Corporate Control Activism

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Abstract

This paper studies the role of activist investors in the market for corporate control. We show that activists have higher credibility than bidders when campaigning against entrenched incumbents, and hence, they are more effective in relaxing their resistance to takeovers. This result holds although bidders and activists can use similar techniques to challenge the resistance of corporate boards and have similar governance expertise. Moreover, we show that there is complementarity between shareholder activism and takeovers: Activists benefit from the possibility that companies in which they invest will become a takeover target, and at the same time, bidders are more likely to perform due diligence and start takeover negotiations when the target has an activist, as their presence signals that the target is available for sale and the expected synergy from the acquisition is high. Combined, the analysis sheds light on the interaction between M&A and shareholder activism and provides a framework to identify the selection and the treatment effects of shareholder activism.

Keywords: Acquisition, Corporate Governance, Merger, Proxy Fight, Search, Shareholder Activism, Takeover.

JEL Classification: D74, D83, G23, G34

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“I’d like to thank these funds [Carl Icahn, Nelson Peltz, Jana Partners, Third Point] for teeing up deals because they’re coming in there and shaking up the management and many times these companies are being driven into some form of auction.” Thomas H. Lee, a private equity fund manager.¹

1 Introduction

The separation of ownership and control in public corporations creates agency conflicts between insiders and shareholders (Berle and Means (1932)). In order to protect their private benefits of control,² corporate boards can resist takeovers that would otherwise create shareholder value, for example, by issuing shareholder rights plans (“poison pills”). With a de facto veto power,³ the resistance to takeovers can be overcome only if the majority of directors are voted out in a contested election (“proxy fight”). In fact, the power of shareholders to unseat directors is often used by the courts as the basis for allowing boards to block takeovers in the first place (Gilson (2001)).

Activist investors often demand from companies they invest in to sell all or part of their assets (Brav et al. (2008), Greenwood and Schor (2009), Becht et al. (2015), Boyson et al. (2016)), and if needed, use proxy fights to force them to do so. For example, in 2014, the board of PetSmart agreed to be bought out for $8.7 billion after facing months-long pressure, which included the threat of a proxy fight, from one of its largest shareholders, the activist hedge fund Jana Partners.⁴ In 2013, the private-equity firm KKR acquired Gardner Denver for $3.7 billion after ValueAct Capital accumulated a 5% stake in the company and agitated for its sale. Commenting on the deal, KKR’s co-CEO, George Roberts, said: “We wouldn’t have bought Gardner Denver had not an activist shown up.”⁵ Consistent with these anecdotes,

²Jenter and Lewellen (2015) provide evidence consistent with managers being reluctant to relinquish control due to career concerns. See also Walkling and Long (1984), Martin and McConnell (1991), Agrawal and Walkling (1994), Hartzell et al. (2004), and Wulf and Singh (2011), who show that target CEOs typically suffer from poor career prospects following takeovers.
³Under most jurisdictions, including Delaware, merger proposals can be brought to a vote for a shareholder approval only by the board of directors. Alternatively, tender offers do not require a vote, but they are vulnerable to poison pills, which can be adopted on short notice and make a takeover virtually impossible.
Greenwood and Schor (2009) and Boyson et al. (2016) find that the probability of a takeover is more than three times higher if an activist hedge fund is a shareholder of the target.

Altogether, the evidence suggests that shareholder activism is an integral part of the M&A market. However, since bidders and activist investors can use similar techniques to challenge corporate boards (i.e., proxy fights), the incremental role played by activists in this market is unclear. What is the relative advantage of activists, if any? What are the implications of activist interventions for the M&A market? Do activists complement the effort of bidders to acquire companies, or do they compete away their rents from takeovers? Moreover, establishing a theoretical foundation for the role of activists, which is the main objective of this paper, can help to distinguish between instances where activists are just selecting companies that are likely to receive a takeover bid and instances where their interventions affect the takeover process.

We study these questions by analyzing a simple dynamic bargaining model in which the identity of the target board is endogenized by an interim proxy fight stage. Initially, a bidder is negotiating a deal with the incumbent board of the target. Circumventing the board by making a tender offer to target shareholders is not feasible. The board can use its veto power and reject a takeover in order to protect its private benefits of control, even if the offer increases shareholder value. However, if the negotiations fail, a proxy fight to replace the board can be initiated either by the bidder or by an activist investor, who is a target shareholder. Winning a proxy fight is not trivial, as the challenger must convince the majority of target shareholders that replacing the incumbents with his nominees is in their best interests. If the proxy fight succeeds, the winning team obtains control of the target board, and a second round of negotiations between the bidder and the newly elected directors takes place. If no proxy fight is launched or if the proxy fight fails, the incumbent board retains control of the target and can use his authority to block the takeover.

Our first result shows that although both bidders and activists can launch a proxy fight, only activists can effectively use this mechanism to challenge the resistance of incumbent directors and facilitate the takeover. This result is consistent with the evidence that, unlike activists, hostile bidders rarely launch proxy fights. The activists’ relative advantage stems from their higher credibility when campaigning against the incumbents. To understand this observation,
which is a novel aspect of our analysis, note that a proxy fight is not a referendum on the terms of the takeover, but rather a vote on the composition of the board. Once the bidder’s nominees are elected to the board, the bidder, who is the counter-party to the transaction, will be tempted to abuse his control of the target board, exploit its access to private information, divert resources, and low-ball the takeover premium. This is the commitment problem in hostile takeovers. Without a commitment to act in their best interests, target shareholders, who rationally anticipate this opportunistic behavior, are unlikely to elect the bidder’s nominees to the board. By contrast, the activist buys a stake in the target with the expectation that the firm will be acquired. Unlike the bidder, the activist is on the sell-side like other shareholders of the target and has incentives to negotiate the highest takeover premium possible. Therefore, shareholders trust the activist and are more likely elect her nominees to the board, even without a firm commitment to act in their best interests. With the support of target shareholders, the activist can disentrench the incumbent board and help the bidder to complete the acquisition at a fair price. This is the added value of activist investors to the market for corporate control.

Importantly, our argument does not require bidders to fully expropriate target shareholders, as it does not require activists to be perfectly aligned with them. In practice, there are various mechanisms that can partially alleviate the bidder’s commitment problem (e.g., litigation, reputation, and competition), and various conflicts that can emerge between the activist and shareholders of the target (e.g., short-termism, extraction of private benefits, and side-payments).\(^7\) Our key observation is in relative terms: The conflict of interests between the bidder and target shareholders is stronger than the conflict they might have with the activist. The above mechanisms and frictions might shrink this wedge, but since the bidder is the counter party to the transaction and the activist is not, the wedge will ultimately remain significant. This is our explanation for the fact that proxy fights are frequently used by activists investors, but almost never by bidders.

The unique ability of activists to relax the opposition of incumbents to takeovers crucially depends on the belief of target shareholders that the activist is on their side of the negotiating table. This observation has two implications. First, collaborations between activist investors and bidders are likely to fail, as they raise concerns that the activist is in fact on the buy-side of the transaction. As an example, in Section 3.1 we discuss the failed acquisition attempt of Allergan by Valeant and Pershing Square in 2014. More generally, our analysis suggests that the resistance of incumbents to takeovers can be overcome only if the capacity to disentrench

\(^7\)See Section 3.1.1 for a detailed discussion.
the target board is separated from the capacity to increase value through acquisitions.\footnote{Consistent with this argument, Boyson et al. (2016) find that takeover bids made by activist hedge funds result in a significantly lower probability of success relative to bids made by a third party when an activist is present.} Second, in many cases, institutional investors who hold diversified portfolios, e.g., mutual funds, own stakes both in both the target and the acquirer (Matvos and Ostrovsky (2008) and Harford et al. (2011)). Since these investors are both on the sell-side and the buy-side of the transaction, they have less credibility than an activist who is purely on the sell-side. Our analysis suggests that these diversified investors are unlikely to be effective in exercising corporate control activism even if they own large stakes in the target and have the governance expertise that is needed to run a proxy fight.

In order to study the ex-ante implications of interventions by activist investors on the M&A market, we augment the model with an initial stage in which the activist trades with a market maker à la Kyle (1985) and decides based on her private information whether to become a shareholder of the target. After trading, the activist’s ownership in the target becomes public (e.g., by filing schedule 13D). Our model therefore captures situations in which activist investors solicit bids once they invest in companies they believe are good candidates for a takeover. Based on this information, the bidder, who is uncertain about the synergetic value of the acquisition, decides whether to perform due diligence and start takeover negotiations with the target board as described above, or walk away.

Our second set of results highlights the complementarity between shareholder activism and takeovers. Activists clearly benefit from the possibility that companies in which they invest will become a takeover target. Interestingly, however, we identify two channels through which the presence of an activist as a shareholder of the target increases the incentives of bidders to perform due diligence and start takeover negotiations. Since performing due diligence is costly, bidders will do so only if they believe that the target is available for sale and the expected synergy from the acquisition is high. Under the first channel, which we name as \textit{governance solicitation}, activists leverage their advantage in relaxing the opposition of incumbents to takeovers and solicit offers by reassuring bidders that they will face a weaker opposition to the takeover, if the offer is fair. Under the second channel, which we name as \textit{information solicitation}, activists use their private information about the quality of the firm to signal bidders that the expected synergy from the acquisition of the target is high. We identify the conditions under which each of these channels exists in equilibrium.
The complementarity between shareholder activism and takeovers has several implications. First, a takeover is more likely when the target has an activist as a shareholder. Second, activist investors not only facilitate takeovers once the offer is on the table, but they can also increase the likelihood that a company becomes a takeover target in the first place. Therefore, activists affect corporate control outcomes even if ex-post their threat of running a proxy fight is not credible. Third, small regulatory changes, such as easing the access of shareholders to the ballot or modifying the rules that govern the filing of 13D schedules, have an amplified effect on the aggregate volume of M&A. Finally, policies and regulations that exclusively undermine shareholder activism, such as the legalization of two-tier “anti-activism” poison pills, might adversely affect M&A even if “standard pills” that prevent unwanted takeovers are already prevalent.\(^9\)

In our model, activists invest either because they believe the company is likely to become a takeover target (“selection effect”) or because they can facilitate its takeover (“treatment effect”), either through the governance or the information solicitation channel. We provide necessary and sufficient conditions under which the treatment effect exists in equilibrium. We show that the model’s comparative statics is sensitive to the existence of the treatment effect, and to the specific channel through which it operates. This feature can be used to create identification strategies for empirical research. For example, if only the selection effect is in play, the volume of M&A decreases with the severity of the agency problems in target firms. This is intuitive, as with more private benefits of control the incumbents are more likely to resist takeover bids. However, this relationship can reverse when the treatment effect is in play. In this case, more resistance of incumbents to takeovers can result in a higher volume of M&A. Intuitively, the resistance to takeovers provides activist investors with more opportunities to profit from their ability to put firms into play. Consequently, bidders are more likely to start takeover negotiations and the volume of M&A increases. Therefore, the treatment effect can be identified by a positive relationship between the severity of agency problems in the cross section of target firms and the volume of M&A.

We consider several extensions of the baseline model. First, in management buyouts the incumbents may be too motivated to sell the firm, even if the deal compromises shareholder value. In those cases, activist investors will challenge the deal by using their influence on

\(^9\)In 2014, the Delaware court allowed Sotheby’s to keep a unique two-tier poison pill that was purposely meant to block the activist hedge fund Third Point from increasing its ownership in Sotheby’s above 10%. See THIRD POINT LLC v. Ruprecht, Del: Court of Chancery 2014.
target shareholders to either block the transaction or “force” the bidder to sweeten the bid. In other words, the activists compete away the rents of bidders from takeovers. Second, activist investors may also have the expertise to propose and execute operational, financial, and governance related policies that increase the standalone value of the target. By providing a viable alternative to the takeover, the activist can force the bidder to pay a higher takeover premium, and hence, the activist has stronger incentives to run a proxy fight. We show that this effect increases (decreases) the probability of a takeover by a third party if the added value of the activist’s proposal is relatively small (large). Moreover, since activists can increase the standalone value of the target even if its ownership structure does not change, we show that activists as bidders are more resilient than third party bidders to the commitment problem in takeovers. Third, we consider scenarios in which the target board cannot fully block the takeover and prevent the bidder from making a tender offer directly to shareholders. We show that there is substitution between the ability of bidders to bypass the target board through tender offers and the ability and need of activists to unseat the board through proxy fights. Finally, we extend the model to situations in which the incumbent has private information about the standalone value of the target. With private information, the incumbent justifies its resistance to the takeover by claiming that the fundamental value of the target under his control is higher than the proposed takeover offer, even if the offer presents a significant premium to unaffected stock price. In equilibrium, this claim is not always credible. The existence of private information creates adverse selection and reduces the bidder’s credibility even further. However, in spite of this adverse selection, activist investors remain influential and can successfully relax incumbents’ resistance to takeovers by launching and winning proxy fights.

The paper is organized as follows. The rest of this section highlights the contribution to the literature. Section 2 presents the setup of the baseline model, and Section 3 provides the core analysis. Section 4 offers several extensions to the baseline model. Section 5 concludes. Appendices A, B, and C give all proofs and results not in the main text.

Related Literature

Our paper connects the literature on blockholders and shareholder activism (for a survey, see Edmans (2014)) with the literature on takeovers (for a survey, see Becht et al. (2003)). Unlike models where the bidder is also a blockholder of the target prior to the takeover (e.g., Shleifer
and Vishny (1986), Hirshleifer and Titman (1990), Kyle and Vila (1991), Burkart (1995), Maug (1998), Singh (1998), and Bulow et al. (1999)), here the activist, who is a shareholder of the target, can pressure the incumbent board to accept a takeover offer, but she cannot or does not have incentives to acquire the target herself. In fact, our analysis, which identifies the commitment problem in hostile takeovers, emphasizes the benefit from separating the capacity to disentrench boards from the capacity to increase firm value through acquisitions.

Several papers have focused on the interaction between bidders and large shareholders of the target company. Cornelli and Li (2002) study a model in which arbitrageurs accumulate large stakes in the target and mitigate the free-rider problem of Grossman and Hart (1980) by tendering their shares to the bidder. Gomes (2012) studies a dynamic model of tender offers in which the arbitrageurs, by holding blocks of shares, force the bidder to make a high preemptive bid to counter a credible hold-out. Burkart et al. (2000) develop a model in which the bidder chooses between a privately negotiated block transfer with the target’s leading minority shareholder and a public tender offer, and show that the mode of transaction matters. In a contemporaneous work by Burkart and Lee (2015), an activist shareholder of the target can relax the free-rider problem in tender offers by directly negotiating an acquisition agreement with the bidder. Different from these studies, we abstract away from the free-rider problem in tender offers. Importantly, we allow the incumbent board to veto any offer made directly to shareholders, for example, by issuing a poison pill, and focus the analysis on the agency conflicts between the target board and its shareholders.10 We show that activist investors have an advantage relative to bidders in disentrenching corporate boards, a feature which gives rise to complementarity between shareholder activism and takeovers.

Various aspects of proxy fights within and outside the context of takeovers have been analyzed in the literature (e.g., Shleifer and Vishny (1986), Harris and Raviv (1988), Bhat-tacharya (1997), Maug (1999), Yilmaz (1999), Bebchuk and Hart (2001), and Gilson and Schwartz (2001)). In none of these papers, however, can an activist investor who is not the bidder launch a proxy fight to replace the incumbent directors of the target. Here, both the bidder and the activist can challenge the board. Our observation that activist investors use proxy fights more effectively than bidders to relax the opposition of incumbents to takeovers is a novel aspect of our analysis.

10 Models in which the target board can resist a takeover offer have also been studied by Bagnoli et al. (1989), Baron (1983), Berkovitch and Khanna (1990), Hirshleifer and Titman (1990), Harris and Raviv (1988), and Ofer and Thakor (1987).
2 Setup

Consider an economy with a bidder, an activist investor, and one public firm, the target. The standalone value of the target is \( q > 0 \), which is common knowledge. In Section 4.4 we analyze an extension of the model in which \( q \) is uncertain and privately observed by whoever controls the target board. Initially, the target is owned by passive shareholders (institutional or retail) and run by its board of directors. The bidder and the activist do not own any shares in the target. We normalize the number of shares to one. Each share carries one vote. According to its governance rules, a successful takeover requires at least half of its voting rights. All agents are risk-neutral.

The incumbent board has private benefits of control (e.g., excessive salaries, perquisites, investment in ‘pet’ projects, access to private information, pleasure of command, prestige, or publicity), which are lost if the firm is acquired or if shareholders elect a new board. We do not distinguish between the manager and other board members, and treat the board as a monolithic entity. Consistent with Jenter and Lewellen (2015), we assume that compensation contracts cannot fully align the incentives of the board. We denote the board’s private benefits by \( B > 0 \), and its equity ownership in the target by \( \alpha_{\text{board}} \geq 0 \). Both are common knowledge.

For the purpose of our analysis, the key variable is the board’s private benefits per share, given by \( b = B / \alpha_{\text{board}} > 0 \). Indeed, from the incumbent board’s perspective, the firm’s standalone value is \( q + b \) per share, where smaller equity ownership implies higher \( b \).

The value that can be created from the acquisition of the target is initially unknown.\(^{11}\) Let \( \omega \in \{0, 1\} \) be a random variable with a common prior \( \Pr[\omega = 1] = \mu \in (0, 1) \), that indicates whether the firm is a viable target, and denote by \( \Delta \) the added value net of any transaction costs that is created if the bidder acquires the target. If \( \omega = 0 \) then firm is not a viable target and \( \Pr[\Delta \leq 0|\omega = 0] = 1 \). If \( \omega = 1 \) then the acquisition might create value, that is, \( \Pr[\Delta > 0|\omega = 1] > 0 \). The probability density function of \( \Delta \) conditional on \( \omega = 1 \) is given by \( f \) and its cumulative distribution function is given by \( F \). Both are continuous and have full support over the real line. If the bidder is a strategic acquirer (e.g., a corporation in a related industry) then \( \Delta \) is the net operational or financial synergy with the target, and if the bidder is a financial acquirer (e.g., a private equity firm) then \( \Delta \) is the net operational improvement that arises from a going private transaction or the net synergy with one of its portfolio companies. Variable \( \Delta \) can also include the bidder’s private benefits from acquiring the target. We assume

\(^{11}\)The focus of the analysis is on the sale of the entire firm, but it can be applied to divestitures or spinoffs.
that $E[\Delta|\omega = 1] \leq 0$. Intuitively, finding a corporate asset with which the bidder can create synergies is hard, and even if $\omega = 1$, the acquisition can fail and waste corporate resources such as management’s attention and advisors fees. Indeed, the integration of companies often distracts employees, increases uncertainty, and requires additional compliance with regulation, all of which can be detrimental to firm value. This assumption also guarantees that the bidder will not attempt to acquire the target without performing additional due-diligence, as we specify below.

