Acquiring blocks at date 0 would be a dominant strategy for the Restructuring Specialist if he could costlessly sell the shares of firms that turn out not to be distressed at date 1 (so that his restructuring activity is not needed), and instead acquire blocks in distressed firms. Our assumption that an investor cannot sell shares at date 1 and then invest the proceeds in buying new shares at date 1 rules out this strategy. This assumption serves the sole purpose of capturing in a very simple way that the opportunity cost of acquiring blocks before the realization of the state is that this reduces the amount of money that can be invested in blocks of firms that have realized their state. Without this assumption, there would be no opportunity cost to acquiring blocks at date 0 because, to make our model tractable, there are no distressed firms one could invest in at date 0. An alternative but much more cumbersome way to capture this opportunity cost of acquiring blocks before the realization of the state would be an overlapping generation model in which at all times firms with their state realized and firms in which the state is not yet realized would coexist. In such a more realistic model, our assumption would not be needed. Investing in blocks before the realization of the state would clearly come at the cost of not being able to invest the same money in blocks of firms for which the state has been realized. Hence, our assumption captures in a reduced form nothing else than that the same dollar cannot be spent twice.

III. Analysis

We solve the model in several steps. First, we analyze the payoff of the Restructuring Specialist from investing all his wealth at date 0, the noncontingent strategy. Second, we turn to an investor's opportunities for block acquisitions of distressed firms at date 1, the state contingent strategy. At date 1, such an investor has two choices: he can buy a block in a block trade from an existing blockholder, or he can assemble a block by trading with many small investors. We characterize whether the Restructuring Specialist wants to acquire blocks at date 1 from another blockholder or by trading with many small investors at date 1. Then we analyze whether the Restructuring Specialist wants to acquire blocks at date 0 or at date 1, that is, does he prefer the state-contingent strategy or the non-state contingent strategy? Finally, we consider the value-maximizing ownership structures of the firms at date 0, which are affected by the investors' optimal investment and restructuring policies.

A. Payoff From Investing In Date 0 Blocks

We begin by calculating the profits the Restructuring Specialist can generate by investing his wealth at date 0. We can restrict ourselves to the situation in which a date 0 blockholder owns 100% of the firm because of Lemma 1, which is a direct consequence of assumption A2:

Lemma 1: *A date 0 blockholder will acquire the entire firm.*

Proof: See the Appendix.

Because small investors, and the financial intermediaries they form, are competitive while there is only one Restructuring Specialist (who is assumed to have all the bargaining power), the Restructuring Specialist is able to appropriate the entire surplus generated by the improvement in restructuring decisions brought about by his superior restructuring ability. This implies Lemma 2.

Lemma 2: *The Restructuring Specialist's profit from investing one dollar at date 0 is:*
$$\frac{\delta(H^S - H^N)}{(1 - \delta)R + \delta H^N}.$$

Proof: See the Appendix.

The Restructuring Specialist's profit is driven by the gain in firm value due to the difference in his ability to restructure relative to the ability of the financial intermediary to restructure. This is positive because $H^S > H^N$.

B. Trading Activity at Date 1

The following Lemma characterizes trade at date 1 and simplifies the subsequent analysis:

Lemma 3: *No financial intermediary that is a date 0 blockholder sells shares of a firm at date 1 to small investors or to another financial intermediary. If the Restructuring Specialist is a date 0 blockholder, he does not sell shares at date 1.*

Proof: See the Appendix.

The intuition for Lemma 3 is as follows. There are no gains from trade in the good state, and hence there is no trade in that state of the world. There is only one source of gains from trade in the block market in the bad state: The Restructuring Specialist is better at restructuring firms than other investors. There are no potential gains from trade between any two financial intermediaries or from a trade of a block that the Restructuring Specialist sells to a financial intermediary. A block position will also not be broken up and sold to many small investors because then the firm is known to be worth only zero (due to the absence of any restructuring) and hence will sell for a price of zero. But the blockholder can create a higher value by restructuring. We now turn to the case where the Restructuring Specialist acquires blocks at date 1.

The Restructuring Specialist may acquire blocks in distressed firms by trading with many small investors at date 1. We sometimes call such a block acquisition a “takeover”. However, we do not mean to suggest that the block the investor acquires constitutes necessarily a majority position. Bethel, Liebeskind, and Opler (1998) have documented the prevalence of disciplinary block acquisitions by activist investors who acquire a minority stake. If the Restructuring Specialist wants to acquire a block at date 1, he can acquire a fraction λ of the firm from liquidity sellers.¹⁵

Financial intermediaries could also in principle acquire blocks at date 1. If they do so, they will acquire blocks by buying from many small investors. Block trades between financial intermediaries will not occur due to a lack of gains from trade, as already argued in Lemma 3. Financial intermediaries will not be able to profit as much as the Restructuring Specialist from buying shares from many small investors at date 1 since they are worse at restructuring ($H^N(\lambda) < H^S(\lambda)$). If the lack of restructuring effectiveness of the financial intermediary is severe enough, financial intermediaries might be unable to break even if they acquired blocks at date 1. Lemma 4 gives a sufficient condition for financial intermediaries not to be active as investors at date 1.

Lemma 4: *If $c > \alpha\lambda H^N(\lambda)$, financial intermediaries will not buy blocks at date 1.*

Proof: See the Appendix.

In the remainder of the analysis, it is assumed that this condition is satisfied so that financial intermediaries are never active buyers in the date 1 market. This assumption substantially simplifies the analysis. If it were not satisfied, there might be a limited amount of date 1 block acquisitions by financial intermediaries. An analysis of this case would require more structure to the model. The main results on the Restructuring Specialist’s investment strategy and equity ownership structures would be the same, however.

Instead of buying shares from many small investors, the Restructuring Specialist could also buy blocks from financial intermediaries that bought blocks at date 0. Because the Restructuring Specialist’s

¹⁵ Even though the Restructuring Specialist can acquire only a fraction λ of each distressed firm from liquidity traders, he might want to buy out the remaining shareholders after acquiring the block of size λ . This would improve his restructuring effectiveness since this is assumed to increase in block size (by A2). The Restructuring Specialist will have to pay the full value of the shares under his restructuring policy to the remaining shareholders due to the free-rider problem. However, as a large shareholder owning already a fraction λ of the firm he will benefit from buying out the remaining shareholders because he gains from the increase in value of his existing shares in the firm (see Shleifer and Vishny (1986)). Despite this, it is not clear that the Restructuring Specialist wants to buy out the remaining shareholders because there is an opportunity cost: every dollar he invests in buying out the remaining shareholders cannot be spent on the profitable takeovers of distressed firms. To avoid complicating the analysis we will assume throughout that the Restructuring Specialist prefers to take over more distressed firms to buying out the remaining shareholders in the firms he has acquired a fraction λ in. None of our main results depends on this assumption.

comparative (and absolute) advantage is in restructuring and only firms receiving bad news may benefit from a restructuring, there will be trade only in firms that have received bad news. The Restructuring Specialist has all the bargaining power and buys the whole firm from a financial intermediary for H^N , the value of the distressed firm owned entirely by the financial intermediary. By A2, if the Restructuring Specialist buys a block, he purchases the entire firm.

C. Buying From Many Small Investors or Block Trades?

In the previous subsection, we discussed the two possibilities the Restructuring Specialist has to acquire blocks at date 1: by trading with many small investors or by buying from an existing blockholder. Proposition 1 provides conditions under which the Restructuring Specialist will buy from financial intermediaries and from small investors, respectively, if he invests his wealth at date 1 rather than date 0. It is assumed that the Restructuring Specialist buys a block from many small investors if he is indifferent between buying from many small investors and a financial intermediary.

