Liquidity and Shareholder Activism

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Abstract

This paper documents that stock liquidity improves shareholders' incentive to monitor management. Using a hand-collected sample of contested proxy solicitations and shareholder proposals as occurrences of shareholder activism, we find that poor firm performance increases the probability of shareholder activism and that this relationship is significantly stronger for firms with liquid stock than for other firms. The conclusion that stock liquidity encourages shareholder activism is robust to different measures of firm performance and liquidity. We also document positive abnormal returns for target firms around the announcement date of shareholder activism and conclude that activism creates value.

1 Introduction

Shareholder activism has become an increasingly important vehicle for monitoring management and improving corporate governance. In this paper we examine empirically how stock liquidity influences shareholders' incentives to assume an active governance role. Our study is motivated by a theoretical literature suggesting that the liquidity of firms' stocks may impact shareholders' incentives to monitor and intervene in poorly performing firms. The literature disagrees, however, as to whether liquidity discourages or encourages shareholder activism.

On the one hand, Coffee (1991) and Bhide (1993) suggest that liquidity *discourages* shareholder activism. Their view is that selling the stock (*exit*), as opposed to monitoring and initiating action (*voice*), is the least costly response for shareholders in a situation where management performance does not meet expectations.[1] In addition to the costs discussed by Coffee and Bhide, blockholders' incentives to monitor may be thwarted by free-riding minority shareholders who avoid the costs of monitoring but reap a proportion of the improvement in the firm's equity value.

On the other hand, liquidity has been proposed to mitigate the free-rider problem by allowing a blockholder to recoup the monitoring costs associated with activism. An activist shareholder can profit from a planned intervention in corporate decision-making by purchasing additional shares at a price that does not fully reflect the value enhancement of the intervention (Maug, 1998; Kahn and Winton, 1998). Also, for shareholders that face the risk of having to liquidate their positions, Faure-Grimaud and Gromb (2004) argue that liquidity encourages activism because a more informative price allows the activist shareholder to sell shares at a price that at least partially reflects the value improvements.[2]

Despite an extensive theoretical interest in how liquidity affects corporate governance, little empirical work has been done to assess the nature of this relationship. One exception is Fang, Noe, and Tice (2009), who find that liquidity improves firm performance, and trace the positive effect of liquidity back to increased information precision in performance-sensitive managerial contracts.

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[1]Hirschman (1970) coined the phrases exit and voice for shareholders' alternative reactions to poor company performance.

[2]Other theoretical papers investigating how stock liquidity impacts shareholders' incentives to monitor include Kyle and Vila (1991), Holmström and Tirole (1993), Bolton and von Thadden (1998), Maug (2002), Noe (2002), Attari, Banerjee, and Noe (2006), Edmans and Manso (2008), Admati and Pfleiderer (2009), and Edmans (2009).

Another exception is Ferreira, Ferreira, and Raposo (2009), who are primarily interested in stock price informativeness and governance, but, also show that liquidity is positively associated with board independence. Our paper contributes by directly investigating the impact of liquidity on the prevalence of shareholder activism. The data employed in our study includes 497 hand-collected shareholder activist events, defined as filings to the Securities and Exchange Commission (SEC) of contested proxy solicitations and shareholder proposals, for the 14-year sample period 1994–2007.[3]

Our main conclusion is that liquidity improves shareholders' incentive to take an active role in the governance of corporations. We provide three results consistent with this positive effect of stock liquidity. First, we show that shareholders are more likely to take action in response to deteriorating firm performance when a firm's stock is liquid. Firms in the lowest performance decile but with liquidity in the top decile have a chance of about 1% of experiencing shareholder activism in a given year. The corresponding chance for firms in the same performance decile but with liquidity in the lowest decile is approximately 40% lower. Thus, for the worst performers, liquid firms have a significantly higher probability of experiencing shareholder activism than illiquid firms. The result that liquidity increases the likelihood of intervention is robust to alternative measures of stock liquidity, to alternative ways of selecting non-event firms, and to the inclusion of control variables such as aggregate market liquidity, ownership structure, book-to-market ratio, and firm size.

Second, in the sample of firms that experience shareholder activism, we document positive abnormal returns both in the period leading up to the public announcement of the activist's intentions and on the day of the announcement. For the three-day period ending on the day after the announcement day, we report an abnormal stock return of 4.1 percent.[4] Positive abnormal returns around the announcement indicate that activists create shareholder value.

Third, we document that announcement effects of shareholder activism are significantly smaller for liquid firms than for illiquid firms. This finding is consistent with predictions of models where

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[3]Shareholder proposals are added to the company's proxy material under SEC Rule 14a-8. Matters concerning the election of directors to the board and matters in direct conflict with one of the company's own proposals may not be addressed by shareholder proposals. Instead, contested solicitations are submitted by shareholders on separate proxy cards.

[4]As discussed in Section 3 we compute separate announcement returns for activism events related to tender offers or acquisitions attempts. The 4.1 percent abnormal announcement return refers to non-acquisitions events. Acquisition-related activism is associated with abnormal returns of 18.4 percent in our sample.

liquidity encourages shareholder activism.[5] In such models, the equilibrium probability of observing value enhancing activism is higher for liquid firms than for illiquid firms. Prior to any activism announcement, liquid stocks should therefore trade closer to their post activism-announcement value than otherwise identical but illiquid stocks. It follows that liquid firms should experience a smaller valuation impact from the announcement of activism than illiquid firms. Our evidence on announcement effects are consistent with this theoretical implication.

Our paper is related to a large and growing, mostly theoretical, literature on the effect of liquidity on corporate governance. Bhide (1993) argues that U.S. regulators have promoted stock market liquidity at the expense of good corporate governance. Disclosure requirements, insider trading rules, and rules to eliminate price manipulation, have protected small investors but increased the cost of active shareholding. In a similar vein, Coffee (1991) argues that institutional investors rationally prefer liquidity over control. Accordingly, socially optimal intervention by shareholders is deterred by liquidity.[6] In the model of Maug (1998), liquidity discourages activism only when investors are assumed to hold large blocks of equity. With endogenous block size, it is optimal to hold smaller blocks, allowing an activist to recover monitoring costs by profiting from informed trading prior to intervention.[7] Faure-Grimaud and Gromb (2004) point out that liquidity enhances a large shareholder's incentive to monitor even when the shareholder cannot trade anonymously. The incentive effect arises because liquidity increases the informational content of the stock price, which in turn allows the shareholder to benefit from the value improvements if exiting the investment becomes necessary.[8] Relying on the same effect of liquidity on price informativeness, Holmström and Tirole (1993) argue that liquidity facilitates governance by enhancing the effectiveness of stock-based managerial incentive contracts. Recent papers by Edmans (2009) and Admati and Pfleiderer (2009) suggest that a large shareholder's option to exit may discipline management. In Edmans

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[5]For example, Maug (1998) and Faure-Grimaud and Gromb (2004).

[6]In a setting where a large shareholder have unfavorable information about a liquid firm in which he hold shares, Winton and Li (2006) show that the shareholder will prefer to sell shares rather than acquire more shares and intervene.

[7]Kyle and Vila (1991), Kahn and Winton (1998), and Noe (2002), Maug (2002), Attari, Banerjee, and Noe (2006) also study the potential to profit from anonymous information-based trading prior to intervention.

[8]Bolton and von Thadden (1998) also build on the assumption that trading is non-anonymous and suggest that under a dispersed ownership structure, liquidity may facilitate the emergence of large blocks when firm performance demands intervention.

(2009), the threat of exit allows managers to focus on the selection of projects with lower short-run, but higher long-run cash flows. In Admati and Pfleiderer (2009), the threat of exit solves the management-shareholder agency problem by inducing management to select the projects that maximize shareholder value. Liquidity plays a role because the threat of disciplinary exit is credible only if shareholders can sell shares without incurring large costs in the process.

Our paper is also related to a large empirical literature that investigates the effectiveness of shareholder activism. Early papers, surveyed extensively in Gillan and Starks (1998) and Karpoff (2001), provide little evidence of a link between activism by institutional investors and subsequent firm performance. More recent papers on shareholder activism paint a different picture. Studying activist engagements by the Hermes U.K. Focus Fund, Becht, Franks, Mayer, and Rossi (2009) find that target firms experience large positive abnormal returns upon announcement that objectives for the fund's engagement in activism have been met. Several papers that study activist hedge funds, find that activists are able to influence target firms in ways the market perceives as value enhancing.[9] The abnormal return on target stocks around the announcement of activism is large and positive and there is evidence of improved post-activism operating efficiency. Moreover, hedge funds seem to target businesses that are fundamentally sound but have stronger takeover-defenses and higher executive salaries than comparable firms. Brav, Jiang, Partnoy, and Thomas (2008) and Klein and Zur (2009) interpret their evidence as consistent with the view that hedge fund activism creates value because it reduces agency costs. Greenwood and Schor (2009) point out that target firms acquired in the post-intervention period experience higher abnormal returns than firms that do not become acquisition targets. They suggest that hedge funds are primarily good at identifying and "dressing up" firms as acquisition targets and do not necessarily add value through the reduction of agency costs. Compared to these papers, we provide evidence on the role of stock liquidity as a catalyst for shareholder activism in under-performing firms.

The rest of the paper is organized as follows. Section 2 describes our data, explains the sample selection procedure, and provides descriptive statistics on proxy solicitations. In Section 3 we present evidence on the positive effect of liquidity on the likelihood of shareholder activism. Section

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[9]Brav, Jiang, Partnoy, and Thomas (2008), Klein and Zur (2009), Clifford (2008), and Greenwood and Schor (2009).

4 investigates how stock liquidity affects value creation through shareholder activism. Section 5 concludes the paper.

2 Data and sample selection

We use a sample of firms listed on the New York Stock Exchange (NYSE), the American Stock Exchange (AMEX), and Nasdaq. Data on shareholder activism is collected from the Electronic Data Gathering, Analysis, and Retrieval system (EDGAR) of the U.S. Securities and Exchange Commission. Stock returns, prices, and data on volume traded are from the Center for Research in Security Prices (CRSP). Accounting variables are from Compustat. We use Thomson Financial Ownership data (CDA/Spectrum s34) to collect information on institutional investors' ownership. The following section describes our data selection procedure and explain how we define and measure shareholder activism and stock liquidity.

2.1 Shareholder activism

At shareholder meetings, registered shareholders vote using proxy cards. Issues to be voted on are decided by the management and the board of directors and are included in a company's proxy material mailed to shareholders. Rule 14a-8 of the Securities Exchange Act of 1934 provides shareholders with the right to include proposals in the company's proxy material, permitting the issues to be voted upon. A shareholder proposal is a therefore a recommendation of a shareholder that the company takes a certain action. The intention of the shareholder proposal rule is to provide, especially smaller, shareholders with an inexpensive way of expressing their views to management and other shareholders. The company's management may, however, exclude some shareholder proposals from the firms' proxy material. For example, shareholder proposals that aim at nominating shareholder candidates to the board of directors may not be included.[10] Shareholder proposals are almost always only advisory to the board according to state laws.

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[10]The company's management may also exclude a shareholder proposal from the company's proxy statement if the proposing shareholders fail to meet certain eligibility requirements set by Rule 14a-8. In case of disagreement between the company's management and the filing shareholders, the decision whether a certain proposal should be included in the company's proxy material is made by the SEC.

In contrast to shareholder proposals, contested proxy solicitations are campaigns where the management of the company and dissident shareholders file different proxy cards with the SEC. Since the Securities Exchange Act requires the exclusion of shareholder proposals related to the election of directors from the company's proxy material, shareholders have to initiate a proxy contest when they want to nominate their own candidates to the board. Other contested issues may include proposals to sell the company, approve or vote against a merger, increase the size of the board, or replace management.