The bidder and the activist are endowed with private information about $\omega$. Specifically, the bidder receives a private signal $y_B \in \{0, 1\}$ where

$$\Pr[y_B = 1|\omega] = \begin{cases} 1 & \text{if } \omega = 1 \\ 1 - \phi_B & \text{if } \omega = 0, \end{cases} \quad (1)$$

and $\phi_B \in [0, 1]$ is the signal’s precision. If $y_B = 0$ the bidder infers that $\omega = 0$, and if $y_B = 1$ the bidder updates upward his prior that $\omega = 1$. Similarly, the activist receives a private signal $y_A \in \{0, 1\}$ with the same structure as $y_B$ with the sole difference that the precision is given by $\phi_A \in [0, 1]$. We assume that $y_A$ and $y_B$ are independent conditional on $\omega = 0$. Thus, if $\phi_B < 1$ and $\phi_A > 0$ then the activist has private information about $\Delta$ that is incremental to the bidder’s information.

Unlike the bidder, the activist cannot add value through acquisition to any firm, including the target. Therefore, the activist has no incentives to make a takeover bid. Alternatively, the activist does not have enough capital to make a takeover bid. Consistent with Greenwood and Schor (2009) and Becht et al. (2015), who show that the positive abnormal returns around 13D filings by activist investors stem mostly from events in which the target is eventually acquired, we also assume that the activist cannot affect any of the firm’s standalone value. We relax this assumption in Section 4.2, where among other things, we show that activists are more resilient than bidders to the aforementioned commitment problem even if activists were allowed to make takeover bids.

Figure 1 depicts the timeline of the model, which is described in detail below. The first phase endogenizes the activist’s decision to become a shareholder of the target and bidder’s decision to perform due diligence of the target. The second phase includes the dynamic bargaining between the bidder and the target board, where the identity of the target board is endogenized.
by an interim proxy fight stage.

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**Figure 1 - Timeline**

### I. Activist’s position building and bidder’s due-diligence

At the outset, the activist privately observes signal $y_A$ and her reservation value $r$, where $r$ is independent of all other random variables, drawn from a continuous cumulative distribution $H(\cdot)$ with support $[0, \infty)$, and probability density function $h(\cdot)$ where $h(0) = 0$.\(^{12}\) Given $y_A$ and $r$, the activist submits an order to buy $\alpha \geq 0$ shares of the target. Short sales are not allowed. The activist trades without knowing the bidder’s intentions to make a takeover offer to the target. In Section 4.1.1, we discuss scenarios in which the activist trades after the negotiations between the bidder and the target become public. The activist trades with a risk-neutral and competitive market maker, who sets the share price $p$ equal to the expected value of the target given the available information, which includes the total order flows for the firm. The order flows which are denoted by $z \geq 0$, are either generated by the activist or by liquidity traders. The market maker cannot distinguish between the two. With probability $\frac{1}{2}$ liquidity traders submit an order to buy $L \in (0, \frac{1}{2})$ shares, and with probability $\frac{1}{2}$ they do not trade. We assume that purchasing $L$ shares does not trigger a poison pill if such exists. Moreover, we assume that the activist cannot buy more than $\overline{\alpha} \in (L, 2L)$ shares of the target, either because of wealth constraints, or the concern of triggering a poison pill.

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\(^{12}\)The assumption $h(0) = 0$ can be relaxed if instead we assume that when the investor is indifferent between investing and not investing, she chooses not to invest.
Activist investors have incentives to solicit bids once they invest in companies that they believe are good candidates for a takeover. Solicitation can involve meeting with potential bidders or announcing their intent to pressure management to sell the firm. To capture this possibility, we assume that after trading, the activist’s ownership in the target becomes public (e.g., by filing schedule 13D), and in particular, it is observed by the bidder. Based on this information, the bidder decides whether to perform extensive due diligence and start the takeover negotiations with the target board. Specifically, the bidder can learn the exact value of $\Delta$ if he incurs the learning cost $c$, which is drawn from a continuous cumulative distribution $G$, with full support on $[0, \infty)$. We assume that $c$ is independent of all other random variables, and becomes known to the bidder only after observing the position of the activist in the target.\(^{13}\)

II. Takeover negotiations and proxy fight:

Based on his information, the bidder decides whether to start negotiating an acquisition agreement of the target. The bidder negotiates directly with the incumbent board. This assumption reflects the ability of the board to block any attempt of the bidder to bypass the board and make a tender offer directly to target shareholders.\(^{14}\) For simplicity, and to focus the analysis on agency conflicts as the key friction, we abstract from information asymmetries about $\Delta$. Specifically, we assume that $\Delta$ becomes public if and only if the bidder conducted due diligence and started the takeover negotiations.\(^{15}\)

The parties negotiate a cash offer for 100% of the target shares. As depicted by Figure 2, there are two rounds of negotiations, indexed by $j \in \{I, II\}$, which are separated by a proxy fight stage. In each round, the proposer is decided randomly and independently from the other round. With probability $s \in (0, 1)$ the proposer is the target board, and with probability $1 - s$ the proposer is the bidder. The proposer makes a take-it-or-leave-it offer to the other party. Parameter $s$ can be interpreted as the bargaining power of the target firm.\(^{16}\) We denote the price per share paid by the bidder under an acquisition agreement that is reached in round $j$

\(^{13}\)The assumptions on the bidder’s due diligence technology are made for simplicity. The main results continue to hold if instead the cost is $c(\lambda)$, where $c', c'' > 0$ and $\lambda$ is the probability the bidder learns $\Delta$.

\(^{14}\)We abstract from the free-rider problem in tender offers in the sense that the incumbent board cannot benefit from the implicit bargaining power that arises from the free-rider problem.

\(^{15}\)Generally, information asymmetries about $\Delta$ at the negotiations phase create adverse selection that could undermine both the bidder’s and the activist’s credibility when campaigning against the incumbents. Yet, since activists are on the sell-side while bidders are on the buy-side, activists are likely to have higher credibility even with information asymmetries, and hence, a relative advantage in relaxing the resistance of incumbent to takeovers.

\(^{16}\)The bargaining protocol can be microfounded using Rubinstein’s (1982) model of alternating offers.
by $\pi_j$. If an agreement is reached, then it must be brought to a vote of the target shareholders and receive approval by a majority of them. We assume that target shareholders believe that their individual decisions cannot change the outcome of the vote, and at the voting stage they play undominated strategies. If the agreement is approved by shareholders, each shareholder, whether or not he voted for the acquisition, receives $\pi_I$ for each share he owns, and the bidder gets $q + \Delta - \pi_I$.

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**Figure 2 - Takeover negotiations and proxy fight phase**

If no agreement is reached at the first round, or if shareholders vote down a proposed agreement, the bidder and the activist decide simultaneously whether to run a proxy fight to replace the incumbent board.\(^{17}\) The ability (or incentives) to run a proxy fight is a key feature that distinguishes the activist from other passive investors. If a proxy fight is initiated, the challenger incurs a non-reimbursable private cost $\kappa > 0$, which captures administrative costs as well as the effort, time, and money that are needed in order to recruit nominees, coordinate with other shareholders, and campaign against the incumbent. For example, $\kappa$ decreases with

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\(^{17}\)We implicitly assume that the majority of directors stand for reelection. In 2013, only 11% of the S&P 500 companies had a classified board, down from 57% in 2003 (see sharkrepellent.net: “Governance Activists Set Their Sights on Netflix’s Annual Meeting” and “2003 Year End Review”). Taking full control of a staggered board requires winning two director elections, which can be prohibitively costly (e.g., Bebchuk et al. (2002)). Alternatively, we assume that winning a short slate proxy fight is sufficient to change the dynamic in the board and the ability of the incumbents to protect their private benefits of control.
the fraction of the firm that is held by institutional investors, or the governance expertise of the challenger. Target shareholders then decide whether to vote for the incumbent board or for one of the rival teams. Shareholders play undominated strategies when they elect directors, and the team that receives the largest number of votes is elected and takes control of the target board.

Winning control of the target board has two implications for the rival team, whichever it is. First, it gives the rival the right to negotiate on behalf of the target shareholders an acquisition agreement with the bidder in the second round. That is, the newly elected directors can redeem the poison pill, if such exists, and resume negotiations.\footnote{Provisions that make pills nonredeemable are illegal in most states, including New York and Delaware.} Second, the rival takes control of the operations of the target, and among other things, it can divert corporate resources as private benefits if the firm remains independent, for example, by exploiting the privileged access as a board member to the target’s proprietary information or through self-dealing transactions.\footnote{See Atanasov et al. (2014) for a discussion on the various forms of tunneling, and Atanasov et al. (2010), Bates et al. (2006), and Gordon et al. (2004) for evidence on tunneling in the U.S.}

We assume that the amount that can be diverted is limited and arbitrarily small. This assumption guarantees that if shareholders are indifferent between electing the rival (the bidder or the activist) and retaining the incumbent, they will choose the latter. Importantly, both the bidder and the activist cannot commit to act in the best interests of target shareholders once they obtain control of the board. Under this assumption, the newly elected directors maximize the value of the party with which they are affiliated, even if it conflicts with maximizing target shareholder value. We discuss this assumption in Section 3.1.1.

Once the proxy fight stage ends, a second round of negotiations between the bidder and the target board (which may now be populated with the newly elected directors) takes place. The second round has the same protocol as the first round, and it is followed by a shareholder vote if an agreement is reached. If no agreement is reached, or if shareholders reject the deal, the target remains independent. If the firm remains independent, its standalone value is realized.

\section{Analysis}

We consider the set of Perfect Bayesian Equilibria in pure strategies and solve the game backward.
3.1 Takeover negotiations and proxy fights

We start by characterizing the second round of negotiations.

Lemma 1 In the second round of negotiations, the target is acquired by the bidder unless the incumbent board retains control and $\Delta < b$. The expected shareholder value conditional on $\Delta$ is

$$
\Pi_{SH}(\Delta) = \begin{cases} 
q + 1_{\{b \leq \Delta\}} \cdot [s\Delta + (1 - s)b] & \text{if the incumbent board retains control}, \\
q + s\Delta & \text{if the activist controls the board}, \\
q & \text{if the bidder controls the board}.
\end{cases}
$$

Several observations follow from Lemma 1. First, if reelected, the incumbent board can block the deal and consume his private benefits of control. Therefore, he would accept a takeover offer if and only if the premium is higher than $b$. If $b \leq \Delta$, the bidder can afford to pay a takeover premium of $b$. In this case, the entrenchment of the incumbent benefits target shareholders (at least ex-post) since it forces the bidder to offer a higher takeover premium without endangering the deal. However, if $\Delta < b$, the bidder would rather walk away from the negotiations. In this case, the entrenchment of the incumbent board and its sizeable private benefits of control (per share) result with an inefficient outcome which is at the core of our analysis: a value-increasing takeover is rejected.\(^{20}\)

Second, if the activist is elected to the board, the activist would negotiate a “fair” deal in which the bidder pays an expected takeover premium of $s\Delta$. To see why, first note that the bidder will not offer less than $q$ for the target. Indeed, both the activist and target shareholders would reject offers lower than the perceived standalone value of the target, $q$. On the other hand, since $\alpha \geq 0$, the activist has incentives to maximize the value of her holdings, and therefore, whenever the activist is the proposer she would ask for $q + \Delta$, the highest price the bidder would agree to pay for the target.

Third, if the bidder wins the proxy fight then he obtains the authority to negotiate on behalf of the target shareholders. That is, the bidder is sitting on both sides of the negotiating table. Since the bidder has inherent incentives to acquire the target for the lowest price possible, he

\(^{20}\)Since $b = B/\alpha_{\text{board}}$, cases where $B < \Delta < b$ can be quite common: even though the total private benefits of control of the incumbent are smaller than the total expected synergy, no deal can be cut between the incumbent and the bidder since the former does not fully internalize the benefit from a higher takeover premium, e.g., when the incumbent’s equity ownership is small.
will take advantage of his power to offer target shareholders the lowest price they would accept, which is $q$. This is the bidder’s commitment problem in hostile takeovers.

**Lemma 2** Suppose the first round of negotiations fails. Then:

(i) The bidder never runs a proxy fight.

(ii) If the activist owns $\alpha$ shares of the target, the activist runs a proxy fight if and only if

$$\frac{\kappa/s}{\alpha} \leq \Delta < b.$$  \hspace{1cm} (3)

Whenever the activist runs a proxy fight, she wins.

Lemma 2 establishes our result that although both bidders and activists can launch a proxy fight, only activists can effectively use this mechanism to challenge the resistance of incumbent directors and facilitate the takeover. According to part (i), the bidder does not run a proxy fight to replace the target board in any equilibrium of the subgame. This result holds regardless of the gains from the takeover, $\Delta$, the cost of running a proxy fight, $\kappa$, whether or not the activist is also running a proxy fight, and the size of the incumbent board’s private benefits of control, $b$. The reason is the following. As Lemma 1 suggests, because of the bidder’s commitment problem, target shareholders are always worse off if they elect the bidder. Indeed, once elected, the bidder will be tempted to divert corporate resources and offer shareholders the lowest price possible. With rational expectations, shareholders would not elect the bidder’s nominees to the board. Since running a proxy fight is both costly and ineffectual, the bidder will not run a proxy fight. Note that this result holds even if the bidder had a toehold in the target, as a toehold does not change the incentives of the bidder to low-ball the takeover premium.

Consider part (ii) of Lemma 2. According to Lemma 1, if the activist controls the target board, she is expected to negotiate a takeover premium of $s\Delta$ in the second round. By contrast, if the incumbent board retains control and $b \leq \Delta$, shareholder expect the negotiated takeover premium to be $s\Delta + (1 - s)b$. Therefore, shareholders reelect the incumbent. However, if $b > \Delta$ then shareholders expect the incumbent to block the takeover if he is reelected, and therefore, they elect the activist if she decides to run a proxy fight. Notice that unlike the bidder the activist has incentives to obtain the highest takeover premium when negotiating on behalf of the target, and therefore, shareholders elect the activist even if similar to the bidder she is tempted to divert corporate resources in the event that the target remains
independent. As we discuss below, being on the sell-side gives the activist an advantage relative
to the bidder when campaigning against the incumbent.

The activist does not necessarily start a proxy fight even if she expects to win one. If
the activist does not challenge the incumbent, the target remains independent and the value
of her stake remains $\alpha q$. However, if the activist runs a proxy fight, the value of her stake
increases to $\alpha (q + s\Delta)$. The activist runs a proxy fight if the resulted increase in value is
higher than the cost of running a proxy fight, which holds if and only if $s \frac{\kappa}{\alpha} \leq \Delta$. As expected,
the activist is more likely to run a proxy fight when the target’s bargaining power, $s$, is strong,
the number of shares owned by the activist, $\alpha$, is large, and the cost of running a proxy fight,
$\kappa$, is small. Condition (3) is the intersection of the activist’s incentives to run a proxy fight
and the shareholders’ incentives to support her in the challenge.

The next result summarizes the takeover negotiations and proxy fight phase and shows that
the expected shareholder value (weakly) increases with the number of shares the activist holds
in the target.

**Proposition 1** Suppose the activist owns $\alpha$ shares of that target and the bidder conducted due
diligence. Then, the unconditional shareholder value is $q + v(\alpha)$, where $v(\cdot)$ is an increasing
function given by

$$v(\alpha) = \int_{b}^{\infty} [s\Delta + (1 - s)b] dF(\Delta) + \int_{\min\{b, \frac{s}{\alpha}\}}^{b} s\Delta dF(\Delta).$$

The expected surplus from the takeover conditional on due diligence is

$$w(\alpha) = \int_{\min\{b, \frac{s}{\alpha}\}}^{\infty} \Delta dF(\Delta).$$

Since on average a takeover does not create value, if the bidder does not perform due dili-
gence, he does not approach the target with a takeover offer and the firm remains independent.
If the bidder performs due diligence there are three cases to consider. First, if $b \leq \Delta$ then
whether or not the activist is a shareholder of the target, the incumbent board reaches an
agreement in which the bidder pays $q + s\Delta + (1 - s)b$ per share and takes over the target after
the first round of negotiations. This explains the first term in (4). Second, if $\kappa \leq \Delta < b$
and the activist is a shareholder of the target then all parties involved understand that if no
agreement is reached in the first round, the activist will launch a proxy fight to replace the
incumbent, win the support of shareholders, and then negotiate on behalf of the target an agreement in which the bidder pays on average $q + s\Delta$ per share. In this region, the activist’s threat of running a proxy fight is credible. Therefore, any first round offer below $q + s\Delta$ will be rejected by shareholders, and any offer above $q + s\Delta$ will be rejected by the bidder. The incumbent board understands that the takeover is inevitable, and he will accept any offer higher than $q + s\Delta$ in order to avoid the adverse consequences of losing the proxy fight (e.g., embarrassment or the loss of reputation). In this case, the bidder pays $q + s\Delta$ and takes over the target after the first round of negotiations. This explains the second term in (4). Last, in all other cases, the incumbent board’s entrenchment is high ($\Delta < b$) but the threat of a proxy fight is not credible ($b \leq \frac{\sigma/s}{\alpha}$). Therefore, the incumbent retains control of the board, maintains his resistance, and successfully blocks the takeover.

### 3.1.1 Discussion

The contrast between parts (i) and (ii) of Lemma 2 emphasizes that even though the bidder and the activist have the same cost of running a proxy fight and the same tendency to divert corporate resources once elected, only the activist can effectively use proxy fights to relax the opposition of the incumbent board to the takeover. The lack of trust of target shareholders in the bidder’s motives stems from the bidder being the counter party of target shareholders to the transaction. The advantage of the activist in relaxing the opposition of incumbents to takeovers crucially depends on the belief of target shareholders that the activist is indeed on their side of the negotiating table.

**I. Implications of the commitment problem in hostile takeovers:** The observation above has two broad implications. First, the resistance of incumbents to takeovers can be overcome only if the capacity to disentrench the board is separated from the capacity to increase value through acquisitions. Therefore, collaborations between activist investors and bidders are likely to fail. A case in point is the unsolicited bid of Valeant to Allergan in 2014. Valeant teamed up with the hedge fund activist Pershing Square, with the intention that Pershing Square would build a significant toehold in Allergan and then push for its sale to Valeant. The sophisticated maneuver failed. Our analysis suggests that by teaming up with Valeant, Pershing Square lost its unique ability to relax the opposition of Allergan’s board to

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21Proxy fights are always off the equilibrium path; they are effective as threats. In Section 4.4, we analyze an extension of the model in which proxy fights appear on the equilibrium path.
the takeover, since shareholders of Allergan can no longer trust Pershing Square to act in their best interests once elected to the board. Shareholders of Allergan were likely concerned that Pershing Square was trying to advance the goals of Valeant at their expense. Without the trust of shareholders of Allergan, Pershing Square was as ineffective as Valeant in relaxing the opposition of Allergan’s board to the proposed takeover.\footnote{Allergan was eventually acquired by Actavis, however, from the perspective of Valeant, the takeover attempt failed. See “The Flaws in Valeant’s Activist Deal Effort”, New York Times, 11/18/2014.}

Second, large shareholders of the target can play the role of an activist in the context of takeovers only if they are truly on the sell-side of the transactions. Matvos and Ostrovsky (2008) and Harford et al. (2011) find that in many cases large target shareholders also hold large positions in the acquiring firm. With ownership on both sides of the transaction, these institutional investors lack the credibility that pure sell-side investors would have. Since the ability to win a proxy fight crucially depends on the credibility of the challenger, these investors are likely to be ineffective in relaxing the opposition of the board to the takeover. Therefore, our analysis suggests that large institutional investors with diversified portfolios (e.g., Vanguard, Fidelity, State Street, and BlackRock) are unlikely to play an active role in takeovers (at least when the bidder is a public corporation). This result holds even if these investors own large stakes in the target and have sufficient governance expertise.

