

The Disciplinary Effects of Proxy Contests[☆]

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Abstract

Using a hand-collected data set of all proxy contests during 1994-2008, this paper studies the effect of potential proxy contests on corporate policies and performance. When the likelihood of a proxy contest increases, companies experience increases in leverage, dividends, and CEO turnover. In addition, companies decrease R&D, capital expenditures, and executive compensation. Following these changes, operating performance improves. The identification of these effects exploits exogenous changes in the legal environment, resulting from the 1992 proxy access reform and the second generation of state-level antitakeover laws in late 1980s. The study suggests that the existing proxy contest mechanism plays a disciplinary role despite the low frequency of materialized proxy contests.

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1. Introduction

The agency problem created by separation of ownership and control in publicly traded corporations with dispersed ownership is at the heart of corporate governance literature, which focuses on mechanisms to discipline incumbents. These mechanisms range from informal “jawboning” to contests for corporate control, which are used to change management and to obtain control in publicly traded corporations. In their seminal paper, Grossman and Hart (1980) show that there is a disciplinary role for contests for corporate control (see also Easterbrook and Fischel, 1981; Scharfstein, 1988). Specifically, in Grossman and Hart (1980) the trade off for a manager is between choosing a high profit action with an associated low chance of being raided and choosing an action which provides high managerial utility, but is likely to lead to a successful control challenge. Thus, contests for corporate control have disciplinary value, because managers will be more reluctant to take self-serving actions that increase the probability of a contest for corporate control.

There are two types of contests for corporate control: hostile takeover bids and control contests. During a hostile takeover, the raider aims to purchase a majority of outstanding shares at a fixed price above the current market price. The company’s board opposes the offer. During a control contest, a group of shareholders, referred to as “dissidents,” seeks to remove the majority of a company’s board members, referred to as “incumbents,” and to elect nominees recommended by dissidents. A control contest is the most hostile type of proxy contest. In general, there are three main types of proxy contests: control contests (dissidents seek board control), short slate contests (dissidents seek board representation), and issue contests (dissidents seek to approve their proposal).

By late 1980s, the costs of hostile takeover bids increased significantly after the widespread adoption of anti-takeover provisions, the enactment of state-level antitakeover laws favoring management, and the demise of access to capital through high-yield debt markets (Karpoff and Malatesta, 1989; Bertrand and Mullainathan, 2003; Cremers and Ferrell, 2010). As a result, the frequency of hostile tender offers dropped sharply toward the end of 1980s (Betton et al., 2008). For example, the average number of hostile tender offers went from 60 per year in 1983-1987 to 5 per year in 2004-2008. It is therefore likely that the hostile takeovers play a weaker disciplinary role starting late 1980s (e.g., Bertrand and Mullainathan, 2003).

In 1992 the regulatory burdens surrounding proxy fights were substantially liberalized thus reducing the cost of engaging a proxy contest. Specifically, the 1992 proxy reform reduced the costs of the proxy contest by relaxing constraints on communications among shareholders of public corporations (Bradley, Brav, Goldstein, and Jiang, 2010). Following the reform shareholders could directly contact other shareholders to discuss matters relating to the target

company. As a result, the frequency of proxy contests increased significantly after 1992. The average number of proxy contests was 55 (80) per year during 1994-2008 (2006-2008) as compared to an average of 17 a year during 1979-1994 (see Figure 1 and Mulherin and Poulsen, 1998). Most of the increase in the frequency of the proxy contests is driven by short slate and issue contests. Therefore, shareholders more often rely on the proxy contest mechanism when pursuing aggressive strategies.

While shareholders more often rely on the proxy contest mechanism versus hostile tender offers, evidence about the effectiveness of proxy contests in the post-1992 period is limited, since most of the existing literature uses pre-1992 proxy reform data (see Section 5 for further details).

Do proxy contests play a disciplinary role in the post-1992 period? Do shareholders benefit from proxy contests that materialize? These questions have important policy implications for debates on the optimal scope shareholder rights in public companies (Bebchuk, 2007; Lipton and Savitt, 2007). Whereas a conclusion that the proxy contest mechanism is beneficial provides support for strengthening shareholder rights in proxy contests, the opposite conclusion provides support for constraining them (Bebchuk and Weisbach, 2010). The effort that the SEC, institutional investors, and business groups expended fighting for and against 2010 proxy access reform suggests that effectiveness of the proxy contest mechanism is of central importance.¹

This paper fills the gap in the literature and studies the effectiveness of the proxy contest mechanism using a manually collected data set of all proxy contests from 1994 to 2008. The paper studies not only companies that have experienced a proxy contest (ex post effects), but also companies that have never experienced a proxy contest (disciplinary effects). Studying both the ex post and the disciplinary effects is crucial (Easterbrook and Fischel, 1981). An analysis that is limited to the materialized events implicitly assumes that incumbents are passive and do not act until a contest materializes. If, however, the disciplinary effects are significant, expectations of potential events will affect corporate decisions. Two empirical implications are straightforward. First, if companies change corporate policies in anticipation of a proxy contest, fewer companies end up being targeted. Second, if changes in corporate policies are often implemented before a proxy contest materializes, it should be hard to detect changes in the corporate policies and profitability in the post-targeted period. Therefore, neither the low frequency of materialized

¹In an attempt to facilitate corporate governance, on July 21, 2010 the SEC received authorization from the Dodd-Frank Act to adopt proxy access rules and adopted a significant proxy access reform in August 25, 2010. This reform aims at the concerns about the effectiveness of the proxy contest mechanism by facilitating the process of nominating directors by large long-term shareholders (Rule 14a-11). The reform would reduce these cost barriers by allowing shareholder nominations to be included in the corporate proxy materials. On September 29, 2010, the Chamber and the Roundtable jointly filed a petition with the United States Court of Appeals for the District of Columbia Circuit alleging that the reform violated several federal statutes. On October 4, 2010, pending a judicial decision, the SEC agreed to stay implementation of the reform. On July 22, 2011, calling the rule arbitrary and capricious, the appeals court voted to vacate Rule 14a-11, a ruling that the SEC decided not to appeal. See Becker et al. (2010) and Cohn et al. (2011) for further details.

proxy contests nor the weak ex post effects on corporate policies imply that the proxy contest mechanism is ineffective.

I begin the analysis from studying the disciplinary effects of proxy contests. To address this important question, I examine whether companies change their financial policies in *anticipation* of the proxy contest. Specifically, I ask whether a public company changes corporate policies when the likelihood of a proxy contest increases. The evidence suggests that when the likelihood of a proxy contest increases due to an increase in stock liquidity, companies increase leverage, dividends, and CEO turnover. In addition, companies decrease investment in research and development, capital expenditures, and executive compensation. Following these changes, operating performance improves. Overall, the documented evidence suggests that the disciplinary effects of proxy contests mitigate agency costs. The strong disciplinary effects of proxy contests are consistent with both the low frequency of materialized proxy contests (fewer companies end up being targeted because inefficiencies are resolved out-of-equilibrium) and the weak ex post effects on corporate policies (companies change corporate policies in anticipation of the proxy contests).

I study the disciplinary effects of proxy contests by estimating the effect of the likelihood of a proxy contest on corporate policies. This estimation procedure overcomes three issues. First, the likelihood of a proxy contest is a latent variable and therefore must be estimated. Second, the likelihood of a proxy contest is endogenously determined (i.e., it can be correlated with an unobserved component of corporate policies). Finally, the effect of the likelihood of a proxy contest cannot be estimated using the regular two-stage method that accounts for endogeneity because the likelihood of a proxy contest is a latent variable. The estimation procedure developed by Heckman (1978) and Amemiya (1978) addresses the first and third concerns. This procedure is applied as follows. First, I estimate a binary choice model (e.g., probit), where the dependent variable is a dummy variable that equals one when the company is targeted in the proxy contest. Next, using estimated coefficients, I construct a consistent estimator of the likelihood of a proxy contest *for every public company*. Finally, I assess the effect of the estimated likelihood of a proxy contest on the corporate policies. The estimation procedure requires making the identification assumption. Specifically, the exclusion restriction implies that the estimated likelihood of a proxy contest has to be constructed such that it includes at least one covariate that does not directly affect the corporate policies.

Theory guides choice of the identification assumption and suggests that liquid stock markets are generally beneficial for corporate governance. Kyle and Vila (1991), Bolton and von Thadden (1998), and Maug (1998) show that greater liquidity trading facilitates intervenes by reducing the cost of acquiring shares in the open market. The general idea is that liquid stock markets

make it easier for investors to accumulate large stakes without substantially affecting the stock price.

During proxy contests, a dissident shareholder's stock ownership is important for several reasons. First, it increases the voting power of the dissident shareholder. Second, it signals to other shareholders that the dissident has direct economic interest in increasing the value of the targeted company. Both significant voting power and shareholders' voting support help the dissident to win the proxy contest. Finally, significant stock ownership allows the dissident to achieve higher profits from increasing the market value of the targeted company. Supporting evidence comes from Collin-Dufresne and Fos (2012), who use micro-level data on trades by activist shareholders and report that activist shareholders significantly benefit from stock liquidity when they purchase a stake in target company. Importantly, Collin-Dufresne and Fos (2012) show that the trading strategy of activist shareholders depends on stock liquidity: activist shareholders purchase shares of targeted companies more aggressively when stock liquidity is high.

Consistent with the theoretical insight, empirically stock liquidity is a significant positive determinant of the likelihood of a proxy contest. Therefore, I make the following identification assumption: stock liquidity satisfies the exclusion restriction and can serve as a source of exogenous variation in the likelihood of a proxy contest. In Section 4.3 I provide several pieces of evidence to support this assumption. The results suggest that the identification assumption is not likely to be violated. First, all specifications include firm and year fixed effects. Therefore, year-specific effects as well as firm-specific time-invariant effects cannot induce bias in estimated coefficients. Second, I show that the results are almost unchanged when I control for several time-varying firm specific characteristics, suggesting that these observable characteristics are not likely to induce bias in estimated coefficients.

The final and important concern is that time-varying, unobservable firm-specific effects may confound the inference. For example, the results may be consistent with either a direct effect of liquidity on the outcome variables, as well as an omitted variable that affects stock liquidity and the outcome variables. In order to help rule out such stories, I perform a placebo test, which exploits a period of time when external intervention was almost impossible (see Section 4.3 for further details). If indeed there is a direct relation between stock liquidity and the outcome variables, we should observe significant correlation between stock liquidity and the outcome variables in the placebo sample. Similarly, if there is an omitted variable that affects stock liquidity and the outcome variables, such variable presumably operated during the placebo period as well. Therefore, if the identification assumption is violated, we should observe significant correlation between stock liquidity and the outcome variables in the placebo sample. In contrast,

if the stock liquidity affects the outcome variables only through the likelihood of a proxy contest channel and there is no omitted variable that affects both stock liquidity and the outcome variables, there should be a weaker correlation between stock liquidity and the outcome variables in the placebo sample. The reason is the low likelihood of a shareholder’s intervention in the placebo sample. The evidence suggests that stock liquidity did not affect any of the outcome variables in the placebo sample. Thus, it is unlikely that an omitted variable drives the correlation between the stock liquidity and the outcome variables or that the stock liquidity directly affects the outcome variables.

One limitation of the placebo test is that time-varying, unobservable firm-specific effects may have a weaker effect on either stock liquidity and the outcome variables during the placebo period. In order to help rule out this possibility, I explore heterogeneity in the response to the likelihood of a proxy contest. Large companies are expected to be less sensitive to the likelihood of a proxy contest because it is harder to obtain control in a large company. Specifically, acquisition of a significant block in a large company requires a significant capital commitment. Therefore, I use heterogeneity in firm size, as measured by annual sales (SALES), to conduct the cross-sectional variation test. If time-varying, unobservable effects drive the relation between stock liquidity and the outcome variables, then the relation should be similar for large and small companies. In contrast, if the relation between stock liquidity and the outcome variables is driven by the likelihood of a proxy contest channel, the relation should be weaker when larger companies are concerned. Results reveal that corporate policies of large companies are not sensitive to the likelihood of a proxy contest, further supporting the identification assumption.

Firm size can be correlated with the time-varying, unobservable firm-specific effects that are not related to the likelihood of a proxy contest. Thus, it may still be possible that the time-varying, unobservable firm-specific effects are consistent with not only the significant time-series change in the relation between stock liquidity and the outcome variables (i.e., placebo test), but also with the heterogeneous effect of stock liquidity on outcome variables. While it is inherently impossible to refute all time-varying, unobservable firm-specific effects that might confound the inference, I examine several specific alternative channels. First, I test whether the evidence is consistent with the “Wall Street Walk” channel for shareholder monitoring (Edmans, 2009; Admati and Pfleiderer, 2009; Edmans and Manso, 2010). The evidence suggests that it is unlikely that the link between stock liquidity and corporate policies is due to the “Wall Street Walk” monitoring channel. Finally, I show that the main conclusions are not driven by several alternative corporate governance mechanisms, including shareholder proposals, hedge fund activism, and the Gompers et al. (2003) governance index.

To summarize, the placebo test, the cross-sectional variation tests, and an expansive list

of controls (including year and firm fixed effects) support the hypothesis that the likelihood of a proxy contest has an impact on capital structure, investments, dividends, and CEO compensation. Thus, while it is inherently impossible to refute all sources of endogeneity, the combined evidence supports a casual interpretation.

After I document the disciplinary effects of proxy contests, I study the ex post effects of a proxy contest. First, I study the ex post effects of proxy contests on corporate policies. The evidence suggests that it is hard to detect changes in corporate policy in the post- proxy contest years. However, companies do change corporate policies during the pre- proxy contest years: future targets increase leverage, spend less on R&D and decrease capital expenditures, increase dividend payouts, and decrease CEO compensation. Consistent with the disciplinary effects of proxy contests, future targets and companies that do not end up being targeted change corporate policies in the same direction. However, while non-targeted companies are able to escape proxy contests by changing corporate policies, ex post targets probably do not change corporate policies “enough” to prevent the attack. Second, I show that companies experience positive and significant stock returns when a proxy contest materializes, without reversals in the long run. Hence shareholders of ex post targeted companies benefit from a proxy contest. Finally, I show that changes in corporate policies of both targeted and non-targeted companies are associated with stronger operating performance.

While this paper does not aim to test any specific theory, the evidence finds profound support in the theoretical literature. The agency theory predicts that stronger external governance will have a positive impact on leverage and dividends (Grossman and Hart, 1982; Easterbrook, 1984; Jensen, 1986; Harris and Raviv, 1988; Stulz, 1988, 1990; Hart and Moore, 1995; Zwiebel, 1996; Fluck, 1998, 1999; Myers, 2000; Novaes, 2002; Morellec, 2004). For example, entrenched managers prefer to reduce dividend payouts, because paying dividends exposes companies to potential external financial needs to encourage capital market monitoring and discourages inefficient investment. The disciplinary effects of the proxy contests mitigate the agency problems and the higher likelihood of a proxy contest has a positive impact on the dividend payout policy. As far as the investment policy is concerned, Jensen (1986) suggests that if stronger external governance mitigates the over-investment problem, it should have a negative effect on investments. Finally, Novaes (2002) demonstrates that increasing leverage due to a control challenge threat may convey bad news about the target’s managers and therefore might lead to lower CEO compensation and higher CEO turnover.