In the context of this paper, a firm is said to experience "shareholder activism" in year t if a shareholder files a shareholder proposal or a contested proxy solicitation during that year. As of May 6, 1996 all public domestic companies in the U.S. are required to file material corporate information on EDGAR. To identify firms that experience shareholder activism, we use EDGAR to retrieve forms filed in connection with shareholder proposals and contested solicitations. In particular, we define as an activist a shareholder that files one or more of the following SEC forms: PREC14A, PREN14A, PRRN14A, DEFC14A, DEFN14A, DFRN14A, DFAN14A, and DEFC14C.[11] Our sample selection procedure will include many of the events identified by Brav, Jiang, Partnoy, and Thomas (2008), Klein and Zur (2009), and Greenwood and Schor (2009) who collect 13D filings. Since 13D filings are made when the filer's stock holdings exceeds the 5% ownership threshold, a sample based on 13D filings will tend to be biased towards smaller firms. There is no ownership requirement for filing the forms we use to identify activist shareholders—and we show below that the average market cap for our targets is similar to the average market cap for non-targets, that is, our sample of activist events is not biased towards smaller firms.

Some investors filed voluntarily on EDGAR between the third quarter of 1993 and May 1996 and are included in our sample to the extent that these voluntary filings represent contested proxy material. Our sample ends in the third quarter of 2007. For this sample period, we identify 8,783 unique forms filed by non-management. It is common, however, for a filer to file a sequence of forms concerning the same issue for the same firm, especially in relation to contested solicitations where both management and non-management typically file interchangeably with the SEC a number of

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[11]We exclude solicitations that concern non-contested matters such as friendly merger announcements filed under Rule 14a-12.

times. We adopt the rule that the first date of a filing sequence defines the year in which the firm in question experiences shareholder activism.[12] Following these procedures we are able to collect 998 such shareholder activism firm-year observations. The sample is reduced by 174 observations because we cannot find the event firm on CRSP and by an additional 135 observations because we require the event firm to be listed on NYSE, AMEX or Nasdaq with common equity.[13] In all the analysis that follows, we require information both from CRSP and Compustat. Restricting the sample firms to have information on market capitalization and book-to-market ratio in the year prior to the activism-year, reduces the sample by another 104 observations. A closer inspection of these observations reveals that 88 cases are filings that follow a friendly negotiated merger agreement between the filer and the subject firm. These observations are removed from the sample, leaving us with 497 cases of shareholder activism.

Figure 1 shows the prevalence of shareholder activism over the years of the sample. Each bar in the figure represents the fraction of firms that experience shareholder activism in a given year. The fraction varies from 0.23% to 1.3%. This represents an average of about 36 shareholder activism cases per year. The first two years in the sample show a number of activism cases that are below average. This is most likely driven by the fact that fewer firms filed through EDGAR when filing was not required by the SEC. The occurrence of shareholder activism was relatively stable during the ten year period 1996 through 2005. Assuming that the fourth quarter of 2007 (outside the sample period) displays the same activism intensity as the first three quarters of 2007, activism activity in both 2006 and 2007 is noticeably higher than in the previous years of the sample.

2.2   Measures of liquidity

Liquid assets trade with small transaction costs, minimal time delay in execution, and little or no price impact of the trade. The multi-faceted nature of liquidity implies that there are many possible ways of defining a liquidity measure. The main part of our analysis relies on a measure proposed by Amihud (2002). In robustness tests we use share turnover and bid-ask spread as liquidity measures.

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[12]If there is a period of more than one year of no filings in a sequence of filings, the first filing after the gap is defined as the first filing in a new intervention. A gap of more than one year in a sequence of filings occurs in 20 cases, which represent about 2 percent of our filing sequences.

[13]In practice we require the firm to appear on the CRSP tapes with sharecodes 10 or 11.

This section describes how these liquidity variables are constructed.

An important aspect of liquidity is the extent to which one can trade without impacting the price. This aspect of liquidity is particularly relevant for the question addressed in this paper. If the price impact of a given orderflow is small, existing shareholders will find it less costly to unload their shares than if the price impact is large. Similarly, a potential activist only make sufficient profit on intervention if purchasing shares does not quickly push the price to a level where it reflects the full value of intervention. Amihud (2002) proposes to estimate the price impact as the sum of the ratio of absolute daily returns to daily dollar volume:

$$\text{Amihud illiquidity}_{is} \equiv \sum_{j+1}^{d_m} \frac{|r_{ij}|}{\text{dvol}_{ij}} \tag{1}$$

where r_{ij} is the return on stock i on day j, dvol_{ij} is the dollar volume of trading in stock i on day j, and d_m is the number of days during month m for which stock i had non-missing returns. We set the Amihud illiquidity measure to missing for firm i in month m if the number of days the stocks of firm i traded in month m is below or equal to 14. If the dollar volume traded for stock i is high during a month, but the price moved only very little, the Amihud measure will be small and stock i is said to be liquid.

A potential disadvantage of the Amihud measure is that it may be difficult to distinguish liquidity from volatility. If volatility does not move closely together with dollar trading volume, stocks with high volatility will tend to be classified as illiquid stocks by the Amihud measure. In robustness tests we therefore use share turnover and bid-ask spread as alternative measures of liquidity. To measure monthly share turnover, we follow Lo and Wang (2000) and Eckbo and Norli (2005) and use the sum of the daily share turnover values, i.e. the number of shares traded divided by the total number of shares outstanding. Bid-ask spread is measured as the proportional quoted spread:

$$100(P_A - P_B)/(.5P_A + .5P_B), \tag{2}$$

where P_A is the ask price and P_B is the bid price. Monthly firm-specific bid-ask spreads are

computed as the average daily bid-ask spreads for the given month.[14]

2.3 Descriptive statistics

To collect data on dissident shareholders' characteristics and on the purpose of shareholder activism, we manually read the associated SEC filings and perform Factiva news searches. Table 1 reports our findings. Panel A reveals that most filings are made by hedge funds, shareholder committees, and industrial shareholders in that order. Only 7.8 percent of the filings (39 cases) are made by institutional investors. This may reflect that institutional investors prefer to exert influence on management through more informal channels.

Panel B of Table 1 shows the distribution of the stated purposes for activism. In the bulk of filings (394 cases), one of the stated purposes concern attempts to amend the board of directors. Corporate governance related issues, change in the business strategy, removal of takeover defenses, and sale of company assets are also commonly stated as the purpose of intervention. The Panel also shows that 111 out of 497 cases of activism are associated with situations in which the firm is a target in an acquisition attempt. This category represents cases where the dissident shareholder (the bidder) has made a formal tender offer, expressed a more informal interest in the subject firm (a "causal pass"), or approached the target firm with a "bear hug."[15] The type of activism that we are concerned with in this paper is different from an acquisition attempt. It therefore seems reasonable to separate these cases from other forms of shareholder activism. We make this distinction in most of the analysis that follows.

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[14]While the bid-ask spread is a widely used measure of liquidity, it has certain shortcomings. As pointed out by Hasbrouck (1991), a discrete tick size limits the number of values the spread can take. Price discreteness tends to obscure the differences in liquidity in the cross-section of firms. Furthermore, Brennan and Subrahmanyam (1996) argue that the bid-ask spread is a noisy measure of liquidity because large trades tend to occur outside the spread while small trades tend to occur inside the spread.

[15]A "bear hug" involves an expression of interest in the target together with a threat of a formal tender offer if the board of the target firm rejects the bidder. Thus, a "bear hug" is a more aggressive expression of interest than a "causal pass."

3 Liquidity and the likelihood of shareholder activism

Table 2 presents initial evidence of a relationship between shareholder activism, liquidity, and past stock market performance. Panel A reports the proportion of firms that experience shareholder activism grouped by past performance deciles and past liquidity. Past performance is measured in year $t-1$ relative to the year of shareholder activism (year t) and is defined as the difference between the annual return on the common stock of firm i and the annual return on the value-weighted CRSP NYSE/AMEX/Nasdaq index (the market index.) Liquidity is constructed using average monthly Amihud illiquidity, where monthly Amihud illiquidity is computed as in equation (1). The *most* liquid firms have a below median value of Amihud illiquidity, while the *least* liquid firms have above median Amihud illiquidity. Liquidity is measured in year $(t-2)$ relative to the year of the activism event. We measure performance and liquidity in different periods to mitigate a potential in-sample spurious correlation between performance and liquidity.

Focusing first on the differences between performance deciles, Panel A in Table 2 shows that the fraction of firms that experience shareholder activism increases with poorer past performance. Only 0.22% of above-median liquidity firms in the top performance decile experience shareholder activism. The corresponding fraction for liquid firms in the bottom performance decile is more than five times as large (1.21%). For firms with below-median liquidity, shareholder activism is still related to performance, but the pattern is not monotonic and not as strong.

Next, keep performance constant and compare the two liquidity groups within performance deciles. Comparing rows within columns in Panel A, we see that poorly performing liquid firms are more likely to experience shareholder activism than poorly performing illiquid firms. For the bottom five performance deciles, the average probability of activism is *higher* for liquid firms than for illiquid firms. In contrast, for the top five performance deciles the average probability of activism is *lower* for liquid firms than for illiquid firms. This evidence indicates that firms with high stock liquidity are more sensitive to past performance than less liquid firms.

In Panel B of Table 2, past performance is measured as the difference between the two-year holding period return for firm i and the two-year holding period return on the market index.

Holding period returns are measured over years $t-2$ through $t-1$ relative to the activism-year. In this Panel, liquidity is measured over year $(t-3)$ relative to the year of the activism. Comparing the numbers in Panel B with the numbers from Panel A we see that the pattern in shareholder activism is qualitatively similar. Thus, the results from Panel A are robust to the horizon at which we measure performance and liquidity.

In sum, Table 2 shows that abnormally bad stock performance increases the likelihood of shareholder activism for the average firm. Moreover, this effect appears to be particularly strong when the firm's stock is liquid. As far as preliminary evidence go, the findings are consistent with the notion that liquidity facilitates monitoring through shareholder activism.

To further investigate the relationship between shareholder activism and liquidity, we need to control for other variables that are related to activism and at the same time may be correlated with liquidity. For example, more liquid firms have a more diffuse ownership structure with smaller shareholders. It may be that these shareholders have few other means of intervention than proxy solicitations. Conversely, less liquid firms have a more concentrated ownership structure. Large shareholders may influence management through formal and informal channels that do not require SEC filings. In these cases, the correlation between stock liquidity and the frequency of proxy solicitations would be spurious—driven by ownership structure rather than liquidity. In other words, ownership structure as an omitted variable may drive the univariate results in Table 2. Below we study the effect of liquidity on shareholder activism while controlling for confounding effects using probit regressions.

3.1 Probit regressions

Model specification and selection of control variables

If firms that experience shareholder activism and firms that do not are drawn from the same population, standard econometric techniques, such as binary dependent models, can be applied to study the probability of activism. This applies even if the number of firms that are not targeted by an ac-

tivist is an order of magnitude larger than the number of targeted firms.[16] Nevertheless, as pointed out above, a crucial part of the analysis is to control for firm characteristics and other variables that may affect both liquidity and the propensity of experiencing activism. We do this through a careful selection of control variables and, as a robustness check, by application of propensity scoring.

In our main analysis, we examine the relationship between shareholder activism and liquidity using probit regressions of the following form:

$$\text{ACT}_{it} = \gamma_0 + \gamma_1 \text{PERF}_{it-1} + \gamma_2 \text{L}_{it-2} + \gamma_3 \text{PERF}_{it-1} \times \text{L}_{it-2} + \gamma_4' \, \text{X}_{it-1} + \epsilon_{it}, \qquad (3)$$

where the dependent variable, ACT_{it}, equals one if firm i experiences shareholder activism in year t and zero otherwise, PERF_{it-1} denotes past performance measured as the difference between the annual return on the common stock of firm i and the value-weighted return on the CRSP NYSE/AMEX/Nasdaq index, L_{it} is a continuous liquidity variable defined such that L_{it} is increasing in liquidity. In other words, $\text{L}_{it} > \text{L}_{jt}$ implies that the liquidity of firm i is greater than the liquidity of firm j in year t. X_{it} is a $(k \times 1)$ vector of control variables.[17]

As for the univariate analysis in Table 2, notice from equation (3) that there is no overlap in the years over which we measure past performance and liquidity. Past performance is measured in year $t-1$ relative to the year of shareholder activism while liquidity is measured in year $t-2$ relative to the year of activism. As stock returns and liquidity may be contemporaneously correlated, measuring liquidity and performance in the same period would make it harder to separate the effect of liquidity from the effect of performance. We also report results for a specification where past performance is measured over years $t-2$ through $t-1$ while liquidity is measured over the years $t-3$ and $t-4$.