II. Overcoming the commitment problem in hostile takeovers: Our analysis builds on the assumption that the newly elected directors maximize the value of the party with which they are affiliated rather than the value of target shareholders. The aforementioned advantage of the activist from having higher credibility exists as long as the bidder cannot perfectly and at no cost commit to act in the best interests of target shareholders once elected to the board.

In practice, however, there are several mechanisms and institutions that can potentially alleviate the bidder’s commitment problem, but none of them seems perfect or costless. As was mentioned above, a toehold cannot be a panacea as the bidder’s incentives to low-ball the takeover premium do not change even if he owns shares in the target prior to making a bid. Instead, the bidder might try to recruit independent nominees to represent him on the target board. These nominees, however, may not only charge higher compensation, but may also be vulnerable to side payments from the bidder. Indeed, if the bidder can offer compensation contracts (explicit or implicit) that are unobserved by target shareholders, he will be tempted to incentivize the nominees to maximize his value even it involves sacrificing target shareholder
value.

By contrast, effective investor protection laws and a strong legal environment can help shareholders enforce directors’ fiduciary duties, but litigation and enforcement are costly, uncertain, and limited to verifiable outcomes. Alternatively, serial acquirers or private equity funds, who repeatedly interact in the market for corporate control, might be able to develop reputation for not expropriating target shareholders. However, reputation can be fragile, it depends on the presence of public histories of past outcomes, and sometimes it can create unintended distortions. Competition (if exists) is another mechanism that can limit the bidder’s ability to expropriate target shareholders. In practice, it may be hard to successfully low-ball the takeover premium if a superior competing bid is outstanding (e.g., the Revlon Rule under the Delaware corporate law). Yet, by controlling the target board, the bidder can still exploit his access to the target’s private information and divert resources, thereby deterring competition. Finally, in the U.S., the bidder can run a proxy fight and at the same time make a tender offer that remains pending until after the elections. However, the bidder can amend the terms of the tender offer without restriction, at least as long as any of the conditions to the tender offer remains unsatisfied. Even if the bidder can commit not to revise the tender offer, by doing so, he is exposed to the free-rider problem of Grossman and Hart (1980).

In the Appendix we extend the model to cases where the bidder does not suffer from the aforementioned commitment problem. We show that activists are likely to have stronger incentives than bidders to run proxy fights, perhaps because they have more governance expertise (e.g., understanding the proxy solicitation process) and face lower costs due to their experience in challenging entrenched incumbents of other public companies. Alternatively, activists can help bidders to win proxy fights by exercising their own voting rights and lobbying other shareholders. In this respect, activists play an important governance role in the market for corporate control even if the bidder can commit to act in the best interests of target shareholders.

III. Can target shareholders trust an activist? In the baseline model the activist enjoys higher credibility since similar to other target shareholders she is interested in selling the firm

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23 Since the tender offer is made prior to the proxy fight, it typically has a condition that the offer is valid only if the poison pill is redeemed. Therefore, the newly elected directors can always choose not to redeem the pill, thereby paving the way for the bidder to revise the offer.

24 Bebchuk and Hart (2001) propose amending the existing rules governing mergers to allow acquirers to bring a merger proposal directly to a shareholder vote without the approval of the board of directors. Under these rules, the bidder can effectively commit to a certain acquisition price.
for the highest premium possible. However, our argument does not rely on perfect alignment between the activist and other target shareholders. We only require and argue that the activist has a higher credibility than the bidder, and that she would resist the takeover to a lesser extent than the incumbents would. In Appendix C.2, we show that the main results continue to hold even if the activist is expected to divert a non-trivial amount of corporate resources once elected to the board. Moreover, we show that even if the activist is biased toward selling the firm (e.g., because of short-termism), she will maintain a higher credibility than the bidder. Essentially, the activist still has incentives to maximize the value of her holdings by asking for the highest premium the bidder would agree to pay. While the activist may be willing to accept low offers (because of her bias), target shareholders, who must approve any acquisition agreement, would reject offers below the perceived standalone value of the target.

While a biased activist can remain effective in the context of the market for corporate control, the analysis above rules out the possibility of side-payments. With side-payments, the bidder will generally find it beneficial, if possible, to offer target shareholders proportionally less than it is offered to whoever controls the target board. The bidder can essentially compensate the board (i.e., bribe) for the loss of private benefits of control if such exist, and thereby overcome the resistance to the takeover. Clearly, side-payments are illegal, and they cannot be contracted and formalized.\textsuperscript{25} Therefore, by nature, side-payments are deliberately kept out of sight, and the possibility of misconduct might leave target shareholders suspicious about the motives of their board, even if it is controlled by an activist investor. Nevertheless, we argue that the activist is likely to have a higher credibility than the bidder even if side-payments are possible. Importantly, it is the credibility of the activist relative to the bidder’s, rather than its absolute level, that is at the core of our argument.

Why should target shareholder trust the activist to represent their interests on the board more than they would trust the bidder, when side payments are possible? Generally, offering illegal side-payments requires pushing envelopes underneath the table, explicit communications, or tacit agreements of future favours or transfers, all of which entail the risk of being spotlighted, which can result with destroyed reputation, litigation, and significant penalties or even jail time for all parties involved. When the bidder controls the board, it is often the same person who makes decisions on behalf of the bidder and target shareholders. In this case, no physical transfers or communications have to take place, and so the risk of anyone finding a “smoking

\textsuperscript{25}Otherwise, perhaps as in the example of Valeant and Pershing Square, shareholders are likely to find the activist as untrustworthy as the bidder.
“gun” that can be used in courts as evidence for misconduct is small. However, this risk is much higher when the bidder has to bribe a third party, such as an activist investor, with whom the bidder does necessarily have tight and close relationship.\textsuperscript{26} Since side-payments are riskier when the activist controls the board, they are less expected.\textsuperscript{27} Therefore, target shareholders are likely to be more suspicious about the bidder’s motives than the activist’ motives. As in the baseline model, although for a different reason, the bidder has a lower credibility than the activist since he is inherently the counter party of target shareholders.

3.2 Activist’s position building and bidder’s due-diligence

3.2.1 Bidder’s due diligence decision

In this section we analyze the decision of the bidder to perform due diligence. Since the expected synergy from a takeover is non-positive, regardless of the presence of an activist, the bidder never takes over the target without first conducting due diligence and learning about $\Delta$. Suppose the activist owns $\alpha$ shares of the target and the bidder believes that $\omega = 1$ with probability $\hat{\mu}(\alpha)$. Based on Proposition 1, the bidder’s expected profit is the expected surplus generated by the takeover less the expected takeover premium and the cost of due diligence, given by

$$\Pi_B(c, \alpha) = \hat{\mu}(\alpha) \cdot (w(\alpha) - v(\alpha)) - c.$$  \hspace{1cm} (6)

Therefore, the bidder conducts due diligence of the target if and only if $\Pi_B(c, \alpha) \geq 0$. Since $\Pi_B(c, \alpha)$ is a decreasing function of $c$, there is a threshold $c^* \geq 0$ such that the bidder conducts due diligence of the target if and only if $c < c^*$.

The threshold $c^*$ depends on the bidder’s beliefs about $\Delta$, which are determined by his private signal $y_B$ and his inference about $y_A$ from the activist’s position (or lack thereof) in the target. If $y_B = 0$ then the bidder infers that $\omega = 0$, and hence, $\Delta < 0$ with certainty. In this case, $\hat{\mu}(\alpha) = 0$, a due diligence is unnecessary, and the bidder does not acquire the target. Suppose $y_B = 1$. The bidder can use the information about $y_A$ to update his beliefs about $\Delta$.

\textsuperscript{26}Even if the representative of the bidding firm on the target board is not the same person as the CEO of the bidding firm (or of whoever controls it), that person is likely to have a tighter relationship with the bidding firm (e.g., employment) than a third party like an activist investor, and therefore, tacit collusion is more likely.

\textsuperscript{27}A similar argument can be made against the attractiveness of offering side-payments to the incumbent board. However, as long as side-payments impose risks and costs on the parties involved, the incumbent’s resistance to the takeover (resulting from his private benefits) is harder to overcome, in which case, a deal is more likely when the target board is controlled by the activist.
However, this inference depends on the expectations about the circumstances under which the activist purchases $\alpha$ shares of the target, which are described below.

**Lemma 3** In any equilibrium there is $r^* \in [0, \infty)$ such that $\alpha > 0$ if and only if $y_A = 1$ and $r < r^*$. Moreover, if $y_A = 0$ then $\alpha > 0$ is a weakly dominated strategy.

Lemma 3 has two implications. First, if $y_A = 0$ then the activist is certain that the firm is not a viable target (i.e., $\omega = 0$), and expects the takeover to fail. Since the activist cannot make a positive profit on her investment, the only undominated strategy is consuming her reservation value $r > 0$. Therefore, if $\alpha > 0$ then it must be $y_A = 1$ with probability one. Second, since $r$ is unbounded, in any equilibrium $\alpha = 0$ is on the path, and in those cases, the bidder cannot rule out the possibility that $y_A = 1$. Hereafter, we abuse notation and denote by $\hat{\mu}(\alpha, r^*)$ the bidder’s beliefs about $\omega = 1$ conditional on $y_B = 1$ and threshold $r^*$. Applying Bayes laws on Lemma 3 implies,

$$
\hat{\mu}(\alpha, r^*) = \frac{\mu}{\mu + (1 - \mu)(1 - \phi_B)(1 - \phi_A + \frac{\phi_A}{1 - H_{r^*}}1_{\{\alpha = 0\}})}.
$$

(7)

Notice that $\hat{\mu}(\alpha, r^*)$ is weakly increasing in $\alpha$, that is, the bidder becomes more optimistic about the expected synergy from the acquisition of the target. Since $w(\alpha) - v(\alpha)$ is increasing in $\alpha$, the bidder also expects a higher profit from taking over the target when the activist is a shareholder than when she is not. Moreover, since the absence of the activist as a target shareholder is a stronger indication that $y_A = 0$ the larger is $r^*$, $\hat{\mu}(\alpha, r^*)$ is weakly decreasing in $r^*$. The next result follows directly from the above observations and summarizes this section.

**Lemma 4** Consider an equilibrium with threshold $r^* \in [0, \infty)$ as defined in Lemma 3. If the activist owns $\alpha$ shares of the target, then the bidder conducts due diligence if and only if $y_B = 1$ and $c < c^*(\alpha, r^*)$, where

$$
c^*(\alpha, r^*) = \hat{\mu}(\alpha, r^*) \cdot (w(\alpha) - v(\alpha))
$$

(8)

is increasing in $\alpha$ and decreasing in $r^*$.

\[28\text{Since } \alpha > 0 \text{ is a weakly dominated strategy when } y_A = 0, \text{ we restrict the off-equilibrium beliefs of the market maker and the bidder to be such that the activist observes } y_A = 1 \text{ with probability one whenever } \alpha > 0.\]
3.2.2 Stock price and activist’s position building

Consider the activist’s decision to buy shares in the firm and the equilibrium stock price. As the next result shows, if the activist chooses to buy a stake in the target, she buys $L$ shares in order to disguise her trade as a liquidity and uninformed demand.

**Lemma 5** Consider an equilibrium with threshold $r^* \in [0, \infty)$ as defined in Lemma 3. If $y_A = 1$ and $r < r^*$ then $\alpha^* = L$, and otherwise $\alpha^* = 0$. Moreover, the target share price satisfies

$$p(z, r^*) = q + \mu \times \begin{cases} 
\frac{1-H(r^*)}{1-H(r^*) + H(r^*)\phi_A(1-\mu)} \hat{v}(0, r^*) & \text{if } z = 0 \\
(1 - H(r^*))\hat{v}(0, r^*) + H(r^*)\hat{v}(L, r^*) & \text{if } z = L \\
\frac{1}{1-\phi_A(1-\mu)} \hat{v}(L, r^*) & \text{if } z = 2L \text{ and } r^* > 0,
\end{cases} \quad (9)$$

where

$$\hat{v}(\alpha, r^*) = G(c^*(\alpha, r^*))v(\alpha). \quad (10)$$

Generally, the share price of the firm is its standalone value plus the expected takeover premium. If $z = 2L$, the market maker knows for sure that the activist purchased $L$ shares. Since the activist buys shares of target only if $y_A = 1$, the market maker predicts that the bidder will conduct due diligence if and only if $y_B = 1$ and $c \leq c^*(L, r^*)$, and hence the expected takeover premium is $\hat{v}(L, r^*)$. This explains the term behind $p(2L, r^*)$. By contrast, if $z = L$ then the market maker cannot distinguish between events in which the activist bought $L$ shares and events in which the demand comes from liquidity traders. In the former case, which occurs if $r < r^*$, the bidder takes over the target if and only if $y_B = 1$ and $c \leq c^*(L, r^*)$, and the expected takeover premium is $\hat{v}(L, r^*)$. In the latter case, which occurs if $r \geq r^*$, the bidder takes over the target if and only if $y_B = 1$ and $c \leq c^*(0, r^*)$, and the expected takeover premium is $\hat{v}(0, r^*)$. This explains the term behind $p(L, r^*)$. Finally, if $z = 0$ then the market maker knows for sure the activist did not buy shares in the firm either because $y_A = 0$ or $r \geq r^*$, and so, the bidder would take over the target if and only if $y_B = 1$ and $c \leq c^*(0, r^*)$. This explains the term behind $p(0, r^*)$.

Suppose $r^* > 0$ in equilibrium. Conditional on $y_A = 1$, the activist’s expected payoff from buying $L$ shares relative to her outside option is

$$\Pi_A(r, r^*) = L \times \left[ q + \Pr[\omega = 1|y_A = 1] \hat{v}(L, r^*) - \frac{p(L, r^*) + p(2L, r^*)}{2} \right] - r. \quad (11)$$
The informational advantage of the activist stems from knowing whether the firm is likely to be a viable target (as long as \( \phi_A > 0 \)) and the fact she is becoming a target shareholder. The latter matters both because the activist can potentially pressure the target board to accept a future takeover bid (as long as \( v(L) > v(0) \Leftrightarrow \frac{\kappa/s}{L} < b \)), but also because the bidder is likely to react positively to the presence of the activist as a target shareholder. Either way, this informational advantage is valuable if and only if the bidder offers to take over the target (which happens with probability \( G(c^*(L, r^*)) \)) if the activist acquires \( L \) shares and the activist can camouflage her trade as driven by liquidity (which happens with probability \( \frac{1}{2} \)). This explains (11).

The activist buys shares of the target if and only if \( \Pi_A(r, r^*) > 0 \). Since \( \Pi_A(r, r^*) \) is a decreasing function of \( r \), the activist follows a threshold strategy as described by Lemma 3. The threshold \( r^* \) is determined by the activist’s indifference between trading and buying \( L \) shares of the target, and not trading at all.

**Lemma 6** In any equilibrium in which \( r^* > 0 \), it must be \( \Pi_A(r^*, r^*) = 0 \).

### 3.3 Equilibrium

The next result describes the bidder’s and the activist’s strategies in any equilibrium of the game.

**Proposition 2** An equilibrium always exists. In any equilibrium there is \( r^* \in [0, \infty) \) such that if \( y_A = 1 \) and \( r < r^* \) then \( \alpha^* = L \), and otherwise \( \alpha^* = 0 \). The bidder’s conducts due diligence if and only if \( y_B = 1 \) and \( c < c^*(\alpha^*, r^*) \). Moreover,

(i) If \( \phi_A > 0 \) or \( \frac{\kappa/s}{L} < b \) then an equilibrium with \( r^* > 0 \) always exists, and \( r^* \) is given by the solution of \( \Pi_A(r^*, r^*) = 0 \). If in addition \( \phi_A = 0 \) or \( \phi_B = 1 \) then the equilibrium is unique and \( r^* > 0 \).

(ii) If \( \phi_A = 0 \) and \( \frac{\kappa/s}{L} \geq b \) then \( r^* = 0 \) in any equilibrium.

The analysis reveals several channels through which the activist can affect the takeover process. According to Lemma 2 and Lemma 5, if \( b \leq \frac{\kappa/s}{L} \) then the activist’s threat of running a proxy fight is not credible enough in equilibrium to relax the resistance of the incumbent board to the takeover. In this region, the activist affects the takeover process if and only if \( \phi_A > 0 \)
and \( \phi_B < 1 \), that is, she has private information about the viability of the firm as a target that is incremental to the information the bidder is endowed with. Essentially, the presence of the activist as a target shareholder signals the bidder that the firm is likely to be a viable target. Therefore, the bidder is more likely to conduct due diligence when the activist is a shareholder of the target than when she is not. In this respect, the activist uses her private information to solicit a takeover offer from the bidder. We therefore name this region as the “information solicitation region”. On the other hand, if \( b \leq \frac{\kappa/s}{L} \) and either \( \phi_A = 0 \) or \( \phi_B = 1 \), not only that the activist cannot pressure the incumbent board to accept a takeover offer, but the activist has no information that the bidder does not already have. In this region, the activist has no effect on the takeover process. If \( \phi_A = 0 \) then the activist has no informational advantage relative to the market maker, and hence, she would never invest in the target firm, that is, \( r^* = 0 \). Nevertheless, if \( \phi_A > 0 \) and \( \phi_B = 1 \), then the activist has incentives to become a shareholder of the target: Knowing the firm is likely to be a target gives the activist informational advantage that makes the purchase of the target shares a profitable investment. We name this region as the “selection region”, since the activist invests in firms that are likely to be targets, but her investment has no real effect.

If \( b > \frac{\kappa/s}{L} \) and the activist is a shareholder of the target, she can pressure the incumbent board and relax its resistance to the takeover. In those cases, the activist facilitates the takeover process, and the bidder has stronger incentives to conduct due diligence if the activist is a shareholder of the target. This observation implies that the activist affects the takeover process even if ex-post her threat of running a proxy fight is not credible (i.e., \( \Delta < \frac{\kappa/s}{L} \)). If \( \phi_A = 0 \) or \( \phi_B = 1 \), we name this region as the “governance solicitation region”, since the activist invests in firms that are likely to be targets, and by investing in these firms, the activist facilitates the takeover process and the likelihood that an offer is made in the first place. If in addition \( \phi_A > 0 \) and \( \phi_B < 1 \), then the activist’s presence as a stakeholder also informs the bidder that the firm is more likely to be a viable target. Hence, we name this region as the “mixed solicitation region”.

Figure 3 divides the parameter space into four regions as described above. In the next section we derive comparative statics of the model, and show different regions exhibit different
patterns.