The agency channel interpretation of the evidence finds further support in private equity literature. For example, Kaplan and Stromberg (2009) document that private equity apply the following changes to the firms in which they invest: increase leverage, decrease capital

expenditures, and replace poorly-performing management. Consequently, the operating and productivity improvements take place. Thus, the changes in corporate policies induced by the disciplinary effects of proxy contests are similar to the effects of private equity. Since going private is usually associated with low agency costs, the similarity between the changes in corporate policies induced by the disciplinary effects of proxy contests and the changes in corporate policies induced by going private supports the agency channel interpretation of the evidence.

This paper contributes to corporate governance literature by showing that the proxy contest mechanism plays a strong disciplinary role. The evidence suggests that companies change corporate policies when the mere threat of a proxy contests increases. The rare proxy contests that actually occur are sufficient to create a threat, which provides companies with monitoring pressure.

While it has been documented that hostile takeovers have played a significant disciplinary role, several changes in the regulatory environment and the structure of financial markets have decreased the disciplinary effects of hostile takeovers (Bertrand and Mullainathan, 2003). As this paper shows, consequent changes in the regulatory environment and the structure of financial markets led to a significant increase in the disciplinary effects of proxy contests. That is, there was a substitution between hostile takeovers and proxy contests.

The rest of the paper is organized as follows. Section 2 provides an overview of the institutional background of proxy contests. Section 3 provides a description of the data. Section 4 presents evidence on the ex ante effect of the proxy contest on major corporate policies. The ex post effect of the proxy contest on major corporate policies is analyzed in Section 5. Section 6 studies the effects of the proxy contests on operating performance and shareholder wealth. Finally, Section 7 concludes.

2. Institutional Background

In this section I summarize the procedure of the contested solicitation of votes and then describe three types of proxy contests.

During a proxy contest, dissidents and incumbents forward proxy solicitation materials to shareholders, who sign and return the proxy form of their preferred group. The agents for each group accumulate votes via the returned proxies and cast these votes at the shareholders' meeting. This process is known as the contested solicitation of votes. In the incident of a contested solicitation of votes, the following forms are submitted to the SEC through EDGAR: a preliminary proxy statement in connection with contested solicitations (PREC14A) and a definitive proxy statement in connection with contested solicitations (DEFC14A). I use submissions of these forms to identify the proxy contest events. Alexander, Chen, Seppi, and

Spatt (2010) and Norli, Ostergaard, and Schindele (2010) use a similar approach to identify proxy contests.

There are three main types of proxy contests: control contests, short slate contests, and issue contests.

Control contests are filed by shareholders who want to gain control over the board. The proxy contest between a group of shareholders of Weis Markets, Inc. and company's board of directors is an example of a control contest. In 1999 Weis Markets was targeted by a group of shareholders, who sought to remove the entire board of directors of the company and to elect nominees recommended by the group. The group asked shareholders to vote to reconstitute the board of directors "... to better reflect the shareholder base of Weis Markets, and to approve certain resolutions and amendments to the By-Laws designed to allow the shareholders to continue to have a meaningful opportunity to influence the management of Weis Markets." Members of the group beneficially owned approximately 41% of company's stock of Weis Markets, and directors and officers as a group owned approximately 47%. After the board of directors had authorized its financial advisor to conduct a full review of all options available to the company, including a possible sale or recapitalization of the company, the group of dissident shareholders agreed to withdraw its request for a special meeting and therefore terminated the proxy contest.

Short slate contests are targeted to getting a few non-controlling seats on the board. For example, two former executives of Insituform Technologies, Inc. sought to elect four directors to Insituform's 13-member board. In order to do so, a committee was formed to restore value to Insituform Technologies. The committee was formed "... because of their desire to see the value of Insituform maximized for all of the Company's stockholders, and their concerns that a number of the Company's existing directors do not support the Company's existing strategic direction and are influenced by conflicts of interest." On July 3, 1997, the company and the group of dissident shareholders announced that they had reached an agreement in principle to settle a dispute over the composition of the company's board of directors. The company agreed to reduce the board size from 13 to 9, eliminate the staggered terms of directors, and add two new independent directors to the board. One of new independent directors that joined the board was a member of the group of dissident shareholders.

While control contests and short slate contests both involve contested elections of directors, issue contests do not involve the election of the firm's board of directors. Issue contests either raise issues about the company's corporate governance or are related to proposals that are excluded by management from the proxy statement.² For example, in 2001 two shareholders

²Rule 14a-8 of the Securities Exchange Act of 1934 gives the shareholder who meets certain threshold requirements the right to require management to include his proposal in management's proxy materials. Rule

of Biopool International, Inc., R. Gale Daniel and Larry C. Fenster, asked shareholders to vote against two proposals recommended by Biopool’s board. Specifically, Mr. Daniel and Mr. Fenster recommended to vote against two items: (1) amending Biopool’s certificate of incorporation to limit certain actions by stockholders and (2) authorizing the issuance of preferred stock.³ Dissident shareholders succeeded, and these proposals did not receive the sufficient number of votes: approximately 21% of shareholders supported the first proposal and 35% of shareholders supported the second proposal.

3. Sample Description

3.1. Data Sources

Data are compiled from several sources. Firm-level accounting information and information on executive compensation come from Compustat. Stock returns come from the Center for Research in Security Prices (CRSP). Institutional Common Stock Holdings come from Thomson-Reuters Institutional Holdings Database. Corporate governance data on shareholder proposals and the Governance Index (GINDEX) come from RiskMetrics. Data on proxy contests and Schedule 13-D filings are collected from the EDGAR. Table 1 describes variables used in the paper.

[Insert Table 1 here]

The sample of companies targeted by proxy contests (hereafter “targets”) is constructed as follows. First, I identify 4,666 filings of either PREC14C or DEFC14A forms using an automatic searching script, which checks the existence of either PREC14C or DEFC14A forms in EDGAR for each company in the Compustat universe. This method identifies *all* contested solicitations of votes in the universe of Compustat companies. Next, I manually check the sample of 4,666 filings and identify proxy contest events during 1994-2008. There are 5.9 filings of either PREC14C or DEFC14A forms during an average proxy contest. The final sample is the universe of all proxy contests during 1994-2008 and consists of 792 unique proxy contests, implying that more than 10% of public companies have experienced a proxy contest during the sample period.

14a-8 is commonly referred to as the “shareholder proposal rule.” It states that to be eligible to submit a proposal, a shareholder either must have continuously held at least \$2,000 in market value or 1% of the company’s securities for at least one year, or be a registered holder. Management, however, may exclude an eligible proposal from the proxy materials if the proposal relates to an election for membership on the company’s board of directors or the proposal directly conflicts with one of the company’s own proposals.

³In the first proposal the board wanted to amend the company’s certificate of incorporation to (a) prohibit stockholder action by written consent, and (b) preclude the ability of stockholders to call a special meeting. In the second proposal the board wanted to amend the company’s certificate of incorporation to allow for the issuance of one or more series of preferred stock, the rights, preferences and privileges of which may be designated by the board of directors.

3.2. Main Sample Overview

Figure 1 presents the time distribution of proxy contests and hostile tender offers during the sample period. During the sample period, an average of 55 proxy contests take place each year. The unconditional probability of proxy contests increases from 0.2% in the mid 1990s to 1.4% in 2007-2008. In contrast, the frequency of hostile tender offers decreases to a very low level in recent years: 21 hostile tender offers take place during 2004-2008. The evidence suggests that during last decade shareholders more (less) often rely on proxy contests (hostile tender offers). To present a more general picture, I augment the analysis with data on the frequency of proxy contests that took place during 1981-1993 (data on proxy contests during 1981-1993 come from Mulherin and Poulsen, 1998).

[Insert Figure 1 here]

Figure 2 presents the time distribution of proxy contests and hostile tender offers during 1981-2008. Figure 2 indicates that there was a significant change in corporate governance over the last three decades: while in the 1980s dissident shareholders more often relied on hostile tender offers, during the last decade, they almost exclusively relied on proxy contests. The widespread adoption of anti-takeover provisions and the enactment of state-level antitakeover laws favoring management have increased the cost of a hostile tender offer and therefore contributed to the decrease in frequency of hostile tender offers (Karpoff and Malatesta, 1989; Bertrand and Mullainathan, 2003; Cremers and Ferrell, 2010). In contrast, the 1992 proxy reform, which allowed independent shareholders to freely engage in communication without being monitored by the SEC, is one potential explanation for the increasing frequency of proxy contests (Bradley et al., 2010).

[Insert Figure 2 here]

Table 2 presents the distribution of proxy contest types in the 1994-2008 sample. 18% of proxy contests are control contests, and 82% are non-control contests. The evidence suggests that proxy contests that became more frequent after the 1992 proxy reform are not control contests. Instead, these are mostly short slate contests, often combined with issue contests. Since dissident shareholders rarely seek control over target's board, the current corporate governance environment resembles 'market for corporate influence' and not 'market for corporate control.'

[Insert Table 2 here]

Next I examine how the characteristics of targets correlate with the likelihood of a proxy contest. I use probit regressions to estimate the partial effects of several covariates on the likelihood of a proxy contest. Results are reported in Table 3.

[Insert Table 3 here]

Potential proxy contest targets are suffering from low market valuation (higher BM) and poor stock performance (lower STOCK RETURN), which dissidents usually use when they criticize the incumbent management. For example, while criticizing the incumbent board in the proxy statement, dissident shareholders of Insituform Technologies, Inc. wrote: "In the past, we believe the incumbent Board has promoted poorly-conceived business strategies that resulted in a material decline in the value of Insituform common stock. Since 1991, the S&P 500 Index has gone up 100% while the Insituform stock has gone down 63%."

Potential targets are also characterized by high institutional ownership (higher INST), which indicates more sophisticated shareholder base, whose support dissident shareholders often need to succeed with the proxy contest. A company is more likely to be targeted in a proxy contest if it has smaller market cap (lower MV) and is more mature (higher CRSP AGE). The effect of firm's age on the likelihood of a proxy contests is consistent with higher agency costs for mature companies. The negative coefficient of market cap is consistent with the notion that it is more expensive to launch a proxy contests in large company. Specifically, acquiring a significant stake in a large company might require large capital investment.

The evidence indicates that stock liquidity positively affects the likelihood of a proxy contest. The Amihud measure of stock illiquidity has large Average Partial Effect (APE) on the likelihood of a proxy contest. Particularly, one standard deviation increase in stock liquidity leads to an increase of 0.25% in the likelihood of a proxy contest in the full sample. Since the unconditional likelihood of a proxy contest is 0.65% in the full sample, the APE effect of the stock liquidity is of high economic significance. This result finds support in the theoretical literature, which suggests that greater stock liquidity makes it easier for investors to accumulate large stakes without substantially affecting the stock price and therefore facilitates shareholder activism (Kyle and Vila, 1991; Bolton and von Thadden, 1998; Maug, 1998). The evidence is also consistent with Collin-Dufresne and Fos (2012), who show that activist shareholders who often engage in proxy contests significantly benefit from stock liquidity when they purchase a stake in target company.

The pseudo- R^2 from probit regression is 4.44% and it compares favorably to R^2 s documented in other works on corrective actions, such as takeovers and hedge fund activism. For example, Cremers et al. (2009) estimate logit regressions that predict takeovers and report pseudo- R^2 s between 1.7% and 9.3%. Similarly, Brav et al. (2008) estimate probit regressions that predict hedge fund activism and report pseudo- R^2 s between 1.7% and 1.9%. Importantly, as shown by Edmans et al. (2011), low R^2 does not refute the disciplinary effect I study in this paper.

4. The Disciplinary Effects of Proxy Contests

In this section I present evidence on the disciplinary effects of proxy contests on major corporate policies. I begin from describing the empirical strategy in Section 4.1. Main results and several robustness tests are presented in Section 4.2. Finally, the validity of the identification assumption is discussed in Section 4.3.

4.1. Empirical Strategy

The disciplinary effects of the proxy contest are estimated using the following system of equations (see Appendix for further details):

$$y_{it} = X_{it}\alpha_{11} + \gamma_1 PC_{it}^* + \eta_t + \eta_i + u_{1it} \quad (1)$$

$$PC_{it}^* = X_{it}\alpha_{21} + Z_{it}\alpha_{22} + \zeta_t + \zeta_i + u_{2it} \quad (2)$$

where y_{it} is an outcome variable of interest (i.e., a corporate policy), PC_{it}^* is an unobserved latent-variable that captures the propensity of being the target of a proxy contest, X_{it} is a vector of covariates that affect y_{it} and PC_{it}^* , Z_{it} is a vector of covariates that affect PC_{it}^* only, η_t and ζ_t are time fixed effects, and η_i and ζ_i are firm fixed effects. While PC_{it}^* is never observed, it determines the occurrence of the proxy contest:

$$PC_{it} = \begin{cases} 1, & PC_{it}^* > 0 \\ 0, & otherwise \end{cases} \quad (3)$$

where PC_{it} is a dummy variable that equals one if the company is targeted.⁴

The main goal of this paper is to identify and estimate coefficient γ_1 , which is the effect of the propensity of being a proxy contest target on corporate policies. Importantly, the coefficient summarizes the effect of the propensity of being a proxy contest target on corporate policies of not only ex post targeted companies, but also ex post non-targeted companies. That is, it estimates the *ex ante* effect of the proxy contest mechanism. If the incumbent management anticipates the proxy contest and takes actions to change the company's policies in order to preempt the proxy contest, I expect $\gamma_1 \neq 0$. For example, consider dividend payout ratio. If companies increase dividend payout ratio when the likelihood of a proxy contest increases, I expect $\gamma_1 > 0$.

Equation (1) cannot be estimated using the regular two-stage method because equation (2) is only partially observed. Therefore, I follow Heckman (1978) and Amemiya (1978) and apply

⁴Following Barber and Lyon (1996), I include the lagged outcome variable (i.e., y_{it-1}) in the vector of controls. This procedure controls for potential mean reversion in the left-hand side variable.

the following estimation procedure.⁵ First, I estimate equation (2) using a binary choice model and obtain a consistent estimator $\widehat{PC_{it}^*}$ of PC_{it}^* . Second, I estimate equation (1) using $\widehat{PC_{it}^*}$ to obtain consistent estimators of structural parameters, α_1 and γ_1 . Finally, I derive the asymptotic variance-covariance matrix of the structural parameters that corrects the standard errors for the generated regressor problem. In the Appendix, I show that the unadjusted standard errors estimate is consistent under the null of $\gamma_1 = 0$.⁶

The key question is what (observable) variable significantly affects the likelihood of a proxy contests and credibly signals to incumbents that the company is more likely to become a proxy contest target? Importantly, that variable should have no direct impact on the outcome variables that are being considered.

It is comfortable if theoretical literature guides the choice such variable. Theory suggests that greater stock liquidity makes it easier for investors to accumulate large stakes without substantially affecting the stock price. That is, greater liquidity trading facilitates intervenes by reducing the cost of acquiring a significant block and therefore reducing free-riding (Kyle and Vila, 1991; Bolton and von Thadden, 1998; Maug, 1998). Supporting evidence comes from Collin-Dufresne and Fos (2012), who report that activist shareholders significantly benefit from stock liquidity when they purchase a stake in target company. Specifically, the authors show that activist shareholders trade more aggressively on days with high stock liquidity.⁷

Using the Amihud (2002) measure of stock illiquidity as a proxy for stock liquidity I find robust support to the theoretical argument.⁸ Estimates of probit regression, reported in Table

⁵In Heckman’s model a latent variable determines the occurrence of the discrete event and enters the equations as a right-hand-side variable. As an example, Heckman considers a model of the effect of antidiscrimination legislation on the status of African-Americans. He hypothesizes that the measured income in a state is affected not only by the presence of the antidiscrimination legislation for that state, but also by the population sentiment toward African-Americans in that state. Therefore, the objective is to study the effects of passage of the antidiscrimination legislation per se *after* allowing for the sentiment in favor of the antidiscrimination legislation.

