Activism mergers★

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ABSTRACT

Shareholder value creation from hedge fund activism occurs primarily by influencing takeover outcomes for targeted firms. Controlling for selection decisions, activist interventions substantially increase the probability of a takeover offer. Third-party bids for targets have higher returns, premia, and completion rates, but these patterns reverse when the activist is the bidder. Failed bids for activism targets lead to improvements in operating performance, financial policy, and positive long-term abnormal returns, suggesting that activism enhances value. The positive long-term performance from hedge fund activism arises from monitoring target management during merger and acquisition contests and not from target undervaluation or bidder overpayment.

JEL classification: G14, G23, G34

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1. Introduction

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In their survey of shareholder activism, Gillan and Starks (2007, p. 55) define activists as "investors who, dissatisfied with some aspect of a company's management or operations, try to bring about change within the company *without a change in control*" [emphasis added]. Although several recent papers show that hedge fund activism improves the performance of targeted firms (Brav, Jiang, Partnoy, and Thomas, 2008; Becht, Franks, Mayer, and Rossi, 2008; Brav, Jiang, and Kim, 2015), there is limited evidence on the precise mechanism through which hedge fund activists enhance shareholder value.

We focus on the role of hedge fund activism in corporate control transactions. Although shareholder activism and corporate takeovers have historically been viewed as mutually exclusive channels for disciplining management, activist involvement in takeover situations has become increasingly common in recent years. Further, Greenwood and Schor (2009) argue that shareholder activism leads to positive long-term returns for targeted firms only when they are subsequently acquired and that no shareholder value is created when they are not acquired following an activist campaign.

The finding that positive long-term returns are observed only for activist targets that are subsequently acquired raises several questions. First, does activism create value or arise endogenously when value is likely to be created as a result of a takeover? As shown by Jiang, Li, and Mei (2015), hedge funds often engage in activist risk arbitrage, initiating campaigns after an acquisition has been announced. Therefore, activist risk arbitrage creates a positive association between takeover activity and activism, making it unclear whether activism targets are more likely to be involved in merger and acquisition (M&A) contests outside of risk arbitrage activity. Second, even if the association between activism and takeovers is not explained by risk arbitrage, do activists increase the probability of an acquisition? Or are activist hedge funds simply good at selecting potential takeover targets or investing in advance of merger waves? Third, if activists do influence corporate control events, what is the channel through which they create value during M&A contests? Do activists make it more likely that a firm receives an offer or do they increase the offer price, reduce managerial resistance, or increase the likelihood of merger completion? Finally, given recent evidence that target firm returns in corporate takeovers contain a sizable

revaluation component, can the returns following activism be attributed to value creation by hedge fund activists or do they simply reflect the revaluation of undervalued firms? If the returns to takeovers involving shareholder activism are driven by revaluation instead of changes in operational or financial policies, then stock returns around activist campaigns overstate the value created by shareholder activists. We explore these questions in this paper.

We begin with a comprehensive hand-collected sample of 2,096 activism campaigns over 2000–2012 and a merger sample of 3,216 transactions over 2000–2014. We first confirm the strong association between activism and takeovers shown by Greenwood and Schor (2009). Over one-third of firms targeted by hedge fund activists during 2000–2012 are involved in a takeover bid before or within two years of activist involvement, a proportion that has risen in recent years. However, in almost 30% of these cases, activist involvement is due to risk arbitrage occurring after the takeover bid and thus does not cause takeover activity. To isolate campaigns in which the activist has the potential to influence the probability of a takeover bid, we exclude cases of activist risk arbitrage and focus on the remaining instances in which a merger bid is announced within two years of a hedge fund initiating an activist campaign (transactions that we call activism mergers).[1] After eliminating 192 cases of activist risk arbitrage, the probability of an activism merger is 22%, about four times larger than the takeover probability when no activist is present. Further, the probability of an activism merger has increased over time, from 20% over 2000–2006 to 25% after 2007. Thus, instead of being two distinct means of shareholder intervention as sometimes discussed in the theoretical literature (e.g., Maug, 1998), activism and takeovers are closely interrelated. Indeed, our estimates indicate a much stronger link between hedge fund activism and takeovers than that in Greenwood and Schor (2009), illustrating the increasing role of activism in takeovers in recent years.

Although we control for a host of firm attributes, we recognize that an omitted variable could underlie the relation between hedge fund activism and merger activity. Are activists simply good at picking firms that are attractive merger targets or do they also facilitate the M&A process through their post-intervention activities? To test these alternatives, we control for the selection

[1] See Jiang, Li, and Mei (2015) for a study of activist merger arbitrage.

decisions of activist hedge funds. Specifically, we examine whether targets of hedge fund activism are more likely to receive takeover bids than firms in which the same hedge fund activist owns a purely passive stake. We find a six-to-eight times higher takeover likelihood in activism targets relative to firms in which the same hedge fund is a passive equity holder. To further differentiate between an activist hedge fund's skill to pick stocks with high ex ante takeover probability from its ability to foster M&A activity through intervention, we exploit the hedge fund's decision to change its legal filing status from Schedule 13G to Schedule 13D, indicating a switch from passive to activist investing in the same firm.[2] We find a threefold increase in takeover probability in firms with 13G to 13D switchers relative to firms in which no switch is observed. This finding suggests that the switch to an activist posture leads to a higher probability of a merger. We recognize the possibility that an unobserved time-varying factor can be responsible for both the switch to an activist posture and a higher takeover likelihood, although we uncover no evidence in favor of such a factor.

These results raise the question of why hedge fund activism is associated with higher acquisition likelihood. As large shareholders, activists can overcome the free-rider problem in corporate takeovers at diffusely held firms (Shleifer and Vishny, 1986). Corum and Levit (2015) also suggest that activist hedge funds help overcome informational frictions faced by target shareholders when evaluating a takeover bid from a third party. In their model, the endorsement of a third-party bid by an activist hedge fund represents a credible signal that the bid is fair because activists are informed investors that, due to their ownership of the target's shares, face common incentives with other target shareholders.

We test this proposition by exploiting variation in bidder identities in our sample of activism mergers. Over 15% of acquisition bids are launched by the hedge fund activists themselves. Because the activist is both a target shareholder and the bidder in these cases, activist bidders cannot credibly certify the fairness of a takeover proposal. Consistent with this view, we find sharp differences in merger terms and outcomes in activism mergers involving third-party bidders and activist bidders. Activism mergers with third-party bidders have cumulative

[2] Both types of filings are triggered when an investor crosses the 5% ownership threshold, but the 13G filing is intended for purely passive investment and imposes less stringent filing requirements.

abnormal returns (CARs) that are 8% higher than those obtained in non-activism mergers, whereas offers by activist hedge funds result in 18% lower CARs relative to those in non-activism mergers. Activist bidders offer lower acquisition premiums and sustain far higher rejection rates than third-party bidders. Although activist bidders frequently attract follow-on bidders, overall merger completion rates are still significantly lower than those for targets not involving activist bidders. These results are consistent with the view that separation of the activist and bidder functions is critical for activists to enhance value during corporate takeovers.

If separation of the activist and bidder functions is critical, why do activists sometimes become bidders even though their takeover attempts are often unsuccessful? We explore three explanations for the prevalence of activist bidders. We examine whether activists primarily launch low-ball offers in an attempt to put firms in play without the intention of acquiring control, but we find that this is not the predominant explanation. We also explore whether activists launch bids for undervalued firms in an attempt to benefit from a takeover-induced revaluation of the firm. As shown by Malmendier, Opp, and Saidi (2016), merger announcement returns consist of two distinct effects: a revaluation effect, which is independent of the expected merger benefits, and an operational effect, which captures expected synergies and operational improvements. Applying their framework to our sample of failed mergers, we find that almost all of the merger announcement return in activism mergers is reversed upon deal failure; that is, returns in failed activism mergers are not driven by a revaluation of the targets' stand-alone value.

Our evidence favors a third explanation whereby a takeover bid, even when unsuccessful, is associated with value-enhancing operational and financial policy changes at activist targets. Consistent with this view, we find that activist targets that receive unsuccessful acquisition bids experience greater improvements in operating performance and changes in investment policy, leverage, and payout, relative to activist targets that are not involved in takeover contests. Further, activist targets that remain independent following an acquisition bid display significantly positive long-term abnormal returns that are correlated with changes in operational performance and financial policies. Hence, these operational and financial improvements help explain the positive long-term returns to shareholder activism even when an acquisition attempt is not consummated.

Finally, we examine the Greenwood and Schor (2009, p. 374) conjecture that the high incidence of takeover offers and the positive returns associated with activism could be due to the activists' picking firms "for which potential acquirers might overpay." According to this explanation, bidder returns should be lower in activism mergers. Alternatively, if an activist campaign lowers managerial resistance and increases target management's receptivity to an offer, bidders could be less likely to overpay for acquisitions involving activist targets. Indeed, we find weak evidence that bidder announcement returns are higher in activism mergers than in non-activism mergers, which is inconsistent with the overpayment hypothesis.

Our findings contribute to the growing literature on hedge fund activism by relating the previously shown positive returns in activism (see Brav, Jiang, Partnoy, and Thomas, 2008; Clifford, 2008; Klein and Zur, 2009; Boyson and Mooradian, 2011) to merger activity and highlighting the key role of the takeover market in enabling value creation from shareholder activism. We confirm the link between activism and takeover activity shown by Greenwood and Schor (2009) but also present evidence suggesting a treatment effect, not a pure selection effect. Further, we illustrate specific mechanisms through which activist investors facilitate the market for corporate control. Activists appear to certify the fairness of a third-party offer and increase target management's receptivity to a merger. Our results illuminate a multifaceted role of activists that extends beyond the promotion of acquisition likelihood as a means of value creation (activist involvement entails higher announcement returns, acquisition premiums, and completion probabilities) but only when the acquirer is not the hedge fund activist. In addition, even when a merger offer is unsuccessful, the offer is associated with an increase in the valuation of the target firm through the implementation of real financial and investment policy changes instead of through revaluation effects.

More broadly, our paper builds on the theoretical literature studying the role of large shareholders in the merger process. Shleifer and Vishny (1986) argue that large shareholders help overcome the free-rider problem among diffuse shareholders and thereby facilitate third-party takeovers. Maug (1998, p. 83) considers monitoring and takeovers as "two different forms by which a large outside investor can intervene" and shows that market liquidity determines the

trade-off between the costs and benefits of the two approaches. Burkart and Lee (2015) integrate activism and takeovers in a unified model framework but consider them as "polar approaches" to the dual free-rider problem. Our results suggest that instead of being two distinct ways of monitoring to overcome informational frictions, shareholder activism and takeovers are closely related mechanisms that help promote the functioning of the market for corporate control. Our evidence highlights the critical nature of the interaction between activism and mergers because we find no evidence of long-term value creation associated with activism in the absence of M&A activity.

Our findings also contribute to the broader literature on hedge funds, particularly as it relates to the returns from event-driven strategies, including distressed and vulture investing. Jiang, Li, and Wang (2012) show that hedge funds play an important role during Chapter 11 reorganizations by balancing the power between the firm and its secured creditors and overcoming creditor conflicts that arise during financial distress (Gertner and Scharfstein, 1991). Lim (2015) finds that activist hedge funds alleviate contracting frictions during financial distress and facilitate creditor renegotiations, and Lewis (2016) shows that vulture hedge funds enable higher bondholder recovery rates during financial distress. Similar to these papers, we find a value-enhancing role performed by activist hedge funds in the context of corporate mergers, even though the characteristics of firms engaging in mergers and the frictions that arise during the merger process are very different from those in financial distress.

2. Role of activists in M&A activity

There is substantial evidence that hedge fund activism is associated with positive returns around the initiation of an activist campaign. Brav, Jiang, and Kim (2010) find an average return of 5% over the (-20, +20)-day window around the announcement of activism.[3] Over the next 36 months, they do not find evidence of return reversal, suggesting that the abnormal returns are not due to buying pressure or market overreaction. Over a (0, +36)-month interval, Clifford (2008)

[3] Other studies show similar short-term returns. Clifford (2008) estimates a (-2, +2)-day market-adjusted return of 3.4%. Klein and Zur (2009) find a (-30, +30)-day market-adjusted return of 7.2%. Greenwood and Schor (2009) show an average (-10, +5)-day abnormal return of 3.6%, and Boyson and Mooradian (2011) find a (-25, +25)-day cumulative abnormal return of 8.1%.

shows three- and four-factor alphas of 1.1–1.3%, and Greenwood and Schor (2009) find (-1, +18)-month three-factor CARs of 10.26%. Gantchev (2013) shows that these positive abnormal returns persist even after netting out the costs of activist intervention. Bebchuk, Brav, and Jiang (2015) report positive and statistically significant four-factor alphas over the five-year period following the activist campaign.

