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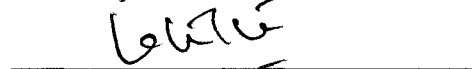
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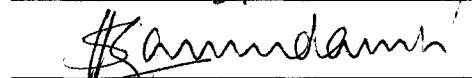
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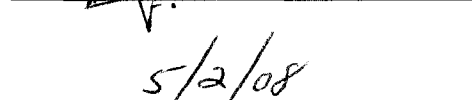
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and Corporate Governance

A Dissertation
Submitted
To the Temple University Graduate Board

In Partial Fulfillment
Of the Requirements for the Degree of
Doctor of Philosophy

By
Yuan Wen
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ABSTRACT

Title: Board Legal Expertise, Shareholder Activism, and Corporate Governance

Candidate's Name: Yuan Wen

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Existing studies on corporate governance mostly focus on board conflicts of interest and bias problems and often use board composition as the proxy for such characteristic of the board. We look at two important dimensions of corporate governance that are largely overlooked in the literature: board legal expertise and shareholder activism. This study consists of three essays and constitutes an empirical investigation of (a) how board legal expertise affect disclosure policy, (b) how board legal expertise impacts the cost of capital and what are the determinants of board legal expertise, and (c) how hedge fund activism affect bondholder value.

The first paper asks the question of whether board legal expertise affects disclosure policy. Firms have different levels of disclosure, due to the different competitive environments they face and the different degrees of agency conflicts between managers and outside investors. Even within mandatory disclosures, ample discretions are allowed on how to implement it. The board of directors, which is involved in advising and monitoring the managers, has a role in the disclosure policy decision-making process. Board members come to the board with different backgrounds and different sets of expertise. One type of expertise that is especially pertinent to legal-sensitive disclosure policy is legal expertise, which has been much emphasized by firms in their board appointment announcements.

Since information withholding and misrepresentation are associated with considerable legal risk, directors with legal expertise, who understand legal liabilities and the public effects of corporate behaviors better than others, should be associated with less information withholding or misrepresentation, leading to higher information quality. We look at two measures of disclosure policy: accounting conservatism and discretionary accruals quality. Using a sample of Russell 1000 industrial firms in 2003 and 2005, we find that board legal expertise is associated with greater accounting conservatism and higher discretionary accruals quality.

The second paper explores the determinants of board legal expertise by mainly looking at the factors that may affect firm disclosure. I find that larger firms and firms with higher leverage tend to have greater percentage of the boards represented by directors with legal expertise. Firms with greater board independence tend to have more directors with legal expertise, implying that board legal expertise may be a complement for board independence in reducing information withholding and manipulation problems. Technology firms and firms with high volatility tend to have fewer directors with legal expertise. I further explore the role of board legal expertise in improving information environment by examining the relation between board legal expertise and the firm's cost of capital. Using a sample of Russell 1000 industrial firms in 2003, I find that legal expertise on the board is negatively related to the cost of capital.

The third paper examines the impact of hedge fund activism on bondholder value. Hedge fund activism targets a wide array of problems related to the firm's governance, business strategies, and operations. Aggressive hedge fund activism may even urges to sell the firm, in order to "unlock shareholder value". Credit rating companies like Fitch has warned that shareholder activism has caused radical changes to the target firm's financial policies, to the potential detriment of creditors. We suggest that from a bondholder's point of view, there are benefits and costs associated with hedge fund activism. Hedge fund activism may benefit bondholders through better corporate governance and higher operational efficiency. However, hedge fund activism may harm bondholder value by increasing payout to shareholders or urging to spin-off some division or to sell the firm. We study the impact of hedge fund activism on bondholder value using a mean-adjusted model. Our results indicate that generally the bond market reacts negatively to hedge fund activism events. Hedge fund activism that urges to sell the firm is associated with more negative abnormal bond returns. Protective covenants may help to mitigate the negative effect of hedge fund activism on bondholder value.

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CHAPTER 1

BOARD LEGAL EXPERTISE AND DISCLOSURE POLICY

1.1. Introduction

SALT LAKE CITY, June 6/PRNewswire-FirstCall/--Overstock.com, Inc. (NASDAQ:OS TK) reported today that the Board of Directors has appointed Mr. Joseph J. Tabacco, Jr. to serve as an independent director for a term beginning June 6, 2007 and ending in 2008. The Board of Directors also appointed Mr. Tabacco to serve on the Audit and Compensation Committees. Mr. Tabacco is the managing partner of the San Francisco office of the law firm of Berman DeValerio Pease Tabacco Burt & Pucillo. Mr. Tabacco has actively litigated securities fraud, antitrust, commercial high tech, and intellectual property matters since the 1970s. Mr. Tabacco previously served as a trial attorney with the U.S. Department of Justice, Antitrust Division. Mr. Tabacco is an honors graduate of the George Washington University School of Law. "Joe's career has been spent enforcing good corporate governance and prosecuting securities fraud, even when committed by large Establishment players," said Patrick Byrne. "Overstock will be well-served to have on its board a man of such experience, character, and backbone". *PR Newswire US*, June 6, 2007

Firms have different levels of disclosure. Even within mandatory disclosures, ample discretions are allowed on how to implement it (Berger and Hann, 2007). Prior literature tends to highlight two factors that affect the level of disclosure, one is competitive concerns and the other is the agency conflict between managers and outside investors. Verrecchia (1983, 1990), Wagenhofer (1990) and Hayes and Lundholm (1996) find that proprietary cost, which is the cost incurred by a firm when information is useful to its competitors, tend to lower the level of disclosure. However, there are other papers that argue the effect of competition depends on whether firms compete on price or on capacity. Firms tend to disclose less if they compete on price and disclose more if they compete on capacity (Shin, 2002, for example).

Conflict of interest between managers and outside investors is another important factor that affects the level of disclosure. Managers may conceal negative information that reveals unresolved agency

problems, realizing that the revelation of such information will lead to heightened external monitoring. Furthermore, in the US, where management and ownership are largely separated, managers have many incentives to conceal adverse information. These incentives may come from managers' own career concerns or performance-based executive compensation schemes or other personal gains considerations such as insider trading and perquisite consumption. Since managerial compensation and dismissal decisions are based on firm performance, a CEO can reduce his likelihood of being dismissed or increase the level of his compensation by disclosing misleading information on firm performance. Extensive research has shown that managers opportunistically manipulate earnings information to maximize their compensations (see Healy, 1985; Pourciau, 1993 and Holthausen et al., 1995 for examples). There is also evidence that managers release misleading information when they intent to sell company shares (Trueman, 1990; Elitzur and Yaari, 1995; Bar-Gill and Bebchuk, 2003).

On the food chain of corporate disclosure, there are two major players before information flows to outside investors. The first one consists of disclosure policy decision-makers and the second consists of those who implement the disclosure policy (accountants for example) or verify the information being produced (auditors for example). CEOs are the ones who have the control on disclosure policy decision-making. However, the board of directors, both as advisors and monitors, has a role in this decision-making process. Board of directors is charged with overseeing and controlling managerial activities (Fama, 1980; Walsh and Seward, 1990). The monitoring role of the board of directors in disclosure would be to oversight and control the disclosure policy decision making process so that the interest of the shareholders and that of the CEOs are best aligned.

A firm's disclosure policy could be associated with considerable legal risks. Section 11 of the Securities Act and Rule 10b-5 of the Securities and Exchange Commission (SEC) both impose civil liability for making "an untrue statement of a material fact" or omitting "to state a material fact necessary in order to make the statements made not misleading" (Kellogg, 1984). Therefore, untrue statement or information withholding could both lead to shareholder lawsuits or SEC enforcement.

It is not surprising to find that different disclosure policy is associated with different level of legal risk. Field et al., (2005) find that voluntary disclosure of bad news prior to scheduled earnings

announcements deters certain types of litigation. Watts (2003) posits that financial information disclosure guided by accounting conservatism is associated with lower litigation risk. Palmrose and Scholz (2004) find that 83% of restatement that cause litigation involves upwardly managed earnings information. Ducharme, Malatesta and Sefcik (2004) find that upwardly managed earnings information is positively and significantly related to subsequent litigation to SEO firms.

We argue in this study that directors with legal backgrounds play a role in affecting disclosure policy. More specifically, directors with legal backgrounds, who by definition have greater appreciation of the legal risks associated with information disclosure, affect disclosure policy in such a way that disclosure risk, the political or legal impact of disclosure policy is minimized.

It is not hard to find arguments about how a director's legal background might be associated with greater board effectiveness. Chamberlain (1982) argues that directors with legal expertise understand legal liability and are more aware of the public effects of corporate choices. Pfeffer & Salancik (1978) suggest that a board of directors with lawyers has access to readily available information and legal expertise that may help maintain the board's legitimacy. Fisch and Gentile (2003) even propose that a "qualified legal compliance committee" constructed for "identifying, investigating, and responding to reports of misconduct" should include lawyers. All arguments point to the importance of lawyer- directors in reducing the legal risks associated with corporate behaviors.

Such importance is also manifested by the observations of firms' appointment of lawyers to their boards. It is not rare that companies hire people with legal backgrounds to their boards. Browsing through board appointment announcements, we find that many firms emphasize legal expertise possessed by new appointees to the boards. In a sample of Russell 1000 firms of 2003 and 2005, 48% (62%) of the boards have at least one director with legal background.

We use accounting conservatism and the quality of discretionary accruals as proxies for disclosure policy. Accounting Conservatism has been suggested to "reduces manager's ability and incentives to overstate earnings and net assets by requiring higher verification standards for gain recognition and reduces managers' ability to withhold information on expected losses" (Ahmed and Duellman, 2007; Watts, 2003). Empirical studies have shown that conservative accounting is associated with lower litigation risk

(DuCharme et al. 2004, Watts, 2003). In this study, we use two intensively used measures in prior research for accounting conservatism, market-to-book ratio and asymmetric timeliness of earnings (Basu, 1997; Watts, 2003).

The notion of accruals quality first appears in Dechow and Dichev (2002), who defines accruals quality as “the extent to which accruals map into cash flow realizations”. For firms with high accruals quality, there is little uncertainty about how its accruals map into cash flow realization. Therefore, a high accruals quality can reduce the shock of earnings restatements on stock price, leading to lower litigation risk¹. Francis et al. (2005) decompose accruals quality into two parts: innate accruals quality, which is influenced by economic factors and discretionary accruals quality, which is subject to managerial discretions. We focus on discretionary accruals quality in this study because it is the part that is influenced by managers.

We find that in a sample of Russell 1000 industrial firms in 2003 and 2005, firms with lawyers on their boards tend to be positively associated with accounting conservatism. Furthermore, firms with lawyers on the boards tend to have higher discretionary accruals quality. These findings are not driven by other board characteristics that may confound our findings, such as board affiliation problem and the presence of “problematic” directors on board. Further, these results are not associated with the accounting/auditing expertise of the board.

1.2. Hypothesis development

Extant studies have shown that the information environment of a firm has a significant impact on the level of risk faced by its investors. Easley and O’Hara (2004) conjecture that lacking public information, uninformed investors face the risk of “holding too much of stocks with bad news and too little of stocks with good news” because informed investors are able to adjust their portfolio weights to incorporate new information. They further suggest that information risk is not diversifiable because “uninformed investors are always on the wrong side”.

¹ Section 11 and Rule 10b-5 both require a causal relation between information misrepresentation and damages which are measured as stock price decline (Kellogg, 1984).

Firm disclosure policy is affected by a variety of factors. Prior research has mostly focused on the effects of competitive concerns and the agency conflict between outside investors and managers. When a firm discloses information to the public, it faces the risk that its competitors may use the information against it. Considering the cost associated with information being used by competitors, the firm may choose not to disclose the information. Empirical evidence on the negative relation between proprietary cost and the level of disclosure are not rare (see Verrecchia, 1983, 1990, Wagenhofer, 1990, Hayes and Lundholm, 1996 for example). Some other papers argue that the impact of competitive concerns on disclosure depends on the competitive strategy of the firm. Shin (2002), for example, suggests that firms tend to disclose less when they compete on price because for them, proprietary costs are greater than the benefits from increased disclosure. However, they may disclose more when they compete on capacity, for the benefit of lower cost of capital (Shin, 2002).

The separation of ownership from control that is typical of publicly traded firms in the United States gives rise to agency conflicts between managers and shareholders (Demsetz and Lehn, 1985, Jensen and Meckling, 1976, Shleifer and Vishny, 1997). Under such a regime, information disclosure is controlled by the managers, who have incentives to disclose misleading information with the purpose of concealing negative news (Wang, 2006). Trueman (1990), Elitzur and Yaari (1995) and Bar-Gill and Bebchuk (2003) suggest that managers release misleading financial information when they intend to sell company shares. Healy (1985), Pourciau (1993) and Holthausen et al., (1995) suggest that misleading financial information is associated with managers' incentive to maximize their compensations. The increasingly common use of equity-based compensation may have greatly intensified managers' incentive to release misleading information. Cheng and Warfield (2005) and Bergstresser and Philippon (2005) find that misleading financial information is significantly and positively related to the incentives provided by CEO stock and option holdings. Since managerial dismissal decisions are also based on firm performance, managers may release misleading information to reduce their likelihood of being dismissed for bad performance.

Different disclosure policies are associated with different levels of legal risk. Section 11 of the Securities Act and Rule 10b-5 of the Securities and Exchange Commission (SEC) both impose civil liability for information withholding and misrepresentation (Kellogg, 1984). Extensive empirical research

shows that legal risk differs across disclosure policies (Field et al., 2005; Watts, 2003; Palmrose and Scholz, 2004; Ducharme, Malatesta and Sefcik, 2004).

The board of directors, through its advising and monitoring activities, plays an important role in shaping the disclosure policy of the firm. Board members come to the board with heterogeneous backgrounds and expertise. Legal expertise of the board is especially pertinent to legal-sensitive disclosure policy. Since information withholding and misrepresentation are associated with considerable legal risk, directors with legal backgrounds, who understand legal liabilities and the public effects of corporate behavior better than others (Chamberlain, 1992), should be associated with less information withholding or misrepresentation, leading to higher information quality.

We adopt two measures of disclosure policy. One is accounting conservatism and the other discretionary accruals quality. Accounting conservatism reduce managers' incentive and ability to manage earnings (Chen et al., 2007) and to withhold information on expected losses (Ahmed and Duellman, 2007; Watts, 2003). For outside investors, conservative accounting provides more informative information on the potential loss of a firm. As such, accounting conservatism is suggested to be related to lower litigation risk (DuCharme et al. 2004, Watts, 2003).

We use discretionary accruals quality as another proxy for disclosure policy. Higher accruals quality indicates lower uncertainty about "the extent to which accruals map into cash flow realizations" (Dechow and Dichev, 2002). Therefore, an increase in accruals quality can reduce the shock of earnings announcement on stock price and therefore may lead to lower litigation risk. We focus on the discretionary portion of accruals quality because it is influenced by managerial behaviors instead of fundamental economic factors (Francis et al., 2005).

Based on the above analysis, we hypothesize as follows,

H1A: the presence of directors with legal background on the board/audit committee is positively related to accounting conservatism.

H1B: the presence of directors with legal background on the board/audit committee is positively related to discretionary accruals quality.

1.3. Sampling and the data

1.3.1 The Sample

Our initial sample consists of Russell 1000 firms as of 2003 and 2005. In the sampling process, we apply several restrictions. Firstly, we require the firms to have proxy statements in both years so that we are able to collect information on the directors. Secondly, we focus on non-regulatory non-financial firms.² Thirdly, we exclude “controlled” companies. A “controlled” company is a public company whose 50% or more voting power is controlled by another entity. The final sample consists of 615 industrial firms.

Directors could obtain legal expertise through two channels. One is their work experience with law firms and the other is the legal education they receive from law schools. Therefore, we try to find information on a director’s work experience as law firm partners and her possession of law degrees, such as JD, LL.M., or LL.D. There is a big variation across firms in terms of disclosure of information on director’s backgrounds. In their proxy statements, firms usually disclose the work experience of directors for the previous five years, sometimes even less. Furthermore, information on directors’ education background is missing for a majority of the sample firms. As the information from the proxy statements is far from sufficient, we collect the information on directors’ work experience as well as their educational backgrounds from various sources, including LexisNexis, google.com, the Dun and Bradstreet Reference Book of Corporate Management and Who’s Who in Finance and Industry and Mergent. The data on firm-level variables are from CompuStat, ExecuComp, Thomson Financial and Dun & Bradstreet’s American Corporate Families and International Affiliations.

1.3.2 Measuring disclosure policy and directors’ legal backgrounds

We adopt two measures of disclosure policy, accounting conservatism and discretionary accruals quality. Accounting conservatism has been suggested to curb managerial opportunism because it limits the room for manipulation by the managers. Under accounting conservatism, managers may have less incentive to engage in earnings management and withhold negative information (Chen et al, 2007). Watts (2003) posits that conservative financial reporting practice may alleviate litigation risk. Discretionary accruals quality measures the informativeness of earnings with respect to cash flows (Francis et al., 2005). Greater

2. Firms with SIC from 4900 to 4999 and 6000 to 6999 are thus dropped.

quality of discretionary accruals represents less uncertainty in the mapping of accounting earnings into cash flow realization, leading to reduced litigation risk.

We use two intensively used measures of accounting conservatism, market-to-book ratio and asymmetric timeliness of earnings (Basu, 1997; Watts, 2003). We adopt the following regression setting to examine the effect of board legal expertise on market-to-book ratio.

$$MTB = \alpha_0 + \sum_{i=0}^6 \beta_i Ret_i + \beta_7 Lawyer + \beta_8 CFO + Controls + \varepsilon \quad (1)$$

where MTB is the current market-to-book ratio of equity. Ret_i denotes the holding period stock return for the current year and the prior 6 years. CFO is current year operating cashflow divided by total assets. β₇ measures the effect of legal expertise on firm's market-to-book ratio, after controlling for economic rents and growth opportunity and other board related factors. If lawyer-directors help to alleviate disclosure risk by elevating conservative financial reporting practice, we expect to observe a positive estimate of β₇. The control variables will be explained in latter sections.

Our second measure of accounting conservatism is asymmetric timeliness of earnings. Basu (1997) suggests that financial reporting conservatism implies that bad news is incorporated more in earnings than good news. Therefore, by examining the extent of the asymmetric reflection of news on earnings, we can infer the degree of a firm's accounting conservatism. We incorporate multiple periods in the measuring process following Roychowdhury and Watts (2007), who suggest that incorporating multiple periods is necessary to measure the aggregate conservatism over prior years.

More specifically, we adopt the following regression to examine the relationship between board legal expertise and cumulative asymmetric timeliness of earnings over previous years.

$$E_{t-j,t} / P_{t,t-j-1} = \alpha_0 + \beta_1 D_{t-j,t} + \beta_2 R_{t-j,t} + \beta_3 D_{t-j,t} R_{t-j,t} + \beta_4 Lawyer_t + \beta_5 Lawyer_t D_{t-j,t} + \beta_6 Lawyer_t R_{t-j,t} + \beta_7 Lawyer_t D_{t-j,t} R_{t-j,t} + Controls_t + \varepsilon_t \quad (2)$$

where, E_{t-j,t} represents cumulative earnings (income before extraordinary items) over t-j to t, while j = 0 represents E_t. P_{t,t-j-1} denotes the market value of equity at the end of the year t. R_{t-j,t} represents buy-and-hold returns, beginning the 4th month of fiscal year t-j and ending 4 months after fiscal year t. D_{t-j,t} is a dummy variable which equals one when R_{t-j,t} is negative. Presumably, our primary focus is on β₇, which captures

the effect of board legal expertise on cumulative asymmetric timeliness of earnings (difference in effects of negative news and positive news on earnings). Following Roychowdhury and Watts (2006) and Ahmed and Duellman (2007), we use the 3-year backward accumulation approach. We will explain the control variables later.

Following Francis et al (2005), we estimate accruals quality as the inverse of the standard deviation of the residuals from regressions of current accruals on cash flows. Further, we decompose accruals quality into innate portion and discretionary portion, as the latter may be more likely to be influenced by managerial opportunistic behavior rather than economic factors. We focus on the discretionary portion of accruals quality.

More specifically, Francis et al. (2005) use an augmented version of Dechow & Dichev (2002) approach to estimate accruals quality. This augmented model regresses working capital accruals on cash from operations in the current year, preceding year and the future year, as well as the two fundamental variables from the Jones modified model, i.e., PP&E and changes in revenues. The unexplained portion of the variation in the cross-sectional regression residuals is an inverse measure of accruals quality. To decompose accruals quality into innate part and discretionary part, Francis et al. (2005) use some measures of firm's operating environment and business model as the innate factors, which include firm size, cash flow variation, sales variation, operating cycle length and incidence of negative earnings occurrences.