⁶Please note that matching estimators cannot be used to estimate the effect of a latent variable.

⁷Rule 13d-1(a) of the 1934 Securities Exchange Act requires investors to file with the SEC within 10 days of acquiring more than 5% of any class of securities of a publicly traded company if they have an interest in influencing the management of the company. Upon announcement of Schedule 13D filing stock price usually appreciates, creating incentive for activist shareholder to hide their trades and benefit from private information they possess. Collin-Dufresne and Fos (2012) show that a Schedule 13D filer that acquires 5% stake over two-months period in a company with market cap of \$300 million benefits \$0.75 million because he purchases shares at the pre-announcement price. In addition, the authors show that the Schedule 13D filer could further increase profits by \$0.15 million if he could purchase all shares at the price of the first trade. That is, if the Schedule 13D filer could purchase the stake and generate no price impact, he could benefit 6% two-months return (i.e., sum of \$0.75 and \$0.15 million profits on \$15 million stake), which is comparable to 42% annualized return.

⁸Kyle’s (1985) lambda, the price impact measure, is the measure of liquidity that naturally corresponds to this theoretical insight. Since Kyle’s (1985) lambda is unobserved, I have to use its empirical counterpart. The microstructure literature suggests that the best empirical counterpart to Kyle’s lambda is the Amihud measure of stock illiquidity. First, it is based on widely available data and can be calculated for a large number of stocks at a daily frequency. Second, Hasbrouck (2009) and Korajczyk and Sadka (2008) show that the Amihud measure is highly correlated with two measures of liquidity, which are based on intraday TAQ microstructure data. Recently, Goyenko et al. (2009) show that the Amihud measure does well measuring price impact. Therefore, I use the Amihud (2002) measure of stock illiquidity as a proxy for stock liquidity. Results are robust to using bid-ask spread as an alternative measure of stock liquidity. Untabulated evidence suggests that, similarly to Amihud (2002) measure of stock illiquidity, the bid-ask spread affects the likelihood of a proxy contest negatively. When

3, suggest that proxy contest targets have significantly higher stock liquidity. Figure 3 plots the average level of stock liquidity, as measured by Amihud (2002) illiquidity measure, during the pre-event years. The dashed line plots stock illiquidity for the full sample of proxy contest targets and the solid line plots stock illiquidity for Weis Markets Inc., which was targeted in a proxy contest during 1999. Figure 3 suggests that stock liquidity increases (i.e., illiquidity decreases) before companies are targeted in a proxy contest. Similar evidence is reported by Norli et al. (2010), who show that stock liquidity increases shareholders' incentive to engage in proxy contests, and by Brav et al. (2008), who show that stock liquidity increases the likelihood of intervention by activist hedge funds, who often explicitly mention the possibility of a proxy contest. Thus, the Amihud measure of stock illiquidity satisfies the first requirement because it significantly affects the likelihood of a proxy contest. Consistently with the theoretical literature, the effect of the stock liquidity on the likelihood of a proxy contest is positive.⁹

[Insert Figure 3 here]

Following the theoretical literature and the evidence on the strong effect of stock liquidity on the likelihood of a proxy contests, I make the following identification assumption: stock liquidity, as measured by the Amihud (2002) measure of stock illiquidity, satisfies the exclusion restriction. Next Section presents the effects of the likelihood of a proxy contest on corporate policies under the assumption that stock liquidity satisfies the exclusion restrictions. Section 4.3 provides several pieces of evidence to support the validity of the identification assumption.

4.2. Results

I analyze the effect of the likelihood of a proxy contest on the following corporate policies: the capital structure policy (leverage and cash reserves), the investment policy (R&D and capital expenditures), the dividend payout policy, and the CEO compensation policy (CEO compensation and CEO turnover). The results are reported in Table 4. For each outcome variable of interest, Panel A reports the First Stage estimates (equation (2)), which are used to construct a consistent estimate of the likelihood of a proxy contest, \widehat{PC}^* . Panel B reports the Second Stage estimates (equation (1)), where the dependent variable is an outcome variable of interest and the main right-hand-side variable of interest is the likelihood of a proxy contest, \widehat{PC}^* , which is constructed using the First Stage estimates.

[Insert Table 4 here]

Amihud (2002) measure of stock illiquidity is replaced with the bid-ask spread, there is no major change in results.

⁹When I check for a potential weak effect of the Amihud measure of stock illiquidity on the likelihood of a proxy contest, I find no evident weakness of the excluded variable in the full sample (Stock and Yogo, 2002). However, the effect is weak in the Executive Compensation sample. Therefore, the evidence in this sub-sample should be taken with a grain of salt.

First, I consider the capital structure policy. The coefficient of \widehat{PC}_{it}^* suggests that when the likelihood of a proxy contest increases, leverage increases. Following one standard deviation increase in the likelihood of a proxy contest, companies increase leverage by 2.42%.¹⁰ The evidence implies that when external corporate governance becomes more effective (i.e., firm's common stock is more liquid and, therefore intervention is less expensive), the management reacts by increasing leverage ratio. This evidence fits well with the existing literature. For example, positive effects of stronger shareholder control on the leverage are documented in literature that studies the implications of the second-generation antitakeover legislation (Garvey and Hanka, 1999). Similarly, it has been shown that leverage increases in the aftermath of entrenchment-reducing shocks to managerial security (Berger et al., 1997; Safieddine and Titman, 1999).¹¹

While the changes in leverage are significant, the current specification fails to detect significant changes in the cash reserves. The insignificance of the effect of the likelihood of a proxy contest on the cash reserves is consistent with Bates et al. (2009). The authors show that agency conflicts, which the proxy contest mechanism mitigates, cannot explain the increase in cash reserves during last three decades. Moreover, while the free cash hypothesis suggests that shareholders will choose to limit manager's access to free cash flow to mitigate agency conflicts over its deployment, Harford et al. (2008) show that firms with weaker corporate governance structures actually have smaller cash reserves because weaker governance firms spend cash more quickly than those with stronger governance.

As far as the investment policy is concerned, companies spend less on R&D and decrease capital expenditures when the likelihood of a proxy contest increases. Following one standard deviation increase in the likelihood of a proxy contest, companies decrease R&D expenditures by 4.40% and decrease the capital expenditures by 8.15%. Thus, the higher the likelihood of a proxy contest, the lower the level of investment. These changes in the investment policy are consistent with evidence reported by Safieddine and Titman (1999) and Garvey and Hanka (1999), who document that when targets increase their leverage ratios to prevent the control challenge, they also reduce capital expenditures.

The likelihood of a proxy contest significantly affects dividend payout policy. Companies increase dividends when the likelihood of a proxy contest increases. For example, following one standard deviation increase in the likelihood of a proxy contest, companies increase dividend

¹⁰The economic magnitude of the likelihood of a proxy contest is $\gamma_1 \sigma_{PC} / \bar{y}_{it}$, where γ_1 is estimated from equation (1), σ_{PC} is the standard deviation of the likelihood of a proxy contest, and \bar{y}_{it} is the mean of the dependent variable. σ_{PC} is the standard deviation of estimated residuals (ε_{it}) in the following equation: $\widehat{PC}_{it}^* = \eta_t + \eta_i + \varepsilon_{it}$. That is, I rely only on the within firm variation in the likelihood of a proxy contest.

¹¹As a robustness check, I consider the gross book leverage and the market leverage. In both cases the results unchanged. Moreover, results are robust to using long-term debt instead of the total debt, suggesting that the increase in leverage is not driven by issuances of short term debt.

payout ratio by 2.81%. Previous studies document the positive relation between the strength of corporate governance and dividend payouts (La Porta et al., 2000; Francis et al., 2011; Jiraporn et al., 2011). The positive disciplinary effect of the proxy contests on dividend payouts is also consistent with a survey by Allen and Michaely (2003), suggesting that management can commit to pay out cash because of constant threat of some disciplinary action.

Finally, I consider the CEO compensation policy. The evidence suggests that when the likelihood of a proxy contest increases, companies decrease CEO compensation and increase CEO turnover. Following one standard deviation increase in the likelihood of a proxy contest, companies decrease CEO compensation by more than 5.36% and increase CEO turnover by 4.09%. The evidence finds support in the existing literature. The results are consistent with evidence provided by Borokhovich et al. (1997) and Bertrand and Mullainathan (1999), who explore changes in antitakeover legislation and document the negative relation between the threat of a control challenge and CEO compensation. Similarly, Core et al. (1999) show that CEOs earn lower compensation when governance structures are more effective.

The overall evidence suggests that an increase in the likelihood of a proxy contest makes the external governance more effective. Companies react to the stronger external governance by increasing leverage, decreasing investments, increasing dividend payouts, reducing CEO compensation, and increasing CEO turnover. Recent literature on shareholder activism suggests that activist shareholders often require companies to increase leverage, to increase payouts to shareholders, to exhibit more discipline in capital expenditures, to reduce CEO compensation, and to replace poorly performing CEOs (e.g., Brav et al., 2008; Klein and Zur, 2009; Becht et al., 2009). Companies know what changes in corporate policies activist shareholders usually ask to implement and by moving corporate policies in that direction companies decrease the likelihood of intervention. Therefore, the documented changes in corporate policies are consistent with the notion that companies change corporate policies in order to decrease the likelihood of intervention by outside shareholders.

Next, I perform a battery of robustness checks.

I begin from testing whether results are sensitive to the choice of control variables. In addition to control variables included in the main specification (lag $\log(MV)$, lag SALES, lag INST, lag BM, constant, year fixed effects, and firm fixed effects), I now include all other variables shown to be associated with proxy contests. Specifically, I include lag LEVERAGE, lag R&D, lag CAPEX, lag DIVIDENDS, lag CEOPAY, and lag NEW CEO in both First and Second Stage regressions. Table 5 reports the results. Panel A reports estimates in the full sample and suggests that the expansion of the list of control variables has no material effect on the results as all coefficients keep their sign and remain statistically significant. Panel B reports estimates in the Executive

Compensation sample. All the results carry through in this specification except for the effect of the likelihood of a proxy contest on leverage and the CEO turnover, which keep their sign but become statistically insignificant. This evidence, however, should be interpreted with a caution since the sample shrinks significantly in this specification. Overall, the evidence suggests that results are not sensitive to the choice of control variables.

[Insert Table 5 here]

Second, I estimate the linear probability model with firm fixed effects in the First Stage regression to verify robustness to the First Stage specification.¹² Table 6 reports the results. All the results carry through in this specification except for the effect of the likelihood of a proxy contest on the CEO turnover, which remains positive but statistically insignificant. Importantly, the economic magnitude of the effects in this specification is similar to economic magnitude of the effects in the main specification. Therefore, I conclude that the estimation procedure is robust to using the Linear Probability model and to the inclusion of firm fixed effects in the First Stage.

[Insert Table 6 here]

For space reasons, I will summarize without directly reporting other robustness tests I perform. First, I verify whether the results are driven solely by targeted companies. This is important since in Section 5 I show that ex-post targeted companies do try to prevent proxy contests by changing corporate policies during pre-targeting years. To perform the test, I exclude targeted companies from the Second Stage regressions. As a result, neither the statistical nor the economic significance of results is affected. The evidence suggests that changes in corporate policies induced by stronger external corporate governance, as measured by the likelihood of a proxy contest, take place not only in ex-post targeted companies, but also in companies that have never experienced a proxy contest.

Second, I estimate the First Stage regression (2) in an out-of-sample manner. Particularly, for each year t I estimate the First Stage regression using a sample that ends in $t - 1$ and then generate \widehat{PC}_{it}^* for year t . All the results carry through in this specification except for the effect of the likelihood of a proxy contest on cash reserves and CEO turnover. The effect of the likelihood of a proxy contest on cash reserves continues to be negative but becomes statistically significant while the effect of the likelihood of a proxy contest on CEO turnover loses statistical significance.

¹²I use the linear probability model with firm fixed effects because most nonlinear models, such as probit model, suffer from the incidental parameters problem and therefore prevent inclusion of the firm fixed effects in the regression.

Third, I check whether the main conclusions change if I perform the analysis on differences instead of levels. Particularly, I estimate the following Second Stage regression:

$$\Delta y_{it} = \Delta X_{it}\alpha_1 + \beta_1 \Delta \widehat{PC}_{it}^* + \Delta \eta_t + \Delta \varepsilon_{it}, \quad (4)$$

where Δ is the first difference operator. The results are unaffected, suggesting that results are robust to using either levels or differences in the regressions.

Finally, I address the potential inconsistency problem induced by the inclusion of a lagged dependent variable in the Second Stage (see Arellano and Bond, 1991). In general, inclusion of lagged left-hand side variable in the set of control variables involves the following tradeoff: it addresses the mean reversion concern (Barber and Lyon, 1996) but generates inconsistency in the estimated coefficients (See discussion in Angrist and Krueger, 1999, page 1295). To perform the robustness test, I exclude lagged outcome variables from the First and the Second Stage regressions. The results are unaffected except for the effect of the likelihood of a proxy contest on leverage, which becomes statistically insignificant. However, when I apply the Arellano and Bond (1991) procedure, which uses lagged levels and the differences of the left-hand side variable as instruments, the coefficient of leverage is positive and significant. Therefore, including of lagged dependent variables in the regressions does not generate a significant bias in estimates.

Taken together, the hypothesis that there is no ex ante effect of the proxy contest is rejected. When the likelihood of a proxy contest changes, companies change leverage, dividends payouts, investments, CEO compensation, and CEO turnover. Thus, the proxy contest mechanism plays an active role in modern corporate governance and has strong disciplinary effects on major corporate policies. In the next Section, I provide several pieces of evidence to support the validity of the identification assumption.

4.3. Identification Strategy

Results presented in the previous section have causal interpretation if the identification assumption is satisfied. The assumption is that stock liquidity, as measured by the Amihud (2002) measure of stock illiquidity, satisfies the exclusion restriction. In this Section, I provide evidence to support the validity of the identification assumption.

