Limiting Outside Directors' Liability through Charter Provisions: An Empirical Analysis

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Abstract

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Monitoring by outside directors is a governance mechanism that can alleviate the agency problem between managers and shareholders. Outsiders would be reluctant to serve on the board due to potential monetary liability, adverse reputational impacts and nuisance costs arising from shareholder litigation, especially in the face of frivolous claims. To attract and retain outside directors, a firm can choose to adopt a "limited liability provision" (LLP) to limit outside directors' fiduciary liability. In this thesis, I examine evidence for links between LLPs and (1) willingness of people to serve as directors; and (2) effectiveness of outside directors in performing their duties expected by shareholders.

Adoption of LLPs clustered in a period immediately following the mid-1980s Director and Officer insurance crisis. It is often said that during this period, outside directors shied away from serving on corporate boards. I show that economic factors closely linked to litigation risk appear to explain both the director outflow firms experienced during the crisis and the decision to adopt LLPs in a consistent fashion. Moreover, for utilities and financial firms, which had a tough time retaining outside directors during the insurance crisis, the decline in the number of outside directors stopped after LLPs were adopted.

Adoption of LLPs seems to have implications for subsequent conduct of outside directors in areas that are frequent targets of shareholder litigation against boards. Specifically, I find that the existence of LLPs is associated with opt-ins of more additional takeover defenses, higher managerial compensation and lower earnings quality. In contrast, adoption of LLPs is not linked to the pay-for-performance sensitivity of managerial compensation.

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Chapter 1

Introduction

Monitoring by outside directors is a governance mechanism that can potentially alleviate the agency problem between managers and shareholders. Outsiders may be attracted to directorships by compensation, power and network-building, but may also be reluctant to serve on the board due to potential monetary liability, adverse reputational impacts and nuisance costs arising from shareholder litigation, especially in the face of frequent frivolous claims. To attract and retain outside directors, a firm can choose, usually subject to shareholders' approval, to pre-commit in its corporate charter to limit outside directors' fiduciary liability, i.e., opting into a "limited liability provision" (LLP).

A typical limited liability provision eliminates the personal liability of outside directors to stockholders for monetary damages for breach of fiduciary duty of care as long as the director acts in good faith. Such provisions were first introduced in Delaware in the late-1980s when shareholder lawsuits mounted, directors and officers (D&O) insurance premiums soared and resignations of outside directors increased.[1] Granting *ex ante*

[1]The time period is often referred to as the "mid-1980s D&O insurance crisis". See Romano (1989), Kaplan and Harrison (1993), Moodie (2004) and the Wyatt Company Surveys for statistical and anecdotal evidence on litigation frequency, director outflow and increase in D&O insurance premiums during the mid-1980 insurance crisis. The late 1980s (especially year 1987) witnessed the bulk of adoptions and some firms even chose to reincorporate to Delaware to take advantages of its LLP-permitting statute as early as possible.

relief from litigation threat, a device shareholders can resort to in case outside directors fail to do a good job can, however, have undesirable costs. Outside directors can extract entrenchment rents once an LLP is put in place. The reason is straightforward. Despite being shareholders' agents, their personal interests are not necessarily aligned with those of the shareholders and they can be less concerned about being punished for insufficient monitoring of managers under the protection of LLPs. The objective of this study is to contribute to our understanding of the cost-benefit tension of adopting an LLP.

Using a sample of 506 *Forbes* largest firms, I investigate two research questions:

- Under what circumstances are shareholders willing to adopt an LLP?
- What are the implications of LLPs for board composition and outside directors' monitoring efficacy?

Adoption of LLPs clustered in a period immediately following the mid-1980s D&O insurance crisis that deterred outsiders' willingness to serve on corporate boards. Thus one intuitive way to address the first research question is to examine whether the decision to adopt an LLPs is directly associated with the outflow of outside directors a firm experienced during the crisis (before LLPs became allowable). The incidence and magnitude of such outflow can indicate the problem a board faces in retaining outsiders in an increasingly litigious environment. The severity of such outflow is hypothesized to have a positive relationship with the likelihood of adopting an LLP later. Interestingly, the empirical evidence does not support a significant association between the two.

An objection to the above approach, however, is that the *observed* outflow of outside directors depends critically on (1) how quickly outside directors had responded to the insurance crisis by resigning from a board, (2) how quickly the state-level responses to ease the crisis (i.e., the enactment of state statutes allowing for LLPs) had reshaped outside directors' assessment of the litigation threat they faced, and (3) how quickly firms were expected to adopt LLPs. To provide more insights into the circumstances under which

firms opt into LLPs, I further examine how economic factors relating to a firm's litigation risk are associated with director outflow during the crisis as well as shareholders' decision to adopt LLPs. If the economic factors exhibit consistent associations with both of them, this would suggest that the same underlying factors shaping a firm's litigation environment probably caused the director outflow and in turn prompted the adoption of LLPs.

One caveat in the above argument, though, is that the deterrence effect of litigation on attracting outsiders is only one of the factors shareholders consider when deciding to opt into an LLP. They also need to trade off any potential board entrenchment induced by LLPs. Since some economic factors may affect the two considerations in opposite directions and make the net effect inconclusive, it is uncertain whether we can observe the consistent pattern mentioned earlier. Still, anecdotal evidence seems to suggest the possibility that shareholders overweigh or fixate on the concern of litigation driving away outsiders in the aftermath of the insurance crisis.[2]

In conducting the empirical analysis, unlike previous studies on corporate governance that routinely exclude firms in the utilities and financial industries, this study includes these firms for several reasons. Anecdotally, firms in these industries had an especially hard time getting D&O policies during the insurance crisis due to high loss rates and/or business risk in the utilities and financial industries.[3] Though the sample firms were mostly profitable at that time, outside directors can be reluctant to stay on board given the industry-wide business uncertainty[4] and the limited monetary benefits they can get.[5] Furthermore, both the utilities and financial industries are subject to regulation. If regulation limits the discre-

[2]"Companies Ask Holders to Limit Boards' Liability", *Wall Street Journal*, 10/07/1986.

[3]These firms mainly include banks, insurance carriers and gas utilities industries. See "Focus on Corporate Boards; Directors Feel the Legal Heat", *New York Times*, 12/15/1985; "D&O Insurance Mess Threatens Boardrooms", *Crains Chicago Business*, 5/19/1986; "Regulators Urged to Form Game Plan to Assist Utilities in Insurance Crisis", *Electric Utility Week*, 11/24/1986; and Romano (1989).

[4]For example, they may expect more impending takeover-related activities (following the industry downturn), which is an important target of shareholder litigation.

[5]Firms in the regulated industries in general have less benefit plans (e.g., stock option plan, retirement plan and other miscellaneous benefit plans) for their outside directors (see Chapter 6 for statistics).

tion managers have in decision-making (Demsetz and Lehn (1985) and Smith and Watts (1992)) and trivializes outside directors' monitoring role, it can make shareholders indifferent to the incentives induced by litigation and hence the adoption of LLPs. If regulatory agencies rather complement boards' supervision by acting as watchdogs of watchdogs, potential entrenchment induced by LLPs can be effectively curbed, making shareholders more willing to opt into LLPs. But still, it is critical that board of directors have enough motivation to guard shareholders' interest if regulatory bodies' objectives become inconsistent with those of the shareholders. In this light, less adoption of LLPs would be expected. All these issues complicate the prediction of shareholders' decision on LLP adoption and makes a separate analysis on utilities and financial firms interesting. In the analysis that follows, the term "UF firms" refers to firms in the utilities and financial industries, while "NUF firms" refers to firms not in these industries.

I find that for NUF firms, greater stock return volatility is associated with greater outflow of outside directors, while for UF firms higher leverage and the existence of a new CEO are the only economic factors associated with greater director outflow. When linking similar economic factors to shareholders' decision to adopt LLPs, I find that stock return volatility and firm size have significantly positive associations with the likelihood of adoption for both NUF and UF firms. In addition, for UF firms, CEO tenure and percentage of shareholdings of the largest blockholder have significantly negative associations with the adoption. Other firm characteristics such as past performance and growth opportunity do not exhibit significant relationship with either the outflow of outside directors or the adoption of LLPs.

Taken together, the empirical evidence lends support to the argument that similar underlying economic factors shaping a firm's litigation environment probably resulted in the outflow of outside directors as well as the subsequent adoption of LLPs. More interestingly, the finding of significant associations between the likelihood of adopting LLPs and

firm size as well as stock return volatility is consistent with the empirical observation well documented by the legal literature: firms with deeper pockets and more volatile returns tend to induce more lawsuits especially frivolous claims (Alexander (1991) and Grundfest and Perino (1997)).[6] The costs of frivolous litigation will be reflected in a higher D&O insurance premium (during the insurance crunch even unaffordable) and deter a firm's ability to retain and attract outside directors.

My second research question centers on the implications of LLPs on firms' board characteristics and outside directors' monitoring efficacy. During the mid-1980s D&O insurance crisis, many firms experienced difficulty in attracting and retaining outside directors. If LLPs were adopted by firms to alleviate this problem, their benefits should be most evident right after the adoption in the aftermath of the crisis. The research design therefore focuses on the time-series (year-by-year) changes in board composition around the event of adoption. For adopters in the NUF industries, there is no statistically significant change in the number of outside directors around the adoption. For UF firms that eventually opted into LLPs, I find (1) a significant outflow of outside directors in the year preceding the adoption, and (2) no significant changes in the number of outside directors in the year immediately following the adoption. Therefore, the immediate benefits of LLPs in retaining outside directors seem to be most evident for the UF firms. I also find that both LLP adopters and non-adopters enhanced the use of benefit plans for outside directors during and after the insurance crisis, indicating continuing efforts to attract outside directors.

I further probe whether the adoption of LLPs has any implications for outside directors' subsequent monitoring efficacy. There has long been the concern that while the benefits of retaining outside directors accrue to shareholders only during the insurance crisis period, the costs of liability exculpation can persist into the long run.[7] I focus on implications of

[6]It is pertinent to point out, though, that the empirical evidence provided by the previous legal literature largely focuses on securities class actions rather than state-level shareholder lawsuits alleging breach of duty of care (which an LLP exculpates).

[7]For example, a Wall Street Journal article then argues that "There's a short-term crisis in liability insur-

LLP adoption for boards' subsequent conduct over 1993-2000 in three important areas of shareholder litigation against directors for breach of fiduciary duties: adoption of takeover defenses, managerial compensation practices and financial reporting. The empirical results show that compared with non-adopters, LLP adopters seem to have adopted more additional takeover defenses restricting shareholders' voting rights. Their top-five highest-paid executives aggregately receive significantly higher total direct compensation after other economic factors are controlled for, although the pay-for-performance sensitivity does not differ significantly. Finally, the existence of LLPs is found to be related to lower financial reporting quality, as measured by the absolute level of performance-matched discretionary accruals and the extent to which working capital accruals are mapped into cash flow from operations.

The study is of contemporary relevance in light of the ongoing discussion on enhancing outside directors' accountability. Recent corporate scandals such as those of Enron and WorldCom have led to closer scrutiny of boardroom effectiveness in monitoring managers. The Sarbanes-Oxley Act, which took effect in July 2002, and subsequent proposals of New York Stock Exchange (NYSE) and NASDAQ have resulted in new rules and procedures adding to outside directors' duties and potential liability.[8] The regulatory changes were intended to increase the board's vigilance but they also led to more rejections of boardroom invitations by outsiders due to liability concerns.[9] As a response, some firms have started to hedge the increased liability by using stronger protective measures.[10] This situation mirrors the period when LLP first became permitted and prevalent. The key theme

ance, and legislation gives people an option that they adopt in perpetuity,"... "Even if in a year a company can get all the D&O insurance in the world, this thing is in their charter; they're stuck with it." (10/07/1986, "Companies Ask Holders to Limit Boards' Liability").

[8]"Corporate Governance (A Special Report) – How To Be A Good Director: The role of a corporate board member has never been more crucial – and more confusing; What exactly are outside directors supposed to be doing, anyway?", *Wall Street Journal*, 10/27/2003.

[9]"More CEOs Say 'No Thanks' To Board Seats", *Wall Street Journal*, 1/28/2005.

[10]One example is to purchase larger directors and officers (D&O) insurance. See "It Still Costs Big to Insure Against a Boardroom Scandal – Despite the Sarbanes- Oxley Bill, 'D&O' Policy Prices Rise 30%, And Cancellation Clauses Swell", *Wall Street Journal*, 7/31/2003.

continues to be the tension between the need to attract outside directors by reducing liability exposure and the possible entrenchment costs once the disciplinary effect of liability exposure is mitigated. The empirical results presented in this study thus can shed light on the potential implications of new policies that alters liability exposure of outside directors.

This study contributes to the literature on outside directors as a governance mechanism. Most studies on outside directors have focused on how structural characteristics (e.g., the percentage of outsiders on the board) relate to firm profitability and observable decisions such as CEO turnovers.[11] Recently, researchers have started to examine more direct incentives such as compensation and the *ex post* settling-up of director market, and how these incentives may induce outside directors to be vigilant in guarding shareholders' interests (e.g., Coles and Hoi (2003), Harford (2003) and Yermark (2004)). Liability exposure to shareholder litigation has a direct impact on outside directors' reputational incentives. It can affect not only their willingness to serve on the board but also the subsequent monitoring efficacy. This study thus improves our understanding of how and why outside directors' liability exposure varies across different firms, and how such exposure in turn affects outside directors' incentive to monitor managers effectively.

Furthermore, this study complements the researches that examine the attributes of D&O insurance (Core (2000), Boyer (2003) and Cao and Narayanamoorthy (2005)), another important protective mechanism against outside director liability. While providing evidence consistent with some of the intuitive results in those studies on the determinants of D&O insurance limits and premiums, I find the focus on LLPs to be compelling for several reasons. As discussed in detail in Chapter 2, first, most adoptions of LLPs are subject to shareholders' approval. In contrast, D&O insurance purchase is entirely up to managers' discretion and is not required to be disclosed to shareholders. Second, LLPs

[11] See Romano (1996) and Hermalin and Weisbach (2003) for a survey of the literature on board of directors.

serve as a credible commitment from shareholders to reduce litigation threat, which cannot be achieved by purchasing D&O insurance. In fact, the latter tends to induce litigation, especially frivolous lawsuits under certain circumstances (Alexander (1991) and Sarath (1991)). Finally, LLPs do not apply to officers, while D&O insurance protects both officers and directors. The different institutional details, taken together, make LLPs an especially interesting setting to study.

Finally, this study is closely related to the concurrent legal literature that examines protective measures against outside director liability. Recently some researchers have started to question the conventional belief that the outside directors of US corporations face increasing exposure to the risk of personal liability. For example, based on an extensive survey of legal cases against directors, Black, Cheffins, and Klausner (2003) point out that outside directors' nominal liability can be significantly mitigated by a combination of indemnification, limited liability provisions, insurance, procedural rules and settlement incentives, except in the extreme case of an insolvent firm and a wealthy director.[12] Bailey (2004) suggests that LLPs have "played an important role in minimizing director liability exposures" during the past 15 years. Using a sample from recent years, Cao and Narayanamoorthy (2005) show that *ceteris paribus* the existence of LLPs can significantly reduce the D&O insurance premiums, an *ex ante* measure of litigation risk from the perspective of insurance carriers. In the latest ruling of the high-profile shareholder litigation against Walt Disney's board, despite previous speculation that LLPs' protective effect will significantly decrease in light of the recent corporate scandals, the Court does not seem to lower the standard of invalidating the protection of LLPs.[13] Whether LLPs are (or have been) beneficial or detrimental to shareholders has long been an open question (Shaw

[12]The survey conducted by Black, Cheffins, and Klausner (2003) includes all legal cases against outside directors (to their knowledge) under corporate law, securities law, bankruptcy and insolvency law, and other miscellaneous laws (tax, environmental, etc.) for a time period of 35 years (1968-2003). The survey reveals almost no cases in which outside directors had to pay their liability out of their own pockets.

[13]See "Judge Backs Disney Directors In Suit on Ovitz's Hiring, Firing", *Wall Street Journal*, 8/10/2005.

(1989) and Romano (1990)). This study attempts to fill the gap by documenting the long-term implications of limited liability provisions on board efficacy.

The rest of the study proceeds as follows. Chapter 2 discusses the motivation of this study and the institutional context of limited liability provisions. Chapter 3 reviews the theoretical and empirical literature on liability exposure, incentives for care and limited liability provisions. Chapter 4 develops the hypotheses and discusses the research design. Chapter 5 discusses the data source and descriptive evidence on the prevalence of LLP adoption. Chapter 6 reports the empirical findings. Chapter 7 presents the robustness checks and additional tests. Chapter 8 discusses the caveats and avenues for future research. Finally, Chapter 9 concludes the study.

Chapter 2

Motivation and Institutional Background

2.1 Motivation

The importance of outside directors as a corporate governance mechanism has long been the focus of legislative and regulatory bodies (e.g., Corporate Governance Project of the American Law Institute (1982)). In the wake of recent corporate scandals, the New York Stock Exchange and the NASDAQ Stock Market have imposed increasingly stringent rules as to what defines an *independent* director in the hope of boosting board effectiveness in guarding shareholders' interest.[1] Despite the belief underlying these rules that independent directors are less likely to let their own personal interests override those of the shareholders and hence are effective guardians, empirical studies on this theme only provide vague

[1] As reported in a recent *Wall Street Journal* article (3/3/2005), the latest NYSE rules requires that a majority of all directors must be "independent", and as must all directors on audit, executive-compensation, nominating and corporate-governance committees. Insiders, such as top executives, do not qualify for independent directors, and neither do those directors "who are executives at entities that do business with the listed company totaling more than $1 million, or 2% of the entity's revenue, whichever is greater".

support.[2] Studies that try to link board independence to firm performance in general fail to find a significant association between the two (e.g., Hermalin and Weisbach (1991) and Mehran (1995)). In terms of firm-specific events, especially those surrounding crisis periods such as CEO turnovers and takeover bids, there is evidence that outside directors play a significant monitoring role (e.g., Weisbach (1988), Cotter, Shivdasani, and Zenner (1997) and Brickley, Coles, and Terry (1994)).

The insignificant finding on the association between board independence and firm performance is not surprising given the endogeneity hurdle of board composition in the empirical design.[3] But perhaps more importantly, a structural ratio such as the percentage of independent board members does not provide many insights into the *incentives* of outside directors and should not be expected to have a strong link with board effectiveness.[4]

Recent corporate governance studies have tried to shed light on the magnitude and relevance of the incentives outside directors face. For example, Yermark (2004) studies the magnitude of the incentives received by outside directors in Fortune 500 firms from compensation, replacement, and the opportunity to obtain other directorships. He shows that together these incentive mechanisms provide outside directors with wealth increases of approximately 11 cents per $1,000 rise in firm value, which he considers nontrivial in light of the average size of the sample firms. Coles and Hoi (2003) examine the labor market effect of directors' rejection of takeover defenses. They find that directors rejecting all protective provisions of Pennsylvania Senate Bill 1310 are three times as likely to gain additional external directorship and this result is mainly driven by outside directors. In

[2] An exhaustive list of these papers is beyond the scope of this study. See Romano (1996) and Hermalin and Weisbach (2003) for an extensive survey of the literature on board independence and firm performance as well as firm-specific events.

[3] In other words, in equilibrium we should not observe a link between the two after controlling for all the firm and industry characteristics that collectively determine the optimal board composition in the first place (Hermalin and Weisbach (2003)).

[4] For example, all else equal, will a board with a small percentage of outside directors with significant financial/non-financial stakes be more effective compared with one with a large percentage of outsiders that do not have any such stakes?

a similar vein, Harford (2003) documents the effect of a takeover bid on target directors. He finds a predominately negative financial impact for outside directors after a completed merger. In terms of future board seats, he suggests that outside directors of poorly performing firms that rebuff an offer receive fewer additional directorships. The findings in Coles and Hoi (2003) and Harford (2003) suggest that the *ex post* settling up of the director market seems to be working. This may partly explain the statistical significance observed in studies examining the relationship between board independence and their efficacy in crisis situations – because market forces are particularly robust in those crisis events and outside directors' stakes for doing a bad job are thus high.[5]

In line with these studies, this paper focuses on the incentives of outside directors, specifically, those arising from the exposure to shareholder litigation for breach of fiduciary duties. Board representation coupled with corresponding fiduciary duty law is an important governance mechanism for protecting equity investment (Williamson (1985) and Romano (1996)). As shareholder fiduciaries, outside directors can be held liable for breach of duty of care (due diligence) or duty of loyalty (no conflicts of interest).[6] It is worth noting that incentives induced by fiduciary duties and those arising from compensation and director-market discipline are not exclusive of each other. For example, shareholders sometimes may grant remunerations to outsiders to compensate for the liability exposure (Gutiérrez (2003) and Boyer (2003)). Strong director market forces can sometimes substitute the need for fiduciary duties. Yet litigation for breach of fiduciary duties may also complement the functioning of director market by unraveling valuable information on directors' performance during the adjudication process. Hence, the objective of this paper is not to show that the incentive created by fiduciary duties is a dominant

[5]For example, a potential loss of current and future directorships will result in not only the reduction of monetary compensation from directorships but also those non-pecuniary benefits such as the opportunity to strengthen their social network and the sense of self-achievement.

[6]Black, Cheffins, and Klausner (2003) provide survey evidence that duty-of-loyalty cases are only a narrow set, perhaps due to the insignificant financial interest outside directors generally have in a company.

governance device, but rather to seek a better understanding of it with the existence of other incentives in mind.

Shareholder litigation can be costly to outside directors in terms of the potential monetary liability and more importantly the costs of reputation, time and nuisance.[7] Directly measuring the incentives provided by liability exposure and litigation threat is difficult. Some studies have used *ex post* litigation risk to proxy for such incentives and link them to managerial behavior (see, for example, Brown, Hillegeist, and Lo (2005)).[8] Such an approach does not provide much insight into the *ex ante* deterrence effect of liability exposure that one should ideally use in those settings, since we do not have benchmark data on a hypothetical regime where litigation threat is absent.[9] To eliminate the need to rely on *ex post* litigation data, this study takes an alternative approach, that is, to look at the protective measures that can reduce outside directors' liability exposure.[10]

2.2 Institutional background

There are two types of firm-level protective measures against outsider directors' liability to shareholders. First, many companies have adopted limited liability provisions in the corporate charter to remove the personal liability of directors for breach of duty of care. State statutes that allow firms to adopt an LLP were first enacted in Delaware in 1986 as a

[7]The aggregate survey evidence in Black, Cheffins, and Klausner (2003) suggests that there is altogether nominal monetary liability of outside directors. They argue that the principal sanction is harm to reputation. However, if reputation loss will eventually translate into loss of existing and future directorships, the punishment is still partially monetary.

[8]The research design usually takes two steps. First, the *ex post* litigation probability is regressed against firm characteristics that can affect such probability. Second, the expected litigation probability (the fitted value from the first-step regression) is used as a key independent variable in explaining certain managerial behavior.

[9]A simple analogy is that using the *ex post* theft rate to infer the deterrence effect of an alarm system can sometimes produce dubious results. Unless we have some knowledge of the theft rate before installing the alarm system (setting all else equal) can we tell if the system is really working or not.

[10]Of course, as discussed in Section 3 and 4, such an approach is not perfect either. One caveat, for example, is the need to address the endogeneity in firms' choice of a particular protective measure before relating it to outside directors' incentives and effectiveness.

response to the skyrocketing D&O insurance premiums then (see Figure 1) and outsiders' purported reluctance to serve on corporate boards.[11] Although details vary, a typical limited liability provision eliminates outside directors' liability for breach of duty of care, excluding liability for intentional misconduct and breach of duty of loyalty.[12] Second, firm indemnification and D&O insurance also protects officers and directors against certain legal expenses and/or legal judgments relating to the directors' conduct. It generally does not protect officers or directors for acts made in bad faith or those involving deliberate misconduct or knowing violations of the law. While indemnification is provided by the firm itself, D&O insurance is essentially also an *indemnification* provided by the insurer. In recent years, the distinction between firm indemnification and D&O insurance has become more vague. Many D&O insurance contracts now cover corporate indemnification payments through the so-called "B-Side" coverage, which reimburses the firm to the extent it indemnifies its directors and officers for shareholder claims.

This paper focuses on the first protective measure, the limited liability provisions for various reasons. First, unlike indemnification and D&O insurance, which only provide *ex post* relief after litigation occurs, an LLP stated in the corporate charter serves as an *ex ante* commitment of shareholders not to sue directors for breach of duty of care not involving bad-faith actions.[13] Some argue that LLP is not as protective as one thinks because shareholders can always refine their claims towards those excluded by the LLPs (bad-faith actions or breach of duty of loyalty) and still recoup damage awards (e.g., from D&O

[11]The "D&O insurance crisis" was caused by the surge in the frequency and defense cost of shareholder lawsuits during the mid-1980s, further provoked by Delaware Supreme Court's decision against outside directors in *Smith v. Van Gorkom*. For further details on the mid-1980s insurance and legislative responses, see Lacey (1988), Hanks (1988), Romano (1989), Romano (1990) and Moodie (2004).

[12]In general, state statutes that allow firms to adopt an LLP take either a charter-option form (where firms have a choice to include LLPs in their corporate charters) or a self-executing form (where LLPs automatically apply to all firms incorporated in that state). For details on the type of LLP statutes enacted in different states during the late-1980s, see Hanks (1988) and Moodie (2004).

[13]The subtlety here is that under LLP, outside directors are "not liable to monetary damages..." from the very beginning; with indemnifications or D&O insurance, they are still liable, but someone (the firm or the insurer) eventually pays for them. The distinction may not be obvious at the first glance, since LLPs sound nothing more than a mechanism of self-insurance that internalizes the costs of D&O insurance.

insurance carriers).[14] In practice, however, such exclusions are only nominal and do not dilute LLPs' protective effect. As Romano (1990) points out, even though shareholders can redirect their claims toward those exclusions, there is no benefit of doing so because D&O insurance does not cover the damage award either even if the new claims survive. In other words, practically LLPs' deterrence effect on shareholder litigation is not limited by its exclusions. Taken together, LLP is more than a substitute for D&O insurance or indemnifications because it eliminates shareholders' (and lawyers') incentives to sue the directors, which can not be achieved by D&O insurance or indemnifications.[15] Specifically, not only does an LLP eliminate outside directors' financial liability, it also removes their reputation costs, time costs and nuisance costs arising from shareholder litigation for breach of duty of care. The removal of the non-monetary costs can *not* be achieved by simply providing insurance or indemnification, because they only reimburse the monetary liability *ex post*.

In addition, unlike D&O insurance and indemnification, whose beneficiaries broadly include both directors and officers, limited liability provision mainly applies to outside directors.[16] Another distinction is that while D&O insurance and indemnification generally cover directors and officers' liability to several parties (e.g., creditors and employees, etc.), LLPs only apply to outside directors' liability to shareholders under the state-level corporate law. Hence LLP provides a clean setting where the protective effect can somehow

[14]The conceptual distinction between duty of care and duty of loyalty may not be very clear. For example, Fischel and Bradley (1986) suggests that breach of duty of care is more about "working less hard than promised at a given level of compensation", while breach of duty of loyalty basically means "being compensated more than promised at a given level of work".

[15]Indeed, the very existence of D&O insurance tends to encourages litigation (Bhagat, Brickley, and Coles (1987), Alexander (1991) and Gutiérrez (2000)) and sometimes even frivolous lawsuits due to lawyers' strong monetary incentives to collect counsel fees as well as defendants' incentives to settle (Romano (1990)).

[16]Hanks (1988) suggests that it is rare for states to further specify whether the provisions also exclude inside directors (who are also officers). However, even if inside directors are not excluded by the LLPs, there is reason to believe that the protection is only nominal: it is hard for insiders, who participate in daily business decisions, to argue that they are negligent only "unintentionally" and "in good faith".

be isolated. Finally, in most cases adoption of an LLP is subject to shareholder voting.[17] This is in direct contrast with the purchase of D&O insurance, which is not required to be approved by or disclosed to shareholders in U.S.. Hence, a managerial entrenchment view does not easily explain away a firm's decision to adopt LLPs. The following table summarizes the differences between a typical LLP and a typical D&O insurance contract.[18]

	Under LLPs	Under D&O insurance
Nominal monetary liability for breach of duty of care?	no	yes
Actual monetary liability for breach of duty of care?	no	no
Actual non-monetary liability for breach of duty of care?	no	yes
Exclusions on actions made in bad faith?	yes	yes
Potentially deter shareholder litigation?	yes	no
Subject to shareholders' approval?	yes	no
Apply to officers?	no	yes

Given the liability relaxation LLPs provide, the first research question I try to answer is what factors are related to shareholders' decision to adopt an LLP. The optimal level of liability exposure is essentially a governance choice endogenously determined by firm characteristics. Therefore, unless we study the circumstances that give arise to the use of LLPs in the first place can we shed light on its implications on the monitoring efficacy of outside directors.[19] Second, I investigate the economic implications of opting into an LLP on outside directors' monitoring efficacy in the post-adoption period. There is some concern that an over-heightened fear of capacity constraint in the D&O insurance market

[17]This is because most of the state statutes that allow LLPs follow Delaware's "charter option" approach, which requires a shareholder vote.

[18]The first three rows assume no actions involving bad faith.

[19]By taking an endogeneity view of governance choices, this study departs from those that take governance choices as exogenous and focus on their effects on managerial behavior and firm performance (e.g., Gompers, Ishii, and Metrick (2003), Brown and Caylor (2004), Larcker, Richardson, and Tuna (2004)). It is more in line with studies such as Gillan, Hartzell, and Starks (2004) and Hermalin and Weisbach (2003).

and hence the inability of firms to get insurance for their directors prompted outflow of outside directors and in turn adoption of LLPs during the mid- and late-1980s.[20] It is likely that the benefits of LLPs that accrue to shareholders only matter at the time of insurance crisis while the entrenchment costs inevitably persist into the long run.

[20]Indeed, there seems to be little hard evidence on factors (e.g., regulation-induced entry barriers or competition cycle) that can lead to such a capacity constraint (Romano (1989) and Winter (1991)).

Chapter 3

Literature review

3.1 Theoretical literature on liability, litigation and incentives to take due care

There has been an extensive theoretical literature on liability, litigation and incentive for exerting care. The central issue is the inability of a potential victim (or plaintiff) to observe the level of care exerted by a potential injurer (or defendant). This action unobservability, coupled with diverse interests of the two parties, can create a problem in enforcing the optimal level of care.

Early works usually assume the presence of a "no-uncertainty" court that satisfies two conditions: (1) the negligence standard to be enforced by the court is certain and a common knowledge; and (2) the court has full information and can determine the injurer's degree of care (or effort) without error.[1] In this setting, any uncertainty about injurer's effort level resolves upon the time the two parties go to the court and the risk arises entirely from accidental bad outcome. Simon (1981) suggests that a higher negligence standard in

[1]Therefore, under a regime of strict liability, the defendant/injurer must always pay damages regardless of whether he is negligent. Under the perfect negligence rule, however, the defendant/injurer only pays damages if he is indeed negligent.

general leads to a greater level of care. Png (1987) argues that this is not the case when the persons upon whom potential liability is imposed differ in their "skills" (and hence costs) of taking care. Rather, a tighter negligence standard will induce some to take more care and others to take *less*. Shavell (1982) first incorporates the presence of an insurance market into a liability litigation model and shows how insurance mitigates the difference between strict liability and negligence rule in respect to risk allocation and alters incentives to take care. Shavell (1982) argues that the counteracting effect of insurance on incentives provided by legal liability is no longer paradoxical in his model: allowing the existence of protective measures, in this case insurance, is socially desirable if legal penalties and due care standard are set optimally.

The "no-uncertainty" court/legal system, however, is a very restrictive assumption. It limits the extent to which the models can explain the real-world phenomena. In practice, changes in the uncertainty of the legal system can lead to great fluctuations in the pricing, and sometimes even the capacity of liability insurance market. For example, in the mid-1980 insurance crisis, the court's decision in *Smith vs. Van Gorkom* (488 A.2d 858, Del. 1985) potentially altered the interpretation of business judgment rule and sent D&O insurance premiums soaring, indicating an expected expansion of negligence standard from the insurance carriers' perspective. Moreover, the capacity of the D&O insurance market also shrank at that time, probably because some insurers cannot predict at all what the courts will do in the future, and hence a mere premium increase would not solve the problem because the uncertainty of the legal system can not be quantified at the first place (Romano (1989)). Similar situations can also be found in an era following the Sarbanes-Oxley Act. The newly-imposed legislative and regulatory requirements on directors and officers are intended to restore good corporate governance and in turn one would expect to observe a cut in the D&O insurance cost. Interestingly, D&O policy prices rose by 30% and terms of the coverage became more stringent according to the 2003 Tillinghast-Towers Perrin

D&O Insurance Survey. The legal uncertainty again plays an important role. As one insurance underwriter puts it, "there's a general confusion about what Sarbanes-Oxley really means...the fear is that it will be defined through litigation."[2]

Recent theoretical studies relax such assumptions on the legal system and provide more insights into the over/under-litigation problems that are induced by the uncertainty of courts' decisions when insurance is available. Sarath (1991) relaxes the "no-uncertainty constraint" by imposing a stochastic nature of the court's decisions (violation of the first condition of a "no-uncertainty" court). Specifically, the agent's action is revealed during litigation but there is an imperfect imposition of the negligence standard. He argues that with the presence of such legal uncertainty, the penalties required to maintain incentives when access to insurance is unlimited may provoke over-litigation. Under the key structural assumption that the principal cannot precommit to any litigation strategy, the solution proposed then is restricted accessibility to the insurance market.

In a setting similar to Sarath (1991), Gutiérrez (2003) presents a model where the uncertainty of legal system stems entirely from the imperfect observation of the agent's level of care by the court (violation of the second condition of a "no-uncertainty" court).[3] She shows that even under the assumption of risk-neutral agents (directors in this case), insurance and limited liability provisions still have a place because the shareholder wants to use these protective measures to alter his own incentives to litigate. Gutiérrez (2003) specifically models the circumstances under which the shareholder will pre-commit to remove the director's liability of due care by adopting an LLP. The two critical requirements to be satisfied for the shareholder to adopt an LLP are: (1) the potential net benefit of litiga-

[2]"It Still Costs Big to Insure Against a Boardroom Scandal", *Wall Street Journal*, 2003/7/31.

[3]In the three-stage dynamic game she studies, the shareholder first chooses a contract that includes a compensation scheme (salary and a profit-sharing parameter) and a protection scheme (whether to have insurance and the co-insurance rate should insurance be offered); the director then chooses a level of care (low or high); and finally the return of project is realized and shareholder decides whether to sue upon observing a low return (if yes, the court will observe an imperfect signal about director's level of care and find the director to be guilty if the signal is low (an imperfect negligence rule)).

tion (the expected damage award minus the litigation cost) is positive; and (2) the director entrenchment rents under LLP are relatively small compared with the litigation cost. The implications are intuitive. The first requirement makes shareholder litigation a credible threat to the director[4] and it in turn can lead to over-litigation when the damage award is way too favorable for shareholders. The second requirement assures that the forfeited option of litigation is not too costly for the shareholder in the sense that the savings on litigation cost outweigh the concern about potential director entrenchment.

Several factors not captured in the model of Gutiérrez (2003) model can further affect shareholders' willingness to precommit to a removal of litigation threat for breach of duty of care. First, in the model of Gutiérrez (2003), the insurance contract is modeled as a zero net-present-value (NPV) project in the sense that the insurance premium paid by the shareholder[5] is exactly offset in his payoff function by the amount of *ex ante* damage award he can expect to recoup from the insurer.[6] This assumption of zero transaction cost in the supply of insurance may understate the costs of over-litigation (that are eventually reflected in a higher D&O premium) and hence shareholders' incentive to adopt an LLP. Second, outside directors' non-pecuniary costs (e.g., time, nuisance and reputation costs incurred in the legal proceedings) resulting from frivolous litigation are not incorporated in the model.[7] If these costs are too high, shareholders may find it even harder to retain and attract outside directors without a credible commitment to stick to meritorious lawsuits only. Last but not least, another important party in shareholder litigation, attorneys, is

[4]Otherwise the shareholder will never have an incentive to sue. The director will expect this and adjust downward his level of care.

[5]In the case of "actuarially fair" insurance prices, insurance premium = Pr{bad outcome} × Pr{shareholder litigation | bad outcome} × Pr{Court find director to be guilty | shareholder litigation} × amount of damage award paid by the insurer.

[6]All the other aforementioned theoretical models on litigation, insurance and incentive for care also have this assumption.

[7]Or we can think of it as greatly raising the reservation utility of outside directors which have to be compensated for eventually. Black, Cheffins, and Klausner (2003) suggest that even without the accompanying financial and non-financial legal risks, the opportunity cost of many outside directors' time might exceed their compensation.

missing from the model. In practice, attorneys' incentives to collect counsel fees play a critical role in the initiation of shareholder litigation and such incentives may not always be aligned with shareholders' interests.