Following Francis et al. (2005), we estimate equation (3) for each of the Fama-French (1997) 48 industry groups for each year from 1999 to 2005.

$$TCA_{i,t} = \alpha_{0,i} + \beta_{1,i}CFO_{i,t-1} + \beta_{2,i}CFO_{i,t} + \beta_{3,i}CFO_{i,t+1} + \beta_{4,i}\Delta Rev_{i,t} + \beta_{5,i}PPE_{i,t} + v_{i,t} \quad (3)$$

Where,

$$TCA_{i,t} = \Delta CA_{i,t} - \Delta CL_{i,t} - \Delta Cash_{i,t} + \Delta STDEBT_{i,t}$$

$\Delta CA_{i,t}$ = firm i's change in current assets between year t-1 and year t;

$\Delta CL_{i,t}$ = firm i's change in current liabilities between year t-1 and year t;

$\Delta Cash_{i,t}$ = firm i's change in cash between year t-1 and year t;

$\Delta STDEBT_{i,t}$ = firm i's change in debt in current liabilities between year t-1 and year t;

$CFO_{i,t} = NIBE_{i,t} - TA_{i,t}$ = firm i's cash flow from operations in year t;

$\Delta Rev_{i,t}$ = firm i's change in revenues between year t-1 and year t;

$PPE_{i,t}$ = firm i's gross value of PPE in year t;

The firm- and year-specific residuals from annual cross-sectional estimation of equation (3) are then used to estimate accruals quality. We calculate the standard deviation of the residuals over year t-4 through year t for each of our sample firm-years. More specifically, for year 2003, the residuals over 1999 through 2003 are used to calculate the standard deviation and for 2005, the residuals over 2001 through 2005 are used to calculate the standard deviation. This standard deviation is denoted the inverse measure of firm's accruals quality, as higher variation of residuals indicates poorer accruals quality.

The second step is to decompose the accruals quality into innate portion and discretionary portion. More specifically, we regress the accruals quality measure from the first step on the innate factors, including firm size, standard deviation of cash flow from operations, standard deviation of sales, incidence of negative earnings and operating cycle of the firm. The model is specified as Equation (4). The error term of the regression represents the portion of accruals quality that is subject to the discretions of the managers, which is denoted discretionary accruals quality.

$$AQ_{i,t} = \alpha_0 + \alpha_1 Size_{i,t} + \alpha_2 \sigma(CFO)_{i,t} + \alpha_3 \sigma(Sales)_{i,t} + \alpha_4 Opercycle + \alpha_5 NegEarn_{i,t} + \xi_{i,t} \quad (4)$$

Where,

$AQ_{i,t}$ = standard deviation of $v_{i,t}$ in (1) over year t - 4 to t;

$Size_{i,t}$ = log of firm i's total assets in year t;

$\sigma(CFO)_{i,t}$ = standard deviation of firm i's cash flow from operations over last 10 years;

$\sigma(Sales)_{i,t}$ = standard deviation of firm i's sales over last 10 years;

$Opercycle_{i,t}$ = log of length of firm i's operating cycle, measured by sum of days accounts receivable and days inventory

$NegEarn_{i,t}$ = number of years firm i reported negative earnings over last 10 years

A legal background is defined as the possession of law firm experience or law degrees. The following measures of directors' legal backgrounds are used as proxies for board legal expertise:

LAW: the number of directors with law firm partnership experience.

LAWRATIO: LAW divided by total number of directors (board size).

LAWDUMMY: is 1 if LAW > 0; 0 otherwise.

LAWDEGREE: number of directors with law degree (JD, LL.D., LL.M., LL.B.).

LAWDEGREERATIO: LAWDEGREE divided by number of directors (board size).

LAWDEGREEDUMMY: is 1 if LAWDEGREE > 0; 0 otherwise.

LAWINAUDIT: number of directors with law firm experience on the audit committee.

LAWAUDITRATIO: LAWINAUDIT divided by audit committee size.

LAWAUDITDUMMY: is 1 if LAWINAUDIT > 0; 0 otherwise.

LAWDEGREEINAUDIT: number of directors with law degree on the audit committee.

LAWDEGREEAUDITRATIO: LAWDEGREEINAUDIT divided by audit committee size.

LAWDEGREEAUDITDUMMY: is 1 if LAWDEGREEINAUDIT > 0; 0 otherwise.

1.3.3 Control Variables

We include several control variables in the regression analyses. The control variables are not identical across regression specifications due to different dependent variables used. Leverage is long-term debt divided by firm's total assets at the start of the year. Firm size (Size) is the log of total assets at the start of the year. We control for institutional ownership by including the breadth of stock holdings by institutional investors (INSTB) at the start of the year, which is measured as the log of number of institutional investors (Parino, Sias and Starks, 2003; O'Brien and Bhushan, 1990). Board size is the number of directors on board. Outsider ratio (Outsideratio) is the number of independent directors divided by board size.

We include leverage as a control variable for two reasons. First of all, creditors use the information from financial reports in assessing firm health and viability. Therefore, they are highly concerned about the reliability and validity of financial reporting (Anderson et al., 2004). Secondly, prior studies suggest that higher levels of leverage tend to be associated with greater bondholder-shareholder conflicts, which affect the contractual demand for accounting conservatism (Ahmed, 2007; Ahmed et al., 2002; Zhang, 2006; Beatty et al., 2006).

Board size is included as a control variable for two reasons. First, board size may be an important determinant of the number of lawyer-directors on the boards because bigger boards have more capacity to contain larger numbers of lawyer-directors. Secondly, board size has been suggested to affect board effectiveness by prior studies. Yermak (1996) suggests that bigger boards are associated with lower firm value because of the problems of poor communication and decision-making. However, Coles, Daniel and Naveen (2008), suggest that for larger and more complex firms, bigger boards do a better monitoring job.

Board independence has been suggested to be important to board effectiveness, even though board composition seems to be effective on monitoring only under extraordinary circumstances (Hermalin and Weisbach, 2003). We expect that board legal expertise may be complementary or substitute for board independence in mitigating information manipulation problems.

Institutional ownership may serve as an alternative corporate governance mechanism because institutional investors' large stakes in the firm give them the incentive to monitor and their voting power allows them to influence managerial behavior (Shleifer and Vishny, 1986). However, the large stake owned by institutional investors may allow them to expropriate from other investors (Ahmed and Duellman, 2007). It is very hard to predict a priori the sign on institutional ownership because of the competing effects.

We try to filter out other characteristics of the board that may be associated with disclosure risk, thus confounding our results. First of all, since lawyer-directors are very sensitive to the legal risk associated with information manipulation, they will make sure that someone with accounting expertise is hired to the board to oversee the financial reporting process. In other words, it may be the accounting expertise of the board, not the legal expertise of the lawyer-directors that drive our empirical findings. Therefore, we need to filter out the accounting expertise effect by including board/audit committee accounting expertise in the regressions. We measure accounting expertise of the board/audit committee as the number of directors with a CFA/CPA certificate or partnership experience in accounting firms. Secondly, lawyer-directors in our sample may be confounded with "problematic" directors. "Problematic" directors³, by definition, are also associated with managerial misconduct and litigation risk. We include the ratio of the "problematic" directors on the board/audit committee to filter out the "problematic" director effect. Thirdly, lawyer-directors may belong to the subgroup of affiliated directors that provide professional advisory services to the firm. To maintain their stake in the firm, affiliated directors tend to endorse initiatives that are in favor of the CEOs and other top executives (Ellstrand et al., 2002). Therefore, affiliated directors may not challenge the management even if they are aware of any earnings management activity undergoing in the firm. Therefore, we include the ratio of affiliated directors in the regressions.

³ Problem Directors are those individuals who have been personally involved, as a director or executive, in one or more corporate bankruptcies, major litigation and regulatory infractions, major accounting restatements and other corporate scandals, or have served on Compensation Committees that have approved particularly egregious CEO compensation packages, or other similar circumstances.

For the models with accounting conservatism as the dependent variable, control variables also include R&D, G-score, CFO and Growth, as in Ahmed (2007). R&D is research & development expenditures divided by total assets. G-score is the governance index of 24 governance provisions as developed in Gompers, Ishii and Metrick (2003). CFO is cash flow from operations scaled by average total assets. Growth is the geometric sales growth rate over the past three years.

1.3.4 Summary Statistics

Table 1.1 presents descriptive statistics of the variables for the sample firms. The mean market-to-book ratio is 4.53 and the median is 3.13. These numbers are larger than those in Ahmed and Duellman (2007), mainly due to larger firm size in our sample. This sample bias is also demonstrated in the statistics for cumulative E/P ratio. As Givoly, Hayn and Natarajan (2007) report, larger firms tend to have a downward bias with respect to this ratio. The three-year cumulative E/R ratio has an average of 0.15 and median 0.14, while Roychowdhury and Watts (2007) report 0.34 and 0.29 respectively.

The mean discretionary accruals quality (DAQ) of the sample firms is 0.04 and the median is 0.03.⁴ On average, in our sample, each firm has one director with a law degree while only 0.7 director with law firm experience. The correlation of the number of directors with law degrees and that of directors with law firm experience is 0.72, which suggests that not every law-degree person has had some law practice. Within the audit committees, both numbers are much smaller, with the former being 0.41 and the latter 0.27. It may be interesting to note that the average percentage of directors with law firm experience (7%) and the average percentage of directors with law degrees (10%) are quite similar.

Property, Plant & Equipment account for 57% of the total assets of the average sample firm-year. The average debt ratio is 20%. For the average sample firm-year, 69% of the common equity is owned by institutional investors. The median board has ten directors and the median audit committee has four members. The average and median outside director ratio of the board is 77% and 78% respectively. The high independent director ratio on the board may simply reflect the fact that firms conform to the Sarbanes-Oxley Act and the new stock exchanges regulatory requirements on board independence.

4. Due to the fact that the DAQ is the error term from regression (2), the mean is supposed to be close to zero. However, since our sample firms are only part of the whole sample used in the regression, therefore, the mean DAQ for our sample firms is not necessarily zero.

Table 1.1. Descriptive Statistics

This table provides summary statistics for the data employed in our analysis. MTB is the book-to-market ratio. DAQ is discretionary accruals quality. LAW is the number of directors with law firm partnership experience. LAWRATIO is LAW divided by total number of directors (board size). LAWDEGREE is the number of directors with law degree. LAWDEGREERATIO is LAWDEGREE divided by number of directors. LAWINAUDIT is the number of audit committee members with law firm experience. LAWAUDITRATIO is LAWINAUDIT divided by audit committee size. LAWDEGREEINAUDIT is the number of audit committee members with law degree. LAWDEGREEAUDITRATIO is LAWDEGREEINAUDIT divided by audit committee size. PPE/total assets is the ratio of Property, Plant & Equip to total assets. LEVERAGE is long-term debt/total assets. Growth is the geometric sales growth rate over the past three years R&D is research & development expenditures divided by total assets. Firm Size is the log of total assets at the start of the year. σ (CFO) is the standard deviation of operating cash flow. σ (sales) is the standard deviation of sales. Institutional Investors is the number of institutional investors. OUTSIDERATIO is the percentage of outsider directors on the board. BOARDSIZE is the number of directors on board. AUDITSIZE is the number of directors on the audit committee. OUTSIDERRATIO is the proportion of independent directors. PROBLEMRATIO is the ratio of the number of problematic directors to the number of directors.

Variable	Mean	Median	S.D.	Minimum	Maximum
MTB	4.53	3.13	6.83	0.65	93.35
DAQ	0.04	0.03	0.03	-0.04	0.21
LAW	0.69	0.00	0.90	0.00	6.00
LAWRATIO	0.07	0.00	0.09	0.00	0.46
LAWDEGREE	1.07	1.00	1.11	0.00	7.00
LAWDEGREE RATIO	0.11	0.10	0.11	0.00	0.58
LAWINAUDIT	0.27	0.00	0.52	0.00	3.00
LAWAUDITRATIO	0.07	0.00	0.13	0.00	0.67
LAWDEGREEINAUDIT	0.41	0.00	0.63	0.00	4.00
LAWDEGREEAUDITRATIO	0.10	0.00	0.16	0.00	0.75
PPE/Total Assets	0.57	0.48	0.41	0.01	2.48
LEVERAGE	0.20	0.18	0.17	0.00	1.38
GROWTH	0.11	0.09	0.16	-0.49	1.29
R&D	0.04	0.02	0.06	0.00	0.52
SIZE (log of Total Assets)	8.16	7.96	1.33	4.39	13.53
σ (CFO)	0.06	0.05	0.06	0.01	0.93
σ (Sales)	0.21	0.16	0.17	0.00	1.90
Institutional Investors (number of)	348.11	270.50	232.51	89.00	1515.00
OUTSIDERATIO (Board)	0.77	0.78	0.12	0.31	1.00
BOARDSIZE	9.69	10.00	2.23	5.00	20.00
AUDITSIZE	3.91	4.00	1.02	1.00	8.00
PRPBLEM RATIO (Board)	0.02	0.00	0.05	0.00	0.44

The maximum ratio of “problematic” directors is as high as 44% among our sample firm-years although the average level is only 2%. Firms also show some variations in the percentage of directors with accounting expertise, with the maximum being 80%, the minimum being 0 and the average level being 17%. As for the percentage of affiliated directors, the average level is 11% and the maximum is 75%.

The innate factors are somewhat comparable to Francis et al (2005), although our sample years are more recent than theirs. More specifically, operating cycle of ours is 131 days and theirs is 182 days. The mean standard deviation of cash flow from operations is 0.06 in our sample and 0.09 in theirs. The average standard deviation of sales is 0.21 in our sample and 0.26 in theirs. In our sample, 13% of the firms report negative earnings over last 10 years and in theirs, 19.3%. It seems to us that the main reason for the differences lies in the firm size. On average, the firm size of our sample is 8.16 and theirs is 4.80. As a matter of fact, our sample seems to match that of Dechow and Dichev better. Overall, compared to Francis et al, our sample firms are bigger and seem to operate in more stable environments.

1.4. Regression Analysis

1.4.1 OLS regression

We first present the OLS results with accounting conservatism measures as the dependent variables, and then we present corresponding results with discretionary accruals quality as the dependent variable. Table 1.2 presents the results when we use market-to-book ratio as the measure of corporate financial reporting conservatism. All measures of board legal expertise except for the number of directors with law degree are positively and significantly related to the market-to-book ratio, implying that board legal expertise is associated with greater accounting conservatism.

Institutional investor breadth and outsider ratio are both found to be positively related to market-to-book ratio, suggesting that institutional investors and outsider directors play a role in elevating accounting conservatism. R&D is positively related to accounting conservatism. This is consistent with Ahmed (1994) that suggests that R&D may “capture economic rents generated by assets-in-place, growth opportunities, and GAAP mandated conservatism”. Finally, grey director ratio, problematic director ratio and board

Table 1.2. OLS Results for Market-to-Book Ratio on Board Legal Expertise

This table reports results of the following model: $(\text{market-to-book})_{it} = \delta_0 + \delta_1 (\text{director's legal expertise})_{it} + \delta_{2-9} (\text{control variables})_{it} + \varepsilon_{it}$. LAW is the number of directors with law firm partnership experience. LAWRATIO is LAW divided by total number of directors (board size). LAW DUMMY is 1 if LAW > 0 and 0 otherwise. LAW DEGREE is the number of directors with law degree. LAW DEGREERATIO is LAW DEGREE divided by number of directors. LAW DEGREEDUMMY is 1 if LAW DEGREE > 0 and 0 otherwise. OUTSIDERATIO is the number of independent directors divided by board size. LEVERAGE is long-term debt divided by firm's total assets at the start of the year. SIZE is the log of total assets at the start of the year. INSTB is the log of number of institutional investors at the start of the year. INSIDEROWN is the percentage of common shares owned by corporate insiders. R&D is research & development expenditures divided by total assets. CFO is cash flow from operations scaled by average total assets. Growth is the geometric sales growth rate over the past three years. Greyratio is the number of affiliated directors divided by board size. ACCOUNTINGEXPERTISE is the number of directors with accounting expertise. trs1yr is the annual stock return. Ln.trs1yr is the n-year lag of annual stock return.

	(1)	(2)	(3)	(4)	(5)	(6)
LAWRATIO	7.328** (2.26)					
LAWDEGREERATIO		4.084* (1.65)				
LAW			0.714** (2.21)			
LAWDEGREE				0.392 (1.59)		
LAWDUMMY					1.124** (2.13)	
LAWDEGREEDUMMY						1.022** (2.22)
OUTSIDERATIO	3.293** (1.99)	3.177* (1.93)	3.178* (1.91)	3.192* (1.94)	3.474** (2.08)	3.268** (2.00)
LEVERAGE	1.315 (0.34)	1.237 (0.32)	1.344 (0.35)	1.278 (0.33)	1.640 (0.42)	1.494 (0.39)
SIZE	-0.119 (-0.32)	-0.144 (-0.39)	-0.116 (-0.32)	-0.147 (-0.40)	-0.130 (-0.35)	-0.147 (-0.39)
INSTB	2.592** (2.11)	2.566** (2.12)	2.598** (2.11)	2.568** (2.12)	2.578** (2.12)	2.518** (2.10)
INSIDEROWN	0.000 (0.62)	0.000 (0.59)	0.000 (0.60)	0.000 (0.58)	0.000 (0.68)	0.000 (0.70)
R&D	10.50** (2.18)	10.55** (2.16)	10.31** (2.12)	10.39** (2.11)	10.07** (2.05)	9.998** (2.03)
Growth	-0.042** (-2.09)	-0.042** (-2.06)	-0.043** (-2.11)	-0.043** (-2.07)	-0.044** (-2.12)	-0.043** (-2.07)
CFO	11.623*** (2.79)	11.915*** (2.88)	11.673*** (2.81)	11.966*** (2.89)	12.240*** (2.94)	12.282*** (2.94)

Table 1.2. (continued)

	(1)	(2)	(3)	(4)	(5)	(6)
Greyratio	-0.012 (-1.12)	-0.009 (-1.22)	-0.011 (-1.32)	-0.010 (-1.11)	-0.008 (-1.36)	-0.009 (-1.22)
Problemratio	-0.021 (-0.98)	-0.032 (-1.19)	-0.025 (-1.01)	-0.030 (-1.11)	-0.029 (-0.99)	-0.030 (-1.10)
ACCOUNTINGEXPERTISE	0.118 (0.74)	0.112 (0.70)	0.115 (0.72)	0.108 (0.68)	0.108 (0.68)	0.107 (0.67)
trs1yr	0.010 (1.45)	0.010 (1.41)	0.010 (1.48)	0.010 (1.41)	0.010 (1.45)	0.010 (1.42)
L.trs1yr	0.015 (1.23)	0.015 (1.21)	0.015 (1.23)	0.015 (1.20)	0.015 (1.23)	0.015 (1.18)
L2.trs1yr	0.001 (0.18)	0.001 (0.15)	0.001 (0.20)	0.001 (0.15)	0.002 (0.23)	0.001 (0.19)
L3.trs1yr	0.008 (1.33)	0.008 (1.32)	0.008 (1.34)	0.008 (1.33)	0.009 (1.44)	0.009 (1.38)
L4.trs1yr	0.001 (0.68)	0.001 (0.58)	0.001 (0.68)	0.001 (0.58)	0.001 (0.86)	0.001 (0.80)
L5.trs1yr	0.001 (0.47)	0.001 (0.47)	0.001 (0.45)	0.001 (0.48)	0.002 (0.78)	0.002 (0.71)
L6.trs1yr	0.000 (0.017)	-0.000 (-0.23)	0.000 (0.015)	-0.000 (-0.22)	0.000 (0.37)	0.000 (0.17)
Constant	1.595 (1.59)	1.791* (1.81)	1.614 (1.61)	1.826* (1.84)	1.237 (1.41)	1.213 (1.41)
Industry Dummy	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1152	1152	1152	1152	1152	1152
Adjusted R-squared	0.37	0.36	0.37	0.36	0.37	0.37

accounting expertise are not significantly related to the market-to-book ratio. These characteristics of the board seem not to overlap with the effect of lawyer-directors on accounting conservatism.

Table 1.3 shows the results when we use asymmetric timeliness of earnings to measure conservatism. Our focus is on the coefficient β_7 (in equation (2)), which measures the influence of board legal expertise on the extent of the asymmetric incorporation of good news and bad news into firm's earnings. We expect to see a positive coefficient if lawyers are associated with greater accounting conservatism. We use 3-year cumulative approach as suggested by Roychowdhury and Watts (2007) and Ahmed and Duellman (2007).