Because our sample of shareholder activism events is relatively small, we may increase the power of our tests by pooling sample years. However, to pool the sample we need to make sure

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[16]In a typical year in our sample period, there are about 5,400 firms that satisfy our non-activism related sampling criteria, while the average number of firms that experience shareholder activism is 36.

[17]An earlier version of this paper measured liquidity using a dummy variable that distinguished between "the most" liquid firms and "the least" liquid firms. Results reported in this paper are qualitatively similar using this alternative liquidity variable.

that liquidity and other variables are comparable across years. For the liquidity variable L_{it}, we remove the effect of the dramatic increase in overall market liquidity during our sample period by measuring liquidity relative to the overall market liquidity in a given year. When using the Amihud illiquidity measure, L_{it} is constructed as follows. Annual Amihud illiquidity for firm i is computed as the average monthly illiquidity. Overall annual illiquidity is computed as an average over all firms that satisfy our non-activism related sampling criteria. Normalized Amihud illiquidity for firm i in year t is computed by subtracting the overall annual illiquidity and then dividing this difference by the overall annual illiquidity. For each firm i in year t this gives a normalized illiquidity measure with zero mean. To capture non-linearities in the data we shift the annual distribution of illiquidity sufficiently to the right to be able to take the natural logarithm. Finally, to obtain a liquidity measure that is increasing in liquidity, we "invert" the resulting log-illiquidity by subtracting each firms log-illiquidity from the maximum log-illiquidity in a given year. The result is the liquidity variable L_{it}.

Our control variables overlap to a large extent with those used by Brav, Jiang, Partnoy, and Thomas (2008), who estimate the probability of being targeted by a hedge fund. The variable definitions are as follows: "Institutional holdings" is the proportion of equity in firm i owned by shareholders that make 13F filings to the SEC. We follow Chen, Hong, and Stein (2002) and define "Institutional breadth" as the number of institutional investors that have reported ownership in firm i through 13F filings divided by the total number (population) of institutional owners reporting through 13F in a given year. "Log(Market cap)" is the natural logarithm of the end-of-year market capitalization. "Book-to-market ratio" is the end-of-year book value of equity divided by the market value of equity. Book value of equity is computed as in Fama and French (1993). "Log(Sales)" is the natural logarithm of the dollar value of sales. "Cash" is cash and marketable securities divided by total assets. "Dividend yield" is total dividend (common dividend plus preferred dividend) divided by the market value of common equity plus the book value of preferred equity. The book value of preferred equity is the first non-missing value when using redemption value, liquidating value, and the carrying value in that order. "R&D" is research and development expenses divided by total assets. If R&D expenses, "Institutional holdings" or "Institutional breadth" is missing

while at the same time "Book-to-market ratio" is not missing, the former variables are assumed to be zero. All variables constructed as ratios and using data from Compustat (book-to-market ratio, Cash, dividend yield, and R&D) are trimmed by removing the lower and upper 0.005 percentile, i.e, we remove 1% of the observations (except for R&D which has a minimum value of zero and is trimmed only on the right tail).

We also include a measure of aggregate market liquidity in the vector of control variables. "Aggregate Amihud illiquidity" is the average Amihud measure for all firms and all months in year t. Our hypothesized effect of liquidity on shareholder activism focuses on the cross-sectional differences in stock liquidity. Including aggregate liquidity addresses the concern that general trends in shareholder activism and liquidity may coincide even though there is no causal relationship between liquidity and activism.

Table 3 reports results from univariate tests of differences in the means of liquidity, past performance, and firm specific control variables for the group of firms that experience activism and the group of firms that do not experience activism. The first two rows show that the liquidity of firms targeted by shareholder activists are greater than the liquidity of firms that are not targeted.[18] The first row shows the difference using the "raw" Amihud illiquidity measure while the second row shows the difference using the normalized and inverted Amihud measure. The third row shows that the performance of targeted firms are significantly worse than the performance of firms that are not targeted. The firms targeted by a shareholder activist had on average a negative abnormal stock return of −12.7 percent in the year prior to the activism year. In comparison, firms not targeted had an average abnormal return of 6.4 percent. Furthermore, firms that experience activism have higher book-to-market ratios, higher sales, and lower R&D expenses than non-activism firms. For the remaining variables we find no discernable difference between the two groups of firms.

Shareholder activism and liquidity

Table 4 reports the results from probit regressions of the event of shareholder activism on past performance, liquidity, and control variables. Column (1) examines the relationship between the

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[18]Brav, Jiang, Partnoy, and Thomas (2008) also report a similar finding.

occurrence of activism and past performance excluding firm specific liquidity. The model shows that poor past performance (i.e., negative abnormal stock return) increases the probability of activism. The regression also shows that lower aggregate Amihud illiquidity (increased market liquidity) increases the probability of observing shareholder activism. Higher institutional ownership and more institutional owners is associated with higher probability of shareholder activism. A higher book-to-market ratio is also positively related to activism. This may reflect that the book-to-market ratio captures another dimension of performance compared to past performance. The probability of activism is positively related to the amount of cash on the balance sheet. Dividend yield and R&D expenses do not have any significant effects on the probability of activism.

In column (2) of Table 4, we add firm specific liquidity, L_{it-2}, to the model. This allows a direct investigation of how the liquidity of firms' shares influence the probability of being targeted by a shareholder activist. The point estimate of the effect of liquidity is positive and statistically significant. As liquidity increases, the probability of observing shareholder activism increases. Thus, our conclusion from Table 2 that liquidity facilitates monitoring through shareholder activism hold up when we control for other variables that may influence the activism decision.

To further investigate the effect of liquidity, regression (3) adds an interaction term between past performance and liquidity to the model. Given regression (2), we would expect the positive effect of liquidity on activism to be even more pronounced for firms that have performed relatively poorly in the past. The interaction term allows us to test this conjecture. The sign of the variable "past performance" is negative for firms with abnormally low stock returns, hence, we expect the sign of the interaction effect to be negative. However, in a probit regression, the correct marginal effect is in general not given by the coefficient estimate. For interaction terms, the problem is exacerbated in that even the sign of the true marginal effect can be different than the sign of the estimated regression coefficient (Ai and Norton, 2003). In general, the sign of the marginal effect of an interaction term will be a non-linear function of all independent variables included in the regression.[19] We compute the estimated value of the interaction effect using the approach detailed

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[19]Let $\Phi(\cdot)$ be the normal cumulative distribution function. For the model in (3) with $u \equiv \gamma_0 + \gamma_1 \text{PERF}_{i,t-1} +$

in Norton, Wang, and Ai (2004).[20]

Column (3) shows that the coefficient estimate of the interaction effect is indeed negative. In the bottom segment of column (3), the negative sign of the estimated marginal effect associated with the interaction term is confirmed. The average interaction effect is -0.0025 with an average z-statistic of -3.5. To understand how these statistics are computed, consider the graphical representation in Figure 2. Panel A in the Figure shows the interaction effect for all combinations of independent variables that exists in the sample. The interaction effect of -0.0025 reported in column (3) is the average value of the numbers reported on the vertical axis in the Figure. The interpretation of the reported number is that, controlling for all other variables included in the regression, the probability of shareholder activism is more sensitive to performance the more liquid is the firm's stock.

Panel B in Figure 2 reports the z-statistics associated with each estimated interaction term. The z-statistic reported in Table 4 is the average value of the numbers reported on the vertical axis of Panel B in the Figure. Observe that the vast majority of interaction terms associated with a predicted probability of activism "away from zero" is statistically significant. Thus, for firms with a non-zero probability of activism, liquidity significantly increases the sensitivity to past performance.

In Table 4, Column (3), the coefficient estimate of "past performance" changes sign compared to the regression in Column (2). This seems to suggest that abnormally good past performance now increases the probability of activism. This is, however, not the case. The marginal effect of past performance when the specification includes an interaction term between past performance and liquidity, is given by $(\gamma_1 + \gamma_2 L_{it-2})\text{PERF}_{it-1}$. Even though the estimate of γ_1 is positive in specification (3), the overall effect $(\gamma_1 + \gamma_2 L_{it-2})$ is negative for the vast majority of firms in the sample.

To illustrate the economic importance of the results presented in Table 4, Figure 3 shows the

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$\gamma_2 L_{it-2} + \gamma_3 \text{PERF}_{i,t-1} \times L_{it-2} + \gamma_4' X_{i,t-1}$, the marginal effect is

$$\frac{\Delta \left(\frac{\partial \Phi(u)}{\partial \text{PERF}} \right)}{\Delta L} = (\gamma_1 + \gamma_3)\phi\{(\gamma_1 + \gamma_3)\text{PERF}_{i,t-1} + \gamma_2 + \gamma_0 + \gamma_4' X_{i,t-1}\} - \gamma_1 \phi(\gamma_1 \text{PERF}_{i,t-1} + \gamma_0 + \gamma_4' X_{i,t-1})$$

[20]The approach of Norton, Wang, and Ai (2004) is available as the Stata function "inteff" and is also used by, e.g., Lel and Miller (2008).

average predicted probability of intervention for ten performance deciles, plotted for the samples of stocks with liquidity above the 90th decile (the most liquid decile) and below the 10th decile (the least liquid decile). For the best performing illiquid stocks, the probability of experiencing shareholder activism is below 0.3 percent, whereas the probability is above 1 percent for the worst performing liquid stocks—that is, more than three times higher. As we would expect from the results documented in Table 4, the probability falls when performance improves. Furthermore, for the firms in the lowest performance decile we find that the probability of experiencing shareholder activism is in the order of 0.65 percent for firms with liquidity below the 10th decile. For firms with liquidity above the 90th decile, the corresponding probability is around 1.05 percent—that is, around 1.6 times the size of the effect for the least liquid firms.

In sum, the results presented in Table 4 reinforce our earlier conclusion that abnormally poor stock market performance tends to increase the likelihood of shareholder activism. Moreover, we show that performance only has a statistically significant effect on the probability of shareholder activism if the targeted firm is liquid. Our findings thus support the proposition that liquidity facilitates monitoring in the form of shareholder activism. The next section investigates the robustness of this conclusion.

3.2   Robustness tests

Panel B of Table 1 shows that our data include 111 cases where a shareholder activist has made a formal tender offer or a more informal expression of interest in the subject firm.[21] In these cases, the sponsor of the solicitation intends to acquire all the shares in the target and may initiate an election contest, for example, with the purpose of electing new directors willing to redeem bylaws that impede a takeover.

There are reasons to believe that proxy solicitations associated with acquisition attempts are different from solicitations that involve the continuation of the target company as a stand-alone firm. In acquisition related cases a proxy solicitation is essentially a referendum on the sponsor's offer for the company (Bebchuck, 2007) and is fundamentally different from the notion of activism

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[21]Informal expression of interest includes "bear hugs." See footnote 15.

that constitutes the focus of our paper. Liquidity may, however, play a role also in acquisition-related cases to the extent that it permits establishment of a toehold in the target.[22] Grossman and Hart (1980) argue that a toehold mitigates the free-rider problem and, therefore, increases the chance of a successful acquisition. If the target's stock is liquid, the bidder may be able to establish a toehold in the target without impacting the price. Bris (2002), on the other hand, shows that a zero toehold is optimal if the cost of revealing information through pre-tender offer announcement trading is large enough. Betton, Eckbo, and Thorburn (2009) find that toeholds are, in fact, uncommon in tender offers, suggesting that liquidity plays a minor role in acquisition cases.