Proposition 1: *The Restructuring Specialist prefers to buy blocks at date 1 by trading with many small investors if (*) is satisfied, that is, if:*

$$(*) \frac{1}{(1-\alpha)\lambda H^S(\lambda) + c} (\alpha\lambda H^S(\lambda) - c) \geq \frac{H^S - H^N - c}{H^N + c} .$$

If () is not satisfied, the Restructuring Specialist prefers to buy blocks at date 1 from financial intermediaries.*

Proof: See the Appendix.

Condition (*) formalizes how the advantages and disadvantages of buying from many small investors affect the Restructuring Specialist's choice at date 1. The left hand side of (*) gives the Restructuring Specialist's profit per dollar invested in buying shares from many small investors. The right hand side of (*) gives the Restructuring Specialist's profit per dollar invested in block trades. There are two disadvantages in assembling a block by purchasing from many small investors as opposed to buying a block from a financial intermediary: First, the Restructuring Specialist has to share some of the surplus his restructuring activity will generate with the existing small investors. He receives only a fraction α of the value improvement generated by his restructuring activity. Second, the Restructuring Specialist can buy

only a limited block, $\lambda < 1$. This also reduces his effectiveness at restructuring (since $H^S(\lambda) < H^S(1)$) and hence his ability to generate profits from restructuring. Hence, if λ is low enough, he prefers to buy blocks from financial intermediaries. But if λ is high enough, he may prefer to buy shares from many small investors.¹⁶

On the other hand, there is also an important advantage to buying from many small investors. The Restructuring Specialist may create a larger increase in firm value than if he buys from a financial intermediary. The price at which the Restructuring Specialist can buy blocks from many small investors puts some weight on what the firm would be worth under the ownership of many small investors. Since they do not restructure, it would be worth zero. But the value under the ownership of a financial intermediary is H^N , which is larger than zero. The Restructuring Specialist gains from his restructuring activity only to the extent that the value of the firm under his ownership exceeds the value created in his absence. But we have just argued that this is higher under the ownership of a financial intermediary than under the ownership of many small investors. Hence, if H^N is high enough, the Restructuring Specialist buys from many small investors. The following Corollary summarizes the preceding discussion:

Corollary 1: *The Restructuring Specialist prefers to buy at date 1 from many small investors rather than a financial intermediary if and only if λ and H^N are large enough.*

Proof: See the Appendix.

D. The Restructuring Specialist's Choice: Blockholding at Date 0 or Date 1?

The Restructuring Specialist may want to invest in blocks at date 0 or at date 1. Proposition 2 describes his optimal strategy.

Proposition 2: *The Restructuring Specialist prefers to invest in date 1 blocks rather than in date 0 blocks if and only if the cost c associated with a date 1 block acquisition is small enough, i.e. condition (**)(i) or (**)(ii) is satisfied, where (**)(i) is:*

$$c \leq \frac{\lambda H^S(\lambda)[\alpha(1-\delta)R + \delta H^N - (1-\alpha)\delta H^S]}{(1-\delta)R + \delta H^S}$$

and (**)(ii) is:

¹⁶ It may be the case that the Restructuring Specialist never prefers to buy from many small investors, even if $\lambda = 1$. This may occur if α is very small.

$$c \leq \frac{(1-\delta)R(H^S - H^N)}{(1-\delta)R + \delta H^S}.$$

*If neither (**)(i) nor (**)(ii) is satisfied, then he prefers to buy blocks at date 0.*

Proof: See the Appendix.

Condition (**)(i) gives the parameter region in which the Restructuring Specialist prefers to buy shares from many small investors at date 1 to buying blocks at date 0. Condition (**)(ii) describes the parameter region in which the Restructuring Specialist prefers to engage in block trades at date 1 to buying blocks at date 0. Note that in the absence of costs associated with a date 1 block acquisition, block trades at date 1 would dominate block acquisitions at date 0. However, if these costs c are high enough, the Restructuring Specialist prefers to buy blocks at date 0.

On the other hand, if the Restructuring Specialist buys a position at date 0, he is wasting his special restructuring ability because he is tying up his scarce capital also in the good state in which a restructuring is surely not needed. Buying blocks at date 1 avoids this. If the probability of distress (δ) is low enough, this advantage of buying blocks at date 1 is particularly important. Corollary 2 follows from this insight.

Corollary 2: *The Restructuring Specialist prefers to invest in buying blocks at date 1 if and only if δ is small enough.*

Proof: See the Appendix.

E. The Firms' Date 0 Equity Ownership Structure

The Restructuring Specialist's investment choice that was analyzed in sections III.C. and III.D. affects and is affected by the firms' initial equity ownership structures, which are analyzed in this subsection. We show that there is a variety of equity ownership structures that can occur, even though all firms are identical as of date 0.

E.1. The Coexistence of Concentrated Ownership and Dispersed Ownership

If the Restructuring Specialist prefers to buy blocks at date 0 to trading with many small investors at date 1 or exhausts his wealth buying blocks at date 1 from financial intermediaries, then having an initially dispersed ownership is strictly dominated. All firms have a date 0 blockholder because firms without a

date 0 blockholder are never restructured. However, if the Restructuring Specialist invests his wealth at date 1 and prefers to buy blocks at date 1 by trading with many small investors, the restructuring policy implemented in a firm that has no date 0 blockholder may become sufficiently efficient to induce firms to have an initially dispersed ownership. The following Proposition characterizes the unique equilibrium in the perhaps most interesting parameter region. It shows that firms with dispersed and concentrated ownership can coexist although all firms are *ex ante* identical.

Proposition 3: *Suppose the Restructuring Specialist's wealth is scarce such that*

$W < \delta[c + \lambda(1 - \alpha)H^S(\lambda)]$. If () and (**) (i) hold and if*

$$(***) H^N \geq \frac{W}{\delta(c + (1 - \alpha)\lambda H^S(\lambda))} H^S(\lambda)(1 - \alpha\lambda) \text{ and}$$

(****) $H^N < H^S(\lambda)(1 - \alpha\lambda)$ hold,

then at date 0 a measure $x^ = \frac{WH^S(\lambda)(1 - \alpha\lambda)}{H^N \delta(c + \lambda(1 - \alpha)H^S(\lambda))}$ of firms issue shares only to individual*

small investors and a measure $1 - x^$ of firms issue all of their shares to one financial intermediary each.*

Proof: See the Appendix.

The Proposition shows that firms with and without a date 0 blockholder can coexist even though all firms are *ex ante* identical. The situation is portrayed in Figure 2. Note that the efficiency of the restructuring policy by a financial intermediary does not depend on the fraction of firms having no date 0 blockholder. Hence, in Figure 2, the equity value for firms obtaining funds from financial intermediaries is a horizontal line. However, the efficiency of the restructuring policies in firms that have no date 0 blockholder decreases in the fraction of firms that have no date 0 blockholder. In particular, the larger the fraction of firms having no date 0 blockholder, the more likely it is that an individual firm will not be taken over by the Restructuring Specialist after the firm has become distressed. This is because the Restructuring Specialist's wealth is limited. All firms with dispersed ownership have to share the scarce monitoring resources of the Restructuring Specialist. The fraction of firms that have no date 0 blockholder adjusts such that all firms are indifferent between obtaining funds from a financial intermediary and from individual small investors. In Figure 2, x^* denotes the measure of firms without a date 0 blockholder that makes firms indifferent between having a date 0 and having no date 0 blockholder.

There are three disadvantages of dispersed ownership: First, the effectiveness of restructuring is reduced because the Restructuring Specialist cannot buy the whole firm at date 1 from many small investors

but only a fraction λ . The second disadvantage arises from the scarcity of the Restructuring Specialist's wealth. He cannot take over all distressed firms, and hence some firms with initially dispersed ownership that become distressed have no chance of being restructured at all. Finally, liquidity traders have to share the surplus generated by trading with the Restructuring Specialist, and the entrepreneur has to compensate investors for this. Despite these disadvantages of an initially dispersed ownership, this can still be an optimal ownership structure. This is because there is an offsetting advantage: if firms with initially dispersed ownership are restructured, they are restructured in the most effective way since they are restructured by the Restructuring Specialist with his superior restructuring capability.