I summarize the main takeaways from the theoretical literature as follows. Liability exposure for negligent behavior can alter a person's incentives to exert care. Although the existence of protective measures against such liability seems controversial at first glance, it is desirable in terms of risk allocation and the mitigation of under-litigation problem under certain circumstances.[8] However, the presence of insurance can sometimes lead to potential over-litigation because of the settlement incentives, favorable damage award amount and great legal uncertainty (Gutiérrez (2003)). This is where the LLP can come into the picture. Specifically, shareholders will precommit to remove directors' liability by adopting an LLP to reduce the cost of over-litigation as long as the resulted agent entrenchment rents are relatively small.

3.2 Empirical literature on limited liability provisions

Empirical studies on limited liability provisions mostly focus on the wealth effects of LLPs and take two approaches. Several studies (Bradley and Schipani (1989), Janjigian and Bolster (1990) and Romano (1990)) examine the price effects of the enactment of Delaware statute on LLP and do not find any significant effects. Given the enabling feature of most state statutes on LLP, researchers have also looked at the wealth effects of actual proposal/adoption of LLPs. Most of them provide little support to any wealth effects ((Netter and Poulsen (1989), Janjigian and Bolster (1990), Romano (1990) and Brook and Rao (1994))). Bradley and Schipani (1989) is the only study that reports significant negative

[8]For example, in the case of shareholder litigation, a major argument for the existence of D&O insurance is that if the court's assessment of damage routinely exceeds directors' personal wealth, shareholders won't have great incentives to sue in the absence of potential reimbursement for their losses, i.e., an under-litigation problem.

cumulative abnormal returns around the LLP proposal date. They argue that relaxed liability exposure reduced the wealth of shareholders. However, Romano (1990) questions the validity of their results by pointing out the potential data-mining problem in their choice of the event interval. In general, however, it is not surprising to see an insignificant wealth effect in an event study of LLP proposal/adoption. Two frequently used event dates are (1) the date of the first announcement of an adoption proposal (normally the proxy statement date) and (2) the date of shareholders' approval (normally the annual meeting date). The two LLP events are easily confounded with other proposals contained in the proxy statement or other shareholder decisions made at the annual meeting, respectively. Furthermore, any detectable wealth effects in an event study depend critically on the extent to which the event is unexpected, which may not the case given (1) the wide discussion on potential enactment of state statutes allowing for LLPs and (2) strong clustering of LLP proposals/adoptions within a short period.

In view of the difficulty of an event-study approach, a cross-sectional study of the determinants of LLP may provide more insights into the dynamics of shareholder decision on LLP adoption. To my knowledge, Mallette and Hogler (1995) is the only empirical study in the literature that takes such an approach. They examine the relationship between board composition, stock ownership and LLP adoption, and find that the likelihood of adoption is positively related to the presence of CEO-chairman duality and the percentage of institutional ownership. However, their results are at best suggestive for several reasons. First, Mallette and Hogler (1995) fail to discuss the fact that most LLP adoptions are subject to shareholder approval. This leads to some confusion in the arguments they make in their hypothesis development. For example, they argue that inside directors will seek the protection of LLPs to limit their downside risk from an already high accountability standard. Hence they conjecture that the higher the proportion of inside directors the more likely an LLP will be adopted. Yet from an efficient-contracting perspective, it is hard to

conceive that shareholders are more willing to grant LLPs to an insider-dominated board, where the agency problem may already be high. Second, they fail to incorporate those economic factors (e.g., business risk, growth opportunity, etc.) that critically influence a firm's litigation risk. Finally, their sample only includes manufacturing firms and they do not examine any post-adoption implications of LLPs.

Chapter 4

Hypothesis development and research design

In this section, I develop the hypotheses to be tested and discuss the research design issues. To provide a reference point, I illustrate in Figure 2 a basic timeline for (1) several key events related to LLPs (discussed in Section 2), including the mid-1980s D&O insurance crisis, the *Smith vs. Van Gorkom* decision, the enactment of the first state statute permitting LLPs and firms' adoption decisions; and (2) corresponding empirical analysis.

4.1 Economic factors associated with the adoption of LLPs

Many firms faced great difficulty in retaining and attracting outside directors during the mid-1980s insurance crisis, with the most frequently cited reason as the unavailability of insurance coverage and heightened liability concern (Romano (1989) and Moodie (2004)). If the resignation of a large number of outside directors can lead to breakdown of normal functioning of the board as a governance mechanism, I expect firms to opt into LLPs more often to prevent any such disruption. Intuitively, the first hypothesis to be tested

is whether the incidence of *net* outside director outflow a firm experienced during the insurance crisis (before any state responses to ease the crisis) is positively linked to the likelihood of adopting LLPs later.

The ability of detecting a link between the two, however, depends critically on the following premises. First, outside directors had responded quickly to the insurance crisis by resigning from corporate boards and firms were not able to fill the resulted vacancy within a reasonably short time period.[1] Second, the wide discussion on potential state-level efforts to ease the crisis (e.g., enactment of LLP-permitting statutes) was not prompt enough to reshape outside directors' perception of liability threat and persuade them to stay. Stated differently, an outside director's decision on whether to stay on the board during the crisis did not depend much on his assessment of the likelihood of (1) states implementing LLP-permitting statutes soon and (2) firms opting into an LLP immediately after those statutes were enacted. Otherwise, firms with a greater likelihood to opt into an LLP would not necessarily experience more severe director outflow during the crisis period, simply because the outside directors would expect to get the relief from the adoption of LLPs soon. I state the hypothesis in the null form as follows.

H1: The incidence of outflow of outside directors during the insurance crisis period is not associated with the likelihood of subsequent adoption of LLPs.

In view of the confounding factors in testing $H1$, an alternative approach to shed light on the issue is to probe the economic factors underlying (1) outsiders' decision to refrain from sitting on corporate boards during the mid-1980s insurance crisis and (2) shareholders' decision to opt into LLPs. For outside directors, the major concern during the insurance crisis (when there were not yet foreseeable state responses) seems to be the height-

[1]The Korn/Ferry Survey reported that more than 20% of companies surveyed had been turned down by a prospective director, and many feared that the problem could get worse ("A Special News Report on People And Their Jobs in Offices, Fields and Factories", *Wall Street Journal*, 3/24/1987). The same article also reported that there was a decline in the percentage of outside directors on the boards of the largest 1000 industrial firms in 1985.

ened litigation exposure arising from the unavailability or insufficiency of D&O insurance coverage. Hence, firm characteristics contributing to greater shareholder litigation risk (and thus more expensive D&O insurance) are expected to be positively associated with the outflow of these directors. For shareholders, on the other hand, the tension is between the reduction in deadweight costs of litigation especially frivolous claims and the potential director entrenchment once an LLP is put in place: the more severe the frivolous-litigation problem is and the more trivial subsequent director entrenchment can be, the more likely an LLP will be adopted.

H2: The outflow of outside directors a firm experienced during the insurance crisis is positively related to a firm's litigation risk especially the likelihood of frivolous claims.

H3: The likelihood of adopting LLPs is positively associated with the risk of frivolous shareholder litigation and negatively associated with the potential director entrenchment induced by LLPs.

The question of interest is then whether we should expect a set of economic factors closely related to a firm's litigation environment to explain the decisions of both parties in a consistent fashion. In the aftermath of the insurance crisis, shareholders may have placed greater weight on the deterrence effect of litigation on attracting and retaining directors when they chose to adopt LLPs. The prevalent decline in the proportion of outside directors in the mid-1980s[2] can make the consideration of potential director entrenchment under LLPs a second-order effect. For example, the *Wall Street Journal* expressed concerns that management set forth in a proxy statement all their reasons why an LLP is great and then included "some cautionary language in the several pages of small print" and that shareholders may not invest time and effort reading and understanding it.[3] If this is the case, it is likely that we will observe significant overlapping of the litigation-related eco-

[2]Romano (1989) notes that there was a "reversal of a two-decade trend" of boards being composed increasingly of outside directors.

[3]"Companies Ask Holders to Limit Boards' Liability", *Wall Street Journal*, 10/07/1986.

nomic factors that explain both the observed outflow of outside directors during the crisis and subsequent adoption of LLPs.

I discuss below how various firm characteristics can affect the threat of (frivolous) shareholder litigation and/or the potential director entrenchment under LLPs, and in turn how they can be associated with (1) outside directors' willingness to stay on a board and (2) the likelihood of adopting an LLP.

■ **Business Uncertainty.** The effect of business uncertainty is a double-edged sword. On the one hand, it can dilute the link between outside directors' monitoring effectiveness and their level of care. Thus diligent outside directors can be blamed for breach of duty of care when a bad outcome is purely due to external factors beyond their control. This can sometimes lead to frivolous lawsuits that disrupt normal business and deter outsiders' willingness to sit on the board. The scenario is further complicated by lawyers' incentives which are not necessarily aligned with shareholders' interests. Because the attorneys are paid on a contingent-fee basis in shareholder litigation, greater business uncertainty can make court's decision and hence the recovery of attorney fees harder to predict should a case goes to trial. This can induce the attorneys to persuade both sides to a lawsuit to settle, where normally a recovery of the litigation costs is guaranteed. Indeed, settlement of shareholder litigation in general does not depend on the merits of cases (Alexander (1991)), and frivolous shareholder litigation without substantial merits is common, with attorneys as the principal beneficiaries (Romano (1991)). As Romano (1989) points out, since insurers must charge for the potential "collusion between the parties to settle even questionable claims", firms that want to reduce the insurance premium need a *credible* commitment to not being collusive. And a provision stated in the corporate charter such as an LLP may serve as such a commitment. In this light, firms with greater business risk would be more likely to adopt an LLP.

On the other hand, a risky environment can also aggravate the director entrenchment

problem. The theoretical literature suggests that the cost savings between working hard and shirking is a critical determinant of an individual's incentive to exert care/effort. As a board serves as the "top-level court of appeals of the internal agent market" and outside directors act especially important as "arbiters in disagreements among internal managers" (Fama and Jensen (1983)), enormous amount of effort is needed to reach a sound judgment. In a risky firm, managers' performance and decisions are harder to monitor (Demsetz and Lehn (1985)). To tell managerial effort from luck is thus especially time-consuming for outside directors who do not participate in the daily business decisions. This tends to induce outside directors to follow whatever the top managers suggest without doing a thorough investigation. Furthermore, if something bad happens, a shirking outside director can always use business risk as an excuse to persuade courts not to second-guess his decisions and get away without punishment. In this view, shareholders of a risky firm will be cautious to grant even more slacking opportunities to the outside directors by adopting an LLP. I measure business uncertainty by the volatility of a firm's daily stock returns for the past two years (*vol*).

■ **Relative Litigation Costs.** Litigation costs greatly influence shareholders' litigation incentive and frequency. If litigation is costless, shareholders can always resort to the legal system for the purpose of information revelation without much concern. When initiation cost does exist, the relative costs (costs net of the expected damage awards) have to be figured out. Romano (1991) finds a significantly positive relationship between concentrated outside ownership and the likelihood of litigation after controlling for other factors, suggesting that litigation may be more cost-efficient for large shareholders. When shareholders are dispersed, they may not have the incentive to individually collect information and initiate a lawsuit. In this case, lawyers' incentives can prevail, since no shareholder has a particular interest in scrutinizing legal proceedings and whether a case is meritorious. This can lead to frivolous litigation and hence the need for an LLP. I conjecture that the

presence of a large blockholder will be negatively related to the likelihood of adopting an LLP. The proxy for shareholders' relative litigation costs is the percentage of shares held by the largest blockholder (*block*).

■ **Alternative Incentive and Control Mechanisms.** From a broader perspective, expert boards bundled with fiduciary duty of care is only one of the governance mechanisms to mitigate the agency problem arising from the separation of ownership and control, i.e., the problem that *managerial* behavior may deviate from shareholders' best interests. The existence of alternative governance mechanisms such as a robust takeover market and large investors can substitute for the need of board monitoring and hence fiduciary duty as a whole,[4] leaving shareholders indifferent to adopting an LLP or not. On the other hand, because outside directors can facilitate the monitoring activities of other mechanisms such as large shareholder/debt-holder (e.g., by providing better communication between them and internal managers), their role is still important. In this case, whether to remove duty of care by adopting an LLP depends on the available mechanisms that can discipline the outside directors *themselves*, since they are also shareholders' agents with their own personal interests. Sometimes the disciplinary mechanisms for managers (second-level agents) and those for outside directors (first-level agents) can overlap and affect the two jointly. So their net effects on LLP adoption can be hard to predict. I discuss three governance mechanisms below.

First, large stockholders have an incentive to collect information, monitor business decisions and control voting process to exert pressure on the management team (Shleifer and Vishny (1997)). Hence, the existence of concentrated ownership can be a substitute for the disciplinary effect of fiduciary duty, especially when the resort to takeover is too

[4]For example, Romano (1993) compares various contract relations (e.g., guardian-ward, union-leader-union-member, manager-shareholder, etc.) and points out that high-powered incentives provided by markets for a certain product or service can make it unnecessary to use governance structures such as fiduciary duty adjudicated by a court.

costly for shareholders. However, it could also become a complement in the sense that the aforementioned relatively low litigation costs make it more efficient for a large shareholder to initiate a meritorious lawsuit against the directors, making litigation a credible threat. Whether it will affect the likelihood of adopting an LLP depends on the joint effect of the two. The measure of the effect of large blockholders is *block*, as defined before.

Second, large debt-holders can also serve as an important governance mechanism. Its impact on a firm's decision to adopt an LLP is twofold. On the one hand, if there exists a large debt-holder, he may act as an additional monitor of managers. There is some empirical evidence that supports the governance role of large creditors. Begley and Feltham (1999) find covenants to have a significantly negative relation to CEO cash compensation, suggesting that creditors curb excessive managerial pay. Kaplan and Minton (1994) and Kang and Shivdasani (1995) both report higher sensitivity of management turnover to performance for firms with significant ties to a bank for a sample of Japanese firms. If debt-holders indeed serve as an effective governance mechanism, it is likely that firms with higher leverage tend to be more willing to limit their directors' liability. On the other hand, there is a conflict of interest between debt-holders and shareholders. Studies on this issue date back to Jensen and Meckling (1976) and Myers (1977).[5] If a greater level of debt induces directors to be more sensitive to the needs of debt-holders, shareholders may be reluctant to adopt LLPs because they need the directors to vigilantly guard their own interests. The net effect of the two countervailing forces is not clear. I measure the effect of debt by leverage ratio (*lev*), defined as the ratio of total debt (debt in current liabilities plus long-term debt) to total assets.

Third, managerial and director incentive compensation can matter. A substantial body of theoretical work (e.g., Jensen and Meckling (1976), Holmström (1979), Holmström

[5]Examples of restrictive debt covenants include those on dividend distribution, working capital maintenance and so on, which might not be optimal for shareholders.

(1982), Prendergast (1999)) suggests that stock-based compensation can be useful in aligning the incentives of agents with those of the principals. Gutiérrez (2003) also suggests that contingent compensation and the threat of litigation are alternative ways to induce outside directors to exert a high level of care. However, studies have also documented the downside effect of using incentive compensation such as bonus and stock option plans. One example could be disclosure manipulation induced by managerial opportunism to maximize the value of their compensation (Healy (1985), Gaver, Gaver, and Austin (1995), Holthausen, Larcker, and Sloan (1995) and Aboody and Kasznik (2000)). There is little evidence on how similar compensation plans can motivate or harm outside directors' monitoring efficacy and this remains to be an open question in the setting of this study. If somehow the dysfunctional opportunism to reap personal gain can be curbed by the duty of *loyalty*,[6] then the more incentive compensation available, the more likely will an LLP be adopted, and vice versa. To indicate the general level of incentive compensation, I use two measures. First, I include the total percentage of a firm's common shares beneficially owned by directors and officers (*inpct*). Second, I use an aggregate measure (*allplan*) summing over whether a firm has a shareholder-approved stock option plan (*optplan*), a retirement plan (*retplan*) or any benefit plans (*othplan*, excluding D&O insurance plan) for outside directors. These incentive plans specifically targeted at outside directors may induce them to exert effort in monitoring managers and to avoid myopic decisions in order to qualify for the benefits included in those plans.[7]

■ **Firm Performance.** Poor performance can indicate that the existing board including the outside directors has failed to do a good job. Empirical evidence suggests that shareholder activisms usually target these firms (Romano (2001)). Should the disciplinary effect

[6]In this case, it may be easier for shareholders to establish the fact that there indeed exists some conflict of financial interest between outside directors and shareholders, especially if insider trading is involved.

[7]From the perspectives of outsiders, these benefit plans can be especially important for those relying on directorship income and induce them to join and stay on board ("Liability Panic in the Board Room", *Wall Street Journal*, 11/10/1986). However, it is uncertain that these benefit plans could trade off the litigation concern sufficiently during the insurance crisis.

of these activisms fails, shareholders can seek relief from recourse to litigation against existing boards and managers. In this respect, it is hard to conceive that shareholders will adopt an LLP and give up this last resort. On the other hand, a poorly-performing firm facing great insolvency risk may have a hard time obtaining affordable D&O insurance.[8] Yet they are the ones that critically need to attract new outside directors to monitor managerial conduct. Brook and Rao (1994) find that the adoption of an LLP is associated with positive stock price reaction for poorly-performing firms. Hence, it is possible that shareholders are more willing to adopt LLPs in this case because (1) high litigation risk deters qualified outsiders from serving on a board[9]; (2) a sufficiently high amount of cash compensation is needed to induce a potential candidate to take the job, which could be a problem for a poorly-performing firm short of cash; and (3) stock-based incentive compensation may have lost their power in these firms.[10] A further practical matter, as suggested by Black, Cheffins, and Klausner (2003), is that when a firm is likely to go insolvent, it is hard for directors to get reimbursement of legal expenses in case of shareholder lawsuits even if they are protected by firm indemnification.[11] In other words, any indemnification in place can easily become nominal. I measure firm performance by stock return for the previous fiscal year (*ret*).

■ **Growth Opportunities.** It is harder for outside shareholders to evaluate managerial decisions when a firm has more growth opportunities (Smith and Watts (1992) and Gaver and Gaver (1993)). In this case, shareholders need to rely more critically on directors' monitoring and judgment and are less likely to relax directors' duty. However, argument can also go for a need of less exposure to liability. First, stock-based compensation such

[8]The insurance carrier will expect the litigation probability to be unusually high and that the firm might not have sufficient fund to cover the indemnified part itself.

[9]Of course, one can also argue that without the protection of an LLP, such firms may attract only those outsiders with a higher level of dedication and qualification yet less risk-averseness.

[10]For example, stock options may lose their incentive effects when the market price is already well below the exercise price.

[11]The reason is that directors' claims such as legal expenses generally don't have priority in getting repayment.

as stock options can bear greater incentive effect in these firms (Smith and Watts (1992), Gaver and Gaver (1993), Skinner (1993), Baber, Janakiraman, and Kang (1996) and Kole (1997)). It can be awarded to directors to induce a high level of care. Second, Gutiérrez (2000) suggests that there is a tendency for shareholders to sue the directors for adopting risky decisions but not for adopting conservative ones.[12] In this light, it is likely that under a more stringent liability regime directors in such firms tend to be reluctant to approve risky projects even if these projects serve the best interests of shareholders. I measure (lack of) growth opportunities by book-to-market ratio (*bm*), defined as year-end per-share book value of common equity divided by price.[13]

■ **Firm Size.** The conventional wisdom is that larger firms tend to face greater litigation risk because of their deeper pockets. Although empirical evidence is mixed on the link between firm size and incidence of *ex post* frivolous litigation (Jones (1980) and Romano (1991)), *ceteris paribus* firm size does seem to be associated with a higher D&O insurance premium (Core (2000) and Cao and Narayanamoorthy (2005)), which is an *ex ante* measure of litigation risk from the perspective of insurance carriers. On the other hand, large firms are exposed to closer public scrutiny of their governance, which can motivate directors to be more vigilant of managerial conduct and make the deterrence effect of litigation less important. Overall, I expect firm size to be positively related to the likelihood of an LLP adoption. I measure firm size by the natural logarithm of a firm's market value (*log_mv*).

Utilities and Financial Firms. These firms refer to those in the utilities (2-digit SIC code as 46,48 or 49) or financial (1-digit SIC code as 6) industries (henceforth UF firms), as consistent with the previous literature (e.g., Yermack (1996) and Borokhovich, Parrino,

[12]An analogy can also be found in the case of auditor liability: auditors tend to be accused of failing to find overstatements but not understatements (e.g. Antle and Nalebuff (1991)).

[13]The implications of book-to-market ratio are sometimes confounded by a firm's accounting conservatism (e.g. Beaver and Ryan (2000), Watts (2003a) and Watts (2003b), I also use sales growth (*sgrowth*) as an alternative measure in the additional tests.

and Trapani (1996)). Anecdotally, banking and utilities industries had an especially tough time obtaining D&O insurance and retaining outside directors in the mid-1980s, perhaps due to the high failure rates and uncertain business prospects in those industries.[14] Though the sample firms are mostly large and profitable then (see Section 6), it is likely that the perception of their outside directors about the threat of liability is affected by the industry-wide downturn.

Furthermore, utilities and financial firms are subject to regulation. If regulation restricts managers' discretion in decision-making (Demsetz and Lehn (1985) and Smith and Watts (1992)) and thus trivializes a board's monitoring role, it can make shareholders indifferent to the incentive effects of litigation and hence the adoption of LLPs. On the other hand, if supervision from regulatory bodies serves as the "watchdogs of the watchdogs", it seems that any potential entrenchment induced by LLPs can be effectively curbed, making shareholders more willing to opt into LLPs. But still, it is critical that board of directors have enough motivation to guard shareholders' interest in case regulatory bodies' objectives are inconsistent with those of the shareholders, in light of which I expect less willingness to adopt LLPs. Taken together, whether shareholders of the UF firms differ in their decision on LLP adoption remains an empirical issue. Hence, unlike prior corporate governance works that routinely exclude these firms, this study conducts sub-sample analysis to facilitate comparisons between UF firms and non utilities/financial (henceforth NUF) firms.

■ **Management/Board Entrenchment in the Voting Process.** It is common for managers and board of directors to have routine proxies of the majority of shareholders and thus significant control on the voting process for LLP adoption. If top managers (especially CEOs) in general would want more discretion in decision making, I expect manager-

[14]See for example, "Focus on Corporate Boards; Directors Feel the Legal Heat", *New York Times*, 12/15/1985 and "South Texas Drilling Says Three Directors Resign over Insurance", *Wall Street Journal*, 10/4/1985.

entrenched boards to be more likely to adopt an LLP so that outside directors will interfere less absent the litigation concern. In addition, a board with a large percentage of outsiders may also be most willing to opt in, because the outsiders are the most direct beneficiaries of an LLP.

The question is then whether such entrenchment in the voting process can be curbed by the potential harm to reputation, should the director market views an opt-in as an undesirable signal. One piece of supporting evidence could be that the director market tends to reward outside directors that reject the takeover defenses which can be potentially detrimental to shareholder wealth (Coles and Hoi (2003)). But in the case of takeover defenses, the decision of adoption is entirely up to the board without the need of shareholder approval. Yet in the case of an LLP adoption, nominally it is subject to shareholder voting. Hence, it is likely that the director market cannot distinguish between those opt-ins backed up with substantial shareholder consent and those purely due to voting entrenchment. Furthermore, even if shareholders do participate in the voting, the reasons for adopting an LLP outlined by the board in its proposal can greatly affect their decision. Empirically, to get an accurate measure of the voting entrenchment effect, one would need detailed proxy and voting information for the annual meeting where an LLP is adopted. This paper does not have such data and only tries to capture the effect conceptually. First, I control for *duality*, a dummy variable indicating whether the CEO also serves as the chairman of the board, and *log_ceotenure*, the natural logarithm of CEO tenure.[15] Second, I include the percentage of outside directors on the board, who are the most direct beneficiaries of an LLP. Specifically, I control for both the percentage of non-affiliated (*outside_pct*) and the

[15]Note that CEO tenure can also indicate a CEO's capability and experience of steering the company, which can be negatively related to business uncertainty. In this light, I also include this CEO effect in the model of change in number of outside directors. But instead of using *log_ceotenure*, I include two corner cases: an indicator for CEOs at retirement age (age 62-66) (*ceo_retire*) and an indicator for new CEOs (with tenure less than 4 years) (*new_ceo*). These two variables serve dual purposes. While they can capture the CEO-tenure effects, they have also been found to lead to both director appointments and departure by previous literature (Yermack (1996)).

percentage of affiliated outside directors (*grey_pct*).

The following table presents hypotheses *H2* and *H3* by summarizing the predicted signs of the economic factors associated with litigation threat and potential director entrenchment. Net effects of these factors on (1) director outflow and (2) shareholders' decision on adopting an LLP, respectively, are presented in the last two columns.

economic factors	*litigation threat*	*potential entrenchment*	**H2 net effect on director outflow**	**H3 net effect on adoption**
business uncertainty	+	+	+	?
growth opportunity	+		+	+
firm performance	−	?	−	?
presence of large debt-holders	+	±	+	?
presence of large blockholders	+	−	−	+
incentive compensation		±		?
firm size	+	−	+	+
regulated industry	+	±	+	?
entrenchment in voting				+

The empirical specification is straightforward, as illustrated by the following models.

H2: Outflow of outside directors = f (business uncertainty, growth opportunity, firm performance, presence of large debt-holders, firm size, regulation, other controls)

H3: Pr(LLPs adoption) = f (business uncertainty, growth opportunity, firm performance, presence of large debt-holders, presence of large blockholders, incentive compensation, firm size, regulation, managerial entrenchment in voting, other controls)

4.2 Implications of LLPs in the post-adoption period

The previous section discusses the economic factors associated with firms' decision to adopting the LLPs. However, even if the empirical findings perfectly match the predictions tabulated above, it is not indicative of whether the adoption decision has been made optimally. The main hurdle is the impossibility to identify *ex ante* the optimal loading each economic factor should have (on the decision of adoption) and use them as a benchmark to evaluate the *observed* loadings. For example, a significantly positive loading on firm size does not tell us whether and how much the board and managers have exaggerated the deep pocket problem and induced shareholders to approve an LLP.

One way to shed light on this issue is perhaps to examine the economic consequences of adopting an LLP. Naturally, my second research question centers on the implications of LLPs for board composition and the efficacy of outside directors in the post-adoption period. Such an approach is again not perfect. For example, a relationship between the two will be hard to detect should the shareholders adopt LLPs optimally: since only those who consider the savings on litigation costs (including the cost of deterring outside directors to join the board) to outweigh the entrenchment rents under an LLP will choose to opt in, the efficacy of outside directors does not necessarily decline after the adoption.

Still, anecdotal evidence suggests that this might not be the case. As discussed earlier, there is a concern that shareholders may not fully understand the implications of LLPs and an over-heightened fear of liability exposure among outside directors at that time caused shareholders to opt into LLPs routinely. A *Wall Street Journal* article at the time cites the following critique: "There's a short-term crisis in liability insurance, and legislation gives people an option that they adopt in perpetuity,"... "Even if in a year a company can get all the D&O insurance in the world, this thing is in their charter; they're stuck with it."[16]

[16]"Companies Ask Holders to Limit Boards' Liability", *Wall Street Journal*, 10/07/1986.

The empirical observation that the adoption of LLPs clustered heavily in the late-1980s (Section 5) also seems to bolster such concern.

I discuss below the specific hypotheses on LLPs' short-term benefits and long-term implications.

4.2.1 Short-term implications of LLP

Attracting outsiders or curbing outflow of existing outside directors in the aftermath of the mid-1980s insurance crisis is claimed to be an important benefit of adopting the LLPs. Yet such a conjecture has not been empirically tested before. Intuitively, if such benefit does exist, it should be most evident shortly after the adoption of an LLP. Suppose that a firm's underlying economic determinants of the optimal number/percentage of outside directors stay the same and that an LLP is adopted to ease the difficulty of reaching such an optimality (i.e., undo the exogenous shock imposed by the insurance crisis), then there can be two possible scenarios for the adopters: (1) adopters can experience an increase in the number of outside directors after adoption, if they previously suffered from a loss of outsiders due to the negative impact of the insurance crisis, or (2) adopters can experience no change in the board composition after adoption, if the insurance crisis only imposed a potential threat and had not yet been reflected in the outflow of outside directors. In the aggregate level, the net effect could be that adopters are able to restore the number/percentage of outside directors to the level immediately before the insurance crisis (assuming that the effect of shifts in underlying economic factors is trivial on changes in board characteristics). Taken together, I state the hypotheses below:[17]

[17]Note that it is hard to get a credible null on the number of outside directors a firm should have. Even if there is no significant shift in the underlying economic determinants around the adoption of an LLP, it is likely that a firm changes the weight of each economic factor's effect on the optimal amount of outside director, making a pre-crisis benchmark stale. Moreover, as discussed earlier, shareholders usually have a portfolio of governance mechanisms to mitigate the agency problem. It is likely that we cannot observe any reversal of the outflow problem simply because shareholders resort to other less costly mechanisms instead of fixating on the importance of outside directors.

H4a: There is no decrease in the number of outside directors for adopter firms in a short period immediately following the adoption.

H4b: Within a short period immediately following the adoption, adopters are able to restore the number of outside directors to the level immediately preceding the mid-1980s insurance crisis.

To test *H4a*, changes in board compositions for the year immediately preceding an LLP adoption for adopter firms are used as a benchmark for the changes observed for the one-year post-adoption period. The within-firm comparison can largely mitigate the endogeneity concern that adopters and non-adopters differ systematically and can not be used as benchmarks for each other in a cross-sectional comparison. *H4b* is stronger than *H4a* in the sense that it requires not only the curb of director outflow but also the restoration of board composition to an earlier level.

It is worth pointing out that shareholders do not necessarily fixate on one governance mechanism, i.e., the disciplinary effect of shareholder litigation on outside directors. The earlier discussion on how the adoption of LLPs can be a function of the existing incentive compensation for outside directors is one way to tackle the issue. In addition, anecdotal evidence suggests that incentive compensation plans for outside directors started to gain popularity in the late 1980s,[18] perhaps to further soothe the liability worries. An interesting question is then whether the prevalence of incentive compensation changes differently over time for the LLP adopters and non-adopters. For adopters, on the one hand, incentive compensation may help mitigate entrenchment rents induced by LLPs in the post-adoption period. For example, it can align shareholders' interests with those of the outside directors. In case of board failure, it may also make it easier for shareholders to claim a breach

[18]The Korn/Ferry survey reported that one-quarter of the companies in their survey provided stock options in 1990, tripling the proportion in 1986. ("While Outside Directors' Pay Increases, Independence From Managers May Fade ", *Wall Street Journal, 9/22/1991.*) The article also suggests that popular incentive compensation for directors include not only stock grants and stock options, but also retirement plans, deferred compensation, life insurance and medical coverage.

of duty of loyalty (excluded by LLPs) and thus attenuate LLPs' protection if incentive compensation helps to establish the presence of "conflict of interest". For non-adopters, on the other hand, it is likely that these firms utilize incentive compensation plans more often exactly because they substitute the assurance value provided by LLPs, which is essentially also an element of outside directors' compensation packages. I do not predict a difference between adopters and non-adopters in terms of the additional incentive plans adopted.

4.2.2 Long-term implications of LLP

The long-term impact of LLP on firms' board efficacy is an open question (Shaw (1989) and Romano (1990)). As discussed in Section 2, there has long been the concern that the benefits of LLPs that accrue to shareholders only matter at the time of insurance crisis while the costs inevitably persist into the long run. If this scenario is true, the existence of LLPs can be negatively associated with the efficacy of outside directors. On the other hand, the observation in Section 5.2 that LLP is seldom the target of shareholder activism and that cases of LLP revocation are rare may indicate that LLPs no longer matter in a post-insurance-crisis era. Thus no link should be documented between board efficacy and the existence of LLPs.

The view of LLPs as merely a placebo in the 1990s might not be descriptive. Bailey (2004) suggests that LLP has "played an important role in minimizing director liability exposures" during the past 15 years along with the business judgment rule. In addition, Cao and Narayanamoorthy (2005) provide evidence that the presence of an LLP is negatively associated with D&O insurance premiums after controlling for other economic factors, suggesting that LLPs do seem to reduce litigation risk even in recent years.[19] But still, to find meaningful statistical inference of LLPs' impact on the way outside directors fulfill their monitoring role, it is necessary that LLPs continue to change significantly outside di-

[19]See Section 8.2 for detailed discussion on LLP and the pricing of D&O insurance.

rectors' perception of the overall liability threat they face. It is likely that LLPs still matter in the 1990s, but only to a moderate extent in light of the other protective measures against outside directors' liability exposure (e.g., the long-standing "business judgment rule").[20] I state the null hypothesis as follows:

H5: The existence of LLPs in a firm's corporate charter is not associated with the efficacy of board of directors in the 1990s.

As noted earlier, we again face the hurdle that the existence of LLPs in a firm's corporate charter does not shed light on whether the decision is made optimally. To tackle the endogenous nature of shareholder decisions to adopt an LLP, the econometric design also tries to tease out the expected adoption. The LLP adoption is decomposed into "expected adoption" (*ExpAdopt*) and "unexpected adoption" (*UAdopt*), defined as the predicted probability and the residual term from the logistic regression of LLP adoption on economic determinants (see Section 4.1), respectively. Intuitively, *ExpAdopt* should not have any predictive power on future board efficacy after other underlying economic factors are controlled for. In contrast, a high *UAdopt* can be viewed as a surprise (to researchers) and potentially reflects three possible scenarios: (1) an unexpectedly high litigious environment which drives outsiders away and in turn prompts shareholders' willingness to adopt an LLP in the late 1980s; (2) an unexpectedly low concern of entrenchment costs that can be induced under LLPs;[21] and (3) unexpectedly high managerial or board entrenchment in the voting process for LLPs.[22] In the first and second scenario, I expect *UAdopt* to be positively related to subsequent board efficacy. In the third scenario, I expect *UAdopt* to be negatively associated with subsequent board efficacy. The use of *ExpAdopt* and *UAdopt*

[20]On the other hand, if the existence of LLPs relates positively with the applicability of "business judgment rule", the very first layer of protection outside directors have against breach of duty-of-care claims, the results can be biased spuriously toward finding a link between LLP and board efficacy.

[21]Two examples could be (1) the existence of some effective governance mechanisms not captured by the adoption model, or (2) shareholders' private information about the superior quality of the management.

[22]Hence, *UAdopt* is a "net" measure in the following sense. Take the third scenario for example, *UAdopt* is net of the average effect of managerial entrenchment in voting for LLPs that all firms bear.

instead of *LLP adoption* as a whole, however, is not without issue. It depends critically on the correct specification of the LLP adoption model. Hence the attempt here is not to advocate for one approach versus another, but rather to provide alternative angles of answering the second research question. In Section 6, I only present the empirical results using *LLP adoption* as an explanatory variable. I leave the discussion on empirical results based on *ExpAdopt* and *UAdopt* to Section 7, where I report additional tests.

I investigate LLPs' implications on subsequent board efficacy in terms of three areas: (1) adoption of additional takeover defenses, (2) managerial compensation practices, and (3) financial reporting. All three issues emerge as important categories of shareholder litigation against directors and officers (Romano (1991))[23] and are among the key themes of shareholder activisms (Gordon and Pound (1993), Karpoff, Malatesta, and Walkling (1996), Gillan and Starks (2000), Romano (2001) and Romano (2003)). Hence, these are potentially the areas where due diligence of outside directors are particularly important.[24] I discuss the specific hypotheses related to the three areas below.

■ LLP and adoption of additional takeover defenses

I examine whether the existence of LLPs is associated with additional takeover defenses adopted by the board in the future. Takeover defenses (e.g., poison pills, classified board and golden parachute) can deter changes in corporate control and result in opportunistic managerial behavior. Proposals to repeal takeover defenses are the most frequently observed category of shareholder activisms. Because the adoption of most takeover de-

[23]Romano (1991) studies shareholder litigation for a sample of 535 public firms (random selected from NYSE and OTC markets) from the late 1960s through 1987. The other two categories of shareholder litigation reported in her study are decisions related to mergers and acquisitions and miscellaneous lawsuits, which are not the focus of this study. Romano (1991) finds that all five categories of lawsuits have roughly the same size. It is worth noting that there may still exist areas where the deterrence effect of liability exposure is so great that no litigation in those areas is ever observed. Those areas are not within the scope of this study because of the difficulty of *ex ante* empirical identification.

[24]Although Romano (1991) does not further classify the lawsuits into subcategories (e.g., against outsiders vs. against insiders, breach of duty of care vs. breach of duty of loyalty, breach of fiduciary duties under state law vs. violations of securities laws, etc.), *ex ante* there is no reason to suspect any of the three categories to be particularly unrelated to the scope of duty of care, which an LLP exculpates.

fenses is not subject to shareholders' approval, board members' especially outside directors' discretion becomes important. If the relaxation of liability threats under LLPs tends to reduce outside directors' effort in such decision-making process, then I expect LLPs to be positively linked to the adoption of additional takeover defenses in the future.