We find that β_7 is positive and significant, implying that board legal expertise is associated with bad news being incorporated more in earnings than good news. This finding is consistent across different measures of legal expertise of the board. Our results suggest that when there are more lawyers on the boards, firms are more likely to adopt accounting conservatism.

We further examine the relation between lawyers on the board and firm's discretionary accruals quality. We first apply OLS and then use random-effects in the panel regressions. Table 1.4 presents the OLS regression results, focusing on legal expertise of the full board. Column 1-6 of Tale 1.4 show that all measures of board legal expertise are significantly and negatively related to the inverse measure of discretionary accruals quality, implying that directors with legal backgrounds are associated with higher discretionary accruals quality. Results remain qualitatively and quantitatively similar if we winsorize the extreme values of the discretionary accrual quality to the 1 and 99 percentiles. The results are consistent with the hypothesis that lawyers are more alert to the legal risks associated with the shock of earnings announcement on stock price.

Firm size is negatively related to the inverse measure of accruals quality, implying that larger firms have higher discretionary accruals quality. This is consistent with the notion that larger firms have less information asymmetry problems (Datta, Iskandar-Datta and Patel, 1997). Our results also show that board size is positively related to discretionary accruals quality. Considering the fact that the firms in our sample tend to be large firms, our results are very consistent with Coles, Daniel and Naveen (forthcoming, JFE). Firm leverage is negatively related to the inverse measure of discretionary accruals quality, suggesting that

Table 1.3. OLS Results for Asymmetric Timeliness of Earnings on Board Legal Expertise

This table reports results of the following model:

$$E_{t-j,t} / P_{t,t-j-1} = \alpha_0 + \beta_1 D_{t-j,t} + \beta_2 R_{t-j,t} + \beta_3 D_{t-j,t} R_{t-j,t} + \beta_4 Lawyer_t + \beta_5 Lawyer_t D_{t-j,t} + \beta_6 Lawyer_t R_{t-j,t} + \beta_7 Lawyer_t D_{t-j,t} R_{t-j,t} + Controls_t + \varepsilon_t$$

$E_{t-j,t}$ represents cumulative earnings (income before extraordinary items) over t-j to t, while j = 0 represents E_t . $P_{t,t-j-1}$ denotes the market value of equity at the end of the year t. $R_{t-j,t}$ represents buy-and-hold returns, beginning the 4th month of fiscal year t-j and ending 4 months after fiscal year t. $D_{t-j,t}$ is a dummy variable which equals one when $R_{t-j,t}$ is negative. In column (1), LAW is the number of directors with law firm partnership experience. In column (2), LAW is the proportion of directors with law firm experience. In column (3), LAW is 1 if there is at least on director with law firm experience and 0 otherwise. In column (4), LAW is the number of directors with law degree. In column (5), LAW is the percentage of directors with law degree. In column (6), LAW is 1 if there is at least on director with law degree and 0 otherwise. OUTSIDERATIO is the number of independent directors divided by board size. LEVERAGE is long-term debt divided by firm's total assets at the start of the year. SIZE is the log of total assets at the start of the year. INSTB is the log of number of institutional investors at the start of the year. R&D is research & development expenditures divided by total assets. CFO is cash flow from operations scaled by average total assets. Growth is the geometric sales growth rate over the past three years. Greyratio is the number of affiliated directors divided by board size. Problemratio is the number of problematic directors divided by board size. ACCOUNTINGEXPERTISE is the number of directors with accounting expertise. Trslr is the annual stock return. Ln.trslr is the n-year lag of annual stock return.

	(1)	(2)	(3)	(4)	(5)	(6)
D	-0.016 (-0.17)	-0.011 (-1.35)	-0.047 (-0.39)	-0.008 (-0.34)	-0.001 (-1.36)	-0.018 (-1.31)
Return	0.129 (1.36)	0.126 (1.59)	0.327 (1.37)	0.326 (1.42)	0.361 (1.58)	0.329 (1.28)
Return*D	0.414* (1.69)	0.438* (1.75)	0.511* (1.76)	0.461* (1.69)	0.442* (1.78)	0.457* (1.78)
LAW	0.037* (1.74)	0.723* (1.89)	0.162** (2.03)	0.063* (1.68)	0.648* (1.75)	0.180* (1.92)
LAW x D	-0.023 (-0.36)	-0.418 (-0.52)	-0.166 (-1.32)	-0.066 (-1.14)	-0.774 (-1.38)	-0.424 (-1.44)
LAW x return	-0.096 (-0.75)	-0.894 (-0.76)	-0.081 (-0.67)	-0.061 (-0.96)	-0.492 (-0.80)	-0.102 (-0.89)
LAW x return x D	0.058** (1.99)	0.221** (2.18)	1.495*** (2.86)	0.058*** (2.78)	0.089** (2.58)	2.119** (2.32)
OUTSIDERATIO	0.205* (1.84)	0.169* (1.84)	0.174 (1.48)	0.179 (1.59)	0.218 (0.96)	0.216* (1.89)
LEVERAGE	-0.543*** (-3.04)	-0.542*** (-3.03)	-0.562*** (-3.14)	-0.550*** (-3.07)	-0.546*** (-3.06)	-0.546*** (-3.05)
SIZE	0.029 (0.96)	0.031 (1.01)	0.025 (1.12)	0.028 (1.22)	0.028 (1.28)	0.029 (1.31)
INSTB	0.342 (1.24)	0.333 (1.22)	0.333 (1.26)	0.335 (1.64)	0.329 (1.21)	0.321 (1.60)
R&D	-0.648* (-1.84)	-0.665* (-1.92)	-0.625* (-1.75)	-0.671* (-1.91)	-0.623* (-1.76)	-0.670* (-1.95)

Table 1.3. (continued)

	(1)	(2)	(3)	(4)	(5)	(6)
Growth	0.004 (1.41)	0.004 (1.43)	0.004 (1.53)	0.004 (1.54)	0.004 (1.45)	0.004 (1.51)
CFO	1.194** (2.07)	1.191** (2.07)	1.182** (2.08)	1.216** (2.11)	1.187** (2.04)	1.207** (2.10)
Greyratio	-0.054 (-1.00)	-0.050 (-1.22)	-0.044 (-1.40)	-0.055 (-1.07)	-0.033 (-1.44)	-0.048 (-1.17)
Problemratio	-0.020 (-1.35)	-0.030 (-1.44)	-0.039 (-1.23)	-0.020 (-1.45)	-0.042 (-1.25)	-0.033 (-1.20)
ACCOUNTINGEXPERTISE	0.029 (1.57)	0.029 (1.58)	0.027 (1.48)	0.026 (1.45)	0.029 (1.53)	0.027 (1.49)
Constant	-0.669** (-2.13)	-0.678** (-2.16)	-0.653** (-2.08)	-0.646** (-2.06)	-0.678** (-2.17)	-0.660** (-2.11)
Industry Dummy	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1182	1182	1182	1182	1182	1182
Adj. R-squared	0.34	0.34	0.33	0.34	0.35	0.34

firms with higher leverage exhibit higher discretionary accruals quality. This may be driven by the fact that debt holders are especially concerned about the quality of financial reporting (Smith, 1993 and Leftwich, 1983). Consistent with Ellstrand et al. (2002), the percentage of affiliated directors seems to be associated with lower discretionary accruals quality. Board accounting expertise is associated with higher discretionary accruals quality, which is consistent with Defond et al., (2005), who suggest that board accounting expertise may help to maintain financial reporting integrity. The percentage of outside directors and the percentage of problematic directors do not seem to be significantly related to discretionary accruals quality.

1.4.2 Panel Regressions Analyses

We also use panel regressions to repeat the prior tests. The advantage of panel regression is its ability to address potential unobserved time-invariant heterogeneity of firms. As the Hausman test reveals that random-effects model may be better than fixed-effects setting, we only run random-effect regressions. The results of random-effects regressions show great similarities with those obtained by OLS. Lawyers on

Table 1.4. OLS Results for Discretionary Accruals Quality on Board Legal Expertise

This table reports results of the following model: $(\text{Discretionary accruals quality})_{it} = \delta_0 + \delta_1 (\text{director's legal background})_{it} + \delta_{2-9} (\text{control variables})_{it} + \varepsilon_{it}$. LAW is the number of directors with law firm partnership experience. LAWRATIO is LAW divided by total number of directors (board size). LAW DUMMY is 1 if LAW > 0 and 0 otherwise. LAWDEGREE is the number of directors with law degree. LAWDEGREERATIO is LAWDEGREE divided by number of directors. LAWDEGREEDUMMY is 1 if LAWDEGREE > 0 and 0 otherwise. OUTSIDERATIO is the number of independent directors divided by board size. LEVERAGE is long-term debt divided by firm's total assets at the start of the year. SIZE is the log of total assets at the start of the year. INSTB is the log of number of institutional investors at the start of the year. GREYRATIO is the percentage of affiliated directors. PROBLEMRATIO is the percentage of "problematic" directors. ACCOUNTING is the number of directors with accounting expertise.

	Dependent Variable: Discretionary Accruals Quality					
	(1)	(2)	(3)	(4)	(5)	(6)
LAWRATIO	-0.041*** (2.91)					
LAWDEGREERATIO		-0.027*** (3.77)				
LAW			-0.004*** (3.43)			
LAWDEGREE				-0.003*** (3.11)		
LAW DUMMY					-0.007** (3.50)	
LAWDEGREE-DUMMY						-0.003* (1.72)
OUTSIDERATIO	0.010 (1.28)	0.009 (1.22)	0.010 (1.28)	0.010 (1.24)	0.010 (1.21)	0.008 (1.08)
LEVERAGE	-0.018** (2.50)	-0.019*** (2.61)	-0.018** (2.51)	-0.019*** (2.60)	-0.018** (2.45)	-0.019*** (2.63)
SIZE	-0.003*** (3.17)	-0.003*** (3.36)	-0.003*** (3.18)	-0.003*** (3.35)	-0.003*** (3.06)	-0.003*** (3.38)
INSTB	0.000 (0.01)	0.000 (0.10)	0.000 (0.01)	0.000 (0.11)	0.000 (0.05)	0.000 (0.22)
GREYRATIO	0.011 (1.53)	0.014** (1.98)	0.011 (1.61)	0.014* (1.96)	0.011 (1.56)	0.015** (2.11)
PROBLEMRATIO	0.001 (0.09)	0.002 (0.17)	0.001 (0.08)	0.002 (0.16)	0.001 (0.03)	0.003 (0.19)
ACCOUNTING	-0.001 (1.52)	-0.001* (1.67)	-0.001 (1.55)	-0.001* (1.68)	-0.001 (1.62)	-0.001* (1.68)
CONSTANT	0.073*** (6.47)	0.074*** (6.57)	0.071*** (6.17)	0.073*** (6.41)	0.072*** (6.36)	0.076*** (6.59)
OBSERVATIONS	1182	1182	1182	1182	1182	1182
Adj. R-squared	0.42	0.41	0.42	0.41	0.42	0.41

board and audit committee are found to be positively and significantly associated with firm's discretionary accruals quality. Tables are available upon request.

1.5. Endogeneity

Our analysis potentially suffers from some endogeneity problems. For one thing, there may be some firm-specific characteristics that are simultaneously related to board legal expertise and our measures of disclosure policy. Our findings that board legal expertise is associated with greater discretionary accruals quality and accounting conservatism may be just a reflection of such relations. We use two-stage least squares regressions to address this issue.

The instrument variable is critical in two-stage least squares regressions. Weak instruments will result in inconsistency of the estimates and larger standard errors (and therefore insignificant results) (Wooldridge, 2002). Unfortunately, it is usually hard to find proper instrument variables. We use a mechanical way to generate pseudo-instruments, as suggested in Wooldridge (2002). The merit of this approach is that the generated instruments usually satisfy the correlation conditions fairly well. The drawback of this approach may be that it is hard to interpret the meaning of the generated instrument variable.

Table 1.5 shows the results from our test that uses the generated instrument for board legal expertise as an explanatory variable and MTB as the dependent variable. More specifically, the generated instrument is simply a pseudo-dummy variable which equals to 1 if the endogenous variable is within the top 1/3 of all observations, 0 if the endogenous variable is within the middle 1/3 and -1 if the endogenous variable belongs to the bottom 1/3 (Marial and Orbe, 2005). Initiated by Durbin (1954), this methodology is especially useful when it is hard to find meaningful instrumental variable. The results from the two-stage least squares regressions are quite similar to the ones from our OLS regressions. Table 1.6 presents the results for discretionary accruals quality. Again, we find that board legal expertise is associated with higher discretionary accruals quality.

Another potential endogeneity problem is that it is not clear whether board legal expertise influences disclosure policy or lawyers prefer firms with certain disclosure policies. Risk-averse lawyers may choose

Table 1.5. 2SLS - BOARD LEGAL EXPERTISE AND ACCOUNTING CONSERVATISM

This table reports the results of a 2SLS regression of the market-to-book ratio on board legal expertise. In the first stage we run the following regression:

$$\text{Board Legal Expertise}_i = \delta_0 + \delta_1 (\text{generated instrument})_i + \delta_2 (\text{OUTSIDERATIO})_i + \delta_3 (\text{LEVERAGE})_i + \delta_4 (\text{SIZE})_i + \delta_5 (\text{INSTB})_i + \delta_6 (\text{INSIDEROWN})_i + \delta_7 (\text{R\&D})_i + \delta_8 (\text{GROWTH})_i + \delta_9 (\text{CFO})_i + \delta_{10} (\text{GREYRATIO})_i + \delta_{11} (\text{PROBLEMRATIO})_i + \delta_{12} (\text{ACCOUNTINGEXPERTISE})_i + \varepsilon_i$$

We only show the results of the second stage regression, which is specified as follows:

$$(\text{market-to-book})_{it} = \delta_0 + \delta_1 (\text{predicted board legal expertise})_{it} + \delta_2 (\text{OUTSIDERATIO})_i + \delta_3 (\text{LEVERAGE})_i + \delta_4 (\text{SIZE})_i + \delta_5 (\text{INSTB})_i + \delta_6 (\text{INSIDEROWN})_i + \delta_7 (\text{R\&D})_i + \delta_8 (\text{GROWTH})_i + \delta_9 (\text{CFO})_i + \delta_{10} (\text{GREYRATIO})_i + \delta_{11} (\text{PROBLEMRATIO})_i + \delta_{12} (\text{ACCOUNTINGEXPERTISE})_i + \varepsilon_i$$

LAW is the predicted number of directors with law firm partnership experience. LAWRATIO is the predicted ratio of directors with law firm experience. LAWDEGREE is the predicted number of directors with law degrees. LAWDEGREERATIO is the predicted ratio of directors with law degrees. OUTSIDERATIO is the number of independent directors divided by board size. LEVERAGE is long-term debt divided by firm's total assets at the start of the year. SIZE is the log of total assets at the start of the year. INSTB is the log of number of institutional investors at the start of the year. INSIDEROWN is the percentage of common shares owned by corporate insiders. R&D is research & development expenditures divided by total assets. CFO is cash flow from operations scaled by average total assets. Growth is the geometric sales growth rate over the past three years. Greyratio is the number of affiliated directors divided by board size. Problemratio is the number of problematic directors divided by board size. ACCOUNTING is the number of directors with accounting expertise. trsl1yr is the annual stock return. Ln.trsl1yr is the n-year lag of annual stock return.

	Dependent Variable: Market-to-book Ratio			
	(1)	(2)	(3)	(4)
LAWRATIO	9.002**			
	(2.11)			
LAWDEGREERATIO		3.211		
		(1.17)		
LAW			0.516	
			(1.17)	
LAWDEGREE				0.245
				(0.82)
OUTSIDERATIO	2.407	2.187	2.338	2.206
	(1.58)	(1.40)	(1.53)	(1.40)
LEVERAGE	0.524	0.570	0.564	0.579
	(0.12)	(0.12)	(0.12)	(0.13)
SIZE	-0.321	-0.287	-0.290	-0.279
	(-1.20)	(-1.09)	(-1.09)	(-1.05)
INSTB	2.933**	2.871**	2.916**	2.877**
	(2.04)	(2.04)	(2.03)	(2.04)
INSIDEROWN	0.000	0.000	0.000	0.000
	(0.96)	(0.83)	(0.84)	(0.80)
R&D	5.235	5.091	4.840	4.863
	(0.75)	(0.71)	(0.68)	(0.68)
Growth	-0.050**	-0.049**	-0.049**	-0.049**
	(-2.23)	(-2.19)	(-2.20)	(-2.19)
CFO	16.392**	16.755**	16.666**	16.806**

Table 1.5. (continued)

	(1)	(2)	(3)	(4)
	(2.47)	(2.51)	(2.51)	(2.52)
Greyratio	-0.023	-0.013	-0.014	-0.011
	(-1.33)	(-1.43)	(-1.37)	(-1.29)
Problemratio	-0.025	-0.036	-0.027	-0.033
	(-1.21)	(-1.33)	(-1.42)	(-1.32)
ACCOUNTING	0.269	0.257	0.270	0.259
	(1.11)	(1.08)	(1.10)	(1.09)
trs1yr	0.008	0.008	0.008	0.008
	(1.34)	(1.28)	(1.34)	(1.28)
L.trs1yr	0.008	0.008	0.008	0.008
	(0.86)	(0.86)	(0.86)	(0.86)
L2.trs1yr	0.002	0.002	0.002	0.002
	(0.44)	(0.38)	(0.43)	(0.38)
L3.trs1yr	0.001	0.0001	0.001	0.001
	(0.24)	(0.23)	(0.22)	(0.22)
L4.trs1yr	0.003	0.003	0.003	0.003
	(1.41)	(1.23)	(1.25)	(1.19)
L5.trs1yr	0.003	0.003	0.003	0.003
	(1.44)	(1.39)	(1.39)	(1.38)
L6.trs1yr	-0.000	-0.001	-0.000	-0.001
	(-0.21)	(-0.62)	(-0.44)	(-0.65)
Constant	3.338	3.400	3.657	3.615
	(1.40)	(1.39)	(1.46)	(1.40)
Industry Dummy	Yes	Yes	Yes	Yes
Observations	1152	1152	1152	1152
Adjusted R-squared	0.37	0.36	0.37	0.36

firms that are conservative in accounting or firms with high accruals quality. If that is the case, one alternative interpretation of finding significantly positive relation between board legal expertise and discretionary accruals quality is that firms with high accruals quality in the past tend to be more attractive to lawyers on the director market and such high accruals quality persists into the current period. To adjust for this phenomenon, we include the 1-year lagged discretionary accruals quality of the firm as an additional independent variable. Table 1.7 shows the result. Including the 1-year lag of discretionary accruals quality does not alter our primary results.

We also check our regression results when we apply different specifications. First, we choose to control the industry effects by de-median the variables by industry medians (Ahmed and Duellman, 2007). That is, we use the raw values minus the median value of the firms in the same industry group to replace the raw values in the regressions. We follow Fama and French (1997) to divide firms into 48 industry groups based on the 4-digit SIC codes. We find qualitatively similar results.

Secondly, we apply some robustness check by including additional control variables in the regressions. More specifically, we include G-score, R&D expenditure and sales growth in the regressions for discretionary accruals quality. Again, we find very similar results.

Thirdly, we also include a dummy for high-tech industry firms as they may have greater litigation risk due to the nature of their operations (such as patents). We find that the results are largely unchanged when the dummy is included. Overall, we do not find that different model specifications alter our empirical findings.

1.6. Conclusion

It is not unusual for companies to put lawyers on their boards. We study the impact of board legal expertise on disclosure policy, using a unique, manually collected dataset. We look at two measures of disclosure policy, accounting conservatism and discretionary accruals quality. Our results indicate that directors' legal backgrounds are associated with greater accounting conservatism and higher discretionary accruals quality. The results are consistent with the hypothesis that directors with legal backgrounds are more alert to the legal risks associated with information withholding and misrepresentation and therefore would monitor the financial reporting process more intensively to avoid such risks.