For coexistence to occur conditions (***) and (****) must be satisfied. Condition (***) says that the value of a firm with initially dispersed ownership (without a date 0 blockholder) is smaller than that of a firm with a financial intermediary as its date 0 blockholder if all firms have an initially dispersed ownership. Then, the probability that the Restructuring Specialist takes over an individual firm with initially dispersed ownership after it becomes distressed at date 1 is as low as possible. If, despite this low probability of a takeover, firms preferred to rely on the takeover mechanism for monitoring, then no firm would rely on the monitoring of a financial intermediary as its date 0 blockholder. Condition (****) says that the value of a firm with a financial intermediary as its date 0 blockholder is not larger than the value of a firm with initially dispersed ownership even if there are so few firms with initially dispersed ownership that each of them is guaranteed to be taken over by the Restructuring Specialist after becoming distressed at date 1. If, despite this maximal probability of a takeover by the Restructuring Specialist, firms preferred to rely on the restructuring of a financial intermediary as their date 0 blockholder, then no firm would have an initially dispersed ownership.

E.2. Only Concentrated Ownership or Only Dispersed Ownership

If the restructuring policy implemented by the Restructuring Specialist is sufficiently more effective than that implemented by a financial intermediary, then all firms have an initially dispersed ownership. In Figure 2, this will be the case if $V(1)$ is above E_{FI} . On the other hand, it may be the case that all firms prefer to have a blockholder at date 0. This will occur if the disadvantages of dispersed ownership discussed above are particularly severe. In Figure 2, this will be the case if $V(0)$ is below E_{FI} . These results are summarized in Proposition 4.¹⁷

Proposition 4: *Suppose conditions (*) and (**)(i) hold. If (***) does not hold, then no firm has a date 0 blockholder. If (****) does not hold, then all firms have a date 0 blockholder.*

Proof: See the Appendix.

Recall that if the Restructuring Specialist is not active in the date 1 stock market buying from many small investors, firms that have no date 0 blockholder are never restructured. Then, having an initially dispersed ownership is always less efficient in terms of restructuring decisions and strictly dominated by having a date 0 blockholder, even if he is a financial intermediary. This is formalized in:

Proposition 5: *Suppose condition (**)(i) does not hold. Then all firms have a date 0 blockholder. Suppose condition (**)(i) holds, but condition (*) does not hold and $W < \delta(c + H^N)$. Then there is an equilibrium in which all firms have a date 0 blockholder.*¹⁸

Proof: See the Appendix.

IV. Implications of the Model for Ownership Structures and Takeover Activity

In this section, we consider how the fraction of firms with dispersed ownership varies with the exogenous parameters to demonstrate the implications for equity ownership structures and for whether the takeover market is active or not. Of course, the takeover market is active if and only if some firms have dispersed ownership.

A. Stock Market Liquidity and Ownership Structure

Proposition 6 summarizes the effect of liquidity on ownership structures. We measure liquidity in our model by the extent of liquidity selling (λ).

Proposition 6: *If the extent of liquidity selling λ is below a critical value, λ_L , then there are no firms with dispersed ownership.*

Proof: See the Appendix.

¹⁷ Conditions (***) and (****) are from Proposition 3. Condition (*) is from Proposition 1 and condition (**)(i) is from Proposition 2.

¹⁸ If condition (*) does not hold, there may be an additional equilibrium in which some firms have no date 0 blockholder. This may occur if so few firms have a date 0 blockholder that the Restructuring Specialist cannot exhaust his wealth by buying blocks in distressed firms from existing blockholders. If he prefers buying shares in distressed firms from many small investors to buying date 0 blocks, some firms may have no date 0 blockholder.

The Restructuring Specialist's payoff from trading with many small investors at date 1 is strictly increasing in the extent of liquidity selling. For very low values of λ , this payoff is lower than the Restructuring Specialist's payoff from investing his wealth at date 0. Hence, if there is not enough liquidity selling, the Restructuring Specialist will not buy shares from many small investors at date 1. But then no firm will have a dispersed ownership, as shown in Proposition 5.

If there is enough liquidity selling, there may be some firms with dispersed ownership if (****) from Proposition 3 holds. The effect of a further increase in liquidity selling on the extent of dispersed ownership, however, is ambiguous. On the one hand, dispersed ownership becomes more attractive because the restructuring by the Restructuring Specialist becomes more effective if he owns a larger block. On the other hand, a larger fraction of liquidity sellers means that more investors will sell their shares below their full value if the Restructuring Specialist trades with them. This reduces the attractiveness of dispersed ownership. The net effect is ambiguous.

B. Scarcity of Restructuring Specialist Wealth

The next Proposition discusses the impact of the wealth of the Restructuring Specialist on ownership structures.

Proposition 7: *Suppose that (*), (**)(i), (***), and (****) hold. If the wealth of the Restructuring Specialist W is below $\bar{W} = \delta(c + (1 - \alpha)\lambda H^S(\lambda))$, then firms with dispersed and concentrated ownership coexist. The measure of firms with dispersed ownership strictly decreases as W becomes smaller.*

Proof: See the Appendix.

The intuition behind this result is straightforward. If the Restructuring Specialist prefers to buy shares from many small investors at date 1 to engaging in block trades at date 1 or buying firms at date 0, dispersed ownership can be optimal. If the Restructuring Specialist's wealth is less scarce, he can take over more distressed firms. This makes dispersed ownership more attractive for a given fraction of firms with dispersed ownership. Hence, for firms to remain indifferent between dispersed and concentrated ownership as W increases, more firms must have dispersed ownership.

C. The Restructuring Ability of Financial Intermediaries

The coalitions of small investors, the financial intermediaries, may be plagued to a greater or lesser extent by agency problems, regulations, or other considerations that affect their ability to restructure.

The next Proposition discusses the effect of the restructuring effectiveness of the financial intermediaries on ownership structures:

Proposition 8: *If H^N is below a critical value H_L^N , there are no firms with dispersed ownership.*

Moreover, if H^N is above a critical value H_H^N , there are no firms with dispersed ownership. If $H_L^N < H_H^N$ and H^N is between H_L^N and H_H^N , there is a parameter region in which some firms have dispersed ownership and, if () is satisfied, the measure of firms with dispersed ownership is weakly decreasing as H^N increases.*

Proof: See the Appendix.

For dispersed ownership to exist, the Restructuring Specialist must invest his wealth in date 1 blocks and buy shares from many small investors. But if financial intermediaries are sufficiently bad at restructuring, the Restructuring Specialist will want to invest at date 0 (or engage in block trades at date 1, see Corollary 1 to Proposition 1). The reason is that he is then “competing” with the restructuring services of the financial intermediaries, extracting the entire surplus from his superior restructuring ability. If the financial intermediaries are very inept at restructuring, this surplus will be so large that it is more profitable for the Restructuring Specialist to buy date 0 blocks (or engage in block trades at date 1) than to assemble blocks by trading with many small investors. If the financial intermediaries are sufficiently good at restructuring, the Restructuring Specialist prefers to trade with many small investors. Then, as the restructuring capabilities of the financial intermediaries improve, relying on their restructuring activity becomes more attractive for all firms. For all firms to remain indifferent between concentrated and dispersed ownership, dispersed ownership must also become more attractive, which will be the case if fewer firms with dispersed ownership have to share the scarce monitoring resources of the Restructuring Specialist.¹⁹ In Figure 2, one can see that an increase in the value of the firm with a financial intermediary as its blockholder, which is generated by an increase in the financial intermediaries’ restructuring capability, will lead to a reduction in x^* , the equilibrium measure of firms with dispersed ownership. Finally, if the restructuring capabilities of the financial intermediaries are sufficiently good, no firm wants to rely on the restructuring by the Restructuring Specialist at date 1, and all firms have a date 0 blockholder. In summary, for very large or very small values of the financial intermediaries’ restructuring ability, there are no firms with dispersed ownership. Of course, the values of the other parameters determine which

¹⁹ Similarly, as long as there are any firms with dispersed ownership, there will be more firms with dispersed ownership if the Restructuring Specialist’s superiority at restructuring increases ($H^S(\lambda)$ is higher for a given λ).

values of the financial intermediaries' restructuring ability are high or low enough to rule out dispersed ownership. If the Restructuring Specialist prefers to buy blocks from many small investors at date 1 to buying blocks from financial intermediaries or at date 0, there is more dispersed ownership if the financial intermediaries' restructuring ability is lower.