However, there is ongoing debate about the sources of value creation from shareholder activism. Brav, Jiang, and Kim (2010) find the highest abnormal returns in campaigns demanding a sale of the company or changes in business strategy but statistically insignificant returns in campaigns targeting capital structure and governance. In contrast, Boyson and Mooradian (2011) show that governance-related activism generates positive short- and long-term performance. Greenwood and Schor (2009) argue that value creation in activism comes only when targeted firms are successfully acquired post-activism. They show a statistically significant (-1, +18)-month three-factor CAR of 26% in the sample of activism targets that get acquired but an insignificant 3% CAR for the sample of targets that are not acquired.

The finding that the long-term returns to shareholder activism are observed only for firms that are eventually acquired raises several important questions about whether and how shareholder activism creates value. Perhaps the most salient of these questions is whether any evidence exists of a causal effect of activism on merger activity. Activist targets could appear to have a higher likelihood of being acquired because hedge funds often launch activism campaigns after a firm has received an acquisition proposal (Jiang, Li, and Mei, 2015). If this behavior drives the relation between activism and M&A activity, the returns following activism will overstate the value creation by hedge fund activists. Similarly, activists could simply be good at picking firms that are already more likely to be acquired or tend to launch campaigns during merger waves. If hedge fund activists are adept at predicting takeover targets, the positive returns following activism will reflect their stock-selection abilities, not their value creation role.

Alternatively, shareholder activism can have a causal effect on M&A activity by lowering frictions in the market for corporate control. In Shleifer and Vishny (1986), a large shareholder helps overcome a free-rider problem among diffuse shareholders and increases the likelihood of a

takeover. In their model, gaining control of the firm allows the large shareholder to raise the value of his existing stake in a more effective manner than alternative channels such as proxy contests. Similar arguments are also developed by Hirshleifer and Titman (1990) and Maug (1998).

While these arguments explain why activist investors can promote mergers, Corum and Levit (2015) propose that activists serve an additional role that cannot be performed by outside bidders. In their model, bidders can use a proxy contest to overcome managerial resistance to an offer. However, they face a commitment problem as they are prone to extracting private benefits and making low-ball offers if they gain control of the target's board. Activists do not face this credibility problem because their status as shareholders of the target firm ensures that they will not gain from a low-valued offer. Hence, an activist can use the threat of a proxy contest to lower management resistance and increase the likelihood of an outside offer in a manner that cannot be replicated by an outside bidder.

An alternative channel through which activist investors could influence the likelihood of an acquisition is by inducing bidder overpayment. Greenwood and Schor (2009) suggest that bidders may overpay when an activist is present, which makes the target more receptive to an acquisition and increases the probability that a transaction is consummated. Although Greenwood and Schor (2009) do not specify why bidders could be prone to overpayment in activism mergers, under this channel the positive returns to activist targets come partly at the expense of bidder shareholders and, hence, overstate the overall economic benefits from shareholder activism.

In addition to affecting the likelihood of an acquisition, hedge fund activism has the potential to influence the terms of the merger by lowering agency costs during takeovers. Wulf (2004) shows that target managers face self-dealing incentives during mergers and negotiate favorable post-merger control terms in exchange for lower acquisition premiums. Hartzell, Ofek, and Yermack (2004) find that target managers sometimes negotiate extraordinary personal benefits in M&A transactions, resulting in lower premia for shareholders. Similarly, Fich, Rice, and Tran (2016) find that managers in high agency cost firms negotiate merger payments that come at the expense of higher acquisition premia for their shareholders. The threat of a proxy

contest by an activist hedge fund can serve as a monitoring mechanism that mitigates such potential self-dealing, allowing a bidder to share more of the expected takeover gains with target shareholders instead of target management. Under this view, acquisition premia for targets of shareholder activism are higher than when an activist is not present, all else equal.

3. Institutional background and data

3.1. Reporting requirements for beneficial owners

Any investor or group acquiring more than 5% of the voting stock of a public firm is required to file a beneficial ownership report (Schedule 13D or 13G) with the US Securities and Exchange Commission (SEC). Under the 1934 Securities Exchange Act, an investor must file a Schedule 13D within ten days of crossing the 5% reporting threshold. Schedule 13D requires disclosure of the identity and background of the owner, the source and amount of funds, the purpose of the investment, contracts and arrangements with respect to the securities of the issuer, and communications with the issuer. In addition, the SEC considers changes in ownership of 1% or more to be material, requiring the investor to file an amendment to Schedule 13D (a 13D/A).

To ease disclosure requirements, passive investors are permitted a shorter Schedule 13G filing. To be eligible for a 13G filing, the investor must not have "acquired the securities with any purpose, or with the effect of changing or influencing the control of the issuer, or in connection with or as a participant in any transaction having that purpose or effect." These investors are required to file an amendment within 45 days of the end of the calendar year if there are any changes in their ownership and amend the filing promptly if the ownership exceeds 10%. 13G investors lose their passive status upon acquiring or holding securities with the intent to change or influence control of the issuer or when their ownership exceeds 20% and must switch to a 13D filing within ten days. Further, they are prohibited from voting or acquiring additional securities for ten days after the 13D filing is made.

Ownership reporting violations under the Securities Exchange Act are subject to prosecution and penalties, and the SEC is not required to prove knowledge, recklessness, or negligence on the part of the investor. Edmans, Fang, and Zur (2013) and Brav, Jiang, and Kim (2015) argue that

passive investors are unlikely to opt for a 13D filing instead of a 13G filing for several reasons. First, the mandated frequent amendments triggered by ownership changes of 1% or more limit the investor's ability to trade because the disclosure tends to move prices against the investor. Second, a Schedule 13D is often accompanied by a confrontational attitude from the firm's management and directors, which can impede the investor's ability to acquire firm-specific information. Third, a Schedule 13D filing is sometimes followed by negative events, such as credit rating reviews or downgrades, which can hurt the investor's position in the stock. Thus, investors have incentives to file their ownership report in an accurate and timely manner and, therefore, their status as a 13D or 13G filer is commonly used to identify their stance as an activist or passive investor (e.g., Edmans, Fang, and Zur, 2013, Brav, Jiang, and Kim, 2015).

3.2. Sample construction and summary statistics

Our sample of hedge fund activism and merger activity comes from two primary sources: hand-collected data on hedge fund activism campaigns over 2000–2012 and merger data from Thomson Reuters Securities Data Company (SDC) Platinum over 2000–2014.

We construct the initial sample of hedge fund activism campaigns using the SharkRepellent database. The primary source for these campaigns is Schedule 13D filings. A secondary source for the activism events in the SharkRepellent database is proxy contests initiated by hedge funds in which the activists' ownership might not reach the 5% reporting threshold. Because SharkRepellent does not capture all 13D filings, we augment the sample with hand-collected 13D reports.

We confirm the identity of the activist investors as hedge funds using SEC registration statements (ADV filings) along with web and media searches. To ensure that our sample includes only hedge funds with an activist agenda, we define an *Activist* as a hedge fund that has accumulated an activist block of 5% in more than one target (reported in a 13D filing) or initiated at least one proxy contest (measured by a PREC or DEFC report) over 2000–2012. For each of the 532 activist hedge funds that we identify in our sample, we obtain all Schedule 13D or amended Schedule 13D (13D/A) forms and proxy filings over the sample period. The mean (median) number of 13D filings (i.e., unique campaigns) for our sample of activists is nine (five).

We match activism targets to merger data from SDC, manually verifying the quality of each match. We include all merger bids regardless of whether they result in a completed transaction. We adopt the usual filters from prior literature and include all mergers of U.S. public firms with a deal size of at least $10 million. We also require that the bidder owns less than 50% of the target's stock before the bid and exclude divestitures, spin-offs, and share repurchases. We verify the announcement, completion, and withdrawal dates reported in SDC to ensure that our return calculations are over the correct intervals.

We combine the merger and activism data sets with the universe of Center for Research in Security Prices (CRSP) and Compustat firms to create an annual firm-year panel. We group multiple hedge fund campaigns within the same firm-year as a single activism observation, considering the hedge fund that intervenes first as the primary activist. The full panel consists of 62,066 firm-years, including 3,216 firm-years with a merger bid and 2,096 firm-years with a hedge fund activism campaign.

Column 1 of Table 1 shows that the number of activism campaigns peaks in 2006–2008 and Column 2 shows that the frequency of hedge fund activism has grown from 2.7% over the first half of our sample to 4.9% in the post-2007 period. In contrast to activism, the frequency of takeover bids peaks in 2000 and is generally higher in the early part of the sample period (5.6% in 2000–2006 versus 5.1% post-2007).

[Insert Table 1 near here]

As reported in Column 5, there are 192 activism events over our sample period in which the activist initiates a campaign after the merger announcement but before its completion. We consider these campaigns as cases of activist risk arbitrage and exclude them from our activism merger sample. These activism events are the subject of a contemporaneous paper by Jiang, Li, and Mei (2015), who show that activist risk arbitrage helps protect the interests of shareholders during corporate control contests.

For each activism campaign, we track subsequent merger activity and require that a merger bid be announced within two years of the initiation of the activism campaign. We also verify that the activist is still present at the time of the merger announcement. As reported in Column 7, our

sample contains 467 activism targets that receive subsequent merger bids, representing a 22% frequency of a merger bid for these firms. Henceforth, we refer to these bids as activism mergers.

To understand whether hedge fund activists are simply adept at predicting likely merger targets, we study the sample of firms that receive takeover offers. We divide this sample into two groups: merger targets that are also targets of hedge fund activism (467 firms) and merger targets that are not targets of hedge fund activism (2,749 firms). All variables except dummies are winsorized at the 1% and 99% levels. Table 2 shows that merger targets with and without activist involvement share several attributes. On average, they are smaller firms and have lower dividend yields than firms in CRSP-Compustat. Activism and merger targets also display similar leverage and research and development (R&D) expenditures as those of CRSP-Compustat firms. However, merger targets with activist involvement differ from those without such involvement on several dimensions. Targets with activist involvement have higher institutional ownership, lower standard deviation of daily stock returns, better liquidity, and lower market-to-book ratios. Prior literature demonstrates that these characteristics are predictive of activism; e.g., higher institutional ownership positively affects the outcome of a campaign in its more confrontational stages (Brav, Jiang, and Kim, 2010), whereas liquidity lowers the costs of entering and exiting an activist position (Edmans, Fang, and Zur, 2013).

[Insert Table 2 near here]

4. Probability of receiving a takeover bid

We begin by examining whether hedge fund activism is associated with a higher probability that a firm is subsequently involved in an M&A transaction. To avoid activism that arises endogenously as a result of a takeover bid, we exclude activist campaigns that are initiated after the announcement of an M&A offer. Our sample for these tests contains 3,216 takeover bids and 1,904 activism campaigns over 62,066 firm-years.

Table 3 presents estimates from logistic models of the probability that a firm receives a takeover bid in a given firm-year. The key independent variable, *Activist*, is an indicator set to one if a hedge fund activist initiated a campaign against the target firm in the two calendar years

prior to the merger proposal and zero otherwise. All regressions include year and industry fixed effects. Standard errors are clustered by year and firm.

[Insert Table 3 near here]

We include a number of variables to control for firm characteristics that can affect the probability that a firm becomes a takeover target. As reported in Table 2, activism targets have lower market capitalization and market-to-book ratio in comparison with both the average firm in CRSP-Compustat and merger targets. In addition, activism targets have better stock liquidity (i.e., lower illiquidity as measured by the Amihud ratio) and lower standard deviation of daily stock returns. According to prior literature, these characteristics are correlated with the probability of receiving a takeover offer (e.g., see Moeller, Schlingemann, and Stulz 2005; Bargeron, Schlingemann, Stulz, and Zutter, 2008; Bauguess, Moeller, Schlingemann, and Zutter, 2009). We include as additional control variables institutional ownership, return on assets (ROA), leverage, dividend yield, and R&D expenditures.

To account for the possibility that activists time their interventions to coincide with periods of heightened merger activity in the target firm's industry, we control for whether an industry experiences a merger wave in a given year. Following the approach in Harford (2005), we create an indicator, *Merger wave*, set to one if the number of mergers in an industry during any consecutive two-year period is greater than the 95th percentile of a uniform distribution over the entire sample period. Each industry is restricted to two waves over the full period. We include both *Merger wave* and its interaction with *Activist* to examine whether hedge fund activism has a differential effect on the likelihood of an M&A offer during industry merger waves.