To think about the validity of the identification assumption, it is useful to study the reduced form relation between the exogenous source of variation in the likelihood of a proxy contest (i.e., Z_{it}) and the outcome variables:

$$y_{it} = X_{it}\pi_{11} + Z_{it}\pi_{12} + \eta_i + \eta_t + v_{1it}, \quad (5)$$

where the reduced-form coefficients are $\pi_{11} = \alpha_{11} + \alpha_{21}\gamma_1$, $\pi_{12} = \alpha_{22}\gamma_1$, and $v_{1it} = u_{1it} + \gamma_1 u_{2it}$ (the reduced-form coefficients are expressed as function of the structural coefficients; see equation (1)). The reduced-form coefficients are informative about the structural relation between the likelihood of a proxy contest and the outcome variables. For example, if management does not change the outcome variables when the likelihood of a proxy contest increases (i.e., $\gamma_1 = 0$) or stock liquidity has no effect on the likelihood of a proxy contest (i.e., $\alpha_{22} = 0$), the reduced-form coefficient π_{12} equals zero as well. Such reduced-form approaches have been widely used in the literature. For example, Bertrand and Mullainathan (2003) estimate the effect of antitakeover laws on wages. The estimation procedure assumes that the reduced form relation between adoption of an antitakeover law and wages is generated by antitakeover laws affecting the threat of hostile takeover, which causes companies to change wages.¹³

Table 7 reports the estimates of equation (5). The estimated coefficients of the Amihud measure of stock illiquidity are consistent with the hypothesis that when stock liquidity changes, companies significantly change the outcome variables. Specifically, stock liquidity is negatively correlated with investments and CEO compensation and is positively correlated with leverage, dividends, and CEO turnover.¹⁴

[Insert Table 7 here]

Finding a significant relation between stock liquidity (i.e., Z_{it}) and outcome variables is consistent with the identification assumption. However, it might also be consistent with several alternative hypothesis that might violate the identification assumption. While the control variables (MV, SALES, INST, and BM) take care of some potential sources of endogeneity related to observable time-varying firm characteristics, year fixed-effects (η_t) take care of year-specific unobservables that may bias estimates, and firm fixed effects (η_i) remove biases that could result from permanent (that is, time invariant) differences between firms with high and low likelihood of a proxy contest, the final and important concern is that time-varying, unobservable firm-specific effects may confound the inference. For example, the reduced form relation between stock

¹³In footnote 14 Bertrand and Mullainathan (2003) write that it would be interesting to focus only on firms that are under threat of a hostile takeover. They argue, however, that "... Simply using raw takeover probabilities would be misleading since many takeovers are not hostile, and it is only the hostile ones that are relevant for our purposes." In this paper, however, such problem does not exist since all proxy contests are hostile. Thus, the fact that proxy contest mechanism plays the role of hostile takeovers in the modern market for corporate control is helpful for identifying the disciplinary effects of this mechanism.

¹⁴Several papers studied the reduced-form relation between stock liquidity and some of outcome variables I consider. For example, Banerjee et al. (2007) study the relation between stock liquidity and dividends while Lipson and Mortal (2009) study the relation between stock liquidity and capital structure. Please note that these papers rely on both cross-sectional and time-series variation. This paper, in contrast, exploits the time-series variation only. That is, it shows what happens to corporate policies *when* the likelihood of a proxy contest changes. The inclusion of firm fixed effects in the regressions implies that all time-invariant variation in dependent and independent variables is absorbed by firm fixed effects. As a result, the estimates rely on the time-series variation only.

liquidity and the outcome variables may be consistent with either a direct effect of liquidity on the outcome variables, as well as an omitted variable that affects stock liquidity and the outcome variables. In the remaining part of this section I argue that such sources of endogeneity are not likely to generate a significant bias in estimates.

In order to help rule out such stories, I perform a placebo test, which exploits a period of time when external intervention was almost impossible. The test exploits two changes in the legal environment. First, the cost of a hostile tender offer increases significantly after the second generation of state-level antitakeover laws in late 1980s (Bertrand and Mullainathan, 2003). Second, the 1992 proxy reform reduces the costs of communications among shareholders (Bradley et al., 2010, empirically demonstrate the effect of this reform on proxy contests by activist arbitrageurs). As a result, the frequency of proxy contests increases significantly. These two changes suggest that the likelihood of a shareholder’s intervention is lower between late 1980s and 1992.

If indeed there is a direct relation between stock liquidity and the outcome variables, we should observe significant correlation between stock liquidity and the outcome variables in the placebo sample. Similarly, if there is an omitted variable that affects stock liquidity and the outcome variables, such variable presumably operated during the placebo period as well. Therefore, if the identification assumption is violated, we should observe significant correlation between stock liquidity and the outcome variables in the placebo sample. In contrast, if the stock liquidity affects the outcome variables only through the likelihood of a proxy contest channel and there is no omitted variable that affects both stock liquidity and the outcome variables, there should be a weaker correlation between stock liquidity and the outcome variables in the placebo sample because the likelihood of a shareholder’s intervention is weak.

To perform the placebo test, I estimate the reduced-form relation between stock liquidity and the outcome variables (equation (5)) in the 1988-1992 sample (‘placebo sample’).¹⁵ Table 8 reports the estimates of equation (5) in the ‘placebo sample’ and suggests that stock liquidity did not affect *any* of the outcome variables in the placebo sample. For example, the coefficient of illiquidity in the leverage equation changes from -0.0060 (-4.46 t-stat) in the effective sample to 0.0018 (0.71 t-stat) in the placebo sample. Thus, it is unlikely that an omitted variable drives the correlation between the stock liquidity and the outcome variables or that the stock liquidity directly effects the outcome variables.

[Insert Table 8 here]

¹⁵The results are not affected if the placebo sample starts in 1989. Since the Compustat Executive Compensation database is available only from 1992, it is impossible to perform the placebo test for the outcome variables from that database.

One might argue that coefficient of stock liquidity in the placebo sample is insignificant because the period is short (5 years). To address the possibility that relatively small sample size contributes to the absence of significance in the placebo sample, I report estimates in 1996-2000 and 2001-2005 sub-samples. The significance of the stock liquidity in these sub-samples mitigates this concern. For example, the coefficient of illiquidity in the leverage equation is -0.0098 (-3.58 t-stat) in the 1996-2000 sample. To provide further support to the placebo test, I check whether the coefficient of the Amihud measure of stock illiquidity changed significantly around the 1992 proxy reform. To perform the test, I estimate the following regression in the 1988-2008 sample period:

$$y_{it} = X_{it}\pi_{11} + PRE1992 * X_{it}\pi_{12} + Z_{it}\pi_{13} + PRE1992 * Z_{it}\pi_{14} + \eta_i + \eta_t + v_{it}, \quad (6)$$

where *PRE1992* is a dummy variable that indicates the pre-1992 sample period. *PRE1992* dummy variable is omitted from the regression because year fixed effects are included in the regression.

The evidence in Table 9 is informative. First, it confirms that stock liquidity did not affect the outcome variables in the placebo sample: the hypothesis that $\pi_{13} + \pi_{14} = 0$ is not rejected for every corporate policy I consider. Importantly, the *change* in coefficients is not only statistically but also economically significant. For example, the coefficient of stock illiquidity in the leverage regression is -0.0040 (-3.37 t-stat) in the effective sample and 0.0005 (statistically zero) in the placebo sample. Second, the change in the effect of the Amihud measure of stock illiquidity on the outcome variables, π_{14} , is statistically significant for all outcome variables but dividend payout ratio. While the change in the effect of the Amihud measure of stock illiquidity on the dividend payout ratio is insignificant, the sign of the change corresponds to the evidence in Table 8.¹⁶

[Insert Table 9 here]

One limitation of the placebo test is that time-varying, unobservable firm-specific effects may have a weaker effect on either stock liquidity and the outcome variables during the placebo period. In order to help rule out this possibility, I explore heterogeneity in the response to the likelihood of a proxy contest. Large companies are expected to be less sensitive to the likelihood of a proxy contest because it is harder to obtain control in a large company. Specifically, acquisition of a significant block in a large company requires a significant capital commitment. Therefore, I use heterogeneity in firm size, as measured by annual sales (SALES), to conduct the cross-sectional

¹⁶The change in the effect of the Amihud measure of stock illiquidity on cash is insignificant in all specifications and is reported for completeness of the analysis.

variation test. If time-varying, unobservable effects drive the relation between stock liquidity and the outcome variables during the effective sample (1994-2008), then the relation should be similar for large and small companies. In contrast, if the relation between stock liquidity and the outcome variables is driven by the likelihood of a proxy contest channel, the relation should be weaker when larger companies are concerned.

The cross-sectional variation test is performed by estimating the following reduced form equation:

$$y_{it} = X_{it}\pi_{11} + Z_{it}\pi_{13} + INTER * Z_{it}\pi_{14} + \pi_{15}INTER + \eta_i + \eta_t + v_{1it}, \quad (7)$$

where INTER is a dummy variable that equals one if the company belongs to the top 30th percentile in terms of firm size. The results are reported in Panel A of Table 10. The evidence suggests that the hypothesis $\pi_{13} + \pi_{14} = 0$ is not rejected when the following corporate policies are concerned: leverage, R&D expenditures, capital expenditures, dividend payout ratio, CEO compensation, and CEO turnover. Thus, the fact that the corporate policies of large companies are not sensitive to the likelihood of a proxy contest further supports the identification assumption.¹⁷

[Insert Table 10 here]

One limitation of the cross-sectional variation test is that firm size can be correlated with the time-varying, unobservable firm-specific effects that are not related to the likelihood of a proxy contest. Thus, it may still be possible that the time-varying, unobservable firm-specific effects are consistent with not only the significant time-series change in the relation between stock liquidity and the outcome variables, but also with the heterogeneous effect of stock liquidity on outcome variables. While it is inherently impossible to refute all time-varying, unobservable firm-specific effects that might confound the inference, I next examine several specific alternative channels.

First, I test whether the evidence is consistent with the “Wall Street Walk” channel for shareholder monitoring (Edmans, 2009; Admati and Pfleiderer, 2009; Edmans and Manso, 2010). The theory suggests that stock liquidity can facilitate corporate governance by reducing the cost of exit for a large shareholder. Lower cost of exit, in turn, makes the threat of exit on basis of negative information more credible. The central assumption of the model is that incumbent management’s wealth is sensitive to stock prices. In the absence of such sensitivity, the threat of

¹⁷There is an exception, however. The effect of stock liquidity on cash reserves is positive and significant when large companies are concerned. In general, there is no clear prediction regarding the effect of the likelihood of a control challenge on cash reserves. For example, firms with poor corporate governance can dissipate cash quickly (Dittmar and Mahrt-Smith, 2007; Harford et al., 2008; Bates et al., 2009). Alternatively, such companies can build larger cash reserves (Jensen, 1986).

exit cannot reduce the agency cost. Therefore, the theory suggests that the “Wall Street Walk” channel should be weak when incumbent management’s stock ownership is low: incumbents’ wealth is not sensitive to negative shocks to stock prices. Thus, one can test whether results are driven by the “Wall Street Walk” channel using heterogeneity in incumbents’ stock ownership. If indeed the “Wall Street Walk” channel drives the results, one should find no relation between stock liquidity and corporate policies when companies with low levels of incumbents’ stock ownership are concerned.

To perform the test, I use heterogeneity in incumbents’ stock ownership to test whether the results are driven by the “Wall Street Walk” channel. Specifically, I estimate equation (7), where INTER is a dummy variable equals to one if the company belongs to the bottom 30th percentile in terms of incumbents’ stock ownership. The evidence in Panel B of Table 10 suggests that stock liquidity is correlated with corporate policies even in companies with the lowest level of incumbents’ stock ownership. Therefore, it is unlikely that the link between stock liquidity and corporate policies is due to the “Wall Street Walk” monitoring channel. In addition, the sharp structural change in the relation between stock liquidity and the outcomes variables in the placebo sample cannot be explained by the “Wall Street Walk” channel for shareholder monitoring since that channel should exist in the placebo sample as well. Furthermore, the evidence on the negative relation between stock liquidity and investments (see Table 7) further suggests that the “Wall Street Walk” channel is not likely to drive the results as Edmans (2009) predicts that higher stock liquidity should be associated with higher level of investment when the “Wall Street Walk” channel operates.

Second, I check whether the main conclusions change if I control for alternative corporate governance mechanisms. Specifically, I include the following variables in the set of controls: a dummy variable that equals one if a regular (non-hostile) shareholder proposal was submitted during years $(t - 1, t - 3)$ (e.g., Ertimur et al., 2011), a dummy variable that equals one if a Schedule 13D filing is submitted during year t (Brav et al., 2008, use Schedule 13D filings to identify incidences of hedge fund activism), and the Gompers et al. (2003) governance index. Table 11 reports the results. All the results carry through with two exceptions. First, the effect of the likelihood of a proxy contest on leverage is positive but statistically insignificant when I control for the Gompers et al. (2003) governance index. This evidence, however, should be interpreted with a caution since the sample shrinks by 67% in this specification. It happens because the Gompers et al. (2003) governance index covers only 33% of the COMPUSTAT universe. Second, the effect of the likelihood of a proxy contest on CEO turnover remains positive but becomes statistically insignificant in all but one specifications. Overall, while alternative corporate governance mechanisms might affect CEO turnover when the likelihood

of a proxy contest is high, the main results are robust to controlling for several alternative corporate governance mechanisms.

[Insert Table 11 here]

5. The Ex Post Effects of Proxy Contests

The evidence in the previous Section suggests that when the likelihood of a proxy contest increases, the external corporate governance becomes more effective and pressures companies to change corporate policies. In response to an increase in the likelihood of a proxy contest induced by higher stock liquidity, companies increase leverage and dividend payouts, decrease R&D and CAPEX, decrease CEO compensation, and increase CEO turnover. As these changes in corporate policies are usually associated with lower agency costs, the evidence implies that the proxy contest mechanism has strong disciplinary effects and is effective in mitigating the agency problem between insiders and outside shareholders.

Significant disciplinary effects of the proxy contest mechanism have two empirical implications. First, if companies change corporate policies in anticipation of a proxy contest, fewer companies end up being targeted. This conclusion finds support in data, which suggest that the frequency of materialized proxy contests is not high: on average 55 proxy contests take place each year. In addition, activist hedge funds often use the threat of a proxy contest as a tactic to achieve their goals (Brav et al., 2008; Klein and Zur, 2009). Since hedge funds often succeed in achieving their goals, the threat of a proxy contest often does not materialize.

Second, if significant changes in the corporate policies are implemented in anticipation of a proxy contest that may or may not materialize, it should be hard to detect changes in the corporate policies in the post-targeted period. It is hard not only because the econometric power is limited by the sample size, but also because changes in corporate policies take place during the pre-event years. To analyze this conjecture, I study the ex post effects of the proxy contest on corporate policies. Since most of existing literature uses pre-1992 proxy reform data, this paper is the first to provide evidence on the ex post effects of proxy contests in the post-1992 period.¹⁸ The following equation estimates the ex post effects of the proxy contest on corporate

¹⁸The effect of the proxy contest on stock returns has been widely studied (Dodd and Warner, 1983; DeAngelo and DeAngelo, 1989; Ikenberry and Lakonishok, 1993; Mulherin and Poulsen, 1998; Norli et al., 2010). Much less, however, is known about the effect of the proxy contest on the major corporate policies. Exceptions are DeAngelo and DeAngelo (1989), Mulherin and Poulsen (1998), and Bebchuk (2007), who study CEO turnover and show that targeted companies increase CEO turnover, and Ikenberry and Lakonishok (1993), who study dividend distributions and show that targeted companies decrease dividends. There is a paucity of literature about the effect of proxy contests on other corporate policies, such as leverage, repurchases, R&D expenditures, capital expenditures, and CEO compensation.

policies:

$$y_{it} = X_{it}\alpha_1 + \sum_{\tau=0}^3 \beta_{\tau}D_{it+\tau} + \delta_1 PostTarget_{it} + \eta_t + \eta_i + \varepsilon_{it}, \quad (8)$$

where y_{it} is an outcome variable of interest, X_{it} is a vector of lagged covariates, $D_{it+\tau}$ is a dummy variable that equals to one if the company becomes a proxy contest target in τ years, $PostTarget_{it}$ is a dummy variable that equals to one if the company was targeted during last three years, η_t are time fixed effects, and η_i are firm fixed effects. The coefficient β_{τ} measures changes in corporate policies during the pre-event years and the coefficient δ_1 measures the ex post effect of the proxy contest. Table 12 presents the results.