It is pertinent to point out several factors that can mask the relationship between adoption of LLPs and additional takeover defenses adopted. First, adoption of takeover defenses can be indicative of manager/board's private information regarding a pending takeover attempt (Comment and Schwert (1995)). Rather than evidence of manager/board entrenchment, their deterrence effect on takeover activities can be used as a bargaining tool to get better offers. Second, although the takeover market was still active in the late 1980s when most firms opted into LLPs, it began to wane in the early 1990s. Hence it is likely that the adoption of takeover defenses is no longer a major component of board's agenda for most of the years covered by the post-LLP-adoption period. Finally, if the *ex post* settling up of director market is efficient in the area of takeover defenses as Coles and Hoi (2003) suggest, then the existence of LLPs does not necessarily lead to an unruly adoption of these defenses. I state the null hypothesis as follows:

H6: Ceteris paribus, firms with LLPs do not tend to adopt more additional takeover defenses subsequently.

■ LLP and managerial compensation

Fama and Jensen (1983) suggest that setting executive compensation is one of the most important tasks of outside directors. However, the past decade has been witnessing excessive CEO paychecks and weak links between top-management pay and performance.[25] Many studies (Bebchuk, Fried, and Walker (2002), Bebchuk and Fried (2003) and Bebchuk and Fried (2004)) have demonstrated in detail how corporate boards have persistently failed to couple executive compensation with performance. A recent Securi-

[25]"My Big Fat C.E.O. Paycheck", *New York Times*, 4/3/2005.

ties Exchange Commission (SEC) speech also stresses that board members are sometimes "disengaged" in setting the compensation for senior management because of limited incentives.[26] Although the speech cites the high-profile WorldCom class action settlement[27] as evidence that fiduciary responsibility are the "sticks" for directors, it is uncertain that such a picture was true before all the corporate scandals and governance failures surfaced. The recent high-profile shareholder lawsuit against the Walt Disney board of directors for breach of fiduciary responsibilities further highlights the possibility of inadequate scrutiny of compensation practice by board of directors.[28]

I hypothesize that the liability exculpation provided by LLPs can lead to excess pay level and play a role in decoupling managerial pay with performance. Two competing hypotheses are also worth discussion. First, poor monitoring by outside directors can also make it easier for managers to camouflage the actual amount of compensation and/or the insensitivity of pay to performance, for example, by engaging in performance manipulation activities or providing inadequate disclosure of compensation. In this case, the true compensation level or pay-for-performance sensitivity is not completely observable. If the existence of LLPs is positively correlated with the likelihood of outside directors' compromise on the use of such "stealth compensation" (Bebchuk and Fried (2004)), then the relationships hypothesized above can be masked, making the net effect of LLPs hard to gauge. Second, LLPs can continue to encourage outside directors' risk-taking and change a firm's risk attributes and average performance, which can be beneficial to shareholders under certain circumstances. The objective of the empirical design (presented below) is

[26]"Speech by SEC Staff: Governance, the Board, and Compensation", by Chester S. Spatt, August 29, 2005.

[27]Ten former WorldCom Inc. board members agreed to pay $18 million out of their own pockets to settle the class action alleging inattentiveness of the directors. See "WorldCom's Steep Price – Outside Directors' Failures Send Expensive Lessons On the Cost of Inattention", *Wall Street Journal*, 1/7/2005; "WorldCom Deal Was a Difficult Balancing Act", *Wall Street Journal*, 1/13/2005; and "What's $13 Million Among Friends?", *New York Times*, 1/17/2005.

[28]The plaintiffs allege that Disney's board was "fast asleep" when approving Mr. Ovitz's no-fault termination and severance package ("Suit Against Disney Over Ovitz Severance Chills Boardrooms", *Wall Street Journal*, 10/11/2004).

then to see if the existence of LLPs has any incremental effect on top of the economic determinants (such as risk and performance) of managerial compensation, rather then proving a causality between these economic determinants and the existence of LLPs.

I hypothesize the relationship between the existence of LLPs and managerial compensation in the null form as follows.

H7: Ceteris paribus, firms with LLPs in place do not differ from non-adopters in the level of managerial compensation or the pay-for-performance sensitivity of managerial compensation.[29]

In the following empirical specification, I examine the relationship between the existence of LLPs (*LLP*) and the level of managerial compensation after controlling for other standard economic determinants and governance variables studied in the previous literature (Smith and Watts (1992), Gaver and Gaver (1993), Core, Holthausen, and Larcker (1999), Ashbaugh, Collins, and LaFond (2004) and Larcker, Richardson, Seary, and Tuna (2005)). If *LLP* is positively associated with the level of managerial compensation, I expect that $\beta_1 > 0$.

$$\begin{aligned} \textit{level of executive compensation} = & \beta_0 + \beta_1 * \textit{LLP} \\ & + \Sigma\beta_k * \textit{economic determinants} \\ & + \Sigma\beta_k * \textit{governance variables} \\ & + \Sigma\beta_m * \textit{year dummies} \\ & + \Sigma\beta_n * \textit{industry dummies} \end{aligned}$$

I focus on total executive compensation (*totcomp*, including salary, bonus, restricted stock grants, stock option grants, long-term incentive payout and all other annual pay) in

[29]Consistent with earlier discussion, I expect that (1) if *UAdopt* reflects an unexpectedly litigious environment or unexpectedly effective governance mechanisms in place, *ceteris paribus*, higher *UAdopt* is expected to be associated with a lower level of managerial compensation and higher pay-for-performance sensitivity; and (2) if *UAdopt* reflects shareholders' assessment of management-team quality of management team or managerial/board entrenchment, *ceteris paribus*, higher *UAdopt* is expected to be associated with a higher level of managerial compensation and lower pay-for-performance sensitivity.

the main analysis and use cash compensation (*cashcomp*, salary plus bonus) as an alternative measure in the additional tests. I examine both the level of CEO compensation and the level of compensation for the top-five highest-paid executives in a firm.

The economic determinants included in the compensation model are similar to those used in the previous literature on executive compensation (e.g., Core, Holthausen, and Larcker (1999), Ashbaugh, Collins, and LaFond (2004) and Larcker, Richardson, Seary, and Tuna (2005)). Firm performance variables include the cumulative stock return of the fiscal year (*ret*) and return on assets (*roa*), measured as income before extraordinary items scaled by total assets at the beginning of the fiscal year. Performance variables are expected to be positively linked to compensation level. To capture firm risk, standard deviation of stock returns for the prior five years (*std_ret*) and standard deviation of *roa* for the prior five years (*std_roa*) are included. To control for a firm's (lack of) growth opportunity, book-to-market ratio (*bm*) is included. Finally, firm size is proxied by the natural logarithm of market capitalization (*log_mv*). Except for *roa* and *ret*, which are contemporaneous with the executive compensation variables, all the other economic factors take the values as of the beginning of a fiscal year.

Corporate governance characteristics controlled for include those variables that can indicate management entrenchment on the board and the compensation-setting process. To avoid the high costs of hand collecting governance data from the proxy statements, I take an approach similar to the one used in Hanlon, Rajgopal, and Shevlin (2003). I construct several governance variables based on the data available in the *ExecuComp* database. CEO duality (*duality*) is defined as an indicator of whether a CEO also serves as the chairman of the board. Duality can signal CEO entrenchment in director-selection process and a cozy CEO-board relationship that may lead to lavish pay packages (Core, Holthausen, and Larcker (1999), Shah and Sunder (1999) and Hermalin and Weisbach (2003)). The sum of percentage shareholdings owned by the top-five highest paid executives (*pshares_sum*),

the percentage of these executives who are also board members (*dir_pct*) and the percentage of these executives who have interlocking directorships with other firms (*intlock_pct*) are included to indicate the potential influence of these executives on the compensation-setting process. It is worth pointing out that Larcker, Richardson, Seary, and Tuna (2005) summarize the literature on interlocking relationship and suggest that it can reduce firm risk and in turn the need to compensate managers more. In addition, being a director and further an interlocked director can be indicative of an executive's high capability. This can in turn get reflected in a higher pay, which is not necessarily the result of entrenchment. The natural logarithm of total number of board meetings (*meetings*) for a fiscal year is included to indicate the intensity of board monitoring activities. Note that it is likely that a large number of meetings arise from unusual events (e.g., firms expansion, takeover attempts and business failures) that require extra managerial efforts. Finally, a dummy for CEO (*dummy_ceo*) is used to capture the uniqueness of a CEO's responsibility, as reflected in his pay package.

The empirical test on the link between LLPs and pay-for-performance sensitivity uses a variant of the methodology in Jensen and Murphy (1990) and is similar to Hartzell and Starks (2003). The specification is as follows.

$$\begin{aligned}\Delta executive\ compensation_{i,t} = {} & \gamma_0 + \gamma_1 * \Delta shareholder\ wealth_{i,t-1} \\ & + \Delta shareholder\ wealth_{i,t} * [\gamma_2 + \gamma_3 * LLP \\ & + \Sigma\gamma_k * control\ variables_{i,t-1} \\ & + \Sigma\gamma_m * year\ dummies_t + \Sigma\gamma_n * industry\ dummies_t] \\ & + \Sigma\gamma_y * year\ dummies_t + \Sigma\gamma_z * industry\ dummies_t\end{aligned}$$

In the above empirical specification, the primary coefficient of interest is γ_3, which captures the effect of LLPs on the link between changes in shareholder wealth and changes in total direct managerial compensation. If the existence of LLPs is linked to a weaker pay-for-performance sensitivity, then coefficient γ_3 should be negative after controlling for all

other factors.

I include several controls (in the interactive form) along with the independent variable for the existence of LLP. Previous studies document that firm size is negatively related to the pay-for-performance sensitivity (e.g., Demsetz and Lehn (1985), Jensen and Murphy (1990), Garen (1994) and Baker and Hall (1998)). I include firm size, measured by the natural logarithm of market capitalization (*log_mv*) at the beginning of a fiscal year, to control for size-related variation. Firms' growth opportunity has also been found to increase the use of market-based incentives and pay-for-performance sensitivity (Smith and Watts (1992), Gaver and Gaver (1993) and Baber, Janakiraman, and Kang (1996)). Hence, I control for growth opportunity, measured by Tobin's q ratio (*tobinq*).

In addition, firms' risk characteristics can also play a role. Jin (2002) suggests that risk affects the pay-for-performance sensitivity in two ways: a positive effect through inducing more managerial discretion needed in a risky environment and a negative effect through limiting managers' diversification difficulty. Aggarwal and Samwick (1999) and Jin (2002) both find dollar return variance to be negatively associated with the incentives used. However, since Core and Guay (2002) find dollar return variance to rather be a noisy measure of firm size, this paper uses percent return variance to proxy for firm risk, measured as the standard deviation of daily returns for the previous two years (*vol*).

I also control for the percentage of institutional holdings (*inst_holding*), as Hartzell and Starks (2003) suggest that institutional shareholders serve a monitoring role in mitigating the agency problem by increasing the pay-for-performance sensitivities. All the above control variables take the values as of the beginning of a given fiscal year. Finally, I include industry dummies (based on the definition of Campbell (1996)) to control for the industry effect on a firm's compensation structure, and year dummies to control for the time-series trend in compensation changes as well as pay-for-performance sensitivity (Hall and Liebman (1998)).

■ LLP and financial reporting properties

I investigate whether the existence of LLPs is related to a firm's financial reporting properties. Recent accounting scandals such as those of Enron and WorldCom question the board effectiveness especially outside directors' input in monitoring firms' financial reporting practices. Relaxation of liability induced by LLPs can erode outside directors' incentive to take due care in this process because the threat of shareholder recourse to litigation is reduced.

The soundness of financial reporting is measured by the quality of accruals. I do not consider extreme cases of financial reporting failures such as restatements or financial frauds (Dechow, Sloan, and Sweeney (1996), Beasley (1996) and Gerety and Lehn (1997)) for three reasons. First, these egregious cases may inevitably become manifestation of actions made in "bad faith" or breach of duty of loyalty and no longer fall under the protection of an LLP. In other words, the relaxation of liability provided by LLPs is not strong enough to sustain outside directors' incentives to tolerate these poor reporting practices.[30] Second, the reputational stake in these extreme cases can also be great enough to induce outside directors to take due care even with the presence of an LLP. For example, Srinivasan (2005) shows that outside directors, especially audit committee members, incur reputational costs for financial reporting failures in the form of restatements. Finally, focusing on these extreme events can introduce sample selection biases because only the firms that unsuccessfully avoid the disclosure failures are labeled as an anomaly. In contrast, yet-to-be-caught firms are all treated as having good financial reporting. I state the hypothesis in the null form as follows.

H8: Ceteris paribus, firms with LLPs in place do not have financial reporting quality

[30]For example, in 1993, the Delaware Supreme Court stated that LLPs do not shield outside directors from liability for bad disclosures because it is embraced by "duty of loyalty" rather than the "duty of care" that LLPs try to eliminate. Since then, the judicial application of LLP in cases of financial disclosure failures is evenly divided between judgments supporting and rejecting the protection of LLPs (Ingersoll and Paschetto (2000)).

different from that of the firms without LLPs.

The financial reporting quality is measured in two ways. First, I use the absolute value of the performance-matched discretionary accruals ($|mdacc|$), computed using a methodology suggested by Kothari, Leone, and Wasley (2005). A higher $|mdacc|$ would imply a lower reporting quality. Specifically, I estimate the following regression for each of the 48 Fama-French industries with at least 20 observations for a specific year.

$$\frac{TA_{i,t}}{Assets_{i,t-1}} = \phi_0 \frac{1}{Assets_{i,t-1}} + \phi_1 \frac{\Delta SALES_{i,t} - \Delta AR_{i,t}}{Assets_{i,t-1}} + \phi_2 \frac{PPEi,t}{Assets_{i,t-1}} + \varepsilon_{i,t},$$

where $TA_{i,t}$ = total accruals for firm i in year t = Δ non-cash current assets - Δ current liabilities (excluding the current portion of long-term debt) - depreciation & amortization = Compustat items $(\Delta item4 - \Delta item1 - \Delta item5 + \Delta item34 - item14)$. $\Delta SALES_{i,t}$ = change in sales (change in Compustat item #12). $\Delta AR_{i,t}$ = change in accounts receivable (change in Compustat item #2). PPE = net property, plant and equipment (Compustat item #8). All variables are scaled by lagged total assets ($Assets_{i,t-1}$, Compustat item #6). The residual term from the regression, $\varepsilon_{i,t}$, is the total discretionary accruals ($dacc_{i,t}$). Note that the regression differs from the modified Jones model (Dechow, Sloan, and Sweeney (1995)) in that ΔAR enters the estimation equation itself. Kothari, Leone, and Wasley (2005) suggest that this variation is more appropriate in a setting of cross-sectional estimation. To obtain performance-matched discretionary accruals ($mdacc_{i,t}$) for a specific firm, I subtract from $dacc_{i,t}$ the discretionary accruals of another firm with the closest return on assets (defined as the earnings before extraordinary items scaled by lagged total assets) within the same Fama-French industry in the same year.[31]

Second, I use Dechow and Dichev (2002) measure of the extent to which working capital accruals are mapped into cash flows from operations. Specifically, for each of the

[31]Using accrual models to measure the extent of earnings management and hence financial reporting quality has some inherent problems and limitations, as discussed in previous literature (Dechow, Sloan, and Sweeney (1995), Guay, Kothari, , and Watts (1996), Thomas and Zhang (2000) and McNichols (2000)). Hence it is likely that my results are subject to the misspecifications contained in these models.

sample firms, I estimate for each year the following model that regresses working capital accruals on past, present and future cash flows from operations using rolling six-year time-series of previous data.[32]

$$\frac{TCA_{i,t}}{\overline{Assets}_{i,t}} = \rho_{0,i} + \rho_{1,i}\frac{CFO_{i,t-1}}{\overline{Assets}_{i,t}} + \rho_{2,i}\frac{CFO_{i,t}}{\overline{Assets}_{i,t}} + \rho_{3,i}\frac{CFO_{i,t+1}}{\overline{Assets}_{i,t}} + \varepsilon_{i,t},$$

where $TCA_{i,t}$ = total current accruals for firm i in year t = change in working capital accruals = Compustat items $-(\#302 + \#303 + \#304 + \#305 + \#307)$. $CFO_{i,t}$ = cash flow from operations for firm i in year t = Compustat item #308. All variables are based on cash flow statements and are scaled by average assets ($\overline{Assets}_{i,t}$, average of Compustat item #6). The standard deviation of the residual terms (hereafter *sresid*) obtained from the six observations used in the regression is then viewed as a proxy for accruals quality. In other words, the accrual quality measure *sresid* = standard deviation of $\hat{\varepsilon}_{i,t} = \sigma(\hat{\varepsilon}_{i,t})$. A higher *sresid* indicates lower accruals quality.

The performance-matched discretionary accruals (*mdacc*) obtained from the cross-sectional regressions and the Dechow-Dichev measure (*sresid*) estimated using a time-series approach capture two aspects of a firm's financial reporting quality. They potentially complement each other in the sense that the bias induced by imposing fixed loadings on regressors at the industry level (in estimating *mdacc*) or the firm level (in estimating *sresid*) does not persist into both measures.

In the regressions of financial reporting quality on the existence of LLPs, I control for several firm-level innate factors that can affect the accruals quality measures. Consistent with Dechow and Dichev (2002) and Francis, LaFond, Olsson, and Schipper (2005), the factors include (1) firm size, measured as the natural logarithm of the average total assets for the past six years (*log_ta_avg*); (2) standard deviation of operating cash flows (scaled by average assets) for the past six years (*std_ocf*); (3) standard deviation of sales (scaled

[32]To avoid hindsight bias, for a specific year the regression only utilizes the six years of firm-level data available up to that year.

by average assets) for the past six years (*std_sales*); (4) proportion of negative earnings before extraordinary items among the past six years (*neg_ebxi_prop*); and (5) the natural logarithm of the average operating cycle[33] for the past six years. All five factors are measured on a rolling-window basis. Consistent with Dechow and Dichev (2002), I expect that firms of smaller size and firms with higher variation in sales, higher variation in operating cash flows, longer operating cycle and greater proportion of previous losses tend to have lower financial reporting quality.

For regressions with $|mdacc|$ as the dependent variable, in addition to the above innate factors, I also control for (1) contemporaneous accounting performance, measured as return on assets (*roa*, earnings before extraordinary items scaled by beginning-of-year total assets) to capture any performance effect on discretionary accruals (Dechow, Sloan, and Sweeney (1995) and McNichols (2000)) not entirely teased out by the performance matching procedure; and (2) (lack of) firm growth, measured as the book-to-market ratio (*bm*) at the beginning of a fiscal year. Finally, I also control for industry and year effects. The empirical specification is summarized as follows.

$$\begin{aligned} \textit{measure of accruals quality} = & \theta_0 + \theta_1 * LLP \\ & + \Sigma\theta_j * \textit{innate factors affecting accruals quality} \\ & + \Sigma\theta_k * \textit{other control variables} \\ & + \Sigma\theta_m * \textit{industry dummies} \\ & + \Sigma\theta_n * \textit{year dummies} \end{aligned}$$

[33] Operating cycle is defined as $\frac{365}{\textit{sales/average accounts receivable}} + \frac{365}{\textit{costs of goods sold/average inventory}}$.

Chapter 5

Data and descriptive evidence

5.1 Sample selection

The initial sample includes all 792 firms that showed up at least four times in the *Forbes* magazine annual lists of 500 largest U.S. corporations over 1984-1991.[1] The selection criterion results in large firms in terms of sales, total assets, market value and net income. This may bias against finding significant results if differences in firm size and profitability play a critical role in determining the likelihood of an LLP adoption. But it increases the chance for a firm to be included in the IRRC surveys and to have necessary proxy statement information available for the time period before the 1990s (as discussed below).[2]

I obtain information on (1) whether a firm has an LLP in its corporate charter and (2) the year of adoption by searching the *Corporate Takeover Defenses* published by the Investor Responsibility Research Center (IRRC).[3] For a few cases where the information on the adoption year is missing in the *Corporate Takeover Defenses*, I define the adoption

[1] I thank David Yermack for providing the list of firms.

[2] Section 8.1 discusses the issue of sample selection bias in detail.

[3] It is in generally difficult to obtain corporate charters and determine whether certain provisions exist. IRRC *Corporate Takeover Defenses* provides a unique opportunity to study the liability provisions in question.

date to be the shareholder meeting date specified in a firm's proxy statement that proposed an LLP by searching *LexisNexis SEC Filings & Reports*, *Thomson Research Documents & Filings* and the SEC filings collection of *Government Documents and Information Center* at the Yale Mudd Library. Appendix C provides an example of a board proposal on adopting an LLP. Because shareholders routinely approved the adoption of LLPs after receiving a management/board proposal,[4] I expect the misclassification error (of naming a firm an "adopter" even though the proposal was eventually turned down) to be small. For all LLP adopters, I identify the fiscal year immediately preceding an LLP adoption ("adoption fiscal year") using the following criteria. Since shareholder annual meetings usually lag roughly three months after a fiscal year ends, if a firm's fiscal year end is September through December then the "adoption fiscal year" is set to be the IRRC adoption year minus one, otherwise it is the same as the IRRC adoption year.

Since state statutes that allow firms to adopt an LLP take either a "charter-option" or a "self-executing" approach, one question would be whether to exclude those firms incorporated in a state with self-executing statutes because shareholders do not have a choice to opt out. This study does not exclude such firms. The reason is that conceptually if shareholders view the resulted director entrenchment rents to be too high, they could choose to reincorporate in a charter-option state and then disapprove an LLP proposal if any.[5] Similarly, I do not exclude firms incorporated in a state that does not permit the use of LLPs because shareholders also have the choice to reincorporate that enables the adoption of LLPs.

Corporate governance data such as board composition, stock ownership and outside director characteristics for the period over 1984-1991 are the same as those used in Yer-

[4]Anecdotal evidence suggests that rejection of such a proposal rarely happens. One reason is that managers or board of directors only propose an LLP if they consider the likelihood of adoption to be high.

[5]Anecdotal evidence suggests that outflow of firms from LLP-permitting states seldom occurs. On the other hand, inflow of reincorporating firms into Delaware and other LLP-permitting states in 1986 and 1987 was indeed observed by researchers. Moodie (2004) provides evidence that such inflow is not attributable to other state statutory difference such as the anti-takeover statutes in a state's corporate law.

mack (1996). Governance and takeover defenses data for post-adoption period come from IRRC's director database and corporate governance database,[6] complemented by data from Compustat's ExecuComp database which is also the source of managerial compensation data.[7] Institutional shareholder data are obtained from the Thomson Financial CDA Spectrum database. Finally, I employ financial and stock return data from Compustat and CRSP, respectively.

To maximize the efficiency of estimates from the adoption model as well as comparison between firms regarding LLPs' short-term implications, all firms with available data are included. This generates 506 final firms after intersecting observations satisfying the data requirement of computing (1) the adoption model, (2) the changes in board characteristics in the mid-1980s insurance crisis and (3) the time-series comparison (for adopters only) for the 5-year span starting from two years before adoption to two years after. Among these firms, 400 of them opted into LLPs as of 1990 while 106 firms did not. The analysis of the long-term implications of LLPs focuses on sub-samples that satisfy further data requirement, as discussed in Section 6.7.[8]

[6]Note that the year information in the IRRC database is the year in which an annual meeting is actually held and does not correspond to the fiscal year the meeting is about. For regressions that need to control for contemporaneous financial and governance variables, it is important to first adjust this year information by reconciling the fiscal year end reported in Compustat and the annual meeting month reported in IRRC.

[7]The compensation information contained in the *ExeuComp* database is largely based on firms' proxy statements, which are prone to incompleteness and untimeliness (see "Long & Short: Follow the CEO's Money - That Is, if Anyone Can; A Suggestion: the 'PAY-K' - One Easy-to-Read Table", *Wall Street Journal*, 2/16/2005). Thus the results on managerial compensation presented in this study are subject to such limitations.

[8]For analysis on managerial compensation, the reduction of the sample size is mainly due to the fact that *ExecuComp* only covers S&P1500 firms, among which S&P MidCap 400 and S&P SmallCap 600 firms are less likely to intersect with the initial sample. In other words, most of the firms surviving such constraint have to be existing or past S&P500 firms. For analysis on financial reporting properties, the reduction in sample size mainly comes from the requirement of available time-series data.

5.2 Prevalence of LLP among US firms

In this section, I present descriptive evidence on the prevalence of LLPs among US firms.[9] Panel A of Figure 3 plots the general trend in the percentage of firms that have adopted limited liability provisions. The aggregation is based on companies listed in IRRC *Corporate Takeover Defenses* 1990, 1993, 1995, 1998, 2000, 2002 and 2004, respectively. It shows that the proportion of IRRC firms that limit outside directors' liability by LLPs decreased from 1990 to 2004.

Since the number of firms included in an IRRC survey changes over the years, the downtrend could be caused by IRRC's firm selection criteria which tend to include new firms without LLP in later survey years. I perform two additional checks. First, I redo the aggregation in a subset of 649 firms that show up in all seven IRRC surveys. Results shown in Panel B of Figure 3 suggest that the percentage of firms with LLP declined slightly in recent years, indicating that some firms that initially opted into LLP may have revoked such provisions in later years. One possibility is that the provisions are revoked as a response to those shareholder activisms seeking to enhance directors' liability exposure.[10] It is also likely that some of these firms reincorporated due to reasons such as mergers and acquisitions.[11]

Second, for each year of IRRC survey I decompose the profile firms into two parts: those coming from the previous year and those newly added to the survey. Panel A of Table 2 shows that the decline in the prevalence of LLPs over the years is largely due to the fact that the inflow of new firms with less presence of LLP outpaced the outflow

[9] As a caveat, this study does not have data on the prevalence of D&O insurance or the trends in insurance deductibles, premiums and coverage. Unlike Canadian firms, currently US companies are not required to disclose such insurance data in their SEC filings.

[10] A less likely cause of the decline is that the IRRC surveys contain coding errors.

[11] For example, in the new domicile the firm's charter could not have any LLP whereas in the old domicile it could. In this situation, the reincorporation is subject to a shareholder vote, but there would not necessarily be separate vote on each difference between the new and old charter (e.g., the difference between LLP and no LLP). This study does not have enough data to distinguish between the two sources of change.

of firms with higher incidence of having an LLP in place. Panel B of Table 2 tracks the changes in the prevalence of LLPs among firms that show up in two consecutive IRRC survey years, supplementing the evidence presented in Panel B of Figure 3. For example, the first row suggests that for the 1275 firms that are included in both 1990 and 1993 surveys, 98.4% of the firms maintain the status quo as to whether they have LLPs or not. 1.2% (0.5%) of the firms changed to adopters (non-adopters) between 1990 and 1993. In general the percentages of firms with changing stances are insignificant.[12]

Untabulated results on the distribution of adoption years suggest the following. For the IRRC sample, most firms opted for LLP in 1987 and 1988, the two years immediately following the enactment of the first state law that permits LLP. Firms included in the final sample also exhibit a similar pattern. This is not surprising given that the pressure of the D&O insurance crisis alleviated after most states copied Delaware's regulatory approach. However, it also raises the question of whether shareholders had made a hasty decision in adopting LLP without realizing its long-term impact. It would also be interesting to examine those firms that adopted LLPs from 1991 to 1999 and the circumstances under which they made an adoption decision. To the extent that the final sample only consists of those early birds that opted into LLPs before the 1990s, it might bias against finding shareholders' rationale in adopting the LLPs if there exists certain herding behavior at the time of the insurance crisis.

Table 3 aggregates the presence of LLPs across different industries and stock exchanges. Panel A reports the percentage of firms with LLPs across different industries for all the IRRC survey profiles. The industry classification scheme is based on a variant of the one used in Campbell (1996). Consistent with the results shown in Panel A of Fig-

[12]As a further check, I also find that the distribution of states of incorporation for all IRRC firms (untabulated) did not change much from 1990 to 2004. Therefore the decline in the percentage of LLP firms does not seem to arise from the possibility that IRRC includes more firms incorporated under states that preclude LLPs over the years.

ure 3, over the years all the industries exhibit a downward trend in the percentage of firms with LLPs. Panel B aggregates the firms by stock exchange/market.[13] NYSE exhibits the highest percentage of firms with LLPs in all the IRRC survey years, as well as the least decline in this percentage over the years. One potential explanation is that NYSE accommodates more larger firms, whose deeper pockets tend to induce more litigations, and this can make LLP especially useful in attracting outsiders who would otherwise shy away due to the litigation threat. Firms traded in AMEX and OTC experienced a sharper decrease in the prevalence of LLPs from 1990 to 2002, and the number of AMEX/OTC firms surveyed also changed drastically.

Table 5 presents the industry distribution of 506 sample firms. Panel A is based on the classification scheme used in Campbell (1996). Compared with Column 1 in Panel A of Table 3, sample firms are skewed toward having LLPs in place as of 1990. Results in Table 5 also suggest that firms in the utilities and financial industries represent a significant portion of the final sample and have a relatively low percentage of firms with LLPs (127 financial firms with 77.2% opt-ins and 75 utilities firms with 74.7% opt-ins). Panel B further classifies the sample firms based on the 2-digit SICs. It shows that the sample cover a broad range of industries, with significant variations across different industries in terms of the percentage of firms with LLPs. Both panels indicate the need to control for potential industry effects.

[13]Exchange data for 2004 is not yet available in the IRRC database at the time of this draft of the paper.

Chapter 6

Empirical results

6.1 Changes in board characteristics during the insurance crisis

Table 6 reports the statistics on changes in board characteristics during the mid-1980s insurance crisis, measured over the time interval from the beginning of 1984 to the fiscal year end immediately preceding before July 1, 1986, the enactment date of the first LLP-permitting state statute in Delaware. Panels A, B and C report results based on all firms, NUF firms and UF firms, respectively. I define an "LLP firm" as one with an LLP in place as of the year end of 1990. As indicated by Section 5.2, the year 1990 seems to be the last year in the tidal wave of LLP adoptions. It thus enables me to include as many adopters as possible without expanding the estimation period too much.[1] The difference in the years of adoption (e.g., 1987 vs. 1990) is be largely due to the different enactment dates of LLP-enabling statutes in various states where firms are incorporated.

The left columns in Table 6 show that the average number of non-affiliated outside

[1] In other words, a firm that opted into an LLP in the 1990s is not labeled as an "LLP firm", since it is uncertain that the changes in board characteristics during the mid-1980s can be linked to an adoption of LLP, say, in 1994.

directors ($\Delta outside$) for the whole sample declined during the crisis period (mean = -0.12, Panel A), with UF firms experiencing a greater outflow of outside director (mean = -0.26, Panel C) than NUF firms (mean = -0.03, Panel B). In contrast, affiliated outside directors ($\Delta grey$) increased slightly during the same period for all three groups of firms. The aggregate effect of $\Delta outside$ and $\Delta grey$ on the change in number of outside directors as a whole ($\Delta outgrey$) is that only UF firms have a net outflow of outside directors on average (mean = -0.17). In addition, only the NUF firms seem to experience a decline in the number of inside directors ($\Delta inside$) (mean = -0.18). In terms of the change in board size ($\Delta board$), on average, all three groups have smaller boards than before.

The right columns in Table 6 report the correlation matrix for changes in board characteristics. In each panel, the upper (lower) triangle reports the Pearson (Spearman Rank) correlation statistics. One interesting finding is that in all three panels, $\Delta outside$ has a significantly negative correlation with $\Delta grey$, yet no correlation with $\Delta inside$. This indicates that the outflow of non-affiliated outside directors is partially offset the by inflow of grey directors, whose financial and/or non-financial interest might create strong incentive for them to join the board despite the litigation concern. It could also be the case that managers took the chance to replenish their board with those outsiders (relatives, business partners, etc.) whose interests are more aligned with that of the insiders.

6.2 Relation between changes in board characteristics during the insurance crisis and adoption of an LLP

This section discusses the empirical tests on Hypothesis 1, i.e., the relationship between changes in board characteristics during the insurance crisis and firms' decision to adopt LLPs. I expect firms experiencing a decline in the number of outside directors during the insurance crisis to be more likely to opt into LLPs subsequently. Table 7 reports

the empirical results. Panels A, B and C present contingency tables interacting (1) type of changes in number of non-affiliated outside directors ($\Delta outside$) with (2) subsequent decision on LLP adoption for all firms, NUF firms and UF firms, respectively. Consistent with Table 6, the change variable is measured over the time interval between 1984 and the fiscal year ending immediately before July 1, 1986. Adoption of LLPs refers to whether a firm had opted into an LLP as of 1990.

The three panels of Table 7 show that firms experiencing a decline in the number of non-affiliated outside directors during the insurance crisis (i.e., $\Delta outside < 0$) had a greater chance of adopting LLPs than other firms. For example, Panel A suggests that 81.8% of the firms that experienced a decline in *outside* opted into LLPs later, while only 77.8% of those with zero or positive changes in *outside* adopted LLPs later. Panels B and C suggest similar results. However, the chi-square tests on the dependence between changes in board characteristics and LLP adoption are not significant.

I repeat the chi-square tests for contingency tables similar to those presented in Panel A-C, using alternative specifications of changes in board characteristics. The objective is to complement the analysis in Panels A-C without imposing the relative importance of non-affiliated outside directors. For example, shareholders can be concerned about the overall change in board size only. The specifications include the changes in number of board members ($\Delta board$), number of outside (both non-affiliated and grey) directors ($\Delta outgrey$), number of grey directors ($\Delta grey$), and number of inside directors ($\Delta inside$). To probe the possibility that only the percentage change matters, I also examine the changes in percentage of non-affiliated outside directors ($\Delta outside\_pct$), percentage of affiliated outside directors ($\Delta grey\_pct$) and percentage of inside directors ($\Delta inside\_pct$). The chi-square values are insignificant in all specifications and across all groups of firms.

Overall, the evidence does not support Hypothesis 1 that there is significant dependence between the change in number of directors during the insurance crisis and the

frequency of LLP adoption later. As discussed earlier, the reason can be that *observed* changes are an imperfect proxy for *expected (potential)* changes in board characteristics.

6.3 Economic factors associated with the changes in board characteristics during the insurance crisis

Table 8 reports the results of cross-sectional regressions of changes in board characteristic during the insurance crisis.[2] The objective of the analysis is to examine whether various economic factors shaping a firms' litigation environment are linked to the changes in board composition ($H2$). The dependent variables include the change in the number of non-affiliated outside directors ($\Delta outside_s$) and the change in the number of all outsiders ($\Delta outgrey_s$), both scaled by board size at the beginning of the insurance crisis to mitigate heteroscedasticity concern. All the independent variables take the values as of the beginning of the insurance crisis. They include stock return volatility (*vol*), stock performance (*ret*), (inverse of) growth opportunity (*bm*), percentage shareholdings of the largest blockholder (*block*) and leverage (*lev*), firm size (*log_mv*), dummies for CEO at retirement age (*ceo_retire*) and new CEO (*new_ceo*), all of which are hypothesized to affect outside directors' perception of a firm's litigation risk and hence their willingness to continue their directorships in the face of the insurance crisis. Industry dummies consistent with definitions in Campbell (1996) are also included (with coefficients suppressed in the table for expositional convenience).

The OLS regressions reveal several significant findings. First, for all firms (left panel), book-to-market ratio (*bm*, inverse of growth opportunity measure) is negatively related to $\Delta outside_s$ and $\Delta outgrey_s$. This indicates that growth firms have more positive changes in

[2] I perform White test on the cross-sectional regressions and the results suggest no concern of heteroscedasticity and thus no need to correct the OLS standard errors.

number of outside directors, reflecting a need for more outsiders at a time of growth and expansion. The dummy for new CEO (*new_ceo*) also has a significantly negative coefficient. As discussed earlier, the existence of a new CEO may indicate a previous CEO turnover (e.g., due to poor performance). In addition, if shorter CEO tenure is associated with less capability of steering the company, it can be perceived as being linked to greater business uncertainty by outside directors and thus leads to director outflow. Second, for NUF firms (middle panel), volatility of daily stock returns (*vol*) has a significantly negative association with $\Delta outside_s$, but not with $\Delta outgrey_s$. *New_ceo* has a negative coefficient when the dependent variable is $\Delta outgrey_s$. Finally, for UF firms (right panel), both leverage (*lev*) and dummy for new CEO have significantly negative relationships with $\Delta outside_s$. Other economic factors, such as past stock performance, size, percentage shares held by the largest blockholder and dummy for retiring CEO are not associated with either $\Delta outside_s$ or $\Delta outgrey_s$.

Taken together, the empirical evidence supports some of the predictions of H2. But there are also explanatory variables that show up as not being significantly related to the change in outside directors. In addition, the regression results differ when I use $\Delta outside_s$ or $\Delta outgrey_s$ as the dependent variable. This can be attributed to the fact that there is barely any net loss of grey directors during the insurance crisis for the sample firms, and there seems to be a substitutive effect between non-affiliated and affiliated outside directors (as suggested by Table 6).

6.4 Economic factors related to the likelihood of adopting an LLP

This section discusses the results pertaining to Hypothesis 3, i.e., how economic factors affecting a firm's litigation environment and potential entrenchment under LLPs can be

associated with the likelihood of adopting an LLP.

Table 9 presents the descriptive statistics of LLP adopters and non-adopters. Again, I define an "LLP firm" as one with an LLP in place as of the year end of 1990. The explanatory variables presented are those used in the logistic regression of LLP adoption and take the values as of the fiscal year ending immediately before July 1, 1986, the enactment date of the first state statute that permits LLP. The maintained assumption is that firms' innate characteristics such as business risk and growth opportunity do not change significantly over a short time horizon. In other words, even though the actual adoption years span over 1986-1990 (with 1987 as the year with the most adoptions), the measurement error caused by using dependent variables as of 1986 should be relatively small. It also eliminates the difficulty of choosing a comparable "decision year" for firms that didn't opt into LLPs.