Column 1 of Table 3 shows that *Activist* has a positive and statistically significant association with the probability of receiving a takeover offer. In economic terms, *Activist* increases the probability of a takeover bid to 22.9%, almost five times higher than the unconditional probability of 4.6%. Greenwood and Schor (2009), whose sample ends in 2006, report that activism targets experience a 2.5 times higher probability of being acquired compared with firms matched on industry, size, and past stock returns. Despite excluding risk arbitrage

activity, we find a much stronger association between activism and M&A activity than they show, due in part to the growing frequency of post-activism M&A after 2007.

Column 2 considers the probability of an offer from a third-party bidder, excluding activism events in which the activist is also the bidder. The coefficient on *Activist* remains positive and statistically significant in this specification. In terms of economic magnitude, *Activist* increases the probability of a third-party takeover offer to 20.2%, relative to the unconditional probability of 4.6%.

To explore whether our results are driven by leveraged buyout (LBO) transactions, Columns 3 and 4 of Table 3 separately examine strategic and financial bids. Offers by both strategic and financial buyers are significantly more likely following an activism campaign. In economic terms, the effect is stronger for financial bids. The indicator *Activist* is associated with a nine-times higher probability of a financial offer (an increase from 0.5% to 4.4% as seen in Column 4) and a four-times higher probability of a strategic offer (an increase from 3.8% to 14.8% in Column 3).

The interaction between *Activist* and *Merger wave* is not statistically significant in any of the specifications, suggesting that firms are not more prone to receiving takeover bids if the activism campaign is initiated during a merger wave. The other control variables have the expected signs. Institutional ownership and liquidity have a positive correlation with the probability of receiving a takeover bid, and standard deviation of daily stock returns, Tobin's Q, market capitalization, and dividend yield exhibit a negative correlation.

What explains the positive relation between hedge fund activism and the incidence of subsequent takeovers? Are activist hedge funds simply good at picking firms that are attractive merger targets due to a selection effect arising from potentially unobserved variables or is there a treatment effect of activism on M&A activity? To address this identification issue, we investigate whether activist ownership has a differential effect on the probability of a takeover bid relative to passive ownership by the same activist hedge fund. To do so, we match our sample of activists to holdings data from the Thomson Reuters 13F database.[4] About two-thirds of the 532 activist hedge funds over 2000–2012 have available 13F data. As an example, Carl Icahn reports

[4] The SEC requires that institutional investors with over $100 million in assets under management file quarterly holdings reports, known as 13F filings.

ownership in 90 different companies over 2000–2012, of which 38 have been accompanied by an announcement of activist intentions (in a Schedule 13D or a contested proxy solicitation). Our analysis studies whether Carl Icahn's activist agenda in these 38 companies is more likely to lead to a takeover bid relative to the likelihood of a bid for the other 52 firms in which he holds a passive stake.

Columns 1-4 of Table 4 report estimates of ordinary least squares (OLS) regressions of the probability of receiving a takeover bid for the sample of firms in which activist hedge funds disclose either a passive or an active stake. The unit of observation is an activist-firm-year. We include the same controls as in Table 3 but add hedge fund fixed effects to control for time-invariant characteristics of activist hedge funds. We define a variable *HF active stake*, which equals one if the activist hedge fund has declared activist intentions in a given firm and zero otherwise. The coefficient on *HF active stake* is positive and statistically significant in Column 1. In terms of economic magnitude, *HF active stake* is associated with an 18.7% higher probability of a takeover bid relative to the probability of a bid in other firms in which the same hedge fund has a passive stake. This represents more than a sixfold increase, given the unconditional takeover probability of 2.9% in this sample (not tabulated).

[Insert Table 4 near here]

Column 2 includes the continuous variable *% held* and its interaction with *HF active stake*. A 1% increase in hedge fund ownership is associated with an 18.8% decrease in the probability of receiving a takeover bid. More important, the interaction of *% held* with *HF active stake* is positive and significant, suggesting that higher ownership in firms in which the activist hedge fund has declared activist intentions is associated with a substantial increase in the probability of a takeover bid. Columns 3 and 4 include indicator variables *% held > 1%* and *% held > 5%* instead of the continuous measure of hedge fund ownership. Both interactions with *HF active stake* are positive and significant. In addition, the economic magnitudes are large; for example, the model in Column 4 indicates that having a 5% or higher stake in firms in which the activist hedge fund has declared activist intentions is associated with an eightfold increase in the probability of receiving a takeover bid compared with the probability of a bid in firms in which

the same hedge fund has a passive 5% block. In all specifications, the interaction between *HF active stake* and *Merger wave* is statistically insignificant, suggesting that these results are not driven by activists attempting to time their actions in advance of heightened merger activity. Columns 5–8 confirm these findings using a logistic regression, indicating that our results are not sensitive to the model specification.

Even though we control for observable firm characteristics and hedge fund fixed effects in Table 4, unobserved differences could exist between the firms that hedge funds pick for their active and passive investments. For example, hedge funds could choose well managed but undervalued firms for their passive investments but select poorly managed firms for their active investments because they have a higher probability of being acquired. Therefore, in Table 5, we fix the hedge fund–firm pair and exploit the decision of an activist fund to change the legal filing status of an ownership position from Schedule 13G to Schedule 13D, indicating a switch from passive ownership to activist investing in the same firm. As argued by Brav, Jiang, and Kim, (2015, p. 2763), this test provides a "clean identification of intervention beyond stock picking." Thus, this test allows us to differentiate an activist hedge fund's ability to pick stocks with high ex ante takeover probability from its ability to foster M&A activity through its intervention.

[Insert Table 5 near here]

We match our sample of activist hedge funds to data on 13G filings, generously provided to us by Brav, Jiang, Ma, and Tian (2015). Our sample contains 3,159 activist-firm-year observations with 13G filings and 159 switches from Schedule 13G to 13D. We create an indicator variable *13G to 13D switcher* set to one for firms in which the activist's filing status switches from passive ownership to activist investment. The dependent variable is a dummy set to one if a takeover bid is announced within two years of the initial 13G filing or the 13G to 13D switch, if any. All regressions include industry and year fixed effects. In addition, Columns 3 and 6 also include hedge fund fixed effects.

Columns 1–3 of Table 5 present estimates of OLS models of takeover probability for the sample of firms with 13G hedge fund filers. The results in Column 1 reveal that firms in which the activist switches from 13G to 13D have a 10.1% higher takeover probability compared with

firms in which no switch is observed. This threefold increase (relative to the unconditional probability of 5.5% in the 13G sample) suggests an incremental effect of the activist intervention above and beyond any stock-picking ability of the hedge fund. Column 2 includes the firm and industry controls from Table 2, and Column 3 adds hedge fund fixed effects to control for time-invariant activist characteristics. The statistical and economic significance of the results remain virtually unchanged. In unreported tests, we include an interaction between 13G to 13D switchers and the *Merger wave* indicator and find it to be insignificant. In Columns 4–6 we confirm these findings using a logistic regression model.

Overall, these results indicate that shareholder activism campaigns are associated with a substantial increase in the probability that a firm receives a takeover bid. The effect we find is much larger than previously shown by Greenwood and Schor (2009) despite our exclusion of risk arbitrage activism, which represents a sizable portion of activism around M&A. We find that, controlling for time-invariant activist characteristics, activist ownership has a substantially higher effect on the probability of a takeover bid relative to other firms in which the same hedge fund has a passive stake. Further, exploiting the legal requirements for ownership disclosure, we show that an activist's switch from 13G (passive) to 13D (activist) status within the same firm is associated with a substantial increase in that firm's takeover probability. This test controls for unobserved time-invariant differences between an activist's 13G and 13D investments, but it does not address potential time-varying unobserved differences. For example, it is possible that following a passive 13G investment, an activist receives a signal that the firm has become a likely takeover target, and decides to shift to an activist posture. While we cannot rule out this possibility, unless a shift to an activist posture facilitates a takeover, there is no clear incentive for the activist hedge fund to switch its filing status. Further, the increase in takeover probability does not depend on whether the activist campaign occurs during a merger wave. To the extent that an activist's incentive to acquire a costly signal is greater during a merger wave, this finding is at odds with such a time-varying signal explanation. In addition, even if the incidence of mergers is driven by selection effects, why such selection effects would influence the terms of the merger transaction is unclear.

5. Role of activists in merger outcomes

We now explore how activists influence the merger process. Activists can help overcome frictions associated with target management entrenchment. Self-interested target managers can be motivated by their personal gains instead of shareholder gains in mergers. For example, Hartzell, Ofek, and Yermack (2004) find that when target CEOs receive extra benefits during mergers, acquisition premiums are lower. Activist investors, by threatening to replace management and the board, can lower the likelihood of such self-dealing, allowing potential bidders to offer a higher price for the target. Consistent with such a monitoring role for activists during M&A contests, Jiang, Li, and Mei (2015) show that activist risk arbitrage is more likely to occur when firms negotiate friendly and low-premium acquisitions. In addition, if activist investors promote M&A likelihood by overcoming managerial resistance, acquisition offers are more likely to be successfully completed. These arguments suggest that acquisition premia, target shareholder announcement returns, and offer completion rates in M&A transactions should be higher when an activist investor is present.

An activist's support of a third-party offer can certify to target shareholders that the offer is fairly valued, thereby overcoming managerial resistance. If resistance is costly, this certification allows the bidder to offer a higher price by lowering the costs of the acquisition, increasing the likelihood of completion. The ability of an activist hedge fund to overcome these frictions arises because its incentives are aligned with those of the target shareholders, not those of the bidder.

We test this argument by exploiting the variation in bidder identities in our sample. A sizable proportion of offers are initiated by the activist hedge funds. These activist bidders have incentives to acquire the firm cheaply instead of maximizing value for target shareholders. Therefore, we expect that, relative to third-party bidders, activist bidders are less able to overcome management resistance and that their offers are less likely to succeed due to uncertainty about whether these offers represent a fair price for target shareholders. Because activist bidders have incentives to acquire the firm for a low price, we also expect announcement returns for target firms to be lower for mergers involving activist bidders.

Of the 467 activism mergers in our sample, the hedge fund that initiates the campaign is also the bidder in 76 cases. These activist bidders include well-known hedge funds such as Carl Icahn (nine offers), Elliott Associates (seven offers), Newcastle Partners (five offers), ValueAct (four offers), and Steel Partners (four offers). In 52 of the 76 cases involving activist bidders, the activist hedge fund is the only bidder. The targets in the remaining 24 cases receive multiple bids. In 46 of the cases involving hedge fund bidders, the offer to acquire the target occurs simultaneously with the initiation of the activist campaign.[5]

We present summary statistics comparing activist bids and third-party bids in Table 6. Panel A compares characteristics of target firms according to whether they receive an activist bid or a bid from a third-party acquirer. Targets of activist bidders have lower average levels of R&D expenditures and higher industry concentration, but they are similar to targets of third-party bidders with respect to other firm characteristics. Panel B compares target announcement acquisition returns and acquisition premia for activist and third-party bidders. We calculate announcement CARs in excess of the value-weighted CRSP index return over days (-1, +1) around the merger announcement. Announcement CARs are significantly lower for activist bids, averaging 11.6%, compared with 14.6% for third-party bids. To ensure that this difference is not driven by the anticipation of a bid when an activist first discloses a stake in the firm, we compute CARs over a longer window that includes the initial entry of the activist. Specifically, we compute CARs from 25 days prior to the campaign initiation through five days after the merger announcement. With this approach, we continue to find that announcement returns are lower for activist bidders, averaging 17.1%, relative to 43.4% for third-party bidders.

[Insert Table 6 near here]

The lower announcement returns for activist bidders appear to be driven by both lower premiums offered and lower completion probabilities. Relative to the target's stock price 25 days prior to merger announcement, the average acquisition premium offered by activist bidders is

[5] In almost all cases involving multiple bidders, the activist hedge fund is the first bidder for the firm. However, in seven cases, the hedge fund activist bid occurs after the target has received a bid from a third party, suggesting that these observations could be classified alternatively as third-party bids. Our results are essentially invariant with respect to this distinction.