In our model, dispersed ownership can only exist if the Restructuring Specialist is indeed better at restructuring than the financial intermediaries. This is formalized in the following Corollary to Proposition 8:

Corollary 3: *If the financial intermediaries are as good at restructuring as the Restructuring Specialist ($H^N(\gamma) = H^S(\gamma)$ for all γ), then all firms have a date 0 blockholder.*

Proof: See the Appendix.

The reason behind this result is that dispersed ownership has only one advantage in our model: it gives a firm the chance of being restructured by the Restructuring Specialist, who is more effective at restructuring than the financial intermediaries. If the Restructuring Specialist is no better at restructuring than the financial intermediaries, this advantage is eliminated. The disadvantages of dispersed ownership make all firms choose to have a date 0 blockholder.

D. The Prevalence of Agency Problems in Firms

The parameter δ , the probability of receiving bad news at date 1, can be interpreted as a measure of agency problems since, for a given underlying economy, it measures the likelihood that the entrenched managers will not respond to a realized date 1 state of the world in shareholders' interests and hence a restructuring is needed. The next Proposition discusses how the probability of distress δ affects ownership structures. Recall that condition (*) is from Proposition 1 and conditions (***) and (****) are from Proposition 3.

Proposition 9: *If the probability of experiencing distress δ is above a critical value δ_H , there are no firms with dispersed ownership. If δ is below this critical value and (*), (***), and (****) hold, there are some firms with dispersed ownership and their measure strictly increases as δ decreases further. If δ is below a critical value δ_L and (****) holds, all firms have a dispersed ownership.*

Proof: See the Appendix.

If the probability of experiencing distress is sufficiently high, the Restructuring Specialist prefers to buy blocks at date 0 rather than at date 1 (see Corollary 2). But then dispersed ownership is strictly dominated since no firm with dispersed ownership is restructured (see Proposition 5). Now consider the case in which δ is below that critical value. If having a date 0 blockholder is not always more efficient than dispersed ownership (if (***) holds) and the Restructuring Specialist prefers to buy shares from many small investors rather than from existing blockholders (if (*) holds), there will be some firms with dispersed ownership. However, the lower δ , the fewer firms with dispersed ownership need to share the scarce monitoring resources of the Restructuring Specialist, which makes dispersed ownership more attractive. Hence, in order for firms to remain indifferent between dispersed and concentrated ownership, there must be more firms with dispersed ownership. Finally, if δ becomes very small, having a dispersed ownership dominates concentrated ownership if (****) holds. This arises because then there are so few distressed firms that the probability of being taken over by the Restructuring Specialist during distress is one, even if all firms have a dispersed ownership and hence have to share the Restructuring Specialist's scarce monitoring resources if they become distressed.

V. Discussion of the Results

Our model can shed light on several features of corporate governance systems and ownership structures observed in different developed economies.

Ownership structures and corporate governance mechanisms in the U.S. and U.K. are markedly different from those in countries such as Germany and Japan in that permanent block holding is much more prevalent in Germany and Japan. In Germany 85 percent of the largest companies have a single shareholder owning more than 25 percent of the voting shares, in contrast to only 16 percent in the U.K. (see Franks and Mayer (2001) and Gorton and Schmid (2001)). In many cases, these blockholders are banks. Control by a few financial intermediaries holding large blocks in a firm is also important for many Japanese corporations (e.g., Prowse (1992)). In contrast, share ownership in the U.S. is more dispersed and there are relatively fewer large blockholders (e.g., Holderness and Sheehan (1988)).

Our model suggests several ways to account for these differences in ownership structures. The lack of dispersed ownership in Germany and Japan could be due to the lack of liquidity of the stock market. If there is insufficient liquidity trading, the best monitors will not engage in state-contingent block acquisitions, and hence there will be no dispersed ownership (see Proposition 6). The model also points to other factors that could explain the much lower degree of dispersed ownership in countries such as Germany and Japan, as compared to the U.S. and U.K. One variable affecting ownership concentration is the monitoring ability of financial intermediaries. U.S. (and to a lesser extent U.K.) financial institutions are

more regulated than German and Japanese financial institutions (see Roe (1990) and Black and Coffee (1994)), although these regulations have been relaxed in the 1990s. Moreover, financial institutions are much more experienced at monitoring firms in Germany and Japan than in the U.S. and U.K. Overall, the ability of institutional investors to monitor is presumably lower in the U.S. and U.K. than in Germany and Japan. This could explain why dispersed ownership is more attractive and more predominant in the U.S. and U.K. (see Proposition 8). Moreover, it might be argued that the restructuring specialists are more effective at restructuring in the U.S. and U.K. than in Germany and Japan because they have more experience. They might also have more capital at their disposal, which could further explain the difference in the observed ownership structures (see Proposition 7).

Our model is also consistent with the prominence of individuals and funds in the U.S. that specialize in state-contingent block acquisitions, including “raiders” (Holderness and Sheehan (1985)) and activist minority block purchasers (Bethel, Liebeskind, and Opler (1998)). There are similar restructuring specialists in the debt markets (see Hotchkiss and Mooradian (1997)). In contrast, there is a lack of individuals or funds specializing in state-contingent block acquisitions to implement a restructuring in countries such as Germany and Japan. If institutional investors or financial intermediaries are not much worse at restructuring than restructuring specialists (Proposition 8) and there is little liquidity trading in the stock market (Proposition 6), then there is little opportunity or incentive to invest capital in a state-contingent way.

Our model suggests that financial intermediaries as blockholders are less aggressive and successful at restructuring than the restructuring specialists after disciplinary block purchases and that they have a weaker effect on performance than the restructuring specialists. This arises because the restructuring specialists are better at restructuring than the financial intermediaries. Consistent with this implication, the most dramatic restructuring and the highest value improvement resulting from restructurings occur after state-contingent block acquisitions. It has been documented that disciplinary block acquisitions, takeovers, and LBOs are associated with high premia and high target announcement effects, often lead to the sale of a substantial part of the assets or undoing of earlier failed acquisitions, and result in substantial performance improvements (Jensen and Ruback (1983), Kaplan (1989), Bhagat, Shleifer and Vishny (1990), Smith (1990), and Bethel, Liebeskind, and Opler (1998)). Vulture investors in the market for financially distressed firms also improve the performance of the firms they invest in substantially (Hotchkiss and Mooradian (1997)).

In contrast, our model suggests that the restructuring activity of financial institutions (if they are substantial blockholders) and their impact on firm performance is much less pronounced. This is indeed the case. Several papers have found that there is either no, or a very small, effect of institutional activism on firm performance in the U.S. (see Karpoff, Malatesta, and Walkling (1996), Wahal (1996), Carleton, Nel-

son, and Weisbach (1998), and Gillan and Starks (2000)). U.S. institutions tend to focus on procedural issues and rarely get involved in restructuring activities. Carleton, Nelson, and Weisbach (1998) explicitly conclude that: “Institutional activism in the 1990s is not a substitute for the hostile takeover market of the 1980s that resulted in large operational changes, but rather a way in which institutions spend small quantities of resources to achieve modest goals” (p.1337).