[Insert Table 12 here]

I start from considering changes in corporate policies in ex-post targeted companies during the *pre*-event years. That is, I study whether targeted companies change corporate policies in anticipation of the proxy contest. Coefficients of $D_{it+\tau}$ in Table 12 suggest that corporate policies *do* change before materialization of a proxy contest. Specifically, the coefficient of D_{it+1} is significant for all corporate policies except cash reserves (consistently with the main results) and CEO turnover. In anticipation of a proxy contest, targeted companies significantly increase leverage, spend less on R&D, decrease capital expenditures, increase dividend payouts, and decrease CEO compensation. Interestingly, the coefficient of D_{it+0} is positive and significant when CEO turnover is concerned, suggesting that targeted companies significantly increase CEO turnover only after proxy contest materializes. It possibly explains why these firms end up being targeted: board of directors is not successful (enough) in firing the CEO in order to prevent the proxy contest.

Next, I consider the post-event years. Consistent with the above conjecture, it is hard to detect changes in corporate policies in the post-event years. Specifically, the coefficients of the target dummy $PostTarget_{it}$ are insignificant for all corporate policies except capital expenditures. Untabulated evidence suggests that the insignificance of coefficients is not affected by considering the fight outcomes and splitting the $PostTarget$ dummy into three year dummies.

To summarize, the evidence suggests that both targeted and non-targeted companies change corporate policies in anticipation of the proxy contest. Consistently with the disciplinary effects of proxy contests, future targets and companies that do not end up being targeted change corporate policies in the same direction. However, while non-targeted companies are able to escape proxy contests by changing corporate policies, ex post targets probably do not change corporate policies “enough” to prevent the attack.

6. Stock Returns and Operating Performance

The evidence in the previous section suggests that the proxy contest mechanism has strong disciplinary effects: companies significantly change major corporate policies in anticipation of a proxy contest. The fundamental question for the proxy contest mechanism is whether it creates value for shareholders. While the documented changes in corporate policies are consistent with reduction in agency costs, studying valuation implications of the proxy contest mechanism remains necessary. To address this question, I examine stock market returns and operating performance.

6.1. Stock Returns

I use short-term announcement event-day returns to show how the market perceives the effect of the proxy contest on shareholders. Figure 4 plots the average buy-and-hold return, in excess of the buy-and-hold return on the value-weighted NYSE/AMEX/NASDAQ index from CRSP, from 20 days prior to the proxy contest announcement date to 20 days afterward. There is a run-up of about 4.2% between 10 days to 1 day prior to announcement. The announcement day and the following day see a jump of about 3%. After that the abnormal return keeps trending up to a total of 10.2% over 20 days. Consistently with Dodd and Warner (1983), the evidence implies that positive and significant share price performance is associated with the proxy contest.

[Insert Figure 4 here]

Figure 4 also includes the average abnormal share turnover during the event window. I measure “normal” turnover over the (-100,-40) window preceding the proxy material filing dates. The spike in abnormal trading volume, defined as the percentage increase in the share turnover rate, occurs not only on the filing day and the following day but also during the pre-filing period. Using a comprehensive sample of trades by activist shareholders who often initiate proxy contests, Collin-Dufresne and Fos (2012) show that activist investors generate approximately 30% of trading volume during the pre-event period. The remaining volume comes from uninformed investors, who contribute to stock liquidity and permit the accumulation of large stakes by activist shareholders at prices lower than the post-filing price.

One potential explanation for the high abnormal return is a temporary price impact caused by buying pressure. If the price impact is purely temporary and reflects a trading friction rather than information about prospective value changes, I should observe negative abnormal returns shortly after the event. In contrast with this scenario, Figure 4 shows no reversal after 20 days (when the abnormal turnover declines to close to zero). Moreover, the pattern persists if I extend the window for another 20 days. Finally, untabulated evidence from calendar-time portfolio regressions shows no evidence for possible reversion in prices in the longer horizon.

To summarize, the proxy contest targets experience positive and significant stock returns when they are targeted. Importantly, there is no reversal in the long run. This implies that shareholders of targeted companies benefit from the proxy contest mechanism.

6.2. Operating Performance

Next, I consider the relation between the likelihood of a proxy contest and operating performance, measured by return on assets (ROA). Table 13 reports the results. Column (1) reports estimates of the First Stage equation. Columns (2)-(5) presents estimates of the main structural equations, where the outcome variable is ΔROA_{t+1} . Column (2) reports results in the full sample, column (3) reports results in the sample of ex post non-targeted companies, column (4) reports results in the sample of ex post targeted companies, and (5) reports results in the sample of ex post targeted companies and covers pre-targeting years only.

[Insert Table 13 here]

The overall evidence is consistent with the positive effect of the likelihood of a proxy contest on the operating performance. First, I consider the effect of the likelihood of a proxy contest on the operating performance in the full sample. Estimates reported in Column (2) indicate that the likelihood of a proxy contest has positive effect on the operating performance. Second, I consider the effect of the likelihood of a proxy contest on the operating performance of ex post non-targets and targets (columns (3) and (4) in Table 13). The evidence suggests that higher likelihood of a proxy contest is beneficial for operating performance of both ex post non-targets and targets. Finally, I consider the effect of the likelihood of a proxy contest on the operating performance of ex post targeted companies during the pre-targeting period (column (5) in Table 13). Interestingly, the coefficient of \widehat{PC}^* in column (5) is the largest, suggesting that the implicit shareholder pressure is most effective when future targets are concerned. This evidence is comforting, as these companies are viewed by shareholders as inefficient.¹⁹

7. Conclusion

This paper is the first to study the disciplinary effects of proxy contests.

Using a manually collected data set of all proxy contests from 1994 to 2008, I show that the proxy contest mechanism has strong disciplinary effects. Specifically, a change in the likelihood of a proxy contest induced by changes in stock liquidity affects major corporate policies, including

¹⁹To rule out a possibility that the improvement in the operating profitability is accompanied by an increase in riskiness, I considered changes in standard deviation of the operating profit. The unreported results suggest that there is no increase in the operating risk.

capital structure, investments, dividends, and CEO compensation. Following these changes, there is an improvement in operating performance. More importantly, these changes take place not only in the sample of ex post targeted companies, but also in the sample of ex post non-targets, suggesting that there are strong disciplinary effects of proxy contests. The evidence is consistent with the disciplinary effects of alleviating the agency problem between managers and outside shareholders.

The main contribution of this paper is to the corporate governance literature.

First, it is based on the complete set of proxy contests that took place after the 1992 proxy reform. The data reveals that there was a significant shift in hostile corporate governance. During the 1980s, outside shareholders often fought control contests and relied on the hostile tender offer mechanism. In contrast, after the significant increase in the costs of hostile takeover bids in late 1980s and the 1992 proxy reform that reduced the costs of the proxy contest, shareholders rarely fight control contests but instead use the proxy contest mechanism to obtain board representation.

Second, the paper shows that the proxy contest mechanism plays a significant disciplinary role in reducing agency costs. Importantly, it studies not only ex post effects but also ex ante effects of the proxy contest mechanism because an assessment of a corporate governance mechanism cannot be based on materialized events only. Instead, the analysis should *start* from studying the disciplinary effects. The idea is quite simple: if the proxy contest mechanism is effective in reducing the agency cost, only a few proxy contest will materialize. Therefore, the lower frequency of materialized proxy contests does not suggest that the mechanism is not effective.

The methodology to study the ex ante effects can be used in other areas of corporate finance.

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Appendix A. The Structural Model Construction

Consider a mixed structure model:

$$y_{it} = X_{it}\alpha_{11} + \gamma_1 PC_{it}^* + \delta_1 PC_{it} + \eta_t + \eta_i + u_{1it} \quad (\text{A.1})$$

$$PC_{it}^* = X_{it}\alpha_{21} + Z_{it}\alpha_{22} + \gamma_2 y_{it} + \delta_2 PC_{it} + \zeta_t + u_{2it} \quad (\text{A.2})$$

where y_{it} is an outcome variable of interest, PC_{it}^* is a latent-variable that captures the propensity of being a proxy contest target, X_{it} is a vector of covariates that affect y_{it} and PC_{it}^* , η_t and ζ_t are time fixed effects, η_i are firm fixed effects, Z_{it} is a vector of covariates that affect PC_{it}^* only, and PC_{it} is a dummy variable that equals to one if the company is targeted:

$$PC_{it} = \begin{cases} 1, & PC_{it}^* > 0 \\ 0, & \text{otherwise} \end{cases} \quad (\text{A.3})$$

The joint density of continuous random variables u_{1it} and u_{2it} is $g(u_{1it}, u_{2it})$, which is assumed to be a bivariate normal density.²⁰

Consider a typical year, during which the proxy contest activity is observed. First, since the dissident shareholder who initiates the proxy contest during that year uses information available at the end of the previous year, I include lagged covariates in X_{it} and Z_{it} and impose $\gamma_2 = 0$. Second, since the ex post effect can be observed only *after* the company is targeted, I impose $\delta_1 = 0$. Note that X_{it} can include dummy variables that indicate post-targeting years (i.e., PC_{it-1} , PC_{it-2} , etc.). After imposing $\gamma_2 = 0$ and $\delta_1 = 0$, I obtain the following system of equations:

$$y_{it} = X_{it}\alpha_{11} + \gamma_1 PC_{it}^* + \eta_t + \eta_i + u_{1it} \quad (\text{A.4})$$

$$PC_{it}^* = X_{it}\alpha_{21} + Z_{it}\alpha_{22} + \delta_2 PC_{it} + \zeta_t + u_{2it} \quad (\text{A.5})$$

Models of this kind, in which the latent variables as well as their dichotomous observations occur in different structural equations, need some restrictions on the coefficients to be logically consistent. To achieve the logical consistency, the coefficient on the observed dichotomous variable in the reduced form of the latent variable equation has to be zero (see Maddala, 1983). Therefore, the necessary and sufficient condition for logical consistency is $\delta_2 = 0$. After imposing

²⁰Firm fixed effects are excluded from equation (A.2) because they introduce the incidental parameter problem in this specification. If the linear probability model is used instead of probit, firm fixed effects can be including in equation (A.2). In Section 4.2 I report estimates of the linear probability with firm fixed effects and show that results are robust to their inclusion.

this restriction, the logically consistent structural model is:

$$y_{it} = X_{it}\alpha_{11} + \gamma_1 PC_{it}^* + \eta_t + \eta_i + u_{1it} \quad (\text{A.6})$$

$$PC_{it}^* = X_{it}\alpha_{21} + Z_{it}\alpha_{22} + \zeta_t + u_{2it} \quad (\text{A.7})$$

Dependence of PC_{it}^* and y_{it} on the shocks that take place during the calendar year t , i.e., $\text{corr}(u_{1it}, u_{2it}) \neq 0$, suggests estimating two structural equations as a system of equations. For instance, unexpected market fluctuations can prevent a dissident from initiating the proxy contest and simultaneously affect company's performance.

Appendix B. Asymptotic Properties of Estimated Coefficients

Consider a model:

$$\begin{aligned} y_{1it} &= \beta_1' x_{1it} + \gamma_1 y_{2it}^* + u_{1it} \\ y_{2it}^* &= \beta_{21}' x_{1it} + \beta_{22}' z_{it} + u_{2it} \end{aligned}$$

where:

$$d_t = \begin{cases} 1, & y_{2it}^* > 0 \\ 0, & \text{otherwise} \end{cases}$$

An econometrician observes y_{1it} and d_t but does not observe y_{2it}^* . Assume $\{x_{1it}, z_{it}\}$ are known constants and $\{u_{1it}, u_{2it}\}$ are bivariate variables with $\text{corr}(u_{1it}, u_{2it}) = \rho_{12}$, $\text{corr}(u_{1it}, u_{1is}) = \rho_{11}$, $\text{corr}(u_{2it}, u_{2is}) = \rho_2$, and $\text{corr}(u_{1it}, u_{2is}) = \rho_{12}^{ts}$, $t \neq s$. The structural model in the vector notation is:

$$\begin{aligned} Y_1 &= X_1 \beta_1 + \gamma_1 Y_2^* + U_1 \\ Y_2^* &= X_1 \beta_{21} + Z \beta_{22} + U_2 = X \beta_2 + U_2, \end{aligned}$$

where $X = [X_1 Z]$ and $\beta_2' = (\beta_{21}' \beta_{22}')$. Note that the second equation is both structural and reduced form equation. The reduced form of the first equation is:

$$\begin{aligned} Y_1 &= X_1 \beta_1 + \gamma_1 (X_1 \beta_2 + Z \beta_{22} + U_2) + U_1 \\ &= X_1 \pi_{11} + Z \pi_{12} + U_1 + \gamma_1 U_2 = X \pi_1 + V_1, \end{aligned}$$

where $\pi_{11} = \beta_1 + \gamma_1 \beta_2$, $\pi_{12} = \gamma_1 \beta_{22}$, $\pi_1' = (\pi_{11}' \pi_{12}')$ and $V_1 = U_1 + \gamma_1 U_2$.

By inserting $Y_2^* = X \beta_2 + U_2$ into the structural form equation of Y_1 and using $V_1 = U_1 + \gamma_1 U_2$,

I obtain:

$$\begin{aligned}
Y_1 &= X_1\beta_1 + \gamma_1 X\beta_2 + V_1 \\
&= X_1\beta_1 + \gamma_1 X\hat{\beta}_2 + V_1 - \gamma_1 X(\hat{\beta}_2 - \beta_2) \\
&= X\hat{H}\alpha_1 + W_1,
\end{aligned}$$

where $W_1 \equiv V_1 - \gamma_1 X(\hat{\beta}_2 - \beta_2)$, $\alpha' \equiv (\beta_1' \gamma_1)$, $J_1 X = X_1$, and $\hat{H} \equiv (J_1, \hat{\beta}_2)$. Heckman's (1978) estimator of α is defined as the least squares method applied to $Y_1 = X\hat{H}\alpha_1 + W_1$:

$$\begin{aligned}
\hat{\alpha} &= (\hat{H}'X'X\hat{H})^{-1}\hat{H}'X'Y_1 \\
&= \alpha_1 + (\hat{H}'X'X\hat{H})^{-1}\hat{H}'X'(V_1 - \gamma_1 X(\hat{\beta}_2 - \beta_2)) \\
&= \alpha_1 + (\hat{H}'X'X\hat{H})^{-1}\hat{H}'X'W_1,
\end{aligned}$$

Note that since $plim\hat{\beta}_2 = \beta_2$ and $plim(X'V_1) = 0$, $plim\hat{\alpha} = \alpha$. Thus, the estimator is consistent. The asymptotic variance-covariance matrix of $\hat{\alpha}$ is ²¹:

$$\begin{aligned}
AVar(\hat{\alpha}) &= AE\{(\hat{\alpha} - \alpha)(\hat{\alpha} - \alpha)'\} \\
&= (\hat{H}'X'X\hat{H})^{-1}\hat{H}'AE(X'W_1W_1'X)\hat{H}(\hat{H}'X'X\hat{H})^{-1}.
\end{aligned}$$

Observe:

$$\begin{aligned}
X'W_1W_1'X &= (X'V_1 - \gamma_1 X'X(\hat{\beta}_2 - \beta_2))(V_1'X - (\hat{\beta}_2 - \beta_2)'X'X\gamma_1) \\
&= X'V_1V_1'X + \gamma_1^2 X'X(\hat{\beta}_2 - \beta_2)(\hat{\beta}_2 - \beta_2)'X'X \\
&\quad - 2\gamma_1 X'X(\hat{\beta}_2 - \beta_2)V_1'X,
\end{aligned}$$

By taking the expectation, I obtain:

$$\begin{aligned}
AE(X'W_1W_1'X) &= AE(X'V_1V_1'X) + \gamma_1^2 X'XAVar(\hat{\beta}_2)X'X \\
&\quad - 2\gamma_1 X'XAE\{(\hat{\beta}_2 - \beta_2)V_1'X\}.
\end{aligned}$$

²¹ $AVar(x)$ is the asymptotic variance-covariance matrix of r.v. x and $AE(x)$ denotes the asymptotic mean (or the mean of the limit distribution) of r.v. x .