32.8%, compared with 55.3% for third-party bidders.[6] When we recalculate acquisition premia relative to 25 days before the activism announcement, the mean premium is 40.9% for offers by activist bidders and 77.7% for third-party bids, with the difference being statistically significant. Less than half of the activist bids result in a consummated transaction, relative to a completion rate for third-party bids of about 95%.

We present a multivariate analysis of target announcement returns, acquisition premia, and offer completion rates in Table 7. We estimate separate models for activist bidders and third-party bidders, comparing each subsample with non-activism mergers. Focusing on the merger announcement date could miss relevant information that is conveyed to the market when an activist initiates a shareholder campaign. Therefore, for activism mergers, the dependent variable is the abnormal return calculated in excess of the value-weighted CRSP index return and cumulated over the period from 25 days before the announcement of activism to five days after merger announcement. For firms without activism, we calculate a placebo activism CAR, using the median number of days between the activism and M&A announcements (266 days) as the start date. The regressions include firm-level control variables and year and industry fixed effects. Standard errors are clustered by year and firm.

[Insert Table 7 near here]

Table 7 presents estimates for OLS regressions of CARs for activism mergers with third-party bidders (Model 1) and with activist bidders (Model 2). Activism mergers with third-party bidders experience CARs that are 8.3% higher than those obtained in non-activism mergers. Thus, announcement returns are higher in M&A transactions in which the target firm faces a hedge fund activism campaign. This result is consistent with a monitoring role of activists in which they seek to maximize the offer price and mitigate the potential for self-dealing by target management in merger negotiations.

In sharp contrast to third-party bidders, takeover offers by activist hedge funds are associated with significantly lower returns for target shareholders. The coefficient on *Activist*

[6] We use a 25-day interval to determine the unaffected stock price of the target because Schwert (1996) shows that run-ups do not occur prior to 21 days before a merger bid and for comparability of our returns to Malmendier, Opp, and Saidi (2016), who also use a 25-day interval.

bidder in Model 2 is negative and statistically significant. The coefficient estimate indicates that, relative to non-activism mergers, CARs for target shareholders in mergers involving activist bidders are lower by 18.0%. This result is consistent with the view that the alignment of the activist's interests with those of target shareholders instead of bidder shareholders is critical for a value-enhancing role of activism.

To investigate whether the CARs in activism mergers are driven by the acquisition premia offered or by the likelihood of completion, we estimate models for premia and completion probabilities in Table 7. Columns 3 and 4 present OLS estimates of acquisition premia, calculated using the acquisition offer price relative to the target's stock price 25 days prior to the activism announcement.[7] We estimate the models for third-party and activist bidders separately to account for the possibility that the determinants of acquisition premia differ across these two groups, but our results are similar if we pool the two subsamples. All models include firm controls and year and industry fixed effects. Standard errors are clustered by year and firm.

Column 3 shows that acquisition premia are 10.3% higher in activism mergers with third-party bidders than in non-activism mergers. Because we calculate premia relative to the target's stock price prior to the initiation of the activism campaign, this result cannot be explained by higher pre-merger run-ups for firms targeted by activists. Instead, this result is consistent with activist hedge funds performing a monitoring role with respect to target management during the takeover process and facilitating higher acquisition prices.

In contrast to activism mergers with third-party bids, Column 4 shows that acquisition premia are 23.2% lower for activism merger targets with activist bids compared with non-activism merger targets. There are several potential explanations for the lower premia offered by hedge fund bidders. The lower premia could reflect the lack of synergies available to hedge fund buyers. Activist hedge funds could also be less prone to overpayment than strategic buyers. Furthermore, activist bidders could engage in low-ball offers to put the firm in play instead of seeking to acquire control.

[7] For non-activism mergers, a placebo activism date is set to 266 days before the merger bid (the median number of days between the activism and merger announcements).

In Columns 5 and 6, we present estimates from logistic models of the probability of offer completion conditional on receiving a takeover bid. We classify mergers for which SDC does not record completion within two years of the merger announcement as uncompleted transactions. The dependent variable is an indicator set to one if a firm is acquired and zero otherwise. All regressions include firm controls and year and industry fixed effects. Standard errors are clustered by year and firm.

Column 5 shows that activism mergers with third-party bids are substantially more likely to be completed than non-activism mergers. These results are economically significant. Setting all other variables to their means, a change in *Activist non-bidder* from zero to one increases the probability of completion from 92.8% to 96.0%. In contrast to the results for third-party bidders, Column 6 shows that offers involving activist bidders are much less likely to be completed. In terms of economic significance, a change in the coefficient on *Activist bidder* from zero to one decreases the probability of completion from 91.6% to 51.9%. These results are consistent with the idea that the benefits of an activism campaign in facilitating merger outcomes are undermined when the activist's incentives are not aligned with those of target shareholders.

Overall, our results indicate that hedge fund activists perform a value-enhancing role for target shareholders during the M&A process, facilitating higher acquisition premia, higher completion rates, and higher returns relative to transactions not involving hedge fund activism. These patterns are reversed, however, when the hedge fund is also a bidder, suggesting that alignment of the activist's interests with those of target shareholders is critical for performing this role.

In untabulated tests, we consider the role of proxy contests in activism mergers. Any activist campaign arguably poses the threat of a proxy fight. Further, the observed incidence of proxy contests is likely to be endogenous. With these caveats in mind, we consider whether the filing of a dissident slate of directors or a formal intent to launch a proxy contest, which occurs for 16.3% of the campaigns in our sample, affects the probability of an activism merger. We find that actual and threatened proxy contests are associated with a significantly higher probability of an activism merger. However, this result should be interpreted with caution.

6. Activist hedge funds as bidders in activism mergers

We explore three explanations for why hedge funds become bidders for firms that are targets of their activism campaigns. First, activist hedge funds could attempt to put firms in play to obtain a higher valued offer by a third-party bidder. Second, activist bidders could attempt to signal that a target firm is undervalued and seek to profit from a potential revaluation of the firm even if the offer is unsuccessful. Third, activist hedge funds could launch a bid with the eventual goal of influencing operational changes at the target firm and profiting from any resulting improvement in value.

6.1. Activist bids as an in-play strategy

Activist bids can represent an attempt to put a firm in play for an acquisition instead of an actual intention to gain control of the firm. Though empirically evaluating this proposition is difficult, several pieces of evidence suggest that this motivation is not the primary factor underlying activist bids. First, of the 76 activist bids in our sample, seven are launched following a previously announced third-party bid and therefore cannot be considered as attempts to put the firm in play. Second, although completion rates for activist bidders are considerably lower than those for third-party bidders, activists successfully acquire over 25% of the targets they bid for. Third, while 24 of the 76 activist bids in our sample receive an offer from a third-party bidder, eight of these are eventually sold to the activist and 16 are sold to a third party.

Inspection of the frequency of multiple bidders provides weak evidence of an in-play strategy for activist bidders. Compared with the 32% (24 of 76) frequency of multiple bidders in activism mergers with activist bids, the frequency of multiple bidders in activism mergers with third-party bids is 24%. To assess whether activist bidders play a special role by putting targeted firms in play, Panel B of Table 8 examines target firm announcement CARs, initial acquisition premia, and offer completion rates for activist bids that are followed by a third-party bid. Relative to cases in which the activist is the only bidder, activist bids that are followed by a third-party bid are associated with similar target announcement returns and initial acquisition premia. This

finding is inconsistent with the view that activist hedge funds launch low-ball offers to put the firm in play for higher valued offers by a third party.

[Insert Table 8 near here]

6.2. Returns to failed mergers following activism campaigns

Despite the high failure rate of activist bids, activist hedge funds can launch takeover bids if unsuccessful bids generate positive shareholder returns for the target firm. Although Greenwood and Schor (2009) find positive long-term returns when activist targets are acquired, they do not investigate the returns to failed activism mergers. Our calculation of long-term returns after the initiation of hedge fund activism closely follows that of Greenwood and Schor (2009). Abnormal returns are calculated using the Fama-French three-factor model, which includes the market, SMB (small minus big), and HML (high minus low) factors. Factor loadings are estimated over the (-24, -2)-month interval prior to the activism announcement.

Table 9 reports and Fig. 1 plots monthly CARs around the announcement of activism. In Column 1, we present CARs for all activism targets in our sample. On average, activism targets display CARs of 9.8% over the 24 months following activism, comparable to the 10.3% CARs reported by Greenwood and Schor (2009) for the 18 months following activism. Activism targets that receive a subsequent merger offer experience strong positive long-term abnormal returns, averaging 36.7% over the 24-month period. These CARs are higher for activism targets that receive offers from third-party bidders (38.9%) than offers from hedge fund bidders (18.4%). Firms that are successfully acquired display CARs of 39.3%.

[Insert Table 9 and Fig. 1 near here]

The subsample of activism targets that receive a bid but remain independent also displays evidence of positive long-term abnormal returns. For this subsample, the 24-month CARs average 17.7%, suggesting that even failed acquisition attempts of activism targets are associated with significant share price appreciation.[8] In contrast, targets of shareholder activism that do not

[8] The 24-month CARs for failed activist bids are 20.8%, slightly higher than those for all failed bids.

receive a merger bid display no evidence of abnormal long-term returns. The 24-month CARs for this subsample average 0.6% and lack statistical significance.

There are two possible explanations for why activism targets involved in failed takeover bids display significantly positive long-term abnormal returns. One explanation, suggested by recent findings in Malmendier, Opp, and Saidi (2016), is that the market revalues a target's stand-alone value at the merger announcement and that this revaluation persists even if the merger collapses. An alternative explanation is that the positive price appreciation in failed activism mergers is due to favorable operational or financial policy changes, or both, resulting from the activist intervention, and that this price appreciation persists irrespective of whether the acquisition attempt is consummated.

6.3. Target firm revaluation in failed activism mergers

Malmendier, Opp, and Saidi (2016) argue that a large portion of merger announcement returns is due to the market's revaluation of the target firm, not the expected benefits from the merger. They find that, in a typical merger, the announcement return reflects two distinct components: a revaluation effect, which is independent of the expected synergies from the merger, and an operational effect, which captures the synergistic gains from the combination of the target and the bidder. According to their estimates, the revaluation effect accounts for about half of the total merger return in cash-financed transactions. If this pattern holds for activism mergers, the positive long-term returns of activism targets involved in unsuccessful takeovers could reflect the market's revaluation of the targets' stand-alone value. If revaluation effects drive the returns in activism mergers, the observed long-term returns substantially overstate the economic gains from shareholder activism.

We replicate the analysis in Malmendier, Opp, and Saidi (2016) and decompose the announcement returns of failed mergers in our sample. We follow their methodology and require that the date of merger failure be no later than one year after the merger announcement. With these criteria, our sample of failed mergers contains 127 non-activism mergers and 43 activism mergers, of which 29 involve an activist bidder.

Our results are reported in Table 10. We calculate announcement returns from 25 days before to five days after the merger announcement and failure returns from 25 days before the merger announcement to 25 days after merger failure.[9] As in Malmendier, Opp, and Saidi (2016), we estimate the revaluation ratio as the failure return divided by the merger announcement return. In Panel A, we study cash-financed mergers since Malmendier, Opp, and Saidi (2016) find that revaluation effects occur only in cash-financed deals. In Column 1, we focus on mergers with no activist presence and find that half the merger announcement return is due to a revaluation effect and half to an operational effect. This result closely mirrors the findings of Malmendier, Opp, and Saidi (2016) who show that about half of the merger announcement return is due to revaluation. In contrast to mergers not involving an activist, Column 2 shows that the majority (94%) of the merger announcement return in activism mergers is attributable to expected operational benefits. A similar pattern is reported in Panel B, which includes all mergers, irrespective of whether they are cash- or equity- financed.

[Insert Table 10 near here]

These results imply that the positive long-term returns in activism mergers are driven primarily by operational gains and not by a revaluation of the targets' stand-alone values. In the context of failed mergers, this finding suggests that the positive returns reflect investor expectations of value-enhancing changes instead of a revaluation effect. Thus, merger announcement returns do not appear to overestimate the value creation from mergers of activism targets, a result in stark contrast to the findings in Malmendier, Opp, and Saidi (2016) for takeovers generally. These results also suggest that highlighting undervalued firms that could be attractive targets for third-party buyers is not an important role performed by activist hedge funds.

6.4. Changes in firm performance and financial policies

[9] As a robustness check, we calculate CARs using a three-factor model as in Greenwood and Schor (2009). These results are qualitatively similar to those reported and are not tabulated for brevity.