In Table 5 we split the sample of events into acquisition and non-acquisition related cases of activism and run regressions similar to those in Table 4. The second column reports results using 301 cases of non-acquisition related shareholder activism. Comparing this column with regression (3) in Table 4, the coefficient estimates and the significance levels are remarkably similar. Thus, all conclusions drawn based on Table 4 carry over to the cases of non-acquisition related shareholder activism. In the last column of Table 5, we study acquisition related shareholder activism. Notice how liquidity does not seem to play an important role. The coefficient estimate for the liquidity effect in the second row is more than five times larger for non-acquisition related activism than it is for acquisition related activism. For the latter cases, the point estimate of 0.06 is also statistically insignificant. A similar conclusion about the lack of importance for liquidity applies to the interaction term. Since liquidity would allow a bidder to more easily acquire a toehold, the lack of importance for liquidity is consistent with toeholds being uncommon in tender offers.

In the next set of robustness tests, we focus on non-acquisition related activism and change the way in which we sample non-event firms. In the current approach we include all firms-years that satisfy our sampling criteria. This implies that our regressions use a large number of non-event firms compared to the number of event-firms. Including a large number of non-event firms improves the precision of our estimated coefficients. However, it may introduce a bias related to the fact that we compare event-firms to non-event-firms that may differ in ways that are important for shareholder

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[22]A toehold refers to a "small" ownership in the target prior to launching a bid for the target.

activism. Up to this point we have included a set of exogenous variables to control for such differences. An alternative approach is to use the same set of variables to identify non-event firms that are "close" to event-firms. We follow Rosenbaum and Rubin (1983) and measure "closeness" using the *propensity score*—defined as the conditional probability of observing shareholder activism given the set of control variables:

$$p(x_{it-1}) \equiv \Pr(\text{ACT}_{it} = 1 \mid x_{it-1} = X_{it-1}),$$

where ACT_{it} and X_{it-1} are the dependent variable and the control variables, respectively, from equation (3). In the first step of this alternative estimation procedure, we use all observations in a given year and estimate the propensity score using a probit model.[23] This is repeated for all sample years. In the next step, for each event-firm we identify the m firms that are closest in terms of propensity score. With n events this gives a sample of $n + nm$ firm-years. In the last step we re-estimate the model in equation (3) using the n event firms and the nm non-event firms.

Table 6 reports the interaction effect of past performance and liquidity using the matched sample.[24] The second column of the Table reports results for $m = 1$ while the last column reports results for $m = 2$. Comparing estimates reported on the same row for the two columns, it is clear that the choice of $m = 1$ or $m = 2$ does not matter for the conclusion. More importantly, when comparing the results to column (3) of Table 4, the sign and statistical significance levels are very similar. However, the point estimates in Table 6 are generally larger than the corresponding point estimates from Table 4. This is due to the fact that our alternative sample selection includes fewer non-event firms. In other words, the proportion of events in the matched sample far exceeds the proportion of evens in the original sample. Although not reported in Table 6, we find no effect of liquidity on the probability of activism for the sub-sample of acquisition related shareholder activism.

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[23]The propensity scoring algorithm is available as a Stata module "psmatch2," authored by Leuven and Sianesi (2003).

[24]Even though the second step regressions include all control variables, the coefficient estimates are dropped from Table 6. All estimates, except the intercept, are statistically insignificant—as expected, since we have selected matching firms based on the same set of control variables.

In our final set of robustness tests, we maintain the focus on non-acquisition related activism but replace the Amihud illiquidity measure with other liquidity measures and change the period over which we measure past performance and liquidity. Columns (1) and (2) of Table 7 report results using turnover and proportional quoted spread as liquidity measures. Even though turnover and, in particular, proportional quoted spread pick up a different aspect of liquidity than the Amihud measure, the effect of liquidity remains strong using these alternative measures. Looking at the point estimates for past performance in the first row of columns (1) and (2), we see that the estimates are closer to zero than the corresponding estimate from column (3) of Table 4. Regardless of the fact that we cannot reject that the true coefficient on past performance is zero in columns (1) and (2), this finding implies an estimated effect of past performance, including the interaction effect with liquidity, that is stronger than documented in Table 4.

It seems likely that firms with many small shareholders will be more liquid than otherwise similar firms with a few large shareholders. Thus, liquidity and ownership structure are likely to be related, and we include firm ownership structure in our set of control variables. As an extra precaution that our liquidity measures do not reflect ownership we re-run the probit with a liquidity measure that is purged of any linear relation to ownership. That is, we first regress liquidity on "Institutional holdings" and "Institutional breadth" (defined in section 3.1):

$$\text{L}_{it} = \theta_0 + \theta_1 \text{Institutional holding}_{it} + \theta_2 \text{Institutional breadth}_{it} + e_{it},$$

and use the residual from this regression as our measure of liquidity in the probit. The residual e_{it} captures the variation in liquidity L_{it} that is orthogonal to our measures of ownership structure. The regression confirms that liquidity and ownership are linearly related. The adjusted R-squared is 8.3% and the absolute value of the t-statistics for the coefficient estimates all exceed 9.3 (not reported). We proceed by replacing the liquidity variable L_{it-2} with the residual e_{it-2} in the probit regression. The results are reported in column (3) of Table 7. Even when liquidity is measured orthogonally to ownership structure, it remains an economically and statistically significant determinant of shareholder activism. Looking at the first row of column (3), we see that the coefficient

associated with past performance is negative and statistically significant. Taken together with the interaction effect, past performance has a strong negative relation to the probability of shareholder activism—in other words, bad performance increases the probability of activism.

In the last column of Table 7, we change the period over which we measure past performance and liquidity. In particular, past performance is abnormal return measured as the difference between the two-year holding period return for firm i and the two-year holding period return on the market index. Liquidity is measured over years $(t-4)$ through $(t-3)$ relative to the year of activism. The results are again very similar to the results reported in Table 4.

Overall, the results presented in this section show that the findings in Table 4 are robust to how non-event firms are selected, to how liquidity is defined, and to the period over which past performance and liquidity are measured. For non-acquisition related activism events, we retain our conclusion that liquidity facilitates monitoring through shareholder activism. We also document that liquidity does not have a significant effect in our—relatively small—sample of acquisition attempts. Next we look at abnormal stock returns around announcement dates to investigate the valuation effects of shareholder activism.

4   Shareholder activism, liquidity, and firm value

Shareholder activism is generally assumed to increase firm value. An immediate implication of this assumption is that the announcement return should be positive in a sample of activism events. The intuition behind this implication is straightforward. Just before the announcement, the stock price reflects the expected value of the firm given the likelihood of intervention. After the activism announcement, the stock price reflects the full value of intervention. Models where liquidity encourages activism, for example Maug (1998) and Faure-Grimaud and Gromb (2004), have the additional prediction that the effect on value should be decreasing in liquidity. The intuition rests on realizing that the probability of being targeted by a shareholder activist is higher for a firm with liquid stocks than for an otherwise identical firm with illiquid stocks. The higher probability of shareholder activism implies that a liquid firm will trade closer to its post-activism value than an

illiquid firm.

To estimate the effect shareholder activism has on firm value, we rely on abnormal stock returns measured around the announcement date of activism. The date of the first public announcement of shareholder activism is defined as the earliest of the date of the first SEC filing and the date on which a solicitation is first mentioned in news sources covered by Factiva. Value effects are estimated both using a standard announcement period window and a longer window that also covers a run-up period prior to the announcement. There are at least two reasons to expect positive abnormal returns during the run-up period. First, in the model of Maug (1998), the shareholder activist trade in the stock prior to the announcement to profit on the value improvements from intervention. Second, information about the intervention may leak out to some investors prior to the first public announcement.

We follow the merger and acquisition literature and define the announcement period as the three-day window ending on the date after the announcement day.[25] To capture the potential effects of trading and information leakages prior to the announcement, we also report results using longer event-windows. The abnormal return for firm i on day t is computed as follows:

$$\text{AR}_{it} = r_{it} - \hat{\beta}_i r_{mt} - \hat{s}_i \text{SMB}_t - \hat{h}_i \text{HML}_t - \hat{m}_i \text{MOM}_t$$

where r_{it} is the continuously compounded daily excess return on firm i, r_{mt} is the continuously compounded daily excess return on the CRSP value-weighted NYSE/AMEX/Nasdaq market portfolio, SMB and HML are the Fama and French (1993) size and book-to-market factors, and MOM is a momentum factor.[26] The coefficients $\hat{\beta}_i$, $\hat{s}_i$, $\hat{h}_i$, and $\hat{m}_i$ are estimated using a 252 day estimation period ending on the last trading day before the beginning of the event-window. For firm i, CAR for the period $[\tau_1, \tau_2]$ is computed as:

$$\text{CAR}_i[\tau_1, \tau_2] = \sum_{t=\tau_1}^{\tau_2} AR_{it}.$$

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[25]See for example Betton, Eckbo, and Thorburn (2009) and Eckbo, Norli, and Thorburn (2010).
[26]SMB, HML, and MOM have been downloaded from Ken French's web-site.

Figure 4 shows that shareholder activism is associated with both stock price run-up and a direct announcement effect in our sample. Although there is a slight increase in the stock price starting as early 20–25 days before the announcement, the main run-up in price seems to start around eight days prior to the announcement. Table 8 further investigates the valuation effects of shareholder activism. Panel A of the Table reports cross-sectional average CARs for event-windows that start one, ten, and twenty days before the announcement and end on the day after the announcement. The results reported in the first row of the Table show that non-acquisition related shareholder activism has an economically and statistically significant positive effect on firm-value. The announcement of activism results in an average abnormal return of 4.1% over the three-day announcement window. Extending the event-window to 12 and 22 days increases the CAR to 5.4% and 6.6%, respectively. Thus, most of the effect on firm-value occurs in a short period around the announcement. Shifting the attention back to the three-day announcement period, and comparing announcement return for the least liquid firms with announcement return for the most liquid firms, we see that liquid firms experience a smaller value effect than illiquid firms. For the most liquid firms, the average three-day announcement return is 2.9%. This is significantly less than the 5.3% average announcement return observed for illiquid firms. A similar effect, although not as statistically significant, is observed also when the event-windows are extended to 12 and 22 days.

For completeness, the last row of Panel A of Table 8 presents CARs for firms targeted in acquisition attempts. The three-day announcement return is considerably larger for these firms than for firms associated with non-acquisition related activism events—supporting our decision to treat the acquisition sub-sample as fundamentally different.[27]

Panel A of Table 8 supports our prediction that the announcement effect should be decreasing in stock liquidity. In Panel B we explore this question further by investigating the relationship between liquidity and CAR while controlling for other variables that might affect the abnormal returns. The control variables are the same as before and are described in Table 3. In addition, we include a set of year-dummies that capture the variation in CAR over time. Liquidity is measured

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[27]The reported announcement return of 18.4% is close to what others have found in large-sample studies of acquisition attempts. See for example Eckbo, Norli, and Thorburn (2010).

in the year prior to the announcement date.[28] Focusing on the column labeled CAR$[-1, 1]$ in Panel B, liquidity has an economically and statistically significant effect on the announcement return. The point estimate of -0.105 implies that firms with liquidity equal to the average in the lowest cross-sectional liquidity quintile would experience a change in value that is 1.3 percentage point higher than firms with liquidity equal to the average in the highest liquidity quintile. When looking across columns along the first row of Panel B, we see that the effect of liquidity is strong for all event-windows. Using a 22-day event window, the point estimate on the liquidity variable is -0.214 with an associated t-statistic of 2.58. This point estimate translates into an estimated difference in CAR between firms in the lowest and highest liquidity quintiles of 2.6 percentage points.

Panel C of Table 8 investigates the robustness of the main findings from Panel B. We trim the sample by removing observations from both tails of the empirical CAR distribution. In the first segment of Panel C, the sample is sorted based on CAR and the 5% smallest and the 5% largest CAR observations are dropped before running the same regressions as in Panel B. For brevity, we only report the liquidity-effect and the number of observations. The point estimates are smaller in the trimmed sample. This implies that some of the observations that was removed had a non-negligible impact on the estimates from the untrimmed sample. The next segment of Panel C reports results for a sample where 20% of the observations used in Panel B are removed. With this amount of trimming, the effect of liquidity has vanished.