Kang and Shivdasani (1997) compare how Japanese and U.S. corporations react to poor performance between 1986 and 1990. They find that the extent of downsizing, asset sales, and layoffs in Japanese corporations is greater if the main bank holds a larger equity stake in the firm, suggesting that Japanese financial intermediaries are relatively effective monitors and hence probably more effective monitors than U.S. institutions. There are very few block purchases in these Japanese corporations and hence the corporate control market is inactive. However, in comparison to the Japanese sample, the U.S. firms in Kang and Shivdasani (1997) downsize more, sell substantially more assets, and lay off more employees. Block purchases are important, but the size of blocks held by blockholders present before the performance decline has little effect on the extent of the restructuring. This suggests that restructuring specialists force the restructuring via block purchases and that they are more effective at restructuring than Japanese financial intermediaries.

Our model has some additional empirical implications. We predict that the fraction of firms with dispersed ownership is decreasing in the probability that agency conflicts will arise (see Proposition 9). Moreover, dispersed ownership is less prevalent if takeover costs are higher (see Proposition 3).

VI. Conclusion

Effective corporate monitors are scarce – otherwise, agency problems would not matter much. One reason for this scarcity of effective monitors is that only very few large investors do not face internal agency problems. We have assumed that the wealth of such effective monitors or “restructuring specialists” is scarce and analyzed how this scarce resource is allocated. We show that the allocation of the restructuring specialists’ scarce monitoring resources has rich implications for corporate ownership structures and monitoring mechanisms.

The state-contingent allocation of restructuring specialist wealth corresponds to a takeover. Restructuring specialists have an incentive to deploy their scarce monitoring resources where they are needed most and hence to acquire blocks in situations in which a restructuring may be needed most. If the securities markets are liquid enough, they are likely to prefer assembling blocks by trading with many small investors to block trades with existing blockholders. Then, it may be optimal for some firms to have an initially dispersed ownership and rely for monitoring on the state-contingent block acquisitions of restructuring specialists. The special restructuring ability of these investors may compensate for the disad-

vantages associated with dispersed ownership. Due to the scarcity of the restructuring specialists, financial intermediaries have two important roles. First, they may provide some monitoring of management as permanent blockholders. And second, they can act as block providers for restructuring specialists, facilitating their block acquisitions.

Neither concentrated nor dispersed ownership need be dominant ownership structures. Firms with concentrated and dispersed ownership can coexist although they are otherwise identical. The extent of dispersed ownership depends on the degree of restructuring superiority of the restructuring specialists relative to the financial intermediaries, the probability of a need for a restructuring, the capital available to the restructuring specialists, and the extent of liquidity trading in the securities markets. Our theory can explain cross-country differences in corporate governance systems and ownership structures as well as the coexistence of dispersed and concentrated ownership in the U.S. and U.K..

There are several additional issues that could be analyzed in the framework of this paper. We have focused on the ability of blockholders to implement a restructuring when it is needed most. However, we have abstracted from one other important element of monitoring. Permanent blockholders could also reduce the probability that a restructuring is needed (in our model, reduce δ). Then, having a permanent blockholder would be more attractive than in our model, and there would be less dispersed ownership. This could be easily incorporated into our model. Moreover, it is sometimes claimed that some firms are too big to be monitored effectively. If the wealth of the restructuring specialists is scarce, even they may not be able to hold a block of sufficient size to implement a restructuring or they might be too risk averse to hold substantial blocks in very large firms. In these cases, financial intermediaries who are less effective at monitoring must monitor very large firms. To address this issue, our model would have to be extended to allow for some firm heterogeneity *ex ante*.

Appendix: Proofs

Proof of Lemma 1: First suppose that the Restructuring Specialist is not participating in the auction. A financial intermediary bidding for 100% of the firm will win the auction and obtain all shares of the firm. He can offer a total price for the 100% block of $(1-\delta)R + \delta H^N(1) - I$. Any other combination of bids with the largest block bid for of size θ (that is, for a fraction θ of the firm) will generate a lower payoff to the entrepreneur, since the bidders can bid at most $(1-\delta)R + \delta H^N(\theta) - I$ for 100% of the firm without losing money. The investor bidding for 100% can bid higher because $\frac{\partial H^N(\theta)}{\partial \theta} > 0$, by A2. Competition among the financial intermediaries results in an accepted bid of $(1-\delta)R + \delta H^N(1) - I$ by one financial intermediary bidding for 100% of the firm's shares.

Now suppose that the Restructuring Specialist participates in the auction. He knows that among the competing bids the one that is most attractive to the entrepreneur is by a financial intermediary bidding for 100% of the firm and offering $(1-\delta)R + \delta H^N(1) - I$. He will match that bid (or slightly outbid it). The Restructuring Specialist wants to maximize the firm value under his ownership, because it is the difference between this and the price he pays that determines his profit. By A2, firm value under the Restructuring Specialist's ownership is maximized at $\theta = 1$. Hence, he offers to buy the whole firm. //

Proof of Lemma 2: To calculate the Restructuring Specialist's profits per measure 1 of firms he acquires at date 0, we only need to calculate the difference between the value of the firm with the Restructuring Specialist as date 0 blockholder and the value of the firm with a financial intermediary as date 0 blockholder. This difference in firm value is $\delta(H^S - H^N)$. Recall that we often write H^S for $H^S(1)$ and H^N for $H^N(1)$. Since the price for a measure 1 of firms is $(1-\delta)R + \delta H^N - I$ and the Restructuring Specialist has to spend I per measure 1 of all firms for investment outlays, he can acquire a measure $\frac{1}{(1-\delta)R + \delta H^N}$ of firms per dollar invested. //

Proof of Lemma 3: Of course, there is no sale of shares in the good state of the world. The firm is worth the same to all investors, and hence there are no gains from trade. In the bad state of the world, neither a financial intermediary who is a date 0 blockholder nor the Restructuring Specialist if he is a date 0 blockholder would sell shares to many small investors. This would just reduce the ownership concentration and, by A2, reduce the value of the firm and hence their payoff. Moreover, the price at which these shares could be sold would reflect the reduced ownership concentration. They will also not sell the whole firm to small

investors. In this case, the firm would never be restructured because it does not have a blockholder. But then it is worth zero and the small shareholders will not pay more than that to the blockholder. However, if the blockholder holds on to the block, the firm is worth more than zero, and hence he does not sell the firm to small shareholders. Moreover, neither a financial intermediary nor the Restructuring Specialist will sell the firm to a financial intermediary. Note that we have to be concerned only about sales of the whole firm, by A2. The financial intermediary can bid up to H^N . But the existing blockholder generates the same value by restructuring the firm himself if he is a financial intermediary and a higher value if he is the Restructuring Specialist. //

Proof of Lemma 4: The financial intermediary would buy only distressed firms because the value of a non-distressed firm is known to be R regardless of its ownership structure. The intermediary would pay $(1-\alpha)\lambda H^N(\lambda)$ (per measure one of firms) and the firm would be worth $H^N(\lambda)$ under its ownership. Hence, it would have a profit of $\alpha\lambda H^N(\lambda) - c$ per measure one of firms. But if $c > \alpha\lambda H^N(\lambda)$, this is negative and hence the financial intermediary would lose money. Anticipating that, it will not buy distressed firms at date 1. //

Proof of Proposition 1: If the Restructuring Specialist buys shares from many small investors, he pays per measure one of firms $(1-\alpha)\lambda H^S(\lambda)$, because he buys a fraction λ of each firm he invests in. Hence, he has a profit of $\alpha\lambda H^S(\lambda) - c$ per measure one of firms he takes over. He can take over a measure $\frac{1}{c + \lambda(1-\alpha)H^S(\lambda)}$ of firms, given that he incurs takeover costs for each firm that he takes over and buys a fraction λ of each distressed firm he invests in. Hence, his profit from trading with many small investors is $\frac{1}{(1-\alpha)\lambda H^S(\lambda) + c}(\alpha\lambda H^S(\lambda) - c)$ per dollar invested. This is the left hand side of (*).