For all firms taken together, LLP adopters have significantly higher volatility of daily stock returns (*vol*), market value (*log_mv*) and percentage of grey directors (*grey_pct*) on the board. Their CEOs have significantly shorter tenures. For these variables, the difference statistics are significant at both the mean and median levels. Adopters and non-adopters do not differ significantly in terms of other firm characteristics, including book-to-market ratio (*bm*), prior stock return (*ret*), total percentage of shares held by directors and officers (*inpct*), other incentive or compensation plans for outside directors (*optplan*, *retplan* and *othplan*), leverage (*lev*), the percentage of shares held by the largest blockholder (*block*), duality of CEO as the chairman of the board (*duality*) and percentage of outside directors (*outside_pct*).

Sub-sample analysis suggests that the difference between adopters and non-adopters for the all-firm sample is mostly driven by the UF firms. For the NUF firms, the only difference between adopters and non-adopters is the volatility of daily stock returns (median difference = 1.5%, Wilcoxon rank sum test = 2.091). For UF firms, however, besides those four variables of significant difference we observe for the entire sample, adopters

also seem to have less option plans in place (*optplan*), less percentage of shares held by the largest blockholder (*block*) and less proportion of outside directors on the board (*outside_pct*). A closer look at the data reveals that the prevalence of *optplan* among the UF firms is extremely low, and the difference between adopters and non-adopters is entirely due to one non-adopter, who is the only UF firm that has an option plan in place for its outside directors.

In summary, the univariate analysis presented in Table 9 shows some difference between LLP adopters and non-adopters and such difference is especially distinct among the utilities and financial firms.

Table 10 reports the correlation matrix of the variables. Panels A, B and C show the correlations for all firms, NUF firms and UF firms, respectively. In each panel, the upper and lower triangles report the Pearson and Spearman Rank correlation statistics, respectively. Besides confirming the univariate results discussed in Table 9, Table 10 also points to some other significant correlations that are higher than the conventional threshold (e.g. Pearson correlation greater than 0.3). In all three panels, (1) the percentage of shares held by the largest blockholder (*block*) and the shares held by directors and officers (*inpct*), and (2) the CEO-chairman duality (*duality*) and the CEO tenure (*log_ceotenure*) are positively correlated. On the other hand, there are high negative correlations between stock return (*ret*) and book-to-market ratio (*bm*).

Table 11 presents the results of logistic regressions of LLP adoption on firm characteristics for the sample firms. The left, middle and right panels present results for all firms, NUF firms and UF firms, respectively. For each sample, the first model only includes variables indicating potential CEO entrenchment in the voting process: CEO tenure (*log_ceotenure*) and duality of CEO as chairman of the board (*duality*). It also contains indicators for industry groups defined in Campbell (1996).[3] The second model further cap-

[3]Note that I do not use dummies for 2-digit SICs as industry controls, because quite a few industries

tures the influence of board composition by adding percentage of grey directors (*grey_pct*) and percentage of outside directors (*outside_pct*). It also controls for utilities and financial industries (*dummy_uf*).

Across alternative specifications, stock return volatility (*vol*) and firm size (*log_mv*) consistently exhibit significant associations with the likelihood of adopting an LLP. Specifically, firms with higher volatility of daily stock returns are more likely to adopt an LLP. This supports the hypothesis that the problem of frivolous lawsuits deterring outsiders from joining the board is more serious for these firms and it potentially outweighs the concern about entrenchment costs induced by LLPs in the future. Firm size is also positively related to the adoption likelihood. As discussed earlier, this is probably because (1) their deeper pockets can lead to more non-meritorious lawsuits that make outsiders shy away and (2) other monitoring mechanisms (e.g., public exposure and scrutiny of the board) help to effectively curb directors' shirking behavior under the protection of LLPs. More importantly, the two factors are robustly significant in both the NUF and UF sub-samples. Coefficients on other economic factors, including prior stock return (*ret*), book-to-market ration (*bm*), incentive plans for outside directors (*allplan*) and leverage (*lev*), are insignificant for all three groups of firms. The coefficient on the indicator for utilities and financial industries in the all-firm sample is also insignificant.

There is some concern that shareholders routinely adopt LLPs without understanding its consequences and managers and directors effectively control the proposal and voting process of LLP adoption. The results suggest that the largest blockholder's shareholding percentage (*block*) has a significantly negative relation with the adoption likelihood. This is inconsistent with the hypothesis that the existence of large shareholders substitute the monitoring role of outside directors and hence reduce the need to impose stringent liabil-

have only one firm as indicated by Table 5. In this case, the industry fixed effect is identical to the firm fixed effect, making it harder to interpret the coefficient on a industry dummy.

ity on them. It indicates that perhaps only the large blockholders have the incentives to scrutinize the impact of LLPs as well as the necessary voting power to veto an adoption. Further examination of the sub-sample results reveals that the blockholder effect seems to be entirely driven by the sub-sample of UF firms.

Turning to the variables on CEO/board entrenchment effect, most actions again seem to come from the sub-sample of utilities and financial firms. The results suggest that for these firms, if a CEO has a longer tenure (*log_ceotenure*), an LLP is less likely to be adopted. As discussed earlier, this may indicate shareholders' attempt to increase outside directors' vigilance by opting out of LLPs when management entrenchment can be already high. It is also consistent with the hypothesis that longer tenure enhances a CEO's capability of reducing the likelihood of business failures (Core (2000)) and hence potential litigation threat, making an LLP less necessary. The association is robust across alternative specifications. The coefficient on CEO duality as chairman of the board (*duality*) is also negative, though insignificant. When board entrenchment variables are included, the likelihood of adoption is only significantly increasing in the percentage of grey directors (*grey_pct*). Since grey directors are outsiders with affiliations with the firm (who can be prone to duty-of-loyalty claims due to the existence of conflict of interest), they may advocate LLPs most actively to limit at least one type of duties, i.e., duty of care.

Taken together, the evidence suggests that LLPs tend to be adopted by larger firms and firms with more volatile stock returns. In addition, utilities and financial firms are more likely to opt into LLPs if the shareholdings of the largest blockholder are lower, the CEO has been in the firms for a longer time and the percentage of grey directors is larger. Comparing Table 11 with Table 8, I find that a few economic factors exhibit consistent patterns in both sets of regressions. For NUF firms, greater volatility is associated with both greater outflow of outside directors and higher likelihood of adopting an LLP. For UF firms, shorter CEO tenure is linked with more negative changes in the number of outside

directors and greater chance of LLP adoption. In contrast, the size effect, which is persistent across different samples and alternative specifications in Table 11, is not significant in Table 8, though its sign is consistent with the prediction.

6.5 Are there immediate benefits of LLPs in retaining and attracting outside directors in the short run?

Table 12 displays evidence on the short-term implications of LLP adoption on 400 adopters' board characteristics (relating to Hypotheses 4a and Hypotheses 4b). I compare the time-series board characteristics for the five years starting from three years (year -3) before the adoption to the one year immediately following the adoption (year +1). Panels A, B and C report results for all firms, NUF firms and UF firms, respectively. For the adoption year (year 0), a board characteristic variable takes the value resulting from the election process in the annual shareholder meeting that approved an LLP adoption. Column (1) refers to comparison between the current year and the year immediately before. Column (2) refers to comparison between the current year and base year -3. Figure 4 plots the time-series, where a solid data point indicates a significant change from previous year to current year at the 1%, 5% or 10% levels in a paired t-test, respectively. For comparison purposes, Panel A of Figure 7 plots results for firms opting out of LLPs, structured in a way similarly to Figure 4. Since non-adopters do not have a specific "adoption year", the results cover the period of 1984 to 1991, during which the data on board characteristics are all available.[4]

Panel A of Table 12 shows that there is no significant year-by-year change in *outside*, *grey* or *outgrey* preceding the LLP adoption. But there does seem to be a significant increase in the number of grey directors immediately after an LLP is adopted. When decom-

[4]A few firms are eliminated due to incomplete time-series, resulting in 100 non-adopters presented in Figure 7. Relaxing the constraint by varying the time span can restore the non-adopter sub-sample to 106 firms but does not change the main findings.

posing the sample into NUF firms (Panel B) and UF firms (Panel C), I find the two groups to have patterns distinct from each other. *Outside*, *grey* and *outgrey* are relatively stable across the years for NUF firms, i.e., neither the year-by-year changes nor the cumulative changes are statistically significant. In contrast, for UF firms, there is a significant decline in *outside* as well as *outgrey* right before the adoption year and no significant year-by-year change afterwards. But they were not able to restore *outside* to an earlier level. Hence, for UF firms the finding seems to support $H4a$ but not $H4b$. In addition, there is a significant increase in both *grey* and *grey_pct* following the adoption. Figure 5 plots the time-series of average board characteristics of firms opting into LLPs before 1988 for the five consecutive years starting from two years preceding the adoption to two years afterwards. These early birds represent a significant portion of the sample and they exhibit similar trends in time-series board composition as the full sample does. Finally, Figure 7 shows that there is little discernable year-by-year changes in *outside* and *grey* for firms that did not opt into an LLP, as consistent with expectation.[5]

Another interesting finding is worth mentioning. As discussed earlier, a firm has a portfolio of governance mechanisms including but not restricted to the use of outside directors. One conjecture made in the popular press in the aftermath of the mid-1980s insurance crisis is that the make-up of boards will shift toward company insiders after the crisis. The empirical evidence fails to support this argument. In Panel A of Table 12, both the number and percentage of inside directors (*inside* and *inside_pct*) in adopter firms start to decline from one year preceding the LLP adoption and continues to do so in the one year following adoption. This may be explained by the fact that LLPs provide little insurance value to these group of directors, since the exculpation provided by LLP seldom is harder to apply due to the potential insider information and conflict of interest they have. When decomposing the sample into NUF and UF firms, it seems that the persistent decline in

[5]See Table 13 for detailed difference statistics.

inside mainly comes from the NUF firms. UF firms have a relatively stable level of *inside*, consistent with the finding in Panel C of Table 6 that even during the crisis period, the utilities and financial firms on average did not experience any decline in the number of inside directors ($\Delta inside = 0.09$). Finally, for firms opting out of LLPs, Panel A of Figure 7 shows that *inside* also declines. Untabulated statistics suggest that the cumulative change in *inside* from 1984 to 1991 is significantly negative.

Overall, the benefit of LLPs being a means to retain and attract outside directors seem to be weak in general, but relatively evident for the utilities and financial firms. Such finding parallels the anecdotal evidence that utilities and financial industries had an especially hard time retaining outside directors during the D&O insurance crisis. Even though the sample firms are relatively well-performing (as indicated by *Forbes*' selection criteria), it is possible that an industry-wide fear of potential litigation among outside directors make them shy away more frequently before the adoption and respond more actively to an LLP adoption. Finally, the evidence does not support the conjecture made by popular press that board composition will shift towards greater reliance on inside directors.

6.6 Alternative director incentive mechanisms implemented along with the adoption of LLPs

Figure 6 reports the alternative incentive mechanisms for outside directors implemented along with the adoption of LLPs. Panels A, B and C plot results for all adopters, NUF adopters and UF adopters, respectively. All three panels show a persistent increase in the use of incentive plans for outside directors, including option plans (*optplan*), retirement plans (*retplan*) and other miscellaneous plans (*othplan*) well before the LLPs were even adopted. For example, the proportion of firms with *retplan* or *othplan* started to increase as early as two years before firms adopted LLPs and continued to do so even after the

adoption. Prevalence of shareholder-approved option plans for outside directors (*optplan*) also exhibits a similar pattern. Considering the fact that most of the adopters opted into LLPs in 1987, it means that this trend started roughly in 1985, a period within the mid-1980s D&O insurance crisis. The evidence thus seems to indicate firms' continuing effort to soothe the difficulty of attracting outside directors by granting more generous director compensation packages besides the use of LLPs. Turning to firms opting out of LLPs, Panel B of Figure 7 suggests that they have also added more benefit plans for their outside directors over the years. For example, the percentage of firms with *optplan* increased from 1% in 1984 to 14% in 1991.

6.7 Long-term implications of LLP adoption

This section presents the results on long-term implications of LLP adoption. Section 6.7.1 discusses the results on the relationship between LLP adoption and additional takeover defenses adopted in the 1990s. Section 6.7.2 examines whether there exists a link between the existence of LLPs and firms' compensation practice, specifically, the level of top management remunerations and the pay-for-performance sensitivity of compensation. Finally, Section 6.7.3 reports the relationship between LLP adoption and firms' financial reporting properties. Due to the stringent requirement on data availability for each analysis, I do not require the sample firms to be exactly the same for all three sub-sections. Rather, starting from the 506 firms used for earlier empirical tests, each sub-section utilizes all the firms that survive the subsequent data requirements for a particular analysis. Summary statistics are reported for each sub-section to facilitate comparison between samples.

The post-adoption period examined is 1993-2000, where governance, compensation, and financial data are all available. Such data restriction can lead to two limitations of the results presented in this section. First, it does not shed light on the time period adjacent

(e.g., 1990-1995) to the bulk of LLP adoptions, where LLPs' implications can be most evident. Second, the Private Securities Litigation Reform Act (PSLRA) that passed in December 1995 might have changed the landscape of shareholder litigation against officers and directors and hence directors' liability exposure in general. Although PSLRA was intended to reduce frivolous shareholder litigation, the likelihood and claim magnitude of shareholder litigation actually increased during the post-PSLRA period (Grundfest and Perino (1997), Loomis (2000) and Black, Cheffins, and Klausner (2003)). Hence, the relaxation of liability under state-level corporate law provided by LLPs may matter less in an era when liability exposure to violations of the securities laws becomes a critical concern. In general, I expect these two limitations to bias against finding any significant impact of LLPs in the post-adoption period.

6.7.1 LLPs and takeover defenses

Table 14 shows how the IRRC governance index (*gindex*, Gompers, Ishii, and Metrick (2003)), a summary index of the presence of takeover defenses, changes over time in the 1990s. I also report results for five sub-indices constructed in a way similar to Gompers, Ishii, and Metrick (2003).[6] The *gindex* and sub-indices are all net of the score for the presence of LLPs. The time period covers 1990-2000, during which IRRC conducted five surveys on corporate takeover defenses. Panel A and Panel B report the levels and changes of the indices, respectively. Results for 1990 are used as a benchmark for computing the changes of indices ($\Delta indices$) in Panel B.

[6]The five sub-indices include (1) *delay_index*, sum of indices for blank check, classified board, special meeting, and written consent; (2) *protection_index*, sum of indices for compensation plans, director indemnification, director liability, golden parachutes, and severance agreements; (3) *voting_index*, sum of indices for limits to amend bylaws / charter, cumulative voting, secret ballot, super majority to approve merger, and unequal voting; (4) *other_index*, sum of indices for anti-greenmail, director's duties non-financial impact, fair price, pension parachutes, poison pill, and silver parachutes; and (5) *law_index*, sum of indices for state laws on business combination, cash out, director's duties, fair price, control share acquisition, and recapture of profits.

Panel A of Table 14 shows that adopters have higher scores of *protection_index* and lower scores of *law_index* in every IRRC survey year examined. Such difference already existed in 1990 and persisted into the entire 1990s. Turning to the changes of takeover defense indices (as compared with 1990), for both adopters and non-adopters, there is an increase in most of the indices in subsequent survey years. As of 2000, adopters seems to have increased $\Delta voting\_index$ cumulatively more than the non-adopters have, yet the increase in other sub-indices does not differ much. The overall *gindex*, both in terms of levels and changes, does not seem to differ for the two groups of firms.

Summarizing, the evidence suggests that firms with LLPs opted into more additional takeover defenses restricting shareholders' voting rights in the 1990s. They do not differ from non-adopters in terms of the overall *gindex*. As discussed earlier, one reason could be that the takeover markets had became less active by the late 1980s and hence adoption of takeover defenses can become less critical in management teams' agenda, leaving board efficacy on such issue less relevant. However, it is pertinent to point out two caveats in interpreting the results. First, strictly speaking, 1990 is already a "post-adoption" year for most of the adopters, since a majority of the sample firms opted into an LLP before 1989. Hence, if a firm happens to change the number of takeover defenses significantly between the year of LLP adoption and 1990, the current research design is unable to capture that effect. Second, Table 14 suggests that IRRC surveys cover less and less of the sample firms over the years, probably due to changes in IRRC's profile selection. If the firms continuously surviving IRRC's selection criteria differ significantly with those dropping out subsequently, then the validity of comparison across the survey years will be weakened.

6.7.2 LLP adoption and managerial compensation

In this section, I present results on the relationship between the existence of LLPs and firms' managerial compensation practices.

LLPs and level of managerial compensation

Table 15 reports the summary statistics (Panel A) and correlation matrix (Panel B) for the 459 firms (3030 firm-years) used in the regressions of managerial compensation level on LLPs. Statistics on compensation are based on those of the CEOs only. In Panel A, the median total direct compensation (*totcomp*) of the CEOs is $2.66 million. Cash compensation (salary and bonus) accounts for roughly half of the total compensation: *cashcomp/totcomp* has a median of 53% and a mean of 55%. Panel B suggests that the existence of LLPs (*LLP*) is highly correlated with *totcomp*.

Table 16 presents the results of regressions of managerial compensation level on the existence of LLPs and other firm characteristics. The main independent variable, *LLP*, is defined as an indicator for the existence of an LLP in a firm's corporate charter. The dependent variable is the natural logarithm of total direct compensation (sum of cash compensation, stock and option grants and all other compensation). Pooled regressions are performed for the time period of 1993 to 2000 on (1) observations of CEOs only, and (2) observations summing across the top-5 highest paid executives within a firm, respectively. Since the sample includes mainly large firms, where the top-management team as a whole may matter more than a single CEO to a firm's operations, the latter specification potentially captures the level of managerial compensation better. The left, middle and right panels in Table 16 present results for all firms, NUF firms and UF firms, respectively. All the reported t-statistics are based on Huber-White standard errors allowing for firm-level clustering (robust to both heteroscedasticity and serial correlations).

Except for the CEO compensation regression for the NUF firms, the existence of an LLP in a firm's corporate charter has a significantly positive association with the level of total direct compensation across alternative specifications after controlling for (1) firm-level economic factors and (2) measures of top executives' entrenchment effect on the

board. This is consistent with the univariate results shown in Panel B of Table 15. In terms of economic significance, a coefficient of 0.147 in the first model of the all-firm panel indicates that *ceteris paribus* adopters grant about 16% more compensation to their CEOs than non-adopters.

Estimated coefficients on firm characteristics suggest the following. For the all-firm sample, the level of managerial compensation is positively associated with contemporaneous stock performance (*ret*), firm size (*log_mv*) and risk (*std_ret* and *std_roa*), as consistent with expectation. Most of the managerial entrenchment variables seem to be negatively related to the level of managerial compensation. Specifically, the total percentage shares owned by the top-5 highest paid executives (*pshares_sum*), the percentage of directors among these executives (*dir_pct*) and the percentage of interlocked directors among them (*intlock_pct*) all seem to decrease the level of total managerial compensation. Hence, the evidence does not seem to support the hypothesis that greater influence of the top management team on the board can lead to higher pay, in contrast to the findings in previous literature (e.g., Hanlon, Rajgopal, and Shevlin (2003)). The coefficient on *intlock_pct* seems to support the point made in Larcker, Richardson, Seary, and Tuna (2005) that interlocked directorships may reduce firm risk and in turn managerial pay. The number of concurrent board meetings (*log_meetings*) is positively associated with the level of compensation, consistent with the hypothesis that a larger number of meetings signals unusual business activities (e.g. firm expansion) which requires greater managerial efforts and in turn justifies the greater pay. CEO-chairman duality (*duality*) and (lack of) growth opportunity (*bm*) are not significantly associated with the level of managerial compensation. In general, the signs of the coefficients are consistent across regressions for the NUF and UF firms, but with varying significance. The only coefficient that flips sign is the one on CEO-chairman duality (*duality*), which changes from being significantly positive for the NUF firms to being negative for the UF firms.

To shed light on the time-series changes in the significance of the association between LLPs and the level of managerial compensation, Table 17 reports the results for eight annual regressions of executive compensation on LLP adoption from 1993 to 2000. The regressions are the same as those presented in Table 16 except that (1) year dummies are no longer included in the annual regressions and (2) t statistics are based on White standard errors adjusting for heteroscedasticity. For expositional convenience, only the coefficients on LLPs are reported. The results suggest that the existence of LLPs is positively associated with the level of compensation in roughly seven out of the eight years examined, indicating persistent effects of LLPs in the 1990s. When decomposing the sample into NUF and UF firms, I find that the effect of LLPs seems to be stronger and more persistent among the UF firms: the coefficient on LLP is significantly positive in six (seven) out of the eight years for the CEO-only (sum-across-executives) specification. In contrast, for NUF firms only two (three) out of the eight annual regressions yield significant coefficients on LLP for the CEO-only (sum-across-executives) specification. Finally, coefficients on other variables (untabulated) are largely consistent with those presented in Table 16.

Still, the above tests can not tease out the possibility that *LLP* captures the effect of certain omitted firm-characteristics that lead to higher compensation levels. In Table 18, I perform pooled regressions similar to those reported in Table 16, for a period starting from 1984 to July 1, 1986, when LLP was not yet permitted. The independent variable, "*LLPFirm*", is an indicator for whether a firm eventually opted into an LLP. If it is the omitted variables that persistently lead to both LLP adoption and higher compensation level later, then I expect a significantly positive coefficient on *LLP* for a period when LLP is absent for both adopters and non-adopters.[7] The results suggest that the two groups of

[7]The sample size is roughly the same as that of Table 16, with a few firms dropping out due to unavailable data. Also, since the governance data for this early sample period come from Yermack (1996), the independent variables are slightly different from those used shown in Table 16: (1) *inside_pct*, the percentage of inside directors, replaces *dir_pct*, the percentage of directors among the top-five highest-paid executives; (2) *ceo_shares_pct*, the percentage of shares held by the CEO, replaces *pshares_sum*, the sum of percentage

firms did not differ significantly in the level of CEO compensation before LLPs became permitted and prevalent.[8]

LLP adoption and pay-for-performance sensitivity

Table 20 provides the pooled regression results on the linkage between the existence of LLPs and the pay-for-performance sensitivity of managerial compensation, estimated for the time period of 1993 to 2000. The dependent variable is the change in total direct compensation. Regressions are performed for (1) observations of CEOs only, and (2) sums across all the top-5 highest paid executives within a firm, respectively. Similar to Table 16, the left, middle and right groups of columns in Table 20 present results for all firms, NUF firms and UF firms, respectively. All the reported t-statistics are based on Huber-White standard errors allowing for firm-level clustering.

The existence of LLPs does not seem to be associated with pay-for-performance sensitivity across alternative specifications after controlling for firm characteristics, industry effect and time effect: the coefficients on $\Delta mv_t * LLP$ are mostly insignificant (except for the sum-of-all-executive regression for the UF firms). As discussed earlier, the coefficient on *LLP* captures the net effect of two possible consequences of relaxation of board liability: (1) a weaker tie between pay and performance resulting from insufficient scrutiny by outside directors in designing the pay packages, and (2) a seemingly stronger link between pay and performance due to the board's failure to identify performance-fudging activi-

shares held by the top-five highest paid executives; and (3) *intlock_pct* is not included in the regressions due to unavailable data. Finally, since data on the top-5 highest-paid executives is not available, only the CEO compensation regression is estimated.

[8]This approach is again not perfect. If the omitted correlated variables only started to take effect between 1987 and 1992, the current research design will not be able to capture the effect. A more reasonable approach to tease out the endogeneity is perhaps to run a regression of changes in managerial compensation (from a pre-LLP regime to a post-LLP regime) on changes in various determinants of compensation, where an indicator for *LLP Firm* is controlled for. In such a specification, the pre-LLP regime serves as adopters' own control if there is no shift in the fundamentals, while the non-adopters serve as controls for structural changes in the economy. Due to data unavailability, I leave the investigation to future research.

ties.[9] The insignificant coefficient hence does not shed light on which of the two forces is dominant. Other factors that potentially affect the pay-for-performance sensitivity are mostly insignificant for the full sample and the NUF firms. For UF firms, however, firm size (*log_mv*) has a negative impact on the pay-for-performance sensitivity, while stock return volatility (*vol*) increases the sensitivity.

Table 21 reports the results of annual regressions of pay-for-performance sensitivity on LLPs for each year among 1993-2000. The regressions are the same as those presented in Table 20 except that (1) year dummies are no longer included in the annual regressions and (2) t statistics are based on White standard errors adjusting for heteroscedasticity. The results suggest that in a majority of the years examined, the coefficient on $\Delta mv_t * LLP$ is insignificant, indicating no association between the existence of LLP and the pay-for-performance sensitivity. For all firms and NUF firms, the coefficient on $\Delta mv_t * LLP$ is significantly positive in 1994 and 1997 across alternative specifications. For UF firms, the coefficient is significantly negative in 1999.

6.7.3 LLP adoption and financial reporting properties

Table 22 reports the summary statistics (Panel A) and correlation matrix (Panel B) of the variables used in the regressions of financial reporting properties. Data availability requirement makes the sample for the *sresid* regressions slightly larger (1909 firm-years) than that of the $|mdacc|$ regressions (1803 firm-years).

Panel A of Table 22 shows that $|mdacc|$ for the sample firms has a mean (median) of 0.08 (0.05), while *sresid* is around 0.01 on average. Panel B suggests that *LLP* has a significantly positive correlation with both $|mdacc|$ and *sresid*. Compared with the results in

[9]For example, corporate governance researchers have long indicated that "It's easy to manipulate stock price. It's even easier to manipulate earnings", while pressing companies to set pay based on measures that are harder to fudge, like return on capital employed. "My Big Fat C.E.O. Paycheck", *New York Times*, April 3, 2005.

previous studies using broader samples (Dechow and Dichev (2002) and Francis, LaFond, Olsson, and Schipper (2005)),[10] the sample firms are of larger size (median of *log_ta_avg* = 8.3), have lower variability of sales and cash flows from operations (median of *std_ocf* = 0.02, median of *std_sales* = 0.08), shorter operating cycles (median of *op_cycle* = 105.2) and less incidence of previous losses (mean of *neg_ebxi_prop* = 0.08).

Table 23 reports the results of pooled regressions of financial reporting properties on the existence of LLPs. The dependent variables include the absolute value of performance-matched discretionary accruals (|*mdacc*|) and the Dechow-Dichev measure of mapping between working capital accruals and operating cash flows (*sresid*). For each dependent variable, I report the results obtained from two alternative specifications: one with and one without the industry and year effects. Similar as before, the data covers the time interval from 1993 to 2000. Except for *roa*, which is contemporaneous with the dependent variables, all other variables are measured at the beginning of a fiscal year.

The coefficients on *LLP* are significantly positive across different specifications using alternative definitions of accruals quality. For example, when industry and year effects are not included, the coefficient is 0.018 (t-stat = 2.588) for the |*mdacc*| regression and 0.001 (t-stat = 1.851) for the *sresid* regression. The results are robust to the inclusion of industry and year effects. Among the innate factors that are expected to affect accruals quality, firms of smaller size (*log_ta_avg*), with less growth prospect (inverse of *bm*), greater current performance (*roa*), higher variability of cash flow from operations (*std_ocf*) and sales (*std_sales*), and greater incidence of past losses (*neg_exbi_prop*) seem to have a significantly higher level of |*mdacc*|. However, only the coefficient on *bm* remains significant once the industry and year effects are controlled for. For the *sresid* regressions, I find that variability of cash flow from operations (*std_ocf*) and sales (*std_sales*), as well as

[10]The summary statistics mentioned afterwards are based on the sample used for *sresid* regressions. The conclusion from the comparison remains the same for the sample used for |*mdacc*| regressions.

greater incidence of past losses (*neg_exbi_prop*) have significantly positive coefficients. The significance still persists after I control for the industry and year effects.

Taken together, the evidence suggests that the existence of LLPs is associated with lower financial reporting quality, as reflected in a greater absolute value of performance-matched discretionary accruals and a lower extent to which working capital accruals are mapped into the cash flows from operations. The innate factors shown by previous literature to affect accruals quality also seem to have a significant linkage with the two measures of financial reporting quality for the sample firms.

Chapter 7

Robustness checks and additional tests

7.1 Link between director outflow and LLP adoption

I perform two additional tests on the linkage between outflow of outside directors during the insurance crisis and the subsequent adoption of LLPs. First, for the chi-square tests on dependence between director outflow and LLP adoption, the baseline for measuring the change in outside director amount is set to the day right after the decision in *Smith vs. Van Gorkom* (Jan. 29, 1985) was made. This landmark case potentially changed the perception of outside directors on the protection of "business judgment rule" that traditionally serves as the first layer of exculpation. Hence the outflow of directors may peak at a period after this court decision. Under this specification, the results are qualitatively the same as those reported in Table 7. Second, I examine the joint effect of changes in different types of directors on the likehood of adopting an LLP. Specicially, I run logistic regressions of LLP adoption on the following sets of variables: (1) $\Delta outside$ and $\Delta grey$, (2) $\Delta outside$, $\Delta grey$ and $\Delta inside$ and (3) $\Delta outgrey$ and $\Delta inside$. The change variables are defined alternatively as raw changes, changes scaled by beginning board size and indicators for whether a change is negative. There is no evidence that LLP adoption is associated

with outflow of outside directors in any specification.

7.2 Alternative specifications of the LLP adoption model

I perform several robustness checks for the cross-sectional logistic regressions of LLP adoption on economic factors. First, instead of taking the values immediately before the enactment date of the first LLP-permitting statute (July 1, 1986), the independent variables are measured in the year of adoption for LLP adopters and in 1987 (the year in which most adoptions occurred in hindsight) for non-adopters, respectively. The results remain similar. Size and volatility of daily stock returns are still the two variables exhibiting significantly positive associations with the adoption of LLPs. Second, I adjust financial performance variables by industry medians to mitigate the potential problem of industry over-representation. None of the median-adjusted performance variables come significant and the significance of other variables is largely unchanged. Third, I used alternative definitions of blockholders (using indicators for whether there is a blockholder with at least 5% or 10% of the total shares), performance (using return on equity or operating profit margin) and size (using the natural logarithm of total assets or sales). The results are all qualitative similar no matter which specification is used.

7.3 Relation between LLPs and cash compensation

I perform empirical tests similar to those presented in Table 16-21 using cash compensation (*cashcomp*, salary plus bonus) instead of total direct compensation (*totcomp*). The existence of LLPs is not significantly related to the level of cash compensation across alternative specifications. It does not seem to be associated with the pay-for-performance sensitivity computed using changes in cash compensation, either. Overall, the findings are

not surprising given that cash compensation only accounts for half of the total managerial compensation and has far less variation than total compensation (see Panel A of Table 15 for descriptive statistics). For the sample firms which are mostly large, it is likely that outside directors have limited discretions in setting the cash compensation, for example, due to greater reliance on benchmarking the cash compensation to a firm's counterpart. Hence, the protective effect of LLPs does not get to play a significant role in this process.

7.4 Relation between LLPs and financial reporting

In addition to the innate factors affecting financial reporting quality, I also include several corporate governance variables in the regressions of *sresid* and $|mdacc|$. The objective is to control for the possibility that monitoring incentive of outside directors is only one of the governance mechanisms that jointly affect a firm's financial reporting properties. The governance variables include duality of CEO as chairman of the board (*duality*), the natural logarithm of board size (*log_board*), proportion of non-affiliated outside directors (*outside_pct*) and grey directors (*grey_pct*) on the board, and proportion of old directors (over age 69) among non-affiliated outside directors (*old_outside_pct*) and grey directors (*old_grey_pct*). When using this specification, the constraint on the availability of corporate governance data reduces the sample significantly to less than half of the original size and restricts the time period to 1996-2000 only.[1] But the results on the link between LLPs and financial reporting properties remain robust.

[1]The reason is that the IRRC director database only has data starting from 1996.

7.5 Decomposing LLP into *ExpAdopt* and *UAdopt*

When decomposing the main variable *LLP* into *ExpAdopt* and *UAdopt*, and using them as explanatory variables in the regressions of LLPs' implications, I obtain the following results. *ExpAdopt* and *UAdopt* both have significantly positive associations with the level of total direct compensation across alternative specifications. Turing to pay-for-performance sensitivity, *ExpAdopt* is positively linked to pay-for-performance sensitivity, while *UAdopt* exhibits a negative association. But like the coefficients on *LLP*, the significance of the linkages are not stable across different specifications. Finally, for regressions of financial reporting properties, I find that higher levels of *ExpAdopt* and *UAdopt* are both related to greater absolute value of performance-matched discretionary accruals ($|mdacc|$) and worse mapping between working capital accruals and cash flow from operations (*sresid*). The coefficients on both *ExpAdopt* and *UxpAdopt* are consistently significant in the $|mdacc|$ regressions, while only the coefficient on *ExpAdopt* is significant in the *sresid* regressions. I repeat the above sets of analysis using *ExpAdopt* and *UAdopt* obtained from alternative LLP adoption models, including those presented in Table 11 and those discussed in Section 7.2. All results remain qualitatively similar. Summarizing, decomposing *LLP* into *ExpAdopt* and *UAdopt* does not yield results significantly different from those based on *LLP*: in most cases the coefficients on the two components have signs consistent with the coefficient on *LLP*.

Chapter 8

Caveats and future research

In this section I discuss caveats to interpreting the empirical findings and suggest possible avenues for future research.

8.1 Sample selection bias

As discussed in Section 5.1, this paper only includes firms on the *Forbes* magazine 1984-1991 lists of 500 largest U.S. corporations (ranked in terms of sales, total assets, market value and net income). Hence, my findings do not necessarily apply to smaller and less profitable firms. Neither can this study provide any insights into, for example, whether during the mid-1980s D&O insurance crisis some small firms chose to delist because of the outrageous costs to retain a board mainly consisting of outside directors.[1] Moreover, the survivorship bias imposed by the data availability requirement for the post-adoption period may strip away cases where firms go insolvent due to subsequent governance failures. However, since the sample firms represent a significant portion of the economy in terms of the total market capitalization, the empirical results can still be useful in making policy suggestions on the optimal liability exposure of outside directors.

[1] "D&O Insurance Mess Threatens Boardrooms", *Crains Chicago Business*, 5/19/1986.

8.2 LLP and D&O insurance

Most corporate boards, when proposing the adoption of an LLP, cited the savings on immediate or potential D&O insurance costs (see Appendix C for an example) as the main reason. Therefore, a more intuitive test of what factors induce shareholders to adopt an LLP is to directly link such cost savings to the likelihood of an adoption. Empirically, one can measure such cost savings by the difference between what the D&O insurance quote would be with and without the presence of an LLP. The amount of cost savings should have incorporated insurance carriers' assessment on (1) any undesirable impact of LLPs on board efficacy and hence subsequent litigation likelihood[2] and (2) how the courts will apply LLPs in the future (i.e., whether LLPs will be indeed protective). I am unable to conduct such an analysis in this study due to unavailability of D&O insurance data around a firm's decision to adopt an LLP. However, to the extent that the logistic model of LLP adoption has included a comprehensive set of explanatory variables relating to such cost-savings, the empirical results are still meaningful even without an explicit measure of such cost savings.

Cao and Narayanamoorthy (2005) provide evidence that the presence of an LLP has a significantly negative association with the pricing of D&O insurance. Specifically, for a sample of 104 firms included in the Tillinghast 2001 and 2002 D&O insurance surveys, they show that the D&O insurance premium is lower for firms with an LLP in presence after controlling for level of limit, business risk, corporate governance risk, disclosure risk and the risk induced by the Private Securities Litigation Reform Act. In contrast, the amount of D&O insurance coverage purchased by a firm is not significantly associated with whether a firm has adopted an LLP. This supports the argument (discussed in Sec-

[2]To the extent that information asymmetry between the insurer and the firm is usually limited (Core (2000)), such an assessment should be positively correlated with shareholders' evaluation on the same issue.

tion 2) that LLPs are not a substitute for D&O insurance coverage.[3] LLP is more about *ex ante* restricting the likelihood of shareholder litigation and in turn reducing the D&O insurance premiums.[4] Still, it will be interesting for future research to explore the interaction between LLPs and other alternative protective measures (e.g., D&O insurance and indemnifications) that jointly determine outside directors' liability exposure. One example can be under what circumstance do these mechanisms become substitutes or complements.

8.3 Endogeneity issues

As discussed earlier, in this paper, the analysis on the implications of LLPs for post-adoption board efficacy focuses on both the adoption of LLPs itself (*LLP*) and the unexpected adoption (*UAdopt*). *UAdopt* is used to address the concern that adoption of LLPs and board efficacy are both endogenously determined by some underlying economic factors and one can get spurious correlations if a dummy variable for the presence of LLPs is used directly as an independent variable.