Table 1.6. 2SLS Results: Discretionary Accruals Quality and Board Legal Expertise

This table reports the results of a 2SLS regression of discretionary accruals quality on board legal expertise. In the first stage we run the following regression:

$$\text{Board Legal Expertise}_i = \delta_0 + \delta_1(\text{generated instrument})_i + \delta_2(\text{OUTSIDERATIO})_i + \delta_3(\text{LEVERAGE})_i + \delta_4(\text{SIZE})_i + \delta_5(\text{INSTB})_i + \delta_6(\text{INSIDEROWN})_i + \delta_7(\text{R\&D})_i + \delta_8(\text{GROWTH})_i + \delta_9(\text{CFO})_i + \delta_{10}(\text{GREYRATIO})_i + \delta_{11}(\text{PROBLEM_RATIO})_i + \delta_{12}(\text{ACCOUNTINGEXPERTISE})_i + \varepsilon_i$$

We only show the results of the second stage regression, which is specified as follows:

$$(\text{discretionary accruals quality})_{it} = \delta_0 + \delta_1(\text{predicted board legal expertise})_{it} + \delta_2(\text{OUTSIDERATIO})_i + \delta_3(\text{LEVERAGE})_i + \delta_4(\text{SIZE})_i + \delta_5(\text{INSTB})_i + \delta_6(\text{INSIDEROWN})_i + \delta_7(\text{R\&D})_i + \delta_8(\text{GROWTH})_i + \delta_9(\text{CFO})_i + \delta_{10}(\text{GREYRATIO})_i + \delta_{11}(\text{PROBLEM_RATIO})_i + \delta_{12}(\text{ACCOUNTINGEXPERTISE})_i + \varepsilon_i$$

LAW is the predicted number of directors with law firm partnership experience. LAWRATIO is the predicted ratio of directors with law firm experience. LAWDEGREE is the predicted number of directors with law degrees. LAWDEGREERATIO is the predicted ratio of directors with law degrees. OUTSIDERATIO is the number of independent directors divided by board size. LEVERAGE is long-term debt divided by firm's total assets at the start of the year. SIZE is the log of total assets at the start of the year. INSTB is the log of number of institutional investors at the start of the year. Greyratio is the number of affiliated directors divided by board size. Problemratio is the number of problematic directors divided by board size. ACCOUNTINGEXPERTISE is the number of directors with accounting expertise.

Variable	Dependent Variable: Discretionary Accruals Quality			
	(1)	(2)	(3)	(4)
LAWRATIO	-0.035** (-2.28)			
LAWDEGREERATIO		-0.018** (-2.04)		
LAW			-0.003** (-2.40)	
LAWDEGREE				-0.001* (-1.73)
OUTSIDERATIO	0.028*** (2.73)	0.029*** (2.85)	0.028*** (2.74)	0.029*** (2.84)
LEVERAGE	0.016 (1.63)	0.016 (1.62)	0.016 (1.59)	0.016 (1.61)
SIZE	-0.004** (-2.52)	-0.004** (-2.55)	-0.004*** (-2.58)	-0.004*** (-2.58)
INSTB	-0.003 (-0.69)	-0.003 (-0.63)	-0.003 (-0.61)	-0.003 (-0.64)
GREYRATIO	0.005 (0.57)	0.006 (0.66)	0.006 (0.69)	0.006 (0.70)
PROBLEM_RATIO	0.028* (1.77)	0.027* (1.74)	0.028* (1.79)	0.028* (1.77)
ACCOUNTINGEXPERTISE	-0.000 (-0.48)	-0.000 (-0.58)	-0.000 (-0.53)	-0.000 (-0.60)
CONSTANT	0.031** (1.98)	0.029* (1.85)	0.029* (1.86)	0.029* (1.81)
Observations	1182	1182	1182	1182
Adj. R-squared	0.42	0.41	0.42	0.41

Table 1.7. OLS Results for Discretionary Accruals Quality on Board Legal Expertise Controlling for Lag Discretionary Accruals Quality

This table reports results of the following model: $(\text{Discretionary accruals quality})_{it} = \delta_0 + \delta_1 (\text{board legal expertise})_{it} + \delta_2 (\text{lag of discretionary accruals quality}) + \delta_{3-10} (\text{control variables})_{it} + \varepsilon_{it}$. L.DAQ is the lag of discretionary accruals quality. LAW is the number of directors with law firm partnership experience. LAWRATIO is LAW divided by total number of directors (board size). LAWDUMMY is 1 if LAW > 0 and 0 otherwise. OUTSIDERRATIO is the number of independent directors divided by board size. LEVERAGE is long-term debt divided by firm's total assets at the start of the year. SIZE is the log of total assets at the start of the year. INSTB is the log of number of institutional investors at the start of the year. GREYRATIO is the percentage of affiliated directors. PROBLEM is the percentage of "problematic" directors. ACCOUNTINGEXPERTISE is the number of directors with accounting expertise.

Variable	Dependent Variable: discretionary accruals quality		
	(1)	(2)	(3)
L.DAQ	0.130*** (4.89)	0.131*** (4.91)	0.131*** (4.98)
LAWRATIO	-0.0796* (-1.78)		
IAWDUMMY		-0.00869** (-1.97)	
OUTSIDERRATIO	-0.0234 (-0.72)	-0.0240 (-0.74)	-0.0248 (-0.75)
LEVERAGE	-0.00687 (-0.19)	-0.00740 (-0.20)	-0.00863 (-0.24)
SIZE	0.00712** (2.53)	0.00676** (2.33)	0.00682** (2.38)
INSTB	0.000505 (0.021)	0.00124 (0.052)	0.00344 (0.15)
GREYRATIO	-0.0897* (-1.72)	-0.0913* (-1.75)	-0.0921* (-1.74)
PROBLEM	0.00439 (0.99)	0.00385 (0.88)	0.00408 (0.94)
ACCOUNTINGEXPERTISE	-0.00549*** (-2.74)	-0.00532*** (-2.67)	-0.00531*** (-2.68)
Constant	-0.0247 (-0.62)	-0.0215 (-0.53)	-0.0247 (-0.62)
Observations	590	590	590
Adjusted R-squared	0.26	0.26	0.27

CHAPTER 2

BOARD LEGAL EXPERTISE AND THE COST OF CAPITAL

2.1. Introduction

Corporate governance studies generally suggest that managers have information advantage over outsider investors on the firm's operations. However, managers may have various incentives to withhold or manipulate information for the sake of their own personal benefits (Easley and O'Hara (2004), Trueman, 1990; Elitzur and Yaari, 1995). Bar-Gill and Bebchuk (2003) conjecture that managers have incentives to manipulate earnings when they intend to sell some of their share holdings. Performance-based CEO compensation and CEO career concerns may give CEOs further incentives to manipulate information. Since managerial compensation and dismissal decisions are based on firm performance, a CEO can reduce his likelihood of being dismissed or increase the level of his compensation by withholding negative information or disclosing misleading information on firm performance (see Healy, 1985; Pourciau, 1993 and Holthausen et al., 1995 for examples).

From the perspective of outside investors, one important factor that may curb the information manipulation/withholding problems is effective monitoring by the board of directors. Extant studies have provided evidence that board monitoring helps to reduce managerial opportunism and increase both the quantity (see Eng and Mak, 2003; Gul and Leung, 2004) and the quality of information disclosure (see Ajinkya, Bhojraj, and Sengupta, 2005; Karamanou and Vafeas 2005). However, prior studies mostly focus on board conflicts of interest and bias problems and often use board composition as the proxy for such characteristic of the board. Nevertheless, the assumption of director homogeneity may be inconsistent with the fact that every director comes into the board with a different background and a different set of expertise.

As far as we know, there are few papers that look at the role of director expertise in corporate governance.⁵ In this paper, we focus on one type of expertise that is especially relevant to information disclosure- legal expertise, which has been much emphasized by firms in their announcements of board appointments yet not examined by prior studies.

It is not hard to find arguments about how a director's legal background might be associated with greater board effectiveness. Chamberlain (1982) argues that directors with legal expertise are more likely to understand and be alert to the legal liabilities and the public effects of corporate choices. Pfeffer & Salancik (1978) posit that a board of directors with lawyers has access to readily available information and legal expertise that may help maintain the board's legitimacy. Fisch and Gentile (2003) even propose that a "qualified legal compliance committee" constructed for "identifying, investigating, and responding to reports of misconduct" should include lawyers. All arguments point to the importance of lawyer- directors in reducing the potential legal risks associated with corporate behaviors.

Information withholding and manipulations are associated with considerable legal risks. Section 11 of the Securities Act and Rule 10b-5 of the Securities and Exchange Commission (SEC) both impose civil liability for making 'an untrue statement of a material fact' or omitting 'to state a material fact necessary in order to make the statements made not misleading' (Kellogg, 1984). Palmrose and Scholz (2004) find that 83% of restatement that cause litigation involves previous upward earnings management, which is a form of financial information manipulations. Ducharme, Malatesta and Sefcik (2004) find that earnings management is positively and significantly related to subsequent litigation to SEO firms.

Lawyer-directors can be of great value to the board in alleviating the information withholding and manipulation problems because they possess legal expertise in compliance and because they are, by definition, more alert to the legal risks associated with information withholding and manipulation. We expect that firms that hire lawyers as directors may be those with more information withholding or manipulation problems or those that attach greater importance to information environment. As such, we explore the determinants of board legal expertise by mainly looking at the factors related to information disclosure.

⁵ One exception is Defond et al (2005), who find evidence that the market values the financial expertise of audit committee members.

Prior studies mainly focus on two factors that affect the disclosure policy of a firm, one is competitive concerns and the other is the agency conflicts between managers and outside investors. Studies that focus on the effect of competitive concerns tend to conclude that firms in more competitive industries tend to disclose less because they have to bear higher proprietary cost, the cost incurred by a firm when information is useful to its competitors (Verrecchia, 1983, Wagenhofer, 1990 and Hayes and Lundholm, 1996). However, information withholdings may be associated with considerable legal risk. Section 11 of the Securities Act and Rule 10b-5 of the Securities and Exchange Commission (SEC) both impose civil liability for information withholding and misrepresentation (Kellogg, 1984). We expect that firms in more competitive industry would hire more lawyers to their boards as lawyers are more alert to legal risk and better able to tell what disclosure behaviors may cause legal consequences.

Conflict of interest between managers and outside investors is another important factor that affects the level and quality of disclosure. Managers may conceal negative information that reveals unresolved agency problems because the revelation of agency problems will lead to heightened external monitoring (Berger and Hann, 2007). Managers also have many incentives to manipulate information disclosure (see Bergstresser and Philippon, 2006; Botosan and Stanford, 2005; Dechow, 1996; Defond and Jiambalvo, 1994; Healy, 1985; Holthausen et al., 1995). We expect that such conflict of interest would be more severe if the CEO has more power. As a result, we would be able to observe more lawyer-directors in firms where the CEOs have more power. We consider CEO power as a determinant of board legal expertise and use CEO duality (the fact that CEO also works as the chairman of the board) as a measure of CEO power.

In an information environment that is characterized by conflict of interest between managers and outside investors, board legal expertise may serve as a corporate governance mechanism that is a complement or a substitute for other corporate governance mechanisms in addressing information withholding and/or manipulation problems driven by agency conflicts between managers and outside investors. We therefore include several other corporate governance mechanisms, including board independence, institutional ownership and insider ownership as determinants of board legal expertise. We expect the associations between board legal expertise and other corporate governance variables may be of either direction.

Creditors who use the information from financial reporting in assessing firm health and viability may be especially concerned about the reliability and validity of financial reporting (Smith and Warner, 1979). From a creditor's perspective, perhaps one of the most important factors influencing the integrity of the financial accounting process involves the board of directors (Anderson and Reeb, 2004). We consider leverage as a determinant of the presence of lawyers on the board, with the expectation that firms with higher leverage ratios tend to have higher demand for high quality financial reporting and therefore higher demand for board legal expertise.

Other variables considered as determinants of board legal expertise include technology intensity and volatility. It is most likely that technology-intensive firms would hire fewer lawyers and instead more people with technical backgrounds to their boards. Therefore, we include R&D expenditure and a dummy variable that indicates whether a firm is a technology firm as explanatory variables for board legal expertise. We consider volatility as a determinant of lawyers on the board because lawyers are said to be risk-averse (Painter, 2004). We control for firm size in all regressions concerning the determinants of board legal expertise.

We find that in a sample of Russell 1000 industrial firms in 2003, board legal expertise is significantly related to other corporate governance mechanisms. More specifically, board legal expertise is positively associated with board independence at the 1% level, indicating that board legal expertise and board independence may be complementary for each other in reducing information withholding and manipulation problems. Board legal expertise is also positively associated with insider ownership and institutional ownership, although at a marginally significant level. Technology firms and firms with high volatility tend to have fewer directors with legal backgrounds. There are also marginally significant results showing that firms with higher leverage tend to have greater percentage of the boards represented by directors with legal backgrounds, which may be driven by the fact that creditors are especially concerned about the quality of information and therefore tend to favor directors with legal backgrounds. We also find that larger firms tend to hire more lawyers as directors

We further examine the role of board legal expertise in reducing information withholding and manipulation problems by looking at the relation between board legal expertise and the cost of capital. The

cost of capital is a fundamental factor to consider in a variety of corporate decision makings like the determination of the hurdle rate for investment and the capital structure compositions (Easley and O'Hara, 2004). Extensive research has indicated that there is a significant relation between the information environment of the firm and the cost of capital. For instance, Sengupta (1998) finds that firms with higher disclosure quality enjoy lower cost of debt. Bhattacharya, Daouk and Welker (2003) indicate that an increase in earnings opacity is associated with higher cost of equity. Francis et al. (2005) shows that the quality of financial reporting is negatively related to the cost of both types of capital.

Recently, there is a growing body of literature that highlights the undiversifiable nature of information risk and conjectures that the quantity and quality of information affect the required return of assets (Easley and O'Hara, 2004; O'Hara, 2003, Lambert, Leuz and Verrecchia, 2007). Easley and O'Hara (2004) suggest that lacking public information, uninformed investors face the risk of "holding too much of stocks with bad news and too little of stocks with good news" because informed investors are able to adjust their portfolio weights to incorporate new information. They further suggest that information risk is undiversifiable because "uninformed investors are always on the wrong side". Uninformed investors as such will require higher returns as compensation. In the story of Easley and O'Hara, information with low quality (informativeness) is misleading to investors and therefore also contributes to undiversifiable information risk. Lambert, Leuz and Verrecchia (2007) go beyond the indirect link between information quality and the cost of capital based on market liquidity and suggest that information with low quality impairs the alignment between the firm and its investors with regard to capital investment decisions, thereby creating undiversifiable information risk.

Based on the information risk theories, we can infer that if board legal expertise helps to improve the information environment of a firm, it may manifest itself in lower cost of capital. Using our sample of Russell 1000 industrial firms in 2003, we examine the relation between board legal expertise and the cost of capital, controlling for the standard determinants of the cost of capital. We find that board legal expertise is negatively associated with the cost of capital. Our results show that a firm with at least one director with law firm experience enjoys a 30 basis points lower cost of capital than firms with no lawyer-director; a firm with at least one director with law degree enjoys a 40 basis points lower cost of capital than firms with no

director with law degree. Our results seem to suggest that lawyers on the boards help to improve corporate information environment and lower the cost of capital.

2.2. Hypothesis development

Prior research shows that managers have many incentives to manipulate information to conceal negative news. Healy (1985), Pourciau(1993) and Holthausen et al. (1995) suggest that managers manipulate earnings information in order to maximize their own compensations. The increasingly common use of equity-based compensation may have greatly intensified managers' incentive to release misleading information. Cheng and Warfield (2005) and Bergstresser and Philippon (2005) find that misleading financial information is significantly and positively related to the incentives provided by CEO stock and option holdings. Trueman (1990), Elitzur and Yaari (1995) and Bar-Gill and Bebchuk (2003) posit that managers may also release misleading information when they intent to sell company shares. The association between insider trading and information manipulation has been well documented by empirical studies. Park and Park (2004), for example, find that managers of insider sales firms deliberately inflate reported earnings through discretionary accruals.

One thing that investors may count on to curb information withholding and/or manipulation is the board of directors, which is charged with monitoring the managers (Anderson and Reeb, 2004). The board of directors consists of directors with different backgrounds and expertise. One type of expertise that may help to address information withholding and manipulation problems is legal expertise because directors with legal backgrounds understand legal liabilities and the public effects of corporate behaviors better than others (Chamberlain, 1982) and therefore should be more sensitive to the legal risk associated with information withholding and/or manipulation. If board legal expertise plays an important role in reducing information withholding and manipulation problems, we would be able to observe that firms with more information withholding or manipulation problems and firms that attach greater importance to information environment hire more lawyers as directors. As such, we explore the determinants of board legal expertise by focusing on factors that affect information disclosure.

Prior studies mainly focus on competitive concerns and the agency conflicts between managers and outside investors as determinants of firm disclosure policy. Verrecchia (1983), Wagenhofer (1990) and Hayes and Lundholm (1996), for example, find that proprietary cost, which is the cost incurred by a firm when information is useful to its competitors, tend to lower the level of disclosure. Firms in more competitive industries may therefore disclose less to avoid higher proprietary costs. However, information withholding could lead to serious legal consequences. It is very likely that firms facing more competitors have higher demand for board legal expertise to mitigate the legal risk associated with information withholding. We therefore consider industry competitiveness as a determinant of board legal expertise and hypothesize as follows:

Hypothesis 1: firms in more competitive industries have higher demand for board legal expertise

The conflict of interest between managers and outside investors is another important determinant of firm disclosure policy. Berger and Hann (2007) posit that managers may conceal negative information to avoid heightened external monitoring, if such information reveals unresolved agency problems. Another dimension of agency problem that may affect disclosure is that under the agency conflict context, managers have many incentives to manipulate information (Dechow, 1996). The conflict of interest may be more severe when CEO has more bargaining power against the board (Fama and Jensen, 1983; Hermalin, and Weisbach, 1988, Brickley et al., 1994). We expect that in firms where CEOs jointly serves as chairs, the CEOs have more bargaining power against the board and therefore the demand for board legal expertise by outside investors is higher. Accordingly, we hypothesize as follows:

H2: CEO duality is positively related to board legal expertise

We expect that companies may use board legal expertise as an alternative corporate governance mechanism as a complement or a substitute for other corporate governance mechanisms that may help to control the information withholding and/or manipulation problems caused by agency conflicts. We therefore consider several corporate governance mechanisms, including board independence, institutional ownership and insider ownership as determinants of board legal expertise.

A number of prior studies suggest that board independence is associated with more effective corporate governance and better performance (Brickley et al., 1994; Byrd and Hickman, 1992; Weisbach,

1988). Others document a negative relation between board independence and the incidence of financial fraud (Beasley, 1996; Dechow et al., 1996; Farber, 2005) and earnings manipulations (Klein, 2002.). We expect that board legal expertise may be a complement or a substitute for board independence in controlling information manipulation problems. Therefore:

Hypothesis 3 a: board legal expertise is positively associated with board independence

Hypothesis 3 b: board legal expertise is negatively associated with board independence

Institutional ownership may serve as an alternative corporate governance mechanism because institutional investors' large stakes in the firm give them the incentive to monitor and their voting power allows them to influence managerial behavior (Shleifer and Vishny, 1986; Parrino et al, 2003). Therefore, we hypothesize as follows:

Hypothesis 4 a: board legal expertise is positively associated with institutional ownership

Hypothesis 4 b: board legal expertise is negatively associated with institutional ownership

Insider ownership is another alternative corporate governance mechanism because it aligns the interest of shareholders with that of the insiders. Consistent with the interest-alignment story, empirical evidence show that insider ownership is negatively associated with earnings manipulation (Warfield et al., 1995). With regard to the relation between board legal expertise and insider ownership, we hypothesize as follows:

Hypothesis 5 a: board legal expertise is positively associated with insider ownership

Hypothesis 5 b: board legal expertise is negatively associated with insider ownership

Creditors have long used the information from financial reports in assessing firm health and viability (Smith and Warner, 1979). Managers as such, may have incentives to manipulate financial information to conceal negative news and thereby obtain additional financing on more favorable terms or avoid costly renegotiating process (Dechow et al., 1996). As a result, creditors may be especially concerned about the reliability and validity of financial reporting. One thing they may count on for more reliable financial information is the board of directors (Anderson, Mansi and Reeb, 2004). We expect that firms with higher leverage ratios tend to have higher demand for high-quality information and therefore tend to hire more lawyers to their boards. Therefore,

Hypothesis 6: board legal expertise is positively associated with leverage

Adding lawyer-directors to the board may help to reduce information manipulation and withholding and improve the information environment of the firm. However, there are costs associated with hiring lawyers as directors. Technology-intensive firms may need more inputs from directors with technical backgrounds central to the firm's mission. Given board size, hiring more lawyer-directors would mean fewer directors with technical backgrounds. Therefore, we expect that technology-intensive firms would hire fewer lawyers. We use R&D expenditure and a dummy variable: Technology Firms to proxy for the demand for technical backgrounds. Firms are classified as Technology Firms if they are in SIC codes 2833–2836, 3570–3577, 3600–3674, 7371–7379 or 8731–8734, following Field et al. (2005). We expect that technology firms and firms with higher R&D expenditures would have fewer lawyers on board.