In sum, this section has argued that average CAR should be positive in a cross-section of activism events and that average CAR should be smaller for liquid firms than for illiquid firms. With the exception of the non-robustness to severe trimming, the results presented in Table 8 are consistent with these implications. We interpret our findings as evidence that shareholder activism generates value and that liquidity positively affects the incentives to become an active shareholder.

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[28]Specifically, average Amihud (2002) illiquidity is computed using the twelve months ending with the last December prior to the announcement date of activism. Liquidity is a constant less the average illiquidity measure.

5   Conclusion

This paper empirically examines the effect of stock liquidity on shareholder activism in the form of contested proxy solicitations for a cross-section of firms listed on the major U.S. stock exchanges. Liquidity may affect shareholder activism in two opposite ways. On one hand, liquidity may discourage shareholder activism. If the stock of a poorly performing firm is liquid, shareholders may prefer to exit the investment by selling their shares rather than incurring monitoring costs. On the other hand, stock liquidity may induce shareholder activism. In a liquid market a potential activist can profit from trading on the private information of his future value enhancing intervention and thereby cover monitoring costs. Also, for shareholders that face the risk of having to liquidate their positions, liquidity may encourage activism because a more informative price allows an activist shareholder to sell shares at a price that reflects value improvements. Thus, stock liquidity mitigates the free-rider problem by ensuring that active shareholders earn enough trading profits to cover their monitoring costs.

Using a sample of 497 shareholder activist events collected for the 1994–2007 sample period, our main conclusion is that liquidity improves shareholders' incentive to take an active role in the governance of corporations. We provide three sets of results that support this conclusion. First, we show that shareholders are more likely to take action in response to deteriorating firm performance when a firm's stock is liquid. For the decile of the worst performing firms—being among the most liquid firms increases the probability of being subjected to shareholder activism with more than 60 percent when compared to the least liquid firms. Second, we document positive abnormal returns during the three-day period surrounding the date of a public announcement of shareholder activism. For shareholder activism events not related to tender offers or acquisitions attempts, the three-day announcement period return is 4.1%. The positive abnormal return is consistent with the notion that activist shareholders create value and that they earn a positive return on their intervention. Finally, we document that the abnormal announcement period return is lower for liquid firms than for illiquid firms. This finding is consistent with our conclusion that stock liquidity induces shareholder activism. If liquidity triggers activism, then investors will attach a

relatively high probability to the event that a liquid firm will experience shareholder activism—and will not be surprised when intervention happens. When activism is expected, announcement period returns should be small.

Recent papers by Edmans (2009) and Admati and Pfleiderer (2009) suggest that a large shareholder's option to sell shares and exit the stock serves as a disciplinary mechanism for management. Liquidity is important for this mechanism because the threat of exit is only credible if shareholders can sell shares without incurring too large costs in the process. In a related vein, Holmström and Tirole (1993), Faure-Grimaud and Gromb (2004), and Attari, Banerjee, and Noe (2006) suggest that improved liquidity enhances the effectiveness of the stock market as a monitoring device. Although our paper does not provide direct evidence on the effectiveness of the monitoring mechanisms studied in these papers, we show that liquidity is important for the monitoring decision—making it more likely that other monitoring mechanisms that rely on liquidity are in fact relevant for corporate governance.

References

Admati, Anat R., and Paul Pfleiderer, 2009, The "Wall Street walk" and shareholder activism: Exit as a form of voice, *Review of Financial Studies* 22, 2645–2685.

Ai, Chunron, and Edward C. Norton, 2003, Interaction terms in logit and probit models, *Economics Letters* 80, 123–129.

Amihud, Yakov, 2002, Illiquidity and stock returns: Cross-section and time-series effects, *Journal of Accounting and Economics* 5, 31–56.

Attari, Mukkaram, Suman Banerjee, and Thomas H. Noe, 2006, Crushed by a rational stampede: Strategic share dumping and shareholder insurrections, *Journal of Financial Economics* 79, 181–222.

Bebchuck, Lucian A., 2007, The myth of the shareholder franchise, *Virginia Law Review* 93, 675–732.

Becht, Marco, Julian Franks, Colin Mayer, and Stefano Rossi, 2009, Returns to shareholder activism: Evidence from a clinical study of the Hermes U.K. focus fund, *Review of Financial Studies* 22, 3093–3129.

Betton, Sandra, B. Espen Eckbo, and Karin S. Thorburn, 2009, Merger negotiations and the toehold puzzle, *Journal of Financial Economics* 91, 158–178.

Bhide, Amar, 1993, The hidden costs of stock market liquidity, *Journal of Financial Economics* 34, 31–51.

Bolton, Patrick, and Ernst-Ludwig von Thadden, 1998, Blocks, liquidity, and corporate control, *The Journal of Finance* 53, 1–25.

Brav, Alon, Wei Jiang, Frank Partnoy, and Randall Thomas, 2008, Hedge fund activism, corporate governance, and firm performance, *The Journal of Finance* 63, 1729–1775.

Brennan, Michael J., and Avanidhar Subrahmanyam, 1996, Market microstructure and asset pricing: On the compensation for illiquidity in stock returns, *Journal of Financial Economics* 41, 441–464.

Bris, Arturo, 2002, Toeholds, takeover premium, and the probability of being acquired, *Journal of Corporate Finance* 8, 227–253.

Chen, Joseph, Harrison Hong, and Jeremy C. Stein, 2002, Breadth of ownership and stock returns, *Journal of Financial Economics* 66, 171–205.

Clifford, Christopher P., 2008, Value creation or destruction? Hedge funds as shareholder activists, *Journal of Corporate Finance* 14, 323–336.

Coffee, John C., 1991, Liquidity versus control: The institutional investor as corporate monitor, *Columbia Law Review* 91, 1277–1368.

Eckbo, B. Espen, and Øyvind Norli, 2005, Liquidity risk, leverage and long-run ipo returns, *Journal of Corporate Finance* 11, 1–35.

———, and Karin S. Thorburn, 2010, Corporate governance and takeover initiations, Unpublished Working Paper.

Edmans, Alex, 2009, Blockholder trading, market efficiency, and managerial myopia, *The Journal of Finance* 64, 2481–2513.

———, and Gustavo Manso, 2008, Governance through exit and voice: A theory of multiple blockholders, Working paper, The Wharton School and MIT.

Fama, Eugene F., and Kenneth R. French, 1993, Common risk factors in the returns on stocks and bonds, *Journal of Financial Economics* 43, 3–56.

Fang, Vivian W., Thomas H. Noe, and Sheri Tice, 2009, Stock market liquidity and firm value, *Journal of Financial Economics* 94, 150–169.

Faure-Grimaud, Antoine, and Denis Gromb, 2004, Public trading and private incentives, *Review of Financial Studies* 17, 985–1014.

Ferreira, Daniel, Miguel A. Ferreira, and Clara C. Raposo, 2009, Board structure and price informativeness, forthcoming *Journal of Financial Economics.*

Gillan, Stuart L., and Laura T. Starks, 1998, A survey of shareholder activism: Motivation and empirical evidence, *Contemporary Finance Digest* 2, 10–34.

Greenwood, Robin, and Michael Schor, 2009, Investor activism and takeovers, *Journal of Financial Economics* 92, 362–375.

Grossman, Sanford J., and Oliver D. Hart, 1980, Takeover bids, the free-rider problem, and the theory of the corporation, *Bell Journal of Economics* 11, 42–64.

Hasbrouck, Joel, 1991, Measuring the information content of stock trades, *Journal of Finance* 46, 179–207.

Hirschman, Albert O., 1970, *Exit, Voice, and Loyalty: Responses to Decline in Firms, Organizations, and States* (Harvard University Press: Cambridge).

Holmström, Bengt, and Jean Tirole, 1993, Market liquidity and performance monitoring, *Journal of Political Economy* 101, 678–709.

Kahn, Charles, and Andrew Winton, 1998, Ownership structure, speculation, and shareholder intervention, *The Journal of Finance* 53, 99–129.

Karpoff, Jonathan M., 2001, The impact of shareholder activism on target companies: A survey of empirical findings, Working paper, University of Washington.

Klein, April, and Emanuel Zur, 2009, Entrepreneurial shareholder activism: Hedge funds and other private investors, *The Journal of Finance* 64, 187–229.

Kyle, Albert S., and Jean-Luc Vila, 1991, Noise trading and takeovers, *The RAND Journal of Economics* 22, 54–71.

Lel, Ugur, and Darius P. Miller, 2008, International cross-listing, firm performance, and top management turnover: A test of the bonding hypothesis, *The Journal of Finance* 60, 1897–1937.

Leuven, Edwin, and Barbara Sianesi, 2003, Psmatch2: Stata module to perform full mahalanobis and propensity score matching, common support graphing, and covariate imbalance testing, http://ideas.repec.org/c/boc/bocode/s432001.html. Version 3.0.0.

Lo, Andrew W., and Jiang Wang, 2000, Trading volume: Definitions, data analysis, and implications of portfolio theory, *Review of Financial Studies* 13, 257–300.

Maug, Ernst, 1998, Large shareholders as monitors: Is there a trade-off between liquidity and control?, *The Journal of Finance* 53, 65–98.

———— , 2002, Insider trading legislation and corporate governance, *European Economic Review* 46, 1569–1597.

Noe, Thomas H., 2002, Investor activism and financial market structure, *Review of Financial Studies* 15, 289–318.

Norton, Edward C., Hua Wang, and Chunron Ai, 2004, Computing interaction effects and standard errors in logit and probit models, *The Stata Journal* 4, 154–167.

Rosenbaum, Paul R., and Donald B. Rubin, 1983, The central role of the propensity score in observational studies for causal effects, *Biometrica* 70, 41–55.

White, Halbert, 1980, A heteroskedasticity-consistent covariance matrix estimator and a direct test for heteroscedasticity, *Econometrica* 48, 817–838.

Winton, Andrew, and Sen Li, 2006, When do institutional investors become activists? trading incentives and shareholder activism, Unpublished Working Paper, University of Minnesota.

Figure 1
Fraction of firms that experience shareholder activism: 1994–2007

The Figure shows how shareholder activism varies across sample years. For each year we identify all firms that satisfy non-activism related sampling criteria. Each bar in the figure represents the fraction of firms experiencing shareholder activism in a given year. A firm experiences shareholder activism if a non-management shareholder or group of shareholders file a shareholder proposal or a contested solicitation through EDGAR.

Figure 2
Interaction effect of past performance and liquidity on the probability of shareholder activism

Panel A shows the interaction effect of past performance and liquidity on the probability of share-holder activism for all the combinations of independent variables that exists in the sample. Panel B shows the corresponding z-statistics.