<table>
<thead>
<tr>
<th>(\frac{\kappa/s}{L} \geq b)</th>
<th>(\phi_A = 0) or (\phi_B = 1)</th>
<th>(\phi_A &gt; 0) and (\phi_B &lt; 1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selection</td>
<td>Information Solicitation</td>
<td></td>
</tr>
<tr>
<td>(\frac{\kappa/s}{L} &lt; b)</td>
<td>Governance Solicitation</td>
<td>Mixed Solicitation</td>
</tr>
</tbody>
</table>

Figure 3 - Regions of treatment and selection of activists in takeovers

### 3.4 Comparative statics

In this section we study the key comparative statics of the model.\(^{29}\) For this purpose, we denote by \(\delta^*\) the ex-ante probability that the activist becomes a shareholder of the target and by \(\theta^*\) the unconditional probability of a takeover. Then,

\[
\delta^* = H(r^*) \left[1 - (1 - \mu) \phi_A\right]
\]

and

\[
\theta^* = \delta^* \theta^*_A + (1 - \delta^*) \theta^*_N,
\]

where \(\theta^*_A (\theta^*_N)\) is the probability of a takeover conditional on the activist (not) owning shares of the target, and

\[
\theta^*_A = \mu \frac{H(r^*)}{\delta^*} G(c^*(L, r^*)) \int_{\min\{b, \frac{s}{L}\}}^{\infty} dF(\Delta),
\]

\[
\theta^*_N = \mu \frac{1 - H(r^*)}{1 - \delta^*} G(c^*(0, r^*)) \int_{b}^{\infty} dF(\Delta).
\]

We focus the analysis on equilibria in which \(\delta^* > 0\).\(^{30}\) We start with the comparative statics of the selection region and later compare it with the governance and information solicitation regions.

\(\text{\textsuperscript{29}}\) We focus on local comparative statics, when the equilibrium continues to exist in the relevant region (i.e., selection, information solicitation, governance solicitation, or mixed solicitation) upon a small change in the parameter. If the equilibrium is not unique, our comparative statics applies to any stable equilibrium. In the Appendix we show that a stable equilibrium always exists.

\(\text{\textsuperscript{30}}\) If in equilibrium \(\delta^* = 0\) then \(\theta^* = \theta^*_A\), and the comparative statics is the same as in Proposition 3 part (ii).
Consider the selection region, and note that in this region the probability of the takeover is invariant to the activist’s holdings in the target, that is, $\theta_N^* = \theta^* = \theta_A^*$.

**Proposition 3** Suppose the equilibrium is in the selection region, then:

(i) $\delta^*$ is invariant to $\kappa$, increases in $L$ and $\phi_B$, non-monotonic in $\phi_A$, $\mu$, and $b$.

(ii) $\theta^*$ is invariant to $\kappa$, $L$, and $\phi_A$, increases in $\phi_B$ and $\mu$, and decreases in $b$.

In the selection region, the activist has no effect on the takeover process. Nevertheless, if $\phi_A > 0$ the activist will buy shares of the target if the profit from speculating on a takeover is higher than her outside option. Since in this region the activist’s threat of running a proxy fight is not credible, $\delta^*$ is invariant to the cost of running a proxy fight, $\kappa$. The effect of $L$ on $\delta^*$ is positive since higher $L$ allows the activist to buy more shares of the target without revealing her private information. The effect of $\phi_B$ on $\delta^*$ is also positive. If the bidder has more precise information about $\omega$, his decision to acquire the target is more correlated with $\omega$, and the activist’s private signal about $\omega$ would be a better predictor of the possibility of a takeover. Therefore, the activist’s private information would be more valuable and her incentives to buy shares of the target increase. By contrast, the effect of $\phi_A$ on $\delta^*$ is ambiguous. On the one hand, more precise information implies that conditional on receiving signal $y_A = 1$, the activist has more information to speculate on and profit from. However, a more precise signal also implies higher likelihood that the activist gets an indication that firm is not a viable target when that is the case. Since in those cases the activist cannot make a profit, the overall effect on $\delta^*$ is ambiguous.

Since the bidder’s incentives to conduct due diligence are unaffected by the activist’s presence, $\theta^*$ is invariant to parameters that only affect the incentives of the activist to intervene or speculate such as $\kappa$, $L$, and $\phi_A$. On the other hand, $\theta^*$ is increasing in $\phi_B$ and $\mu$. A better informed bidder is more likely to identify the synergy from the takeover of the target, and higher $\mu$ implies that the takeover of target is more likely to create synergies in the first place. Notice that the effect of $\mu$ on $\delta^*$ is ambiguous since as $\mu \to 0, 1$, the public information becomes more precise and the value of the activist’s private information relative to her outside option decreases.

Finally, consider the effect of $b$, the incumbent board’s private benefits of control. Perhaps surprisingly, $\delta^*$ may increase or decrease in $b$. Intuitively, higher $b$ reduces the probability of a takeover, but it increases the premium paid conditional on a takeover taking place. Therefore,
the effect of \( b \) on \( v(\alpha) \), the expected shareholder value, is ambiguous. If \( b \) has a negative effect (that is \( \frac{\partial v(\alpha)}{\partial b} < 0 \)), which is true if \( b \) is relatively large, then as expected \( \delta^* \) would decrease with \( b \). By contrast, in the selection region \( \theta^* \) always decreases in \( b \), not only because the likelihood of reaching an agreement with the incumbent is lower, but also because the bidder expects to pay a higher price for the target and therefore has weaker incentives to conduct due diligence.\(^{31}\)

We now consider the comparative statics in the governance solicitation region. Notice that in all solicitation regions, the bidder’s incentives to conduct due diligence are affected by the activist’s presence: a takeover is more likely when the activist is present as a target shareholders than when she is not, and therefore, \( \theta^*_N < \theta^* < \theta^*_A \).

**Proposition 4** Suppose the equilibrium is in the governance solicitation region, then:

(i) \( \delta^* \) decreases in \( \kappa \), increases in \( L \), and non-monotonic in \( \phi_A, \phi_B, \mu, \) and \( b \).

(ii) \( \theta^*_A \) decreases in \( \kappa \), and increases in \( L, \phi_A, \phi_B, \mu, \) and \( b \).

(iii) If \( \phi_A = 0 \) then:

(a) \( \theta^*_N \) is invariant to \( \kappa \) and \( L \), increases in \( \phi_B \) and \( \mu \), and decreases \( b \).

(b) \( \theta^* \) decreases in \( \kappa \), increases in \( L \), and non-monotonic in \( \phi_B, \mu, \) and \( b \).

(iv) If \( \phi_B = 1 \) then:

(a) \( \theta^*_N \) increases in \( \kappa \), decreases in \( L \) and \( \phi_A \), and non-monotonic in \( \mu \) and \( b \).

(b) \( \theta^* \) decreases in \( \kappa \), increases in \( L \) and \( \phi_A \), and and non-monotonic in \( \mu \) and \( b \).

In the governance solicitation region, the activist’s threat of running a proxy fight is credible. The credibility of this threat decreases with \( \kappa/L \). There are two effects. First, the bidder’s incentives to conduct due diligence decrease since reaching an acquisition agreement with the incumbent board is less likely. Second, the activist’s private information of her being a shareholder of the target has a lower value, which reduces her profits from speculative trades.

\(^{31}\)We do not report the comparative statics with respect to \( s \), the target bargaining power, since its effect is generally ambiguous. Intuitively, higher \( s \) increases the profit of target shareholders from a takeover, and thereby, the activist’s incentives to become a target shareholders. But at the same time, higher \( s \) forces the bidder to pay more for the target and therefore weakens his incentives to conduct due-diligence and acquire the target.
Therefore, the activist has weaker incentives to become a target shareholder (lower $\delta^*$), thereby decreasing $\theta^*$ and $\theta_A^*$. Notice that these two effects feed back on each other, and hence, a small change in $\kappa$ (e.g., a change in regulation that eases the proxy access) can have an amplified effect on $\delta^*$ and $\theta^*$. This logic also implies that polices that undermine shareholder activism but do not affect bidders directly (e.g., two-tier “anti-activism” poison pills) will still have a significant effect on takeovers.

Interestingly, as shown by Figure 4, $\theta^*$ (and also $\delta^*$) can increase with $b$ in the governance solicitation region. All else being equal, higher $b$ is likely to increase the takeover premium paid by the bidder. While the bidder’s incentives to conduct due diligence may decrease, the activist’s incentives to become a target shareholder increase. Not only the activist expects a higher premium when the bidder negotiates the takeover with the incumbent, but her threat of running a proxy fight becomes more credible (the interval $[\kappa/s, b]$ expands). Since the bidder benefits from the activist’s presence, the indirect effect of $b$ on the bidder’s incentives to conduct due diligence can be positive, and the overall probability of a takeover can increase. Therefore, contrary to the common wisdom, the probability of a takeover and the likelihood of an activist campaign can increase with the resistance of the board to the takeover, as such resistance
creates more investment opportunities for the activist.\textsuperscript{32}

Unlike the selection region, in the governance solicitation region $\theta^*$ increases in $\phi_A$ even though in both regions the bidder does not learn from the activist about $\omega$. Intuitively, higher $\phi_A$ gives the activist’s stronger incentives to become a target shareholder if she receives a positive indication that the firm is a viable target (signal $y_A = 1$). Since the target is more likely to be acquired when the activist is a target shareholder than when she is not, the unconditional probability of a takeover increases in $\phi_A$. Similarly, $\theta^*$ may decrease in $\mu$. As in the selection region, $\delta^*$ can decrease in $\mu$, however in the governance solicitation region, this means that the activist is less likely to become a target shareholder and less likely to facilitate the takeover process, which reduces $\theta^*$. Moreover, unlike the selection region, in the governance solicitation region $\theta^*$ may decrease in $\phi_B$, the precision of the bidder’s private information. Intuitively, if the bidder is more informed, it is possible that the increase in the likelihood of a takeover is larger when the activist is absent than when she is present (depending on the shape of $G(\cdot)$, the cdf of the bidder’s due-diligence cost). This effect can increase the average price quoted by the market maker by more than the increase in the benefit from a higher likelihood of takeover when the activist is present, thereby, discouraging the activist’s investment and the consequently the probability of a takeover.

The next result describes the comparative statics in the information solicitation region.

**Proposition 5** Suppose the equilibrium is in the information solicitation region, then:

(i) $\delta^*$ is invariant to $\kappa$, increases in $L$, and non-monotonic in $\phi_A$, $\phi_B$, $\mu$, and $b$.

(ii) $\theta_A^*$ is invariant to $\kappa$ and $L$, increases in $\phi_A$, $\phi_B$, and $\mu$, and decreases in $b$.

(iii) $\theta_N^*$ is invariant to $\kappa$, decreases in $L$ and $\phi_A$, and non-monotonic in $\phi_B$, $\mu$, and $b$.

(iv) $\theta^*$ is invariant to $\kappa$, and non-monotonic in $L$, $\phi_A$, $\phi_B$, $\mu$, and $b$.

In the information solicitation region, the activist’s threat of running a proxy fight is not credible, and hence, $\delta^*$ and $\theta^*$ do not change with parameters that affect the incentives of the activist to intervene, such as $\kappa$. Unlike the governance solicitation region, here the activist can

\textsuperscript{32}In some cases, higher $b$ can increase the bidder’s incentives to conduct due diligence conditional on activist’s presence even if $\delta^*$ is held constant. Intuitively, if $b$ is small, the bidder can reach an agreement even if the activist does not intervene, and the bidder pays a premium of $s\Delta + (1 - s)b$. If $b$ is large, the bidder can reach an agreement only if the activist intervenes, in which case, he pays a lower premium of $s\Delta$. 

31
affect the takeover process by signaling the bidder that the firm is a viable target. Interestingly, as in the governance solicitation region but for different reasons, $\delta^*$ and $\theta^*$ can increase with $b$. As in the selection region, higher $b$ is likely to weaken the incentives of the bidder to conduct due diligence. If the bidder is less likely to make an offer, the activist has fewer incentives to become a shareholder of the target, that is, $r^*$ decreases. However, with a smaller $r^*$, the absence of the activist is a weaker signal that $\omega = 0$. That is, the bidder does not interpret the absence of the activist as a negative signal about the viability of the firm as a target, and therefore, the bidder is more likely to conduct due diligence and acquire the target. In other words, $c^*(0, r^*)$ may increase in $b$. While $c^*(L, r^*)$ may decrease in $b$, the overall effect can be positive. Nevertheless, one can differentiate between the information solicitation and governance solicitation regions by noting that under the former the probability of a takeover conditional on the activist being a shareholder, $\theta^*_A$, decreases in $b$ while in the latter it increases in $b$.

More generally, the effect of the parameters on the bidder’s inference about $\omega$ when the activist is absent, is the key source of ambiguity in the comparative statics in this region (and also the source of multiplicity of equilibria in this region). This ambiguity disappears if, for example, the activist’s outside option is insignificant, that is, $H(\cdot) \approx 1$. In this case, $\theta^*$ increases in $L$, $\phi_A$, $\phi_B$, and $\mu$, and decreases in $b$. For example, $\theta^*$ increases in $\phi_A$ since with more precise private information the activist’s investment is a stronger signal that the firm is a viable target, and this information can encourage the bidder to conduct due diligence and takeover the target.

To conclude, our analysis demonstrates that parameters such as $\kappa$ and $b$, which are the key governance parameters in our model, can have different effect on the takeover dynamic, depending on the channel through which the activist influence the process. These differences can potentially be used in order to tease out from the data which channel is more likely to be in place.

4 Extensions

4.1 Incumbent boards as motivated sellers

In management buyouts or when incumbents are promised large bonuses if the takeover succeeds (Grinstein and Hribar (2004) and Hartzell et al. (2004)), the agency problem between the
incumbents and shareholders flips as the former are perhaps too motivated to sell the firm. If there is a concern that the interests of target shareholders are compromised, activist investors will challenge the deal with the intent of either blocking it or “forcing” the bidder to sweeten the bid (Jiang et al. (2015)).

To stress this point, suppose that unless forced otherwise, the incumbent board would sell the firm for a zero premium. Unlike the incumbent, the activist, if given control, would negotiate the fair price, \( q + s\Delta \). Therefore, target shareholders always elect the activist to the board whenever she runs a proxy fight. As in Section 3, the activist has incentives to run a proxy fight if and only if \( \frac{s}{\alpha} < \Delta \). It follows that the target is always acquired by the bidder when \( \Delta > 0 \): If the activist owns \( \alpha \) shares of the target and \( \frac{s}{\alpha} < \Delta \) then the bidder pays \( q + s\Delta \), and in all other cases the bidder pays \( q \). The analysis of the activist’s position building and the bidder’s due-diligence is similar to Section 3.2, with the exception that \( v(\alpha) \) is replaced by \( \int_{s/\alpha}^{\infty} s\Delta dF(\Delta) \) and \( w(\alpha) \) is replaced by \( \int_{0}^{\infty} \Delta dF(\Delta) \). However, unlike the baseline model, here the presence of the activist can deter the bidder from conducting due-diligence and taking over the target. This can be seen by noting that conditional on \( \omega = 1 \), the expected profit from the takeover is given by \( \int_{0}^{\infty} \Delta dF(\Delta) - \int_{s/\alpha}^{\infty} s\Delta dF(\Delta) \) and it is decreasing in \( \alpha \). Essentially, the activist increases the expected takeover premium that the bidder is required to pay, without increasing the likelihood that the incumbent board agrees to sell the firm. Since the acquisition is less profitable, the bidder has fewer incentives to engage in a costly due diligence when the activist is a target shareholder.

### 4.1.1 Arbitrage activism

Activist investors sometimes react to news on a deal by buying shares of the target with the objective of pressuring its board. In these situations, the activist buys shares after the bidder conducted his due diligence and the takeover bid becomes public. From the activist’s perspective, she does not need speculate on the incentives of the bidder to take over the firm. This effect increases the activist’s incentives to buy shares. On the other hand, the share price already reflects the information that the company is a viable target. This effect attenuates the activist’s incentives to buy shares. Nevertheless, recall that buying shares of the target with the intent of challenging the board is still the activist’s private information. Therefore, the

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\(^{33}\)For example, during the management buyout of Dell in 2013, the pressure of the activist investor Carl Icahn resulted in the increase of the offer price. See businessinsider.com, “Michael Dell Sweetens His $25 Billion Offer; Icahn Vows To Fight On”, 8/3/2013.
activist can make a profit and affect corporate control outcomes even in these situations.

4.2 Activist’s proposals: Increasing the target standalone value

Activist investors may have the expertise to propose and execute operational, financial, and governance related policies that increase the standalone value of the firm. To study how this additional expertise interacts with corporate control activism, we modify the baseline model by assuming that if the firm remains independent and the activist’s proposal is implemented (whether or not the activist controls the target board) then the incumbent board loses his private benefits of control but the target’s standalone value (per share) increases instantly by \( \Delta_A \geq 0 \), where \( \Delta_A \) is a constant. We assume that without the activist, the incumbent board is either unaware or does not have the expertise to implement this proposal. To avoid confusion, we denoted the added value from the takeover by \( B \).

Suppose \( \Delta_A < \min \{ b, \kappa/\alpha \} \). Since \( \Delta_A < b \), the incumbent would not voluntarily implement the activist’s proposal. The activist’s intervention can be interpreted as the removal of inefficiencies caused by the incumbent’s consumption of private benefits. However, since \( \Delta_A < \kappa/\alpha \), the activist does not have enough incentives to run a proxy fight if the sole purpose is implementing the proposal. Nevertheless, in the Appendix we show that with the possibility of selling the firm to the bidder, the analysis in Section 3.1 continues to hold with the exception that the activist’s threat of running a proxy fight is credible if and only if \( \frac{\kappa/\alpha - 1 - s}{s} \Delta_A < \Delta_B < b \), and in this region, the takeover premium is \( s \Delta_B + (1 - s) \Delta_A \). Intuitively, the upside from the takeover increases the incentives of the activist to run a proxy fight. Since the proposal increases the standalone value of the firm once the activist obtains control of the target board, it also increases the takeover premium that the activist can negotiate with the bidder. Similarly, the ability to increase the standalone value of firm increases the credibility of the activist’s threat to run a proxy fight when the incumbent resists selling the firm. In this respect, corporate control activism and non-control activism are complements. Moreover, since the activist relaxes the resistance of the incumbent to the takeover, the bidder has stronger incentives to conduct due diligence when the activist is present than when she is not. In fact, the bidder’s incentives to conduct due diligence can increase with \( \Delta_A \) even conditional on the presence of the activist, if increasing the likelihood of a takeover is first order relative to paying a higher premium once the takeover takes place. That said, if \( \Delta_A \) is sufficiently large, a takeover is less likely when the activist is present than when she is not. In those cases, corporate control
activism and non-control activism are substitutes.

4.2.1 Activists as bidders

If the activist has the ability to increase the standalone value of the target and make a takeover bid, then similar to the bidder in our model she could suffer from a commitment problem as discussed in Section 3.1. However, there is a crucial difference between the bidder and the activist. Unlike the bidder, the activist does not have to acquire more than 50% of the target and take it private in order to create value; she can increase the standalone value of the target even if its ownership structure does not change. Therefore, while the activist may be tempted to low-ball the takeover offer once she gets control of the target board, these attempts are doomed to fail since target shareholders know that if they reject the offer, the activist will inevitably implement the value-increasing proposal in order to maximize the value of her own stake in the target.34 Essentially, unlike the bidder who can add value only through the takeover, the activist cannot commit not to increase value if the takeover offer is rejected by shareholders. Therefore, shareholders would not fear electing the activist to the board, even if the activist has the capacity to acquire. In this respect, activists are more resilient than bidders to the commitment problem in takeovers.