Observe that if $\gamma_1 = 0$, I am back to the unadjusted standard errors:

$$\begin{aligned}AE(X'W_1W_1'X) &= AE(X'V_1V_1'X) = AE(X'U_1U_1'X) \\AVar(\hat{\alpha}) &= (X_1'X_1)^{-1}AE(X_1'U_1U_1'X_1)(X_1'X_1)^{-1}.\end{aligned}$$

Thus, the following result follows.

Lemma *The unadjusted standard errors estimate is consistent under the null of $\gamma_1 = 0$.*

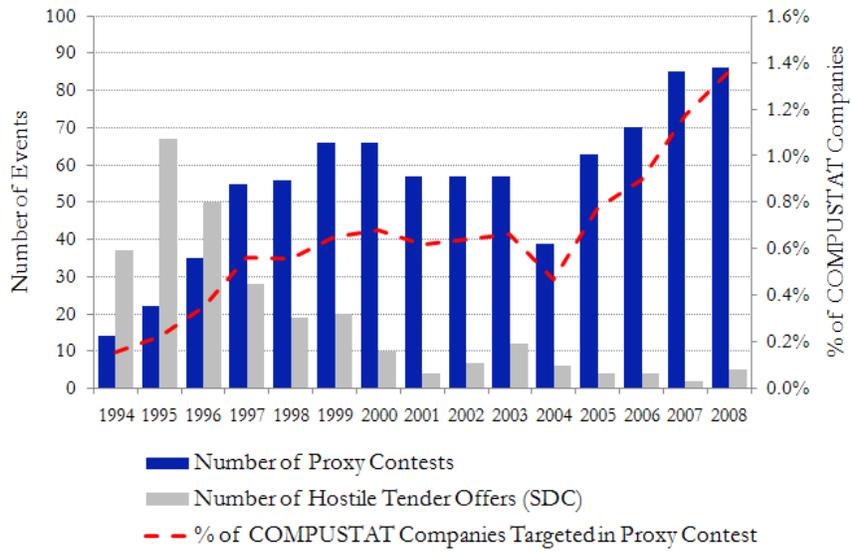


Figure 1: **Time Distribution of Proxy Contests.** The dark bars (left axis) plot the number of proxy contests initiated each year. The gray bars (left axis) plot the number of hostile tender offers initiated each year. The dashed line (right axis) plots the percentage of Compustat companies targeted in the proxy contest each year. The proxy contests data are described in Section 2. The hostile tender offers data are from SDC database.

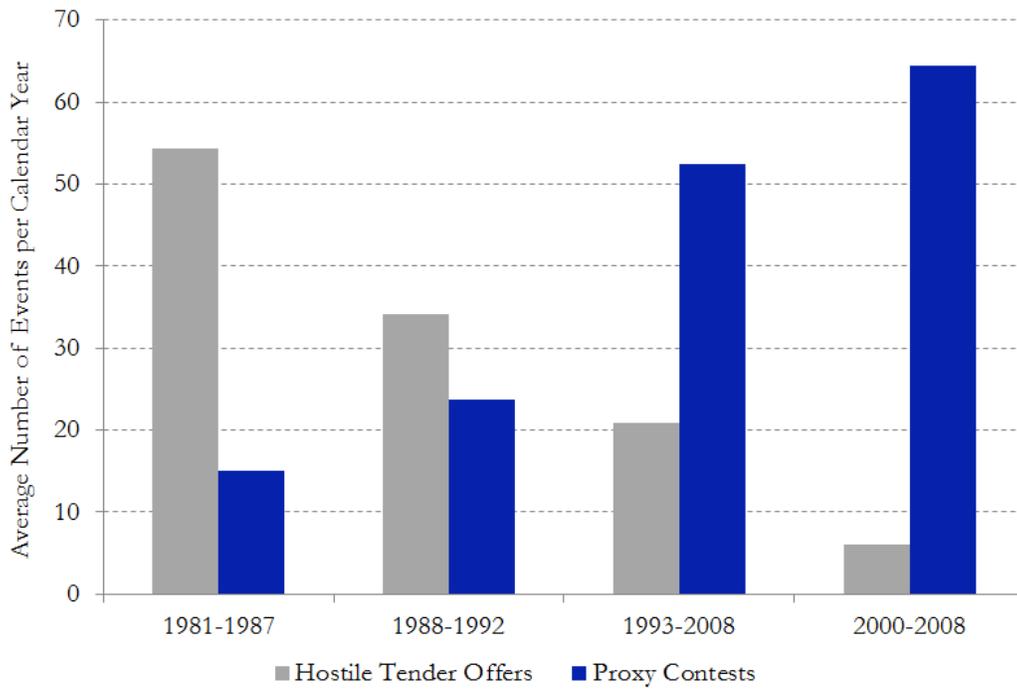


Figure 2: Raise of Proxy Contests and Disappearance of Hostile Tender Offers. The dark bars plot the average number of proxy contests initiated each year during four sample periods. The gray bars plot the average number of hostile tender offers initiated each year. The proxy contests data are described in Section 2. The sample of proxy contests includes control contests, short slate contests, and issue contests. The hostile tender offers data are from SDC database.

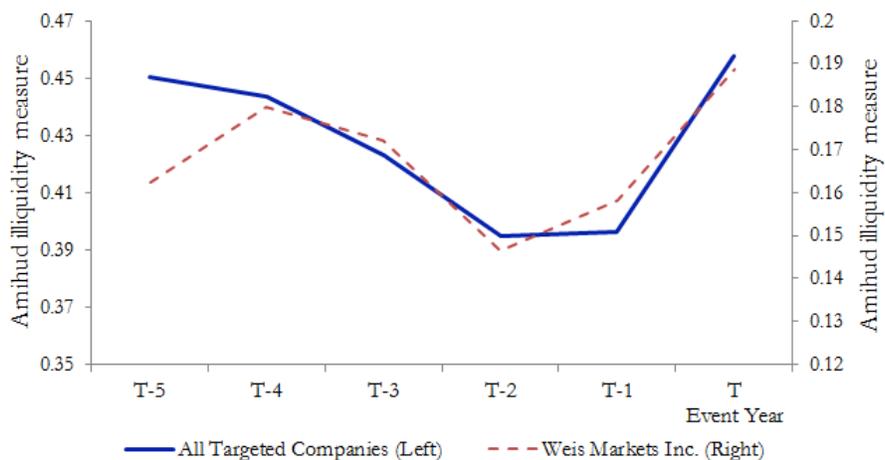


Figure 3: **Stock Liquidity Prior to Proxy Contests.** The solid line (left axis) plots the average Amihud (2002) illiquidity measure for proxy contest targets during the pre-event years, where the event year is the year when a company is targeted in a proxy contest. The dashed line (right axis) plots Amihud (2002) illiquidity measure for the common stock of Weis Markets Inc., which was targeted in a proxy contest during 1999 (see Section 2 for detailed description of this event).

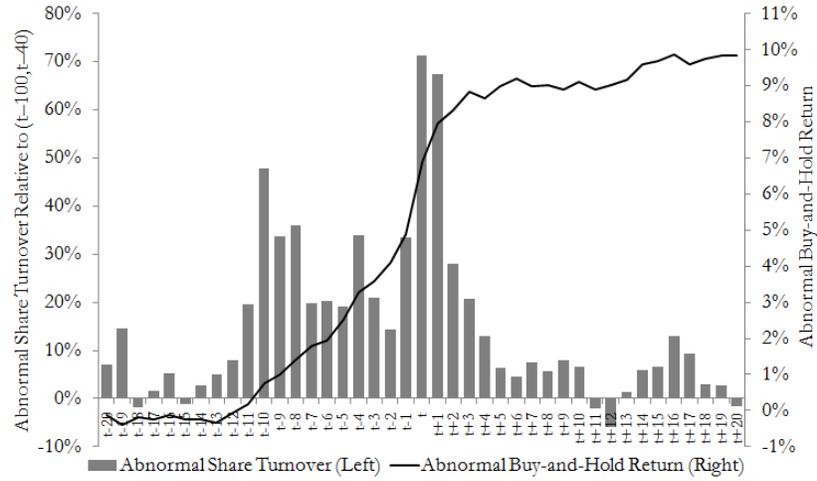


Figure 4: Buy-and-Hold Abnormal Return around the Proxy Contest Announcement. The solid line (right axis) plots the average buy-and-hold return around the proxy contest announcement, in excess of the buy-and-hold return of the value-weight market, from 20 days prior the announcement to 20 days afterwards. The bars (left axis) plot the increase (in percentage points) in the share trading turnover during the same time window compared to the average turnover rate during the preceding (-100, -40) event window.

Table 1: **Variable Definitions.**

Variable	Definition
AMIHUD	Amihud (2002) illiquidity measure, defined as the yearly average (using daily data) of $1000\sqrt{\frac{ Return }{DollarTradingVolume}}$.
BM	The ratio of the book value of equity to the market value of equity.
BID-ASK-SPREAD	The quoted percentage spread, defined as the yearly average (using daily data) of $(Ask - Bid)/(0.5Ask + 0.5Bid)$.
CAPEX	The capital expenditures less the sale of PP&E divided by mean total assets, where the mean total assets is the average of current and lagged total assets.
CASH	The ratio of total cash and cash equivalents to total assets.
CEOPAY	The total CEO contracted pay including options valued at granting ("TDC1" from Compustat Executive Compensation database), divided by sales.
CRSP AGE	The number of years since first appearance on CRSP.
DIVIDENDS	Dividend payout ratio, defined as the ratio of total dividend payments to net income before extraordinary items.
GINDEX	The Gompers et al. (2003) governance index.
INCUMBENT OWNERSHIP	The proportion of shares held by incumbent executives.
INST	The proportion of shares held by institutions.
LEVERAGE	The net book leverage ratio defined as $(\text{book value of debt} - \text{cash})/(\text{book value of debt} + \text{book value of equity})$.
MV	Market capitalization in millions of dollars.
NEW CEO	A dummy variable equals to one if the current CEO is assigned to the firm for the first year.
R&D	Research and development expense scaled by lagged total assets.
ROA	Return on assets, defined as earnings before interest, taxes, depreciation, and amortization divided by lagged total assets.
STOCK RETURN	The 12 months buy-and-hold return.

Table 2: **Types of Proxy Contests.** This table presents classification of proxy contests into three types: control contests, board representation contests, and issue contests. Control contests are filed by shareholders who want to gain control over the board. Short slate contests are targeted to getting a few non-controlling seats on the board. Issue contests do not involve election of the firm’s board of directors. They either raise issues about the company’s corporate governance or are related to proposals that are excluded by management from the proxy statement. Sample period is 1994-2008. See Section 2 for further details.

Proxy Contest Type	Number of Events	Frequency
Short Slate Contests	325	41%
Issue Contests	95	12%
<u>Short Slate Contests Combined with Issue Contests</u>	<u>230</u>	<u>29%</u>
Non-Control Contests	650	82%
<u>Control Contests</u>	<u>142</u>	<u>18%</u>
All Proxy Contests	792	100%

Table 3: **Probit Analysis of Proxy Contests.** This table reports estimates of the probit regression: $Pr(PC_{it} = 1) = \Phi(X_{it}\alpha_{21} + \zeta_t + \varepsilon_{it})$, where the dependent variable PC_{it} is a dummy variable equals to one if the company is targeted in a proxy contest during the year, Φ is the cumulative normal distribution, X_{it} is a vector of lagged covariates, and ζ_t are time fixed effects. These regressions cover all Compustat firm-year observations from 1994 to 2008, and include both event and non-event observations. All independent variables are defined in Table 1. Column (1) reports probit coefficients. Column (2) reports average partial effects (APE). APE corresponds to the change in the likelihood of a proxy contest due to a standard deviation change of a covariate. Column (3) reports t -statistics, calculated using heteroscedasticity robust standard errors and within correlation clustered by industry (3-digit SIC). *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels.

	Coefficient (1)	APE (2)	t-stat (3)
BM	0.1637***	0.0023	4.33
STOCK RETURN (annual)	-0.1553***	-0.0016	-4.80
INST	0.1938**	0.0012	2.37
MV (\$, millions)	-0.0710***	-0.0027	-2.85
CRSP AGE	0.0057***	0.0017	3.95
AMIHU	-0.2186***	-0.0025	-4.72
LEVERAGE	0.2339*	0.0009	1.75
CASH	0.3392***	0.0015	2.90
R&D	-0.3397	-0.0006	-1.59
CAPEX	-0.1423	-0.0003	-0.98
DIVIDENDS	0.0572	0.0003	0.60
ROA	0.1426	0.0036	1.40
Constant	-2.1777***		-14.48
Observations	57,748		
Pseudo R^2	4.44%		

Table 4: **The Ex Ante Effect of the Proxy Contests.** This table reports estimates of the disciplinary effects of proxy contests. Panel A reports estimates of equation (2) using the probit model: $Pr(PC_{it} = 1) = \Phi(PC_{it}^*) = \Phi(X_{it}\alpha_{21} + Z_{it}\alpha_{22} + \zeta_t + u_{2it})$, where the dependent variable PC_{it} is a dummy variable equals to one if the company is targeted in a proxy contest during the year, Φ is the cumulative normal distribution, PC_{it}^* is an unobserved latent-variable that captures the propensity of being the target of a proxy contest, X_{it} is a vector of lagged covariates, Z_{it} is the Amihud (2002) measure of stock illiquidity, ζ_t are time fixed effects. Panel B reports estimates of equation (1): $y_{it} = X_{it}\alpha_{11} + \gamma_1 \widehat{PC}_{it}^* + \eta_t + \eta_i + u_{1it}$, where y_{it} is an outcome variable of interest, \widehat{PC}_{it}^* is the First Stage estimate of the likelihood of a proxy contest, reported in Panel A, η_t are time fixed effects, and η_i are firm fixed effects. lag OUTCOME VARIABLE is the lagged level of y_{it} . These regressions cover all Compustat firm-year observations from 1994 to 2008 and include both event and non-event observations. All other variables are defined in Table 1. In each column, I report estimated coefficients and their t -statistics, calculated using heteroscedasticity robust standard errors and within correlation clustered by industry in Panel A (3-digit SIC) and by firm in Panel B. For \widehat{PC}_{it}^* I also report the change in the outcome variable due to one standard deviation change of the likelihood of a proxy contest. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels.