A. Interaction effects

B. z-statistics
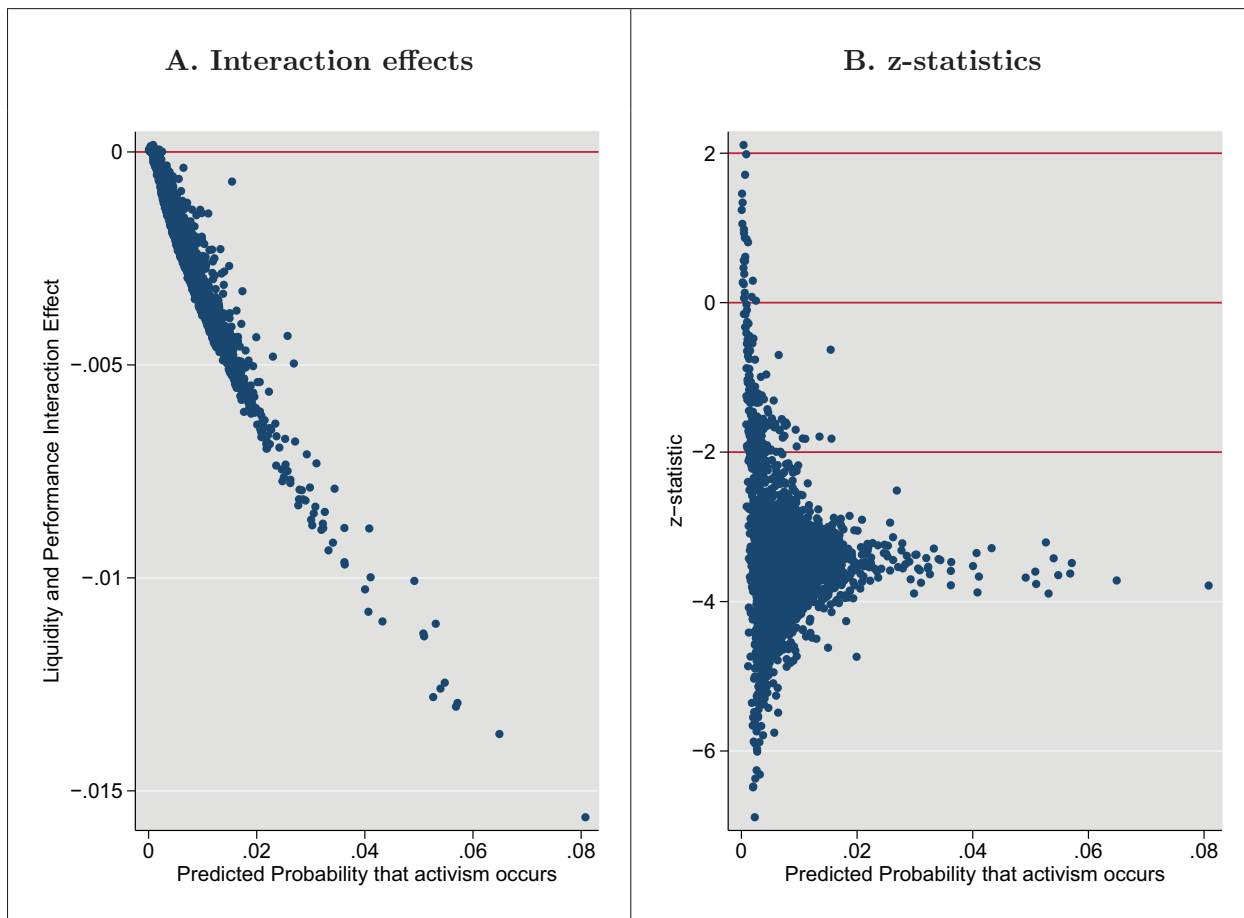
Figure 3
Predicted probability of shareholder activism for past performance deciles

The figure shows how the predicted probability of shareholder activism varies with past performance for the most liquid and the least liquid firms in the sample. Liquidity is the Amihud measure and is computed for year $t-2$ relative to the activism year. A firm experiences shareholder activism if a non-management shareholder or group of shareholders file a shareholder proposal or a contested solicitation through EDGAR.
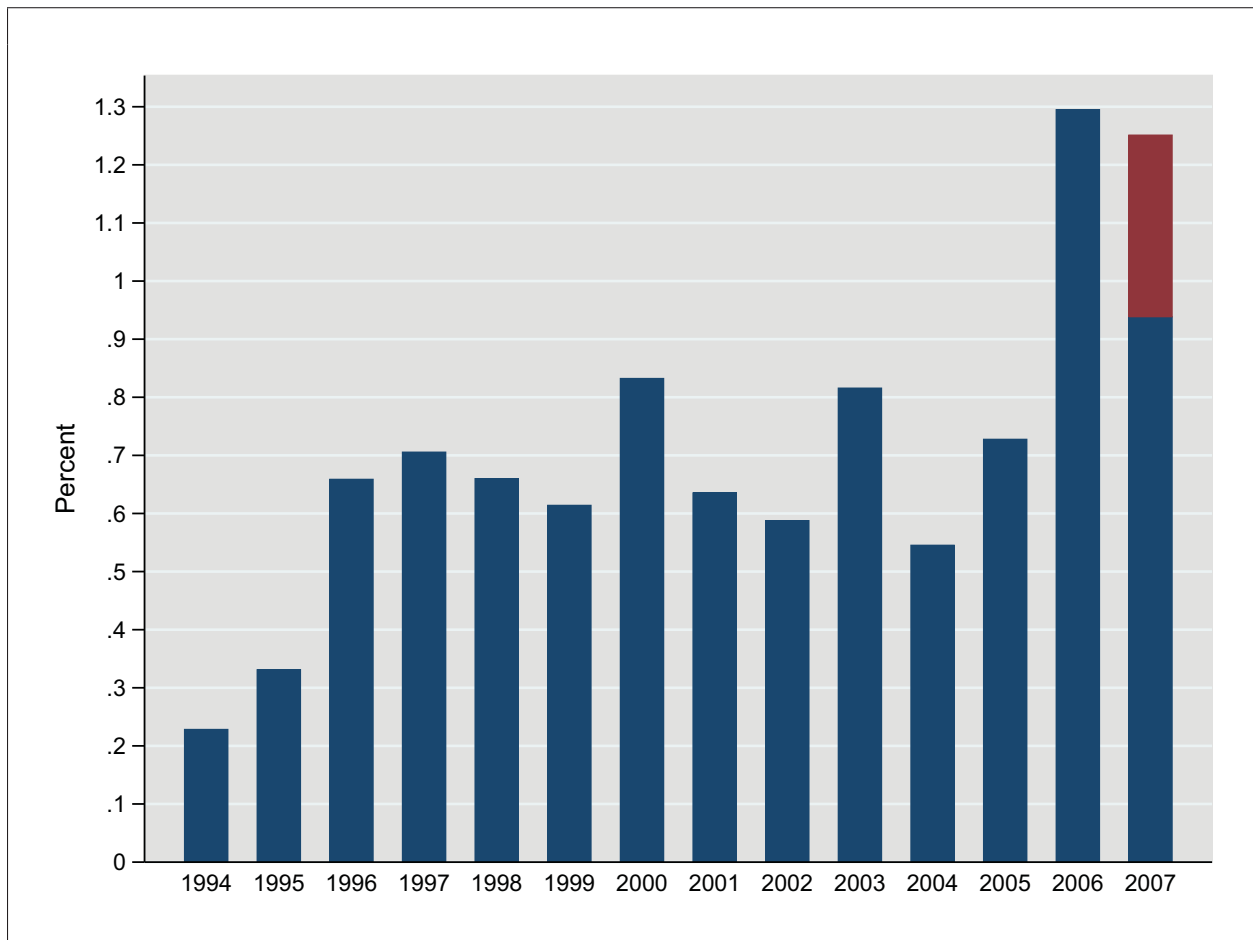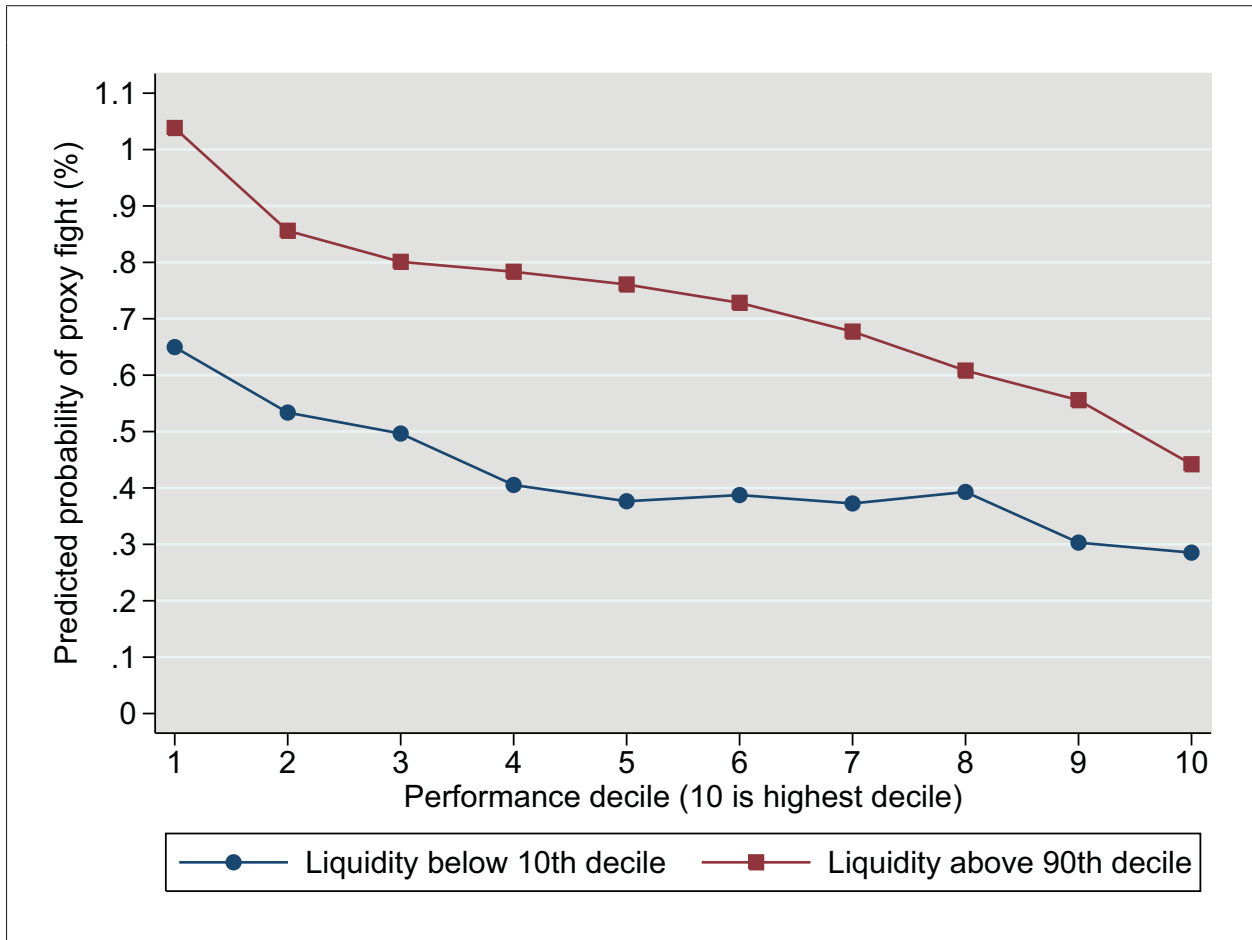
Figure 4

Cumulative abnormal return around the announcement date of shareholder activism: 1994–2007

The Figure shows the cumulative abnormal returns (CAR) starting on day -40 and ending on day $+4$ relative to the announcement date of shareholder activism. The CAR is computed by cumulating average daily abnormal returns. The daily abnormal returns are computed using:

$$\text{AR}_{it} = r_{it} - \hat{\beta}_i r_{mt} - \hat{s}_i \text{SMB}_t - \hat{h}_i \text{HML}_t - \hat{m}_i \text{MOM}_t$$

where r_{it} is the continuously compounded daily excess return on firm i, r_{mt} is the continuously compounded daily excess return on the CRSP value-weighted NYSE/AMEX/Nasdaq market portfolio, SMB and HML are the Fama and French (1993) size and book-to-market factors, and MOM is a momentum factor. The coefficients $\hat{\beta}_i$, $\hat{s}_i$, $\hat{h}_i$, and $\hat{m}_i$ are estimated using a 252 day estimation period ending on day -41 relative to the announcement day. For firm i, CAR for the period $[\tau_1, \tau_2]$ is computed as: $\text{CAR}_i[\tau_1, \tau_2] = \sum_{t=\tau_1}^{\tau_2} \text{AR}_{it}$.