4.3 Limited veto power and tender offers

In this section, we relax the assumption that the target board has the full power to block the deal. Specifically, we assume that if at the end of the second round of negotiations no agreement is reached between whoever controls the target board and the bidder, with probability \( \lambda \in [0, 1] \) the deal is blocked and the target remains independent, but with probability \( 1 - \lambda \) the bidder can make a direct tender offer to target shareholders. For simplicity, we focus on conditional tender offers for all target shares. The baseline model is a special case where \( \lambda = 1 \).

Tender offers exhibit collective action problems such as free-riding: Target shareholders reject offers lower than their perception of the post takeover value of their shares (Grossman and Hart (1980)). We focus attention on cases where \( \Delta > 0 \),35 and assume that the post

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34 We implicitly assume that the activist has enough incentives to implement the value-increasing proposal even if she owns less than 50% of the target. Otherwise, there is no difference between the activist and the bidder in our model.

35 We assume that shareholders cannot be pressured to tender. As a result, as in the baseline model, if \( \Delta < 0 \) the target always remains independent.
takeover value of the minority shares under the bidder’s control is \( g + \varphi \Delta \) where \( \varphi \in [0, 1] \). The term \((1 - \varphi) \Delta\) can be interpreted as either the bidder’s private benefits from the acquisition or the expected dilution of minority shareholders post-takeover under the bidder’s control.

In the Appendix we show that similar to Lemma 2, the bidder never runs a proxy fight, while the activist runs a proxy fight if and only if \( \frac{\eta}{\alpha \lambda} \leq \Delta < b \). That is, the activist is more likely to run a proxy fight when \( \lambda \) is larger. In this respect, there is substitution between the bidder’s ability to bypass the target board through tender offers and the activist’s ability or need to unseat it through proxy fights. Intuitively, if \( \lambda \) is low then the bidder has an alternative mean by which he can overcome the resistance of the board, and hence, the activist has fewer incentives to run a proxy fight in order to facilitate the takeover. Therefore, one would expect activists to play a smaller role in the market for corporate control in jurisdictions in which boards have weaker power to block deals, such as the U.K. or the U.S. in the 1980ths.

### 4.4 Hidden value

Incumbent boards often justify their resistance to takeovers by claiming that the fundamental value of the target under their control is higher than the proposed takeover offer, even if the offer presents a significant premium relative to the unaffected stock price. Essentially, the board would claim that based on its private and superior information the target is undervalued by the market as a standalone firm. In order to study the implications of this information asymmetry on corporate control activism, we analyze in the Appendix an extension of the baseline model in which the standalone value of the target firm is uncertain, given by \( q \in \{ q_L, q_H \} \), and is privately observed by whoever controls its board of directors, including the activist and the bidder if they win a proxy fight. All other assumptions of the baseline model remain unchanged.

We show several results. First, as in the baseline model, the bidder cannot win a proxy fight while the activist can. The existence of private information reduces the bidder’s credibility even further since it creates adverse selection and additional opportunity for the bidder to abuse the power of the target board once it is given to him. The existence of private information, however, has an ambiguous effect on the activist. On the one hand, private information increases the activist’s incentives to run a proxy fight since the activist can extract information rents from the bidder once she gets access to the target’s private information. On the other hand, private information creates adverse selection which decreases the probability of reaching an acquisition agreement with the bidder, and thereby, weakens the activist’s incentives to run a proxy fight.
The latter effect dominates the former if \( q_H - q_L \) is large. Second, as in the baseline model, the threat of a proxy fight can discipline and pressure the incumbent to accept a takeover bid that he would have rejected otherwise. However, unlike the baseline model, a proxy fight can take place on the equilibrium path. For example, if the takeover does not create enough value to overcome both the incumbent’s private benefits from control and the adverse selection, the negotiations in the first round fail, the activist reacts by running a successful proxy fight to replace the incumbent, and once the activist captures the board, she successfully negotiates a deal with the bidder. More generally, a failure to negotiate a deal in the first round can be interpreted as an instance in which the incumbent board claims that the standalone value of the target under his control is higher than the proposed takeover offer. In equilibrium, this claim is not always credible, and an activist investor can react by launching a successful proxy fight.

5 Conclusion

This paper studies the role of activist investors in the market for corporate control. We focus on two key frictions: agency problems in public corporations that result in excessive resistance of incumbents to takeovers, and the costly due diligence of corporate assets with which synergies can be created. Unlike bidders, activists are on the same side of the negotiating table as other shareholders of the target, and hence, enjoy higher credibility when campaigning against the incumbents. Building on this insight, our analysis demonstrates that although both bidders and activists can use similar techniques to challenge corporate boards (i.e., proxy fights), activists are more effective in relaxing their resistance to takeovers.

Our analysis also highlights the complementarity between shareholder activism and takeovers. Activists clearly benefit from the possibility that companies in which they invest will become a takeover target. At the same time, the presence of an activist as a shareholder of the target increases the incentives of bidders to perform due diligence and start takeover negotiations. Not only that activists can solicit takeover bids by leveraging their advantage in disentrenching incumbents to reassure bidders that they will face a weaker opposition to the takeover, but activists can also use their private information about the quality of the target to signal bidders that the expected synergy from the acquisition is high. Overall, the analysis sheds light on the interaction between M&A and shareholder activism and provides a framework to identify the treatment and the selection effects of shareholder activism.
References


[38] Jiang, Wei, Tao Lei, and Danqing Mei, 2015, Influencing control: Jawboning in risk arbitrage, Working paper.


A Proofs of Section 3

Proof of Lemma 1. Generally, there are three scenarios to consider. The scenarios differ with respect to the composition of the target board after the proxy fight stage. Under all scenarios, target shareholders approve the acquisition agreement if it is brought to a shareholder vote if and only if the takeover offer is higher than the standalone value of the firm, \( q \). Moreover, the bidder will not agree to pay more than \( q + \Delta \) for the firm.

In the first scenario, the incumbent board is reelected and retains control of the target. The incumbent board would agree to sell the firm if and only if the bidder offers at least \( q + b \) per share. Therefore, if \( \Delta < b \) no agreement is reached and the target remains independent under the control of the incumbent. If \( \Delta \geq b \) then the incumbent board and the bidder reach an agreement in which the expected takeover premium is \( s\Delta + (1-s)b \): with probability \( 1-s \) the bidder proposes to pay \( q+b \), which is the lowest price that is acceptable by both the incumbent board and the shareholders, and with probability \( s \) the incumbent board propose to receive \( q + \Delta \), which is the highest price that the bidder would agree pay for the firm.

In the second scenario, the activist wins the proxy fight and controls the target board. If no agreement is reached with the bidder, the target remains independent, and the activist’s payoff per share is \( q \), which is the discounted long-term value of the target as a standalone firm. Therefore, the activist would agree to sell the firm if and only if the offer is higher than \( q \). Since \( \Delta > 0 \), the bidder and the activist always reach an acquisition agreement that is also acceptable to target shareholders. With probability \( 1-s \) the bidder offers \( q \), which is the lowest price that is acceptable by both the activist and the shareholders, and with probability \( s \) the activist offers \( q + \Delta \), which is the highest price the bidder would pay for the firm.

In the third scenario, the bidder wins the proxy fight and controls the target board. The argument is given in the main text.

Proof of Proposition 1. We start by proving that if \( b \leq \Delta \) the bidder pays \( q + s\Delta + (1-s)b \) and takes over the target after the first round of negotiations. Suppose \( b \leq \Delta \). Based on Lemma 2, the activist will not run a proxy fight if the first round of negotiations fails. Since \( b \leq \Delta \), all players expect the takeover to consume in the second round of negotiations, where the price is \( q + s\Delta + (1-s)b \). Therefore, in the first round of negotiations, the incumbent board will reject any offer which is lower, and the bidder will reject any offer which is higher. If there are arbitrarily small waiting costs to either the bidder or the incumbent board, the deal will close in the first round.

Second, we prove that if \( \frac{s}{1-s} \leq \Delta < b \) and the activist owns \( \alpha \) shares of the target, the
bidder pays \( q + s\Delta \) and takes over the target after the first round of negotiations. Based on Lemma 2, if the activist owns \( \alpha \) shares of the target and \( \frac{\kappa}{s} \leq \Delta < b \), then shareholders would support the activist at the proxy fight if the first round of negotiations fails. Based on Lemma 1, all players expect that once the activist obtains control of the board, she will reach a sale agreement in which the bidder pays in expectations \( q + s\Delta \) per share. The bidder realizes that any lower offer will be rejected by shareholders, who expect the activist to negotiate a higher offer at the second round. The bidder can afford to pay \( q + s\Delta \). The bidder will not pay more than \( q + s\Delta \), since he always has the option to pay that much in the second round when he negotiates with the activist. The incumbent board understands the bidder’s incentives. The incumbent also realizes that the takeover of the target is inevitable, and he will lose his private benefits of control. However, by accepting the offer \( q + s\Delta \) the board can avoid the costly proxy fight. Therefore, the incumbent and the bidder reach an agreement in the first round where the offer is \( q + s\Delta \), as required.

Last, we prove that in all other cases, the target remains independent under the incumbent board’s control. According to Lemma 2, in all other cases, neither the bidder nor the activist initiate a proxy fight if the first round of negotiations fails. Therefore, the incumbent board retains control. Since in this region \( \Delta < b \), based on Lemma 1, the incumbent board and the bidder will not reach an agreement in the second round of negotiations. Therefore, in the first round of negotiations, the incumbent board will reject any offer lower than \( q + b \), and the bidder will reject any offer higher than \( q + \Delta \). Thus, the parties will not reach an agreement in the first round as well, and the target remains independent.

The proof is completed by noting that (4) is the average of these three cases and is a decreasing function of \( \frac{\kappa}{s} \), which is a decreasing function of \( \alpha \).

**Proof of Lemma 3.** If the activist observes \( y_A = 0 \) then she infers that \( \omega = 0 \), and hence, \( \Delta < 0 \) with certainty. Based on Proposition 1, the probability of a takeover is zero and firm value is \( q \). Since the share price cannot be smaller than \( q \), regardless of the beliefs of the market maker (on or off the equilibrium path), the activist’s expected profit from submitting any order \( \alpha > 0 \) is non-positive. Since the activist’s reservation value is strictly greater than zero, \( \alpha > 0 \) is weakly dominated by \( \alpha = 0 \).

Next, if the activist observes \( y_A = 1 \), then she believes that \( \Pr[\omega = 1] \geq \mu > 0 \). Suppose in equilibrium the activist expects to make a profit of \( \Pi(\alpha) \) if she buys \( \alpha \) shares of the target. Let \( \pi^* = \max_{\alpha \in [0,\pi]} \Pi(\alpha) \). Notice that \( E[\Delta|\omega] \leq 0 \ \forall \omega \) (and also \( E[\Delta|\omega, \Delta > 0] < \infty \)) and \( \pi < \infty \) imply \( \pi^* < \infty \). Since \( \Pi(0) = 0 \), if \( r < \pi^* \) then the activist is better off choosing \( \alpha > 0 \), and hence, \( \alpha^* > 0 \). If \( r \geq \pi^* \) then the activist is better off consuming her reservation value.
Letting $r^* = \pi^*$ and noting that $r$ is unbounded from above completes the proof. ■

**Proof of Lemma 4.** To see that $c^*(\alpha, r^*)$ is decreasing in $r^*$, note that $w(\alpha) - v(\alpha) \geq 0$ is independent of $r^*$ and and $\hat{\mu}(\alpha, r^*)$ weakly increases with $r^*$ (strictly when $\alpha = 0$, $\phi_A > 0$, and $\phi_B < 1$). To see that $c^*(\alpha, r^*)$ is increasing in $\alpha$, note that $\alpha > 0 \Rightarrow \hat{\mu}(\alpha, r^*) > \hat{\mu}(0, r^*)$. Moreover, based on Proposition 1,

$$w(\alpha) - v(\alpha) = (1 - s) \int_b^{\infty} (\Delta - b)dF(\Delta) + (1 - s) \int_b^{\min\{b, \frac{\alpha - x}{\alpha}\}} \Delta dF(\Delta),$$

which is weakly increasing in $\alpha$. ■

**Proof of Lemma 5.** Based Lemma 3, in any equilibrium there is $r^* \in [0, \infty)$ such that $\alpha > 0$ if and only if $y_A = 1$ and $r < r^*$. We first show that in any equilibrium $\alpha^* \in \{0, L\}$ with probability one. Suppose on the contrary there is an equilibrium in which the activist submits $\hat{\alpha} \notin \{0, L\}$ with a positive probability. Recall that $0 < \hat{\alpha} \leq \bar{\alpha} < 2L$. Let $r^*$ be a threshold as defined by Lemma 3. Suppose $y_A = 1$ and $r < r^*$. From the activist’s perspective, the value of the firm is $\Gamma(\hat{\alpha})$ where

$$\Gamma(\alpha) \equiv q + \frac{\mu}{1 - \phi_A(1 - \mu)} G(c^*(\alpha, r^*))v(\alpha),$$

and $\frac{\mu}{1 - \phi_A(1 - \mu)} = \Pr[\omega = 1 \land y_B = 1 | y_A = 1]$. The activist expects a total order flow of $\hat{\alpha}$ or $\hat{\alpha} + L$ with equal probabilities, and therefore, she expects to pay $\frac{p(\hat{\alpha}, r^*) + p(\hat{\alpha} + L, r^*)}{2}$. Since $\hat{\alpha} > 0$, the activist foregoes her outside option $r > 0$, and by revealed preferences,

$$\Gamma(\hat{\alpha}) - \frac{p(\hat{\alpha}, r^*) + p(\hat{\alpha} + L, r^*)}{2} \geq \frac{r}{\hat{\alpha}} > 0.$$  

We proceed in two steps. First, if $\hat{\alpha} \in (0, L)$ then $\hat{\alpha} < L < \hat{\alpha} + L$. Therefore, if $z \in \{\hat{\alpha}, \hat{\alpha} + L\}$ then the market maker must infer that the activist submitted an order to buy at least $\hat{\alpha}$ shares of the target. Since $\hat{\alpha} > 0$, the market maker also infers that $y_A = 1$. Notice that $\Gamma(\alpha)$ is weakly increasing in $\alpha$. Therefore, conditional on $z \in \{\hat{\alpha}, \hat{\alpha} + L\}$, the market maker believes that the value of the firm is at least $\Gamma(\hat{\alpha})$, which implies $p(z, r^*) \geq \Gamma(\hat{\alpha})$. However, this condition contradicts (17). Second, if $\hat{\alpha} \in (L, 2L)$ then $\hat{\alpha} - L < L < \hat{\alpha}$. However, since submitting $\alpha \in (0, L)$ is never an equilibrium (by the first step), if $z \in \{\hat{\alpha}, \hat{\alpha} + L\}$ then the market maker must infer that the activist submitted an order to buy at least $\hat{\alpha}$ shares of the

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36 Notice that according to (7), if $\alpha > 0$ then $\Gamma(\alpha)$ is independent of $r^*$.  

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target. As in the first step, this conclusion creates a contradiction. Overall, we conclude that in any equilibrium \( \alpha^* \in \{0, L\} \) with probability one.

Next, since in any equilibrium \( \alpha^* \in \{0, L\} \) with probability one, if \( r^* \in (0, \infty) \) then there are three possible order flows on the equilibrium path. First, if \( z = 2L \) then the market maker infers that the activist bought \( L \) shares and \( y_A = 1 \), and therefore, \( p(2L) = \Gamma(L) \). Second, suppose \( z = L \). There are three events the market maker considers:

1. With probability \( \frac{1}{2} \phi_A(1 - \mu) \) the liquidity demand is \( L \) and the activist did not buy a stake because she received \( y_A = 0 \). In this case, firm value is \( q \).

2. With probability \( \frac{1}{2}[1 - \phi_A(1 - \mu)]H(r^*) \) the liquidity demand is zero, the activist received \( y_A = 1 \), and she bought a stake \( L \). In this case, firm value is \( \Gamma(L) \).

3. With probability \( \frac{1}{2}[1 - \phi_A(1 - \mu)](1 - H(r^*)) \) the liquidity demand is \( L \), the activist received \( y_A = 1 \), and she did not buy a stake \( L \). In this case, firm value is \( \Gamma(0) \).

Combined,

\[
p(L) = \frac{\frac{1}{2} \phi_A(1 - \mu)q + \frac{1}{2}[1 - \phi_A(1 - \mu)]H(r^*)\Gamma(L) + \frac{1}{2}[1 - \phi_A(1 - \mu)](1 - H(r^*))\Gamma(0)\}
\]

\[
= q + \mu \left[ H(r^*)G(c^*(L, r^*))v(L) + (1 - H(r^*))G(c^*(0, r^*))v(0) \right]
\]

as required. Third, if \( z = 0 \) then there are two events the market maker considers:

1. With probability \( \frac{1}{2} \phi_A(1 - \mu) \) the liquidity demand is zero and the activist did not buy a stake because she received \( y_A = 0 \). In this case, firm value is \( q \).

2. With probability \( \frac{1}{2}[1 - \phi_A(1 - \mu)](1 - H(r^*)) \) the liquidity demand is zero, the activist received \( y_A = 1 \), and she did not buy a stake \( L \). In this case, firm value is \( \Gamma(0) \).

Combined,

\[
p(0) = \frac{\frac{1}{2} \phi_A(1 - \mu)q + \frac{1}{2}[1 - \phi_A(1 - \mu)](1 - H(r^*))\Gamma(0)\}
\]

\[
= q + \mu \frac{1 - H(r^*)}{1 - H(r^*) + H(r^*)\phi_A(1 - \mu)}G(c^*(0, r^*))v(0)
\]

as required. Note that all of these prices are well-defined since in any equilibrium \( r^* < \infty \), as proved by Lemma 3.
Finally, if \( r^* = 0 \) then the only order flows on the equilibrium path are \( z = 0 \) and \( z = L \). In both cases, the market maker believes that the activist did not buy a stake and firm value is \( q + \mu G(c^*(0,0))v(0) \), which is exactly as given by (9) evaluated at \( r^* = 0 \).

**Proof of Proposition 2.** We start by noting that \( \Pi_A(r, r^*) \), as given by (11), can be written as

\[
\Pi_A(r, r^*) = L\mu \frac{1}{2} \times \left[ \left( \frac{1}{1 - \phi_A(1 - \mu)} - H(r^*) \right) \hat{v}(L, r^*) - (1 - H(r^*))\hat{v}(0, r^*) \right] - r. \tag{18}
\]

Note that \( \Pi_A(x, x) \) is continuous in \( x \) and \( \lim_{x \to \infty} \Pi_A(x, x) = -\infty \). Also, note that if \( \phi_A > 0 \) or \( \frac{\kappa/s}{L} < b \) then \( \Pi(0, 0) > 0 \), and otherwise, \( \Pi(0, 0) = 0 \). Therefore, by the intermediate value theorem, if \( \phi_A > 0 \) or \( \frac{\kappa/s}{L} < b \) then \( \Pi_A(x, x) = 0 \) has a solution which is strictly positive. Let \( r^* > 0 \) be a solution. We argue \( r^* = 0 \) is an equilibrium. Given Lemma 3, Lemma 4, and Lemma 5, it is left to show that for any \( r > 0 \), the activist cannot make a profit larger than \( \max \{ \Pi_A(r, r^*), 0 \} \) by buying \( 0 < \alpha < L \) shares. Based on Lemma 3, it is sufficient to focus on cases where \( y_A = 1 \). In these cases, the activist ascribes value \( \alpha \Gamma(\alpha) \) if she buys \( \alpha \) shares, where \( \Gamma(\cdot) \) is given by (16).