However, it is worth noting that *UAdopt* captures any misspecification of the adoption model (e.g., the impact of omitted variables that can affect observed board efficacy). For example, besides the three scenarios proposed in Section 4, *UAdopt* may also reflect shareholders' private evaluation of the quality of management team at the time of adoption, which is not observable to researchers. Greater management-team quality can lead to both (1) greater willingness of shareholders to adopt an LLP (because the role of out-

[3]The D&O limit (coverage) represents the damage amount at stake in case of litigation against directors but does not tell us much about the likelihood of litigation. In contrast, the D&O premium reflects the likelihood of litigation holding the level of limit constant.

[4]It is also worth noting that this is perhaps the most direct empirical evidence that limited liability provisions still play an important role in restricting directors' liability exposure nowadays, as suggested in Black, Cheffins, and Klausner (2003). The finding is also consistent with the discussion in a recent *New York Times* article ("What's $13 Million Among Friends?", 1/17/2005), where the author argues that settlement incentives, various legal rules along with charter provisions that protect directors from liability significantly reduce the litigation threat arising from violations of fiduciary duties.

side directors[5] can be less critical in this case and shareholders do not expect to sue them anyway) and (2) higher level of subsequent managerial compensation. This confounds the interpretation of *UAdopt* and reduces the validity to link it with subsequent board efficacy.[6] Another caveat of using *UAdopt* is that it becomes a stale variable as the data moves away from the years (late 1980s) in which *UAdopt* is estimated. Specifically, changes in a firm's business and litigation environment over time can increase or reduce the level of "unexpected adoption", should shareholders be given another chance to choose whether to adopt an LLP.[7]

An alternative approach to mitigate the endogeneity concern is perhaps to examine the relationship between revocation of LLPs and subsequent changes in board efficacy reflected in managerial compensation and financial reporting. In this way, firm fixed effects resulting from omitted correlated variables will cancel out. The difficulty of such an approach is that repeals of LLPs are rare in practice. One reason can be that if shareholder activisms are effective enough to achieve an amendment in the corporate charter, it might be more efficient for shareholders to simply target the specific governance problems (e.g., managerial compensation) they have in mind. Or alternatively, by leaving LLPs unchanged, shareholders want to retain some bargaining leverage when revoking other things more detrimental to their wealth (e.g., removal of poison pills). Still, anecdotal evidence seems to suggest that shareholders are becoming more aware of the costs associated with LLPs and some are proposing to restrict LLPs' protective effects recently.[8] Future research can investigate, for example, the stock market responses to the repeal of LLPs, and whether

[5]For example, shareholders simply rely on the effective autonomy by a majority of inside directors on the board.

[6]A further limitation is that *UAdopt* is estimated from a cross-sectional logistic regression of LLP adoption on economics factors observed in the late-1980s. Any misspecification in the logistic model persists into the analysis of the post-adoption implications of LLPs.

[7]In other words, *unexpected adoption* may remain meaningful over a couple of years in the post-adoption period if we assume that firms' underlying characteristics such as performance and risk do not change much for a reasonably short window of time. It will be relatively hard to explain the meaning of *UAdopt* beyond that period.

[8]For example, see Appendix D for Verizon's recent shareholder proposal on restricting the use of LLPs.

the magnitude of unexpected adoption (*UAdopt*) estimated from the LLP adoption model helps to predict the likelihood a future revocation.

8.4 Outside directors' perception of their liabilities

LLPs only protect outside directors from breach of fiduciary duty of care under the corporate laws of various states. Yet the sources of liabilities to shareholders are not restricted to these duties. Securities laws and other miscellaneous laws also play an important role in motivating directors' due diligence. Black, Cheffins, and Klausner (2003) point out that outside directors, who are mostly business executives, can sometimes have a mistaken fear resulting from lawyers' and insurers' exaggerations about the overall liabilities they face[9] and such a perception then reinforces professional norms of conduct. In this case, the presence of LLPs does not necessarily reflect the mental state of outside directors as to whether they worry less about breaches of duty of care and hence have less incentives to work hard. A survey on (1) outside directors' perception of time-series changes in the protection provided by LLPs and (2) the relative importance outside directors attach to the liability threats imposed by different laws can help to shed light on the issue.

8.5 Judicial application of LLPs

As discussed in Section 2, LLPs routinely contain exclusions on directors' actions made in bad faith. Therefore, LLPs' protective strength depends critically on courts' attitude toward finding directors' action to be made in bad faith and in turn plaintiffs' pleading tactics in overcoming LLPs' applicability. There is some evidence of erosion of LLPs' protection in recent years. Examples include Delaware court's ruling in *In re Walt Disney*

[9]The source of such exaggerations largely comes from lawyers' and insurers' incentives to sell more of their services (Black, Cheffins, and Klausner (2003)).

Company Derivative Litigation and *In re Abbott Laboratories Shareholders Derivative Litigation* (see Bailey (2004), Black, Cheffins, and Klausner (2003) and Davis, Howard, McMahon, Nurkin, Okeson, and Reed (2003)). A research question worth exploring in the future can be how firms with LLPs respond differently to such an erosion (e.g., using an event-study approach).

As a binary choice ("opt-in or not"), limited liability provisions are less efficient and flexible than a regime of *cap on liability* set optimally by the firm (Romano (1990), Gutiérrez (2003) and Moodie (2004)). Moodie (2004) provides empirical evidence that the enactments of LLP-permitting state statutes are largely a result of competition between different states for incorporation business during the late 1980s. He further suggests that Delaware's recent toughness against directors is a response to the encroachment by the federal government in the corporate law area. As a limitation, the shift in LLPs' protectiveness due to the interplay between state and federal legislations has not been captured by this study.

Chapter 9

Conclusion

In this study I seek a better understanding of the costs and benefits associated with the adoption of limited liability provisions (LLPs), an important protective measure against outside directors' liability to shareholders for breach of duty of care. Many firms opted into LLPs in the late-1980s upon shareholders' approval, usually accompanied by a claim to better attract and retain outside directors in light of the D&O insurance crunch at that time. I examine the economic factors associated with firms' decision to adopt an LLP and the implications of LLPs for board composition and outside directors' monitoring efficacy in the post-adoption period.

I find that the outflow of outside directors a firm experienced during the insurance crisis is not significantly related to the likelihood of subsequent adoption of an LLP. However, economic factors closely related to a firm's litigation risk appear to be able to explain both the director outflow and the decision to adopt LLPs in a consistent fashion. For utilities and financial firms, which had the greatest difficulty in retaining outside directors during the crisis, the decline in the number of outside directors stopped right after the adoption of LLPs. However, overall the immediate benefits of LLPs in attracting and retaining outside directors are not evident for the sample firms.

I further examine the implications of LLPs for subsequent board efficacy in three important areas of shareholder litigation against directors for breach of fiduciary duties: adoption of takeover defenses, managerial compensation practices and financial reporting. The exculpation provided by LLPs is hypothesized to reduce the disciplinary effect of litigation in those areas. I show that the existence of LLPs is significantly associated with (1) more adoption of additional takeover defenses restricting shareholders' voting rights, (2) a higher level of total compensation received by firms' top-five highest-paid executives, and (3) lower financial reporting quality. On the other hand, the existence of LLPs is not associated with the pay-for-performance sensitivity of managerial compensation.

The evidence presented in this study suggests the need to rethink the optimal liability exposure imposed on outside directors. The issue is of contemporary relevance, since outside directors are often viewed as an important governance mechanism yet their monitoring effectiveness has been questioned in recent corporate scandals. Similar to the mid-1980s situation that gave rise to the surge of LLP adoptions, the post-Sarbanes-Oxley-Act era also faces a dearth of outside directors[1] due to a more stringent liability regime. To retain and attract outside directors, some firms have hence started to hedge the increased liability by using stronger protective measures.[2] Such an attempt again needs to trade off the potential board entrenchment costs that are eventually borne by the shareholders. Indeed, anecdotal evidence suggests that shareholders are becoming more aware of the costs associated with LLPs and some are proposing to restrict the protection of LLPs.[3]

[1] "After Enron, Companies Confront Dearth of Willing Board Members", *Wall Street Journal*, 5/8/2005; "More CEOs Say 'No Thanks' To Board Seats", *Wall Street Journal*, 1/28/2005.

[2] "It Still Costs Big to Insure Against a Boardroom Scandal – Despite the Sarbanes- Oxley Bill, 'D&O' Policy Prices Rise 30%, And Cancellation Clauses Swell", *Wall Street Journal*, 7/31/2003.

[3] For example, see Appendix D for Verizon's shareholder proposal of restricting the exculpation of LLPs for the 2005 proxy season.

Appendix A

Tables

Table 1: Variable Definition

Variable	*Definition*
Limited Liability Provisions	
LLP	dummy variable, = 1 if a firm has a limited liability provision in its corporate charter; 0 otherwise
Board, CEO and Shareholder Characteristics	
board	total number of board members
log_board	natural logarithm of total number of board members
outside	number of non-affiliated outsider directors (non-employee directors that are not relatives of officers and do not have business affiliation with the firm)
grey	number of grey directors (outside directors who are officers' relatives or have substantial business relationship with the firm)
outgrey	number of outsider directors (both non-affiliated and affiliated)
inside	number of inside directors (directors who are current or former officers of the firm)
outside_pct	percentage of outsider directors (non-employee directors that are not relatives of officers and do not have business affiliation) on the board
grey_pct	percentage of grey directors (directors who are officers' relatives or have substantial business relationship with the firm) on the board
outgrey_pct	percentage of outsider directors (both non-affiliated and affiliated) on the board
inside_pct	percentage of inside directors (directors who are current or former officers of the firm) on the board
duality	dummy variable, = 1 if the CEO is also the Chairman of the Board; 0 otherwise
inpct	percentage of a firm's common shares beneficially owned by directors and officers
log_ceotenure	natural logarithm of years for which the CEO has served the firm (as a CEO) plus 1
optplan	dummy variable, = 1 if a firm has a shareholder-approved stock option plan for outside directors; 0 otherwise
retplan	dummy variable, = 1 if a firm has a retirement benefits plan in effect for outside directors; 0 otherwise
othplan	dummy variable, = 1 if a firm has any other benefit plan in place for outside directors (excluding D&O insurance plan); 0 otherwise
allplan	sum of optplan, retplan and othplan
block	percentage of shares held by the largest blockholder (a director or an outside investor)
inst_holding	percentage of shares held by institutional shareholders
pshares_sum	percentage of shares held by the top-5 highest-paid executives
ceo_shares_pct	percentage of shares held by the CEO
dir_pct	percentage of the top-5 highest-paid executives who are also directors
intlock_pct	percentage of the top-5 highest-paid executives who are interlocked directors
old_outside_pct	percentage of old directors (age over 69) among the non-affiliated outside directors
old_grey_pct	percentage of old directors (age over 69) among the grey directors
log_meetings	natural logarithm of number of board meetings plus 1 for the fiscal year
ceo_retire	dummy variable, = 1 if the CEO is at retirement age (age 62-66)
new_ceo	dummy variable, = 1 if the CEO tenure is less than 4 years

Table 1 (Continued): Variable Definition

Variable	*Definition*
Governance Index	
gindex	total governance index (Gompers, et al. (2003)), net of the score for LLP
delay_index	summary index for blank check, classified board, special meeting, and written consent.
protection_index	summary index for compensation plans, director indemnification, director liability, golden parachutes, and severance agreements
voting_index	summary index for limits to amend bylaws / charter, cumulative voting, secret ballot, super majority to approve merger, and unequal voting
other_index	summary index for anti-greenmail, director's duties non-financial impact, fair price, pension parachutes, poison pill, and silver parachutes
law_index	summary index for state laws on business combination, cash out, director's duties, fair price, control share acquisition, and recapture of profits
CEO Compensation	
cashcomp	base salary + bonus (cash and non-cash) earned during the fiscal year, in $thousands
totcomp	salary + bonus + restricted stock grants + stock option grants + long-term incentive payout + other annual compensation, in $thousands
Financial Reporting Attributes	
|mdacc|	absolute value of performance-matched discretionary accruals (Kothari et al. (2005))
sresid	Dechow and Dichev (2002) measure of the extent to which working capital accruals are mapped into cash flow from operations
Financial and Risk Characteristics	
roa	income before extraordinary items scaled by lagged assets
ret	percentage stock return for the fiscal year
std_roa	standard deviation of roa for the past five years
std_ret	standard deviation of ret for the past five years
bm	book-to-market ratio, defined as year-end per-share book value of common equity divided by price
vol	annualized volatility of daily stock returns for the two years ending on the current fiscal year end (unannualized in the compensation analysis)
ta	total assets at the end of fiscal year
mv	market value at the end of fiscal year
lev	ratio of long-term debt to total assets
tobinq	Tobin's Q, defined as (market value of equity + book value of debt) / book value of assets
utilities	dummy variable for utilities industries, = 1 if a firm's 2-digit SIC code is 46, 48 or 49
financial	dummy variable for financial industries, = 1 if a firm's 1-digit SIC code is 6
dummy_uf	dummy variable for utilities and financial industries, = 1 if a firm is in the financial or utilities industries
log_ta_avg	natural logarithm of the average total assets for the past six years
std_ocf	standard deviation of cash flow from operations (scaled by average assets) for the past six years
std_sales	standard deviation of sales (scaled by average assets) for the past six years
neg_ebxi_prop	proportion of negative earnings before extraordinary items among the past six years
log_op_cycle	the natural logarithm of the average operating cycle [365/(sales/average accounts receivable)+365/(costs of goods sold/average inventory)] for the past six years

Table 2: Percentage of Firms with LLPs (Decomposition of IRRC Profiles Based on Firm Type)

Panel A of this table presents the percentage of firms with LLPs for each year of IRRC survey based on whether the firm (1) comes from the last IRRC survey, (2) is newly added by IRRC to the current survey, and (3) drops out in the subsequent survey. Panel B shows changes in the presence of LLPs for those firms included in two consecutive IRRC surveys for each year of survey.

Panel A: Percentage of Firms with LLPs for Each IRRC Survey (Decomposed)

Year of IRRC Survey	*Firm Type*	*Index*	*# of Firms*	*% of Firms with LLP*
1990	included in the 1990 survey	(1)	1467	72.4%
	dropping out later	(2)	193	62.2%
1993	from the 1990 survey	(3) = (1)-(2)	1275	74.7%
	newly added	(4)	189	31.7%
	dropping out later	(5)	118	61.0%
1995	from the 1993 survey	(6) = (3)+(4)-(5)	1346	70.7%
	newly added	(7)	151	19.9%
	dropping out later	(8)	278	59.4%
1998	from the 1995 survey	(9) = (6)+(7)-(8)	1219	66.9%
	newly added	(10)	697	10.2%
	dropping out later	(11)	242	38.8%
2000	from the 1998 survey	(12) = (9)+(10)-(11)	1674	46.4%
	newly added	(13)	214	5.1%
	dropping out later	(14)	459	34.0%
2002	from the 2000 survey	(15) = (12)+(13)-(14)	1429	42.8%
	newly added	(16)	467	1.3%
	dropping out later	(17)	261	20.7%
2004	from the 2002 survey	(18) = (15)+(16)-(17)	1635	34.4%
	newly added	(19)	349	2.9%

Panel B: Changes in the Presence of LLPs for Firms Included in Two Consecutive IRRC Surveys

Years of Survey	*Number of Firms*	*No Change%*	*New Adoption %*	*New Repeal%*
1990 & 1993	1275	98.35%	1.18%	0.47%
1993 & 1995	1346	97.77%	1.56%	0.67%
1995 & 1998	1219	97.13%	1.40%	1.48%
1998 & 2000	1674	97.97%	0.54%	1.49%
2000 & 2002	1429	97.62%	0.49%	1.89%
2002 & 2004	1635	99.88%	0.00%	0.12%

Table 3: Percentage of Firms with LLPs by Industry and Stock Exchange, All firms in IRRC Profiles

This table presents percentage of firms with LLPs within each industry (Panel A) and stock exchange (Panel B) for all the IRRC firms in each year of IRRC survey.

Panel A: Percentage of Firms with LLPs, by Industry

		Year of Survey						
Industry	SIC Range	1990	1993	1995	1998	2000	2002	2004
Petroleum	13,29	83.3%	75.0%	75.8%	48.3%	48.1%	37.9%	32.4%
Finance/Real Estate	60-69	69.4%	71.7%	67.7%	48.6%	37.1%	31.2%	20.5%
Consumer Durables	25,30,36-37,39,50,55,57	71.9%	67.2%	60.7%	43.5%	40.0%	29.5%	27.6%
Basic Industry	10,12,14,24,26,28,33	73.3%	69.4%	67.2%	47.7%	47.1%	36.1%	32.0%
Food/Tobacco	1,20,21,54	67.2%	59.4%	60.0%	56.1%	50.0%	50.0%	49.1%
Construction	15-17,32,52	76.3%	73.0%	60.0%	48.8%	48.7%	35.9%	32.5%
Capital Goods	34-35,38	78.0%	69.1%	66.9%	51.7%	49.5%	39.2%	35.3%
Transportation	40-42,44-45,47	77.4%	79.3%	77.4%	56.0%	55.1%	51.1%	45.5%
Utilities	46,48-49	70.8%	69.6%	72.4%	57.8%	52.2%	41.3%	43.1%
Textiles/Trade	22-23,31,51,53,56,59	71.2%	68.2%	63.2%	44.4%	41.3%	38.7%	35.3%
Services	43,72-73,75,76,80,81,82,83,87,89	66.7%	61.9%	51.6%	26.4%	23.1%	15.2%	14.9%
Leisure	27,58,70,78-79	76.7%	72.3%	67.6%	42.6%	39.6%	32.6%	28.3%
Others	2,7,8,9,84,86,88,91-97,99	50.0%	50.0%	50.0%	0.0%	0.0%	0.0%	0.0%

Panel B: Percentage of Firms with LLPs, by Stock Exchange

		Year of Survey						
Stock Exchange/Market		1990	1993	1995	1998	2000	2002	2004
NYSE	# of firms	1042	1079	1121	1313	1283	1161	-
	% of firms with LLP	74.5%	71.2%	68.6%	54.0%	50.2%	41.0%	-
AMEX	# of firms	69	62	47	48	41	36	-
	% of firms with LLP	69.6%	61.3%	59.6%	35.4%	29.3%	27.8%	-
OTC	# of firms	355	322	328	553	562	697	-
	% of firms with LLP	66.8%	63.7%	56.1%	28.9%	23.1%	18.8%	-

Table 4: Sample Selection

This table presents the sample selection criteria for the final firms used in the logistic model of LLP adoption.

Selection Criteria	*Number of Firms*
Initial *Forbes* 500 Sample	792
Missing data on LLP adoption	(164)
Missing corporate governance data in the adoption period	(22)
Missing corporate governance data in the post-adoption period	(47)
Missing Compustat or CRSP data in the adoption period	(36)
Missing Compustat or CRSP data in the post-adoption period	(17)
Final Sample	506

Table 5: Industry Distribution of Sample Firms

This table presents the industry distribution of the 506 sample firms and the percentage of firms with LLPs within each industry. Panels A and B are based on Campbell (1996) classification and 2-digit SIC, respectively.

Panel A: Industry Distribution of Sample Firms (Based on Classification of Campbell (1996))

Index	Industry (2-digit SICs)	Number of Firms	% with LLP as of 1990
1	Petroleum(13,29)	21	90.5%
2	Finance/Real Estate (60-69)	127	77.2%
3	Consumer Durables (25,30,36-37,39,50,55,57)	51	76.5%
4	Basic Industry (10,12,14,24,26,28,33)	70	81.4%
5	Food/Tobacco (1,20,21,54)	30	73.3%
6	Construction (15-17,32,52)	10	80.0%
7	Capital Goods (34-35,38)	49	83.7%
8	Transportation (40-42,44-45,47)	15	93.3%
9	Utilities (46,48-49)	75	74.7%
10	Textiles/Trade (22-23,31,51,53,56,59)	31	80.6%
11	Services (43,72-73,75,76,80,81,82,83	10	60.0%
12	Leisure (27,58,70,78-79)	17	88.2%
	Total	**506**	**79.1%**

Table 5 (Continued): Industry Distribution of Sample Firms

This table presents the industry distribution of the 506 sample firms and the percentage of firms with LLPs within each industry. Panels A and B are based on Campbell (1996) classification and 2-digit SIC, respectively.

Panel B: Industry Distribution of Sample Firms (Based on Two-Digit SICs)

SIC	Industry	Number of Firms	% with LLP as of 1990
1	Agriculture Production-Crops	1	0.0%
10	Metal Mining	2	50.0%
13	Oil and Gas Extraction	2	50.0%
14	Mng, Quarry Nonmtl Minerals	1	100.0%
15	Bldg Cnstr-Gen Contr,Op Bldr	4	75.0%
17	Construction-Special Trade	1	100.0%
20	Food and Kindred Products	21	81.0%
21	Tobacco Products	2	100.0%
22	Textile Mill Products	1	100.0%
23	Apparel & Other Finished Products	2	100.0%
24	Lumber and Wood Products, Ex Furn	1	100.0%
25	Furniture and Fixtures	2	50.0%
26	Paper and Allied Products	21	85.7%
27	Printing,Publishing & Allied	12	83.3%
28	Chemicals & Allied Products	36	80.6%
29	Pete Refining & Related Inds	19	94.7%
30	Rubber & Misc Plastics Prods	6	50.0%
32	Stone,Clay,Glass,Concrete Pd	3	66.7%
33	Primary Metal Industries	9	77.8%
34	Fabr Metal,Ex Machy,Trans Equipment	6	66.7%
35	Indl,Comml Machy,Computer Equipment	26	92.3%
36	Electr, Oth Elec Eq, Ex Cmp	16	81.3%
37	Transportation Equipment	19	89.5%
38	Meas Instr;PhotoGds;Watches	17	76.5%
39	Misc Manufacturing Industries	2	100.0%
40	Railroad Transportation	4	100.0%
42	Motor Freight Transportation,Warehouse	3	66.7%
44	Water Transportation	2	100.0%
45	Transportation By Air	6	100.0%
48	Communications	11	90.9%
49	Electric, Gas, Sanitary Service	64	71.9%
50	Durable Goods-Wholesale	5	40.0%
51	Nondurable Goods-Wholesale	9	77.8%
52	Bldg Matl,Hardwr,Garden-Retl	2	100.0%
53	General Merchandise Stores	10	90.0%
54	Food Stores	6	50.0%
56	Apparel and Accessory Stores	5	60.0%
57	Home Furniture & Equipment Store	1	100.0%
58	Eating and Drinking Places	2	100.0%
59	Miscellaneous Retail	4	75.0%
60	Depository Institutions	88	72.7%
61	Non-depository Credit Institutions	8	87.5%
62	Security & Commodity Brokers	5	100.0%
63	Insurance Carriers	21	85.7%
64	Ins Agents,Brokers & Service	2	100.0%
65	Real Estate	2	100.0%
67	Holding,Other Investment Offices	1	0.0%
70	Hotels, Other Lodging Places	1	100.0%
72	Personal Services	1	0.0%
73	Business Services	3	66.7%
75	Auto Repair,Services,Parking	1	0.0%
79	Amusements, Recreation	2	100.0%
80	Health Services	2	100.0%
82	Educational Services	1	100.0%
87	Engr,Acc,Resh,Mgmt,Rel Services	2	50.0%
	Total	**506**	**79.1%**

Table 6: Summary Statistics and Correlations of Changes in Board Characteristics during the Mid-1980s Insurance Crisis

This table reports the summary statistics and correlation matrices for changes in board characteristics during the mid-1980s insurance crisis. Changes in board characteristics are measured over the time interval between the year of 1984 (beginning of D&O insurance crisis) and the fiscal year ending immediately before July 1, 1986 (the enactment date of the first state statute that permits LLP). Panels A, B and C report results based on all firms, non-utilities/non-financial (NUF) firms and utilities/financial (UF) firms, respectively. The upper (lower) triangle of the correlation matrix reports the Pearson (Spearman Rank) correlation statistics. ***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively. See Table 1 for variable definitions.

Panel A: All Firms (506 firms)

	Mean	Std Error		Correlation Matrix			
				Δboard	Δoutside	Δgrey	Δinside
Δboard	-0.13	0.10	Δboard		0.79***	0.11**	0.58***
Δoutside	-0.12	0.08	Δoutside	0.68***		-0.21***	0.03
Δgrey	0.07	0.03	Δgrey	0.12***	-0.23***		0.02
Δinside	-0.08	0.05	Δinside	0.58***	-0.02	0.00	

Panel B: NUF Firms (304 firms)

	Mean	Std Error		Correlation Matrix			
				Δboard	Δoutside	Δgrey	Δinside
Δboard	-0.16	0.10	Δboard		0.73***	0.1*	0.64***
Δoutside	-0.03	0.08	Δoutside	0.61***		-0.24***	0.02
Δgrey	0.06	0.03	Δgrey	0.14**	-0.27***		0.03
Δinside	-0.18	0.06	Δinside	0.64***	-0.04	0.03	

Panel C: UF Firms (202 firms)

	Mean	Std Error		Correlation Matrix			
				Δboard	Δoutside	Δgrey	Δinside
Δboard	-0.08	0.20	Δboard		0.83***	0.12*	0.54***
Δoutside	-0.26	0.17	Δoutside	0.76***		-0.19***	0.06
Δgrey	0.08	0.05	Δgrey	0.10	-0.19***		0.02
Δinside	0.09	0.09	Δinside	0.50***	0.00	-0.03	

Table 7: Relation between Changes in Board Characteristics and LLP Adoption

This table compares the frequency of subsequent LLP adoptions for firms with different types of changes in non-affiliated outside directors (*Δoutside*). *ΔOutside* is measured over the time interval between the year 1984 and the fiscal year ending immediately before July 1, 1986, the enactment date of the first state statute that permits LLP. Panels A, B and C report the statistics for all firms, non-utilities/non-financial (NUF) firms and utilities/financial (UF) firms, respectively. See Table 1 for variable definitions.

Panel A: All Firms (506 firms)

	did not adopt LLP		***adopted LLP***		
Δoutside	Frequency	Row %	Frequency	Row %	Row Total
Δoutside < 0	29	18.2%	130	81.8%	159
Δoutside ≥ 0	77	22.2%	270	77.8%	347
Column Total	106		400		506
$\chi 2$ (p-value)		1.03 (0.31)			

Panel B: NUF Firms (304 firms)

	did not adopt LLP		***adopted LLP***		
Δoutside	Frequency	Row %	Frequency	Row %	Row Total
Δoutside < 0	14	16.5%	71	83.5%	85
Δoutside ≥ 0	44	20.1%	175	79.9%	219
Column Total	58		246		304
$\chi 2$ (p-value)		0.52 (0.47)			

Panel C: UF Firms (202 firms)

	did not adopt LLP		***adopted LLP***		
Δoutside	Frequency	Row %	Frequency	Row %	Row Total
Δoutside < 0	15	20.3%	59	79.7%	74
Δoutside ≥ 0	33	25.8%	95	74.2%	128
Column Total	48		154		202
$\chi 2$ (p-value)		0.79 (0.38)			

Table 8: OLS Regressions of Changes in Board Composition during the mid-1980s Insurance Crisis on Economic Factors

This table presents the results of cross-sectional regressions of changes in the number of board members and outside directors on economic factors for the period of mid-1980s insurance crisis. The dependent variables are the changes in number of outsiders (defined alternatively as non-grey outside directors only and all outside directors) from 1984 (beginning of insurance crisis) to the fiscal year immediately preceding July 1, 1986, scaled by the board size at the beginning of the insurance crisis. The independent variables take the values as of the beginning of the mid-1980s insurance crisis (the fiscal year ending immediately before 1984). The left, middle and right panels report the results for all firms, non-utilities/non-financial (NUF) firms and utilities/financial (UF) firms, respectively. Coefficients on the industry dummies are suppressed for expositional convenience. T-statistics are reported below the coefficient estimates. ***, ** and * indicate significance at the 1%, 5% and 10% levels in a two-tailed t test, respectively. See Table 1 for variable definitions.

	All Firms		**NUF Firms**		**UF Firms**	
	Dependent Variable		Dependent Variable		Dependent Variable	
	$\Delta outside_s$	$\Delta outgrey_s$	$\Delta outside_s$	$\Delta outgrey_s$	$\Delta outside_s$	$\Delta outgrey_s$
Intercept	0.158	0.164	0.145	0.125	0.316	0.327
	[1.238]	[1.321]	[0.904]	[0.814]	[1.356]	[1.412]
vol	-0.012	0.008	**-0.163***	-0.088	0.124	0.086
	[-0.189]	[0.123]	[-1.866]	[-1.054]	[1.135]	[0.8]
ret	-0.001	0.001	0.006	0.006	-0.013	-0.027
	[-0.097]	[0.058]	[0.651]	[0.693]	[-0.22]	[-0.456]
bm	**-0.028***	**-0.028***	-0.025	-0.024	-0.046	-0.044
	[-1.677]	[-1.694]	[-1.194]	[-1.195]	[-1.522]	[-1.448]
lev	-0.043	-0.05	0.076	0.034	**-0.211***	-0.167
	[-0.76]	[-0.907]	[1.161]	[0.55]	[-1.957]	[-1.555]
block	-0.023	-0.001	-0.008	0.015	-0.051	-0.024
	[-0.439]	[-0.016]	[-0.144]	[0.285]	[-0.473]	[-0.22]
log_mv	-0.005	-0.005	-0.004	-0.003	-0.01	-0.01
	[-0.958]	[-0.992]	[-0.569]	[-0.494]	[-0.918]	[-0.943]
ceo_retire	0.002	-0.002	0.017	0.011	-0.019	-0.021
	[0.143]	[-0.128]	[1.087]	[0.771]	[-0.812]	[-0.894]
new_ceo	**-0.032****	**-0.036*****	-0.024	**-0.024***	**-0.04***	**-0.053****
	[-2.47]	[-2.886]	[-1.637]	[-1.697]	[-1.665]	[-2.235]
Industry dummies	included	included	included	included	included	included
Adjusted R^2	0.007	0.025	0.018	0.034	0.017	0.02
# of observations	506	506	304	304	202	202

Table 9: Descriptive Statistics: LLP Adopters vs. Non-Adopters

This table presents and compares firms characteristics for adopters and non-adopters. All the variables take the values as of the fiscal year immediately preceding July 1, 1986, the enactment date of the first state statute that permits LLP. The left, middle and right panels report the statistics for all firms, non-utilities/non-financial (NUF) firms and utilities/financial (UF) firms, respectively. For each variable, mean (median) is reported in the upper (lower) row. ***, ** and * indicate significance at the 1%, 5% and 10% levels in a t-test (or Wilcoxon rank sum test), respectively. See Table 1 for variable definitions.

	All Firms (506 Firms)				NUF Firms (304 Firms)				UF Firms (202 Firms)			
	Adopters	Non-Adopters	Diff.	Test	Adopters	Non-Adopters	Diff.	Test	Adopters	Non-Adopters	Diff.	Test
	Mean	Mean	Mean	T	Mean	Mean	Mean	T	Mean	Mean	Mean	T
Variables	Median	Median	Median	Wilcoxon	Median	Median	Median	Wilcoxon	Median	Median	Median	Wilcoxon
vol	0.267	0.241	0.026	2.575 **	0.285	0.265	0.020	1.528	0.239	0.212	0.027	1.778 *
	0.255	0.231	0.023	3.101 ***	0.271	0.256	0.015	2.091 **	0.219	0.199	0.020	2.066 **
bm	0.653	0.704	-0.051	-1.192	0.575	0.588	-0.013	-0.222	0.776	0.844	-0.068	-1.165
	0.636	0.687	-0.050	-1.179	0.522	0.496	0.026	0.092	0.746	0.801	-0.055	-1.540
ret	0.226	0.235	-0.009	-0.391	0.180	0.178	0.002	0.065	0.300	0.304	-0.004	-0.142
	0.234	0.246	-0.011	-1.067	0.168	0.172	-0.004	-0.300	0.296	0.296	0.000	-0.485
inpct	0.076	0.074	0.001	0.108	0.087	0.091	-0.004	-0.199	0.058	0.055	0.003	0.196
	0.025	0.029	-0.004	0.135	0.031	0.051	-0.020	-0.519	0.020	0.017	0.003	0.501
optplan	0.018	0.038	-0.020	-1.270	0.028	0.052	-0.023	-0.892	0.000	0.021	-0.021	-1.801 *
	0.000	0.000	0.000	-1.267	0.000	0.000	0.000	-0.890	0.000	0.000	0.000	-1.780 *
retplan	0.200	0.132	0.068	1.600	0.240	0.190	0.050	0.815	0.136	0.063	0.074	1.381
	0.000	0.000	0.000	1.597	0.000	0.000	0.000	0.814	0.000	0.000	0.000	1.375
othplan	0.105	0.113	-0.008	-0.243	0.122	0.138	-0.016	-0.330	0.078	0.083	-0.005	-0.121
	0.000	0.000	0.000	-0.242	0.000	0.000	0.000	-0.329	0.000	0.000	0.000	-0.118
block	0.082	0.099	-0.017	-1.259	0.098	0.105	-0.007	-0.393	0.058	0.092	-0.034	-1.803 *
	0.055	0.059	-0.004	-0.889	0.065	0.077	-0.012	-0.231	0.000	0.052	-0.052	-1.472
lev	0.168	0.155	0.013	0.821	0.174	0.151	0.022	1.271	0.158	0.159	-0.001	-0.042
	0.141	0.126	0.015	0.894	0.161	0.154	0.008	1.250	0.060	0.031	0.029	0.403
log_mv	21.049	20.694	0.355	3.139 ***	21.212	21.012	0.200	1.331	20.788	20.309	0.479	2.964 ***
	21.016	20.686	0.330	3.115 ***	21.119	20.887	0.233	1.127	20.833	20.231	0.602	2.894 ***
duality	0.818	0.877	-0.060	-1.459	0.797	0.828	-0.031	-0.529	0.851	0.938	-0.087	-1.571
	1.000	1.000	0.000	-1.457	1.000	1.000	0.000	-0.529	1.000	1.000	0.000	-1.563
log_ceotenure	2.056	2.198	-0.143	-1.780 *	2.136	2.237	-0.101	-0.917	1.928	2.152	-0.224	-1.974 **
	2.079	2.197	-0.118	-2.016 **	2.138	2.197	-0.059	-1.174	1.946	2.197	-0.251	-2.001 **
outside_pct	0.574	0.600	-0.026	-1.275	0.530	0.526	0.004	0.160	0.645	0.689	-0.044	-1.712 *
	0.600	0.640	-0.040	-1.560	0.563	0.556	0.007	0.169	0.686	0.727	-0.041	-1.958 *
grey_pct	0.090	0.070	0.020	1.953 *	0.095	0.088	0.007	0.452	0.082	0.047	0.034	2.735 ***
	0.077	0.042	0.035	2.222 **	0.077	0.063	0.014	0.737	0.071	0.039	0.033	2.478 **
dummy_uf	0.385	0.453	-0.068	-1.267								
	0.000	0.000	0.000	-1.266								
# of observations	400	106			246	58			154	48		

Table 10: Correlation Matrix of Sample Firms

This table reports the correlation statistics for the sample firms for the fiscal year ending immediately before July 1, 1986, the enactment date of the first state statute that permits LLP. Panels A, B and C report the statistics for all firms, non-utilities/non-financial (NUF) firms and utilities/financial (UF) firms, respectively. The upper (lower) triangle reports the Pearson (Spearman Rank) correlation statistics. ***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively. See Table 1 for variable definitions.

Panel A: All Firms (n = 506)

	LLP	vol	bm	ret	inpct	optplan	retplan	othplan	block	lev	log.mv	duality	log_ceo tenure	outside_ pct	grey_pct	regulated
LLP		0.11**	-0.05	-0.02	0	-0.06	0.07	-0.01	-0.06	0.04	0.14***	-0.06	-0.08*	-0.06	0.09*	-0.06
vol	0.14***		-0.12***	-0.28***	0.14***	0.12***	-0.08*	-0.06	0.24***	0.15***	-0.19***	-0.11**	0	-0.17***	0.08*	-0.25***
bm	-0.05	-0.13***		-0.3***	-0.21***	-0.06	0.01	0.06	-0.05	0.1**	-0.11**	0.08*	-0.13***	0.25***	-0.09**	0.27***
ret	-0.05	-0.31***	-0.31***		0.19***	-0.04	-0.07	-0.06	0.06	-0.17***	-0.01	0.13***	0.13***	0.01	0.04	0.28***
inpct	0.01	0.23***	-0.39***	0.12***		0.06	-0.17***	-0.13***	0.54***	-0.13***	-0.23***	0.02	0.28***	-0.37***	0.22***	-0.14***
optplan	-0.06	0.11**	-0.09*	-0.02	0.1**		-0.04	-0.05	0.06	-0.01	-0.1**	-0.11**	-0.02	-0.07	0.03	-0.09**
retplan	0.07	-0.05	0.04	-0.08*	-0.14***	-0.04		0.18***	-0.1**	0.03	0.23***	-0.01	-0.14***	0.09*	-0.05	-0.14***
othplan	-0.01	-0.03	0.06	-0.07	-0.13***	-0.05	0.18***		-0.11**	0.05	0.17***	0	-0.02	0.06	-0.03	-0.07
block	-0.04	0.23***	-0.18***	0.05	0.53***	0.06	-0.15***	-0.11**		-0.08*	-0.23***	0.01	0.12***	-0.22***	0.17***	-0.13***
lev	0.04	0.1**	0.2***	-0.22***	-0.35***	-0.02	0.08*	0.07	-0.13***		0.1**	0.01	-0.06	0.01	0.03	-0.04
log_mv	0.14***	-0.08*	-0.16***	-0.01	-0.36***	-0.09**	0.25***	0.17***	-0.27***	0.21***		-0.01	-0.02	-0.06	-0.07	-0.23***
duality	-0.06	-0.07	0.07	0.12***	-0.04	-0.11**	-0.01	0	-0.02	0.01	-0.01		0.31***	0.12***	-0.02	0.09**
log_ceotenure	-0.09**	0.07*	-0.21***	0.09**	0.33***	-0.02	-0.14***	-0.03	0.14***	-0.06	-0.03	0.3***		-0.26***	0.11**	-0.12***
outside_pct	-0.07	-0.23***	0.32***	0.07*	-0.39***	-0.07	0.08*	0.06	-0.24***	-0.03	-0.08*	0.12***	-0.25***		-0.5***	0.34***
grey_pct	0.1**	0.1**	-0.15***	0.04	0.26***	0	-0.05	-0.01	0.19***	0.04	-0.05	0	0.1**	-0.48***		-0.1**
regulated	-0.06	-0.37***	0.35***	0.33***	-0.19***	-0.09**	-0.14***	-0.07	-0.16***	-0.13***	-0.22***	0.09**	-0.11**	0.36***	-0.06	

Table 10 (Continued): Correlation Matrix of Sample Firms (Continued)

This table reports the correlation statistics for the sample firms for the fiscal year immediately preceding July 1, 1986, the enactment date of the first state statute that permits LLP. Panels A, B and C report results based on all firms, non-utilities/non-financial (NUF) firms and utilities/financial (UF) firms, respectively. The upper (lower) triangle reports the Pearson (Spearman Rank) correlation statistics. ***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively. See Table 1 for variable definitions.