In addition, we consider volatility as determinants of board legal expertise because lawyers may be more risk-averse and therefore more likely to avoid firms with high volatility (Painter, 2004). Volatility is measured as the standard deviation of stock returns during the prior 60 months. With regard to technology intensity and volatility, we hypothesize as follows:

Hypothesis 7: board legal expertise is negatively associated with the firm's technology intensity

Hypothesis 8: board legal expertise is negatively associated with the firm's stock return volatility

Recently, a growing body of literature suggests that information risk is a non-diversifiable risk factor for investors and therefore an important determinant of the cost of capital (Easley and O'Hara, 2004; Lambert, Leuz and Verrecchia, 2007). Easley and O'Hara conjecture that both the amount of public information and the precision (quality) of public and private information affect required returns on assets, with more public information reduces required returns and higher precision of both types of information reduces required returns). Lambert, Leuz and Verrecchia (2007) focus on the quality of performance reports and suggest that poor-quality reporting increases a firm's assessed covariance with other firms' cash flows, thus increasing the require returns on assets. The theoretical models on information risk imply that information withholding and manipulation would manifest in higher cost of capital. Board legal expertise may help to reduce information manipulation and withholding problems and improve the information

environment of the firm. Therefore, firms with legal expertise on the boards may be able to raise capital at lower cost.

On the other hand, however, the presence of lawyer-directors may be associated with higher cost of capital because lawyers may be able to help the managers circumvent the legal issues associated with information withholding and manipulation and thereby give the managers more assurance that information withholding and/or manipulation will not lead to any legal consequence. One other fact that may be coupled with the above argument is that although lawyer-directors understand legal liability better than others, they are rarely held accountable for the failure in effective monitoring. “In the current corporate law regime, directors of corporations rarely (almost never) personally pay damages or penalties for the breach of fiduciary duty or other violations of corporate or securities laws” (Jones, 2006). Therefore, we hypothesize as follows

Hypothesis 9 a: Board legal expertise is negatively related to the cost of capital;

Hypothesis 9 b: Board legal expertise is positively related to the cost of capital.

2.3. Sampling and the data

2.3.1 The Sample

Our initial sample consists of Russell 1000 firms as of 2003. In the sampling process, we apply several restrictions. Firstly, we require the firms to have proxy statements in both years so that we are able to collect information on the directors. Secondly, we focus on non-regulatory non-financial firms.⁶ Thirdly, we exclude “controlled” companies. A “controlled” company is a public company whose 50% or more voting power is controlled by another entity. The final sample consists of 615 industrial firms.

Directors could obtain legal expertise through two channels. One is their work experience with law firms and the other is the legal education they receive from law schools. Therefore, we try to find information on a director’s work experience as law firm partners and her possession of law degrees, such as JD, LL.M., or LL.D. There is a big variation across firms in terms of disclosure of information on director’s backgrounds. In their proxy statements, firms usually disclose the work experience of directors for the

⁶ Firms with SIC from 4900 to 4999 and 6000 to 6999 are thus dropped.

previous five years, sometimes even less. Furthermore, information on the directors' education background is missing for a majority of the sample firms. As the information from the proxy statements is far from sufficient, we thus collect the information on directors' work experience as well as their educational backgrounds from various sources, including LexisNexis, google.com, the Dun and Bradstreet Reference Book of Corporate Management and Who's Who in Finance and Industry and Mergent. The data on firm-level variables are from CompuStat, ExecuComp, Thomson Financial and Dun & Bradstreet's American Corporate Families and International Affiliations. Cost of capital data is from Stern Stewart & Co.

2.3.2 Measuring board legal expertise

A legal background is defined as the possession of law firm experience or law degrees. The following measures of directors' legal backgrounds are used as proxies for board legal expertise:

LAW: the number of directors with law firm partnership experience.

LAWRATIO: LAW divided by total number of directors (board size).

LAWDUMMY: is 1 if LAW > 0; 0 otherwise.

LAWDEGREE: number of directors with law degree (JD, LL.D., LL.M., LL.B.).

LAWDEGREERATIO: LAWDEGREE divided by number of directors (board size).

LAWDEGREEDUMMY: is 1 if LAWDEGREE > 0; 0 otherwise.

We also use the prestige of lawyer-directors as a more direct measure of board legal expertise as directors with greater prestige or reputation may have greater incentives to exert efforts in monitoring (Fama, 1980; Fama and Jensen, 1983) and better skills to understand and deal with the legal issues involved in the information disclosure process. We measure a lawyer-director's prestige by the number of external board seats he holds ⁷ and the ranking of the law degree program he attended. For each firm, we sum up the number of external board seats and the ranking of law-degree program across individual lawyer-directors. We use the square root of the aggregate numbers to proxy for the prestige of the lawyer-directors in the firm. We thereby examine two proxies for lawyer-director prestige.

LAWPRESTIGE: the square root of the aggregate number of board seats of the lawyer-directors;

LAWPRESTIGE1: the square root of the aggregate law school ranking of the lawyer-directors.

⁷ Board memberships have been suggested to proxy for directors' reputation and networking in director market (Fama and Jensen, 1983).

2.3.3 Control Variables

We include several control variables in the regression analyses. For cost of capital analysis, we include leverage, firm size, accruals quality, institutional investor ownership, board independence, growth opportunity, ROA and volatility. Leverage is long-term debt divided by firm's total assets at the start of the year. Firm size (Size) is the log of total assets at the start of the year. Accruals quality describes "the extent to which accruals map into cash flow realizations" (Dechow and Dichev, 2002). Francis et al., (2005) use accruals quality as a measure of information quality and find that accruals quality is an important determinant of the cost of capital, with higher accruals quality leading to lower cost of capital. Following Francis et al., (2005), we include accruals quality as an explanatory variable. We control for institutional ownership by including the breadth of stock holdings by institutional investors (INSTB) at the start of the year, which is measured as the log of number of institutional investors (Parrino, Sias and Starks, 2003; O'Brien and Bhushan, 1990). Board size is the number of directors on board. Board independence is the number of independent directors divided by board size. Growth opportunity is the 3-year sales growth rate. Volatility is the standard deviation of stock returns of the prior 60 months. ROA is the return on assets in the current year. Affiliated director ratio is the ratio of the number of affiliated directors to board size. Problematic director ratio is the ratio of the number of problematic directors to board size.

We try to filter out other characteristics of the board that may affect corporate disclosure, thus confounding our results. First of all, lawyer-directors who are concerned about the quality of financial reporting may be more likely to have the firm hire directors with accounting expertise to alleviate managerial manipulation of information. In another word, if we find any significant relation between the measures of board legal expertise and the cost of capital, it may be the accounting expertise of the board, not the legal expertise of lawyer-directors that drive our empirical findings. Therefore, we need to filter out the accounting expertise effect by including board accounting expertise in the regressions. We measure accounting expertise of the board as the number of directors with a CFA/CPA certificate or partnership experience in accounting firms. Secondly, lawyer-directors in our sample may be confounded with

“problematic” directors. “Problematic” directors⁸, by definition, are associated with more managerial misconducts. We include the ratio of the “problematic” directors on the board to filter out the “problematic” director effect.

Thirdly, lawyer-directors may be affiliated directors that provide professional advisory services to the firm. To maintain their stake in the firm, affiliated directors tend to endorse initiatives that are in favor of the CEOs and other top executives (Ellstrand et al., 2002). Therefore, affiliated directors may not challenge the management even if they are aware of any earnings management activity undergoing in the firm. Therefore, we include the ratio of affiliated directors in the regressions.

2.3.4 Summary Statistics

Table 2.1 presents descriptive statistics of the variables for the sample firms. On average, in our sample, each firm has one director with a law degree while only 0.7 director with law firm experience. The correlation of the number of directors with law degrees and that of directors with law firm experience is 0.72, which suggests that not every law-degree person has had some law practice. The average percentage of directors with law firm experience (7%) is quite close to the average percentage of directors with law degrees (11%).

The cost of capital ranges from 5% to 14%, with a mean of 8% and a median of 7%. On average, the firm size, measured as the natural log of total assets, is 8.16 in our sample. The smallest firm has a firm size of 4.39 and the biggest firm has a firm size of 13.53. The ratio of long-term debt to total asset (leverage) varies widely from 0, for firms with no debt at all to 1.38, for firms with 1.38 times more debt than total asset, with an average of 0.52 and a median of 0.53. The median board has ten directors. For the average sample firm, there are 348 institutional investors. The average and median outside director ratio of the board is 77% and 78% respectively. The high independent director ratio on the boards of our sample firms may simply reflect the fact that firms conform to the Sarbanes-Oxley Act and the new stock exchanges regulatory requirements on board independence. Insider ownership ranges from 0% to 100% with a mean of 3.4% and a median of 0%, indicating that half of our sample firms have 0 insider ownership. Industry

⁸ Problem Directors are those individuals who have been personally involved, as a director or executive, in one or more corporate bankruptcies, major litigation and regulatory infractions, major accounting restatements and other corporate scandals, or have served on Compensation Committees that have approved particularly egregious CEO compensation packages, or other similar circumstances.

Table 2.1. Descriptive Statistics

This table provides summary statistics for the data employed in our analysis. The data set is comprised of 605 firms for the year 2003. LAW is the number of directors with law firm partnership experience. LAWRATIO is LAW divided by total number of directors. LAWDEGREE is the number of directors with law degree. LAWDEGREERATIO is LAWDEGREE divided by number of directors. Cost of capital is the cost charged by investors from the Stern & Stewart Co. LEVERAGE is long-term debt divided by firm's total assets at the start of the year. Growth is the geometric sales growth rate over the past three years ROA is the return on assets. R&D is research & development expenditures divided by total assets. Firm Size is the log of total assets at the start of the year. Sales HHI is the sum of the squares of the market shares of each individual firm in the industry to which a firm belongs. Institutional Investor Breadth is the log of the number of institutional investors at the start of the year. Insider Ownership is the percentage of common shares owned by corporate insiders. BOARDSIZE is the number of directors on board. Outsider Ratio is the number of independent directors divided by board size. Problemratio is the ratio of the number of problematic directors to the number of directors. Greyratio is the ratio of the number of affiliated directors to the number of directors. ACCOUNTINGEXPERTISE is the number of directors with accounting expertise.

Variable	Mean	Median	S.D.	Minimum	Maximum
LAW	0.69	0.00	0.90	0.00	6.00
LAWRATIO	0.07	0.00	0.09	0.00	0.46
LAWDEGREE	1.07	1.00	1.11	0.00	7.00
LAWDEGREE RATIO	0.11	0.10	0.11	0.00	0.58
Cost of Capital	0.08	0.07	0.02	0.05	0.14
Accruals quality	0.13	-0.12	1.39	-1.28	9.74
Leverage	0.52	0.53	0.23	0.00	1.38
Growth	0.11	0.09	0.16	-0.49	1.29
ROA	0.05	0.06	0.13	-2.91	0.76
R&D	0.04	0.02	0.06	0.00	0.52
Firm size (log of Total Assets)	8.16	7.96	1.33	4.39	13.53
Sales HHI	0.06	0.05	0.06	0.02	0.80
Institutional Investor Breadth	348.11	270.50	232.51	89.00	1515.00
Insider ownership (%)	3.40	0.00	9.80	0.00	1.00
Outsider ratio	0.77	0.78	0.12	0.31	1.00
Board size	9.69	10.00	2.23	5.00	20.00
Problemratio	0.02	0.00	0.05	0.00	0.44
Greyratio	0.11	0.10	0.12	0.00	0.75
AccountingExpertise	0.17	0.13	0.14	0.00	0.80

competitiveness as measured by industry Herfindahl index varies widely across firms from 0.02 to 0.80, with a median of 0.05, implying that at least half of our sample firms belong to highly competitive industries. The 3-year sales growth rate is also characterized by large variations across firms, with the highest growth rate being 129% and the lowest being -49%.

The maximum ratio of “problematic” directors is as high as 44% among our sample firms although the average level is only 2%. Firms also show some variations in the percentage of directors with accounting expertise, with the maximum being 80%, the minimum being 0 and the average level being 17%. As for the percentage of affiliated directors, the average level is 11% and the maximum is 75%.

2.4. The Determinants of Board Legal Expertise

2.4.1 Model Specification

For the models examining the determinants of board legal expertise, we include firm size, board independence, leverage, institutional ownership, insider ownership, industry competitiveness, stock volatility, R&D expenditure and a dummy that indicate whether a firm is a technology firm as explanatory variables. Board independence is measured as the proportion of independent directors on the board. Leverage is the ratio of long-term debt to total assets. Institutional ownership is measured as the natural log of the number of institutional investors. Insider ownership is the percentage of a firm’s common shares owned by its managers and directors. Industry competitiveness is measured as the Herfindahl index of sales, which is the sum of the squares of the market shares in terms of sales of each individual firm in the industry. Volatility is the standard deviation of stock returns over the prior 60 months. R&D expenditure is scaled by total sales. We classify a firm as a technology firm if it is in SIC codes 2833–2836, 3570–3577, 3600–3674, 7371–7379 or 8731–8734. We also control for CEO duality. CEO duality is a dummy variable that equals 1 if the CEO is also the chairman of the board.

The empirical model is specified as the following:

$$\begin{aligned}
 \text{Board Legal Expertise} = & \alpha + \beta_1 \text{ Firm Size} + \beta_2 \text{ Board Independence} + \beta_3 \text{ Leverage} + \beta_4 \text{ Institutional} \\
 & \text{Ownership} + \beta_5 \text{ Insider Ownership} + \beta_6 \text{ Volatility} + \beta_7 \text{ Technology Firms (or R\&D expenditure)} + \beta_8 \\
 & \text{Industry Competitiveness} + \beta_9 \text{ CEO duality} + \zeta
 \end{aligned} \tag{1}$$

2.4.2 Regression results

We first present the OLS results with the presence of directors with law firm experience as the dependent variables, and then we present corresponding results with the presence of directors with law degrees as the dependent variable. We then present results with the prestige of lawyer-directors as the dependent variable.

Table 2.2 presents the results on the determinants of the presence of directors with law firm experience. Larger firms seem to have greater numbers and higher proportions of lawyers on the boards. Board independence is positively and significantly related to the number and proportion of lawyer-directors, both at the 1% level. It seems that board legal expertise may be a complement for board independence in monitoring the information disclosure process. Column 2 of Table 2.2 shows that institutional ownership has positive and marginally significant relation with the presence of lawyer-directors, suggesting that board legal expertise may be a complementary governance mechanism for institutional ownership.

Stock return volatility is negatively associated with the presence of lawyer-directors, consistent with the notion that lawyers are risk-averse (Painter, 2004). Risk-averse lawyers may try to avoid firms with large volatility. The dummy variable that indicates whether a firm is a technology firm is negatively related to the presence of lawyer-directors, indicating that technology-intensive firms tend to hire fewer lawyers to the board. We didn't find any significant relation between R&D expenditure and board legal expertise.

Table 2.3 and Table 2.4 show the determinants of the presence of directors with law degrees and the determinants of lawyer-director prestige. The results are similar to those in Table 2.2. Column 2 of Table 2.4 shows that leverage is positively associated with the prestige of lawyer-directors, at the 10% level. The relation between leverage and board legal expertise may be driven by the fact that creditors are especially concerned about the reliability and validity of financial reporting and they tend to favor directors with legal backgrounds since the latter may be associated with better information quality. Column 1 and 2 of Table 2.4 both show some marginally significant and positive relation between lawyer-directors' prestige and insider

Table 2.2. Results for the Determinants of Board Legal Expertise

This table reports the results of the following model: $(board\ legal\ expertise)_{i,t} = \delta_0 + \delta_1 (outsider\ ratio)_{i,t} + \delta_2 (leverage)_{i,t} + \delta_3 (firm\ size)_{i,t} + \delta_4 (INSTB)_{i,t} + \delta_5 (insiderown)_{i,t} + \delta_6 (tech)_{i,t} + \delta_7 (ceochairman)_{i,t} + \delta_8 (saleshhi)_{i,t} + \delta_9 (volatility)_{i,t} + \epsilon_{i,t}$.

LAW is the number of directors with law firm partnership experience. LAWRATIO is LAW divided by total number of directors (board size). LAWDUMMY is 1 if LAW > 0 and 0 otherwise. Outsider ratio is the number of independent directors divided by board size. LEVERAGE is long-term debt divided by firm's total assets at the start of the year. Firm Size is the log of total assets at the start of the year. INSTB (Institutional Investor Breadth) is the log of the number of institutional investors at the start of the year. Insiderown is the percentage of common shares owned by corporate insiders. Tech is 1 if the firm is in SIC codes 2833–2836, 3570–3577, 3600–3674, 7371–7379 or 8731–8734. Volatility is the standard deviation of stock returns for the prior 60 months. SalesHHI is the sum of the squares of the market shares of each individual firm in the industry to which a firm belongs. CEOCHAIRMAN is 1 if the CEO of the firm is also chairman of the board.

Variables	lawratio	Law	Lawdummy
Constant	-0.113 (-1.06)	-1.991* (-1.79)	-2.040** (-2.00)
Outsider ratio	0.099*** (4.93)	0.920*** (4.40)	0.652 (1.28)
Leverage	0.019 (1.06)	0.239 (1.33)	0.512 (0.98)
Firm Size	0.007* (1.82)	0.114** (2.99)	0.319*** (3.00)
INSTB	0.025 (1.25)	0.359* (1.70)	0.008 (0.84)
Insiderown	0.000 (0.72)	0.003 (0.87)	0.010 (1.25)
Tech	-0.015* (-1.73)	-0.148* (-1.78)	-0.477** (-2.41)
CEOchairman	0.006 (0.72)	0.064 (0.84)	0.300 (1.10)
Saleshhi	0.024 (0.74)	0.340 (0.90)	0.536 (0.58)
Volatility	-0.069* (-1.88)	-1.009** (-2.09)	-4.244*** (-2.75)
Observations	1196	1196	1196
Adjusted R ²	0.30	0.36	0.36

Table 2.3. Results for the Determinants of Board Legal Expertise

This table reports results of the following model: $(the\ board\ legal\ expertise)_{i,t} = \delta_0 + \delta_1(outsider\ ratio)_{i,t} + \delta_2(leverage)_{i,t} + \delta_3(firm\ size)_{i,t} + \delta_4(INSTB)_{i,t} + \delta_5(insiderown)_{i,t} + \delta_6(tech)_{i,t} + \delta_7(CEOchairman)_{i,t} + \delta_8(saleshhi)_{i,t} + \delta_9(volatility)_{i,t} + \varepsilon_{i,t}$. LAWDEGREE is the number of directors with law degrees. LAWDEGREERATIO is LAWDEGREE divided by total number of directors (board size). LAWDEGREEDUMMY is 1 if LAWDEGREE > 0 and 0 otherwise. Outsider Ratio is the number of independent directors divided by board size. LEVERAGE is long-term debt divided by firm's total assets at the start of the year. Firm Size is the log of total assets at the start of the year. INSTB (Institutional Investor Breadth) is the log of the number of institutional investors at the start of the year. Insiderown is the percentage of common shares owned by corporate insiders. Tech is 1 if the firm is in SIC codes 2833–2836, 3570–3577, 3600–3674, 7371–7379 or 8731–8734. Volatility is the standard deviation of stock returns for the prior 60 months. Sales HHI is the sum of the squares of the market shares of each individual firm in the industry to which a firm belongs. CEOCHAIRMAN is 1 if the CEO of the firm is also chairman of the board.

variable	Lawdegreeratio	lawdegree	lawdegreedummy
Constant	-0.041** (-1.98)	-0.968** (-2.21)	-3.443*** (-3.33)
Outsider ratio	0.067*** (3.56)	0.690*** (3.48)	1.455*** (3.00)
Leverage	0.023 (1.08)	0.296 (1.40)	0.721 (1.39)
Firm size	0.006 (1.57)	0.123*** (2.78)	0.294*** (2.76)
INSTB	0.002 (0.16)	0.032 (0.56)	-0.016 (-0.16)
Insiderown	0.000 (0.28)	0.002 (0.59)	0.011 (1.43)
Tech	-0.033** (-2.21)	-0.325** (-2.39)	-0.441** (-2.04)
CEOchairman	0.005 (0.46)	0.074 (0.72)	0.362 (1.42)
Saleshhi	0.035 (0.83)	0.628 (1.20)	0.285 (0.30)
Volatility	-0.051* (-1.85)	-1.051** (-1.99)	-3.049** (-2.17)
Observations	1196	1196	1196
Adjusted R ²	0.28	0.38	0.38

Table 2.4. Results For the Determinants of Lawyer-Directors Prestige

This table reports OLS results of the following model: $(lawyer_director\ prestige)_{i,t} = \delta_0 + \delta_1(outsider\ ratio)_{i,t} + \delta_2(leverage)_{i,t} + \delta_3(firm\ size)_{i,t} + \delta_4(INSTB)_{i,t} + \delta_5(insideown)_{i,t} + \delta_6(tech)_{i,t} + \delta_7(CEOchairman)_{i,t} + \delta_8(salesshi)_{i,t} + \delta_9(volatility)_{i,t} + \epsilon_{i,t}$. Lawprestige is the square root of the aggregate number of board seats of the lawyer-directors; Lawprestige1 is the square root of the aggregate law school ranking of the lawyer-directors. Outsider ratio is the number of independent directors divided by board size. LEVERAGE is long-term debt divided by firm's total assets at the start of the year. Firm Size is the log of total assets at the start of the year. INSTB (Institutional Investor Breadth) is the log of the number of institutional investors at the start of the year. Insiderown is the percentage of common shares owned by corporate insiders. Tech is 1 if the firm is in SIC codes 2833–2836, 3570–3577, 3600–3674, 7371–7379 or 8731–8734. Volatility is the standard deviation of stock returns for the prior 60 months. Sales HHI is the sum of the squares of the market shares of each individual firm in the industry to which a firm belongs. CEOCHAIRMAN is 1 if the CEO of the firm is also chairman of the board.

variable	Lawprestige	lawprestige1
Constant	-5.407** (-2.11)	-4.106** (-2.25)
Outsider ratio	3.366*** (2.86)	2.333* (1.89)
Leverage	1.018 (0.88)	2.473* (1.85)
Firm size	0.982*** (4.14)	0.822*** (3.11)
INSTB	0.692* (2.04)	0.583* (2.13)
Insideown	0.031* (1.79)	0.033* (1.84)
Tech	-0.667** (-2.22)	-1.003*** (-3.00)
CEOchairman	0.595 (1.12)	0.280 (0.45)
Salesshi	3.251 (1.32)	3.902 (1.42)
Volatility	-6.520** (-1.99)	-8.268** (-2.25)
Observations	1196	1196
Adjusted R ²	0.32	0.37

ownership, implying that board legal expertise is complementary to insider ownership in monitoring the management. We didn't find any evidence that industry competitiveness is a determinant of board legal expertise. This might be due to the fact that information withholding due to competitiveness concerns is beneficial to the shareholders and therefore is not a target of board monitoring.