Panel A: The First Stage Estimates

DEPENDENT VARIABLE: Dummy Variable Equals to One if the Company is Targeted in a Proxy Contest							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
lag AMIHUD	-0.2319*** [-5.58]	-0.2302*** [-5.34]	-0.2357*** [-5.52]	-0.2193*** [-5.08]	-0.2324*** [-5.46]	-0.6272 [-1.49]	-0.6483 [-1.54]
lag LEVERAGE	0.1440 [1.24]						
lag CASH		-0.0399 [-0.38]					
lag R&D			-0.3949** [-2.54]				
lag CAPEX				-0.1826 [-1.25]			
lag DIVIDENDS					0.1526** [2.13]		
lag CEOPAY						-7.5212 [-1.47]	
lag NEW CEO							-0.0098 [-0.10]
lag log(MV)	-0.0473** [-2.45]	-0.0468** [-2.39]	-0.0507*** [-2.63]	-0.0515** [-2.42]	-0.0523*** [-2.60]	-0.0747** [-2.29]	-0.0580* [-1.78]
lag SALES	-0.0131 [-0.52]	-0.0147 [-0.55]	-0.0207 [-0.81]	-0.0156 [-0.58]	-0.0085 [-0.34]	-0.0920* [-1.88]	-0.0646 [-1.51]
lag INST	0.1523** [1.98]	0.1571** [2.01]	0.1548* [1.94]	0.1922** [2.52]	0.1742** [2.17]	0.0331 [0.26]	0.0314 [0.25]
lag B2M	0.2403*** [7.54]	0.2410*** [7.06]	0.2252*** [6.93]	0.2220*** [6.03]	0.2415*** [7.48]	0.1758** [2.14]	0.2144*** [2.73]
Constant	-2.7052*** [-18.10]	-2.6816*** [-16.83]	-2.6539*** [-17.42]	-2.5147*** [-15.73]	-2.6945*** [-17.93]	-1.9440*** [-6.23]	-2.1372*** [-7.23]
Year FE	YES	YES	YES	YES	YES	YES	YES
Observations	75,802	75,799	75,424	57,992	75,701	23,287	23,724
Pseudo R^2	0.0373	0.0369	0.0381	0.0342	0.0377	0.0333	0.0324

Panel B: The Second Stage Estimates

OUTCOME VARIABLE	LEVERAGE (1)	CASH (2)	R&D (3)	CAPEX (4)	DIVIDENDS (5)	CEOPAY (6)	NEW CEO (7)
\widehat{PC}^*	0.0256*** [4.42] 2.42%	-0.0010 [-0.18] 0.08%	-0.0173*** [-4.60] 4.40%	-0.0457*** [-5.72] 8.15%	0.0230*** [3.85] 2.81%	-0.0092*** [-4.76] 5.36%	0.1130** [1.97] 4.09%
lag OUTCOME VARIABLE	0.5364*** [67.10]	0.4324*** [58.29]	0.1541*** [13.43]	0.1240*** [13.41]	0.2028*** [21.37]	0.0629** [2.25]	-0.1065*** [-16.07]
lag log(MV)	0.0004 [0.44]	-0.0082*** [-8.37]	-0.0107*** [-12.26]	0.0141*** [11.06]	0.0106*** [9.44]	-0.0008*** [-3.76]	0.0078 [1.58]
lag SALES	-0.0106*** [-5.47]	0.0091*** [4.58]	0.0062*** [4.54]	0.0184*** [7.13]	-0.0049** [-2.27]	-0.0021*** [-5.57]	0.0004 [0.04]
lag INST	-0.0040 [-1.30]	-0.0006 [-0.20]	-0.0096*** [-4.49]	-0.0010 [-0.24]	-0.0246*** [-4.83]	0.0007 [1.43]	-0.0354** [-2.50]
lag B2M	-0.0021 [-1.05]	-0.0073*** [-3.93]	-0.0153*** [-12.09]	-0.0200*** [-8.38]	-0.0035 [-1.64]	0.0000 [0.02]	0.0394** [2.50]
Constant	0.1564*** [8.30]	0.1140*** [5.96]	0.0512*** [4.10]	-0.1489*** [-6.79]	0.1237*** [6.07]	-0.0089** [-2.17]	0.2723** [2.08]
Year FE	YES	YES	YES	YES	YES	YES	YES
Firm FE	YES	YES	YES	YES	YES	YES	YES
Observations	75,795	75,789	75,315	57,662	75,550	21,827	22,400
R^2	0.285	0.204	0.069	0.094	0.053	0.037	0.017

Table 5: **The Ex Ante Effect of the Proxy Contests – Full List of Controls.** This table reports estimates of the disciplinary effects of proxy contests. All the analysis is as described in Table 4, except that the list of control variables is expended here. The table reports estimated coefficients of \widehat{PC}^* , their t -statistics, calculated using heteroscedasticity robust standard errors and within correlation clustered by firm, and changes in the outcome variable due to one standard deviation change of the likelihood of a proxy contest. Coefficients of the control variables are not reported for space reasons. In Panel A both First Stage and Second Stage Regressions include the following control variables in addition to those used in Table 4: lag LEVERAGE, lag CASH, lag R&D, lag CAPEX, and lag DIVIDENDS. Regressions are estimated in the full sample. In Panel B both First Stage and Second Stage Regressions include the following control variables in addition to those used in Table 4: lag LEVERAGE, lag CASH, lag R&D, lag CAPEX, lag DIVIDENDS, lag CEOPAY, and lag NEW CEO. Regressions are estimated in the Executive Compensation sample. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels.

Panel A: Full Sample

Additional Controls: lag LEVERAGE, lag CASH, lag R&D, lag CAPEX, and lag DIVIDENDS

OUTCOME VARIABLE	LEVERAGE (1)	CASH (2)	R&D (3)	CAPEX (4)	DIVIDENDS (5)
\widehat{PC}^*	0.0209*** [3.01] 1.98%	0.0073 [1.03] 0.60%	-0.0187*** [-4.23] 4.66%	-0.0519*** [-6.80] 9.24%	0.0165** [2.47] 2.02%
Controls	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES
Firm FE	YES	YES	YES	YES	YES
Observations	57,798	57,796	57,716	57,476	57,701
R^2	0.271	0.199	0.097	0.135	0.047

Panel B: Executive Compensation Sample

Additional Controls: lag LEVERAGE, lag CASH, lag R&D, lag CAPEX, lag DIVIDENDS, lag CEOPAY, and lag NEW CEO

OUTCOME VARIABLE	LEVERAGE (1)	CASH (2)	R&D (3)	CAPEX (4)	DIVIDENDS (5)	CEOPAY (6)	NEW CEO (7)
\widehat{PC}^*	0.0081 [0.34] 0.77%	-0.0162 [-0.75] 1.32%	-0.0193* [-1.93] 4.91%	-0.1013*** [-4.14] 18.30%	0.0736*** [2.62] 9.00%	-0.0078*** [-3.06] 4.17%	0.1129 [1.47] 4.09%
Controls	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES
Firm FE	YES	YES	YES	YES	YES	YES	YES
Observations	20,100	20,097	20,080	20,030	20,066	18,727	18,850
R^2	0.359	0.256	0.103	0.185	0.045	0.053	0.019

Table 6: **The Ex Ante Effect of the Proxy Contests – Linear Probability Model with Firm Fixed Effects in the First Stage.** This table reports estimates of the disciplinary effects of proxy contests, while using the linear probability model with firm fixed effects in the First Stage estimation. Panel A reports estimates of the First Stage equation (2) using linear probability model: $Pr(PC_{it} = 1) = X_{it}\alpha_{21} + Z_{it}\alpha_{22} + \zeta_i + \zeta_t + u_{2it}$, where the dependent variable PC_{it} is a dummy variable equals to one if the company is targeted in a proxy contest during the year, X_{it} is a vector of lagged covariates, Z_{it} is the Amihud (2002) measure of stock illiquidity, ζ_i are firm fixed effects, and ζ_t are time fixed effects. Panel B reports estimates of the Second Stage equation (1): $y_{it} = X_{it}\alpha_{11} + \gamma_1 \widehat{PC}_{it}^* + \eta_t + \eta_i + u_{1it}$, where y_{it} is an outcome variable of interest, \widehat{PC}_{it}^* is the First Stage estimate of the likelihood of a proxy contest, X_{it} is a vector of lagged covariates, η_t are time fixed effects, and η_i are firm fixed effects. These regressions cover all Compustat firm-year observations from 1994 to 2008, and include both event and non-event observations. All variables are defined in Table 1. Coefficients of the control variables (lag OUTCOME VARIABLE, lag log(MV), lag SALES, lag INST, lag BM, and constant) are not reported for space reasons. In each column, I report estimated coefficients α_{22} and γ_1 and their t -statistics. t -statistics are calculated using heteroscedasticity robust standard errors and within correlation clustered by firm. For \widehat{PC}^* I also report the change in the outcome variable due to one standard deviation change of the likelihood of a proxy contest. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels.

OUTCOME VARIABLE	LEVERAGE (1)	CASH (2)	R&D (3)	CAPEX (4)	DIVIDENDS (5)	CEOPAY (6)	NEW CEO (7)
Panel A: The First Stage Estimates							
DEPENDENT VARIABLE: Dummy Variable Equals to One if the Company is Targeted in a Proxy Contest							
lag AMIHUD	-0.0020*** [-3.09]	-0.0019*** [-3.02]	-0.0019*** [-3.00]	-0.0027*** [-3.36]	-0.0019*** [-2.93]	-0.0187** [-2.49]	-0.0189*** [-2.61]
Controls	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES
Firm FE	YES	YES	YES	YES	YES	YES	YES
Observations	75,802	75,799	75,424	57,992	75,701	23,287	23,724
R^2	0.003	0.003	0.003	0.004	0.004	0.005	0.005
Panel B: The Second Stage Estimates							
\widehat{PC}^*	2.6407*** [4.31] 3.39%	-0.3572 [-0.57] 0.40%	-1.6313*** [-3.73] 5.73%	-2.8048*** [-4.63] 6.89%	3.0683*** [3.76] 5.09%	-0.2638*** [-4.50] 9.83%	2.6879 [1.52] 6.11%
Controls	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES
Firm FE	YES	YES	YES	YES	YES	YES	YES
Observations	75,795	75,789	75,315	57,662	75,550	21,827	22,400
R^2	0.285	0.204	0.069	0.094	0.053	0.037	0.017

Table 7: **The Reduced Form Model.** This table reports estimates of equation (5): $y_{it} = X_{it}\pi_{11} + Z_{it}\pi_{12} + \eta_i + \eta_t + v_{1it}$, where y_{it} is an outcome variable of interest, X_{it} is a vector of lagged covariates, Z_{it} is the Amihud (2002) measure of stock illiquidity, η_t are time fixed effects, and η_i are firm fixed effects. These regressions cover all Compustat firm-year observations from 1994 to 2008, and include both event and non-event observations. lag OUTCOME VARIABLE is the lagged level of the y_{it} . All other variables are defined in Table 1. In each column, I report estimated coefficients and their t -statistics, calculated using heteroscedasticity robust standard errors and within correlation clustered by firm. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels.

OUTCOME VARIABLE	LEVERAGE (1)	CASH (2)	R&D (3)	CAPEX (4)	DIVIDENDS (5)	CEOPAY (6)	NEW CEO (7)
lag AMIHUD	-0.0060*** [-4.46]	-0.0009 [-0.68]	0.0030*** [3.18]	0.0078*** [4.60]	-0.0032** [-2.35]	0.0042*** [4.05]	-0.0604* [-1.94]
lag OUTCOME VARIABLE	0.5399*** [67.74]	0.4323*** [58.37]	0.1611*** [14.19]	0.1319*** [14.16]	0.2064*** [22.01]	0.1253*** [5.10]	-0.1076*** [-16.24]
lag log(MV)	-0.0008 [-0.80]	-0.0085*** [-8.12]	-0.0101*** [-11.06]	0.0160*** [11.74]	0.0099*** [8.19]	-0.0002 [-1.00]	0.0017 [0.31]
lag SALES	-0.0109*** [-5.66]	0.0092*** [4.63]	0.0066*** [4.88]	0.0192*** [7.47]	-0.0052** [-2.41]	-0.0013*** [-3.87]	-0.0070 [-0.71]
lag INST	-0.0001 [-0.03]	-0.0007 [-0.23]	-0.0121*** [-5.87]	-0.0095** [-2.40]	-0.0208*** [-4.10]	0.0003 [0.71]	-0.0318** [-2.29]
lag B2M	0.0035** [2.11]	-0.0075*** [-5.33]	-0.0188*** [-16.82]	-0.0293*** [-15.19]	0.0015 [0.88]	-0.0015*** [-5.73]	0.0617*** [5.82]
Constant	0.0881*** [12.85]	0.1190*** [17.81]	0.0989*** [19.22]	0.0080 [0.90]	0.0580*** [7.91]	0.0077*** [4.60]	0.0692 [1.60]
Year FE	YES	YES	YES	YES	YES	YES	YES
Firm FE	YES	YES	YES	YES	YES	YES	YES
Observations	75,795	75,789	75,315	57,662	75,550	21,827	22,400
R^2	0.285	0.204	0.068	0.093	0.053	0.036	0.017

Table 8: **Placebo Test.** This table reports estimated coefficient of the Amihud (2002) measure of stock illiquidity in equation (5): $y_{it} = X_{it}\pi_{11} + Z_{it}\pi_{12} + \eta_i + \eta_t + v_{1it}$, where y_{it} is an outcome variable of interest, X_{it} is a vector of lagged covariates, Z_{it} is the Amihud measure of stock illiquidity, η_t are time fixed effects, and η_i are firm fixed effects. The equation is estimated in four samples, as defined at the top of each column. These regressions include both event and non-event observations. All variables are defined in Table 1. Coefficients of the control variables (lag OUTCOME VARIABLE, lag log(MV), lag SALES, lag INST, lag BM, and constant) are not reported for space reasons. I report estimated coefficient π_{12} and its t -statistic, calculated using heteroscedasticity robust standard errors and within correlation clustered by firm. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels.

Sample Period	Effective Sample			Placebo Sample 1988-1992 (4)
	1994-2008 (1)	1996-2000 (2)	2001-2005 (3)	
Leverage	-0.0060*** [-4.46]	-0.0098*** [-3.58]	-0.0042* [-1.82]	0.0018 [0.71]
Cash	-0.0009 [-0.68]	0.0033 [1.22]	-0.0001 [-0.05]	0.0029 [1.44]
R&D	0.0030*** [3.18]	0.0090* [1.73]	0.0062** [2.10]	0.0018 [0.98]
CAPEX	0.0078*** [4.60]	0.0094** [2.41]	0.0147*** [5.44]	0.0035 [1.12]
Dividends	-0.0032** [-2.35]	-0.0038* [-1.90]	-0.0038* [-1.72]	-0.0013 [-0.47]

Table 9: **Placebo Test: Pooled Regression.** This table reports estimates of equation (6): $y_{it} = X_{it}\pi_{11} + PRE1992 * X_{it}\pi_{12} + Z_{it}\pi_{13} + PRE1992 * Z_{it}\pi_{14} + \eta_i + \eta_t + v_{1it}$, where y_{it} is an outcome variable of interest, X_{it} is a vector of lagged covariates, Z_{it} is the Amihud measure of stock illiquidity, $PRE1992$ is a dummy variable that indicates the pre-1992 sample period, η_t are time fixed effects, and η_i are firm fixed effects. $PRE1992$ is not included in the regression because the regression includes time fixed effects. The equation is estimated in the 1988-2008 sample period. These regressions include both event and non-event observations. All variables are defined in Table 1. Coefficients of the control variables (lag OUTCOME VARIABLE, lag log(MV), lag SALES, lag INST, lag BM, and constant) are not reported for space reasons. In each column, I report estimated coefficients π_{13} and π_{14} and their t -statistics, calculated using heteroscedasticity robust standard errors and within correlation clustered by firm. π_{13} is the effect of the illiquidity on the corporate policies in the full sample, π_{14} is the change in the effect of the illiquidity on the corporate policies in the pre-1992 sample relative to the full sample, and $\pi_{13} + \pi_{14}$ is the effect of the illiquidity on the corporate policies in the pre-1992 sample. The F -test tests the null of $\pi_{13} + \pi_{14} = 0$, i.e., no effect of the illiquidity on the outcome variables in the placebo sample. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels.