<div align="center">
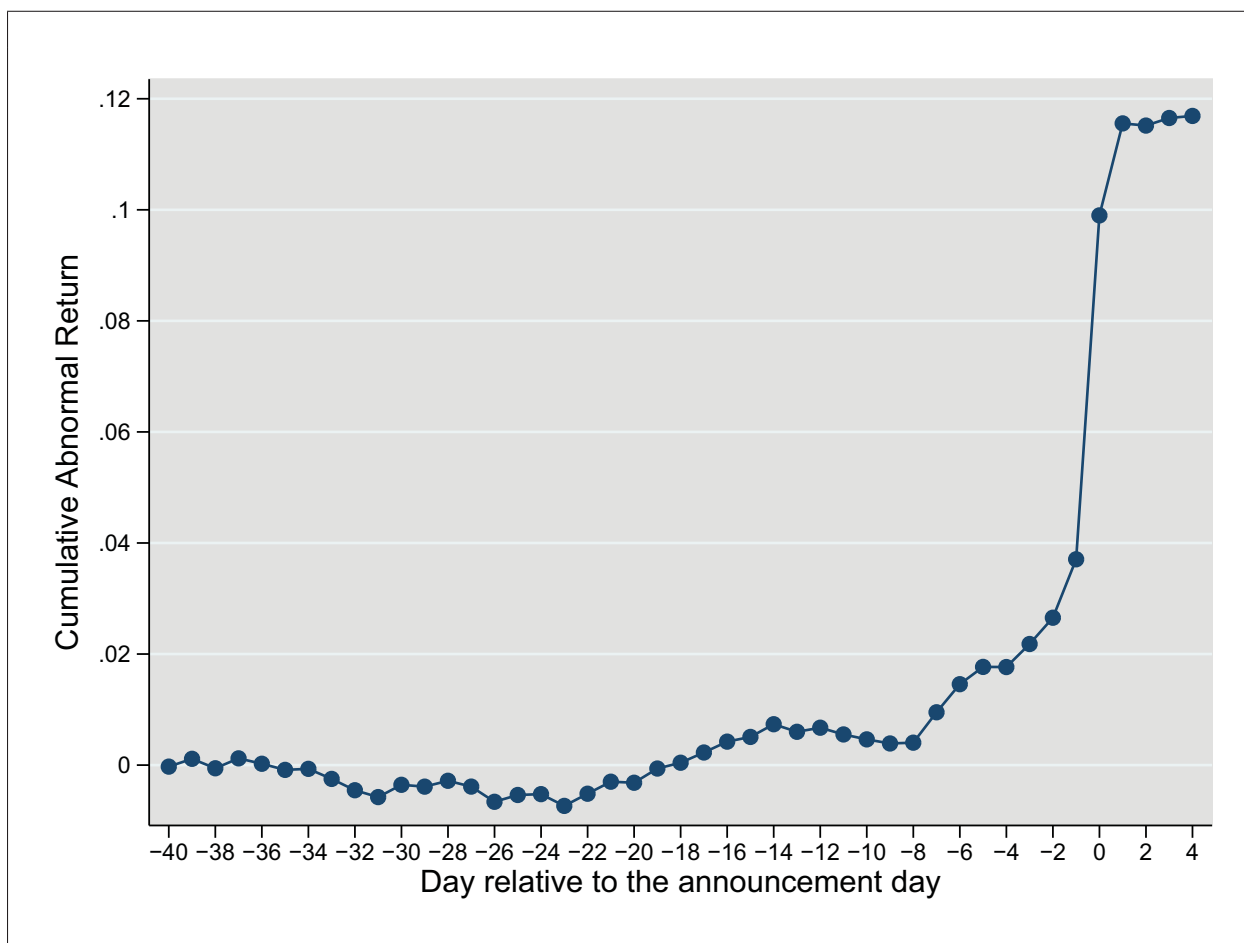
Table 1

Dissident shareholder types and purpose of shareholder activism

</div>

The Table categorizes shareholder activists by type and purpose. Information on dissident shareholder types is from the SEC filings and Factiva news searches. The classification of the purpose of activism is based on what the activist has stated in the SEC filing. The sample period is 1994 through the third quarter of 2007. The sample only includes firms listed on NYSE, AMEX, or Nasdaq with common shares. The sample is also restricted to firms that have information on market capitalization and book-to-market ratio in the year prior to the activism-year.

<div align="center">

A. Dissident shareholder type

</div>

Hedge funds	148
Shareholder committees	108
Industrial owners	103
Individual investors	51
Institutional investors and investment companies	39
Workers unions	29
Others	19
Total	497

<div align="center">

B. Stated purpose of activism (categories may overlap)

</div>

Change in the board of directors	394
Change in corporate governance, including voting procedures	189
Change in business strategy	169
Removal of takeover defense	136
Sale of target assets or sale of target company	134
Tender offer or informal expression of interest	111
Improvement in operating efficiency	101
Chance in the compensation of CEO or directors	91
Change in payout policy (dividend or stock repurchase)	64
Replacement of the CEO	63
Prevention of acquisition or merger with another company	35
Change in capital structure (debt-equity ratio)	30
Prevention of take-over	20
Suggestion of a specific means of financing	10

Table 2
Fraction of firms that experience shareholder activism grouped by liquidity and past performance

The Table reports the frequency of shareholder activism grouped by past performance and liquidity. A firm experiences shareholder activism if a non-management shareholder or group of shareholders file a shareholder proposal or a contested solicitation through EDGAR. In each Panel of the Table, firm-years are sorted into deciles based on past performance and into two groups based on Amihud illiquidity. Both Panels report the proportion of shareholder activism events relative to the total number of firm-years in each group created by intersecting the ten past performance sorts and the two liquidity sorts. In Panel A, past performance is measured as the difference between the annual return on the common stock of firm i and the annual return on the value-weighted CRSP NYSE/AMEX/Nasdaq index (the market index). The performance is measured in year $t-1$ relative to the year of shareholder activism. Amihud illiquidity for year t is measured as the average monthly illiquidity, where monthly illiquidity is computed as in equation (1). The *most* liquid firms are firms with a below median value on the Amihud illiquidity measure. The *least* liquid firms are firms with an above median Amihud measure. In Panel A, liquidity is measured over year $(t-2)$ relative to the year of the activism. In Panel B, past performance is measured as the difference between the two-year holding period return for firm i and the two-year holding period return on the market index. Holding period returns are measured over years $t-2$ through $t-1$ relative to the activism-year. Liquidity is measured over year $(t-3)$ relative to the year of the activism. The sample period is 1994 through the third quarter of 2007. The sample only includes firms listed on NYSE, AMEX, or Nasdaq with common shares. The sample is also restricted to firms that have information on market capitalization and book-to-market ratio in the year prior to the activism-year.

	Past performance deciles									
	Low	2	3	4	5	6	7	8	9	High
A. Past performance measured in period $t-1$										
Fraction of the *most* liquid firms in year $t-2$	1.21	0.95	1.22	0.89	0.65	0.81	0.80	0.47	0.51	0.22
Fraction of the *least* liquid firms in year $t-2$	0.83	0.81	0.88	0.76	0.78	0.65	0.75	0.91	0.63	0.26
B. Past performance measured over periods $t-2$ through $t-1$										
Fraction of the *most* liquid firms in year $t-3$	1.46	1.27	0.93	0.93	1.00	0.91	0.49	0.61	0.46	0.33
Fraction of the *least* liquid firms in year $t-3$	0.93	0.96	0.62	0.82	1.05	0.44	0.54	0.59	0.63	0.48

Table 3
Firm characteristics for firms that experience shareholder activism and for firms that do not experience shareholder activism

The Table compares characteristics of firms that experience shareholder activism with the characteristics of firms that do not experience shareholder activism. A firm experiences shareholder activism if a non-management shareholder or group of shareholders file a shareholder proposal or a contested solicitation through EDGAR. Amihud illiquidity is defined in section 2. Liquidity (L_{t-2}) is normalized and "inverted" Amihud illiquidity. Past performance $PERF_{(t-1)}$ is measured as the difference between the annual return on the common stock of firm i and the return on the CRSP NYSE/AMEX/Nasdaq index. Institutional holding is the aggregate stockholdings of shareholders making 13F filings to the SEC. Institutional breadth is the number of institutional investors that have reported ownership through 13F filings normalized with the total number of institutional owners reporting in a given year. Log(Market cap) is the natural logarithm of the end-of-December market capitalization. Book-to-market ratio is the book value of equity divided by the market value of equity. Log(Sales) is the natural logarithm of the dollar value of sales. Cash is cash and marketable securities divided by total assets. Dividend yield is total dividend (common dividend plus preferred dividend) divided by market value of common equity plus book value of preferred equity. Book value of preferred equity is the first non-missing value when using redemption value, liquidating value, and the carrying value in that order. R&D is research and development expenses divided by total assets. If R&D expenses are missing from Compustat it is assumed to be zero. All variables that are ratios based on Compustat data (book-to-market ratio, Cash, dividend yield, and R&D) are trimmed by removing the lower and higher 0.005 percentile (i.e, 1% of the observations.), except R&D which is trimmed only at the upper tail. The sample period is 1994 through the third quarter of 2007. The sample only includes firms listed on NYSE, AMEX, or Nasdaq with common shares. The sample is also restricted to firms that have information on market capitalization and book-to-market ratio in the year prior to the activism-year.

Variable	Firm-years with activism	Firm-years without activism	Mean activism	Mean no-activism	No acti-vism less activism	t-value
Amihud illiquidity$_{(t-2)}$	440	58,295	0.020	0.043	0.022	5.39
Liquidity ($L_{(t-2)}$)	440	58,295	5.515	5.423	−0.092	−4.87
Abnormal stock return ($PERF_{(t-1)}$)	489	70,248	−0.127	0.064	0.191	7.65
Institutional holding$_{(t-1)}$	497	75,307	0.327	0.334	−0.019	−1.41
Institutional breadth$_{(t-1)}$	497	75,307	0.040	0.042	−0.003	−0.82
Log(Market cap)$_{(t-1)}$	497	75,307	5.270	5.151	−0.120	−1.29
Book-to-market ratio$_{(t-1)}$	497	75,307	0.923	0.694	−0.229	−6.38
Log(Sales)$_{(t-1)}$	448	69,023	5.133	4.728	−0.406	−2.99
Dividend yield$_{(t-1)}$	448	68,823	0.020	0.012	−0.007	−0.87
Cash$_{(t-1)}$	445	68,391	0.166	0.178	0.013	1.13
R&D$_{(t-1)}$	497	75,307	0.031	0.039	0.008	2.53

Table 4
Probit model of shareholder activism

The table documents the effects of independent variables on the probability of experiencing shareholder activism. The dependent variable equals one if firm i experiences shareholder activism in year t and is zero otherwise, $PERF_{(t-1)}$ is abnormal return, measured as the difference between the annual return on the common stock of firm i and the return on the CRSP NYSE/AMEX/Nasdaq index (the market index.) Performance is measured one year prior to the activism-year. Liquidity (L_{t-2}) is inverse normalized Amihud illiquidity and is measured two years prior to the activism-year. Amihud illiquidity is defined in section 2. The other explanatory variables are defined in Table 3 and are all lagged one year relative to the year of activism. The sample period is 1994 through the third quarter of 2007. Parentheses contain z-values.