Panel B: NUF Firms (n = 304)

	LLP	vol	bm	ret	inpct	optplan	retplan	othplan	block	lev	log.mv	duality	log_ceo tenure	outside_ pct	grey_pct
LLP		0.09	-0.01	0	-0.01	-0.05	0.05	-0.02	-0.02	0.07	0.08	-0.03	-0.05	0.01	0.03
vol	0.12**		-0.28***	-0.26***	0.11*	0.16***	-0.2***	-0.13**	0.11**	0.31***	-0.4***	-0.12**	-0.04	-0.06	0.07
bm	0.01	0		-0.37***	-0.16***	-0.04	0.07	0.13**	-0.07	0.03	-0.05	0.1*	-0.07	0.18***	-0.06
ret	-0.02	-0.27***	-0.54***		0.23***	-0.03	-0.01	-0.05	0.18***	-0.11**	0.15***	0.13**	0.2***	-0.15***	0.12**
inpct	-0.03	0.2***	-0.31***	0.17***		0.06	-0.23***	-0.14**	0.57***	-0.07	-0.26***	0.01	0.3***	-0.39***	0.25***
optplan	-0.05	0.15***	-0.04	-0.01	0.11**		-0.06	-0.07	0.05	0.01	-0.16***	-0.09	-0.04	-0.05	0
retplan	0.05	-0.23***	0.12**	0	-0.24***	-0.06		0.17***	-0.14**	0.01	0.15***	0.06	-0.17***	0.25***	-0.12**
othplan	-0.02	-0.15***	0.12**	-0.08	-0.16***	-0.07	0.17***		-0.14**	0.06	0.11*	-0.01	-0.08	0.14**	-0.08
block	-0.01	0.18***	-0.14**	0.13**	0.51***	0.04	-0.21***	-0.14**		0.02	-0.31***	-0.01	0.15***	-0.2***	0.23***
lev	0.07	0.16***	0.27***	-0.13**	-0.1*	-0.04	0.04	0.08	0.01		-0.15***	0.04	-0.07	0.09	0.01
log_mv	0.06	-0.36***	-0.13**	0.2***	-0.39***	-0.14**	0.17***	0.1*	-0.37***	-0.04		0	-0.05	0.13**	-0.17***
duality	-0.03	-0.04	0.08	0.12**	-0.07	-0.09	0.06	-0.01	-0.02	0.07	0		0.31***	0.12**	-0.02
log_ceotenure	-0.07	0.04	-0.18***	0.17***	0.37***	-0.03	-0.18***	-0.08	0.16***	-0.06	-0.06	0.3***		-0.26***	0.12**
outside_pct	0.01	-0.03	0.23***	-0.13**	-0.47***	-0.05	0.27***	0.14**	-0.24***	0.11**	0.14**	0.13**	-0.25***		-0.49***
grey_pct	0.04	0.12**	-0.12**	0.12**	0.29***	-0.03	-0.13**	-0.07	0.23***	0.04	-0.15***	-0.01	0.11**	-0.47***	

Panel C: UF Firms (n = 202)

	LLP	vol	bm	ret	inpct	optplan	retplan	othplan	block	lev	log.mv	duality	log_ceo tenure	outside_ pct	grey_pct
LLP		0.12*	-0.08	-0.01	0.01	-0.13*	0.1	-0.01	-0.13*	0	0.21***	-0.11	-0.14**	-0.12*	0.19***
vol	0.15**		0.31***	-0.18**	0.13*	-0.07	0.03	0.02	0.36***	-0.03	-0.06	-0.03	-0.03	-0.16**	0.05
bm	-0.11	0.02		-0.47***	-0.22***	-0.05	0.01	-0.01	0.08	0.22***	-0.05	0	-0.16**	0.15**	-0.07
ret	-0.03	-0.1	-0.36***		0.26***	0.06	-0.08	-0.03	-0.05	-0.24***	-0.09	0.05	0.12*	0.01	-0.04
inpct	0.04	0.19***	-0.39***	0.24***		-0.02	-0.07	-0.12*	0.45***	-0.26***	-0.3***	0.08	0.21***	-0.25***	0.1
optplan	-0.13*	-0.11	-0.09	0.09	0.02		-0.03	-0.02	0.07	-0.06	-0.05	-0.18***	-0.02	0	0.09
retplan	0.1	0.1	0.07	-0.08	-0.06	-0.03		0.18**	-0.08	0.05	0.31***	-0.13*	-0.13*	-0.1	0.07
othplan	-0.01	0.08	0.03	-0.03	-0.1	-0.02	0.18**		-0.08	0.04	0.25***	0.06	0.06	-0.01	0.07
block	-0.1	0.2***	-0.07	0.07	0.52***	0.1	-0.1	-0.09		-0.21***	-0.2***	0.07	0.02	-0.16**	0.01
lev	0.03	-0.01	0.33***	-0.33***	-0.58***	-0.04	0.1	0.05	-0.27***		0.36***	-0.02	-0.07	-0.07	0.05
log_mv	0.2***	0.04	0.03	-0.11	-0.48***	-0.05	0.33***	0.23***	-0.26***	0.44***		0.04	-0.04	-0.19***	0.05
duality	-0.11	-0.04	-0.01	0.07	0.06	-0.18***	-0.13*	0.06	0.04	-0.07	0.02		0.36***	0.04	0.02
log_ceotenure	-0.14**	0.03	-0.19***	0.09	0.23***	-0.03	-0.13*	0.06	0.07	-0.09	-0.06	0.35***		-0.21***	0.05
outside_pct	-0.14*	-0.21***	0.17**	0.08	-0.17**	-0.03	-0.11	0	-0.07	-0.1	-0.19***	0.01	-0.18**		-0.53***
grey_pct	0.17**	0.06	-0.13*	-0.05	0.2***	0.1	0.09	0.1	0.1	0.02	0.06	0.03	0.07	-0.54***	

Table 11: Logistic Regressions of Firms' Decision to Adopt an LLP

This table presents the results of logistic regressions of shareholders' decision to adopt an LLP. The dependent variable is a binary indicator of whether a firm had adopted an LLP as of 1990. The independent variables take the values as of the fiscal year ending immediately before July 1, 1986, the enactment date of the first LLP-permitting state statute. The left, middle and right panels presents results based on all firms, non-utilities/non-financial (NUF) firms and utilities/financial (UF) firms, respectively. Marginal effects are measured at the sample means of the independent variables. The correct classification rates are based on a cutoff probability of 0.5. ***, ** and * indicate significance at the 1%, 5% and 10% levels in a two-tailed χ^2 test, respectively. See Table 1 for variable definitions.

	All Firms (506 Firms)						NUF Firms (304 Firms)						UF Firms (202 Firms)					
	Coeff.	Marginal Effect	$\chi2$	Coeff.	Marginal Effect	$\chi2$	Coeff.	Marginal Effect	$\chi2$	Coeff.	Marginal Effect	$\chi2$	Coeff.	Marginal Effect	$\chi2$	Coeff.	Marginal Effect	$\chi2$
Intercept	**-7.933****		5.90	**-8.422*****		7.48	-6.275		1.94	-6.512		2.05	**-15.093*****		7.62	**-17.292*****		7.69
Business Uncertainty																		
vol	**5.199*****	0.182	8.95	**5.137*****	0.188	9.19	**5.399****	0.171	3.99	**5.356****	0.170	3.91	**7.788*****	0.185	8.28	**8.315*****	0.169	8.46
Growth Opportunity																		
bm	-0.392	-0.066	0.85	-0.073	-0.012	0.03	-0.025	-0.004	0.00	-0.011	-0.002	0.00	**-1.232***	-0.253	2.95	-0.919	-0.169	1.23
Firm Performance																		
ret	0.215	0.030	0.08	0.191	0.028	0.07	0.817	0.088	0.71	0.781	0.085	0.65	-1.569	-0.336	1.38	-1.164	-0.226	0.67
Alternative Incentives and Compensations																		
inpct	2.039	0.155	2.34	1.806	0.152	1.83	0.797	0.086	0.26	0.681	0.077	0.18	4.077	0.181	2.23	4.160	0.166	2.04
allplan	0.015	0.002	0.00	-0.006	-0.001	0.00	0.145	0.020	0.27	0.163	0.022	0.33	-0.557	-0.099	1.28	-0.686	-0.119	1.85
Blockholder																		
block	**-1.975***	-0.435	3.29	**-2.041***	-0.453	3.61	-0.204	-0.031	0.02	-0.244	-0.037	0.03	**-5.829*****	-0.802	9.32	**-6.189*****	-0.821	9.24
Debt-holder																		
lev	0.910	0.101	0.51	-0.156	-0.025	0.03	0.925	0.096	0.35	0.924	0.095	0.35	-0.031	-0.005	0.00	-0.905	-0.166	0.14
Firm Size																		
log_mv	**0.434*****	0.056	9.42	**0.429*****	0.057	10.28	**0.313***	0.040	2.76	**0.324***	0.041	2.93	**0.855*****	0.097	10.68	**0.915*****	0.094	11.08
CEO and Board Entrenchment																		
duality	-0.334	-0.055	0.84	-0.211	-0.035	0.35	-0.212	-0.032	0.24	-0.188	-0.028	0.18	-0.763	-0.142	1.14	-0.685	-0.119	0.91
log_ceotenure	-0.251	-0.041	2.00	**-0.321***	-0.054	3.29	-0.085	-0.012	0.13	-0.093	-0.014	0.16	**-0.556***	-0.098	3.61	**-0.645****	-0.111	4.16
outside_pct				0.232	0.033	0.08				-0.145	-0.022	0.02				0.520	0.061	0.10
grey_pct				**3.051****	0.178	3.95				0.803	0.087	0.21				**8.827****	0.169	6.41
Industry Control																		
dummy_uf				0.140	0.021	0.21												
Industry dummy	yes			no			yes			yes			yes			yes		
Pseudo Adjusted R^2	0.117			0.102			0.086			0.088			0.243			0.294		
Correct Classification	0.789			0.800			0.816			0.809			0.767			0.787		
# of observations	506			506			304			304			202			202		

Table 12: Board Characteristics around the Adoption of LLP

This table compares the time-series board characteristics of LLP adopters for five consecutive years starting from three years preceding the adoption to the year immediately following the adoption. Panels A, B and C report results for all adopters, non-utilities/non-financial (NUF) adopters and utilities/financial (UF) adopters, respectively. For each variable, means (and t statistics) are reported in the upper row and medians (and Wilcoxon Z) in the lower row. (1) refers to comparison between the current year and the year immediately before. (2) refers to comparison between the current year and base year -3. ***, **, * indicate significance at the 1%, 5%, 10% levels in a paired t-test (or Wilcoxon signed rank test), respectively. See Table 1 for variable definitions.

Panel A: All adopters

	Year -3	Year -2		Year -1			Year 0			Year + 1		
	Mean Median	Mean Median	t-stat Wilcoxon (1) & (2)	Mean Median	t-stat Wilcoxon (1)	 (2)	Mean Median	t-stat Wilcoxon (1)	 (2)	Mean Median	t-stat Wilcoxon (1)	 (2)
board	13.72	13.70	-0.24	13.67	-0.42	-0.49	13.36	-3.47 ***	-2.99 ***	13.28	-1.27	-3.21 ***
	13.00	13.00	-1.05	13.00	-0.36	-1.45	13.00	-2.79 ***	-2.90 ***	13.00	-1.54	-3.25 ***
outside	8.13	8.07	-0.90	8.12	0.76	-0.06	7.95	-2.26 **	-1.65	7.94	-0.20	-1.53
	8.00	7.50	-0.80	8.00	0.96	-0.19	8.00	-1.34	-1.08	8.00	-0.31	-0.91
grey	1.13	1.17	1.75 *	1.19	0.87	1.92 *	1.20	0.25	1.87 *	1.25	2.19 **	2.66 ***
	1.00	1.00	1.57	1.00	0.41	1.76 *	1.00	0.14	1.69 *	1.00	2.09 **	2.34 **
outgrey	9.25	9.24	-0.20	9.31	1.05	0.71	9.15	-2.21 **	-1.01	9.19	0.66	-0.53
	9.00	9.00	-0.16	9.00	1.64	0.54	9.00	-1.26	-0.23	9.00	0.87	0.39
inside	4.47	4.46	-0.17	4.35	-2.50 **	-1.96 *	4.22	-2.83 ***	-3.90 ***	4.08	-3.69 ***	-5.41 ***
	4.00	4.00	-1.02	4.00	-2.29 **	-2.44 **	4.00	-3.22 ***	-3.99 ***	4.00	-3.84 ***	-5.18 ***
outside_pct	0.57	0.57	-0.70	0.58	1.05	0.28	0.58	1.10	0.91	0.58	1.43	1.59
	0.59	0.59	-0.40	0.60	1.61	0.99	0.60	1.32	1.27	0.60	1.78 *	1.97 **
grey_pct	0.09	0.09	1.67 *	0.09	1.56	2.33 **	0.09	0.94	2.54 **	0.10	2.37 **	3.33 ***
	0.07	0.08	1.11	0.08	0.23	1.88 *	0.08	1.13	2.12 **	0.08	2.71 ***	2.97 ***
outgrey_pct	0.66	0.66	0.41	0.67	2.47 **	2.28 **	0.67	1.71 *	3.04 ***	0.68	3.40 ***	4.67 ***
	0.67	0.69	0.57	0.69	2.57 **	2.27 **	0.69	2.12 **	2.86 ***	0.70	3.22 ***	4.51 ***
inside_pct	0.34	0.34	-0.46	0.33	-2.42 **	-2.28 **	0.33	-1.71 *	-3.04 ***	0.32	-3.83 ***	-4.99 ***
	0.33	0.31	-0.64	0.31	-2.57 **	-2.27 **	0.31	-2.11 **	-2.86 ***	0.30	-3.40 ***	-4.63 ***
# of firms	400	400		400			400			400		

Table 12 (Continued): Board Characteristics around the Adoption of LLPs

This table compares the time-series board characteristics of LLP adopters for five consecutive years starting from three years preceding the adoption to the year immediately following the adoption. Panels A, B and C report results for all adopters, non-utilities/non-financial (NUF) adopters and utilities/financial (UF) adopters, respectively. For each variable, means (and t statistics) are reported in the upper row and medians (and Wilcoxon Z) in the lower row. (1) refers to comparison between the current year and the year immediately before. (2) refers to comparison between the current year and base year -3. ***, **, * indicate significance at the 1%, 5%, 10% levels in a paired t-test (or Wilcoxon signed rank test), respectively. See Table 1 for variable definitions.

Panel B: NUF Adopters

	Year -3	Year -2		Year -1			Year 0			Year + 1		
	Mean Median	Mean Median	t-stat Wilcoxon (1) & (2)	Mean Median	t-stat Wilcoxon (1)	 (2)	Mean Median	t-stat Wilcoxon (1)	 (2)	Mean Median	t-stat Wilcoxon (1)	 (2)
board	12.49	12.46	-0.38	12.35	-1.40	-1.36	12.20	-1.85 *	-2.52 **	12.09	-1.47	-3.04 ***
	12.00	12.00	-1.04	12.00	-0.99	-1.42	12.00	-1.34	-2.17 **	12.00	-1.48	-2.52 **
outside	6.64	6.67	0.44	6.65	-0.25	0.15	6.66	0.14	0.22	6.68	0.37	0.39
	7.00	7.00	0.15	7.00	0.06	0.47	7.00	0.44	0.49	7.00	0.39	0.56
grey	1.10	1.13	1.13	1.15	0.71	1.27	1.15	0.00	1.14	1.18	0.97	1.48
	1.00	1.00	1.13	1.00	0.37	1.37	1.00	-0.38	1.02	1.00	0.81	1.28
outgrey	7.74	7.79	0.83	7.80	0.06	0.70	7.80	0.14	0.71	7.86	1.04	1.17
	8.00	8.00	0.38	8.00	0.44	0.92	8.00	0.55	1.33	8.00	1.20	1.64
inside	4.75	4.66	-1.75 *	4.55	-2.13 **	-2.82 ***	4.39	-2.66 ***	-4.40 ***	4.24	-3.30 ***	-5.82 ***
	4.00	4.00	-2.01 **	4.00	-1.82 *	-2.75 ***	4.00	-3.09 ***	-4.63 ***	4.00	-3.38 ***	-5.55 ***
outside_pct	0.52	0.53	0.98	0.53	0.49	1.15	0.54	2.61 ***	2.57 **	0.55	1.53	3.20 ***
	0.55	0.55	0.84	0.56	1.20	1.40	0.57	2.86 ***	2.65 ***	0.57	1.84 *	3.25 ***
grey_pct	0.09	0.10	1.43	0.10	1.41	2.07 **	0.10	-0.06	1.76 *	0.10	1.11	2.04 **
	0.08	0.08	0.68	0.08	0.08	1.59	0.08	-0.33	1.39	0.08	1.02	1.59
outgrey_pct	0.62	0.62	1.95 *	0.63	1.66 *	2.80 ***	0.64	2.75 ***	4.17 ***	0.65	2.99 ***	5.54 ***
	0.64	0.64	1.52	0.67	2.01 **	2.58 **	0.67	3.12 ***	3.95 ***	0.67	2.70 ***	5.02 ***
inside_pct	0.38	0.38	-2.01 **	0.37	-1.60	-2.80 ***	0.36	-2.75 ***	-4.17 ***	0.35	-2.99 ***	-5.54 ***
	0.36	0.36	-1.60	0.33	-2.00 **	-2.58 ***	0.33	-3.11 ***	-3.95 ***	0.33	-2.71 ***	-5.02 ***
# of firms	246	246		246			246			246		

Table 12 (Continued): Board Characteristics around the Adoption of LLPs

This table compares the time-series board characteristics of LLP adopters for five consecutive years starting from three years preceding the adoption to the year immediately following the adoption. Panels A, B and C report results for all adopters, non-utilities/non-financial (NUF) adopters and utilities/financial (UF) adopters, respectively. For each variable, means (and t statistics) are reported in the upper row and medians (and Wilcoxon Z) in the lower row. (1) refers to comparison between the current year and the year immediately before. (2) refers to comparison between the current year and base year -3. ***, **, * indicate significance at the 1%, 5%, 10% levels in a paired t-test (or Wilcoxon signed rank test), respectively. See Table 1 for variable definitions.

Panel C: UF Adopters

	Year -3	Year -2		Year -1			Year 0			Year + 1		
	Mean / Median	Mean / Median	t-stat / Wilcoxon (1) & (2)	Mean / Median	t-stat / Wilcoxon (1)	t-stat / Wilcoxon (2)	Mean / Median	t-stat / Wilcoxon (1)	t-stat / Wilcoxon (2)	Mean / Median	t-stat / Wilcoxon (1)	t-stat / Wilcoxon (2)
board	15.68	15.68	0.00	15.77	0.53	0.41	15.23	-2.96 ***	-1.84 *	15.17	-0.43	-1.76 *
	14.00	15.00	-0.39	15.00	0.61	-0.54	14.00	-2.70 ***	-1.91 *	15.00	-0.63	-2.06 **
outside	10.50	10.31	-1.51	10.47	1.10	-0.17	10.01	-2.71 ***	-2.11 **	9.95	-0.48	-2.04 **
	10.00	10.00	-1.42	10.00	1.36	-0.74	9.00	-2.42 **	-2.05 **	10.00	-0.78	-1.85 *
grey	1.16	1.24	1.36	1.27	0.52	1.44	1.28	0.39	1.48	1.36	2.65 ***	2.26 **
	1.00	1.00	1.11	1.00	0.20	1.15	1.00	0.61	1.38	1.00	2.53 **	2.10 **
outgrey	11.66	11.55	-0.96	11.73	1.23	0.38	11.29	-2.63 ***	-1.68 *	11.31	0.15	-1.36
	11.00	11.00	-0.71	11.00	1.97 **	-0.20	11.00	-2.39 **	-1.72 *	11.00	0.07	-1.11
inside	4.02	4.14	1.38	4.04	-1.36	0.19	3.94	-1.26	-0.80	3.82	-1.79 *	-1.59
	4.00	4.00	0.84	4.00	-1.38	-0.47	4.00	-1.28	-0.60	3.00	-1.95 *	-1.44
outside_pct	0.65	0.64	-2.30 **	0.65	1.03	-0.86	0.64	-1.38	-1.55	0.64	0.45	-1.08
	0.67	0.69	-1.72 *	0.67	1.04	-0.10	0.67	-1.38	-1.26	0.67	0.57	-0.86
grey_pct	0.08	0.08	0.96	0.08	0.74	1.21	0.09	1.70 *	1.84 *	0.10	3.04 ***	2.75 ***
	0.07	0.07	0.90	0.07	0.26	1.01	0.07	2.14 **	1.67 *	0.08	3.11 ***	2.75 ***
outgrey_pct	0.73	0.72	-2.03 **	0.73	1.88 *	0.02	0.73	-0.58	-0.43	0.74	1.84 *	0.81
	0.75	0.75	-1.00	0.76	1.60	0.37	0.75	-0.55	-0.42	0.76	1.79 *	0.83
inside_pct	0.27	0.28	2.03 **	0.27	-1.88 *	-0.02	0.27	0.58	0.43	0.26	-2.44 **	-1.19
	0.25	0.25	1.00	0.24	-1.60	-0.37	0.25	0.55	0.42	0.24	-2.07 **	-1.02
# of firms	154	154		154			154			154		

Table 13: Time-Series Board Characteristics of Firms Opting Out of LLPs

This table compares the time-series board characteristics over 1984 to 1991 for firms opting out of LLPs. Panel A reports year-by-year comparison and the difference statistics are for the current year and the year immediately before. Panel B reports cumulative changes with 1984 being the benchmark for comparison. For each variable, mean (median) is reported in the upper (lower) row. ***, **, * indicate significance at the 1%, 5%, 10% levels in a paired t-test (or Wilcoxon signed rank test), respectively. See Table 1 for variable definitions.

Panel A: Year-by-year comparison of board characteristics

	1984	1985		1986		1987		1988		1989		1990		1991	
	Mean	Mean	T	Mean	T	Mean	T	Mean	T	Mean	T	Mean	T	Mean	T
	Median	Median	Wilcoxon	Median	Wilcoxon	Median	Wilcoxon	Median	Wilcoxon	Median	Wilcoxon	Median	Wilcoxon	Median	Wilcoxon
board	13.46	13.81	2.63 ***	13.53	-1.29	13.36	-1.40	13.36	0.00	13.39	0.24	13.31	-0.56	13.30	-0.09
	13.00	13.00	2.07 **	13.00	-0.89	13.00	-1.18	13.00	-0.71	13.00	-0.02	13.00	-0.22	13.00	0.06
outside	8.15	8.40	1.96 *	8.17	-1.23	8.08	-0.85	8.15	0.64	8.27	1.19	8.42	1.36	8.48	0.60
	7.00	8.00	1.10	8.00	0.12	8.00	-0.92	7.00	0.91	8.00	1.12	8.00	1.42	8.00	1.12
grey	0.88	0.91	0.77	0.93	0.47	0.94	0.19	0.95	0.33	0.94	-0.30	0.97	0.73	0.97	0.00
	1.00	1.00	0.59	0.50	0.57	0.00	-0.21	0.00	0.33	0.00	-0.30	0.00	0.33	0.00	0.00
outgrey	9.03	9.31	2.32 **	9.10	-1.02	9.02	-0.74	9.10	0.70	9.21	1.05	9.39	1.60	9.45	0.60
	8.00	9.00	1.67 *	9.00	0.48	9.00	-0.54	9.00	0.64	8.50	0.88	9.00	1.68 *	9.00	1.12
inside	4.43	4.50	0.82	4.43	-0.80	4.34	-1.26	4.26	-1.02	4.17	-1.10	3.92	-3.36 ***	3.85	-0.98
	4.00	4.00	0.73	4.00	-1.20	4.00	-1.32	4.00	-1.40	4.00	-1.07	4.00	-3.22 ***	4.00	-1.47
outside_pct	0.59	0.59	0.54	0.59	-0.04	0.60	0.47	0.60	1.21	0.61	1.36	0.62	2.72 ***	0.63	1.12
	0.64	0.63	0.20	0.63	0.30	0.67	0.77	0.66	1.07	0.67	1.37	0.65	2.76 ***	0.67	1.03
grey_pct	0.07	0.07	0.33	0.07	0.48	0.07	0.07	0.07	-0.02	0.07	-0.45	0.07	0.96	0.07	0.76
	0.04	0.04	-0.83	0.02	0.89	0.00	0.43	0.00	0.93	0.00	-0.68	0.00	0.91	0.00	-0.15
outgrey_pct	0.66	0.66	0.78	0.66	0.21	0.67	0.69	0.67	1.33	0.68	1.18	0.69	3.67 ***	0.70	1.45
	0.70	0.69	0.45	0.69	0.84	0.70	0.31	0.70	1.13	0.70	0.78	0.71	3.50 ***	0.73	1.22
inside_pct	0.34	0.34	-0.78	0.34	-0.21	0.33	-0.69	0.33	-1.33	0.32	-1.28	0.31	-3.52 ***	0.30	-1.45
	0.30	0.31	-0.44	0.31	-0.84	0.30	-0.31	0.30	-1.12	0.30	-0.80	0.29	-3.29 ***	0.27	-1.22

Table 13 (Continued): Time-Series Board Characteristics of Firms Opting Out of LLPs

This table compares the time-series board characteristics over 1984 to 1991 for firms opting out of LLPs. Panel A reports year-by-year comparison and the difference statistics are for the current year and the year immediately before. Panel B reports cumulative changes with 1984 being the benchmark for comparison. For each variable, mean (median) is reported in the upper (lower) row. ***, **, * indicate significance at the 1%, 5%, 10% levels in a paired t-test (or Wilcoxon signed rank test), respectively. See Table 1 for variable definitions.

Panel B: Cumulative changes of board characteristics (benchmark year = 1984)

	1984	1985		1986		1987		1988		1989		1990		1991	
	Mean	Mean	T	Mean	T	Mean	T	Mean	T	Mean	T	Mean	T	Mean	T
	Median	Median	Wilcoxon	Median	Wilcoxon	Median	Wilcoxon	Median	Wilcoxon	Median	Wilcoxon	Median	Wilcoxon	Median	Wilcoxon
board	13.46	0.35	2.63 ***	0.07	0.27	-0.10	-0.35	-0.10	-0.32	-0.07	-0.22	-0.15	-0.47	-0.16	-0.52
	13.00	0.00	2.07 **	0.00	0.85	0.00	-0.21	0.00	-0.26	0.00	-0.48	0.00	-0.95	0.00	-0.42
outside	8.15	0.25	1.96 *	0.02	0.09	-0.07	-0.29	0.00	0.00	0.12	0.43	0.27	1.01	0.33	1.18
	7.00	1.00	1.10	1.00	0.88	1.00	0.50	0.00	0.73	1.00	1.24	1.00	1.45	1.00	1.63
grey	0.88	0.03	0.77	0.05	0.96	0.06	0.82	0.07	0.96	0.06	0.80	0.09	1.08	0.09	1.10
	1.00	0.00	0.59	-0.50	0.95	-1.00	0.19	-1.00	0.65	-1.00	0.30	-1.00	0.28	-1.00	0.41
outgrey	9.03	0.28	2.32 **	0.07	0.29	-0.01	-0.04	0.07	0.25	0.18	0.61	0.36	1.28	0.42	1.45
	8.00	1.00	1.67 *	1.00	1.44	1.00	0.83	1.00	1.05	0.50	1.42	1.00	1.87 *	1.00	2.06 **
inside	4.43	0.07	0.82	0.00	0.00	-0.09	-0.61	-0.17	-0.92	-0.26	-1.48	-0.51	-2.79 ***	-0.58	-3.05 ***
	4.00	0.00	0.73	0.00	-0.34	0.00	-1.06	0.00	-1.25	0.00	-1.67 *	0.00	-2.90 ***	0.00	-2.79 ***
outside_pct	0.59	0.00	0.54	0.00	0.39	0.01	0.65	0.01	1.18	0.02	1.79 *	0.03	3.02 ***	0.04	3.23 ***
	0.64	-0.01	0.20	-0.01	0.29	0.03	1.29	0.02	1.04	0.03	1.79 *	0.01	2.58 ***	0.03	2.97 ***
grey_pct	0.07	0.00	0.33	0.00	0.69	0.00	0.50	0.00	0.50	0.00	0.30	0.00	0.77	0.01	1.06
	0.04	0.00	-0.83	-0.02	0.36	-0.04	0.35	-0.04	0.55	-0.04	0.23	-0.04	1.07	-0.04	0.97
outgrey_pct	0.66	0.00	0.78	0.01	0.75	0.01	1.00	0.01	1.43	0.02	2.02 **	0.04	3.60 ***	0.04	3.84 ***
	0.70	0.00	0.45	0.00	0.72	0.00	0.79	0.00	0.89	0.01	1.60	0.02	3.09 ***	0.03	3.38 ***
inside_pct	0.34	0.00	-0.78	-0.01	-0.75	-0.01	-1.00	-0.01	-1.43	-0.02	-2.07 **	-0.04	-3.60 ***	-0.04	-3.84 ***
	0.30	0.00	-0.44	0.00	-0.72	0.00	-0.79	0.00	-0.89	-0.01	-1.65 *	-0.02	-3.08 ***	-0.03	-3.37 ***

Table 14: Comparison of Takeover Defense Indices, Adopters vs. Non-Adopters

This table compares the takeover defense indices for LLP adopters and non-adopters as of the IRRC survey years 1990, 1993, 1995, 1998 and 2000. Panel A reports the level of takeover defense indices for each IRRC survey year. Panel B reports changes in takeover defense indices from 1990 to the particular survey year. All indices are net of the score for LLP. All indices (change of indices) are net of the score for LLP. ***, ** and * indicate significance at 1%, 5% and 10% levels in a unpaired t-test (or Wilcoxon rank sum test), respectively. See Table 1 for variable definitions.

	Panel A: Takeover Defense Indices				Panel B: Changes in Takeover Defense Indices			
Year	Indices	Adopter	Non-Adopter	T-Stat	ΔIndices	Adopter	Non-Adopter	T-Stat
1990	gindex	8.87	8.65	0.77				
		9.00	9.00	0.47				
	delay_index	2.01	1.88	1.05				
		2.00	2.00	0.94				
	protection_index	1.89	1.42	3.94 ***				
		2.00	2.00	3.74 ***				
	voting_index	0.57	0.67	-1.23				
		0.00	1.00	-1.67 *				
	other_index	1.25	1.17	0.75				
		1.00	1.00	0.96				
	law_index	1.83	2.62	-5.47 ***				
		1.00	3.00	-6.32 ***				
	# of firms	400	106					
1993	gindex	9.07	9.00	0.24	Δgindex	0.22	0.31	-0.83
		9.00	9.00	0.06		0.00	0.00	-0.61
	delay_index	2.10	2.02	0.62	Δdelay_index	0.08	0.12	-0.83
		2.00	2.00	0.59		0.00	0.00	-0.69
	protection_index	2.03	1.49	4.74 ***	Δprotection_index	0.16	0.11	0.66
		2.00	2.00	4.67 ***		0.00	0.00	0.74
	voting_index	0.72	0.79	-0.77	Δvoting_index	0.15	0.10	1.03
		1.00	1.00	-0.97		0.00	0.00	1.10
	other_index	1.31	1.27	0.36	Δother_index	0.06	0.08	-0.58
		1.00	1.00	0.55		0.00	0.00	-0.51
	law_index	1.87	2.76	-5.87 ***	Δlaw_index	0.05	0.11	-1.70 *
		1.00	3.00	-6.76 ***		0.00	0.00	-0.93
	# of firms	391	99		# of firms	391	99	
1995	gindex	9.20	9.11	0.30	Δgindex	0.35	0.49	-1.06
		9.00	9.00	0.02		0.00	0.00	-1.12
	delay_index	2.17	2.06	0.79	Δdelay_index	0.13	0.19	-0.95
		2.00	2.00	0.70		0.00	0.00	-1.20
	protection_index	2.15	1.67	4.16 ***	Δprotection_index	0.30	0.29	0.04
		2.00	2.00	4.11 ***		0.00	0.00	0.40
	voting_index	0.79	0.85	-0.63	Δvoting_index	0.22	0.16	0.91
		1.00	1.00	-0.73		0.00	0.00	1.05
	other_index	1.30	1.22	0.64	Δother_index	0.03	0.06	-0.65
		1.00	1.00	0.87		0.00	0.00	-0.84
	law_index	1.86	2.73	-5.66 ***	Δlaw_index	0.04	0.08	-0.97
		1.00	3.00	-6.52 ***		0.00	0.00	-0.71
	# of firms	379	95		# of firms	379	95	
1998	gindex	9.28	9.44	-0.52	Δgindex	0.51	0.64	-0.70
		9.00	10.00	-0.93		0.00	0.00	-0.68
	delay_index	2.27	2.26	0.06	Δdelay_index	0.19	0.32	-1.52
		2.00	2.00	0.02		0.00	0.00	-1.67 *
	protection_index	2.21	1.78	3.64 ***	Δprotection_index	0.41	0.39	0.24
		2.00	2.00	3.26 ***		0.00	0.00	0.46
	voting_index	0.83	0.85	-0.23	Δvoting_index	0.25	0.14	1.67 *
		1.00	1.00	-0.46		0.00	0.00	1.78 *
	other_index	1.27	1.28	-0.12	Δother_index	0.02	0.07	-0.73
		1.00	1.00	0.01		0.00	0.00	-0.87
	law_index	1.79	2.65	-5.62 ***	Δlaw_index	0.05	-0.05	1.51
		1.00	3.00	-6.21 ***		0.00	0.00	1.94 *
	# of firms	341	88		# of firms	341	88	
2000	gindex	9.41	9.42	-0.03	Δgindex	0.68	0.73	-0.25
		10.00	10.00	-0.49		1.00	1.00	-0.63
	delay_index	2.36	2.21	1.03	Δdelay_index	0.27	0.31	-0.41
		2.00	2.00	1.08		0.00	0.00	-0.88
	protection_index	2.28	1.85	3.67 ***	Δprotection_index	0.50	0.47	0.25
		2.00	2.00	3.54 ***		0.00	0.00	0.26
	voting_index	0.86	0.85	0.15	Δvoting_index	0.29	0.14	1.99 **
		1.00	1.00	-0.17		0.00	0.00	1.88 *
	other_index	1.25	1.31	-0.50	Δother_index	-0.01	0.08	-1.11
		1.00	1.00	-0.59		0.00	0.00	-1.42
	law_index	1.83	2.58	-4.66 ***	Δlaw_index	0.08	-0.05	1.98 **
		1.00	3.00	-5.28 ***		0.00	0.00	1.62
	# of firms	310	78		# of firms	310	78	

Table 15: Summary Statistics and Correlation Matrix of Managerial Compensation Level

This table reports the summary statistics (Panel A) and correlation matrix (Panel B) for the sample firms used in the regressions of managerial compensation level on LLP adoption. In Panel A, summary statistics based on non-utilities/non-financial (NUF) firms and utilities/financial (UF) firms are also reported, respectively. The data spans from 1993 to 2000. Statistics on managerial compensation are based on those of the CEOs only. In Panel B, the upper (lower) triangle reports the Pearson (Spearman Rank) correlation statistics. ***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively. See Table 1 for variable definitions.