2.5. Board Legal Expertise and the Cost of Capital

2.5.1 OLS regression results on the cost of capital and board legal expertise

Table 2.5 and Table 2.6 present the OLS regression results of board legal expertise effects on cost of capital. Columns (1) – (6) of Table 2.5 describe the relations between cost of capital and different measures of board legal expertise. The results suggest that all measures of board legal expertise have significant and negative association with the cost of capital, consistent with the notion that board legal expertise helps to address information withholding and manipulation problems, leading to lower cost of capital. Economically, column (5) of Table 2.5 shows that the coefficient on *lawdummy* (=1 if there is at least one director with law firm experience) is -0.003, implying that a firm with at least one director with law firm experience enjoys a 30 basis points lower cost of capital than firms with no lawyer-director. The coefficient on *lawdegreedummy* (=1 if there is at least one director with law degree), as shown in column (6) of Table 2.5, is -0.004, implying that a firm with at least one director with law degree enjoys a 40 basis points lower cost of capital than firms with no director with law degree. In columns (3) and (4) of Table 2.5, we use the number of directors with law firm experience and the number of directors with law degrees as the explanatory variables. The coefficient estimates of both measures of board legal expertise are -0.001, which indicate a 10 basis points lower cost of capital when there is one additional lawyer-director on the board. Our results are comparable to Anderson, Mansi & Reeb (2004), who find that an additional independent director is associated with 10 basis points lower of cost of debt.

Institutional ownership is not significantly related to the cost of capital, suggesting that institutional investors do not play an important role in affecting the quantity and quality of information disclosure. Board independence does not have any significant relation with the cost of capital either. This is consistent with McAvoy et al. (1983), Hermalin and Weisbach (1988; 1991) and Klein (1998), which suggest that

Table 2.5. OLS Results for Cost of Capital On Board Legal Expertise

This table reports results of the following model: $(\text{cost of capital})_i = \delta_0 + \delta_1(\text{board legal expertise})_i + \delta_{2-12}(\text{control variables})_i + \varepsilon_i$. LAW is the number of directors with law firm partnership experience. LAWRATIO is LAW divided by total number of directors (board size). LAWDEGREE is the number of directors with law degree. LAWDEGREERATIO is LAWDEGREE divided by number of directors. LAWDDUMMY is 1 if LAW > 0 and 0 otherwise. LAWDEGREEDUMMY is 1 if LAWDEGREE > 0 and 0 otherwise. Cost of capital is the cost charged by investors from the Stern & Stewart Co. ACCRUALS QUALITY is following Francis et al (2005). Volatility is the standard deviation of stock returns for the prior 60 months. Growth is the geometric sales growth rate over the past three years Outsider Ratio is the number of independent directors divided by board size. LEVERAGE is long-term debt divided by firm's total assets at the start of the year. Firm Size is the log of total assets at the start of the year. ROA is the return on assets. Institutional Investor Breadth is the log of the number of institutional investors at the start of the year. Problemratio is the ratio of the number of problematic directors to the number of directors. Greyratio is the ratio of the number of affiliated directors to the number of directors. ACCOUNTINGEXPERTISE is the number of directors with accounting expertise.

	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	0.097*** (12.42)	0.096*** (12.25)	0.096*** (12.39)	0.096*** (12.11)	0.097*** (12.40)	0.094*** (12.06)
Lawratio	-0.013** (-2.14)					
Lawdegreeratio		-0.009** (-2.17)				
Law			-0.001* (-1.81*)			
Lawdegree				-0.001* (-1.75)		
Lawdummy					-0.003** (-2.53)	
lawdegreedummy						-0.004*** (-2.83)
Accruals Quality	0.001 (1.61)	0.001* (1.78)	0.001 (1.59)	0.001* (1.72)	0.001 (1.63)	0.001* (1.81)
Volatility	0.146*** (6.22)	0.146*** (6.26)	0.147*** (6.25)	0.147*** (6.27)	0.145*** (6.20)	0.145*** (6.29)
Growth	-0.000** (-2.37)	-0.000** (-2.35)	-0.000** (-2.36)	-0.000** (-2.33)	-0.000** (-2.32)	-0.000** (-2.34)
Outsider ratio	-0.010 (-0.96)	-0.010 (-0.95)	-0.010 (-0.99)	-0.010 (-0.91)	-0.011 (-1.02)	-0.010 (-0.95)
Leverage	-0.023*** (-3.17)	-0.023*** (-3.24)	-0.024*** (-3.15)	-0.024*** (-3.24)	-0.023*** (-3.19)	-0.024*** (-3.25)
Firm size	-0.011*** (-7.13)	-0.011*** (-7.21)	-0.011*** (-7.03)	-0.011*** (-7.11)	-0.011*** (-6.95)	-0.011*** (-7.09)
ROA	-0.074***	-0.077***	-0.074***	-0.076***	-0.074***	-0.077***

Table 2.5.
(continued)

	(1)	(2)	(3)	(4)	(5)	(6)
	(-3.94)	(-4.01)	(-3.95)	(-3.97)	(-3.94)	(-4.01)
INSTB	-0.002	-0.002	-0.002	-0.002	-0.002	-0.001
	(-0.41)	(-0.36)	(-0.42)	(-0.38)	(-0.41)	(-0.19)
Grey ratio	-0.012	-0.011	-0.012	-0.011	-0.012	-0.011
	(-0.98)	(-0.93)	(-1.00)	(-0.92)	(-1.00)	(-0.90)
Problemratio	0.000	0.000	0.000	0.000	0.000	0.000
	(1.11)	(1.23)	(1.00)	(1.24)	(0.99)	(1.06)
Accountingexpertise	0.000	0.000	0.000	0.000	0.000	0.000
	(0.26)	(0.28)	(0.28)	(0.31)	(0.37)	(0.34)
Observations	605	605	605	605	605	605
Industry dummy	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R ²	0.66	0.66	0.66	0.66	0.66	0.66

director independence has no bearing on the effectiveness of board monitoring. We do not find any significant effect of grey directors or problematic directors on the cost of capital. Neither did we find any significant result on board accounting expertise. The coefficients on firm size, volatility, ROA, growth and accruals quality are largely consistent with prior research. Volatility is positively associated with the cost of capital at the 1% significance level. Firm size, ROA and sales growth are all negatively and significantly related to the cost of capital. Accruals quality has marginally significant and positive relation with the cost of capital

Columns (1) – (2) of Table 2.6 show the results using the prestige of lawyer-directors as the measure of board legal expertise. The results indicate that the prestige of lawyer-directors have significantly negative association with the cost of capital, consistent with the hypothesis that the lawyer-directors with higher prestige understand the legal liabilities of information withholding and manipulation better.

Table 2.6. OLS Results for Cost of Capital on Lawyer-Director Prestige

This table reports results of the following model: $Cost\ of\ Capital_i = \delta_0 + \delta_1 (lawyer\text{-}director\ prestige)_i + \delta_{2-12} (control\ variables)_i + \varepsilon_i$. LAW is the number of directors with law firm partnership experience. Lawprestige is the square root of the aggregate number of board seats of the lawyer-directors; Lawprestige1 is the square root of the aggregate law school ranking of the lawyer-directors. Volatility is the standard deviation of stock returns for the prior 60 months. Growth is the geometric sales growth rate over the past three years. Outsider Ratio is the number of independent directors divided by board size. LEVERAGE is long-term debt divided by firm's total assets at the start of the year. Firm Size is the log of total assets at the start of the year. ROA is the return on assets. Institutional Investor Breadth is the log of the number of institutional investors at the start of the year. Problemratio is the ratio of the number of problematic directors to the number of directors. Greyratio is the ratio of the number of affiliated directors to the number of directors. ACCOUNTINGEXPERTISE is the number of directors with accounting expertise.

	Dependent variable: Cost of Capital	
	(1)	(2)
Intercept	0.096*** (11.57)	0.094*** (11.25)
lawprestige (x100)	-0.024** (-1.97)	
Lawprestige1 (x100)		-0.024** (-2.21)
Accruals quality	0.001*** (-2.67)	0.001** (-2.44)
Volatility	0.146*** (6.16)	0.146*** (6.17)
Growth	-0.000** (-2.20)	-0.000** (-2.15)
Outsider ratio	-0.004 (-0.78)	-0.003 (-0.57)
Leverage	-0.028*** (-5.55)	-0.028*** (-5.58)
Firm size	-0.000 (-0.48)	-0.000 (-0.49)
ROA	-0.002 (-0.42)	-0.002 (-0.35)
INSTB	-0.004 (-0.76)	-0.004 (-0.67)
Greyratio	-0.010 (-0.99)	-0.010 (-0.92)
Probelmratio	0.000 (0.88)	0.000 (0.98)
Accountingexpertise	0.000 (0.62)	0.000 (0.61)
Observations	605	605
Adjusted R ²	0.66	0.66

2.5.2 Endogeneity

Our results on the relation between board legal expertise and the cost of capital potentially suffer from the endogeneity problem. Specifically, there may be some unobserved firm-specific characteristics that are simultaneously related to board legal expertise and the cost of capital. Our findings that board legal expertise is associated with lower cost of capital may be just a reflection of such relations instead of implying that board legal expertise helps to lower the cost of capital. To address this issue, we use 2SLS regressions, which adopt instrument variables for the endogenous variable in the first stage and use the predicted value of the endogenous variable in the second stage regressions.

The instrument variable is critical in two-stage least squares regressions. Weak instruments will result in inconsistency of the estimates and larger standard errors (and therefore insignificant results) (Wooldridge, 2002). Unfortunately, it is usually hard to find proper instrument variables. We use a mechanical way to generate pseudo-instruments, as suggested in Wooldridge (2002). The merit of this approach is that the generated instruments usually satisfy the correlation conditions fairly well. The drawback of this approach may be that it is hard to interpret the meaning of the generated instrument variable.

Table 2.7 shows the results from our test that uses the cost of capital as the dependent variable and the generated instrument for board legal expertise as an explanatory variable. More specifically, the generated instrument is simply a pseudo-dummy variable which equals to 1 if the endogenous variable is within the top 1/3 of all observations, 0 if the endogenous variable is within the middle 1/3 and -1 if the endogenous variable belongs to the bottom 1/3 (Marial and Orbe, 2005). This methodology was initiated by Durbin (1954). It is especially useful when it is hard to find a meaningful instrument variable. The results from the 2SLS regressions are quite similar to the ones from our OLS regressions. As a matter of fact, the corresponding coefficient estimates are found to be larger in magnitude in 2SLS regressions than those in OLS regressions (Table 2.5). For instance, the coefficient on the proportions of lawyer-directors is 54% greater (-0.020 vs. -0.013). On top of that, the coefficient estimates show better significant levels compared to OLS results.

Table 2.7. 2SLS Results for Cost of Capital on Board Legal Expertise

This table reports the results of a 2SLS regression of cost of capital on board legal expertise. In the first stage we run the following regression:

$$\text{Legal Expertise}_i = \delta_0 + \delta_1 (\text{generated instrument})_i + \delta_2 (\text{accruals quality})_i + \delta_3 (\text{volatility})_i + \delta_4 (\text{growth})_i + \delta_5 (\text{outsider ratio})_i + \delta_6 (\text{leverage})_i + \delta_7 (\text{firm size})_i + \delta_8 (\text{ROA})_i + \delta_9 (\text{INSTB})_i + \delta_{10} (\text{grey ratio})_i + \delta_{11} (\text{problem ratio})_i + \delta_{12} (\text{accounting expertise})_i + \varepsilon_i$$

We only show the results of the second stage regression, specified as follows:

$$\text{Cost of Capital}_i = \delta_0 + \delta_1 (\text{predicated legal expertise})_i + \delta_2 (\text{accruals quality})_i + \delta_3 (\text{volatility})_i + \delta_4 (\text{growth})_i + \delta_5 (\text{outsider ratio})_i + \delta_6 (\text{leverage})_i + \delta_7 (\text{firm size})_i + \delta_8 (\text{ROA})_i + \delta_9 (\text{INSTB})_i + \delta_{10} (\text{grey ratio})_i + \delta_{11} (\text{problem ratio})_i + \delta_{12} (\text{accounting expertise})_i + \varepsilon_i$$

LAW is the number of directors with law firm partnership experience. LAWRATIO is LAW divided by total number of directors (board size). LAWDEGREE is the number of directors with law degree. LAWDEGREERATIO is LAWDEGREE divided by number of directors. Cost of capital is the cost charged by investors from the Stern & Stewart Co. BOARDSIZE is the number of directors on board. Volatility is the standard deviation of stock returns for the prior 60 months. Growth is the geometric sales growth rate over the past three years Outsider Ratio is the number of independent directors divided by board size. LEVERAGE is long-term debt divided by firm's total assets at the start of the year. Firm Size is the log of total assets at the start of the year. ROA is the return on assets. Institutional Investor Breadth is the log of the number of institutional investors at the start of the year. Problemratio is the ratio of the number of problematic directors to the number of directors. Greyratio is the ratio of the number of affiliated directors to the number of directors. ACCOUNTINGEXPERTISE is the number of directors with accounting expertise.

	(1)	(2)	(3)	(4)
Intercept	0.096*** (11.56)	0.096*** (11.36)	0.095*** (11.44)	0.093*** (11.12)
Lawratio	-0.020** (-2.50)			
lawdegreeratio		-0.014** (-2.45)		
Law			-0.002** (-2.53)	
lawdegree				-0.001** (-2.28)
Accruals quality	0.001*** (-2.87)	0.001*** (-2.78)	0.001** (-2.39)	0.001** (-2.20)
Volatility	0.146*** (6.18)	0.145*** (6.22)	0.147*** (6.22)	0.146*** (6.26)
Growth	-0.000** (-2.18)	-0.000** (-2.13)	-0.000** (-2.21)	-0.000** (-2.16)
Outsider ratio	-0.004 (-0.83)	-0.004 (-0.68)	-0.004 (-0.83)	-0.004 (-0.69)
Leverage	-0.028*** (-5.73)	-0.028*** (-5.79)	-0.028*** (-5.68)	-0.028*** (-5.72)
Firm size	-0.000 (-0.44)	-0.000 (-0.38)	-0.000 (-0.47)	-0.000 (-0.40)

Table 2.7. (continued)

	(1)	(2)	(3)	(4)
ROA	-0.009 (-0.93)	-0.009 (-0.88)	-0.009 (-0.94)	-0.009 (-0.90)
INSTB	-0.001 (-0.28)	-0.001 (-0.17)	-0.001 (-0.28)	-0.001 (-0.19)
Grey ratio	-0.003 (-0.46)	-0.003 (-0.50)	-0.003 (-0.57)	-0.003 (-0.56)
Problemratio	0.000 (0.78)	0.000 (0.87)	0.000 (0.99)	0.000 (0.82)
Accountingexpertise	0.000 (0.45)	0.000 (0.48)	0.000 (0.49)	0.000 (0.53)
Observations	605	605	605	605
Industry dummy	Yes	Yes	Yes	Yes
Adjusted R ²	0.66	0.66	0.66	0.66

2.6. Conclusion

When ownership and control are largely separated, managers have many incentives to withhold and/or manipulate information, lowering the quantity and quality of information disclosure. One thing that investors may count on for better information environments is the monitoring by the boards of directors. Directors come to the board with different sets of skills and different expertise. One type of expertise that is especially relevant for disclosure is legal expertise. Directors with legal backgrounds understand the legal risk associated with information withholding and/or manipulation better than others. Therefore, they will monitor the information disclosure process more intensively to avoid such risk. If directors with legal backgrounds are associated with less information withholding and manipulation problems, we should be able to observe more directors in firms that have more information manipulation or withholding problems or firms that attach greater importance to information environment.

We explore the determinants of board legal expertise by mainly focusing on the factors that affect the information environment of a firm. We find that larger firms and firms with higher leverage tend to hire

more directors with legal backgrounds. Technology firms and firms with higher volatility tend to have fewer directors with legal backgrounds. Firms with higher insider ownership and institutional ownership and firms with greater board independence tend to have more directors with legal backgrounds, implying that board legal expertise is a complement to other corporate governance mechanisms.

Theoretical models on information risk suggest that both the quantity and quality of information has a significant impact on the cost of capital. Firms with larger quantities of public information and better quality of public and private information tend to enjoy lower cost of capital (Easley and O'Hara, 2004; O'Hara, 2003, Lambert, Leuz and Verrecchia, 2007). Empirical research that examines the relation between firm information environment and the cost of capital even precedes the theoretical works. Sengupta (1998), Bhattacharya, Daouk and Welker (2003), and Francis et al. (2005) all suggest that the quantity and/ or quality of financial reporting is negatively related to the cost of capital.

If board legal expertise helps to increase the quality and quantity of information, we would be able to observe a negative relation between board legal expertise and the cost of capital. Using a sample of Russell 1000 firms in 2003, we test the hypothesis that board legal expertise helps to lower the cost of capital. We find that a firm with at least one director with law firm experience enjoys a 30 basis points lower cost of capital than firms with no lawyer-director; a firm with at least one director with law degree enjoys a 40 basis points lower cost of capital than firms with no director with law degree. The results are statistically and economically significant.

CHAPTER 3

HEDGE FUND ACTIVISM AND CREDITOR'S REMORSE

3.1. Introduction

Shareholder activism is not a new phenomenon in corporate America. In 1997, for example, there are a total of 869 shareholder proposals during the proxy season, 582 of which target corporate governance issues and 287 target social issues (Campbell, Gillan and Niden, 1998). Recently, the activism of a special type of institutional investors— hedge fund has attracted a lot of attention from practitioners and the academia. It is not hard to find in business magazines stories about hostile hedge fund attacking incumbent CEOs and boards of directors. In a FEBRUARY 20, 2006 Business Week story, a representative of hedge fund manager Carl Icahn “issued a 343-page paper detailing how to break up Time Warner Inc. and release about \$40 billion in shareholder value” when General Motors Corp. “finally succumbed to months of pressure from billionaire Kirk Kerkorian and his Tracinda Corp. investment fund by slashing its dividend, cutting executive pay, and naming a Kerkorian adviser to the board”. Besides the media coverage of hedge fund activism, there is a growing body of literature that examines the impact of hedge fund activism on shareholder value (Klein and Zur, 2006, Brav et. al, 2006, Clifford, 2007). This stream of literature surfaces following a recent increase in hedge fund activism and the numerous studies that fails to find evidence on the effectiveness of shareholder activism using mutual fund and pension fund data.