In Table 11, we compare policy changes at activism targets that receive a takeover bid but fail to complete a merger with activism targets that do not receive a takeover bid within two years of activism. We consider changes in three operational variables – return on assets, return on sales (ROS), and asset turnover – and three financial and investment policies that represent common activist demands – leverage, payout, and capital expenditures. We estimate policy changes over two horizons centered around the beginning of the activism campaign (*t*), from *t*-2 to *t*+2 and from *t*-1 to *t*+2. The key variable of interest in Table 11 is an indicator, *Bid but no merger*, which takes the value of one for failed activism mergers and zero otherwise. The regression models control for the starting (lagged) level of the respective policy.

[Insert Table 11 near here]

Columns 1 and 2 of Table 11 show that activism targets involved in unsuccessful takeover bids experience an increase in ROA of 3.0–3.2% relative to activism targets that do not receive a takeover bid. Columns 3 and 4 show a similar effect using ROS. The change in asset turnover in Columns 5 and 6 is negative but statistically insignificant. This result could be due to activists having more success "on the extensive margin by facilitating asset reallocation" instead of on the intensive margin by improving the efficiency of existing assets, as documented by Brav, Jiang, and Kim (2015, p. 2745).

In terms of financial and investment policies, Columns 7 and 8 show that activism targets involved in unsuccessful takeover bids increase their leverage ratios by 6.3–6.7% compared with activism targets that do not receive takeover bids. In addition, such targets increase their capital expenditures by 2.8–3.4% relative to activism targets with no takeover bids. We do not find a statistically significant change in payout between the two subsamples of firms.

In untabulated tests, we explore whether long-term returns for activism targets involved in unsuccessful bids and those without a bid are linked to the operational and financial changes shown in Table 11. Using CARs calculated from the Fama-French three-factor model over the (-12, +12)-month and (-24, +24)-month intervals relative to the activism date, we find a positive and statistically significant relation with changes in ROA, capital expenditures, and payout over the same intervals.

Overall, these results illustrate that activism targets that receive takeover bids but remain independent experience significant changes in operational and financial policies. These changes include substantial increases in return on assets, operating margins, leverage, and capital expenditures relative to other activism targets that are not involved in subsequent M&A activity. These results indicate that unsuccessful acquisition attempts of shareholder activism targets are associated with real changes in performance and financial policies, providing an explanation for the positive long-term returns we find even when an acquisition attempt is not consummated. This evidence shows that the real effects of shareholder activism are more pronounced when accompanied by a takeover bid and provides an explanation for why activist bids are observed despite their relatively high rate of non-completion.

7. Bidder returns

We next consider whether an activist intervention has any effect on acquirer returns. Greenwood and Schor (2009) conjecture that bidders could overpay for acquisitions involving activism targets, in which case we expect bidder returns to be lower in activism mergers. Alternatively, by reducing managerial resistance, the activist intervention can lower the probability that bidders overpay for the acquisition. Under this interpretation, announcement returns for bidders should be higher in activism mergers.

Table 12 presents regression estimates in which the dependent variable is the three-day (-1, +1) bidder CAR around the merger announcement date. Because bidder returns could be affected by a number of bidder-specific attributes, we include bidder fixed effects in these regressions. We also include year fixed effects and control for industry merger waves. These regressions exclude private bidders and, hence, the LBO transactions in the sample. Finally, the regressions control for the size of the transaction and the method of payment.

[Insert Table 12 near here]

Column 1 of Table 12 shows that the coefficient on *Activist* is positive and significant at the 10% level. In Column 2, following Harford, Humphery-Jenner, and Powell (2012), we add time-varying bidder characteristics such as market capitalization, Tobin's Q, and leverage. We

continue to find a positive coefficient on *Activist* that is significant at the 10% level. These findings are inconsistent with the Greenwood and Schor (2009, p. 374) conjecture that the elevated takeover frequency and positive returns associated with activism are due to the activists' simply picking firms "for which potential acquirers might overpay."

8. Conclusion

In this paper, we study the mechanisms through which hedge fund activism affects merger activity for targeted firms. We show that activism is associated with a substantially higher probability of subsequent merger activity. Activism targets experience a significantly higher likelihood of receiving takeover bids relative to firms in which the same activist hedge funds own passive stakes and when activists switch from a passive to an active investment strategy, suggesting that the results cannot be explained entirely by selection effects.

Relative to non-activism mergers, activist interventions followed by third-party acquisition proposals lead to substantially higher target announcement returns, acquisition premia, and completion rates. In contrast, when activists themselves bid for activism targets, both the probability of merger completion and the returns to target shareholders are significantly worse than for mergers without activist involvement. Even though their bids are often unsuccessful, activist bids generate significant shareholder value for target firms. We find that failed takeover bids for activism targets display significant long-term abnormal returns along with improvements in operating performance and changes in financial policy compared with activism that is not accompanied by takeover threats. Overall, our results demonstrate a key link between hedge fund activism and the market for corporate control. Promoting takeover likelihood is an important channel through which activism creates shareholder value at targeted firms, even when an acquisition is not ultimately consummated. In contrast, activism targets that do not receive acquisition proposals display no evidence of long-term share price appreciation.

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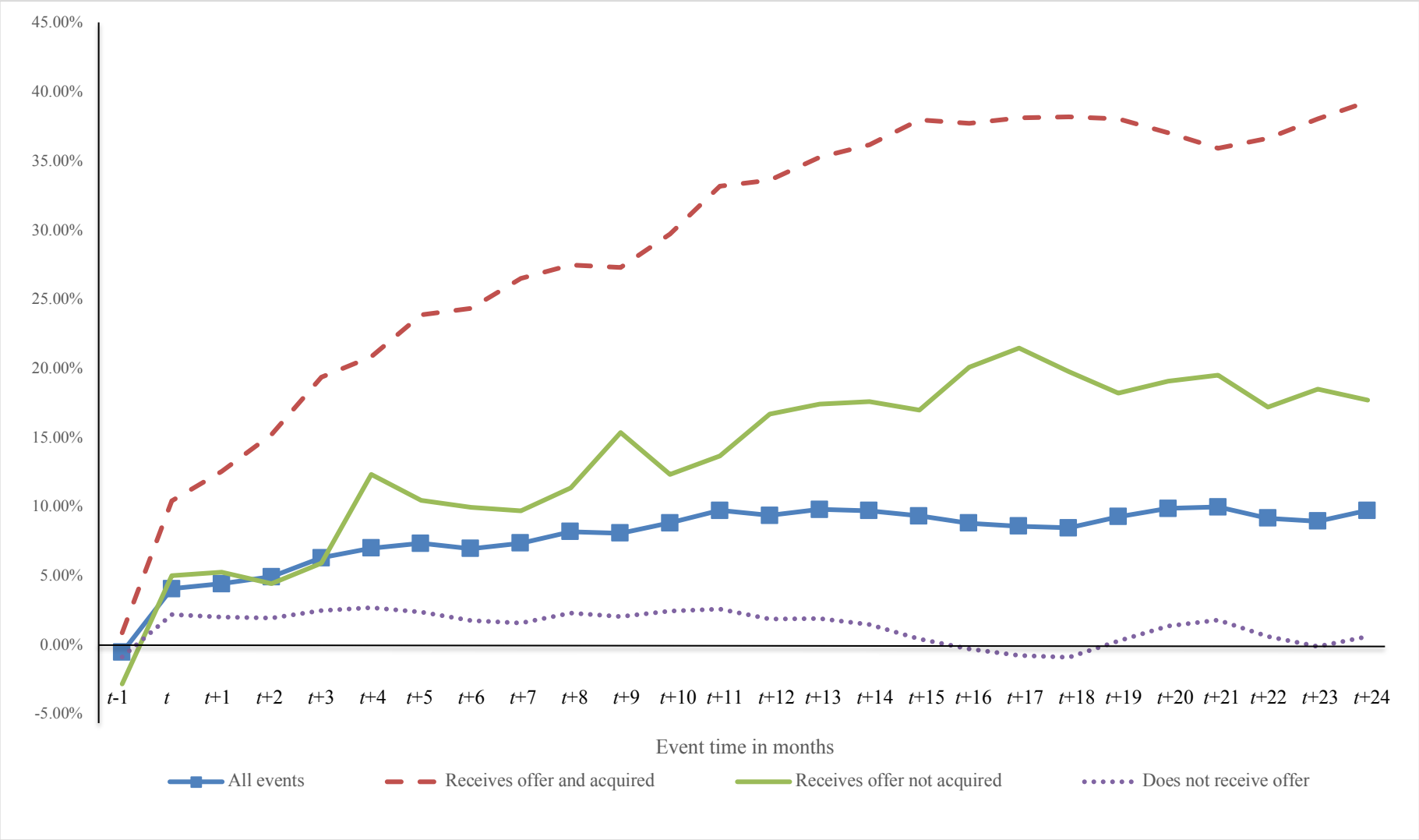
Figure 1: Long-term cumulative abnormal returns (CARs) of activism targets.



This figure plots monthly CARs around the announcement of activism. Table 9 tabulates these returns. The sample consists of 1,899 activism targets between 2000 and 2012 and is divided into targets that receive an offer within two years of the start of activism and are acquired, targets that receive an offer but remain independent, and targets that receive no offer. Abnormal returns are calculated using the Fama-French three-factor model, with the market, SMB (small minus big), and HML (high minus low) factor loadings estimated over the (-24, -2)-month interval prior to the activism announcement.

Table 1
Hedge fund activism and merger activity.

This table reports annual statistics for targets of hedge fund activism and takeovers. The activism sample period is between 2000 and 2012. Columns 1 and 2 report the number and frequency of all shareholder campaigns by activists. An activist is a hedge fund that has accumulated an activist block of 5% in at least two targets or initiated at least one proxy contest over the sample period. The activism data set is collected from FactSet's SharkRepellent, Securities and Exchange Commission (SEC) Schedule 13Ds, and proxy statements. Columns 3 and 4 present the number and frequency of takeover bids as reported by Thomson Reuters Securities Data Company (SDC) Platinum. Columns 5 and 6 report the number and frequency of activism events in which the activist initiates a campaign after a merger announcement but before its completion (risk arbitrage). Columns 7 and 8 present the number and frequency of activism targets receiving takeover bids, excluding risk arbitrage transactions. In Columns 7 and 8, the takeover bid must occur within two years after the start of the activism campaign and the activist must be present at the time of the merger announcement.

Year	Number of activism campaigns (including risk arbitrage) (1)	Proportion of Compustat firms with activism campaigns (2)	Number of takeover bids (3)	Proportion of Compustat firms with takeover bids (4)	Number of risk arbitrage campaigns (5)	Proportion of risk arbitrage campaigns (5/1) (6)	Number of activism events preceding a takeover bid (7)	Proportion of activism events preceding a takeover bid (7/1) (8)
2000	85	0.015	469	0.080	5	0.059	16	0.188
2001	104	0.018	334	0.059	11	0.106	16	0.154
2002	101	0.020	204	0.039	8	0.079	19	0.188
2003	123	0.026	236	0.049	17	0.138	26	0.211
2004	125	0.028	220	0.048	17	0.136	22	0.176
2005	180	0.040	244	0.054	27	0.150	33	0.183
2006	219	0.049	281	0.063	30	0.137	51	0.233
2007	273	0.063	301	0.069	30	0.110	64	0.234
2008	237	0.056	212	0.050	12	0.051	68	0.287
2009	143	0.035	154	0.038	4	0.028	27	0.189
2010	157	0.041	194	0.050	12	0.076	33	0.210
2011	175	0.048	189	0.052	15	0.086	40	0.229
2012	174	0.048	178	0.049	4	0.023	52	0.299
Total	2,096	0.036	3,216	0.054	192	0.092	467	0.223
2000–2006	937	0.027	1,988	0.056	115	0.123	183	0.195
2007–2012	1,159	0.049	1,228	0.051	77	0.066	284	0.245

Table 2

Characteristics of takeover targets with and without activist involvement.