We support the equilibrium with off-equilibrium beliefs of the market maker when he observes \( z \notin \{0, L, 2L\} \) such that \( y_A = 1 \) and the activist submitted an order to buys \( z \) shares if \( z < 2L \), and \( z - L \) shares if \( z \geq 2L \).

Therefore, if \( z < 2L \) then \( p(z) = \Gamma(z) \), and if \( z \geq 2L \) then \( p(z) = \Gamma(z - L) \). Since \( \alpha \leq \frac{\alpha}{2} < 2L \), if \( \alpha \notin \{0, L\} \) then the expected price the activist faces is

\[
\frac{1}{2}p(\alpha) + \frac{1}{2}p(\alpha + L) \geq \frac{1}{2}\Gamma(\alpha) + \frac{1}{2}\min \{\Gamma(\alpha + L), \Gamma(\alpha)\} \geq \Gamma(\alpha). 
\]

It follows that the activist’s expected profit is non-positive, so a deviation is not profitable, as required.

Note that if \( \phi_A > 0 \) or \( \frac{\kappa/s}{L} < b \), and \( \phi_A = 0 \) or \( \phi_B = 1 \), then an equilibrium with \( r^* > 0 \) is unique. Indeed, in this case, \( \hat{\mu}(\alpha, r^*) = \frac{\mu}{\Gamma(1 - \mu)\phi_B} \), and hence, \( \hat{v}(\alpha, x) \) is invariant to \( x \).

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\(^{37}\)The off-equilibrium beliefs of the market maker can be justified as follows: if \( z \in (0, L) \) then the order flows must be stemming from the activist’s demand of \( \alpha = z \). If \( z > 2L \) then the order flows must be stemming from the activist’s demand of \( z - L \). If \( z \in (L, 2L) \) then the activist either demands \( \alpha = z - L \) or \( \alpha = z \). However, under any belief distribution among these two events, the activist makes non-positive profit if he has submitted \( \alpha = z - L \). Hence, the market maker should put zero weight on the event that \( \alpha = z - L \). That leaves us with the only off-equilibrium belief that \( \alpha = z \) with probability one.
Denote \( \hat{v}(\alpha, x) \) by \( \hat{v}(\alpha) \). Then,

\[
\Pi_A(x, x) = L \mu \frac{1}{2} \times \left[ \left( \frac{1}{1 - \phi_A(1 - \mu)} - H(x) \right) \hat{v}(L) - (1 - H(x))\hat{v}(0) \right] - x
\]

and

\[
\frac{\partial}{\partial x} \Pi_A(x, x) = -h(x)L \mu \frac{1}{2} [\hat{v}(L) - \hat{v}(0)] - 1 < 0
\]

Therefore, \( \Pi_A(x, x) = 0 \) has a unique solution, and hence, an equilibrium of this type is unique.

Consider part (ii). Suppose \( \phi_A = 0 \) and \( \frac{\kappa}{L} \geq b \), but on the contrary there is an equilibrium with \( r^* > 0 \). Then, it must be \( \Pi_A(r^*, r^*) = 0 \). However, note that if \( \phi_A = 0 \) and \( \frac{\kappa}{L} \geq b \) then \( \Pi(x, x) = -x \), creating a contradiction. Therefore, if an equilibrium exists then \( r^* = 0 \). Since \( \phi_A = 0 \) and \( \frac{\kappa}{L} \geq b \), the activist has no effect or information on the likelihood of the takeover or the expected premium. Therefore, regardless of the order flows and the market maker’s beliefs, the share price is higher than \( q \). Since the activist cannot make a positive profit from trade, and \( r > 0 \), it is in the best interests of the activist not to trade with probability one, as required. ■

**Proof of Proposition 3.** Suppose the equilibrium is in the selection region. Whether or not \( \delta^* > 0 \), it must be \( \theta^* = \theta^*_N \), where \( \theta^* \) is given by

\[
\theta^* = \theta^*_N = \mu G \left( \frac{\mu}{\mu + (1 - \mu)(1 - \phi_B)} \cdot (w(0) - v(0)) \right) \int_b^\infty dF(\Delta), \tag{19}
\]

where

\[
w(\alpha) - v(\alpha) = (1 - s) \left[ \int_{\min\{b, \frac{\kappa}{\kappa/s}\}}^\infty \Delta dF(\Delta) - b \left( 1 - F(b) \right) \right] \tag{20}
\]

for all \( \alpha \geq 0 \). Therefore, \( \theta^* \) is invariant to \( \kappa \), \( \phi_A \), or \( L \), increases in \( \phi_B \) and \( \mu \), and decreases in \( b \) and \( s \). Suppose \( \delta^* > 0 \) in equilibrium. Then, \( r^* \) is the solution of \( \Pi(x) = 0 \) where \( \Pi(x) \equiv \Pi_A(x, x) \) is given by (18). In the selection region,

\[
\Pi(x) = L \mu \frac{1}{2} \frac{\phi_A(1 - \mu)}{1 - \phi_A(1 - \mu)} G \left( \frac{\mu}{\mu + (1 - \mu)(1 - \phi_B)} \cdot (w(0) - v(0)) \right) v(0) - x.
\]

Therefore, \( \Pi(x) = 0 \) has a unique solution given

\[
r^* = L \mu \frac{1}{2} \frac{\phi_A(1 - \mu)}{1 - \phi_A(1 - \mu)} G \left( \frac{\mu}{\mu + (1 - \mu)(1 - \phi_B)} \cdot (w(0) - v(0)) \right) v(0) > 0.
\]
Recall $\delta^* = [1 - (1 - \mu) \phi_A] H (r^*)$. Therefore, $\delta^*$ is invariant to $\kappa$ and increases in $\phi_B$ and $L$. The comparative statics of $\delta^*$ with respect to $\phi_A$, $\mu$, and $b$ is ambiguous as explained in the main text. ■

**Proof of Proposition 4.** Suppose the equilibrium is in the governance solicitation region and $\delta^* > 0$, then it must be $\frac{K/s}{L} < b$, and either $\phi_A = 0$ or $\phi_B = 1$. We recall that

$$v(\alpha) = \int_b^{\infty} \left[ s\Delta + (1 - s)b \right] dF(\Delta) + \int_{\frac{b}{\kappa}}^{b} s\Delta dF(\Delta),$$

$$w(\alpha) - v(\alpha) = (1 - s) \left[ \int_{\frac{b}{\kappa}}^{\infty} \Delta dF(\Delta) - b (1 - F(b)) \right].$$

and consider the two cases above separately.

1. First, suppose $\phi_A = 0$. Then, $\delta^* = H(r^*)$ and

$$\Pi(x) = L\mu \frac{1}{2} (1 - H(x)) \left[ G \left( \frac{\mu}{\mu + (1 - \mu)(1 - \phi_B)} \cdot (w(L) - v(L)) \right) v(L) - G \left( \frac{\mu}{\mu + (1 - \mu)(1 - \phi_B)} \cdot (w(0) - v(0)) \right) v(0) \right] - x.$$

Since $\Pi(x)$ is decreasing in $x$, $r^*$ is unique and given by the solution of $\Pi(x) = 0$. Notice that $\frac{\partial \Pi(x)}{\partial \kappa} < 0$, $\frac{\partial \Pi(x)}{\partial L} > 0$, and the sign of $\frac{\partial \Pi(x)}{\partial \mu}$, $\frac{\partial \Pi(x)}{\partial \phi_A}$, and $\frac{\partial \Pi(x)}{\partial \phi_B}$ is ambiguous. Therefore, $\frac{\partial \delta^*}{\partial \kappa} < 0$, $\frac{\partial \delta^*}{\partial L} > 0$, and the sign of $\frac{\partial \delta^*}{\partial \mu}$, $\frac{\partial \delta^*}{\partial \phi_B}$, and $\frac{\partial \delta^*}{\partial \phi_A}$ is ambiguous. $\frac{\partial \delta^*}{\partial \phi_B}$ and $\frac{\partial \delta^*}{\partial \phi_A}$ are ambiguous because of the shape of $G(\cdot)$. If $G$ is uniform then $\frac{\partial \Pi(x)}{\partial \phi_B} > 0$ and $\frac{\partial \Pi(x)}{\partial \phi_A} > 0$. Generally, however, higher $\phi_B$ or $\mu$ may increase the likelihood of due diligence more when the activist is absent than when she is present. This effect can increase the average price quoted by the market maker by more than the benefit from a higher likelihood of takeover when the activist is present, thereby, discouraging the activist’s investment. $\frac{\partial \delta^*}{\partial \phi_B}$ is ambiguous even if $G$ is uniform, depending on the sign of $\frac{\partial \Pi(x)}{\partial \phi_B}$ and $\frac{\partial \Pi(x)}{\partial \phi_A}$.

Next, note that

$$\theta_A^* = \mu G \left( \frac{\mu}{\mu + (1 - \mu)(1 - \phi_B)} \cdot (w(L) - v(L)) \right) \int_{\frac{b}{\kappa}}^{\infty} dF(\Delta).$$

Therefore, $\frac{\partial \theta_A^*}{\partial \kappa} < 0$, $\frac{\partial \theta_A^*}{\partial L} > 0$, $\frac{\partial \theta_A^*}{\partial \mu} > 0$, $\frac{\partial \theta_A^*}{\partial \phi_B} > 0$, and $\frac{\partial \theta_A^*}{\partial \phi_A} > 0$. Next, note that

$$\theta_N^* = \mu G \left( \frac{\mu}{\mu + (1 - \mu)(1 - \phi_B)} \cdot (w(0) - v(0)) \right) \int_b^{\infty} dF(\Delta).$$
Therefore, \( \frac{\partial \sigma}{\partial r} = 0, \frac{\partial \sigma}{\partial L} = 0, \frac{\partial \sigma}{\partial \phi} < 0, \frac{\partial \sigma}{\partial \mu} > 0, \frac{\partial \sigma}{\partial \phi A} > 0 \). Finally, note that

\[
\theta^* = \mu \left[ H(r^*) G \left( \frac{\mu}{\mu + (1-\mu)(1-\phi B)} \cdot (w(L) - v(L)) \right) \int_{\frac{L}{x}}^{\infty} dF(\Delta) \right].
\]

Therefore, \( \frac{\partial \sigma^*}{\partial r} < 0 \) and \( \frac{\partial \sigma^*}{\partial L} > 0 \). However, since \( r^* \) is ambiguous with respect to other parameters, and so is \( \theta^* \).

2. Second, suppose \( \phi_B = 1 \). Then, \( \delta^* = H(r^*) [1-(1-\mu) \phi_A] \) and

\[
\Pi(x) = \frac{\mu}{2} - x,
\]

Since \( r^* \) solves \( \Pi(x) = 0 \) and \( \Pi(x) \) is decreasing in \( x \), \( r^* \) is unique. Notice that \( \frac{\partial \Pi(x)}{\partial \phi} < 0 \), \( \frac{\partial \Pi(x)}{\partial L} > 0 \), and \( \frac{\partial \Pi(x)}{\partial \phi A} > 0 \), whereas the sign of \( \frac{\partial \Pi(x)}{\partial \mu} \) and \( \frac{\partial \Pi(x)}{\partial \phi} \) is ambiguous. Therefore, \( \frac{\partial \delta^*}{\partial \phi} < 0 \), \( \frac{\partial \delta^*}{\partial L} > 0 \), and the sign of \( \frac{\partial \delta^*}{\partial \mu} \) and \( \frac{\partial \delta^*}{\partial \phi A} \) is ambiguous. The intuition is similar to part (1) with the exception of \( \phi_A \), for which case the intuition is similar to the selection region.

Next, note that

\[
\theta^*_A = \frac{\mu}{1-(1-\mu) \phi_A} G(w(L) - v(L)) \int_{\frac{L}{x}}^{\infty} dF(\Delta).
\]

Therefore, \( \frac{\partial \theta^*_A}{\partial r} < 0, \frac{\partial \theta^*_A}{\partial L} > 0, \frac{\partial \theta^*_A}{\partial \phi A} > 0, \frac{\partial \theta^*_A}{\partial \mu} > 0 \), and \( \frac{\partial \theta^*_A}{\partial \phi A} > 0 \). Next, note that

\[
\theta^*_N = \frac{\mu}{1 + \frac{H(r^*)}{1-H(r^*)} (1-\mu) \phi_A} G(w(0) - v(0)) \int_{b}^{\infty} dF(\Delta).
\]

Therefore, \( \frac{\partial \theta^*_N}{\partial r} > 0, \frac{\partial \theta^*_N}{\partial L} < 0, \frac{\partial \theta^*_N}{\partial \phi A} < 0 \) and the sign of \( \frac{\partial \theta^*_N}{\partial \phi} \) and \( \frac{\partial \theta^*_N}{\partial \mu} \) is ambiguous. The ambiguity of \( \theta^*_N \) with respect to the last two parameters follow ambiguity of \( r^* \) with respect to these parameters. Finally, note that

\[
\theta^* = \mu \left[ H(r^*) G(w(L) - v(L)) \int_{\frac{L}{x}}^{\infty} dF(\Delta) + (1-H(r^*)) G(w(0) - v(0)) \int_{b}^{\infty} dF(\Delta) \right].
\]

Therefore, \( \frac{\partial \theta^*}{\partial r} < 0, \frac{\partial \theta^*}{\partial L} > 0, \frac{\partial \theta^*}{\partial \phi A} > 0, \) and the sign of \( \frac{\partial \theta^*}{\partial \phi} \) and \( \frac{\partial \theta^*}{\partial \mu} \) is ambiguous.

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Proof of Proposition 5. Suppose the equilibrium is in the information solicitation region and \( \delta^* > 0 \), then it must be \( \frac{K}{s} \leq b, \phi_A > 0, \) and \( \phi_B < 1 \). Therefore,

\[
\Pi(x) = L \mu \frac{1}{2} \times \left[ \left( \frac{1}{1 - \phi_A(1 - \mu)} - H(x) \right) \left( \frac{\mu}{\mu + (1 - \mu)(1 - \phi_B)(1 - \phi_A)} \left( w(0) - v(0) \right) \right) \right] v(0) - x,
\]

Notice that the \( \Pi(x) \) can be non-monotonic. Intuitively, \( \Pi(x) \) may increase in \( x \) for the following reason: higher \( x \) implies that the absence of the activist is worse news about \( \omega = 1 \), and hence, the bidder is less likely to the conduct due-diligence. This effect decreases the share price when the activist is absent, which decreases the average price the activist pays (since the market maker is not sure he is facing the activist). If this effect is large enough, then it is possible that \( \Pi(x) \) increases in \( x \). We argue that there always exists stable equilibrium with \( r^* > 0 \), in which case, \( \frac{\partial \Pi(x)}{\partial x} |_{x=r^*} < 0 \). To see why, suppose on the contrary that \( \Pi(r^*) = 0 \Rightarrow \frac{\partial \Pi(x)}{\partial x} |_{x=r^*} \geq 0 \). Since \( \Pi(0) > 0 \) \( \lim_{x \to -\infty} \Pi(x) \), by the intermediate value theorem there exist \( \epsilon > 0 \) and \( r^{**} > 0 \) such that \( \Pi(r^{**}) = 0, \Pi(r) < 0 \) for all \( r \in (r^{**}, r^{**} + \epsilon) \), and \( \Pi(r) > 0 \) for all \( r \in (r^{**} - \epsilon, r^{**}) \). This implies \( \frac{\partial \Pi(x)}{\partial x} |_{x=r^*} < 0 \). Hereafter we focus on equilibria in which \( \frac{\partial \Pi(x)}{\partial x} |_{x=r^*} < 0 \). Applying the implicit function theorem on \( \Pi(x, \chi) = 0 \), where \( \Pi(x, \chi) \) is \( \Pi(x) \) parameterized by \( \chi \in \{ \kappa, L, b, \mu, \phi_A, \phi_B \} \), yields \( \frac{\partial r^*}{\partial \chi} = -\frac{\partial \Pi(x, \chi)}{\partial x} |_{x=r^*} \). Since \( \frac{\partial \Pi(x, \chi)}{\partial x} |_{x=r^*} < 0 \), we have \( \text{sign} \left( \frac{\partial r^*}{\partial \chi} \right) = \text{sign} \left( \frac{\partial \Pi(x, \chi)}{\partial x} |_{x=r^*} \right) \). Therefore, \( \frac{\partial \Pi(x)}{\partial \chi} = 0 \), \( \frac{\partial \Pi(x)}{\partial L} > 0 \), and the sign of \( \frac{\partial \Pi(x)}{\partial b}, \frac{\partial \Pi(x)}{\partial \mu}, \frac{\partial \Pi(x)}{\partial \phi_B} \) is ambiguous. Therefore, \( \frac{\partial \Pi(x)}{\partial \phi_A} = 0 \), \( \frac{\partial \Pi(x)}{\partial L} > 0 \), and the sign of \( \frac{\partial \phi_A}{\partial b}, \frac{\partial \phi_A}{\partial \mu}, \frac{\partial \phi_A}{\partial \phi_B} \) is ambiguous.

Next, note that

\[
\theta_A^* = \mu \frac{1}{1 - (1 - \mu) \phi_A} \left( \frac{\mu}{\mu + (1 - \mu)(1 - \phi_B)(1 - \phi_A)} \left( w(0) - v(0) \right) \right) \int_b^\infty dF(\Delta).
\]

Therefore, \( \frac{\partial \theta_A^*}{\partial \kappa} = 0 \), \( \frac{\partial \theta_A^*}{\partial L} = 0 \), \( \frac{\partial \theta_A^*}{\partial b} < 0 \), \( \frac{\partial \theta_A^*}{\partial \mu} > 0 \), \( \frac{\partial \theta_A^*}{\partial \phi_A} > 0 \), and \( \frac{\partial \theta_A^*}{\partial \phi_B} > 0 \). Next, note that

\[
\theta_N^* = \frac{1}{\mu \left( \frac{1}{\phi_A} \right) \left( 1 - (1 - \mu) \phi_B \right) \left( 1 - \phi_A \right) \left( 1 - \phi_B \right)} \left( \frac{\mu}{\mu + (1 - \mu)(1 - \phi_B)(1 - \phi_A + \phi_B)} \left( w(0) - v(0) \right) \right) \int_b^\infty dF(\Delta).
\]

Therefore, \( \frac{\partial \theta_N^*}{\partial \kappa} = 0 \), \( \frac{\partial \theta_N^*}{\partial L} < 0 \), \( \frac{\partial \theta_N^*}{\partial b} < 0 \) and the sign of \( \frac{\partial \theta_N^*}{\partial b}, \frac{\partial \theta_N^*}{\partial \mu}, \frac{\partial \theta_N^*}{\partial \phi_B} \) is ambiguous. Finally,
\[ \theta^* = \mu \left[ H(r^*) G \left( \frac{\mu}{\mu + (1-\mu)(1-\phi_B)(1-\phi_A)} (w(0) - v(0)) \right) + (1 - H(r^*)) G \left( \frac{\mu}{\mu + (1-\mu)(1-\phi_B)(1-\phi_A)} (w(0) - v(0)) \right) \right] \int_b^\infty dF(\Delta). \]

Therefore, \( \frac{\partial \theta^*}{\partial \kappa} = 0, \frac{\partial \theta^*}{\partial \phi_A}, \frac{\partial \theta^*}{\partial \phi_B}, \frac{\partial \theta^*}{\partial \mu}, \frac{\partial \theta^*}{\partial \mu} \), and \( \frac{\partial \theta^*}{\partial \phi_B} \) is ambiguous. \( \blacksquare \)

## B Proofs of Section 4

### B.1 Proofs of Section 4.2

**Proposition 6** Suppose the activist can increase the standalone value of the firm as described in Section 4.2. If the activist is not a shareholder of the target, then the analysis is the same as in Section 3, where \( \alpha = 0 \). Suppose the activist owns \( \alpha > 0 \) shares of that target, then:

(i) If the bidder did not conduct due diligence then the activist’s proposal is implemented if and only if \( \Delta_A \geq \min \{b, \kappa/\alpha\} \), and the shareholder value is

\[ q + \Delta_A \mathbb{1}_{\{\Delta_A \geq \min \{b, \kappa/\alpha\}\}}. \]

(ii) If the bidder conducted due diligence, then:

(a) If the first round of negotiations fails then the bidder never runs a proxy fight, while the activist runs a proxy fight if and only if \( \kappa/\alpha \leq \Delta_A < b \), or \( \Delta_A < \kappa/\alpha \) and

\[ \Delta_A + \frac{\kappa/\alpha - \Delta_A}{s} \leq \Delta_B < b, \]

in which case she wins.