If the Restructuring Specialist engages in block trades, he pays H^N and also incurs costs c per measure one of firms he buys. Hence, his profit per measure one of firms he buys is $H^S - H^N - c$. He can buy a measure $\frac{1}{c + H^N}$ of firms with one dollar, given that he incurs costs c and pays H^N per measure 1 of firms he buys. Hence, his profit from block trades is $\frac{H^S - H^N - c}{c + H^N}$ per dollar invested. This is the right hand side of (*). //

Proof of Corollary 1: As is clear from condition (*) in Proposition 1, the profits from trading with many small investors (the left hand side of (*)) are strictly increasing in λ but not affected by H^N . It can be calculated (after a few algebraic manipulations) that the derivative of the left hand side of (*) with respect

to λ is $\frac{H^S(\lambda)c + \lambda \frac{\partial H^S(\lambda)}{\partial \lambda} c}{((1-\alpha)\lambda H^S(\lambda) + c)^2}$, which is strictly positive. The profits from acquiring blocks from existing

blockholders (the right hand side of (*)) are not affected by λ but strictly decreasing in H^N . Hence, the Restructuring Specialist prefers to acquire blocks by trading with many small investors if and only if $\lambda \geq \bar{\lambda}$ or $H^N \geq \bar{H}^N$, where the critical values $\bar{\lambda}$ and \bar{H}^N depend on the other exogenous parameters. Of course, it could be the case that the Restructuring Specialist never prefers to buy from many small investors, even for $\lambda = 1$. This may be the case if α is very small. //

Proof of Proposition 2: Per dollar invested at date 0 the Restructuring Specialist's profits are

$\frac{\delta(H^S - H^N)}{(1-\delta)R + \delta H^N}$, as was calculated in Lemma 2. Alternatively, the Restructuring Specialist can invest his

wealth to acquire blocks in distressed firms at date 1. Then, his profits are, per dollar invested,

$\frac{H^S - H^N - c}{H^N + c}$ if he buys blocks from financial intermediaries and $\frac{1}{(1-\alpha)\lambda H^S(\lambda) + c}(\alpha\lambda H^S(\lambda) - c)$ if he

buys from many small investors (see Proposition 1). One can solve for c by solving the relevant two inequalities (profits from date 0 strategy versus profits from date 1 strategy when buying from financial intermediaries and profits from date 0 strategy versus profits from date 1 strategy when buying from many small investors, respectively). Note that the profits from both date 1 strategies are strictly decreasing in c while the profits from the date 0 strategy do not depend on c . Hence, there is a unique cut-off value for c above which the date 0 strategy is more profitable than buying blocks at date 1 from many small investors and buying blocks at date 1 from existing blockholders, respectively. //

Proof of Corollary 2: The profits from buying shares at date 1 from many small investors (the left-hand side of (*) in Proposition 1) do not depend on δ . The profits from block trades at date 1 (the right hand side of (*) in Proposition 1) do not depend on δ . The profits from buying blocks at date 0 are

$\frac{\delta(H^S - H^N)}{(1-\delta)R + \delta H^N}$ (see Lemma 2). This expression is strictly increasing in δ . Hence, the Restructuring

Specialist prefers to acquire blocks at date 1 if and only if $\delta \leq \bar{\delta}$, where the critical value $\bar{\delta}$ depends on the other exogenous parameters. One can calculate $\bar{\delta}$ by solving for the δ that equates the profits from

buying blocks at date 0 and buying blocks at date 1 by trading with many small investors and from existing blockholders, respectively, and then picking the larger of these two cut-off values. //

Proof of Proposition 3: The entrepreneur can sell all the equity of the firm to a financial intermediary for $(1-\delta)R + \delta H^N - I$. This is the amount that a financial intermediary is bidding for 100% of the firm. Given that financial intermediaries behave competitively, each of them breaks even and bids exactly the date 2 payoff of the firm minus the amount I that they have to supply to finance the project. Next we calculate the amount for which the entrepreneur could sell the equity to many small investors, provided that the Restructuring Specialist invests all his wealth in the date 1 stock market and buys shares from many small investors. The small investors offer a price that makes them break even since they behave competitively. The shares are priced in a way that takes into account the equilibrium restructuring behavior of the Restructuring Specialist. Hence, the entrepreneur can sell the equity for a price equal to the small investors' date 2 payoff minus I or:

$$(\#) E = (1-\delta)R + \delta \frac{W}{\delta x(c + (1-\alpha)\lambda H^S(\lambda))} (\lambda(1-\alpha)H^S(\lambda) + (1-\lambda)H^S(\lambda)) - I.$$

Notice that the Restructuring Specialist buys a fraction λ of each distressed firm's shares that he invests in. Hence, the small investors (who, by A5, as of date 0, face uncertainty about whether they will hold on to or sell their shares at date 1) will receive a payoff equal to the date 1 price of shares, $(1-\alpha)H^S(\lambda)$, with probability λ and the continuation value of the firm, $H^S(\lambda)$, with probability $1-\lambda$. The expression (#) assumes that the Restructuring Specialist cannot take over all distressed firms (that is, $W < \delta(c + (1-\alpha)\lambda H^S(\lambda))$). (If the Restructuring Specialist could take over all distressed firms, all firms without a date 0 blockholder would be taken over for sure if they became distressed. As a consequence, all firms would prefer to have no date 0 blockholder because of (***)). The expression (#) can be written as

$$(\#) E = (1-\delta)R + \delta \frac{W}{\delta x(c + (1-\alpha)\lambda H^S(\lambda))} H^S(\lambda)(1-\alpha\lambda) - I. \text{ This is strictly decreasing in } x.$$

Hence, as long as the Restructuring Specialist will not take over all distressed firms, the value of a firm having no date 0 blockholder depends on the fraction of firms with initially dispersed ownership.

Therefore, if:

$$\frac{W}{\delta x(c + (1-\alpha)\lambda H^S(\lambda))} H^S(\lambda)(1-\alpha\lambda) > H^N \text{ for } x = \frac{W}{\delta(c + (1-\alpha)\lambda H^S(\lambda))} \text{ (so that the Restructuring}$$

Specialist takes over all distressed firms with initially dispersed ownership), as guaranteed by (***)), and the inequality is reversed for $x=1$, as guaranteed by (**), there exists an x^* for which the left hand side of the above expression equals the right hand side. One can calculate

that $x^* = \frac{WH^S(\lambda)(1-\alpha\lambda)}{\delta H^N(c + (1-\alpha)\lambda H^S(\lambda))}$. Hence, for $x = x^*$, the equity value of a firm that has no date 0

blockholder is equal to the equity value of a firm with a financial intermediary as its date 0 blockholder. Thus, if a measure x^* of all firms issue shares to individual small investors and a measure $1 - x^*$ issue shares only to one financial intermediary each, all firms are indifferent between having a date 0 blockholder and not and no firm has an incentive to deviate. Note that the Restructuring Specialist is willing to invest all his wealth at date 1 and assemble blocks by buying shares from many small investors since (*) and (**)(i) hold.