OUTCOME VARIABLE	LEVERAGE (1)	CASH (2)	R&D (3)	CAPEX (4)	DIVIDENDS (5)
lag AMIHU (π_{13})	-0.0040*** [-3.37]	-0.0000 [-0.01]	0.0013* [1.80]	0.0057*** [3.76]	-0.0013 [-1.05]
lag AMIHU*PRE1992 (π_{14})	0.0045** [2.47]	0.0012 [0.75]	-0.0021** [-2.46]	-0.0073*** [-3.38]	0.0005 [0.22]
Controls	YES	YES	YES	YES	YES
Firm FE	YES	YES	YES	YES	YES
Firm FE	YES	YES	YES	YES	YES
<i>F-test: $\pi_{13} + \pi_{14} = 0$</i>					
Point estimate	0.0005	0.0012	-0.0008	-0.0016	-0.0005
F-statistics	0.10	0.77	1.77	0.62	0.24
p-value	0.7510	0.3815	0.1835	0.4302	0.6234

Table 10: **Cross-Sectional Variation Tests.** This table reports estimates of equation (7): $y_{it} = X_{it}\pi_{11} + Z_{it}\pi_{13} + INTER * Z_{it}\pi_{14} + \pi_{15}INTER + \eta_i + \eta_t + v_{1it}$, where y_{it} is an outcome variable of interest, X_{it} is a vector of lagged covariates, Z_{it} is the Amihud (2002) measure of stock illiquidity, η_t are time fixed effects, and η_i are firm fixed effects. In Panel A, INTER is a dummy variable equals to one if the company belongs to the top 30th percentile in terms of size (SALES). The regression covers all Compustat firm-year observations from 1994 to 2008, and include both event and non-event observations. In Panel B, INTER is a dummy variable equals to one if the company belongs to the bottom 30th percentile in terms of Incumbents' Stock Ownership. The regression covers all Compustat Executive Compensation firm-year observations from 1994 to 2008 and include both event and non-event observations. All other variables are defined in Table 1. Coefficients of the control variables (INTER, lag OUTCOME VARIABLE, lag log(MV), lag SALES, lag INST, lag BM, and constant) are not reported for space reasons. In each column, I report estimated coefficients π_{13} and π_{14} and their t -statistics, calculated using heteroscedasticity robust standard errors and within correlation clustered by firm. The F -test tests the null of $\pi_{13} + \pi_{14} = 0$. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels.

OUTCOME VARIABLE	LEVERAGE (1)	CASH (2)	R&D (3)	CAPEX (4)	DIVIDENDS (5)	CEOPAY (6)	NEW CEO (7)
Panel A: HIGH SALES							
lag AMIHUD	-0.0060*** [-4.52]	-0.0008 [-0.61]	0.0030*** [3.21]	0.0079*** [4.62]	-0.0031** [-2.32]	0.0051*** [4.47]	-0.0601* [-1.87]
lag AMIHUD*HIGH SALES	0.0146** [2.14]	-0.0147*** [-3.78]	-0.0047*** [-3.22]	-0.0047 [-0.55]	-0.0064 [-0.96]	-0.0071*** [-6.16]	-0.0031 [-0.07]
Controls	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES
Firm FE	YES	YES	YES	YES	YES	YES	YES
<i>F-test: $\pi_{13} + \pi_{14} = 0$</i>							
Point estimate	0.0086	-0.0155	-0.0017	0.0032	-0.0095	-0.0020	-0.0632
F-statistics	1.54	14.66	1.04	0.14	2.00	2.70	1.75
p-value	0.2154	0.0001	0.3071	0.7107	0.1572	0.1007	0.1866
Panel B: LOW INCUMBENT OWNERSHIP							
lag AMIHUD	-0.0042** [-2.42]	-0.0016 [-0.97]	0.0014 [1.09]	0.0038 [1.44]	-0.0042** [-2.13]	0.0020* [1.89]	-0.0184 [-0.45]
lag AMIHUD*LOW INCUMBENT OWNERSHIP	-0.0033** [-2.30]	0.0012 [0.91]	0.0023*** [2.80]	0.0064*** [2.78]	-0.0002 [-0.10]	0.0021* [1.69]	-0.0697 [-1.65]
Controls	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES
Firm FE	YES	YES	YES	YES	YES	YES	YES
<i>F-test: $\pi_{13} + \pi_{14} = 0$</i>							
Point estimate	-0.0075	-0.0004	0.0037	0.0102	-0.0044	0.0041	-0.0881
F-statistics	21.53	0.08	10.25	26.47	5.81	10.98	6.21
p-value	0.0000	0.7822	0.0014	0.0000	0.0160	0.0009	0.0128

Table 11: **Alternative Corporate Governance Mechanisms.** This table reports estimates of equation (1): $y_{it} = X_{it}\alpha_{11} + \gamma_1 \widehat{PC}_{it}^* + \eta_t + \eta_i + u_{1it}$, where y_{it} is an outcome variable of interest, \widehat{PC}_{it}^* is the First Stage estimate of the likelihood of a proxy contest (see Table 4), X_{it} is a vector of lagged covariates, η_t are time fixed effects, and η_i are firm fixed effects. These regressions cover all Compustat firm-year observations from 1994 to 2008, and include both event and non-event observations. All other variables are defined in Table 1. I report estimated coefficient γ_1 and its t -statistic, calculated using heteroscedasticity robust standard errors and within correlation clustered by firm. In each row I report the estimated coefficient from a specification that controls for an alternative corporate governance mechanism. Specifically, I include the following variables in the set of controls: a dummy variable that equals one if a regular (non-hostile) shareholder proposal was submitted during years $(t-1, t-3)$, a dummy variable that equals one if a Schedule 13D filing is submitted during year t , and the Gompers et al. (2003) governance index. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels.

OUTCOME VARIABLE	LEVERAGE (1)	CASH (2)	R&D (3)	CAPEX (4)	DIVIDENDS (5)	CEOPAY (6)	NEW CEO (7)
<i>Additional Control: Regular Shareholder Proposals</i>							
\widehat{PC}^*	0.0253*** [4.54]	0.0002 [0.04]	-0.0154*** [-4.31]	-0.0409*** [-5.38]	0.0186*** [3.20]	-0.0077*** [-4.38]	0.0675 [1.23]
<i>Additional Control: Schedule 13D Filings</i>							
\widehat{PC}^*	0.0259*** [4.50]	-0.0011 [-0.18]	-0.0171*** [-4.56]	-0.0456*** [-5.74]	0.0227*** [3.81]	-0.0085*** [-4.33]	0.1078* [1.83]
<i>Additional Control: Regular Shareholder Proposals and Schedule 13D Filings</i>							
\widehat{PC}^*	0.0256*** [4.61]	0.0002 [0.03]	-0.0152*** [-4.26]	-0.0408*** [-5.39]	0.0185*** [3.20]	-0.0071*** [-3.93]	0.0662 [1.18]
<i>Additional Control: G-Index</i>							
\widehat{PC}^*	0.0195 [1.28]	0.0031 [0.19]	-0.0292*** [-2.85]	-0.0614*** [-3.46]	0.0552*** [2.70]	-0.0099*** [-4.34]	0.0767 [1.10]
<i>Additional Control: Regular Shareholder Proposals, 13D Filings, and G-Index</i>							
\widehat{PC}^*	0.0222 [1.49]	0.0088 [0.58]	-0.0311*** [-3.09]	-0.0597*** [-3.36]	0.0436** [2.17]	-0.0084*** [-3.89]	0.0367 [0.51]

Table 12: **The Ex Post Effect of the Proxy Contest.** This table reports estimates of equation (8): $y_{it} = X_{it}\alpha_1 + \sum_{\tau=0}^3 \beta_{\tau} D_{it+\tau} + \delta_1 PostTarget_{it} + \eta_t + \eta_i + \varepsilon_{it}$, where y_{it} is an outcome variable of interest, X_{it} is a vector of lagged covariates, $D_{it+\tau}$ is a dummy variable that equals to one if the company becomes a proxy contest target in τ years, $PostTarget_{it}$ is a dummy variable that equals to one if the company was targeted during last three years, η_t are time fixed effects, and η_i are firm fixed effects. These regressions cover all Compustat firm-year observations from 1994 to 2008, and include both event and non-event observations. lag OUTCOME VARIABLE is the lagged level of y_{it} . All other variables are defined in Table 1. In each column, I report estimated coefficients and their t -statistics, calculated using heteroscedasticity robust standard errors and within correlation clustered by firm. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels.

OUTCOME VARIABLE	LEVERAGE (1)	CASH (2)	R&D (3)	CAPEX (4)	DIVIDENDS (5)	CEOPAY (6)	NEW CEO (7)
EVENT IN 3 YEARS (D_{it+3})	-0.0010 [-0.19]	0.0050 [0.99]	-0.0081** [-2.12]	-0.0083 [-1.13]	0.0114 [1.28]	-0.0007 [-0.74]	-0.0297 [-1.14]
EVENT IN 2 YEARS (D_{it+2})	-0.0021 [-0.42]	0.0075 [1.20]	-0.0070 [-1.50]	-0.0041 [-0.51]	0.0259** [2.58]	-0.0011 [-1.32]	0.0236 [0.69]
EVENT IN 1 YEAR (D_{it+1})	0.0111* [1.65]	-0.0012 [-0.18]	-0.0107** [-1.98]	-0.0175* [-1.95]	0.0219** [1.97]	-0.0012** [-2.12]	-0.0117 [-0.36]
EVENT YEAR (D_{it+0})	0.0011 [0.13]	-0.0026 [-0.36]	-0.0065 [-1.19]	-0.0217** [-2.54]	0.0152 [0.93]	0.0012 [0.79]	0.1105** [2.19]
POST TARGET	-0.0036 [-0.65]	0.0024 [0.34]	-0.0009 [-0.21]	-0.0189** [-2.39]	-0.0223 [-1.61]	0.0006 [0.67]	0.0360 [0.96]
lag OUTCOME VARIABLE	0.4972*** [49.05]	0.3852*** [40.85]	0.1299*** [9.73]	0.1191*** [10.12]	0.1438*** [13.38]	0.0512* [1.68]	-0.1218*** [-14.76]
lag log(MV)	0.0026** [2.09]	-0.0082*** [-6.36]	-0.0123*** [-10.06]	0.0122*** [7.28]	0.0108*** [6.86]	-0.0003 [-1.13]	0.0071 [1.20]
lag SALES	-0.0147*** [-6.17]	0.0111*** [4.24]	0.0095*** [5.22]	0.0275*** [8.12]	-0.0045 [-1.51]	-0.0018*** [-4.11]	-0.0177 [-1.51]
lag INST	0.0024 [0.66]	-0.0012 [-0.32]	-0.0118*** [-4.25]	-0.0057 [-1.09]	-0.0233*** [-3.38]	0.0001 [0.26]	-0.0324* [-1.86]
lag B2M	0.0014 [0.69]	-0.0081*** [-4.55]	-0.0204*** [-12.62]	-0.0311*** [-11.68]	0.0029 [1.10]	-0.0014*** [-4.00]	0.0470*** [3.62]
Constant	0.0632*** [6.88]	0.1546*** [16.41]	0.1189*** [14.25]	0.0230** [2.04]	0.0743*** [6.26]	0.0085*** [3.89]	0.1106** [2.06]
Year FE	YES	YES	YES	YES	YES	YES	YES
Firm FE	YES	YES	YES	YES	YES	YES	YES
Observations	46183	46182	45920	33580	46107	15518	15916
R^2	0.269	0.167	0.059	0.093	0.028	0.017	0.02

Table 13: **Ex Ante Changes in Operating Profitability.** Column (1) reports estimates of the First Stage equation (2): $Pr(PC_{it} = 1) = \Phi(PC_{it}^*) = \Phi(X_{it}\alpha_{21} + Z_{it}\alpha_{22} + \zeta_t + u_{2it})$, where the dependent variable PC_{it} is a dummy variable equals to one if the company is targeted in a proxy contest during the year, Φ is the cumulative normal distribution, PC_{it}^* is an unobserved latent-variable that captures the propensity of being the target of a proxy contest, X_{it} is a vector of lagged covariates, Z_{it} is the Amihud (2002) measure of stock illiquidity, and ζ_t are time fixed effects. Columns (2)-(5) report estimates of the Second Stage equation (1): $\Delta ROA_{it+1} = X_{it}\alpha_{11} + \gamma_1 \widehat{PC}_{it}^* + \eta_t + \eta_i + u_{1it}$, where $\Delta ROA_{it+1} = ROA_{it+1} - ROA_{it}$, X_{it} is a vector of lagged covariates, \widehat{PC}_{it}^* is the First Stage estimate of the likelihood of a proxy contest, η_t are time fixed effects, and η_i are firm fixed effects. Column (2) reports results in the full sample, column (3) reports results in the sample of ex post non-targeted companies, column (4) reports results in the sample of ex post targeted companies, and (5) reports results in the sample of ex post targeted companies and covers pre-targeting years only. All variables are as defined in Table 1. In each column, I report estimated coefficients and their t -statistics, calculated using heteroscedasticity robust standard errors and within correlation clustered as specified in the table. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels.

	First Stage	Second Stage			
	(1)	All Companies	Non-Targets	Targets	Future Targets
	(1)	(2)	(3)	(4)	(5)
\widehat{PC}^*		0.0336*** [4.90]	0.0317*** [4.50]	0.0675** [2.21]	0.1219*** [3.34]
lag ROA	0.1065 [1.27]	-0.2548*** [-27.12]	-0.2523*** [-25.89]	-0.2941*** [-8.73]	-0.3291*** [-13.60]
lag log(MV)	-0.0489** [-2.49]	-0.0050*** [-4.56]	-0.0048*** [-4.21]	-0.0074* [-1.84]	-0.0056 [-1.14]
lag SALES	-0.0210 [-0.78]	0.0009 [0.38]	0.0006 [0.25]	0.0062 [0.74]	0.0109 [1.09]
lag INST	0.1478* [1.87]	-0.0005 [-0.19]	-0.0002 [-0.08]	-0.0019 [-0.20]	-0.0121 [-0.69]
lag BM	0.2415*** [7.40]	-0.0058*** [-2.91]	-0.0053** [-2.57]	-0.0150** [-2.03]	-0.0228** [-2.04]
lag AMIHUDD	-0.2307*** [-5.55]				
Constant	-2.1205*** [-16.50]	0.1069*** [5.72]	0.1008*** [5.23]	0.2677*** [2.82]	0.3516*** [3.61]
Year FE	YES	YES	YES	YES	YES
Firm FE	No	YES	YES	YES	YES
Observations	75,351	63,676	59,914	3,762	2,758
R^2	3.72%	7.20%	7.10%	9.40%	10.10%