(b) The unconditional shareholder value is

\[ q + v(\alpha, \Delta_A) \]

where

\[ v(\alpha, \Delta_A) = \begin{cases} 
  v(0) + \int_{\min \{b, \Delta_A + \kappa/\alpha - \Delta_A\}}^{\Delta_A} \left[ \Delta_A + s (\Delta_A - \Delta_B) \right] dF(\Delta_B) & \text{if } \Delta_A < \min \{b, \kappa/\alpha\} \\
  \Delta_A + s \int_{\Delta_A}^{\infty} (\Delta_B - \Delta_A) dF(\Delta_B) & \text{if } \Delta_A \geq \min \{b, \kappa/\alpha\}.
\end{cases} \]

\( \text{(22)} \)
(c) The expected surplus from the takeover conditional on due diligence is
\[ w(\alpha, \Delta_A) = \begin{cases} \int_{\min\{b, \Delta_A + \frac{\kappa}{\alpha} - \Delta_A\}}^{\infty} \Delta_B dF(\Delta_B) & \text{if } \Delta_A < \min\{b, \kappa/\alpha\} \\ \int_{\Delta_A}^{\infty} (\Delta_B - \Delta_A) dF(\Delta_B) & \text{if } \Delta_A \geq \min\{b, \kappa/\alpha\} \end{cases} \]

(iii) Suppose \( \phi_B = 1 \). Then, \( c^*(\alpha, r^*) \) is independent of \( r^* \) and the following hold:

(a) If \( \Delta_A < \min\{b, \kappa/\alpha\} \) then \( \alpha > 0 \Rightarrow c^*(\alpha) \geq c^*(0) \) and \( \lim_{b \to \Delta_A + \frac{\kappa}{\alpha} - \Delta_A} \frac{\partial c^*(\alpha)}{\partial \Delta_A} > 0 \).

(b) There is \( \Delta_A > \min\{b, \kappa/\alpha\} \) such that if \( \Delta_A > \Delta_A \) then \( c^*(\alpha) < c^*(0) \) for all \( \alpha > 0 \).

Proof. Suppose the activist owns \( \alpha > 0 \) shares in the target firm. If the bidder did not conduct due diligence, there are two cases to consider. First, suppose \( \Delta_A < \min\{b, \kappa/\alpha\} \).

Since \( \Delta_A < b \) the incumbent will not implement the proposal voluntarily. Since \( \Delta_A < \kappa/\alpha \), the activist has no incentives to run a proxy fight in order to replace the board and implement the proposal. Therefore, the proposal is not implemented and the shareholder value is \( q \).

Suppose \( \Delta_A \geq \min\{b, \kappa/\alpha\} \). If \( \Delta_A \geq b \) the incumbent will voluntarily implement the proposal, regardless of the credibility of the activist’s threat to run a proxy fight. If \( \kappa/\alpha \leq \Delta_A < b \) then the activist has incentives to run a proxy fight if the incumbent does not implement the proposal. Indeed, shareholders will elect the activist to the board since otherwise the proposal is not implemented. Second, given the expected support of shareholders, the activist has incentives to run a proxy fight. Since the threat of running a proxy fight is credible, the incumbent will implement the proposal in order to avoid the proxy fight.

Suppose the bidder conducted due diligence, then there are three cases to consider:

1. First, suppose \( \max\{\Delta_A, b\} \leq \Delta_B \). If the incumbent retains control of the board and the firm remains independent, the incumbent would implement the activist’s proposal if and only if \( \Delta_A \geq b \). Therefore, the reservation value of the incumbent in this case is \( q + \max\{\Delta_A, b\} \) per share. Since \( \max\{\Delta_A, b\} \leq \Delta_B \), an agreement in which the bidder pays an expected premium of \( s\Delta_B + (1 - s) \max\{\Delta_A, b\} \) is always reached under the control of the incumbent board. On the other hand, if the activist obtains control of the board, she will reach an agreement with the bidder in which the expected takeover premium is \( s\Delta_B + (1 - s) \Delta_A \). Therefore, the activist has no incentives to run a proxy fight. Overall, the expected firm value is \( q + s\Delta_B + (1 - s) \max\{\Delta_A, b\} \).

2. Second, suppose \( \max\{\Delta_B, b\} < \Delta_A \). Since \( \max\{\Delta_B, b\} < \Delta_A \), the incumbent is willing to implement the activist’s proposal, but refuses the sell the firm. Since \( \Delta_B < \Delta_A \), a
takeover cannot increase the value of the firm even if shareholders extract all the surplus. Therefore, the activist has no incentives to run a proxy fight, and the value of the firm under the incumbent’s control is $q + \Delta_A$.

3. Third, suppose $\max \{\Delta_A, \Delta_B\} < b$. Since $\max \{\Delta_A, \Delta_B\} < b$, the incumbent refuses the sell the firm or implement the activist’s proposal. Therefore, under the incumbent’s control the firm value is $q$. Suppose the activist controls the target board. If $\Delta_A > \Delta_B$ then she would implement the proposal, and if $\Delta_A \leq \Delta_B$ then she would reach an acquisition agreement in which the bidder pays an expected premium of $s\Delta_B + (1 - s)\Delta_A$. Therefore, under the activist’s control firm value is $q + \Delta_A + s\max \{0, \Delta_B - \Delta_A\}$. Therefore, shareholders always elect the activist if she decides to run a proxy fight. The activist has incentives to run a proxy fight if and only if

$$\alpha [q + \Delta_A + s\max \{0, \Delta_B - \Delta_A\}] - \kappa > \alpha q,$$

which holds if and only if $\Delta_A \geq \kappa/\alpha$ or, $\Delta_A < \kappa/\alpha$ and $\Delta_B > \Delta_A + \frac{\kappa/\alpha - \Delta_A}{s}$. Part (ii.a) follows from the intersection of this condition with $\max \{\Delta_A, \Delta_B\} < b$.

Consider the first round of negotiations. All parties involved anticipate the dynamic above if the first round fails. Therefore, if $\max \{\Delta_A, b\} \leq \Delta_B$ then the bidder pays $q + s\Delta_B + (1 - s)\max \{\Delta_A, b\}$ and takes over the target after the first round of negotiations. If $\max \{\Delta_B, b\} < \Delta_A$ then the target remains independent and the activist’s proposal is implemented. If $\max \{\Delta_A, \Delta_B\} < b$ then the bidder pays $q + \Delta_A + s\max \{0, \Delta_B - \Delta_A\}$ if $\Delta_A \geq \kappa/\alpha$ or, $\Delta_A < \kappa/\alpha$ and $\Delta_B > \Delta_A + \frac{\kappa/\alpha - \Delta_A}{s}$, and otherwise, the target remains independent but the activist’s proposal is not implemented. Integrating over all values of $\Delta_B$, firm value is $q + v(\alpha, \Delta_A)$ where

$$v(\alpha, \Delta_A) = \begin{cases} 
\Delta_A + s\int_{\Delta_A}^{\Delta_B} (\Delta_B - \Delta_A) dF(\Delta_B) & \text{if } b \leq \Delta_A \\
v(0) + \int_{-\infty}^{\min \{b, \Delta_A + \kappa/\alpha - \Delta_A\}} [\Delta_A + s (\Delta_B - \Delta_A)] dF(\Delta_B) & \text{if } \kappa/\alpha \leq \Delta_A < b \\
v(0) + \int_{\Delta_A + \kappa/\alpha - \Delta_A}^{\Delta_B} [\Delta_A + s (\Delta_B - \Delta_A)] dF(\Delta_B) & \text{if } \Delta_A < \min \{b, \kappa/\alpha\},
\end{cases}$$

which can be rewritten as in the statement.

Finally, to show that $v(\alpha, \Delta_A)$ increases in $\alpha$, first note that if $\Delta_A < \min \{b, \kappa/\alpha\}$ then
$v(\alpha, \Delta_A)$ increases in $\alpha$. Suppose $\Delta_A = \min \{b, \kappa/\alpha\}$ and note that

$$\Delta_A + s \int_{\Delta_A}^{\infty} (\Delta_B - \Delta_A) dF(\Delta_B) + (1-s) \int_{b}^{\infty} \max \{0, b - \Delta_A\} dF(\Delta_B)$$

$$> v(0) + \int_{\min \{b, \Delta_A + \kappa/\alpha - \Delta_A \}}^{b} [\Delta_A + s \max \{0, \Delta_B - \Delta_A\}] dF(\Delta_B) \Leftrightarrow$$

$$\int_{-\infty}^{\Delta_A} \Delta_A dF(\Delta_B) + s \int_{\Delta_A}^{b} (\Delta_B - \Delta_A) dF(\Delta_B)$$

$$> \int_{\min \{b, \Delta_A + \kappa/\alpha - \Delta_A \}}^{b} [\Delta_A + s \max \{0, \Delta_B - \Delta_A\}] dF(\Delta_B)$$

If $b \leq \Delta_A + \kappa/\alpha - \Delta_A$ then the above inequality clearly holds. Otherwise, it holds if and only if

$$\int_{-\infty}^{\Delta_A + \kappa/\alpha - \Delta_A} \Delta_A dF(\Delta_B) + \int_{\Delta_A}^{\Delta_A + \kappa/\alpha - \Delta_A} s (\Delta_B - \Delta_A) dF(\Delta_B) > 0,$$

which always holds. Part (ii.c) follows directly from the analysis above.

Consider part (iii). Based on parts (i) and (i) if $\Delta_A < \min \{b, \kappa/\alpha\}$ then

$$c^*(\alpha) = \mu (1-s) \left[ \int_{b}^{\infty} (\Delta_B - b) dF(\Delta_B) + \int_{\min \{b, \Delta_A + \kappa/\alpha - \Delta_A \}}^{b} (\Delta_B - \Delta_A) dF(\Delta_B) \right].$$

Clearly, $c^*(\alpha) \geq c^*(0)$ for $\alpha > 0$ where the inequality is strict if $b > \Delta_A + \kappa/\alpha$. Suppose $b > \Delta_A + \kappa/\alpha$, and note that

$$\frac{\partial c^*(\alpha)}{\partial \Delta_A} = \mu \left[ \left( \frac{1-s}{s} \right)^2 (\kappa/\alpha - \Delta_A) f(\Delta_A + \kappa/\alpha - \Delta_A) - (1-s) \int_{\Delta_A + \kappa/\alpha - \Delta_A}^{b} dF(\Delta_B) \right]$$

and $\lim_{b \to \Delta_A + \kappa/\alpha - \Delta_A} \frac{\partial c^*(\alpha)}{\partial \Delta_A} > 0$. This completes part (iii.a). To see part (iii.b), notice that if $\alpha > 0, \Delta_A \geq \min \{b, \kappa/\alpha\},$ and $\Delta_A \geq b$ then

$$c^*(\alpha) = \mu (1-s) \times \begin{cases} \int_{\Delta_A}^{\infty} (\Delta_B - \Delta_A) dF(\Delta_B) & \text{if } \alpha > 0 \\ \int_{b}^{\infty} \Delta_B dF(\Delta_B) & \text{if } \alpha = 0. \end{cases}$$

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Since
\[ \Delta_A = b \Rightarrow \int_{\Delta_A}^{\infty} (\Delta_B - \Delta_A) \, dF(\Delta_B) < \int_{b}^{\infty} \Delta_B dF(\Delta_B) \]
and \( \int_{\Delta_A}^{\infty} (\Delta_B - \Delta_A) \, dF(\Delta_B) \) is decreasing in \( \Delta_A \), there is \( \tilde{\Delta}_A \) as required in the statement.

Remark: In the next proposition, we show that the activist is more resilient than the bidder to the commitment problem in takeovers. For this purpose, we consider a variant of the setup in Section 4.2 in which the bidder never approaches the target with a takeover offer, but instead, the activist can make a takeover offer of her own. We maintain the assumption that the value of the target increases by \( \Delta_A \) if the activist’s proposal is implemented. The activist’s proposal can be implemented by the target board even after the failure of the second round of negotiations or after the acquisition of the target by the activist. For simplicity, we assume that the bargaining protocol between the activist and the target board is exactly the same with that of between the bidder and the target board.

Proposition 7 (Capacity to acquire) Suppose the first round of negotiations fails and the activist owns \( \alpha \) shares in the target. Then, the activist runs a proxy fight if and only if \( \kappa/\alpha \leq \Delta_A < (1 - \alpha)b \). Whenever the activist runs a proxy fight, she wins.

Proof. We solve the game backward. If the second round of negotiations succeeded and the target is acquired by the activist, then the activist implements her proposal if it has not been implemented yet. Therefore, the post takeover target value is \( q + \Delta_A \). If the second round of negotiations failed and the firm remains independent (that is, its ownership structure did not change), there are two cases. First, if the activist controls the target board then she implements her proposal if it has not yet been implemented, and the target value is \( q + \Delta_A \). Second, if the incumbent board retains control then he implements the proposal if and only if \( b \leq \Delta_A \), and hence, the target value is \( q + 1_{(b \leq \Delta_A)} \Delta_A \).

Next, consider the second round of negotiations. There are two cases to consider. First, suppose either the activist controls the target board, or the incumbent board retains control and \( b \leq \Delta_A \). The activist’s proposal is implemented whether or not the bid fails. For this reason, the activist will not offer more than \( q + \Delta_A \) per share. Moreover, target shareholders will not accept offers lower than \( q + \Delta_A \), since they can always reject the bid and obtain a value of \( q + \Delta_A \) once the proposal is implemented. Therefore, whether or not target is acquired, the activist’s payoff is \( \alpha(q + \Delta_A) \) and the shareholder value is \( q + \Delta_A \). Second, suppose incumbent board retains control and \( b > \Delta_A \). If the negotiations fail the proposal will not be implemented and the activist’s payoff would be \( \alpha q \). If the activist acquires the
firm, her payoff is $q + \Delta_A - (1 - \alpha) \pi_2$, where $\pi_2$ is the offer made to target shareholders. Therefore, the activist is willing to offer up to $q + \frac{\Delta_A}{1 - \alpha}$ per share. The incumbent board and the activist will reach an agreement if and only if $b \leq \frac{\Delta_A}{1 - \alpha}$. If $b > \frac{\Delta_A}{1 - \alpha}$ then the takeover fails and the shareholder value is $q$. If $\Delta_A < b \leq \frac{\Delta_A}{1 - \alpha}$ then the incumbent and the activist reach an agreement in which $\pi_2 \geq q + b > q + \Delta_A$. Therefore, target shareholders approve any agreement reached by the activist and the incumbent, and firm is acquired by the activist. In this case, the expected shareholder value is $q + s \frac{\Delta_A}{1 - \alpha} + (1 - s) b$.

Next, consider the proxy fight stage. There are three cases to consider. First, if $b \leq \Delta_A$ then the activist’s payoff is $\alpha(q + \Delta_A)$ whether or not she gets the control of the board. Therefore, she has no reason to run and incur the cost of a proxy fight. Second, if $\Delta_A < b \leq \frac{\Delta_A}{1 - \alpha}$ then the activist always loses the proxy fight if she decided to start one. The reason is that shareholders know that if they elect the activist they will get $q + \Delta_A$ whereas if they reelect the incumbent, the activist will takeover the target and pay shareholders on average $q + s \frac{\Delta_A}{1 - \alpha} + (1 - s) b$, which is strictly higher. Anticipating her defeat, the activist never runs a proxy fight in this region. Third, if $b > \frac{\Delta_A}{1 - \alpha}$ then the shareholder value is $q + \Delta_A$ if the activist gets the control of the board, and $q$ otherwise. Therefore, shareholders always elect the activist if she runs a proxy fight. The activist’s payoff is $\alpha(q + \Delta_A) - \kappa$ if she runs and wins a proxy fight, and $\alpha q$ otherwise. Therefore the activist runs a proxy fight if and only if $\kappa/\alpha \leq \Delta_A$. Combining this condition with $b > \frac{\Delta_A}{1 - \alpha}$ yields $\kappa/\alpha \leq \Delta_A < (1 - \alpha)b$, completing the proof. ■

B.2 Proofs of Section 4.3

Proposition 8 Suppose the activist owns $\alpha$ shares of that target and the bidder conducted due diligence.

(i) If the first round of negotiations fails then the bidder never runs a proxy fight, while the activist runs a proxy fight if and only if

$$\frac{\kappa/s}{\lambda \alpha} \leq \Delta < b,$$  \hspace{1cm} (23)

in which case she wins.

(ii) The unconditional shareholder value is

$$q + \lambda v (\alpha \lambda) + (1 - \lambda) \varphi \int_{0}^{\infty} \Delta dF(\Delta)$$  \hspace{1cm} (24)
where \( v(\cdot) \) is given by (4).

**Proof.** Suppose the second round of negotiations fails. All parties involved expect that with probability \( 1 - \lambda \) the bidder will offer target shareholders \( q + \varphi \Delta \) and take over the firm, and with probability \( \lambda \) the target would remain independent. The bidder’s expected profit is \( (1 - \lambda)(1 - \varphi)\Delta \), and hence, he will not agree to pay a premium larger than

\[
\Delta (1 - (1 - \lambda)(1 - \varphi)).
\]

Therefore, if the bidder controls the target board in the second round then he would “reach an agreement” in which the takeover offer is \( q \). Suppose the incumbent controls the target board in the second round. If no agreement is reached with the bidder, the incumbent’s expected payoff per share is

\[
q + \lambda b + (1 - \lambda)\varphi \Delta.
\]

Therefore, the incumbent would reject any premium lower than \( \lambda b + (1 - \lambda)\varphi \Delta \). It follows that an agreement between the bidder and the incumbent is reached if and only if

\[
\lambda b + (1 - \lambda)\varphi \Delta \leq \Delta (1 - (1 - \lambda)(1 - \varphi)) \Leftrightarrow b \leq \Delta.
\]

If \( b \leq \Delta \) then the target is taken over by the bidder and the expected premium is

\[
s(1 - (1 - \lambda)(1 - \varphi))\Delta + (1 - s)(\lambda b + (1 - \lambda)\varphi \Delta) = (1 - \lambda)\Delta \varphi + \lambda[s\Delta + (1 - s)b],
\]

and if \( b > \Delta \) then no agreement is reached between the incumbent and the bidder. In this case, the target is taken over through tender offer with probability \( 1 - \lambda \), in which case, the premium is \( \varphi \Delta \).