Panel A: Summary Statistics

	All Firms			NUF Firms			UF Firms		
Variable	Median	Mean	Stdev	Median	Mean	Stdev	Median	Mean	Stdev
cashcomp (in $1000)	1322	1660	1359	1403	1695	1279	1114	1590	1507
totcomp (in $1000)	2661	5071	17671	3000	5634	21166	1956	3940	6149
cashcomp / totcomp	0.53	0.55	0.252	0.49	0.52	0.248	0.62	0.61	0.247
llp	1.00	0.80	0.397	1.00	0.83	0.376	1.00	0.75	0.431
roa	0.04	0.05	0.063	0.06	0.07	0.072	0.02	0.03	0.025
ret	0.15	0.15	0.276	0.14	0.14	0.287	0.17	0.17	0.253
std_roa	0.02	0.02	0.024	0.02	0.03	0.026	0.00	0.01	0.009
std_ret	0.22	0.24	0.128	0.21	0.24	0.131	0.22	0.25	0.121
mv (in $millions)	4008	10729	24125	4124	12005	27435	3724	8165	15156
bm	0.44	0.47	0.295	0.37	0.40	0.301	0.59	0.60	0.235
duality	1.00	0.82	0.388	1.00	0.81	0.392	1.00	0.83	0.380
pshares_sum	0.00	0.02	0.059	0.00	0.02	0.057	0.00	0.02	0.064
dir_pct	0.40	0.46	0.235	0.40	0.45	0.233	0.40	0.46	0.238
intlock_pct	0.00	0.03	0.106	0.00	0.02	0.086	0.00	0.04	0.138
meetings	8.00	8.00	2.803	7.00	7.70	2.558	8.00	8.60	3.157

Panel B: Correlation Matrix (All Firms)

Variable	$totcomp_t$	*llp*	roa_t	ret_t	std_roa_{t-1}	std_ret_{t-1}	mv_{t-1}	bm_{t-1}	$duality_{t-1}$	$pshares\_sum_{t-1}$	dir_pct_{t-1}	$intlock\_pct_{t-1}$	$meetings_t$
$totcomp_t$		0.06***	0.06***	0.03*	0.13***	0.04**	0.23***	-0.11***	0	-0.02	-0.01	-0.03	0.07***
llp	0.15***		0.02	0.03	0.01	0.05**	0.07***	0.04**	0	-0.02	0.03*	-0.06***	0.07***
roa_t	0.16***	0		0.14***	0.09***	-0.13***	0.2***	-0.41***	0.02	0.08***	0.11***	-0.02	-0.15***
ret_t	0.17***	0.02	0.11***		-0.02	0.05***	0.02	0.02	0	0.03*	0	-0.01	-0.01
std_roa_{t-1}	0.11***	0.07***	0.26***	-0.04**		0.2***	-0.01	-0.16***	-0.06***	0	-0.1***	-0.04**	0.06***
std_ret_{t-1}	0.08***	0.04**	-0.17***	0.07***	0.11***		-0.08***	0.08***	-0.07***	0.07***	-0.08***	0	0.06***
mv_{t-1}	0.59***	0.1***	0.27***	0.04**	-0.03*	-0.14***		-0.25***	0.02	-0.04**	0.1***	0.01	0.07***
bm_{t-1}	-0.38***	0.01	-0.55***	0.04**	-0.23***	0.06***	-0.48***		-0.05**	0.03*	-0.03*	0.05***	0.12***
$duality_{t-1}$	0.13***	0	0.03*	0.01	-0.06***	-0.06***	0.14***	-0.04**		-0.08***	0	-0.01	0.02
$pshares\_sum_{t-1}$	-0.04*	0	0	0.04**	0	0.16***	-0.25***	-0.06***	-0.04**		0.19***	0.25***	-0.2***
dir_pct_{t-1}	-0.01	0.03*	0.07***	0.01	-0.07***	-0.09***	0.15***	-0.06***	-0.01	0.17***		0.14***	-0.05***
$intlock\_pct_{t-1}$	-0.04**	-0.04**	-0.04**	0	-0.06***	0	0.03	0.04**	-0.01	0.11***	0.03*		-0.05***
$meetings_t$	0.1***	0.07***	-0.18***	0.01	0.04**	0.02	0.1***	0.12***	0.03	-0.32***	-0.04**	-0.02	

Panel C: Industry Distribution

Industry (2-digit SICs)	*# of Firms*	*Industry (2-digit SICs)*	*# of Firms*
Petroleum(13,29)	19	Transportation (40-42,44-45,47)	15
Finance/Real Estate (60-69)	95	Utilities (46,48-49)	71
Consumer Durables (25,30,36-37,39,50,55,57)	49	Textiles/Trade (22-23,31,51,53,56,59)	28
Basic Industry (10,12,14,24,26,28,33)	70	Services (43,72-73,75,76,80,81,82,83,87,89)	13
Food/Tobacco (1,20,21,54)	29	Leisure (27,58,70,78-79)	15
Construction (15-17,32,52)	7	Others (2,7,8,9,84,86,88,91-97,99)	3
Capital Goods (34-35,38)	45	**Total**	**459**

Table 16: Regressions of Managerial Compensation Level on the Existence of LLPs

This table presents the results for regressions of executive compensation on the existence of LLPs and other firm characteristics, estimated using data from 1993 to 2000. The dependent variable is the natural logarithm of total managerial compensation. The left, middle and right panels present results for all firms, non-utilities/non-financial (NUF) firms and utilities/financial (UF) firms, respectively. The first and second columns in each panel report results based on observations of CEO compensation only and the sum across the top-5 highest-paid executives, respectively. Coefficients on the industry dummies and year dummies are suppressed for expositional convenience. T-statistics are reported in brackets below the coefficient estimates and are based on Huber-White robust standard errors allowing for firm-level clustering. ***, ** and * indicate significance at the 1%, 5% and 10% levels in a two-tailed t test, respectively. See Table 1 for variable definitions.

		All Firms (459 Firms)		NUF Firms (293 Firms)		UF Firms (166 Firms)	
	Predicted Sign	CEO Only	ΣTop Executives	CEO Only	ΣTop Executives	CEO Only	ΣTop Executives
Intercept	?	**6.309*** **	-0.445	**6.486*** **	-0.012	**4.269*** **	**-2.563** **
		[9.745]	[-0.756]	[10.612]	[-0.025]	[3.674]	[-2.236]
LLP	+/?	**0.147** **	**0.167*** **	0.087	**0.11** **	**0.243** **	**0.253** **
		[2.474]	[3.027]	[1.406]	[2.044]	[2.159]	[2.358]
roa_t	+	-0.161	**-0.615***	-0.019	-0.444	-1.907	-2.248
		[-0.485]	[-1.829]	[-0.064]	[-1.446]	[-1.423]	[-1.322]
ret_t	+	**0.387*** **	**0.469*** **	**0.382*** **	**0.474*** **	**0.509*** **	**0.498*** **
		[3.634]	[10.346]	[3.053]	[10.347]	[3.179]	[3.587]
std_roa_{t-1}	+	0.248	**2.466*** **	-0.15	**1.905** **	**10.069*** **	**13.334*** **
		[0.128]	[2.727]	[-0.075]	[2.267]	[3.538]	[4.197]
std_ret_{t-1}	+	**0.714*** **	**0.773*** **	**0.526*** **	**0.68*** **	**1.174*** **	**1.026*** **
		[4.252]	[5.368]	[2.621]	[4.233]	[3.485]	[3.493]
log_mv_{t-1}	+	**0.403*** **	**0.425*** **	**0.387*** **	**0.402*** **	**0.448*** **	**0.481*** **
		[13.744]	[14.971]	[16.379]	[20.133]	[7.583]	[8.2]
bm_{t-1}	-	-0.100	-0.092	-0.023	-0.022	**-0.342** **	-0.296
		[-1.254]	[-1.324]	[-0.287]	[-0.379]	[-2.004]	[-1.526]
$duality_{t-1}$	+	0.031	0.075	**0.139** **	**0.139** **	**-0.178***	-0.039
		[0.536]	[1.502]	[2.317]	[2.557]	[-1.666]	[-0.442]
$pshares\_sum_{t-1}$	+/-	**-1.675***	-0.978	**-1.293** **	-0.439	-2.35	-1.881
		[-1.907]	[-1.24]	[-2.184]	[-0.821]	[-1.149]	[-1.133]
dir_pct_{t-1}	+/-	**-0.142***	-0.132	-0.153	-0.158	-0.123	-0.07
		[-1.699]	[-1.337]	[-1.58]	[-1.532]	[-0.813]	[-0.347]
$intlock\_pct_{t-1}$	+/-	**-0.838** **	**-0.947** **	**-0.452***	**-0.439** **	**-1.072***	**-1.292** **
		[-2.087]	[-2.53]	[-1.711]	[-2.296]	[-1.748]	[-2.387]
$log\_meetings_t$	+/-	**0.279*** **	**0.244*** **	**0.346*** **	**0.281*** **	0.187	**0.200***
		[2.961]	[2.983]	[3.184]	[3.912]	[1.466]	[1.652]
Year Effect		Included	Included	Included	Included	Included	Included
Industry Effect		Included	Included	Included	Included	Included	Included
Adjusted R^2		0.451	0.596	0.39	0.578	0.568	0.617
# of observations		3030	3077	2023	2038	1007	1039

Table 17: Annual Regressions of Executive Compensation Level on LLPs

This table presents the results for annual regressions of executive compensation on adoption of LLPs and other firm characteristics, estimated for each year among 1993-2000. The left, middle and right panels present results for all firms, non-utilities/non-financial (NUF) firms and utilities/financial (UF) firms, respectively. The first and second columns in each panel report results based on observations of CEO compensation only and the sum across the top-5 highest-paid executives, respectively. Coefficients on those independent variables other than *LLP* are suppressed for expositional convenience. T-statistics are reported in brackets below the coefficient estimates. ***, ** and * indicate significance at the 1%, 5% and 10% levels in a two-tailed t test, respectively, based on White standard errors adjusting for heteroscedasticity. See Table 1 for variable definitions.

$$Ln(\text{total direct compensation}) = \beta_0 + \beta_1 * LLP + \Sigma\beta_k * \text{control variables} + \Sigma\beta_n * \text{industry dummies}$$

		All Firms		Unregulated Firms		Regulated Firms	
Year		**CEO Only**	**Σ Executives**	**CEO Only**	**Σ Executives**	**CEO Only**	**Σ Executives**
1993	*coeff. on* Δmv_t * *LLP*	0.093	0.316	-0.244	-0.058	**0.34***	0.043
	t-stat	[0.39]	[0.781]	[-0.835]	[-0.117]	[1.867]	[0.111]
	# of firms	286	303	194	202	92	101
1994	*coeff. on* Δmv_t * *LLP*	**0.86*****	**1.764*****	**0.82****	**1.673*****	-0.217	-0.581
	t-stat	[3.29]	[3.648]	[2.398]	[2.687]	[-0.486]	[-0.84]
	# of firms	328	339	231	238	97	101
1995	*coeff. on* Δmv_t * *LLP*	0.016	0.073	0.1	0.155	-0.086	-0.136
	t-stat	[0.143]	[0.451]	[0.699]	[0.787]	[-0.667]	[-0.481]
	# of firms	327	334	231	235	96	99
1996	*coeff. on* Δmv_t * *LLP*	-0.091	-0.099	-0.167	-0.215	**1.077***	0.824
	t-stat	[-0.578]	[-0.542]	[-1.237]	[-0.875]	[1.851]	[1.242]
	# of firms	325	336	227	237	98	99
1997	*coeff. on* Δmv_t * *LLP*	**0.206***	**0.422****	**0.19****	**0.438****	-0.108	0.407
	t-stat	[1.722]	[2.31]	[2.045]	[2.511]	[-0.149]	[0.551]
	# of firms	317	325	228	232	89	93
1998	*coeff. on* Δmv_t * *LLP*	1.696	2.676	2.57	4.049	0.209	0.089
	t-stat	[1.233]	[1.171]	[1.344]	[1.27]	[0.658]	[0.162]
	# of firms	306	316	222	228	84	88
1999	*coeff. on* Δmv_t * *LLP*	-0.566	-1.103	0.725	0.859	**-1.171****	**-1.638****
	t-stat	[-0.473]	[-0.605]	[0.478]	[0.38]	[-2.213]	[-1.998]
	# of firms	300	306	214	218	86	88
2000	*coeff. on* Δmv_t * *LLP*	0.001	0.134	-0.054	0.269	-0.3	-0.79
	t-stat	[0.003]	[0.359]	[-0.16]	[0.726]	[-0.521]	[-0.914]
	# of firms	280	289	199	206	81	83

Table 18: Regressions of CEO Compensation Level on an Indicator for "LLP Firm" in the Pre-LLP Period

This table presents the results for regressions of CEO compensation on an indicator for whether a firm eventually opted into LLPs (*LLP Adopter*) and other firm characteristics, estimated for 1984-July 1986, a period when LLPs were not allowable. The left, middle and right panels present results for all firms, non-utilities/non-financial (NUF) firms and utilities/financial (UF) firms, respectively. Coefficients on the industry dummies and year dummies are suppressed for expositional convenience. T-statistics are reported in brackets below the coefficient estimates and are based on Huber-White robust standard errors allowing for firm-level clustering. ***, ** and * indicate significance at the 1%, 5% and 10% levels in a two-tailed t test, respectively. See Table 1 for variable definitions.

$$Ln(total\ direct\ compensation) = \beta_0 + \beta_1 * LLP + \Sigma\beta_k * control\ variables + \Sigma\beta_m * year\ dummies + \Sigma\beta_n * industry\ dummies$$

	Predicted Sign	All Firms	NUF Firms	UF Firms
Intercept	?	**8.172*** **	**8.824*** **	**6.052*** **
		[14.437]	[13.18]	[6.885]
"LLP Firm"	+/?	0.01	-0.02	0.025
		[0.18]	[-0.279]	[0.327]
roa_t	+	-0.402	-0.388	-1.054
		[-0.802]	[-0.737]	[-0.608]
ret_t	+	**0.392*** **	**0.382*** **	**0.534** **
		[3.713]	[3.392]	[2.479]
std_roa_{t-1}	+	0.737	0.804	**6.576** **
		[0.59]	[0.607]	[1.98]
std_ret_{t-1}	+	**0.491** **	0.207	**1.831*** **
		[2.292]	[0.865]	[4.707]
log_mv_{t-1}	+	**0.254*** **	**0.23*** **	**0.301*** **
		[9.818]	[7.19]	[7.083]
bm_{t-1}	-	-0.053	-0.028	**-0.19** **
		[-0.842]	[-0.466]	[-2.446]
$duality_{t-1}$	+	**0.139*** **	**0.174*** **	0.085
		[2.754]	[2.956]	[0.824]
$ceo\_shares\_pct_{t-1}$	+/-	**-2.32*** **	**-2.471*** **	**-2.337***
		[-4.71]	[-4.543]	[-1.852]
$inside\_pct_{t-1}$	+/-	-0.217	**-0.347***	-0.201
		[-1.337]	[-1.859]	[-0.633]
$log\_meetings_t$	+/-	0.046	0.045	0.11
		[0.586]	[0.384]	[1.221]
Year Effect		Included	Included	Included
Industry Effect		Included	Included	Included
Adjusted R^2		0.392	0.246	0.511
# of firms		440	284	156
# of observations		857	593	264

Table 19: Summary Statistics and Correlation Matrix of Managerial Compensation Changes

This table reports the summary statistics (Panel A) and correlation matrix (Panel B) for the sample firms used in the regressions of pay-for-performance sensitivity on LLP adoption. In Panel A, summary statistics for non-utilities/non-financial (NUF) firms and utilities/financial (UF) firms are also reported, respectively. The data spans from 1993 to 2000. Statistics on compensation are based on those of the CEOs only. In Panel B, the upper (lower) triangle reports the Pearson (Spearman Rank) correlation statistics. ***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively. See Table 1 for variable definitions.

Panel A: Summary Statistics

	All Firms			NUF Firms			UF Firms		
Variable	Median	Mean	Stdev	Median	Mean	Stdev	Median	Mean	Stdev
Δtotcomp (in $thousands)	286.0	927.3	22993.9	298.2	957.4	26369.3	267.8	854.6	11257.6
Δcashcomp (in $thousands)	126.1	187.9	808.6	136.3	177.1	746.1	106.3	214.0	942.6
Δmv (in $millions)	293.0	1824.8	9359.5	257.2	1968.8	10509.5	367.1	1477.2	5685.6
llp	1.000	0.805	0.396	1.000	0.832	0.374	1.000	0.740	0.439
tobinq	1.400	1.795	1.159	1.627	2.041	1.280	1.103	1.203	0.363
log_mv	22.156	22.257	1.222	22.175	22.308	1.269	22.104	22.134	1.091
bm	0.419	0.453	0.320	0.363	0.404	0.338	0.561	0.571	0.230
vol	0.017	0.019	0.007	0.018	0.020	0.008	0.015	0.016	0.005
inst_holding1	0.577	0.560	0.156	0.606	0.594	0.143	0.479	0.480	0.156

Panel B: Correlation Matrix (All Firms)

variable	$\Delta totcomp_t$	Δmv_t	Δmv_{t-1}	*llp*	$tobinq_{t-1}$	log_mv_{t-1}	bm_{t-1}	vol_{t-1}	$inst\_holding_{t-1}$
$\Delta totcomp_t$		-0.01	0.08***	0.01	0.04*	0.04*	-0.02	0.05**	0.01
Δmv_t	0.2***		0.26***	0.03	0.14***	0.3***	-0.11***	-0.01	-0.03*
Δmv_{t-1}	0.14***	0.13***		0.04**	0.31***	0.43***	-0.17***	0.06***	0
llp	0.03	0.01	0.03		0.05***	0.06***	0.05**	0.08***	0.14***
$tobinq_{t-1}$	0.02	0.05***	0.26***	0.01		0.47***	-0.49***	0.09***	0.05**
log_mv_{t-1}	0.16***	0.25***	0.44***	0.08***	0.46***		-0.43***	-0.06***	0.09***
bm_{t-1}	-0.07***	-0.08***	-0.33***	0	-0.86***	-0.51***		0.03	-0.08***
vol_{t-1}	0.02	-0.11***	-0.03*	0.11***	0.08***	0.03	-0.13***		0.13***
$inst\_holding_{t-1}$	0.04**	-0.03	0.06***	0.14***	0.13***	0.08***	-0.08***	0.23***	

Panel C: Industry Distribution

Industry (2-digit SICs)	*# of Firms*	*Industry (2-digit SICs)*	*# of Firms*
Petroleum(13,29)	16	Transportation (40-42,44-45,47)	12
Finance/Real Estate (60-69)	93	Utilities (46,48-49)	50
Consumer Durables (25,30,36-37,39,50,55,57)	45	Textiles/Trade (22-23,31,51,53,56,59)	26
Basic Industry (10,12,14,24,26,28,33)	65	Services (43,72-73,75,76,80,81,82,83,87,89)	10
Food/Tobacco (1,20,21,54)	28	Leisure (27,58,70,78-79)	15
Construction (15-17,32,52)	7	Others (2,7,8,9,84,86,88,91-97,99)	3
Capital Goods (34-35,38)	41	**Total**	**411**

Table 20: Link between LLPs and Pay-for-Performance Sensitivity of Managerial Compensation

This table presents the pooled regression results on pay-for-performance sensitivity of executive compensation, estimated using data from 1993 to 2000. The left, middle and right panels present results for all firms, non-utilities/non-financial (NUF) firms and utilities/financial (UF) firms, respectively. In each panel, the first and second columns report results based on observations of CEO compensation only and the sum across all the five executives, respectively. Coefficients on the industry and year dummies, as well as their interactions with the change in shareholders' wealth, are suppressed for expositional convenience. T-statistics are reported in brackets below the coefficient estimates and are based on Huber-White robust standard errors allowing for firm-level clustering. ***, ** and * indicate significance at the 1%, 5% and 10% levels in a two-tailed t test, respectively. See Table 1 for variable definitions.

$$\begin{aligned}\Delta total\ direct\ compensation_{i,t} =& \gamma_0 + \gamma_1 * \Delta(shareholder\ wealth)_{i,t-1} \\ &+ \Delta shareholder\ wealth_{i,t} * [\gamma_2 + \gamma_3 * LLP + \Sigma\gamma_k * control\ variables_{i,t-1} \\ &+ \Sigma\gamma_m * year\ dummies_t + \Sigma\gamma_n * industry\ dummies_t] + \Sigma\gamma_y * year\ dummies_t \\ &+ \Sigma\gamma_z * industry\ dummies_t\end{aligned}$$

	Predicted	All Firms (411 Firms)		NUF Firms (268 Firms)		UF Firms (143 Firms)	
	Sign	CEO Only	Σ Executives	CEO Only	Σ Executives	CEO Only	Σ Executives
Intercept	?	3440.223	3691.508	3226.221	4135.03	-260.405	-2245.845
		[1.142]	[0.79]	[0.697]	[0.639]	[-0.127]	[-0.587]
Δmv_{t-1}	+	**0.263***	**0.449****	0.344	**0.552***	0.116	0.408
		[1.812]	[2.02]	[1.586]	[1.657]	[0.53]	[1.123]
Δmv_t	?	-5.671	-6.775	-15.082	-23.29	3.313	**10.991****
		[-0.659]	[-0.476]	[-1.01]	[-0.949]	[1.056]	[1.969]
Δmv_t * *LLP*	-/?	-0.296	-0.392	-0.013	0.096	-0.018	-0.253
		[-0.963]	[-0.784]	[-0.076]	[0.324]	[-0.051]	[-0.611]
Δmv_t * $inst\_hold_{t-1}$	+	3.603	5.59	6.833	10.802	-0.156	-0.063
		[1.506]	[1.467]	[1.514]	[1.508]	[-0.118]	[-0.031]
Δmv_t * log_mv_{t-1}	-	0.283	0.354	0.621	0.937	-0.163	**-0.442****
		[0.739]	[0.561]	[1.029]	[0.945]	[-1.284]	[-2.035]
Δmv_t * $tobinq_{t-1}$	+/-	-0.059	-0.16	-0.098	-0.238	-0.147	-0.866
		[-0.66]	[-1.039]	[-0.822]	[-1.16]	[-0.248]	[-1.097]
Δmv_t * vol_{t-1}	+/-	-122.295	-168.1	-171.097	-232.527	**55.086***	**98.896***
		[-1.299]	[-1.113]	[-1.49]	[-1.273]	[1.664]	[1.658]
Δmv_t * *Year Dummies*		Included	Included	Included	Included	Included	Included
Δmv_t * *Industry Dummies*		Included	Included	Included	Included	Included	Included
Year Dummies		Included	Included	Included	Included	Included	Included
Industry Dummies		Included	Included	Included	Included	Included	Included
Adjusted R^2		0.060	0.067	0.078	0.085	0.133	0.140
# of observations		2469	2548	1746	1796	723	752

Table 21: Link between LLPs and Pay-for-Performance Sensitivity of Managerial Compensation (Annual Regressions)

This table presents the annual regression results of the pay-for-performance sensitivities of executive compensation, estimated for each year among 1993-2000. The left, middle and right sets of panels present results for all firms, non-utilities/non-financial (NUF) firms and utilities/financial (UF) firms, respectively. In each panel, the first and second columns report results based on observations of CEO compensation only and the sum across the top-5 highest-paid executives, respectively. Coefficients on those independent variables other than $\Delta mv_t * LLP$ are suppressed for expositional convenience. T-statistics are reported in brackets below the coefficient estimates and are based on White standard errors adjusting for heteroscedasticity. ***, ** and * indicate significance at the 1%, 5% and 10% levels in a two-tailed t test, respectively. See Table 1 for variable definitions.

$$\begin{aligned}\Delta total\ direct\ compensation_{i,t} =& \gamma_0 + \gamma_1 * \Delta(shareholder\ wealth)_{i,t-1} \\ &+ \Delta shareholder\ wealth_{i,t} * [\gamma_2 + \gamma_3 * LLP \\ &+ \Sigma\gamma_k * control\ variables_{i,t-1} \\ &+ \Sigma\gamma_n * industry\ dummies_t] + \Sigma\gamma_z * industry\ dummies_t\end{aligned}$$

		All Firms		NUF Firms		UF Firms	
Year		**CEO Only**	**Σ Executives**	**CEO Only**	**Σ Executives**	**CEO Only**	**Σ Executives**
1993	*coeff. on Δmv_t * LLP*	0.093	0.316	-0.244	-0.058	**0.34***	0.043
	t-stat	[0.39]	[0.781]	[-0.835]	[-0.117]	[1.867]	[0.111]
	# of firms	286	303	194	202	92	101
1994	*coeff. on Δmv_t * LLP*	**0.86*****	**1.764*****	**0.82****	**1.673*****	-0.217	-0.581
	t-stat	[3.29]	[3.648]	[2.398]	[2.687]	[-0.486]	[-0.84]
	# of firms	328	339	231	238	97	101
1995	*coeff. on Δmv_t * LLP*	0.016	0.073	0.1	0.155	-0.086	-0.136
	t-stat	[0.143]	[0.451]	[0.699]	[0.787]	[-0.667]	[-0.481]
	# of firms	327	334	231	235	96	99
1996	*coeff. on Δmv_t * LLP*	-0.091	-0.099	-0.167	-0.215	**1.077***	0.824
	t-stat	[-0.578]	[-0.542]	[-1.237]	[-0.875]	[1.851]	[1.242]
	# of firms	325	336	227	237	98	99
1997	*coeff. on Δmv_t * LLP*	**0.206***	**0.422****	**0.19****	**0.438****	-0.108	0.407
	t-stat	[1.722]	[2.31]	[2.045]	[2.511]	[-0.149]	[0.551]
	# of firms	317	325	228	232	89	93
1998	*coeff. on Δmv_t * LLP*	1.696	2.676	2.57	4.049	0.209	0.089
	t-stat	[1.233]	[1.171]	[1.344]	[1.27]	[0.658]	[0.162]
	# of firms	306	316	222	228	84	88
1999	*coeff. on Δmv_t * LLP*	-0.566	-1.103	0.725	0.859	**-1.171****	**-1.638****
	t-stat	[-0.473]	[-0.605]	[0.478]	[0.38]	[-2.213]	[-1.998]
	# of firms	300	306	214	218	86	88
2000	*coeff. on Δmv_t * LLP*	0.001	0.134	-0.054	0.269	-0.3	-0.79
	t-stat	[0.003]	[0.359]	[-0.16]	[0.726]	[-0.521]	[-0.914]
	# of firms	280	289	199	206	81	83

Table 22: Summary Statistics and Correlation Matrix of Financial Reporting Characteristics

This table reports the summary statistics (Panel A) and correlation matrix (Panel B) for the sample firms used in the regressions of financial reporting characteristics on LLP adoption. Panels A and B report summary statistics and correlation matrix, respectively. The data spans from 1993 to 2000. In Panel B, the upper (lower) triangle reports the Pearson (Spearman Rank) correlation statistics. ***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively. See Table 1 for variable definitions.

Panel A: Summary statistics

Variable	Median	Mean	Stdev	Variable	Median	Mean	Stdev
sample for |mdacc| regression (1803 firm-years)				*sample for sresid regression (1909 firm-years)*			
|mdacc|	0.05	0.08	0.13	*sresid*	0.01	0.01	0.01
llp	1.00	0.80	0.40	*llp*	1.00	0.80	0.40
log_ta_avg	8.29	8.38	1.02	*log_ta_avg*	8.32	8.44	1.09
std_ocf	0.03	0.03	0.02	*std_ocf*	0.02	0.03	0.02
std_sales	0.08	0.12	0.12	*std_sales*	0.08	0.12	0.12
op_cycle	100.7	115.2	62.8	*op_cycle*	105.2	141.2	211.3
log_op_cycle	4.61	4.61	0.52	*log_op_cycle*	4.66	4.69	0.62
neg_ebxi_prop	0.00	0.09	0.17	*neg_ebxi_prop*	0.00	0.08	0.17
bm	0.41	0.43	0.62				
roa	0.06	0.06	0.06				

Panel B: Correlation Matrix

sample for |mdacc| regression	*|mdacc|*	*llp*	*log_ta_avg*	*std_ocf*	*std_sales*	*log_op_cycle*	*neg_ebxi_prop*	*bm*	*roa*
|mdacc|		0.06**	-0.07***	0.12***	0.1***	0.08***	0.05*	-0.09***	0.05**
llp	0.05**		0.1***	0.05**	0	0.03	0.01	0	-0.01
log_ta_avg	-0.13***	0.1***		-0.23***	-0.19***	-0.07***	-0.06**	-0.03	-0.14***
std_ocf	0.23***	0.06***	-0.28***		0.34***	0.12***	0.22***	-0.14***	0.06**
std_sales	0.24***	0.03	-0.22***	0.51***		-0.06**	0.11***	-0.21***	0.03
log_op_cycle	0.14***	0.04*	-0.09***	0.17***	0.03		-0.03	-0.25***	0.21***
neg_ebxi_prop	0.09***	-0.01	-0.03	0.3***	0.19***	-0.01		0.09***	-0.29***
bm	-0.15***	-0.03	0	-0.09***	-0.05**	-0.09***	-0.08***		-0.14***
roa	0.09***	-0.01	-0.05**	0	-0.06**	0.17***	-0.32***	-0.55***	

sample for sresid regression	*sresid*	*llp*	*log_ta_avg*	*std_ocf*	*std_sales*	*log_op_cycle*	*neg_ebxi_prop*
sresid		0.07***	-0.15***	0.46***	0.25***	0.04	0.3***
llp	0.1***		0.11***	0.04*	0	0.08***	0.02
log_ta_avg	-0.15***	0.11***		-0.24***	-0.21***	0.11***	-0.04*
std_ocf	0.48***	0.06**	-0.3***		0.33***	0.08***	0.19***
std_sales	0.4***	0.03	-0.25***	0.52***		-0.1***	0.11***
log_op_cycle	0.15***	0.07***	-0.01	0.13***	0		-0.07***
neg_ebxi_prop	0.27***	0	-0.01	0.28***	0.18***	-0.02	

Table 23: Link between LLPs and Financial Reporting Properties

This table presents the results for regressions of financial reporting properties on the existence of LLPs and other firm characteristics, estimated using data from 1993 to 2000. The dependent variables in the left and right panels are *mdacc* and *sresid*, respectively. Except for *roa*, which is contemporaneous with the dependent variables, all other variables are measured at the beginning of a fiscal year. The coefficients on the industry dummies and year dummies are suppressed for expositional convenience. T-statistics are reported in brackets below the coefficient estimates and are based on Huber-White robust standard errors allowing for firm-level clustering. ***, ** and * indicate significance at the 1%, 5% and 10% levels in a two-tailed t test, respectively. See Table 1 for variable definitions.

		Dependent Variable			
	Predicted Sign	***|mdacc|***		***sresid***	
Intercept	?	0.025	-0.002	0.004	**0.011****
		[0.601]	[-0.038]	[1.459]	[2.231]
LLP	+	**0.018*****	**0.02*****	**0.001***	**0.001***
		[2.588]	[3.198]	[1.851]	[1.826]
bm	?	**-0.015*****	**-0.014*****		
		[-3.621]	[-3.35]		
roa	+	0.081	0.089		
		[1.314]	[1.474]		
log_ta_avg	-	**-0.006***	-0.003	-0.0005	0.001
		[-1.933]	[-1.227]	[-0.881]	[0.785]
std_ocf	+	**0.402****	0.126	**0.145*****	**0.127*****
		[2.204]	[0.686]	[6.489]	[5.946]
std_sales	+	**0.075*****	0.036	**0.008****	**0.005***
		[3.025]	[1.342]	[2.471]	[1.751]
log_op_cycle	+	**0.014****	-0.002	0.0002	-0.001
		[2.228]	[-0.261]	[0.395]	[-1.305]
neg_ebxi_prop	+	0.022	0.018	**0.011*****	**0.009*****
		[1.152]	[1.048]	[3.253]	[3.01]
Year Effect		Not Included	Included	Not Included	Included
Industry Effect		Not Included	Included	Not Included	Included
Adjusted R^2		0.031	0.061	0.262	0.292
# of firms		333	333	363	363
# of observations		1803	1803	1909	1909

Appendix B

Figures

Figure 1: D&O Insurance Premium Index and Coverage Capacity, US Firms

This figure presents the trend in the D&O Insurance Premium Index and Coverage Capacity for US firms. The source of the data is Tillinghast-Towers Perrin survey on Director & Officer liability (Wyatt Company's survey before Tillinghast acquired Watson Wyatt's Risk & Insurance Services Practice). D&O premium index and coverage capacity data start in 1974 and 1984, respectively.

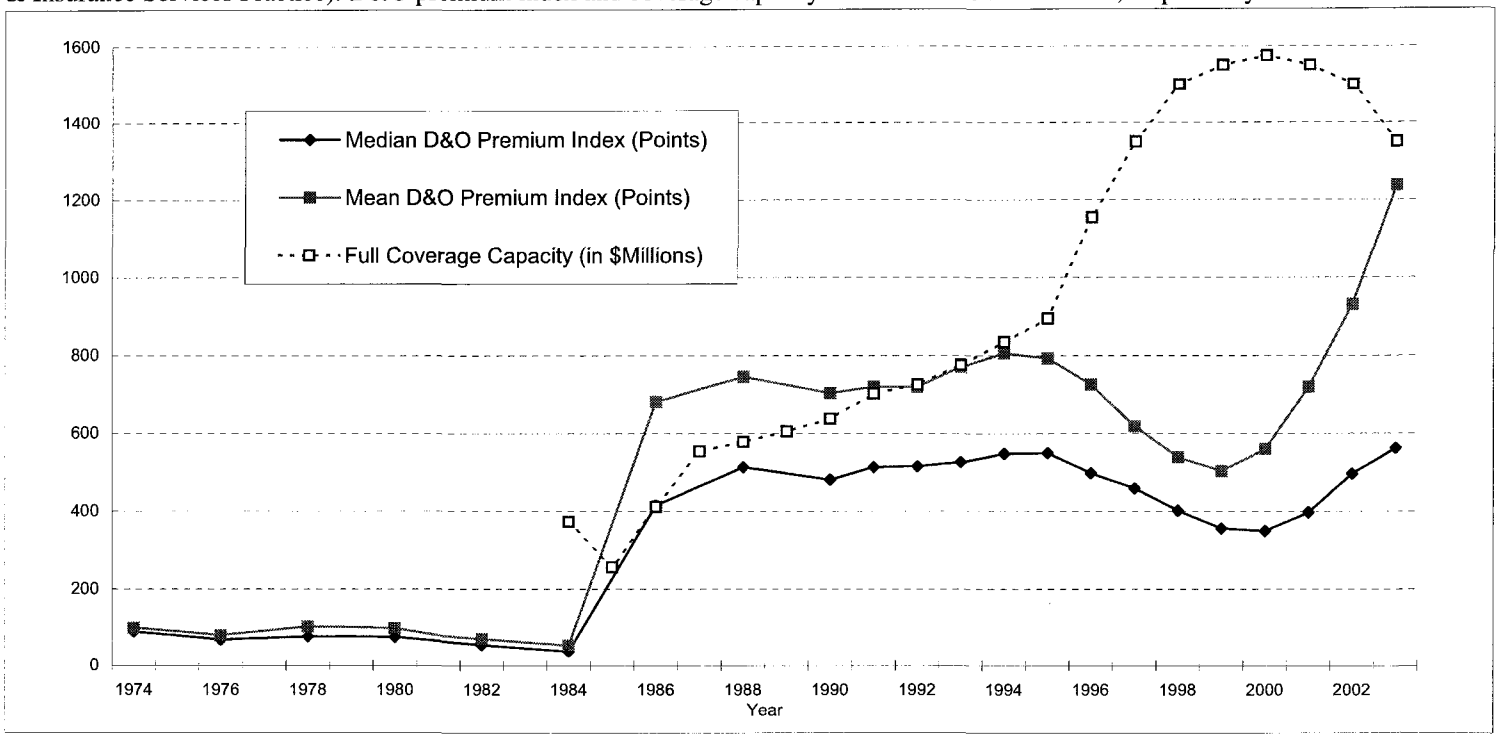


Figure 2: Timeline of LLP-Related Events and Empirical Analysis

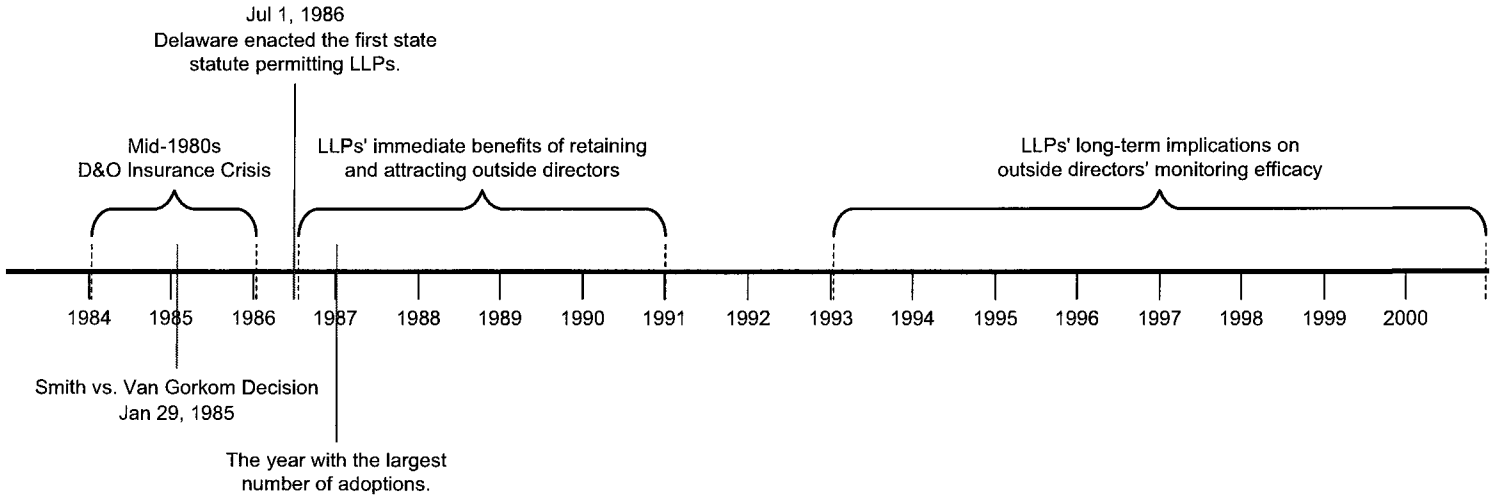


Figure 3: Prevalence of LLP Adoption among US Firms

This figure presents the prevalence of LLP adoption among US firms covered by IRRC's surveys on corporate takeover defenses. Panel A shows the total number of firms and the percentage of firms with LLPs in each IRRC survey. Panel B report similar results based on 649 firms that show up in each of the seven surveys conducted by IRRC from 1990 to 2004.