This table presents the characteristics of takeover targets with and without activist involvement. The activism sample period is between 2000 and 2012. A takeover bid must be announced within two years after the start of the activism campaign and the activist must be present at the time of the merger announcement. The first two columns of the table present characteristics of the full sample of Center for Research in Security Prices (CRSP)-Compustat firms. "Institutional ownership" is the fraction of a firm's equity owned by institutions reporting to the SEC in Form 13F. "Standard deviation" is the standard deviation of daily stock returns. "Illiquidity" is measured by the Amihud (2002) ratio defined as the average ratio of the daily absolute return to the daily dollar trading volume. "Tobin's Q" is the ratio of market value of assets (market value of equity plus book value of debt) to book value of assets (the sum of book values of debt and common equity). "Market cap" is the stock market capitalization in millions of dollars. "ROA" is operating income before depreciation divided by lagged book value of assets. "Book leverage" is debt (long-term debt and debt in current liabilities) divided by the sum of debt and common equity. "Dividend yield" is common dividends divided by the market value of common stock. "R&D/assets" is research and development expense divided by assets. "Herfindahl index" is an index of market concentration for each Fama-French 12 industry. Columns 1 and 2 present mean and median characteristics for the full CRSP-Compustat panel. Columns 3 to 4 and 5 to 6 report characteristics of merger targets without activist involvement and activism targets, respectively. *, **, and *** in Columns 3–6 denote statistical significance at the 10%, 5%, and 1% level with respect to the full panel, and in Columns 7–8 denote significance of differences in means and medians between merger targets without and with activist involvement.

Variable	Full panel (N = 62,066)		Merger targets without activist involvement (N = 2,749)		Merger targets with activist involvement (N = 467)		Differences between merger targets without and with activist involvement (p-value)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Institutional ownership	0.480	0.473	0.463*	0.424***	0.584***	0.627***	0.000***	0.000***
Standard deviation	0.039	0.032	0.039	0.033	0.032***	0.028***	0.000***	0.000***
Illiquidity	2.947	0.034	2.495*	0.058***	1.380***	0.050**	0.002***	0.271
Tobin's Q	2.447	1.550	2.145***	1.450***	1.593***	1.390***	0.000***	0.092*
Market cap (millions of dollars)	2,137	264	1,137***	174***	740***	169***	0.999	0.689
ROA	0.031	0.080	0.036	0.080*	0.064***	0.090	0.010***	0.094*
Book leverage	0.203	0.114	0.208*	0.112	0.205	0.102	0.778	0.689
Dividend yield	0.012	0.000	0.010***	0.000***	0.009***	0.000***	0.104	0.444
R&D/assets	0.063	0.000	0.064	0.000	0.059	0.000	0.409	0.527
Herfindahl index	0.137	0.098	0.124***	0.087***	0.134	0.096	0.100*	0.474

Table 3
Probability of receiving takeover bid.

This table reports estimates of logistic regressions of the probability of receiving a takeover bid in the CRSP-Compustat sample of firms. The activism sample period is between 2000 and 2012. The indicator *Activist* is set to one if an activist hedge fund has initiated a campaign against the firm in the two years prior to the takeover bid and zero otherwise. The indicator *Merger wave* equals one if the number of mergers in an industry during any two-year period is greater than the 95th percentile of a uniform distribution over the sample period. Controls are described in Table 2. Columns 2–4 report takeover bids by third parties, strategic bidders, and financial bidders, respectively. The last two rows report the unconditional probability of receiving an offer and the corresponding probability in the presence of an activist. The z-statistics are reported in parentheses below each coefficient. Standard errors are clustered by year and firm, and *, **, and *** refer to statistical significance at the 10%, 5%, and 1% level, respectively.

Variable	Any takeover bid (1)	Third-party takeover bid (2)	Strategic bidder (3)	Financial bidder (4)
Activist	1.874***	1.712***	1.522***	2.381***
	(15.23)	*(13.54)*	*(13.61)*	*(13.93)*
Activist * Merger wave	-0.201	-0.227	-0.218	-0.087
	(-0.86)	*(-1.03)*	*(-1.09)*	*(-0.38)*
Control variables				
Institutional ownership	0.789***	0.791***	0.788***	0.711***
	(5.24)	*(5.14)*	*(4.83)*	*(3.83)*
Standard deviation	-4.641***	-4.659***	-3.826***	-8.969**
	(-5.44)	*(-5.71)*	*(-3.33)*	*(-2.13)*
Illiquidity	-0.008***	-0.008***	-0.007***	-0.014**
	(-3.39)	*(-3.41)*	*(-2.66)*	*(-2.37)*
Tobin's Q	-0.049***	-0.047***	-0.039***	-0.162***
	(-4.29)	*(-4.26)*	*(-3.76)*	*(-5.71)*
Log market cap	-0.183***	-0.184***	-0.163***	-0.283***
	(-4.73)	*(-4.71)*	*(-4.35)*	*(-5.93)*
ROA	0.260	0.257	0.134	1.962***
	(1.41)	*(1.43)*	*(0.92)*	*(5.71)*
Book leverage/assets	0.010	0.016	-0.063	0.351
	(0.08)	*(0.14)*	*(-0.47)*	*(1.36)*
Dividend yield	-2.042**	-2.097**	-2.992***	1.030
	(-2.04)	*(-2.12)*	*(-3.20)*	*(0.47)*
R&D/assets	0.442	0.462	0.490	-0.689
	(1.41)	*(1.47)*	*(1.58)*	*(-1.37)*
Herfindahl index	-0.238	-0.283	-0.568***	0.627
	(-1.12)	*(-1.30)*	*(-2.73)*	*(1.37)*
Merger wave	0.375***	0.368***	0.332***	0.414***
	(8.14)	*(8.14)*	*(5.28)*	*(3.51)*
Constant	-1.829***	-1.802***	-2.048***	-3.580***
	(-14.57)	*(-14.36)*	*(-15.90)*	*(-12.28)*
N	62,066	61,990	62,066	62,066
Industry and year fixed effects	Yes	Yes	Yes	Yes
Pseudo R^2	0.057	0.049	0.043	0.145
Unconditional probability	4.6%	4.6%	3.8%	0.5%
Probability when Activist = 1	22.9%	20.2%	14.8%	4.4%

Table 4

Activist ownership status and probability of receiving a takeover bid.

This table reports estimates of ordinary least squares (OLS) and logistic regressions of the probability of receiving a takeover bid in the sample of CRSP-Compustat firms held by at least one activist hedge fund that files a 13F ownership report. The activism sample period is between 2000 and 2012. The unit of observation is an activist-firm-year. The indicator variable *HF active stake* is set to one if the activist hedge fund has activist intentions (reported in a Schedule 13D or a contested proxy solicitation) and zero otherwise. *% held* is the total percentage of the stock's market capitalization held by the activist hedge fund. The t-statistics for OLS regressions and the z-statistics for Logit regressions are reported in parentheses below each coefficient. Standard errors are clustered by year and firm, and *, **, and *** refer to statistical significance at the 10%, 5%, and 1% level, respectively.

Variable	OLS (1)	OLS (2)	OLS (3)	OLS (4)	Logit (5)	Logit (6)	Logit (7)	Logit (8)
HF active stake	0.187***	0.181***	0.179***	0.184***	1.840***	1.803***	1.798***	1.826***
	(7.88)	*(7.59)*	*(7.68)*	*(7.70)*	*(12.27)*	*(12.14)*	*(12.46)*	*(12.09)*
% held		-0.188***				-3.494***		
		(-3.80)				*(-3.45)*		
HF active stake * % held		0.681***				4.371***		
		(2.55)				*(3.22)*		
% held > 1%			-0.008***				-0.131***	
			(-5.07)				*(-3.40)*	
HF active stake * % held > 1%			0.043***				0.241***	
			(2.61)				*(3.16)*	
% held > 5%				-0.012***				-0.230***
				(-2.65)				*(-2.45)*
HF active stake * % held > 5%				0.044**				0.255**
				(2.21)				*(2.19)*
HF active stake * Merger wave	0.009	0.008	0.008	0.009	-0.344*	-0.347*	-0.347*	-0.345*
	(0.27)	*(0.25)*	*(0.25)*	*(0.26)*	*(-1.67)*	*(-1.69)*	*(-1.69)*	*(-1.68)*
Institutional ownership	0.048***	0.048***	0.048***	0.048***	1.378***	1.385***	1.382***	1.381***
	(4.20)	*(4.23)*	*(4.22)*	*(4.21)*	*(6.54)*	*(6.64)*	*(6.59)*	*(6.60)*
Standard deviation	-0.259*	-0.269**	-0.267**	-0.264*	-3.134	-3.336	-3.271	-3.238
	(-1.87)	*(-1.95)*	*(-1.94)*	*(-1.90)*	*(-0.94)*	*(-1.00)*	*(-0.99)*	*(-0.97)*
Illiquidity	0.000	0.000	0.000	0.000	-0.003	-0.003	-0.003	-0.003
	(-0.31)	*(-0.22)*	*(-0.26)*	*(-0.25)*	*(-0.43)*	*(-0.36)*	*(-0.40)*	*(-0.38)*
Tobin's Q	-0.002***	-0.002***	-0.002***	-0.002***	-0.043***	-0.043***	-0.043***	-0.043***
	(-6.39)	*(-6.34)*	*(-6.33)*	*(-6.36)*	*(-4.46)*	*(-4.43)*	*(-4.43)*	*(-4.44)*
Log market cap	-0.016***	-0.017***	-0.017***	-0.017***	-0.403***	-0.410***	-0.407***	-0.407***
	(-10.23)	*(-10.18)*	*(-10.32)*	*(-10.18)*	*(-11.99)*	*(-12.68)*	*(-12.53)*	*(-12.33)*
ROA	0.004	0.003	0.004	0.004	0.092	0.088	0.090	0.090
	(0.31)	*(0.30)*	*(0.30)*	*(0.30)*	*(0.35)*	*(0.34)*	*(0.34)*	*(0.35)*
Book leverage/assets	-0.021***	-0.021***	-0.021***	-0.021***	-0.409***	-0.406***	-0.405***	-0.407***
	(-3.44)	*(-3.42)*	*(-3.41)*	*(-3.43)*	*(-3.06)*	*(-3.05)*	*(-3.04)*	*(-3.06)*
Dividend yield	-0.157**	-0.160**	-0.160**	-0.158**	-4.380**	-4.407**	-4.402**	-4.392**
	(-2.24)	*(-2.26)*	*(-2.27)*	*(-2.25)*	*(-2.00)*	*(-2.00)*	*(-2.01)*	*(-2.00)*
R&D/assets	0.013	0.013	0.013	0.013	0.242	0.241	0.242	0.242
	(0.54)	*(0.53)*	*(0.54)*	*(0.53)*	*(0.55)*	*(0.55)*	*(0.55)*	*(0.55)*
Herfindahl index	0.000	0.000	0.000	0.000	-0.056	-0.059	-0.059	-0.057
	(0.01)	*(0.02)*	*(0.01)*	*(0.02)*	*(-0.15)*	*(-0.16)*	*(-0.16)*	*(-0.15)*
Merger wave	0.010*	0.010*	0.010*	0.010*	0.243***	0.243***	0.244***	0.243***
	(1.67)	*(1.67)*	*(1.67)*	*(1.67)*	*(2.61)*	*(2.62)*	*(2.62)*	*(2.61)*
Constant	0.515***	0.518***	0.518***	0.517***	2.138***	2.189***	2.171***	2.164***
	(13.37)	*(13.37)*	*(13.42)*	*(13.35)*	*(5.43)*	*(5.57)*	*(5.56)*	*(5.48)*
N	260,499	260,499	260,499	260,499	260,499	260,499	260,499	260,499
Industry and year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Hedge fund fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted or pseudo R^2	0.159	0.159	0.161	0.161	0.238	0.239	0.239	0.239

Table 5

13G to 13D switchers and probability of receiving a takeover bid.

This table reports estimates of ordinary least squares (OLS) and logistic regressions of the probability of receiving a takeover bid in a sample of firms with Schedule 13G hedge fund filers, provided by Brav, Jiang, Ma, and Tian (2015). The activism sample period is between 2000 and 2012. A fund is required to file a 13G form when it purchases 5% or more of a company's stock but intends to remain passive. The indicator variable *13G to 13D switcher* is set to one for 159 firms in which the activist hedge fund initially files a Schedule 13G but switches to a Schedule 13D, indicating a change from passive to activist engagement in the same firm. The dependent variable is an indicator set to one if a takeover bid is announced within two years of the initial 13G filing or the 13G to 13D switch, if any. Columns 3 and 6 include hedge fund fixed effects. The t-statistics for OLS regressions and the z-statistics for Logit regressions are reported in parentheses below each coefficient. Standard errors are clustered by year and firm, and *, **, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively.