In the prior studies, hedge funds are considered to be different from other institutional investors in that they are subject to fewer regulations. In the US, an investment fund must be open to limited number of accredited investors only to be exempt from direct regulation. An accredited investor is “an individual with a minimum net worth of US \$5,000,000 or, alternatively, a minimum income of US\$200,000 in each of the

last two years and a reasonable expectation of reaching the same income level in the current year”⁹. A hedge fund is a private investment fund that is typically open only to accredited investors and therefore is exempt from the many regulations imposed on public funds, brokerage firms and investment advisers. A hedge fund’s activities are only governed by the contract between the fund and its investors. Therefore, a hedge fund can make more risky investment and engage in more complex investment strategies than a public fund.

Specifically, what make hedge funds more prone to engaging in activism efforts are: firstly, hedge funds are not required to maintain a high level of diversification to enjoy tax benefits like mutual funds. Hedge funds can therefore have lower levels of diversification and hold a larger chunk of a company’s outstanding shares than mutual funds. A large stake in the company gives hedge funds strong incentive and sufficient power to intervene in the management of the company. Secondly, hedge funds are free from the restrictions on pay-performance sensitivity imposed on mutual fund managers. Mutual funds pay managers a fixed percentage of the amount of money attracted, regardless of performance, whereas hedge funds pay managers performance fees. Typically, hedge funds performance fee is 20% of gross returns. But the range of performance fee as a percentage of gross return is very wide, with some highly-regarded managers charging as high as 40%-50% of gross returns. The high pay-performance sensitivity gives hedge fund managers incentives to monitor the management of the firm and seek strategies that would enhance shareholder value. Thirdly, many hedge funds have "lock-up" rules that prevent investors from withdrawing money on short notice. During the lock-up period, investors cannot redeem any shares from the hedge fund. A hedge fund’s initial lock-up period ranges from 1 to 5 year. A new SEC rule that came in force on February 2006 requires that hedge funds with a less-than-2 years lock-up period register with the SEC as investment advisers. Some hedge funds have increased their initial lock-up period to at least 2 years to avoid registering with the SEC¹⁰. The lock-up rules allow a hedge fund to hold a company’s shares for a longer period of time than a public fund could. The relatively long holding period gives the hedge fund plenty of room for activism efforts.

⁹ See http://en.wikipedia.org/wiki/Hedge_fund

¹⁰ See <http://thismatter.com/money/funds/hedge-funds/hedge-funds.htm>

Corporate finance theory generally suggests that increased monitoring and intervention by shareholders may help to address the agency problems between shareholders and managers and enhance shareholder value (Jensen and Meckling, 1976, Shleifer and Vishny, 1986). Empirical studies that focus on the effect of hedge fund activism on shareholder value has provided some evidence that hedge fund activism benefits existing shareholders (Brav et al., 2006, Klein and Zur, 2006). However, credit rating companies like Fitch has warned that shareholder activism may be detrimental to bondholder value. The warnings by credit rating companies are well grounded because shareholder activism that aims for higher shareholder value may give rise to opportunistic behaviors by managers in which bondholders' wealth is expropriated.

Jensen and Meckling (1976) and Smith and Warner (1979) suggest that diversified shareholders have incentives to expropriate from debtholders by investing in risky, high expected return projects (asset substitution). Shareholder activists' attempts to "unlock" shareholder value through intervention may push the managers to opportunistically expropriate from bondholders through asset substitution. In this sense, hedge fund activism may harm the value of the bondholders.

In addition, some specific motives of shareholder activists may directly affect debtholder value in an unfavorable way. Hedge fund activists typically have more than 1 stated motive. Brav et al. (2006) classify the alleged motives behind hedge fund activism into 7 categories. One category that has immediate impact on bondholders value is the hedge fund's intent to change the target firm's payout policy and capital structure, more specifically, to reduce excess cash, increase the level of leverage and increase payout to shareholders through higher dividend or stock repurchase. Klein (2006) find that dividends per share almost double in the year following the initial stake of hedge fund activists. An increase in payout to shareholders would reduce cash and other assets available to the firm to meet its bond obligations and harm the bondholders' value (Maxwell and Stephens, 2003). Dhillon and Johnson (1994) find that bond price reacts negatively to a large increase in dividend. Maxwell and Stephens (2003) find negative abnormal bond returns in reaction to announcements of stock repurchases.

Another two types of motives behind hedge fund activism, including (1) targeting business strategy in attempts to push the firm to spin-off some divisions or to affect other issues related to mergers and

acquisitions (2) urging to sell the firm may also significantly alter the risk level of the firm and hurt the bondholders (Cremers, Nair and Wei, 2007; Galai and Masulis, 1976; Maxwell and Rao, 2003).

However, it is also likely that hedge fund activism may benefit bondholders, through better corporate governance and higher operating efficiency. Targeting operating efficiency and corporate governance are important motives behind hedge fund activism. Efforts to affect corporate governance include: to fire the incumbent CEO, to increase board independence or declassify the board, to cut executive compensation, to repeal take-over defenses and to require more disclosure and question potential fraud (Brav et al., 2006). Although targeting corporate governance represents only one category of motives behind hedge fund activism, hedge fund activism may improve corporate governance in general because one benefit of activists' efforts is that they urge managers to improve the firm's operations. Even if specific activism campaigns don't win, the threatening to take actions gives the managers a strong message (Karpoff, 2001).

Corporate governance affects the default risk of a firm and therefore bondholder value in two dimensions, the agency risk and the information risk (Bhojraj and Sengupta, 2003). Firstly, corporate governance affect the agency risk, the risk that managers act in the best interest of themselves and deviate from firm value maximization, as well as the risk that managers are unqualified to run the firm (Bhojraj and Sengupta, 2003). Managers acting in the interest of themselves may engage in activities that harm the value of bondholders and shareholders, such as making negative NPV investments in order to gain personal benefits from controlling more assets (Jensen 1986, Jensen, 1993) and taking actions to improve short-term performance rather than long-term performance (Dechow and Sloan 1991). If hedge fund activism involves firing incompetent or self-serving CEO and strengthening board monitoring, it may reduce opportunistic behaviors by managers, to the benefit of bondholders.

The second dimension is "information risk", the risk that public information is not readily available to outside investors or information available to outside investors is of low quality (O'Hara 2004). Managers have various incentives to withhold or manipulate information. These incentives may come from managers' own career concerns or performance-based executive compensation schemes or other personal gains considerations such as insider trading and perquisite consumption. Good corporate governance can help

reduce information risk by increasing the quality and quantity of information disclosure. Anderson and Reeb (2004) suggest that greater board independence and larger board size limit managerial opportunism and improve financial reporting integrity, leading to lower cost of debt. Beasley (1996) find that board independence is negatively associated with financial statement fraud.

With the two competing effects, the impact of hedge fund activism on bondholder value is an issue that needs to be empirically examined. This paper tries to examine this issue by looking at the reaction of bond price to hedge fund activism using a mean-adjusted event study model. If hedge fund activism generally benefits bondholders, we will be able to observe a positive reaction of bond price to hedge fund activism. If hedge fund activism is to the detriment of bondholders, we will observe a negative reaction of bond price to hedge fund activism. We measure hedge fund activism on the basis of the type of SEC filing a specific hedge fund chooses. Institutional investors surpassing the 5% ownership threshold are required to file either Schedule 13D to indicate their intention to intervene in the management of the firm or Schedule 13G to indicate passiveness. In our study, each original Schedule 13D filing by a hedge fund is treated as a hedge fund activism event. We search the SEC filings of all firms with bond transaction data in the FISD database during the period 2003-06 for hedge fund activism events. We are able to identify 163 hedge fund activism events during the period, involving 129 firms. However, for some firms, information on bond transaction is not available around the event dates. We delete those firms from our sample. We are left with 83 firm-events.

Our results imply that hedge fund activism is generally regarded by the bond market as being unfavorable to bondholders. The mean and the median of abnormal bond returns are both negative, the former being -0.32% and the latter being -0.21%. We use parametric and nonparametric methods to test the statistical significance of our results. We find that both the mean and the median of abnormal bond returns are significantly different from zero at the 1% level. We get similar results when we treat each bond-event as a separate observation. The mean abnormal bond return is -0.19%, significantly different from zero at the 5% level and median abnormal bond return is -0.21%, significantly different from zero at the 1% level.

We further examine the determinants of the cross-sectional difference in abnormal bond returns by looking at the bond characteristics and the different motives stated in Schedule 13D filings. We find that if the filing hedge fund urges to sell the firm, the abnormal bond return in reaction to the filing is significantly more negative. We also find some marginally significant evidence that protective covenant and restrictions imposed on bond issuers with regard to increasing indebtedness or payment to shareholders help to mitigate the negative effect of hedge fund activism on bondholder value.

3.2. Hedge fund activism and bondholder value

3.2.1 Hedge Fund Activism

Hedge fund is the fastest-growing sector in the financial service industry. Both the number of funds and assets under management by hedge funds has more than doubled since 2000 (Clifford, 2007). As of December 2007, there are about 7,500 funds with nearly \$2 trillion under management globally¹¹. Coinciding with the increasing size of the hedge fund industry is the declining returns caused by increasing competition among hedge funds and declining market volatility. A study done by Morgan Stanley shows that excess returns earned by hedge funds were 14 per cent in the 1995-97 period and have consistently declined since 1997 dropping to 5 per cent in 2001-03. The pressure from investors for higher returns and the high sensitivity of hedge fund manager's compensation to fund performance push hedge fund managers to reconsider their traditional, low-profile investment strategies and turn to "activism" instead in the face of declining returns¹²

Recently, there is a growing body of literature that looks at the role of hedge fund activism in corporate governance. These papers tend to suggest that the many restrictions imposed on traditional institutional investors like mutual funds and pension funds that limit their incentive and ability to be "active" are not imposed on hedge funds. As a result, hedge funds are more likely to be active in monitoring portfolio firms. The Investment Advisors Act of 1940 imposes pay-for-performance restrictions

¹¹ See Predictions for Hedge Funds, Wall Street Journal, December 31, 2007; Page C8.

¹² See <http://www.rediff.com/money/2005/aug/10guest.htm>

for mutual fund managers. In the face of these restrictions, most of the mutual funds managers charge investors a flat-rate fee solely based on the mutual fund's assets. Hedge fund managers, however, are not subject to pay-for-performance restrictions and typically receive a percentage of the funds' profits and a percentage of invested funds as compensation (Kahan and Rock, 2007). The close linkage between hedge fund managers' compensation and fund performance gives hedge fund managers strong incentives to step in and take actions to "unlock shareholder value". Furthermore, hedge funds are not required to maintain a high level of diversification to enjoy tax benefit in subchapter M of the Internal Revenue Code. There is no limit on the percentage of the outstanding shares of a portfolio company that a hedge fund can hold or limit on the percentage of assets of the hedge fund that can be invested in a single portfolio company, while for 50% of the assets of a mutual fund, the maximum percentage of the outstanding shares of a portfolio company that the mutual fund is allowed to hold is 10% and the maximum percentage of the mutual fund's assets allowed to be invested in a single portfolio company is 5%. Hedge funds face quarterly redemption pressure like open-end mutual funds. However, private investment funds like hedge funds that are not registered with the SEC are not subject to any restrictions on lock-up rules. Most of the hedge fund managers require investors to lock up their investments for several years. Low diversification requirement and the ability to lock up investors' money give hedge funds the ability to have a large stake in a company and take an active stance accordingly.

3.2.2 Filing of SC 13D

Recent studies on hedge funds activism tend to define hedge fund activism on the basis of hedge funds' initial filing of Schedule 13D. The SEC requires that a shareholder should file Schedule 13G or Schedule 13D when her shareholding in the firm surpasses the 5% threshold. Schedule 13G is filed to report acquisition of beneficial ownership of 5% or more of a class of equity securities by passive investors and certain institutions. However, Schedule 13D is filed to report acquisition of beneficial ownership of 5% or more of a class of equity securities by active investors who have intention to intervene in the management of the firm. A Schedule 13D filer usually has one or more of the following purposes as stated in Item 4 of the Schedule 13D: (a) the acquisition by any person of additional securities of the Company, or the disposition of securities of the Company; (b) an extraordinary corporate transaction, such as a merger,

reorganization or liquidation, involving the Company or any of its subsidiaries; (c) a sale or transfer of a material amount of assets of the Company or any of its subsidiaries; (d) any change in the present Board of Directors or management of the company, including any plans or proposals to change the number or term of directors or to fill any existing vacancies on the board; (e) any material change in the present capitalization or dividend policy of the Company; (f) any other material change in the Company's business or corporate structure; (g) changes in the Company's charter, By-laws or instruments corresponding thereto or other actions which may impede the acquisition of control of the Company by any person; (h) causing a class of securities of the Company to be delisted from a national securities exchange or to cease to be authorized to be quoted in an inter-dealer quotation system of a registered national securities association; (i) a class of equity securities of the Company becoming eligible for termination of registration pursuant to Section 12(g)(4) of the Exchange Act; or (j) any action similar to any of those enumerated above.

3.2.3 Hedge fund activism and bondholder

In a one-period setting, Jensen and Meckling (1976) argue that once a debt is issued, the value of the equity is like an option. Consequently, equity holders will have incentives to substitute low-risk assets for high-risk assets to increase the value of equity at the cost of debtholders. We expect that bondholders may suffer an erosion in value due to heightened opportunistic “asset substitution” behaviors caused by hedge funds seeking to maximize shareholder value. Since the negative impact of asset substitution on bondholders can be mitigated through the use of secured debt financing (Jackson & Kronman, 1979; Smith & Warner, 1979a & 1979b). We expect that the negative reactions to hedge fund activism will be lower in magnitude for bonds that are asset-backed or collateralized. We also expect that bonds with protective covenants will be less affected by hedge fund activism.

Besides the asset substitution effect, bondholder value may also be affected by other major decisions by the management in reaction to the pressure coming from hedge fund activism. Prior studies find that hedge fund activism increases short-term stock return mainly through targeting the firm's free cash flow (Klein and Zur, 2006). By forcing the firm paying out free cash to shareholders through dividend and stock repurchase, hedge fund increases shareholders' wealth in the short run. However, dividend payouts and stock repurchases reduce the firm's available assets to meet its debt obligations and thereby increase the

probability of default on the bonds, causing a wealth transfer from bondholders to shareholders. The wealth transfer effect of dividends payout and stock repurchases has been well documented in prior literature.

Dhillon and Johnson (1994) find evidence that a large dividend increase is associated with positive abnormal stock returns and negative bond abnormal returns. Maxwell and Stephens (2003) find that stock repurchase increases shareholder wealth at the cost of bondholders' value.

Furthermore, hedge fund activism also has aggressive objectives such as pushing the firm to spin-off some divisions and urging to sell the firm to a third party or attempting to take over the firm. These aggressive objectives may significantly increase the risk of the bondholders. Galai and Masulis (1976) and Maxwell and Rao (2003) suggest that spin-offs may cause a loss of value to the bondholders because the parent firm would lose a portion of its collateral that has been allocated to the spun-off firms. Cremers, Nair and Wei (2007) suggest that strengthened shareholders control is associated with higher credit risk if the firm is exposed to takeovers, because acquisitions and takeovers would add more debt to the firm. We expect that hedge fund activism that pushes the firm to spin-off some divisions and or urge to sell the firm or attempts to take over the firm will cause a loss of value to bondholders.

However, hedge fund activism may potentially benefit bondholders through better corporate governance and higher operating efficiency. Managers acting in the best interest of themselves may seek to maximize their personal benefits at the cost of the shareholders and bondholders. Jensen (1986) argues that managers have incentives to make their firms grow beyond the optimal size because growth in firm size will put more resources under the managers' control and increase managerial compensation. Dechow and Sloan (1991) suggest that managers may take actions (such as cutting R&D expense) to enhance short-term return, at the cost of long-term return. Furthermore, managers have incentives to withhold or manipulate information. Since managerial compensation and dismissal decisions are based on firm performance, a CEO can reduce his likelihood of being dismissed or increase the level of his compensation by disclosing misleading information on firm performance (see Healy, 1985; Pourciau, 1993 and Holthausen et al., 1995). Managers may also release misleading information when they intent to sell company shares (Trueman, 1990; Elitzur and Yaari, 1995; Bar-Gill and Bebchuk, 2003).

Targeting corporate governance is one of hedge fund activists' motives. Hedge fund activists, in their efforts to fire incompetent or self-serving CEOs, to declassify the board and to enhance board independence (Brav, 2006; Klein and Zur, 2007) may reduce opportunistic behaviors by managers significantly, to the benefit of the bondholders. Even if none of these attempts succeeds, the sheer threatening of hedge fund activists to take actions may push the managers to reduce self-serving behaviors. Enhancing operating efficiency and cost cutting represent another important motive of hedge fund activism (Brav, 2006; Klein and Zur, 2007). Higher operating efficiency and lower cost may benefit the bondholders by increasing the firm's ability to meet its debt obligations.

Considering the benefits and costs of hedge fund activism to bondholders, the overall effect of hedge fund activism on bondholder value is not a priori clear. Therefore, we hypothesize as follows:

Hypothesis I. a.: hedge fund activism is associated with negative abnormal bond returns

Hypothesis I. b.: hedge fund activism is associated with positive abnormal bond returns

We expect that the objectives stated in hedge funds' Schedule 13D would significantly affect the sign and magnitude of the abnormal bond returns. Specifically, if the hedge fund states that it will urge the selling of the company (or stated differently, intend to have major transactions involving the firm) or the spin-off of some division, or if it states that it intends to target the firm's payout policy, the abnormal bond returns would be significantly more negative. If the hedge fund states that it tries to fire the CEO, to declassify the board, to enhance board independence or to improve operating efficiency, the abnormal bond returns would be significantly more positive. Therefore,

Hypothesis III: hedge funds activism that urges to sell the company is associated with lower abnormal bond returns

Hypothesis IV: hedge funds activism that target payout policy is associated with lower abnormal bond returns

Hypothesis V: hedge funds activism that urges to spin-off some divisions is associated with lower abnormal bond returns

Hypothesis VI: hedge funds activism that intends to fire the CEO, to declassify the board, to increase board independence, or to change board composition is associated with higher abnormal bond returns

Hypothesis VII: hedge funds activism that intends to improve operating efficiency is associated with higher abnormal bond returns

We expect that bonds with protective covenants will be less negatively affected by hedge fund activism. Therefore

Hypothesis VIII: bonds with protective covenants experience higher abnormal returns in reaction to hedge fund activism

In order for the readers to get a general sense of what hedge fund activism require from the firm, we include an example of original Schedule 13D filing.

In April 8 2004, a hedge fund named Liberation Investment Group LLC filed a Schedule 13D with the SEC with regard to their investment in Bally Total Fitness Holdings Corp. Their objectives are stated in Item 4 of the Schedule 13D filing as follows:

The Reporting Persons acquired the shares of Common Stock reported herein in the ordinary course of business for investment purposes. The Reporting Persons believe their investment has significant potential for increased value and intend to urge management and the board of directors to take steps to maximize shareholder value, including through a possible sale of the Company's business, merger, sale of assets, consolidation, reorganization or other business combination or a recapitalization or refinancing. The Reporting Persons may actively engage in discussions with other stockholders and third parties regarding efforts to maximize shareholder value.

The Reporting Persons believe that fundamental changes in the Company's corporate governance, such as the removal of anti-takeover devices, are necessary and appropriate in order to maximize shareholder value and encourage third party interest in an acquisition of the Company. In addition, the Reporting Persons believe that sound corporate governance practices will impose a level of management and board accountability necessary to help insure that a good performance record is established and maintained, thereby increasing shareholder value.

A representative of the Reporting Persons has, on several occasions, discussed with the Company's Chief Executive Officer and one of its independent directors, the Reporting Persons' willingness to work

with management to develop a strategy to maximize shareholder value, as well as the Reporting Persons' views regarding corporate governance issues.

On May 28, 2004, the Reporting Persons delivered a letter to the Company's secretary (a copy of which is attached to this filing as Exhibit 1), in accordance with the Company's by-laws, providing notice of their intent to present certain governance proposals for approval at the Company's 2004 Annual Meeting of Stockholders relating to: (i) separation of the offices of Chief Executive Officer and Chairman of the Board, (ii) removal of the Company's stockholder rights plan, (iii) declassification of the Company's board of directors, and (iv) adoption of a mandatory retirement age for directors at 75 years old. The proposals, if approved, would involve amendments to the Company's by-laws and certificate of incorporation. The Reporting Persons intend to file a proxy statement and other relevant documents with the Securities and Exchange Commission and to solicit proxies in support of some or all of these proposals.

The Reporting Persons may pursue other alternatives available in order to maximize the value of their investment in the Company. Such alternatives could include, without limitation, (i) the purchase of additional Common Stock in the open market, in privately negotiated transactions or otherwise, and (ii) the sale of all or a portion of the Common Stock now owned or hereafter acquired by them. The Reporting Persons intend to contact and consult with other shareholders of the Company concerning the Company, its prospects, and any or all of the foregoing matters. The Reporting Persons may also transfer shares to or from a Reporting Person to another Reporting Person.