Note also that the investors have no incentive to deviate from their strategies in the auction of the shares at date 0 if and only if the firm value under the ownership structures emerging as the result of the auction are identical. If this were not the case, there would be an incentive to deviate. For instance, if the value of a firm with dispersed ownership was higher than the value of a firm with a financial intermediary as its date 0 blockholder, small investors could increase their bids for the firms that have a date 0 blockholder in the candidate equilibrium and outbid the financial intermediaries that would win the auctions in the candidate equilibrium. Hence, this cannot be an equilibrium. Such an argument does not apply if the value of the firms with different ownership structures is the same and hence there is no profitable deviation in the auction for anybody. //

Proof of Proposition 4: If (*) and (**)(i) hold, then the Restructuring Specialist invests his wealth in buying blocks at date 1 from many small investors. If (***) does not hold, i.e.,

$H^N < \frac{W}{\delta(c + \lambda(1-\alpha)H^S(\lambda))} H^S(\lambda)(1-\alpha\lambda)$, then the equity value of firms that issue shares to small

investors at date 0 is higher than the equity value of firms that have a financial intermediary as their date 0 blockholder even if all firms issue shares only to small investors so that the probability that a particular firm with initially dispersed ownership that is in distress is taken over by the Restructuring Specialist at date 1 is as low as possible. Hence, no firm issues shares to a date 0 blockholder.

If (****) does not hold, i.e., $H^N \geq H^S(\lambda)(1-\alpha\lambda)$, then the equity value of a firm that issues shares only to small investors is below the equity value of a firm with a financial intermediary as its date 0 blockholder even if the probability of a takeover of a distressed firm with initially dispersed ownership by the Restructuring Specialist at date 1 is 1. Hence, all firms prefer to have a date 0 blockholder. //

Proof of Proposition 5: If condition (**)(i) does not hold, then the Restructuring Specialist does not acquire shares from many small investors at date 1. Hence, firms obtaining funds from individual small investors will never be restructured. The equity value of a firm and hence the entrepreneur's payoff from

selling a firm that obtains funds from individual small investors is $E_{SI} = (1 - \delta)R - I$ (the subscript ‘‘SI’’ stands for small investors). The entrepreneur’s payoff from selling a firm that obtains funds from a financial intermediary is given by $E_{FI} = (1 - \delta)R + \delta H^N - I$. Clearly, $E_{FI} > E_{SI}$. Hence, all firms have a date 0 blockholder.

If condition (**)(i) holds but condition (*) does not hold, the Restructuring Specialist prefers to buy blocks at date 1 from existing blockholders to trading with many small investors. Then there is an equilibrium in which all firms have a date 0 blockholder. If all firms have a date 0 blockholder, the Restructuring Specialist exhausts his wealth by buying blocks in distressed firms from financial intermediaries at date 1 because $W < \delta(c + H^N)$. Given that he does so, he will not buy blocks in distressed firms with initially dispersed ownership. But then it is not optimal for any firm to have a dispersed ownership, since its value is only $E_{SI} = (1 - \delta)R - I$, but its value with a date 0 blockholder is $E_{FI} = (1 - \delta)R + \delta H^N - I$. //

Proof of Proposition 6: The profits from investing one dollar at date 1 and buying from many small investors (the left hand side of (*) in Proposition 1) are strictly increasing in λ , as already established in the proof of Corollary 1. The profits from buying blocks at date 0 are not affected by λ . Hence, there is a critical value λ_L^1 such that for $\lambda < \lambda_L^1$, the Restructuring Specialist prefers to buy blocks at date 0 to buying shares from many small investors. Hence, if $\lambda < \lambda_L^1$, the Restructuring Specialist will not buy shares from many small investors at date 1. But then condition (**)(i) does not hold. As a consequence, having no date 0 blockholder is strictly worse than having a date 0 blockholder (see Proposition 5). //

Proof of Proposition 7: If (*) and (**)(i) hold, the Restructuring Specialist prefers to invest in buying shares from many small investors at date 1. If $W < \delta(c + (1 - \alpha)\lambda H^S(\lambda))$ and (***) and (****) hold, the measure of firms with dispersed ownership is given by $x^* = \frac{WH^S(\lambda)(1 - \alpha\lambda)}{\delta H^N(c + (1 - \alpha)\lambda H^S(\lambda))}$ (see Proposition 3).

Clearly, $\frac{\partial x^*}{\partial W} > 0$. //

Proof of Proposition 8: The profits from investing one dollar at date 1 and buying from many small investors (the left hand side of (*) in Proposition 1) are unaffected by H^N . The profits from buying blocks at date 0, $\frac{\delta(H^S - H^N)}{(1 - \delta)R + \delta H^N}$ (see Lemma 2), are strictly decreasing in H^N . Hence, there is a critical value

H_L^N such that for $H^N < H_L^N$, the Restructuring Specialist prefers to buy blocks at date 0 to buying shares

from many small investors at date 1. (Of course, if $H_L^N < 0$, he never prefers to buy blocks at date 0.) But then condition (**)(i) does not hold. As a consequence, having no date 0 blockholder is strictly worse than having a date 0 blockholder (see Proposition 5). There is also a critical value H_H^N such that (****) holds with equality (note that the left hand side of (****) in Proposition 3 increases in H^N while the right hand side is unaffected by it). For $H^N \geq H_H^N$, (****) does not hold and hence there are no firms with dispersed ownership (see Proposition 4).

Now suppose that $H^N \geq H_L^N$ and $H^N < H_H^N$ and (*) holds. Then the Restructuring Specialist prefers to buy blocks at date 1 from many small investors to buying blocks from financial intermediaries or investing his wealth at date 0. Moreover, because (****) holds, having no date 0 blockholder is not always dominated. Hence, there are some firms with dispersed ownership. If (****) does not hold, all firms have a dispersed ownership. If (****) holds, firms with dispersed and concentrated ownership coexist and the measure of firms with dispersed ownership is given $x^* = \frac{WH^S(\lambda)(1-\alpha\lambda)}{\delta H^N(c+(1-\alpha)\lambda H^S(\lambda))}$ (see Proposition 3).

Clearly, then $\frac{\partial x^*}{\partial H^N} < 0$. //

Proof of Corollary 3: The difference between the payoffs of investors in firms with a date 0 blockholder and without a date 0 blockholder is at least $\delta[H^N(1) - H^S(\lambda)(1-\alpha\lambda)]$. This is the difference between the payoffs if the probability of a takeover of a distressed firm with initially dispersed ownership by the Restructuring Specialist is 1. If $H^N(\gamma) = H^S(\gamma)$ for all γ , this is clearly positive. Hence, no firm will have a dispersed ownership. //

Proof of Proposition 9: The profits from investing one dollar in buying shares from many small investors at date 1 (the left hand side of (**)) are not affected by δ . The profits from buying blocks are at date 0 are

$$\frac{\delta(H^S - H^N)}{(1-\delta)R + \delta H^N}$$

(see Lemma 2) and hence strictly increasing in δ . Hence, there is a critical value δ_H such

that for $\delta > \delta_H$ the Restructuring Specialist prefers to buy blocks at date 0 to trading with many small investors at date 1. (Of course, if the critical value δ_H is above 1, the Restructuring Specialist never prefers to buy blocks at date 0 to buying shares from many small investors at date 1). But then (**)(i) does not hold and hence there are no firms with dispersed ownership (see Proposition 5). Now suppose that $\delta \leq \delta_H$. If (*), (**), and (****) hold, there are some firms with dispersed ownership and the measure of

firms with dispersed ownership is given by $x^* = \frac{WH^S(\lambda)(1-\alpha\lambda)}{\delta H^N(c+(1-\alpha)\lambda H^S(\lambda))}$ (see Proposition 3). Clearly,

$\frac{\partial x^*}{\partial \delta} < 0$. Finally, there is a critical value δ_L such that for $\delta < \delta_L$ all firms have a dispersed ownership at date 0 if (****) holds. For sufficiently low δ , the Restructuring Specialist can take over all distressed firms with initially dispersed ownership even if all firms have an initially dispersed ownership, because then $W \geq \delta(c+(1-\alpha)\lambda H^S(\lambda))$. Hence, by (****), no firm has a date 0 blockholder. //