Variable	OLS (1)	OLS (2)	OLS (3)	Logit (4)	Logit (5)	Logit (6)
13G to 13D switcher	0.101***	0.096***	0.090***	1.205***	1.114***	1.017***
	(4.37)	*(4.23)*	*(3.81)*	*(7.42)*	*(6.84)*	*(5.01)*
Control variables						
Institutional ownership		0.055***	0.049***		0.921***	0.836***
		(2.97)	*(2.57)*		*(2.98)*	*(2.44)*
Standard deviation		-0.271	-0.438*		-5.512	-7.967
		(-1.00)	*(-1.70)*		*(-1.00)*	*(-1.58)*
Illiquidity		-0.001***	-0.001***		-0.071	-0.069
		(-2.77)	*(-2.71)*		*(-1.33)*	*(-1.46)*
Tobin's Q		-0.003***	-0.004***		-0.090***	-0.099***
		(-4.95)	*(-5.06)*		*(-4.87)*	*(-5.02)*
Log market cap		-0.014***	-0.015***		-0.277***	-0.292***
		(-3.01)	*(-3.41)*		*(-3.03)*	*(-3.12)*
ROA		0.013	0.013		0.418	0.357
		(1.24)	*(1.49)*		*(1.62)*	*(1.58)*
Book leverage/assets		-0.009	-0.013		-0.223	-0.306
		(-0.55)	*(-0.76)*		*(-0.73)*	*(-0.97)*
Dividend yield		-0.209	-0.233*		-3.827	-4.088
		(-1.62)	*(-1.89)*		*(-1.50)*	*(-1.61)*
R&D/assets		0.052**	0.063***		1.103***	1.247***
		(2.22)	*(2.99)*		*(2.66)*	*(3.62)*
Herfindahl index		0.068	0.082*		1.019	1.390**
		(1.45)	*(1.66)*		*(1.62)*	*(2.08)*
Merger wave		0.008	0.003		0.213	0.159
		(0.49)	*(0.16)*		*(0.91)*	*(0.60)*
Constant	0.024*	0.080***	0.069	-3.442***	-2.260***	-2.623***
	(1.82)	*(2.46)*	*(1.47)*	*(-11.76)*	*(-4.26)*	*(-3.38)*
N	6,416	6,416	6,416	6,416	6,416	6,416
Industry and year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Hedge fund fixed effects	No	No	Yes	No	No	Yes
Adjusted or pseudo R^2	0.020	0.030	0.034	0.051	0.073	0.106

Table 6

Firm characteristics and returns, premia and completion rates of activism targets receiving activist and third-party bids.

Panel A presents characteristics of activism targets with activist bids (Columns 1–2) and activism targets with third-party bids (Columns 3–4). Panel B presents statistics on returns, premia, and completion rates for activism targets with activist bids (Columns 1–2) and activism targets with third-party bids (Columns 3–4). CARs are in excess of the value-weighted CRSP index return over days (-1, +1) around the merger or activism announcement or from 25 days before the start of activism to five days after the merger announcement. Premia are with respect to the target's stock price 25 days prior to the merger or activism announcement. Columns 5–6 report p-values from t-tests for differences in means and medians, respectively, for activist bidders as compared to third-party bidders, and *, **, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively.

	Activist bid (N = 76)		Third-party bid (N=391)		Differences between activist and third-party bids (p-value)	
	Mean	Median	Mean	Median	Mean	Median
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Characteristics of activism target firms receiving activist and third-party bids						
Firm characteristics						
Institutional ownership	0.596	0.603	0.581	0.630	0.680	0.916
Standard deviation	0.031	0.027	0.032	0.028	0.603	0.544
Illiquidity	2.035	0.036	1.253	0.050	0.455	0.818
Tobin's Q	1.414	1.290	1.628	1.400	0.276	0.305
Market cap (millions of dollars)	707	172	747	169	0.826	0.916
ROA	0.081	0.105	0.061	0.090	0.397	0.473
Book leverage	0.212	0.096	0.204	0.106	0.785	0.916
Dividend yield	0.009	0.000	0.008	0.000	0.765	0.903
R&D/assets	0.036	0.000	0.064	0.000	0.004***	0.604
Herfindahl index	0.169	0.112	0.128	0.094	0.033**	0.692
Panel B: Summary of returns, premia, and completion rates for activism targets receiving activist and third party bids						
Cumulative abnormal returns (percent)						
CAR [-1_{mer}, $+1_{mer}$]	11.6	10.9	14.6	16.9	0.005***	0.001***
CAR [-1_{act}, $+1_{act}$]	3.9	3.3	1.5	0.9	0.013**	0.042**
CAR [-25_{act}, $+5_{mer}$]	17.1	14.3	43.4	36.5	0.000***	0.000***
Acquisition premia (percent)						
Premium [-25_{mer}]	32.8	25.4	55.3	38.8	0.000***	0.001***
Premium [-25_{act}]	40.9	28.7	77.7	51.9	0.000***	0.002***
Completion rate (percent)	0.009	0.000	0.008	0.000	0.765	0.903

Table 7

CARs, merger premia, and completion probabilities of third-party and activist merger bids.

Columns 1 and 2 report estimates for ordinary least squares (OLS) regressions of CARs calculated in excess of the value-weighted CRSP index return and cumulated over the period from 25 days before the announcement of activism to five days after merger announcement. The activism sample period is between 2000 and 2012. For non-activism mergers, a placebo activism date is set to 266 days before the merger (median number of days between the activism and merger announcements). Columns 3–4 report estimates for OLS models of merger premia, measured with respect to the target's stock price 25 days prior to the activism announcement. Columns 5–6 report logistic models of takeover completion probabilities. Odd-numbered columns compare activism targets with third-party bids to non-activism merger targets. Even-numbered columns compare activism targets with bids by activist hedge funds to non-activism merger targets. All firm and activist characteristics are described in Table 2. The t-statistics for OLS regressions and the z-statistics for Logit regressions are reported in parentheses below each coefficient. Standard errors are clustered by year and firm, and *, **, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively.

	CAR [-25$_{act}$,+5$_{mer}$] (OLS)		Merger premia [-25$_{act}$](OLS)		Takeover completion (Logit)	
Variable	Third-party bids (1)	Activist bids (2)	Third-party bids (3)	Activist bids (4)	Third-party bids (5)	Activist bids (6)
Activist non-bidder	0.083***		0.103**		0.694***	
	(3.15)		*(1.95)*		*(4.07)*	
Activist bidder		-0.180***		-0.232**		-2.374***
		(-3.45)		*(-2.06)*		*(-6.09)*
Control variables						
Institutional ownership	-0.015	0.001	0.083	0.169	0.174	0.299*
	(-0.26)	*(0.02)*	*(0.69)*	*(1.28)*	*(1.03)*	*(1.78)*
Standard deviation	2.167	2.222	2.976	3.042	-0.899	-0.793
	(1.26)	*(1.14)*	*(0.90)*	*(0.87)*	*(-0.21)*	*(-0.22)*
Illiquidity	0.008***	0.008***	0.018***	0.018***	0.000	-0.001
	(4.06)	*(3.70)*	*(3.27)*	*(3.47)*	*(-0.08)*	*(-0.11)*
Tobin's Q	0.015	0.012	0.045**	0.043*	0.029	0.021
	(1.22)	*(0.91)*	*(2.14)*	*(1.93)*	*(0.84)*	*(0.61)*
Log market cap	-0.035**	-0.041**	-0.052**	-0.063**	0.017	-0.008
	(-2.10)	*(-2.38)*	*(-2.01)*	*(-2.32)*	*(0.39)*	*(-0.19)*
ROA	0.417***	0.417***	0.603***	0.598***	0.390	0.389
	(9.14)	*(10.30)*	*(3.54)*	*(3.47)*	*(1.33)*	*(1.33)*
Book leverage/assets	0.066	0.068	0.957***	0.890***	-0.760***	-0.714***
	(1.19)	*(1.06)*	*(6.09)*	*(5.18)*	*(-3.24)*	*(-3.86)*
Dividend yield	-1.207***	-1.300***	0.747	1.029	4.167	5.831
	(-2.48)	*(-2.60)*	*(0.58)*	*(0.82)*	*(0.97)*	*(1.26)*
R&D/assets	0.422***	0.418***	0.457**	0.371	1.546**	1.758**
	(3.24)	*(3.04)*	*(1.98)*	*(1.43)*	*(2.19)*	*(2.21)*
Herfindahl index	-0.066	-0.106	-0.033	-0.084	-1.701***	-1.613***
	(-0.70)	*(-1.08)*	*(-0.15)*	*(-0.42)*	*(-3.43)*	*(-3.16)*
Cash offer	0.121***	0.126***	0.001	-0.014	0.347*	0.281
	(3.89)	*(3.72)*	*(0.01)*	*(-0.15)*	*(1.75)*	*(1.33)*
Merger wave	0.037	0.018	0.011	-0.024	0.597***	0.618***
	(1.51)	*(0.63)*	*(0.12)*	*(-0.27)*	*(2.96)*	*(3.86)*
LBO indicator	-0.143***	-0.151***	-0.154***	-0.110*	-0.560**	-0.426
	(-4.28)	*(-4.37)*	*(-2.71)*	*(-1.77)*	*(-2.05)*	*(-1.42)*
Constant	0.381***	0.435***	0.848***	0.951***	1.982***	2.016***
	(2.75)	*(2.95)*	*(3.39)*	*(3.74)*	*(4.59)*	*(4.97)*
N	2,992	2,657	2,961	2,658	3,267	3,267
Industry and year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	0.163	0.176	0.128	0.133	0.075	0.108

Table 8

Activism targets receiving activist bids.

This table reports firm characteristics (Panel A) and returns, initial premia, and completion rates of activism targets receiving activist takeover bids (Panel B). The activism sample period is between 2000 and 2012. A takeover bid must be announced within two years of the start of the activism campaign and the activist must be present at the time of the merger announcement. All variables are defined in Table 2. Columns 1–2 consider activism targets with activist takeover bids only. Columns 3–4 consider activism targets with activist takeover bids followed by a third-party bid. CARs are in excess of the value-weighted CRSP index return over days (-1, +1) around the merger or activism announcement or from 25 days before the start of the activism campaign to five days after the merger announcement. Premia are with respect to the target's stock price 25 days prior to the merger or activism announcement. Columns 5–6 report p-values from t-tests for differences in means and medians, respectively, for targets with activist bids compared to targets with subsequent third-party bids, and *, **, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively.

	Activist bid only (*N* = 52)		Subsequent third-party bid (*N*=24)		Test for differences (p-value)	
	Mean	Median	Mean	Median	Mean	Median
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Characteristics of activism targets receiving activist bids						
Firm characteristics						
Institutional ownership	0.604	0.616	0.577	0.596	0.69	0.81
Standard deviation	0.031	0.028	0.033	0.026	0.67	0.81
Illiquidity	2.586	0.027	0.839	0.085	0.25	0.22
Tobin's Q	1.591	1.295	1.029	1.270	0.28	0.93
Market cap (millions of dollars)	825	185	450	135	0.45	0.46
ROA	0.070	0.090	0.103	0.120	0.49	0.22
Book leverage	0.228	0.135	0.178	0.021	0.44	0.22
Dividend yield	0.007	0.000	0.014	0.000	0.33	0.81
R&D/assets	0.033	0.000	0.043	0.000	0.59	0.99
Herfindahl index	0.172	0.110	0.162	0.113	0.81	0.81
Panel B: Returns, premia, and completion rates of activist targets receiving activist bids						
Cumulative abnormal returns (percent)	12.3	11.5	10.3	9.4	0.316	0.869
CAR $[-1_{mer}, +1_{mer}]$	3.4	1.6	4.7	4.3	0.483	0.541
CAR $[-1_{act}, +1_{act}]$	13.3	14.6	24.4	14.0	0.241	0.792
CAR $[-25_{act}, +5_{mer}]$						
Acquisition premia (percent)	36.1	27.1	26.2	20.3	0.285	0.211
Premium $[-25_{mer}]$	40.7	27.7	41.5	31.0	0.955	0.551
Premium $[-25_{act}]$						
Completion rate (percent)	25.0	0.0	100.0	1.0	0.000***	0.000***

Table 9

Long-term stock performance of activism targets.

This table presents monthly CARs and associated t-statistics (*t*) around the announcement of activism. Fig. 1 plots these returns. The sample consists of 1,899 activism targets between 2000–2012, and is divided into targets that receive a takeover offer within two years of the start of activism (Columns 3–4), targets that receive an offer and are acquired (Columns 9–10), targets that receive an offer but remain independent (Columns 11–12), and targets that receive no offer (Columns 13–14). Further, activism targets with takeover offers are subdivided into those that receive a bid from the activist hedge fund (Columns 5–6) or a third party (Columns 7–8). Abnormal returns are calculated as in Greenwood and Schor (2009), using the Fama-French three-factor model, with the market, SMB (small minus big), and HML (high minus low) factor loadings estimated over the (-24, -2)-month interval prior to the activism announcement. *, **, and *** refer to statistical significance at the 10%, 5%, and 1% level, respectively.