The Reporting Persons reserve the right to change their plans or intentions and to take any and all actions that they may deem appropriate to maximize the value of their investment in the Company in light of their general investment policies, market conditions, subsequent developments affecting the Company and the general business and future prospects of the Company.

3.3. Data

3.3.1 Selection Criteria

To examine the impact of hedge fund activism on bondholder value, we need data on historical bond transactions. In this spirit, we look at the Fixed Income Securities Database (FISD), which is considered the

most comprehensive collection of publicly offered U.S. Corporate bond data. The FISD get its data from the National Association of Securities Dealers (NASD), which began to disclose transactions in approximately 500 corporate bond issues on July 1, 2002 through its Trade Reporting and Compliance Engine (TRACE) (Kahle, Maxwell and Xu, 2007). The NASD has ever since steadily increased the number of bond issues covered under the TRACE. We get a list of all firms with bond transaction data in FISD during 2003-2006 and examine the Schedule 13D filings of these firms during the same time period, trying to identify Schedule 13D filings made by hedge fund activists. Since there is no legal definition of hedge fund, we have to search several sources to identify the type of an institutional investor, including FatPitch, Lexis-Nexis, the Wall Street Journal, InvestmentSeek.com, google.com and the institution's own website. We initially identified 150 hedge fund activism events during 2003-2006. Since data on some issues started being disclosed from 2004 or even later, we do not have bond transaction data around the event dates of these issues. For these issues, it is impossible to conduct an event study. Therefore, we delete them from the sample, which leaves us with 83 firm events.

3.3.2 Descriptive data

Tables 3.1-3.3 present the descriptive statistics for our sample. Table I describes the industry distribution of the target firms. Table II describes the motives of hedge fund activism. Table III presents the financial characteristics of the target firms.

Table 3.1 provides the number of target firms that belong to a specific industry. We treat each firm as an observation, no matter how many hedge fund activism events this firm has experienced during 2003-2006 and report the number of firms that belongs to a specific industry in the column under "firms". Alternatively, we treat each firm-event as a separate observation and report the number of firms belonging to a specific industry in the column under "firm events".

Manufacturing, (SIC code 20-39) the largest sector of US economy sees the most hedge fund activism events during 2003-2006. Altogether, there are 33 hedge fund activism events targeting firms in the manufacturing sector, representing 39.75% of all hedge fund activism events. Within the manufacturing sector, Chemical & Allied Products (SIC code 28) and Electronic & Other Electric Equipment (36) are the two industries that are most frequently targeted by hedge fund activism. The former saw 7 hedge fund

Table 3.1 Number of Target Firms by Two-digit SIC code

This table provides the number of target firms that belong to a specific industry. We treat each firm as an observation, no matter how many hedge fund activism events this firm has experienced and report the number of firms in a specific industry in the column under “firms”. We also treat each firm-event as a separate observation and report the number of firms in a specific industry in the column under “firm events”.

SIC code	Industry Description	firms	firm-events
12	Coal Mining	2	3
13	Oil & Gas Extraction	6	7
15	General Building Contractors	2	2
20	Food & Kindred Products	1	1
22	Textile Mill Products	1	1
24	Lumber & Wood Products	1	1
25	Furniture & Fixtures	1	1
26	Paper & Allied Products	2	2
27	Printing & Publishing	1	1
28	Chemical & Allied Products	5	7
30	Rubber & Miscellaneous Plastics Products	3	3
33	Primary Metal Industries	2	3
34	Fabricated Metal Products	1	1
35	Industrial Machinery & Equipment	4	4
36	Electronic & Other Electric Equipment	5	6
37	Transportation Equipment	1	1
38	Instruments & Related Products	1	1
45	Transportation by Air	1	1
48	Communications	1	1
49	Electric, Gas, & Sanitary Services	3	3
51	Wholesale Trade- Nondurable Goods	1	1
53	General Merchandise Stores	1	2
54	Food Stores	1	1
55	Automotive Dealers & Service Stations	1	1
58	Eating & Drinking Places	2	2
59	Miscellaneous Retail	1	1
60	Depository Institutions	1	1
62	Security & Commodity Brokers	1	1
63	Insurance Carriers	1	2
65	Real Estate	1	1
67	Holding & Other Investment Offices	1	1
70	Hotels & Other Lodging Places	1	1
73	Business Services	5	5
78	Motion Pictures	1	1
79	Amusement & Recreation Services	2	3
80	Health Services	3	3
87	Engineering & Management Services	2	6
Total		70	83

activism events (8.43% of all hedge fund activism events) and the latter saw 6 (7.23% of all hedge fund activism events) during 2003-2006. Two other sectors that stand out with high frequency of hedge fund activism events are services (SIC code 70-89), with 19 hedge fund activism events, accounting for 22.89% of all hedge fund activism events and mining (SIC code 10-14), with 10 hedge fund activism events, accounting for 12.04 of all hedge fund activism events.

Table 3.2 reports the distribution of the motives of hedge fund activism as being stated in the Schedule 13D filings. Consistent with Klein and Zur (2007), hedge fund activism does not seem to target the operating efficiency very often. In our sample, there are only 4 hedge fund activism events (4.81% of all hedge fund activism events) that target the operating efficiency of the firm. In 14 hedge fund activism events, the filing hedge fund intends to increase payout to shareholders through dividends or stock repurchases, representing 16.87% of all hedge fund activism events. Urging to sell the firm seems to be a very important motive behind hedge fund activism. In 28 hedge fund activism events, the filing hedge fund

Table 3.2. Number of Hedge Fund Activism Events by Purpose

This table provides the number of hedge fund activism firm-events by the stated purpose of the hedge fund. A hedge fund activism event is defined as a hedge fund (or a group of hedge funds) filing Schedule 13D to indicate its intention to intervene in the management of the firm. A hedge fund may report more than one purpose in the Schedule 13D. Number of firm-events= 83

Purpose of Filing	Number of Firm-Events
Hedge fund activism targeting operational efficiency and cost cutting	4
Hedge fund activism targeting payout policy	14
Hedge fund urging to sell the target firm	28
Activism targeting the firm's business strategy in general	36
Activism urging to spin-off some division and refocus	22
Activism targeting the firm's corporate governance	23
Activism intending to revoke anti-takeover defenses	7

attempts to put the firm up for sale, representing 33.73% of all hedge fund activism events. 36 events are characterized by hedge fund activism targeting business strategies, in their attempts to urge spin-offs and refocusing, opposing a merger or acquisition or asking for a higher price from potential acquirer or other matters related to mergers and acquisition, representing 43.37% of all hedge fund activism events. In 22 of the 32 events that target business strategies, hedge fund activism urges the firm to spin-off some divisions and refocus. In 23 events, filing hedge fund activists target the firm's corporate governance issues¹³, in their attempts to firing the CEO, declassifying the board and increasing board independence or changing the composition of the board. Corporate- governance-related activism accounts for 27.71% of all events. There are 7 hedge fund activism events (8.43% of all events) in which the filing persons attempt to revoke the firm's anti-takeover defenses.

Table 3.3 provides descriptive statistics of the target firms. The target firms tend to be large in size. The mean market capitalization of the target firms is \$ 2030.43 million and the median is \$ 1004.76 million.

Table 3.3. Descriptive Statistics for Sample Firms

This table presents the descriptive statistics of our sample firms. Market capitalization is measured as number of common shares outstanding multiplied by closing price, and is expressed in millions of dollars. Long-term debt/total asset is the book value of long-term debt divided by the book value of total assets. Market-to-book ratio is market value of equity divided by book value of equity. Total Assets is the book value of assets, expressed in millions of dollars. ROA is return on assets. Cash is (operating income before depreciation-interest-tax-cash dividend) scaled by book value of assets. 3-year sales growth is the average annual growth rate of sales for the prior 3 years. Dividend yield is dividend per share divided by stock price per share.

	mean	median	standard deviation	maximum	minimum
Market capitalization	2030.43	1004.76	2826.29	14617.19	3.43
Long-term debt/total assets	0.39	0.33	0.27	1.48	0.06
Market-to-book ratio	1.57	1.54	2.81	11.07	-16.82
Sales	3461.69	1882.80	4336.75	19656.00	190.78
Total assets	3859.00	1711.00	7178.00	23073.00	52.00
ROA	-4.66	0.86	20.67	24.84	-126.81
Cash	4.41	4.89	9.55	28.20	-30.75
3-year sales growth	10.64	7.62	18.80	84.17	-27.56
Dividend yield	1.32	0.00	4.71	35.21	0.00

¹³ We exclude events related to revoking antitakeover defenses because revoking antitakeover defenses has negative impact on bondholder value (Klock, Mansi and Maxwell, 2005).

The book value of total assets has a mean of \$3859 million and a median of \$1711 million. The large size of our sample firms is consistent with the fact that firms issuing public debts are usually large firms (Denis and Mihov, 2003). Half of the target firms have a long-term debt to total assets ratio lower than 33%, the mean ratio being 39%. The average market-to-book ratio is 1.57. Half of the target firms have a market-to-book ratio higher than 1.54 and another half lower than 1.54. One thing that is of particular interest is the dividend yields of the target firms. The median of the dividend yields is 0, implying that half of the firms didn't pay any dividend in the prior year. The low dividend yield leaves a lot of room for hedge fund activism demanding for higher payout.

3.4. Event Study

3.4.1 Empirical method

We adopt the mean-adjusted return model, which is created by Masulis (1980) and later on modified by Handjinicolaou and Kalay (1984) to examine abnormal bond returns in reaction to hedge fund activism. Our estimation period is from day -60 to day -16. According to the methodology in Handjinicolaou and Kalay (1984), the premium bond return between two trades is defined as the difference between the raw return on the bond and the return on a matched treasury security¹⁴.

$$PR_{i,n(i,k)} = R_{i,n(i,k)} - TR_{i,n(i,k)},$$

where $n(i,k)$ is the date on which the k th trade of bond i takes place; $R_{i,n(i,k)}$ is the return on bond i over the period $[n(i,k) - n(i,k-1)]$, and $TR_{i,n(i,k)}$ is the return on a matched treasury security over the same time period.

Since corporate bond usually trade infrequently, $R_{i,n(i,k)}$ may a daily return or a multi-day return. To convert a multi-day return to a daily return, we divide the multi-day return by the number of days that have elapsed since the last trade. The mean and standard deviation of *daily* bond premium returns are estimated as

$$m_i = \frac{1}{K-1} \sum_{k=2}^K \left[\frac{P_{i,n(i,k)}}{n(i,k) - n(i,k-1)} \right]$$

¹⁴ Following Handjinicolaou and Kalay (1984), bonds are matched to treasury securities with the closest duration.

$$s_i^2 = \frac{1}{k-2} \left\{ \sum_{K=2}^K \frac{P_{i,n(i,k)}}{\sqrt{n(i,k) - n(i,k-1)}} - m_i \sqrt{n(i,k) - n(i,k-1)} \right\}^2$$

Where m_i is the mean premium return, s_i is the standard deviation of premium return, and K is the number of days bond i trades in the estimation period.

The abnormal return is estimated as

$$AR_{i,n(i,k)} = PR_{i,n(i,k)} - m_i * [n(i,k) - n(i,k-1)]$$

The standard abnormal return is estimated by

$$SAR_{i,n(i,k)} = \frac{P_{i,n(i,k)} - m_i [n(i,k) - n(i,k-1)]}{s_i \sqrt{[n(i,k) - n(i,k-1)]}}$$

We estimate the abnormal returns on day 0, the day on which the first transaction after the filing of the Schedule 13D is reported. We notice that some firms have multiple bonds outstanding. We have two options with regard to the multiple-bonds issue. The first option is to treat each bond as a separate observation and the second is to treat each firm as a separate observation. When we treat each firm as a separate observation, we measure the abnormal returns as the equally-weighted average of the abnormal returns to the different bond issues. It is preferable to use the value-weighted average abnormal return (based on market value). However, we have to opt for equally-weighted average because FIRD does not provide data on the amounts outstanding on a specific date. Prior studies show that the first practice would inflate the t-statistics while the second one would bias the t-statistics downward (see Maxwell and Stephens, 2003). We report the results from both practices.

We use both parametric test and nonparametric test to examine the statistical significance of the abnormal bond returns. The parametric test assumes that premium bond returns are normally distributed and the nonparametric test does not make any assumption about the distribution of premium bond returns. Kahle, Maxwell and Xu (2007) suggest that nonparametric tests may be consistently more powerful than parametric tests in bond event studies. The non-parametric test we use in this paper is the Wilcoxon signed rank test, which can be used to examine whether the median of the population equals a hypothetical value. We use the Wilcoxon signed rank test to test whether the median abnormal bond return is significantly

different from zero or in other words whether positive and negative abnormal bond returns are equally likely. Hollander and Wolfe (1973) provide details on how to conduct the Wilcoxon signed rank test.

3.4.2 Empirical results

Our results show that the bond market generally views hedge fund activism unfavorably. Table 3.4 presents abnormal bond returns in reaction to hedge fund activism events. The first row of table 3.4 reports the mean and median abnormal bond return treating each firm-event as a separate observation. The mean abnormal bond return is -0.32% and median abnormal bond return is -0.21%, both negative and significantly different from zero at the 1% level. We use both parametric and non-parametric tests to examine the statistical significance of the abnormal bond returns. The *p*-value under the mean abnormal bond return comes from the parametric test and the *p*-value under the median abnormal return comes from the non-parametric test. The second row of table 3.4 reports the mean and median abnormal bond return treating each bond-event as a separate observation. The mean abnormal bond return is -0.19%, significantly different from zero at the 5% level and median abnormal bond return is -0.21%, significantly different from zero at the 1% level.

Table 3.4. Bond Returns on the Filing of Schedule 13D by Hedge Fund Activists

This table reports the abnormal bond returns in reaction to the filing of Schedule 13D by hedge fund activists. The abnormal bond returns are estimated using a mean-adjusted model and expressed in percentages. The probabilities under the mean abnormal return are from the Z-statistic and the probabilities under the median abnormal return are from the Wilcoxon sign rank statistic. Bonds whose standard deviations of daily premium returns are within the 2% or the 98% quartile are excluded from the calculation of the Z-statistic. ***significant at the 1% level; **significant at the 5% level; *significant at the 10% level.

	Mean Abnormal return	Median Abnormal return
“Firm” premium bond return (%) (n=80)	-0.32*** (0.009)	-0.21*** (0.000)
“All-bond” premium bond return (%) (n=110)	-0.19** (0.043)	- 0.21*** (0.000)

Our results imply that from the perspective of bondholders, the overall effect of hedge fund activism is to harm the value of the bondholders. With the objective of enhancing shareholder value, hedge fund activism may directly or indirectly push the managers to expropriate from bondholders or significantly increase the credit risk of the firm.

We try to examine the cross-sectional difference in abnormal bond returns by looking at the relation between abnormal bond returns and the explanatory variables. We consider bond characteristics and the motives of hedge fund activism as explanatory variables for abnormal bond returns. We use our all-bond sample for cross-sectional analysis to allow for the examination of how bond characteristics affect abnormal bond return.

The motives of hedge fund activism as stated in the Schedule 13D filing may be a significantly determinant of abnormal bond returns. Specifically, we expect that hedge fund activism that targets payout policy, push the firm to spin-off some division or refocus or urges to sell the firm would be associated with lower abnormal bond return. We expect that hedge fund activism that targets the firm's corporate governance in their attempts to fire the CEO, to declassify the board or to increase board independence would be associated with higher abnormal bond returns.

We also examine the relation between the characteristics of the bonds and the abnormal bond returns. We expect that a bond would be less negatively affected by hedge fund activism if it carries a protective covenant or if the bond issuer is restricted from incurring more debt or making payment to shareholders. We focus on one protective covenant in this paper - `defeasance_wo_tax_conseq`, which gives the issuer the right to defease the monetary portion of the security without tax consequence for bondholders because prior studies have found that bondholder gains from defeasance transactions (Johnson, Pari, and Rosenthal, 1989). The two types of restrictions imposed on bond issuers that we examine are **`indebtedness_is`**: restricts user from icurring additional debt with limits on absolute dollar amount of debt outstanding or percentage total capital.

`restricted_payments`: restricts issuer's freedom to make payments (other than dividend related payments) to shareholders and others.

We also expect that bonds with put options and convertible options will be less negatively affected by hedge fund activism.

Table 3.5 presents the results of the cross-sectional analysis. Column 1-4 of table 3.5 show that hedge fund activism urging to sell the company is significantly associated with more negative abnormal bond returns at the 5% level. The results imply that putting up the firm for sell would hurt the value of bondholders. Our results are consistent with Cremers, Nair and Wei (2007), who suggest that strengthened shareholders control is associated with higher credit risk if the firm is exposed to takeovers. Other motives of hedge fund activism are not found to have significant relations with abnormal bond returns. Column 1 of table 3.5 shows that the dummy variable `defeasance_wo_tax_conseq`, which indicates the presence of a protective covenant is positively and marginally significantly associated with abnormal bond returns, implying that bonds with the protective covenant experience less negative abnormal bond returns. We didn't find any significant relation between abnormal bond returns and the restrictions imposed on bond issuers with regard to increased indebtedness and payment to shareholders, although the signs are positive as expected. Column 2 and Column 3 report the results on the relation between abnormal bond returns and the restrictions imposed on bond issuers. We include a dummy variable to indicate the presence of any of the following 1). `defeasance_wo_tax_conseq`; 2) `indebtedness_is` and 3) `restricted_payments` and report the corresponding result in column 4. The dummy variable is positively related to abnormal bond return and the relation is marginally significant, suggesting that bondholder value would be less negatively affected by hedge fund activism if bondholders are protected by protective covenants or restrictions imposed on bond issuers.

3.5. Conclusion:

Hedge fund activism is attracting more and more attentions from practitioners and the academia. It is not hard to find stories about how hedge fund activism target a firm's governance, business strategies, and operations or even urges to sell the firm, in order to "unlock shareholder value". Credit rating companies like Fitch has warned that shareholder activism may be detrimental to bondholder value. We suggest that from a bondholder's point of view, there may be benefits and costs associated with hedge fund

activism. Hedge fund activism may benefit bondholders if it helps to build better corporate governance and enhance operational efficiency. However, hedge fund activism may harm bondholder value by increasing payout to shareholders or urging to spin-off some division or to sell the firm. We study the impact of hedge fund activism on bondholder value using a mean-adjusted model following Handjinicolaou and Kalay (1984). Our results indicate that abnormal bond return is significantly negative in reaction to hedge fund activism events, suggesting that hedge fund activism is generally harmful to bondholder value. We further examine the cross-sectional relation between standardized abnormal bond return and explanatory variables.

Table 3.5. Cross-sectional Regression Analysis

This table reports the cross-sectional relation between standardized abnormal bond returns and explanatory variables. We treat each bond-event as a separate observation to allow for examining how bond features affect abnormal bond returns. sell is 1 if the hedge fund activists attempt to sell the firm. defeasance_wo_tax_conseq is 1 if the bond issuer has the right to defease the monetary portion of the security, without tax consequence for bondholders. indebtedness_is takes the value of 1 if the issuer is restricted from incurring additional debt with limits on absolute dollar amount of debt outstanding or percentage total capital. restricted_payments is 1 if the bond issuer is restricted from making payments (other than dividend related payments) to shareholders and others. Protective is 1 if any of the following 1). defeasance_wo_tax_conseq; 2) indebtedness_is and 3) restricted_payments exists. The *p*-values for the significance of the coefficients are reported in parentheses. The number of observations is 108. ***significant at the 1% level; **significant at the 5% level; *significant at the 10% level.

	Standardized abnormal bond return			
	Model 1	Model 2	Model 3	Model 4
Sell	-2.379** (0.03)	-2.520** (0.02)	-2.388** (0.03)	-2.378** (0.03)
defeasance_wo_tax_conseq	2.111 (0.12)			
indebtedness_is		1.623 (0.17)		
restricted_payments			1.019 (0.39)	
protective				2.166 (0.11)
put option	1.994 (0.23)	1.286 (0.37)	0.945 (0.51)	2.113 (0.21)
Intercept	-0.946 (0.43)	-0.168 (0.85)	0.106 (0.90)	-1.065 (0.39)
F-value	2.21 (0.08)	2.11 (0.10)	1.72 (0.16)	2.27 (0.08)
Adjusted R ²	0.036	0.031	0.02	0.034

As we have expected, hedge fund activism that urges to sell the firm is associated with more negative abnormal bond returns. We also find that protective covenant and restrictions imposed on bond issuers with regard to increasing indebtedness or payment to shareholders help to mitigate the negative effect of hedge fund activism on bondholder value.

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