References

- Admati, Anat, Paul Pfleiderer, and Josef Zechner (1994), "Large Shareholder Activism, Risk Sharing, and Financial Markets Equilibrium," *Journal of Political Economy* 102(6): 1097-1130.
- Bethel, Jennifer, Julia Liebeskind, and Tim Opler (1998), "Block Share Purchases and Corporate Performance," *Journal of Finance* 53(2): 605-634.
- Berle, Adolf A., and Gardiner C. Means (1932), The Modern Corporation and Private Property (New York: Macmillan).
- Bhagat, Sanjai, Andrei Shleifer, and Robert W. Vishny (1990), "Hostile Takeovers in the 1980s: The Return to Corporate Specialization," *Brookings Papers: Microeconomics*, 1-72.
- Black, Bernard S. (1992), "Agents Watching Agents: The Promise of Financial intermediary Voice," *UCLA Law Review* 39(4): 811-893.
- Black, Bernard S., and John C. Coffee, Jr. (1994), "Hail Britannia?: Financial Intermediary Behavior Under Limited Regulation," *Michigan Law Review* 92(7): 1997-2087.
- Bolton, Patrick, and Ernst-Ludwig von Thadden (1998), "Blocks, Liquidity, and Corporate Control," *Journal of Finance* 53(1): 1-25.
- Brickley, James A., Ronald C. Lease, and Clifford W. Smith (1988), "Ownership Structure and Voting on Anti-takeover Amendments," *Journal of Financial Economics* 20 (1/2): 267-291.
- Burkart, Mike, Denis Gromb, and Fausto Panunzi (1997), "Large Shareholders, Monitoring, and the Value of the Firm," *Quarterly Journal of Economics* 112(3): 693-728.
- Carleton, Willard T., James M. Nelson, and Michael S. Weisbach (1998), "The Influence of Institutions on Corporate Governance Through Private Negotiations: Evidence from TIAA-CREF," *Journal of Finance* 53(4): 1335-1362.
- Chemmanur, Thomas, and Paolo Fulghieri (1994), "Reputation, Renegotiation, and the Choice Between Bank Loans and Publicly Traded Debt," *Review of Financial Studies* 7(3): 475-506.
- Demsetz, Harold, and Kenneth Lehn (1985), "The Structure of Corporate Ownership: Causes and Consequences," *Journal of Political Economy* 93(6): 1155-1177.
- Diamond, Douglas W. (1984), "Financial Intermediation and Delegated Monitoring," *Review of Economic Studies* 51(3): 393-414.
- Feldman, Mark, and Christian Gilles (1985), "An Expository Note on Individual Risk without Aggregate Uncertainty," *Journal of Economic Theory* 35(1): 26-32.
- Franks, Julian, and Colin Mayer (2001), "Ownership and Control of German Corporations," *Review of Financial Studies* 14(4): 943-977.
- Gillan, Stuart L., and Laura T. Starks (2000), "Corporate Governance Proposals and Shareholder Activism: The Role of Institutional Investors," *Journal of Financial Economics* 57(2): 275-305.

- Gorton, Gary, and Frank Schmid (2001), "Universal Banking and the Performance of German Firms," *Journal of Financial Economics* 58(1-2): 29-80.
- Grossman, Sanford, and Oliver Hart (1980), "Takeover Bids, the Free-Rider Problem, and the Theory of the Corporation," *Bell Journal of Economics* 11: 42-64.
- Holderness, Clifford G, and Dennis P. Sheehan (1985), "Raiders or Saviors? The Evidence on Six Controversial Investors," *Journal of Financial Economics* 14(4): 555-579.
- Holderness, Clifford, and Dennis Sheehan (1988), "The Role of Majority Shareholders in Publicly Held Corporations," *Journal of Financial Economics* 20(1/2), 317-346.
- Hotchkiss, Edith S., and Robert M. Mooradian (1997), "Vulture Investors and the Market for Control of Distressed Firms," *Journal of Financial Economics* 43(3): 401-432.
- Jensen, Michael C. (1986), "Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers," *American Economic Review* 76(2): 323-329.
- Jensen, Michael C., and Richard S. Ruback (1983), "The Market for Corporate Control: The Scientific Evidence," *Journal of Financial Economics* 11(1-4): 5-50.
- Judd, Kenneth L. (1985), "The Law of Large Numbers with a Continuum of IID Random Variables," *Journal of Economic Theory* 35(1): 19-25.
- Kahn, Charles, and Andrew Winton (1998), "Ownership Structure, Speculation, and Shareholder Intervention," *Journal of Finance* 53(1): 99-129.
- Kang, Jun-Koo, and Anil Shivdasani (1995), "Firm performance, corporate governance, and top executive turnover in Japan," *Journal of Financial Economics* 38(1): 29-58.
- Kang, Jun-Koo, and Anil Shivdasani (1997), "Corporate restructuring during performance declines in Japan," *Journal of Financial Economics* 46(1): 29-65.
- Kaplan, Steven (1989), "The effects of management buyouts on operating performance and value," *Journal of Financial Economics* 24(2): 217-254.
- Kaplan, Steven, and Bernadette Minton (1994), "Appointments of outsiders to Japanese boards: Determinants and implications for managers," *Journal of Financial Economics* 36(2): 225-258.
- Karpoff, Jonathan M, Paul H. Malatesta, and Ralph A. Walkling (1996), "Corporate governance and shareholder initiatives: Empirical evidence," *Journal of Financial Economics* 42(3): 365-395.
- Kyle, Albert S., and Jean-Luc Vila (1991), "Noise Trading and Takeovers," *Rand Journal of Economics* 22(1): 54-71.
- La Porta, Rafael, Florencio Lopez-de-Salines, Andrei Shleifer, and Robert W. Vishny (1998), "Law and Finance", *Journal of Political Economy* 106(6): 1113-1155.
- Maug, Ernst (1998), "Large Shareholders as Monitors: Is There a Trade-off between Liquidity and Control?," *Journal of Finance* 53(1): 65-98.

- Murphy, Kevin, and K. Van Nuys (1994), "State pension funds and shareholder inactivism," unpublished working paper, Harvard University.
- Prowse, Stephen D. (1992), "The Structure of Corporate Ownership in Japan," *Journal of Finance* 47(3): 1121-1140.
- Roe, Mark J. (1990), "Political and legal constraints on ownership and control of public companies," *Journal of Financial Economics* 27(1): 7-41.
- Romano, Roberta (1993), "Public pension fund activism in corporate governance reconsidered," *Columbia Law Review* 93: 795-853.
- Shleifer, Andrei, and Robert W. Vishny (1986), "Large Shareholders and Corporate Control," *Journal of Political Economy* 94(3): 461-488.
- Shleifer, Andrei, and Robert W. Vishny (1989), "Management Entrenchment: The Case of Manager-Specific Investments," *Journal of Financial Economics* 25(1): 123-139.
- Smith, Abbie J. (1990), "Corporate ownership structure and performance: The case of management buy-outs," *Journal of Financial Economics* 27(1): 143-164.
- Wahal, Sunil (1996), "Public pension fund activism and firm performance," *Journal of Financial and Quantitative Analysis* 31(1): 1-23.
- Woidtke, Tracie (2002), "Agents Watching Agents?: Evidence from Pension Fund Ownership and Firm Value," *Journal of Financial Economics* 63(1): 99-131.
- Yafeh, Yishay, and Oved Yosha (1995), "Large Shareholders and Banks: Who Monitors and How?," Centre for Economic Policy Research Discussion Paper 1178.
- Zwiebel, Jeffrey (1995), "Block Investment and Partial Benefits of Corporate Control," *Review of Economic Studies* 62(2): 161-185.

Figure 1: The Sequence of Events



**Figure 2: Coexistence of Firms With and Without
Date 0 Blockholder**