	All activism events		Takeover bid within 2 years		Takeover bid by activist		Takeover bid by third-party		Completed transaction		Failed transaction		No takeover bid	
	CAR	*t*	CAR	*t*	CAR	*t*	CAR	*t*	CAR	*t*	CAR	*t*	CAR	*t*
Time	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
-1 month	-0.52%	-1.00	0.44%**	0.34	-0.19%	-0.08	0.55%	0.38	0.90%***	0.62	-2.80%	-1.57	-0.84%	-1.56
Filing month	4.09%***	3.79	9.79%***	2.75	7.30%*	1.90	8.93%***	2.39	10.43%***	2.52	5.02%	1.49	2.20%***	2.61
+1 month	4.44%***	3.48	11.66%***	2.82	9.40%**	2.26	10.96%***	2.41	12.55%***	2.63	5.27%	1.43	2.04%**	2.09
+3 months	6.32%***	3.46	17.65%***	3.54	11.07%***	2.68	17.59%***	3.14	19.40%***	3.38	5.95%	1.26	2.51%	1.59
+6 months	6.98%***	3.07	22.46%***	3.59	18.10%***	3.00	21.27%***	3.09	24.37%***	3.39	9.98%	1.40	1.78%	0.94
+9 months	8.11%***	3.13	25.91%***	3.79	21.19%***	2.95	25.21%***	3.25	27.32%***	3.51	15.38%*	1.68	2.09%	0.92
+12 months	9.38%***	3.07	31.59%***	3.70	16.96%**	2.29	33.05%***	3.35	33.64%***	3.43	16.70%*	1.76	1.88%	0.79
+18 months	8.49%***	2.40	36.07%***	4.11	19.60%***	2.52	37.58%***	3.72	38.22%***	3.80	19.79%**	1.98	-0.88%	-0.31
+24 months	9.75%***	2.64	36.68%***	4.04	18.42%***	2.38	38.91%***	3.69	39.31%***	3.77	17.73%*	1.87	0.63%	0.22

Table 10
Revaluation effects in failed mergers.

This table reports a decomposition of merger announcement returns into a target revaluation effect and a merger synergy effect, following the approach in Malmendier, Opp, and Saidi (2016). The sample in Panel A consists of all activism and non-activism mergers, and the sample in Panel B consists of cash-only activism and non-activism mergers, which have failed within one year of the merger announcement date due to exogenous reasons. Column 3 tests the statistical significance of the differences in means between non-activism mergers and activism mergers, and *, **, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively. The merger announcement returns (A) are calculated over the period from 25 days before to five days after the merger announcement and the failure returns (B) are estimated from 25 days before the merger announcement to 25 days after merger failure. CAR [-25_{act}, $+5_{mer}$] is the return estimated from 25 days before activism begins to five days after the merger is announced (C). The revaluation proportion is calculated as the average failure return over the average merger announcement return (B/A) and the synergy proportion is the remainder.

Panel A: Cash mergers only

Pre-merger to failure returns	Non-activism mergers (N = 127) (1)	Activism mergers (N = 43) (2)	Difference: non-activism – activism (3)
(A) Merger announcement return [25_{mer}, $+5_{mer}$]	0.258	0.170	0.088**
(B) Failure return [-25_{mer}, $+25_{fail}$]	0.128	0.010	0.118
(C) CAR [-25_{act}, $+5_{mer}$]	0.194	0.233	-0.039
Revaluation ratios			
Revaluation proportion (B/A)	50%	6%	44%**
Loss in synergy (1-B/A)	50%	94%	-44%**

Panel B: All mergers

Pre-merger to failure returns	Non-activism mergers (N = 230) (1)	Activism mergers (N = 51) (2)	Difference: non-activism – activism (3)
(A) Merger announcement return [25_{mer}, $+5_{mer}$]	0.234	0.181	0.053
(B) Failure return [-25_{mer}, $+25_{fail}$]	0.017	0.025	-0.008
(C) CAR [-25_{act}, $+5_{mer}$]	0.153	0.258	-0.105
Revaluation ratios			
Revaluation proportion (B/A)	7%	14%	-7%
Loss in synergy (1-B/A)	93%	86%	7%

Table 11

Operational and financial policy changes at activism targets.

This table reports policy changes at activism targets over 2000-2012. All variables are defined in Table 2. The indicator *Bid but no merger* is set to one for targets that receive a takeover bid but fail to complete a merger and set to zero for targets that receive no takeover bids within two years of activism. Completed activism mergers are excluded. t-statistics are reported in parentheses below each coefficient. Standard errors are clustered by year and firm, and *, **, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively.

	Δ ROA		Δ ROS		Δ Asset turnover		Δ Book leverage		Δ CAPX/assets		Δ Payout/market cap	
Variable	*t*-2 to *t*+2 (1)	*t*-1 to *t*+2 (2)	*t*-2 to *t*+2 (3)	*t*-1 to *t*+2 (4)	*t*-2 to *t*+2 (5)	*t*-1 to *t*+2 (6)	*t*-2 to *t*+2 (7)	*t*-1 to *t*+2 (8)	*t*-2 to *t*+2 (9)	*t*-1 to *t*+2 (10)	*t*-2 to *t*+2 (11)	*t*-1 to *t*+2 (12)
Bid but no merger	0.030***	0.032***	0.289**	0.191**	-0.922	-0.648	0.063**	0.067***	0.034*	0.028*	-0.001	-0.001
	(2.71)	*(3.11)*	*(2.29)*	*(2.35)*	*(-1.37)*	*(-1.41)*	*(2.14)*	*(3.02)*	*(1.95)*	*(1.70)*	*(-0.38)*	*(-0.61)*
Institutional ownership	0.034	0.039*	0.954*	0.549	-2.990***	-1.603*	0.037**	0.010	0.035	0.057***	-0.005	-0.004
	(1.53)	*(1.85)*	*(1.71)*	*(1.10)*	*(-2.47)*	*(-1.67)*	*(1.96)*	*(0.48)*	*(1.39)*	*(2.34)*	*(-1.55)*	*(-1.24)*
Standard deviation	-0.377	-0.202	0.224	-4.398	-42.30***	-12.750	0.070	-0.269	1.981***	2.287***	-0.164***	-0.124***
	(-0.97)	*(-0.54)*	*(0.03)*	*(-0.73)*	*(-4.26)*	*(-1.20)*	*(0.17)*	*(-0.80)*	*(2.50)*	*(2.74)*	*(-6.11)*	*(-5.13)*
Illiquidity	0.001	0.000	0.010	0.010*	-0.015	-0.025*	-0.001	0.000	-0.001**	-0.001**	0.000***	0.000***
	(1.03)	*(0.59)*	*(1.41)*	*(1.89)*	*(-1.05)*	*(-1.77)*	*(-0.70)*	*(-0.20)*	*(-2.27)*	*(-2.13)*	*(2.80)*	*(4.52)*
Tobin's Q	0.000	-0.002	0.073	-0.013	-0.168	0.001	-0.003	0.001	0.005	0.005	0.000	0.000
	(-0.08)	*(-0.54)*	*(0.63)*	*(-0.24)*	*(-0.66)*	*(0.01)*	*(-0.40)*	*(0.15)*	*(1.44)*	*(1.17)*	*(-0.85)*	*(0.21)*
Log market cap	0.012***	0.010***	0.002	0.029	-0.133	-0.287**	0.006*	0.008**	-0.008	-0.010	0.001*	0.001
	(2.99)	*(2.95)*	*(0.03)*	*(0.48)*	*(-0.96)*	*(-2.00)*	*(1.89)*	*(2.36)*	*(-1.07)*	*(-1.49)*	*(1.66)*	*(1.37)*
Dividend yield	0.071	-0.161	1.676	-0.461	-9.886	-4.020	0.470*	0.347	0.142	0.075	0.061	-0.083**
	(0.22)	*(-0.87)*	*(0.78)*	*(-0.28)*	*(-1.43)*	*(-0.95)*	*(1.70)*	*(1.24)*	*(0.75)*	*(0.35)*	*(1.42)*	*(-2.40)*
Book leverage/assets	0.044***	0.031	0.319	0.459*	-0.123	-0.609	-0.405***	-0.326***	-0.125***	-0.139***	-0.008***	-0.005**
	(2.43)	*(1.27)*	*(1.01)*	*(1.67)*	*(-0.23)*	*(-0.99)*	*(-6.58)*	*(-4.03)*	*(-3.86)*	*(-4.38)*	*(-3.04)*	*(-2.08)*
R&D/assets	-0.433***	-0.395***	-6.735**	-3.080***	8.761	0.925	-0.064	-0.059	0.004	-0.085	-0.001	-0.001
	(-2.74)	*(-3.41)*	*(-2.13)*	*(-2.64)*	*(1.23)*	*(0.22)*	*(-0.85)*	*(-0.95)*	*(0.06)*	*(-1.00)*	*(-0.23)*	*(-0.46)*
Herfindahl index	-0.005	-0.052	-0.531	-0.417	-1.168	-1.975	0.036	0.063*	-0.029	-0.031	-0.003	-0.001
	(-0.18)	*(-1.50)*	*(-0.84)*	*(-0.73)*	*(-0.64)*	*(-1.18)*	*(0.69)*	*(1.71)*	*(-0.49)*	*(-0.46)*	*(-0.58)*	*(-0.26)*
ROA	-0.638***	-0.649***			-3.226	0.387	0.020	0.005	0.004	-0.018	0.005**	0.003
	(-7.10)	*(-8.88)*			*(-1.37)*	*(0.20)*	*(0.39)*	*(0.14)*	*(0.11)*	*(-0.47)*	*(2.40)*	*(1.60)*
ROS			-0.778***	-0.766***								
			(-11.61)	*(-9.96)*								
Asset turnover					-0.632***	-0.564***						
					(-24.37)	*(-6.22)*						
CAPX									-0.809***	-0.816***		
									(-22.45)	*(-16.09)*		
Payout/market cap											-0.795***	-0.595***
											(-11.62)	*(-9.47)*
Constant	0.030	0.045	-0.355*	-0.218	4.576***	4.020***	-0.066	-0.010	0.134***	0.133**	0.017**	0.018***
	(0.75)	*(1.23)*	*(-1.79)*	*(-0.72)*	*(3.26)*	*(3.74)*	*(-1.62)*	*(-0.29)*	*(2.79)*	*(2.08)*	*(2.23)*	*(2.94)*
N	1,008	1,097	990	1,074	990	1,074	1,048	1,096	990	1,078	976	1,060
Industry & year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	0.307	0.370	0.401	0.435	0.385	0.347	0.223	0.176	0.396	0.334	0.291	0.303

Table 12
CARs of non-financial bidders.

This table reports estimates for ordinary least squares (OLS) regressions of three-day (-1, +1) bidder CARs around the merger announcement date. Column (2) controls for bidder characteristics. The sample includes all activism and non-activism takeover bids by third-party non-financial bidders. The activism sample period is between 2000 and 2012. A takeover bid must be announced within two years of the start of the activism campaign and the activist must be present at the time of the merger announcement. Controls and activist characteristics are defined in Table 2. All regressions include bidder fixed effects. The t-statistics are reported in parentheses below each coefficient. Standard errors are clustered by firm and year. *, **, and *** refer to statistical significance at the 10%, 5%, and 1% level, respectively.

Variable	(1)	(2)
Activist	0.013*	0.012*
	(1.91)	*(1.79)*
Bidder characteristics		
Log of market cap		-0.002
		(-0.29)
Tobin's Q		0.001
		(0.60)
Leverage ratio		0.009
		(0.36)
Log of bidder firm age		0.013
		(0.49)
Control variables		
Merger wave dummy	-0.005	-0.005
	(-0.81)	*(-0.68)*
Log transaction value	-0.008***	-0.008***
	(-4.37)	*(-4.58)*
Stock offer dummy	-0.006	-0.005
	(-0.77)	*(-0.59)*
Cash offer dummy	0.009	0.006
	(1.55)	*(1.02)*
Constant	0.027	0.005
	(1.12)	*(0.07)*
N	1,989	1,830
Year fixed effects	Yes	Yes
Bidder fixed effects	Yes	Yes
Adjusted R^2	0.085	0.083