Model	(1)	(2)	(3)
Past Performance ($PERF_{(t-1)}$)	−0.12 (−3.15)	−0.06 (−1.70)	0.24 (4.13)
Liquidity ($L_{(t-2)}$)		0.25 (3.60)	0.26 (3.76)
Past Performance×Liquidity			−0.06 (−4.92)
Aggregate Amihud illiquidity$_{(t-1)}$	−2.44 (−3.29)	−3.04 (−3.75)	−2.97 (−3.65)
Nasdaq	−0.11 (−2.86)	−0.12 (−2.88)	−0.12 (−2.86)
Institutional holding$_{(t-1)}$	0.02 (0.27)	−0.07 (−0.78)	−0.07 (−0.74)
Institutional breadth$_{(t-1)}$	−0.42 (−0.89)	0.40 (0.83)	0.38 (0.79)
Log(Market cap)$_{(t-1)}$	0.02 (0.79)	−0.04 (−1.43)	−0.03 (−1.35)
Book-to-market ratio$_{(t-1)}$	0.15 (6.63)	0.15 (6.18)	0.15 (6.07)
Log(Sales)$_{(t-1)}$	0.02 (1.04)	0.01 (0.50)	0.01 (0.45)
Dividend yield$_{(t-1)}$	0.13 (1.08)	0.10 (0.71)	0.10 (0.72)
Cash$_{(t-1)}$	0.26 (2.40)	0.19 (1.63)	0.19 (1.62)
R&D$_{(t-1)}$	−0.18 (−0.75)	−0.16 (−0.61)	−0.17 (−0.66)
Intercept	−2.60 (−26.30)	−3.57 (−10.67)	−3.64 (−11.02)
Average interaction effect			−0.0025
Average z-value for interaction effect			[−3.50]
Number of observations	64,033	52,939	52,939
Number of activism events	440	395	395
Pseudo R^2	0.022	.023	0.025

Table 5
Probit model of shareholder activism for firms targeted in acquisition attempts and firms not targeted in acquisition attempts

The table documents the effects of independent variables on the probability of experiencing shareholder activism. The dependent variable equals one if firm i experiences shareholder activism in year t and is zero otherwise, $\text{PERF}_{(t-1)}$ is abnormal return, measured as the difference between the annual return on the common stock of firm i and the return on the CRSP NYSE/AMEX/Nasdaq index (the market index). Performance is measured one year prior to the activism-year. Liquidity (L_{t-2}) is inverse normalized Amihud illiquidity and is measured two years prior to the activism-year. Amihud illiquidity is defined in section 2. The other explanatory variables are defined in Table 3 and are all lagged one year relative to the year of activism. A firm is classified as being targeted in an acquisition attempt if a bidder has made a tender offer, approached the target using a "bear hug," or expressed a more informal interest in the target firm (a "causal pass.") The sample period is 1994 through the third quarter of 2007. Parentheses contain z-values.

	Non-acquisition related shareholder activism	Acquisition related shareholder activism
Past Performance ($\text{PERF}_{(t-1)}$)	0.25 (4.70)	−0.33 (−0.70)
Liquidity ($L_{(t-2)}$)	0.32 (3.98)	0.06 (0.51)
Past Performance×Liquidity	−0.06 (−4.78)	0.03 (0.38)
Aggregate Amihud illiquidity$_{(t-1)}$	−3.52 (−3.83)	−0.60 (−0.43)
Nasdaq	−0.06 (−1.24)	−0.28 (−3.39)
Institutional holding$_{(t-1)}$	0.09 (1.04)	−0.27 (−1.57)
Institutional breadth$_{(t-1)}$	1.51 (3.33)	−2.67 (−1.92)
Log(Market cap)$_{(t-1)}$	−0.08 (−3.13)	0.06 (1.16)
Book-to-market ratio$_{(t-1)}$	0.14 (5.06)	0.12 (2.61)
Log(Sales)$_{(t-1)}$	−0.01 (−0.36)	0.05 (0.84)
Dividend yield$_{(t-1)}$	−0.44 (−2.00)	0.28 (2.10)
Cash$_{(t-1)}$	0.21 (1.63)	0.02 (0.11)
R&D$_{(t-1)}$	−0.52 (−1.78)	0.77 (1.60)
Intercept	−3.83 (−9.88)	−3.63 (−6.90)
Average interaction effect	−0.0018	0.0001
Average z-value for interaction effect	[−2.90]	[0.04]
Number of observations	52,845	52,638
Number of activism events	301	94
Pseudo R^2	0.028	0.049

Table 6

Table 6

Probit model of non-acquisition related shareholder activism using event-firms and corresponding control firms selected based on propensity score

The table documents the effect of liquidity and past performance on the probability of experiencing shareholder activism. The dependent variable equals one if firm i experiences shareholder activism in year t and is zero otherwise, $PERF_{(t-1)}$ is abnormal return, measured as the difference between the annual return on the common stock of firm i and the return on the CRSP NYSE/AMEX/Nasdaq index (the market index.) Performance is measured one year prior to the activism-year. Liquidity (L_{t-2}) is inverse normalized Amihud illiquidity and is measured two years prior to the activism-year. Amihud illiquidity is defined in section 2. For each event-firm, the m firms that are closest to the event-firm in terms of propensity score are selected as control firms. The Table reports results for $m = 1, 2$. The propensity score is the conditional probability of observing shareholder activism given the set of control variables from equation (3). The conditional probability is estimated using a probit model. Using event-firms and control firms, the interaction effect of past performance and liquidity is estimated, as a second step regression, using the model in equation (3). The sample period is 1994 through the third quarter of 2007. Parentheses contain z-values.

	One non-event firm per event firm ($m = 1$)	Two non-event firms per event firm ($m = 2$)
Past Performance ($PERF_{(t-1)}$)	0.35 (2.53)	0.36 (2.69)
Liquidity ($L_{(t-2)}$)	0.60 (3.47)	0.45 (3.03)
Past Performance×Liquidity	−0.10 (−2.58)	−0.10 (−2.78)
Control variables	Yes	Yes
Average interaction effect	−0.0362	−0.0505
Average z-value for interaction effect	[−2.07]	[−2.79]
Number of observations	602	903
Number of activism events	301	301
Pseudo R^2	0.044	0.026

Table 7
Probit model of non-acquisition related shareholder activism using other measures of liquidity and using a two-year measure of past performance

The table documents the effects of independent variables on the probability of experiencing shareholder activism. The dependent variable equals one if firm i experiences shareholder activism in year t and is zero otherwise. $\text{PERF}_{(t-1)}$ is abnormal return, measured as the difference between the annual return on the common stock of firm i and the return on the CRSP NYSE/AMEX/Nasdaq index (the market index.) $\text{PERF}_{(t-2,t-1)}$ is abnormal return measured as the difference between the two-year holding period return for firm i and the two-year holding period return on the market index. L_{t-2} is inverse normalized Amihud illiquidity. Turnover is share turnover. PQSPR is proportional quoted spread. These liquidity variables are defined in section 2. Residual is the error term from the regression:

$$L_{it} = \theta_0 + \theta_1 \text{Institutional holding}_{it} + \theta_2 \text{Institutional breadth}_{it} + e_{it}.$$

When performance is measured using $\text{PERF}_{(t-1)}$, liquidity is measured over year $(t-2)$ relative to the year of activism. When performance is measured using $\text{PERF}_{(t-2,t-1)}$, liquidity is measured over years $(t-4)$ through $(t-3)$ relative to the year of activism. The sample period is 1994 through the third quarter of 2007. Parentheses contain z-values.

Model	(1)	(2)	(3)	(4)
Performance measure	$\text{PERF}_{(t-1)}$	$\text{PERF}_{(t-1)}$	$\text{PERF}_{(t-1)}$	$\text{PERF}_{(t-2,t-1)}$
Liquidity measure	$\text{Turnover}_{(t-2)}$	$\text{PQSPR}_{(t-2)}$	$\text{Residual}_{(t-2)}$	$L_{(t-4,t-3)}$
Past Performance	-0.04 (-0.64)	0.17 (1.23)	-0.07 (-2.32)	0.07 (4.11)
Liquidity	0.14 (3.20)	0.55 (5.80)	0.30 (4.10)	0.23 (2.93)
Past Performance$\times$Liquidity	-0.09 (-1.44)	-0.10 (-2.14)	-0.06 (-4.61)	-0.03 (-4.08)
Control variables	Yes	Yes	Yes	Yes
Average interaction effect	-0.0020	-0.0040	-0.0020	-0.0011
Average z-value for interaction effect	$[-2.05]$	$[-3.03]$	$[-2.97]$	$[-2.66]$
Number of observations	58,421	64,788	52,845	48,436
Number of activism events	323	316	301	288
Pseudo R^2	0.021	0.030	0.027	0.025

Table 8
Table 8
Cumulative abnormal returns associated with shareholder activism announcements

The Table documents cumulative abnormal stock returns (CARs) over a 3-day period, a 12-day period, and a 22-day period, all ending on the day after the announcement day. The date of the public announcement is identified as the earliest of the date of the first SEC filing and the date on which a solicitation is first mentioned in news sources covered by Factiva. The abnormal return for firm i on day t is computed as follows:

$$\text{AR}_{it} = r_{it} - \hat{\beta}_i r_{mt} - \hat{s}_i \text{SMB}_t - \hat{h}_i \text{HML}_t + -\hat{m}_i \text{MOM}_t$$

where r_{it} is the continuously compounded daily excess return on firm i, r_{mt} is the continuously compounded daily excess return on the CRSP value-weighted NYSE/AMEX/Nasdaq market portfolio, SMB and HML are the Fama and French (1993) size and book-to-market factors, and MOM is a momentum factor. The coefficients $\hat{\beta}_i$, $\hat{s}_i$, $\hat{h}_i$, and $\hat{m}_i$ are estimated using a 252 day estimation period ending on the last trading day before the beginning of the longest event-window. For firm i, CAR for the period $[\tau_1, \tau_2]$ is computed as: $\text{CAR}_i[\tau_1, \tau_2] = \sum_{t=\tau_1}^{\tau_2} AR_{it}$. The parentheses contain t-statistics. The t-statistics in Panels B and C are computed from the heteroscedasticity consistent standard errors of White (1980). The sample period is 1994 through the third quarter of 2007.

	CAR [-1,1]	CAR [-10,1]	CAR [-20,1]
A. Cross-sectional averages			
Non-acquisition related activism (N=354)	0.041 (9.63)	0.054 (7.11)	0.066 (6.52)
The least liquid firms (N=177)	0.053 (7.81)	0.066 (5.25)	0.083 (4.99)
The most liquid firms (N=177)	0.029 (5.81)	0.041 (5.02)	0.048 (4.30)
Difference (least liquid−most liquid)	0.024 (2.85)	0.026 (1.72)	0.035 (1.75)
Acquisition related activism (N=111)	0.184 (11.46)	0.216 (11.83)	0.211 (10.46)
B. Cross-sectional regressions			
Liquidity$_{(t-1)}$	−0.105 (−2.92)	−0.120 (−2.30)	−0.214 (−2.58)
Past Performance$_{(t-1)}$	0.009 (0.86)	0.014 (0.88)	−0.009 (−0.58)
Nasdaq	0.007 (0.70)	−0.028 (−1.77)	−0.002 (−0.08)
Institutional holding$_{(t-1)}$	−0.007 (−0.33)	−0.015 (−0.43)	−0.018 (−0.40)
Institutional breadth$_{(t-1)}$	−0.048 (−0.68)	−0.045 (−0.31)	−0.078 (−0.40)
Log(Market cap)$_{(t-1)}$	−0.002 (−0.33)	−0.010 (−1.07)	−0.016 (−1.05)
Book-to-market ratio$_{(t-1)}$	0.010 (1.13)	0.018 (1.12)	0.022 (0.87)
Log(Sales)$_{(t-1)}$	−0.001 (−0.32)	0.005 (1.04)	0.015 (1.43)
Dividend yield$_{(t-1)}$	0.642 (2.14)	1.262 (3.19)	1.446 (3.01)
Cash$_{(t-1)}$	0.041 (1.90)	0.108 (2.35)	0.110 (1.66)
R&D$_{(t-1)}$	0.049 (0.69)	−0.043 (−0.29)	0.005 (0.02)
Intercept	0.241 (3.30)	0.246 (2.26)	0.421 (2.43)
Year-dummies	Yes	Yes	Yes
Number of observations	314	314	314
Adjusted R^2	0.124	0.080	0.078
C. Cross-sectional effect of liquidity in trimmed samples			
Trimming 5% of both tails			
Liquidity$_{(t-1)}$	−0.058 (−2.49)	−0.088 (−2.22)	−0.134 (−2.42)
Number of observations	283	283	283
Trimming 10% of both tails			
Liquidity$_{(t-1)}$	−0.029 (−0.50)	−0.048 (−1.07)	0.163 (1.52)
Number of observations	251	251	251

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