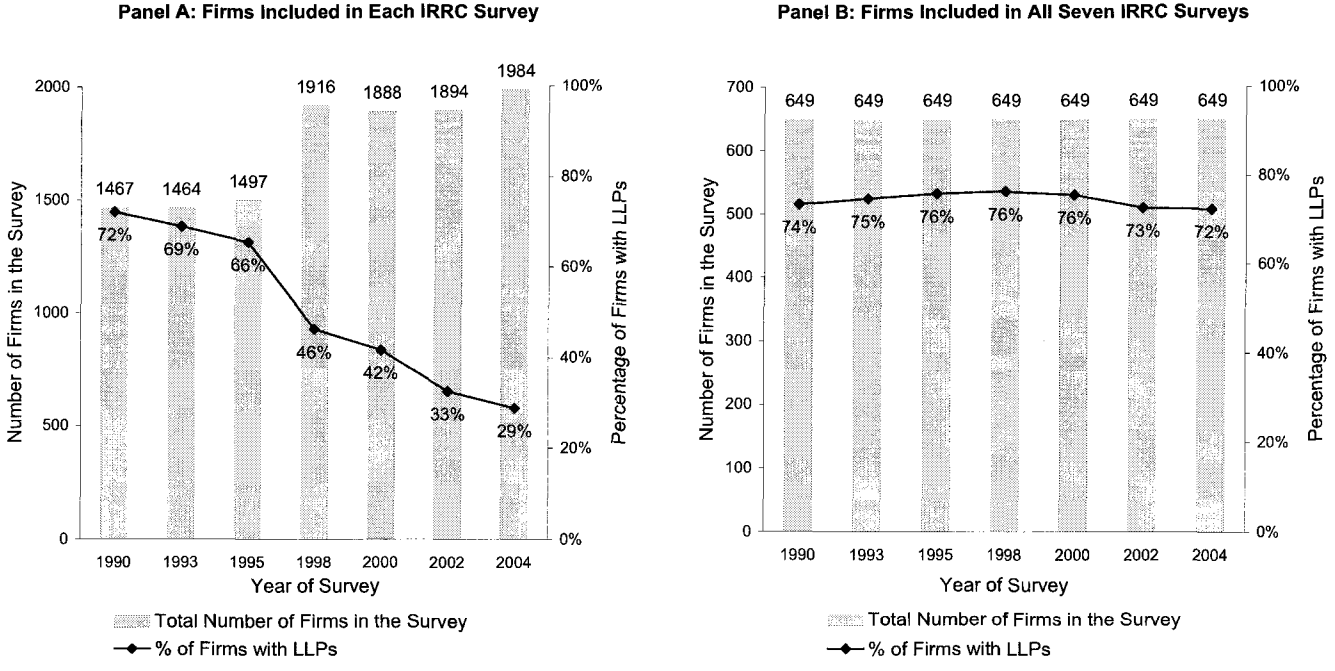


Figure 4: Board Characteristics around the Adoption of LLPs

This figure plots the time-series of average board characteristics of LLP adopters for the five consecutive years starting from three years preceding the adoption to one year immediately following the adoption. Panels A, B and C report results for all firms, NUF firms and UF firms, respectively. A solid data point on the trend line indicates a significant change from previous year to current year at the 1%, 5% or 10% levels in a paired t-test. See Table 1 for variable definitions.

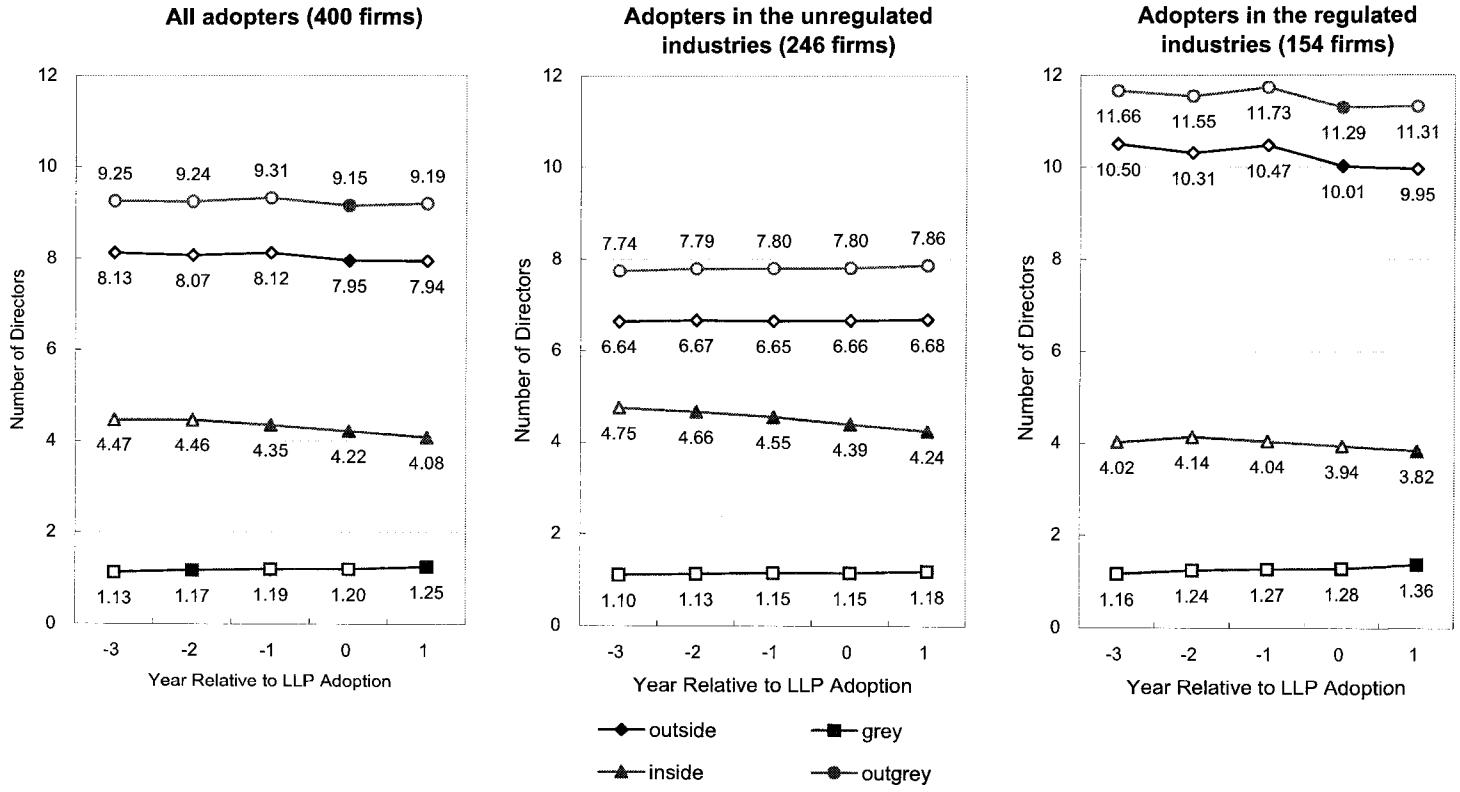


Figure 5: Board Characteristics around the Adoption of LLPs – Firms Opting into LLPs before 1988

This figure plots the time-series of average board characteristics of firm opting into LLPs before 1988 for the five consecutive years starting from two years preceding the adoption to two years immediately following the adoption. Panels A-C (D-F) report the average number of directors (number of directors as a percentage of board size) for all firms, NUF firms and UF firms, respectively. A solid data point on the trend line indicates a significant change from previous year to current year at the 1%, 5% or 10% levels in a paired t-test. See Table 1 for variable definitions.

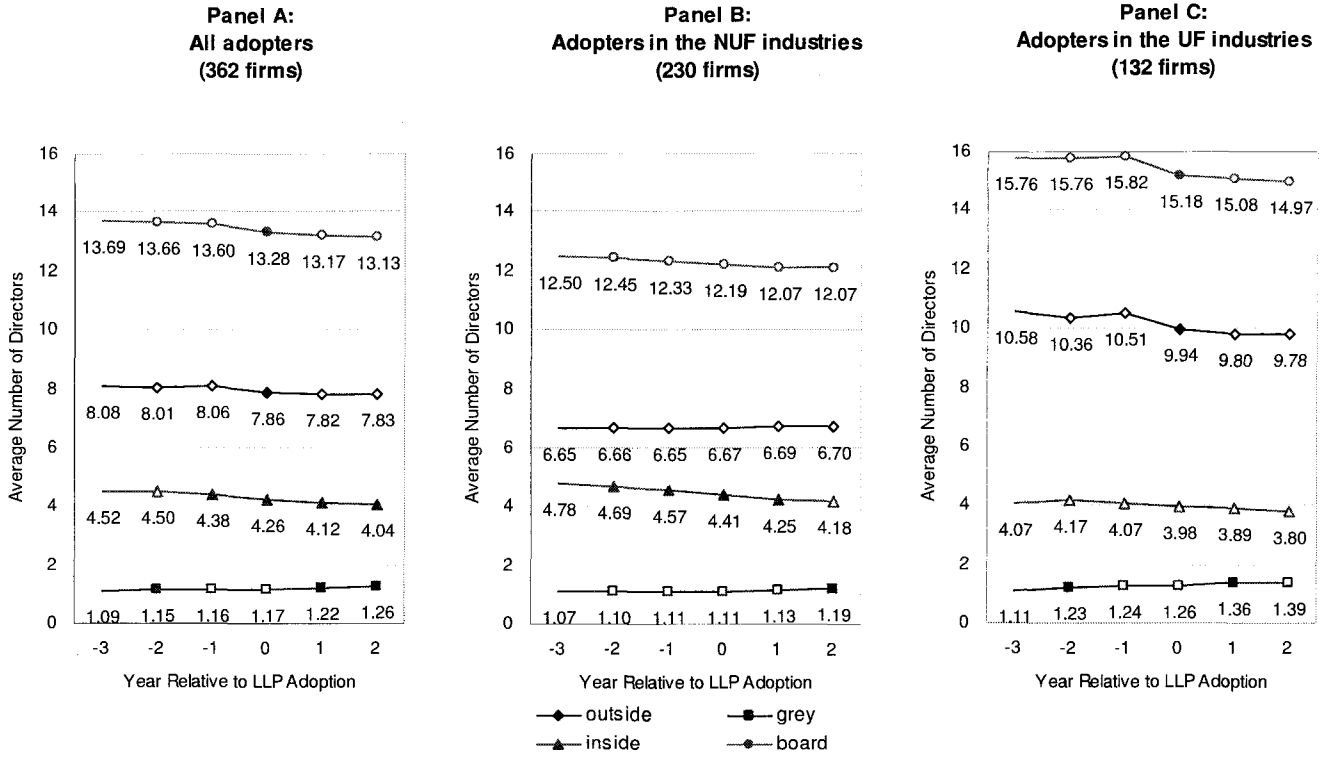


Figure 5 (Continued): Board Characteristics around the Adoption of LLPs – Firms Adopting LLPs before 1988

This figure plots the time-series of average board characteristics of firm opting into LLPs before 1988 for the five consecutive years starting from two years preceding the adoption to two years immediately following the adoption. Panels A-C (D-F) report the average number of directors (number of directors as a percentage of board size) for all firms, NUF firms and UF firms, respectively. A solid data point on the trend line indicates a significant change from previous year to current year at the 1%, 5% or 10% levels in a paired t-test. See Table 1 for variable definitions.

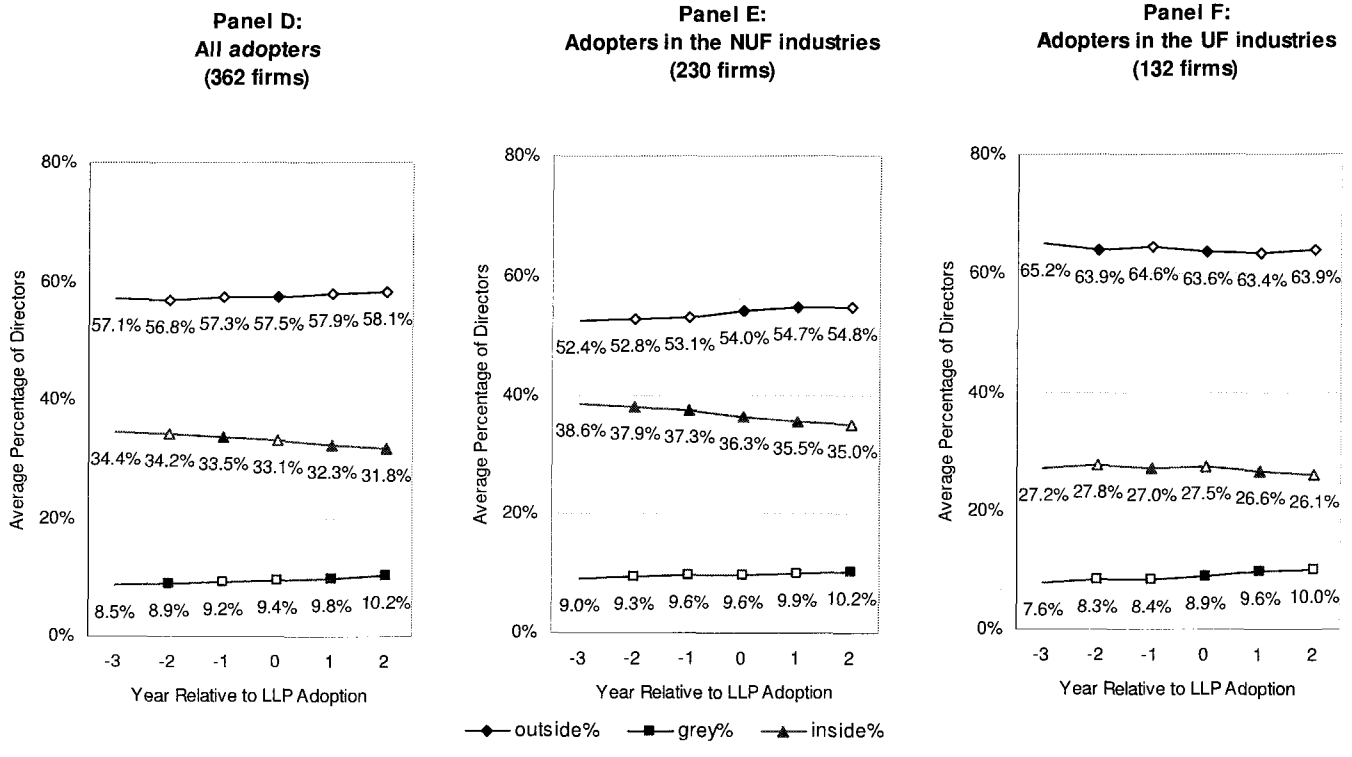


Figure 6: Prevalence of Incentive Plans for Outside Directors around the Adoption of LLP

This figure plots the prevalence of incentive plans for outside directors for the five consecutive years starting from three years preceding the adoption to the year immediately following the adoption. Panels A, B and C report results for all firms, NUF firms and UF firms, respectively. See Table 1 for variable definitions.

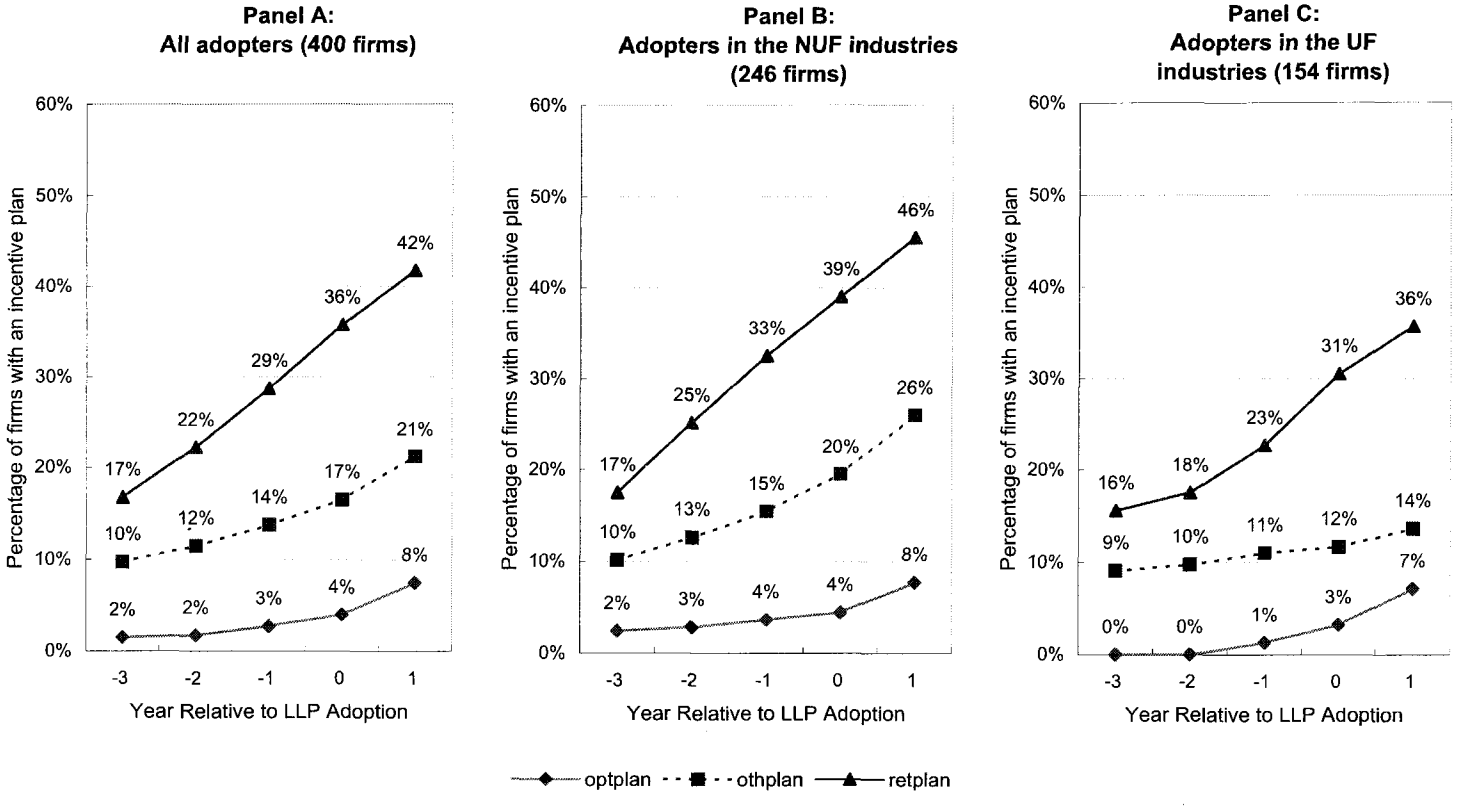
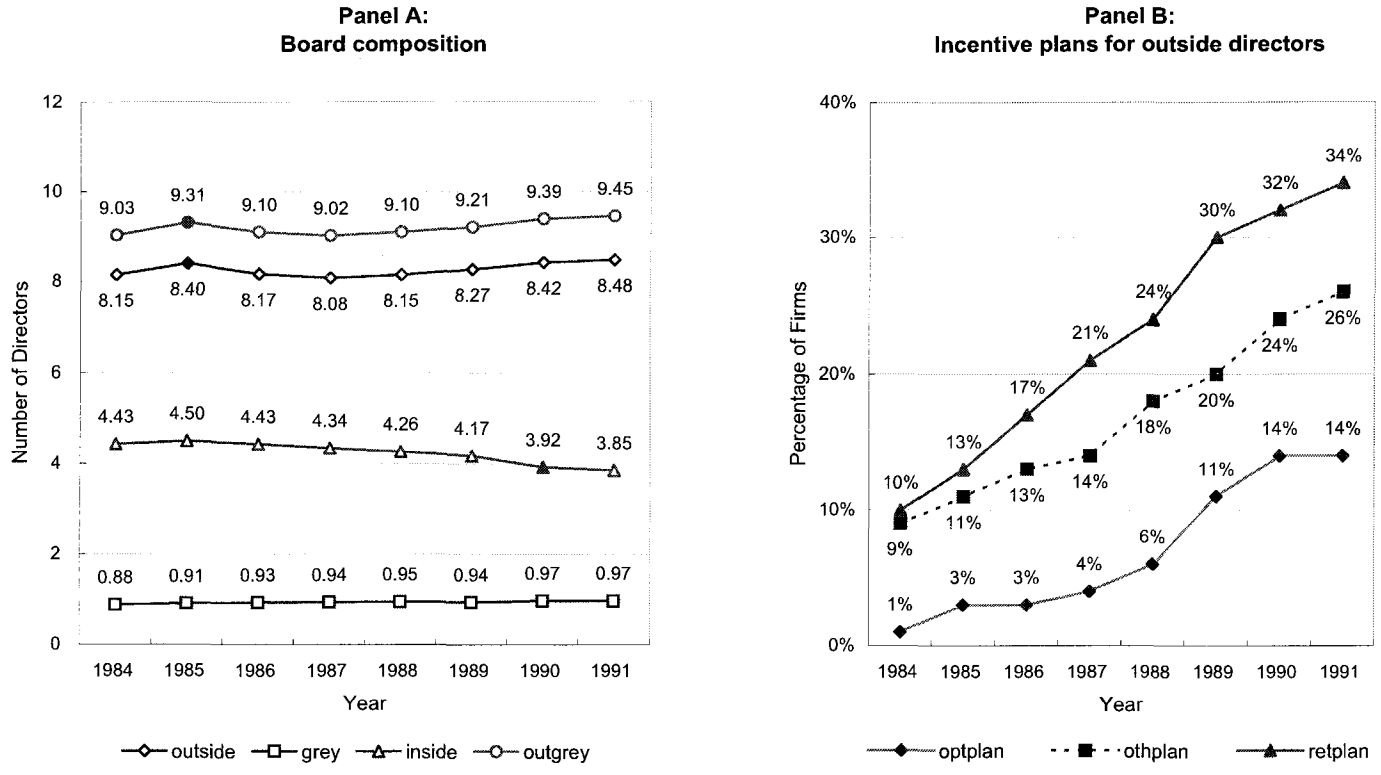


Figure 7: Prevalence of Incentive Plans for Outside Directors in Firms Opting Out of LLPs

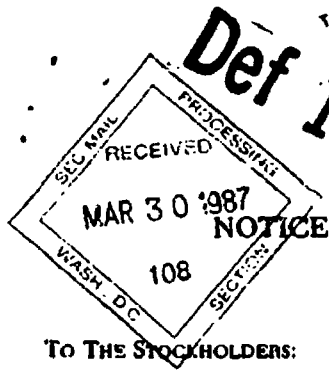
This figure plots the time-series of average board characteristics for non-adopter firms for 1984-1991. Panels A and B reports board composition and incentive plans for outside directors, respectively. In panel A, a solid data point on the trend line indicates a significant change from previous year to current year at the 1%, 5% or 10% levels in a paired t-test. See Table 1 for variable definitions.



Appendix C

Board proposal of adoption of an LLP

The following abridged proxy statement of Enron Corp. (for the 1987 proxy season) contains a proposal of adopting an LLP as well as reasons suggested by the board as to why an LLP is necessary. The title page routinely summarizes the purposes of the coming shareholder meeting, among which adoption of an LLP is brought to shareholders' attention. The two pages that follow outline the background of such a proposal and detailed procedural changes resulting from an adoption. As indicated by the "Background" section of the proxy statement, Enron's board was able to secure officer and director liability insurance coverage but experienced extraordinary increases in the cost of maintaining such insurance. Hence their main reason to adopt an LLP is the resulted cost savings of providing enough protection for board of directors in light of the insurance crisis.



Def 14A

ENRON CORP

NOTICE OF ANNUAL MEETING OF STOCKHOLDERS

April 30, 1987

TO THE STOCKHOLDERS:

Notice is hereby given that the annual meeting of stockholders of Enron Corp. ("Enron") will be held in the Ile de France Ballroom of the Doubletree Hotel at Allen Center, 400 Dallas St., Houston, Texas, at 10:00 a.m. Houston time on Thursday, April 30, 1987, for the following purposes:

1. To elect fifteen directors of Enron to hold office until the next annual meeting of stockholders and until their respective successors are duly elected and qualified.
2. To approve the amendment to Enron's Restated Certificate of Incorporation to limit the liability of directors to Enron or its stockholders and to provide for indemnification of directors and officers in accordance with recent amendments to the Delaware General Corporation Law.
3. To ratify the Board of Directors' appointment of Arthur Andersen & Co., independent certified public accountants, as Enron's auditors for the year ending December 31, 1987.
4. To transact such other business as may properly be brought before the meeting or any adjournment thereof.

Holders of record of Enron Common Stock and $10.50 Cumulative Second Preferred Convertible Stock at the close of business on March 3, 1987, will be entitled to notice of and to vote at the meeting or any adjournment thereof.

Stockholders who do not expect to attend the meeting are requested to sign and return the enclosed proxy, for which a postage-paid, return envelope is enclosed. The proxy must be signed and returned in order to be counted

By Order of the Board of Directors,

PEGGY B. MENCHACA
Corporate Secretary

Houston, Texas
March 26, 1987

Enron received investment advisory services from Duncan, Cooke & Company, a firm of which Mr. Duncan is a partner and director. Enron paid $325,000 for such services in 1986, which fees Enron believes to be reasonable for the services rendered. Mr. Duncan has advised Enron that he received no compensation from this transaction.

AMENDMENT TO ENRON'S RESTATED CERTIFICATE OF INCORPORATION

The Board of Directors has unanimously approved and recommends to the stockholders that they consider and approve the proposed amendment to Enron's Restated Certificate of Incorporation that would (i) with certain exceptions, eliminate the personal liability of a director to Enron or its stockholders for monetary damages for breach of fiduciary duty as a director, and (ii) clarify and define the rights of certain individuals, including Enron's officers and directors, to be indemnified by Enron. If the proposed amendment is approved, the Restated Certificate of Incorporation would be amended by deleting Paragraph (e) of Article XII (currently relating to indemnification of officers, directors, employees and agents) and by adding a new Article XVI. The text of both the deleted paragraph as well as the new article is set forth in Exhibit A hereto. *All stockholders should read Exhibit A as well as the following descriptive summary of the proposed amendment.*

Background. Directors and officers of a corporation rely on indemnity from, and insurance procured by, the corporation they serve as a financial backstop in the event of litigation or unforeseen liability. The Delaware legislature has recognized that adequate insurance and indemnity provisions are often conditions of an individual's willingness to serve as a director of a Delaware corporation. The Delaware General Corporation Law has for some time specifically permitted corporations to provide indemnity and procure insurance for their directors and officers. However, recent changes in the market for directors and officers liability insurance have resulted in the unavailability for directors and officers of many corporations of any meaningful liability insurance coverage. Insurance carriers have in certain cases declined to renew existing directors and officers liability policies, or have increased premiums to such an extent that the cost of obtaining such insurance becomes prohibitive. Increased costs, along with high deductibles and low limits of liability, have undermined meaningful directors and officers liability insurance coverage. According to published sources, the inability of corporations to provide meaningful director and officer liability insurance has had a damaging effect on the ability of public corporations to recruit and retain corporate officers and directors.

Recognizing the potential threat to Delaware corporations caused by the recent changes in the market for liability insurance for directors and officers, in June of this year the Delaware legislature enacted amendments of the Delaware General Corporation Law designed to permit Delaware corporations to limit director liability under certain circumstances and clarifying the scope of indemnification authorized by the statute. Accordingly, the Delaware legislature revised the Delaware General Corporation Law (i) so as to permit Delaware corporations to limit or eliminate personal liability of directors under certain circumstances by means of an amendment to the certificate of incorporation approved by stockholders, and (ii) to clarify the ability of corporations to provide substitute protection, in the form of indemnity.

Although Enron has been able to secure officer and director liability insurance coverage, it has experienced extraordinary increases in the cost of maintaining such insurance. Further, since the periods for which most carriers will insure have been reduced from multi-year to one year contracts, Enron is exposed to yearly renegotiation of premiums and coverage as well as potential cancellation in

the future. The proposed amendment, which is consistent with the recent amendment to the Delaware General Corporation Law, is designed to assure that Enron's directors and officers do not lose the protection they have held in the past if insurance coverage continues to decrease or becomes unavailable. Additionally, although Enron has not directly experienced the problem of not being able to recruit and retain officers and directors because of unavailability of meaningful insurance coverage, Enron's Board of Directors believes that Enron should take every possible step to ensure that it will continue to be able to attract individuals of the highest quality and ability to serve as its officers and directors.

Director Liability Paragraph 1 of the proposed amendment to the Restated Certificate of Incorporation eliminates personal liability of a director for monetary damages for breach of fiduciary duty, including monetary damages arising from a director's grossly negligent conduct in performance of his duties. However, it expressly does not provide for the elimination or limitation of the liability of a director for any (i) breach of the director's duty of loyalty to Enron or its stockholders, (ii) acts or omissions not in good faith or which involve intentional misconduct or knowing violation of the law, (iii) payment of unlawful dividends or approval of unlawful stock repurchases or redemptions as more fully set forth in Section 174 of the Delaware General Corporation Law, or (iv) transactions from which the director derived an improper personal benefit. *Liability of a director arising out of acts or omissions occurring before the adoption of the amendment to the Certificate of Incorporation will not be limited. Therefore, liability of a Director of Enron arising if there were any currently pending or threatened litigation against Enron would not be limited by approval of the proposed amendment.*

While Paragraph 1 of the proposed amendment would eliminate one source of monetary recovery available to Enron and its stockholders for a director's breach of his fiduciary duty, the Board of directors believes that it may encourage directors to make decisions which they believe to be in the best interest of Enron without the threat of personal liability for monetary damages for breach of fiduciary duty. The Board of Directors also believes that the proposed amendment will not reduce the accountability of the directors to the stockholders. Furthermore, although Paragraph 1 of the proposed amendment provides directors with protection from awards of monetary damages for breaches of the duty of care, it does not eliminate a director's duty of care. Accordingly, Paragraph 1 of the proposed amendment would have no effect on the availability of equitable remedies such as an injunction or rescission based upon a director's breach of the duty of care. In addition, Paragraph 1 would apply only to claims against a director arising out of his role as a director, and would not apply, if he is also an officer, to his role as an officer or in any capacity other than that of a director or to his responsibilities under any other law, such as federal securities laws.

The Board of Directors also believes that Paragraph 1 of the proposed amendment may involve cost savings to Enron since the proposed amendment would eliminate personal liability for monetary damages for breach of fiduciary duty, thus eliminating the necessity for indemnification under such circumstances. While Enron currently carries adequate director and officer liability insurance it is difficult to ascertain whether or not Enron will be afforded additional cost savings in its insurance premiums if the proposed amendment is adopted. Even if it is adopted, Enron will continue to maintain such coverage at levels it believes to be adequate.

Indemnification and Insurance Paragraph 2 of the proposed amendment would replace Paragraph (c) of Article XII of Enron's current Restated Certificate of Incorporation which provides that directors, officers and other individuals shall be indemnified by Enron to the full extent permitted by law. Under the Delaware General Corporation Law, directors and officers as well as other employees and individuals may be indemnified against expenses (including attorneys' fees), judgments, fines and

Appendix D

Shareholder proposal of restricting the protection of LLPs

The following abridged proxy statement of Verizon Communications Inc. for its 2005 proxy season contains a shareholder proposal to restrict the protection from existing LLPs in the corporate charter.

Notice of Annual Meeting of Shareholders of Verizon Communications Inc. (May 5, 2005)

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Item 7 on Proxy Card:

Sheet Metal Workers National Pension Fund, Edward F. Carlough Plaza, 601 N. Fairfax Street, Suite 500, Alexandria, Virginia 22314, owner of 85,600 shares of the Companys common stock, proposes the following:

RESOLVED:

That the shareholders of Verizon Communications, Inc. (Company) urge the Board

of Directors to initiate the process necessary to amend our Companys Certificate of Incorporation so that the Company directors will not be exempted from personal liability for monetary damages for grossly negligent conduct in the performance of their fiduciary duties.

SUPPORTING STATEMENT:

The fiduciary duties of directors of companies incorporated in Delaware, such as ours, can be summarized as duties of loyalty and care. The duty of care requires that directors inform themselves, prior to making a business decision, of all material information reasonably available to them, and once informed, they must act with requisite care in the discharge of their duties. A board of directors fulfillment of its duty of care is judged by a gross negligence standard, which means that a violation of the duty of care requires a finding of conduct that constitutes gross negligence.

In 1986, the state of Delaware amended the Delaware General Corporation Law to permit Delaware corporations to include in their certificate of incorporation a provision eliminating or limiting the personal liability of a director to the corporation or its shareholders for monetary damages for breach of the duty of care as a director, subject to certain limitations. Our Company has such a provision in its certificate of incorporation. It serves to protect our Companys directors, individually and collectively, from personal liability for monetary damages for violation of their duty of care resulting from gross negligence.

The director liability change urged by the proposal would simply add an exception to the limitations on director personal liability for monetary damages, and expose directors to potential monetary liability for grossly negligent conduct. Directors who dedicate adequate time and are diligent in performing their board responsibilities will meet the demands of their duty of care. Directors that are found to be grossly negligent in the conduct of their duties as corporate stewards will be subject to potential personal liability for mon-

etary damages caused by their actions. This heightened standard will encourage directors to demand the support and information necessary to enable them to meet the important responsibilities of their office.

We recognize that our Company must be able to attract quality directors. We believe that making directors potentially liable for monetary damages for gross negligence strikes the appropriate balance between the need to attract quality directors and the need to promote director accountability. A reasonable limitation on a directors level of exposure to personal monetary damages may be in order to strike this balance. Further, we believe that such a change would increase director accountability to shareowners who elect them, improve the corporate decision-making processes, and consequently improve long-term corporate value.

We urge your support for this important governance reform.

BOARD OF DIRECTORS' POSITION:

The Board of Directors firmly believes that in order to attract and retain qualified candidates, the Company must provide Board members with appropriate protections from liability consistent with the protections provided by other corporations with whom the Company competes for qualified directors. The frequency of litigation against corporate directors, the considerable expense involved in defending lawsuits (regardless of the substantive merits) and the inherent uncertainties with respect to the outcome of any litigation all combine to make the question of personal liability a very real concern for corporate directors. The Board of Directors believes that the Companys shareholders are better served by directors who are free to reasonably exercise their best business judgment.

The Companys Restated Certificate of Incorporation puts certain limits on a directors liability to the Company or its shareholders for monetary damages for breach of fiduciary duty. The Companys shareholders first adopted a provision limiting directors personal

liability in 1987. The Board expressed its belief that the provision would help ensure the Companys ability to recruit and retain competent directors, and the provision was approved by an affirmative vote of 93 percent of the votes cast. In 1996, the Companys shareholders approved the current provisions. However, directors remain liable for any breach of the duty of loyalty to the Company or its shareholders, for any act not in good faith or involving intentional misconduct or a knowing violation of the law and for any transaction from which the director derives an improper personal benefit.

The Board of Directors believes that implementation of the proponents proposal would inappropriately reduce the protections afforded by the Companys Restated Certificate of Incorporation and make Directors easier targets for non-meritorious lawsuits. Under the proposed amendment, potential plaintiffs would simply have to assert a claim of gross negligence in order to embroil a Board member in a costly court battle. Determining what does or does not constitute gross negligence involves legal and factual questions that do not lend themselves to simple definition. The uncertain results of litigation subject directors to considerable risks. Increased legal action would not only distract the directors subject to such claims, but would likely result in substantial additional costs to the Company.

For the foregoing reasons, the Board believes that changing the present director liability standards is not in the best interests of the Company or its shareholders.

The Board of Directors recommends a vote AGAINST this proposal.

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