A similar analysis follows when the activist controls the board, only then \( b \) is replaced by zero everywhere. That is, the bidder always reaches an agreement with the activist, and the expected premium is

\[
(1 - \lambda)\Delta \varphi + \lambda s \Delta.
\]

To conclude, in the second round of negotiations the expected shareholder value conditional
on $\Delta$ is

$$\Pi_{SH}(\Delta) = \begin{cases} 
q + (1 - \lambda) \Delta \varphi + 1_{\{b \leq \Delta\}} \cdot \lambda [s \Delta + (1 - s) b] & \text{if the incumbent board retains control} \\
q + (1 - \lambda) \Delta \varphi + \lambda s \Delta & \text{if the activist controls the board,} \\
q & \text{if the bidder controls the board.}
\end{cases}$$

Therefore, shareholders are always worse off under the control of the bidder, and prefer the activist over the incumbent if and only if $b > \Delta$. Similar to part (i) of Lemma 2, shareholder never elect the bidder to the board, and the latter never runs a proxy fight. Similar to part (ii) of Lemma 2, the activist runs a proxy fight if and only if $b > \Delta$ and

$$\alpha (q + \lambda s \Delta + (1 - \lambda) \Delta \varphi) - \kappa > \alpha (q + (1 - \lambda) \varphi \Delta) \iff \Delta > \frac{\kappa / s}{\alpha \lambda}.$$  

(26)

This concludes part (i) of the proposition.

Consider part (ii). Given the arguments above, all parties involved expect that if the first round of negotiations fails, the expected takeover premium would be

$$(1 - \lambda) \Delta \varphi + \lambda \times \begin{cases} 
s \Delta + (1 - s) b & \text{if } \Delta \geq b \\
0 & \text{if } \Delta < b \text{ and } \Delta \leq \frac{\kappa / s}{\alpha \lambda} \\
s \Delta & \text{if } \Delta < b \text{ and } \Delta > \frac{\kappa / s}{\alpha \lambda}
\end{cases}$$

(27)

Therefore, similar to Proposition 1, in the first stage the bidder and incumbent reach an agreement where the premium is (27). The term $\lambda v(\alpha \lambda) + (1 - \lambda) \varphi \int_0^\infty \Delta dF(\Delta)$ is the integration of (27) over all values of $\Delta$.  

B.3 Proofs of Section 4.4

In this section we solve the takeover negotiations and proxy fights phase under the assumption that $q \in \{q_L, q_H\}$ is uncertain and privately observed by whoever controls the target board. We denote the prior by $\varphi = \Pr[q = q_H]$. We also assume that the offers and the counter-party decision to accept these offers are public. We focus attention on Perfect Bayesian Equilibria in pure strategies. Therefore, any equilibrium is either pooling or fully separating. We start by arguing that there is no equilibrium in which information is revealed in the first round of negotiations.
Lemma 7 There is no equilibrium in which the first round offer is separating.

Proof. Suppose on the contrary that information is revealed in the first round of negotiations. We consider two cases.

1. First, suppose $\Delta \geq \min \left\{ b, \frac{\kappa/s}{a} \right\}$. Since information is fully revealed in the first round, a takeover is taking place in the second round with probability one as in the baseline model (with or without a proxy fight). Let the expected offer in the second round be $\pi_2$. If the first round offer is lower than $\pi_2$, the board would reject it regardless of the value of $q$, and wait for the second round to get an expected price of $\pi_2$. If the first round offer is higher than $\pi_2$, the board would accept it regardless of the value of $q$, since in the second round he is only expected to get a price of $\pi_2$. Therefore, if information is fully revealed in the first round, the first round offer must be $\pi_2$. Since the takeover is taking place with probability one in the second round, both types of board must be indifferent between accepting and rejecting a first round offer equal to $\pi_2$. However, note that since information is revealed in the first round and there are no costs for moving to the second round, at least one of the parties has incentives to deviate. To see why, consider the following two cases.

(a) First, suppose the high type sells the target in the first round and the low type sells it in the second round, then $\pi_2$ is negotiated based on the knowledge of $q = q_L$. If a proxy fight is not expected upon rejection of the first round offer, then the high type has an optimal deviation: reject the first round offer and whenever he receives an offer from the bidder in the second round to sell for $q_L + b$, which happens with probability $1 - s$, instead of accepting the offer as the equilibrium path dictates, she rejects that offer and retains a higher value of $q_H + b$. This deviation creates an additional expected value of at least $(1 - s) (q_H - q_L) > 0$. If a proxy fight is expected, then the same deviation works, as the board loses the private benefits in any case, but she can expect the activist (who will learn the true value of $q$ once joining the board) to negotiate a deal based on $q_H$ and not $q_L$, and hence, obtain a strictly better outcome (at the very least, the activist can follow exactly the same strategy that the board would follow under the proposed deviation above and create an additional expected value of at least $(1 - s) (q_H - q_L) > 0$).

(b) Second, suppose the low type sells the target in the first round and the high type sells it in the second round, then $\pi_2$ is negotiated based on the knowledge of $q = q_H$. 59
In particular,

\[ \pi_2 = q_H + s\Delta + (1 - s) b \cdot 1_{\{\Delta \geq b\}} \]

(recall \( \Delta \geq \min\{b, \frac{\kappa}{s}\} \) implies that if \( b > \Delta \) then the activist will run a proxy fight and replace the incumbent). Therefore, whenever the incumbent board is making a first round separating offer that indicates that \( q = q_L \) (which happens with probability \( (1 - \varphi)s > 0 \)), the bidder is better off deviating by rejecting the offer. Since the offer is separating, moving to the second round it becomes a common knowledge that \( q = q_L \), and therefore, the expected offer at this point would be

\[ q_L + s\Delta + (1 - s) b \cdot 1_{\{\Delta \geq b\}} < \pi_2, \]

thereby increasing the bidder’s profit by \( q_H - q_L > 0 \).

Either way, we conclude that the first round offer cannot be separating.

2. Second, suppose \( \Delta < \min\{b, \frac{\kappa}{s}\} \). Since information is fully revealed, the firm remains independent in the second round with probability one as in the baseline model. In this case, the first round must be analyzed as if it is the only round of negotiations between the incumbent and the bidder. However, since \( \Delta < b \) no agreement can be reached between the incumbent and the bidder in the first round as well, and hence, the takeover fails for sure regardless of the realization of \( q \).

\[ \square \]

Lemma 8 Suppose no information about \( q \) is revealed in the first round of negotiations:

(i) If the bidder controls the target board then:

(a) If \( E[q] \leq q_L + \Delta \) then the bidder offers shareholders \( E[q] \) and takes over the target with probability one.

(b) If \( E[q] > q_L + \Delta \) then the bidder offers shareholders \( q_H \) and takes over the firm if and only if \( q = q_H \).

(ii) If the target board has private benefit of control per share \( \beta \in \{0, b\} \) and the bidder makes an offer to the target board then:
(a) If $\Delta \geq \beta + \frac{1-\varphi}{\varphi} (q_H - q_L)$ then the bidder offers $q_H + \beta$ and the board accepts the offer with probability one.

(b) If $\beta \leq \Delta < \beta + \frac{1-\varphi}{\varphi} (q_H - q_L)$ then the bidder offers $q_L + \beta$ and the board accepts the offer if and only if $q = q_L$.

(c) If $\Delta < \beta$ then the takeover always fails.

(iii) If the target board has private benefit of control per share $\beta \in \{0, b\}$ and the target board makes an offer to the bidder then:

(a) If $\Delta \geq \beta + (1-\varphi) (q_H - q_L)$ then the target board asks for $E[q] + \Delta$ regardless of his type and the bidder accepts the offer.

(b) If $\beta \leq \Delta < \beta + (1-\varphi) (q_H - q_L)$ then the target board asks for $q_L + \Delta$ if $q = q_L$ and the bidder accepts the offer. If $q = q_H$ the target remains independent.

(c) If $\Delta < \beta$ then the takeover always fails.

Proof. Suppose information about $q$ is not revealed in the first round. The proxy fight stage does not reveal any information about $q$, since $q$ is only observed at this stage by the incumbent.

Suppose the bidder controls the target board. There is no information asymmetry between the bidder and the target board, but target shareholders still need to approve the deal. Consider a pooling equilibrium. Shareholders accept the pooling offer only if it is higher than $E[q]$. The bidder has incentives to make the pooling offer when $q = q_L$ only if it is smaller than $q_L + \Delta$. Therefore, a pooling equilibrium exists if and only if $E[q] \leq q_L + \Delta$. In this case, the target is taken over for sure. Notice that the only pooling equilibrium that survives the Grossman and Perry (1986) criterion is the one in which the pooling offer is $E[q]$.

Consider a separating equilibrium. There are three cases to consider:

1. The bidder makes different offers depending on $q$ and the takeover always takes place. However, the bidder has incentives to deviate to offering the lower offer even if $q = q_H$. So this equilibrium cannot exist.

2. The takeover takes place if and only if $q = q_L$. Suppose the bidder offers $\pi^*$ when $q = q_L$. However, the bidder has incentives to deviate by offering $\pi^*$ also when $q = q_H$. So this equilibrium cannot exist.
3. The takeover takes place if and only if \( q = q_H \): if \( q = q_L \) the bidder does not take over the firm and if \( q = q_H \) the bidder offers \( q_H \) and the offer is accepted by shareholders. This can be an equilibrium only if shareholders reject any offer lower than \( q_H \). However, such off-equilibrium beliefs satisfy the Grossman and Perry (1986) criterion if and only if \( E[q] > q_L + \Delta \).

Either way, in this case target shareholder value is \( E[q] \).

Next, suppose the target board has private benefit of control per share \( \beta \in \{0, b\} \) and the bidder makes an offer to the target board (\( \beta = 0 \) if the activist controls the board and \( \beta = b \) if the incumbent retains control). If \( \Delta < \beta \) then the takeover can never take place and the firm remains independent. Suppose \( \Delta - \beta \geq 0 \). Since \( \beta \geq 0 \) shareholders approve any offer that is approved by the target board. If the bidder offers \( q_H + \beta \) then the takeover succeeds for sure. If the bidder offers \( q_L + \beta \) the takeover succeeds with probability \( 1 - \varphi \), only when \( q = q_L \). The bidder prefers the higher offer if and only if

\[
E[q] + \Delta - q_H - \beta > (1 - \varphi) (q_L + \Delta - q_L - \beta) \Leftrightarrow \Delta \geq \beta + \frac{1 - \varphi}{\varphi} (q_H - q_L).
\]

Next, suppose the target board makes a pooling offer. Then, he must ask the bidder to pay no more than \( E[q] + \Delta \). The board has incentives to make this offer when \( q = q_H \) only if it is higher than \( q_H + \beta \). Therefore, the pooling equilibrium exists if and only if

\[
E[q] + \Delta - q_H - \beta \geq 0 \Leftrightarrow \Delta \geq \beta + (1 - \varphi) (q_H - q_L).
\]

When it exists, the pooling equilibrium requires that the off-equilibrium beliefs are such that higher offers are rejected by the bidder. Notice, however, that the only pooling equilibrium that survives the Grossman and Perry (1986) criterion is the one in which the pooling offer is \( E[q] + \Delta \).

Suppose the target board makes a separating offer, then it must be he is asking from the bidder no more than \( q_L + \Delta \) when \( q = q_L \) and this offer is accepted, and when \( q = q_H \) his offer is rejected by the bidder. Moreover, the target board has no incentives to ask for the separating offer when \( q = q_H \) if and only if the separating offer is smaller than \( q_H + \beta \). Therefore, the
separating equilibrium exists if and only if

$$\Delta \leq \beta + q_H - q_L.$$ 

Notice, however, that the separating equilibrium survives the Grossman and Perry (1986) criterion only if the separating offer is $q_L + \Delta$. This equilibrium, however, survives the Grossman and Perry (1986) criterion if and only if $E[q] + \Delta - q_H - \beta < 0$.

We conclude, if $\Delta \geq \beta + (1 - \varphi)(q_H - q_L)$ the offer is pooling and shareholder value is $E[q] + \Delta$, and if $\beta < \Delta < \beta + (1 - \varphi)(q_H - q_L)$ the offer is separating, and shareholder value is $E[q] + (1 - \varphi)\Delta$. ■

**Lemma 9** Suppose the first round of negotiations fails and no information about $q$ is revealed. Then:

(i) The bidder never runs a proxy fight.

(ii) If the activist owns $\alpha$ shares of the target, the activist runs a proxy fight if and only if $\Delta \in \Gamma(\alpha)$ where

$$\Gamma(\alpha) = \left\{ \Delta : \frac{1 - \varphi}{\varphi} \cdot 1\{\Delta < b\} + 1\{(1 - \varphi)(q_H - q_L) \leq \Delta \} \leq \Delta < b + \frac{1 - \varphi}{\varphi} (q_H - q_L) \right\}$$

(28)

Whenever the activist runs a proxy fight, she wins.

**Proof.** Based on Lemma 7, no information about $q$ is revealed in the first stage. Based on part (i) of Lemma 8, shareholder value under the bidder’s control is $E[q]$. Therefore, electing the bidder to the board is a weakly dominated strategy, and strictly dominated if extraction of value is possible. Based on parts (ii) and (iii) of Lemma 8, the expected shareholder value under the incumbent’s control is

$$s \left[ E[q] + (1 - \varphi)\Delta \cdot 1\{\Delta \geq b\} + \varphi \Delta \cdot 1\{\Delta \geq b + (1 - \varphi)(q_H - q_L)\} \right]$$

$$+ (1 - s) \left[ E[q] + (1 - \varphi) b \cdot 1\{b + \frac{1 - \varphi}{\varphi} (q_H - q_L) > \Delta \geq b\} + ((1 - \varphi)(q_H - q_L) + b) \cdot 1\{b + \frac{1 - \varphi}{\varphi} (q_H - q_L) \} \right],$$
and the expected shareholder value under the activist’s control, if she chooses to run a proxy fight is,

\[
s \left( E[q] + (1 - \varphi) \Delta + \varphi \Delta \cdot 1_{\{\Delta \geq (1 - \varphi)(q_H - q_L)\}} \right) + (1 - s) \left( E[q] + (1 - \varphi)(q_H - q_L) \cdot 1_{\{\Delta \geq \frac{\kappa}{\alpha}(q_H - q_L)\}} \right).
\]

The activist runs a proxy fight if and only if the increase in value under her control is greater than \(\frac{\kappa}{\alpha}\), which holds if and only if \(\Delta \in \Gamma(\alpha)\).

**Remark:** Based on Lemma 9, notice that \(\lim_{q_H \rightarrow q_L} \Gamma = \lim_{\varphi \rightarrow 0,1} \Gamma = \frac{\kappa}{s} \leq \Delta < b\), which demonstrates that as the adverse selection problem disappears, the outcome converges to the baseline model. Moreover, as \(\lim_{b \rightarrow 0} \Gamma = \emptyset\), that is, on the absence of agency problems, the activist never runs a proxy fight. Also, note that

\[
\lim_{b \rightarrow \infty} \Gamma(\alpha) = \begin{cases} \\
\left[ \frac{\kappa}{s} \frac{1}{1 - \varphi}, \infty \right) & \text{if} \quad \frac{\kappa}{s} \frac{1}{1 - \varphi} < q_H - q_L \\
\left[ \frac{\kappa}{s}, \infty \right) & \text{if} \quad \frac{\kappa}{s} \frac{1}{1 - \varphi} \frac{1}{s} < q_H - q_L < \frac{\kappa}{s} \frac{1}{1 - \varphi} \\
\left[ \frac{\kappa}{s} - (1 - \varphi) \frac{1}{s} (q_H - q_L), \infty \right) & \text{if} \quad q_H - q_L < \frac{\kappa}{s} \frac{1}{1 - \varphi} \frac{1}{s} + \frac{1}{s}
\end{cases}
\]

This demonstrates that if \(q_H - q_L\) is large then \(\lim_{b \rightarrow \infty} \Gamma(\alpha) \subset \left[ \frac{\kappa}{s}, \infty \right)\) and if \(q_H - q_L\) is small then \(\left[ \frac{\kappa}{s}, \infty \right) \subset \lim_{b \rightarrow \infty} \Gamma(\alpha)\). This adverse selection can be increase or decrease the incentives of the activist to run a proxy a fight. Finally, note that

\[
\lim_{s \rightarrow 0} \Gamma(\alpha) = \begin{cases} \\
\left[ \frac{1}{\varphi} (q_H - q_L), b + \frac{1}{\varphi} (q_H - q_L) \right) & \text{if} \quad \frac{\kappa}{s} + b < q_H - q_L \\
\min \left\{ b, \frac{1}{\varphi} (q_H - q_L) \right\}, b & \text{if} \quad \frac{\kappa}{s} \leq q_H - q_L < \frac{\kappa}{s} \frac{1}{1 - \varphi} + b \\
\emptyset & \text{if} \quad q_H - q_L < \frac{\kappa}{s} \frac{1}{1 - \varphi}
\end{cases}
\]

This demonstrates that unlike the baseline model, here the activist may run a proxy fight even if \(\Delta > b\). Intuitively, the activist who is less biased against the takeover, can overcome he adverse selection problem while the incumbent cannot.

**Proposition 9** (i) If \(b + \frac{1}{\varphi} (q_H - q_L) \leq \Delta\) or, \(\frac{1}{\varphi} (q_H - q_L) \leq \Delta\) and \(\Delta \in \Gamma(\alpha)\), then the incumbent board reaches an agreement in the first round of negotiations in which the bidder pays

\[
(1 - s) \left( q_H + b \cdot 1_{\{\Delta \geq b + \frac{1}{\varphi} (q_H - q_L)\}} \right) + s \left( E[q] + \Delta \right)
\]

\(64\)
per share and takes over the target.

(ii) If $\Delta < b + \frac{1-\varphi}{\varphi} (q_H - q_L)$ and $\Delta \not\in \Gamma(\alpha)$ then the first round of the negotiations fails and no proxy fight is launched against the incumbent. The second round of negotiations always fails with a positive probability and, it is succeeds with a positive probability only if $b \leq \Delta$.

(iii) If $\Delta < \frac{1-\varphi}{\varphi} (q_H - q_L)$ and $\Delta \in \Gamma(\alpha)$ then the first round of the negotiations fails and the activist launches a successful proxy fight afterwards. The second round of negotiations fails with a positive probability strictly between zero and one.

Proof. Suppose a proxy fight is not expected upon failure of negotiations in the first round, $\Delta \not\in \Gamma(\alpha)$. Based on Lemma 8, the incumbent’s expected payoff conditional on $q$ in the second round of negotiations is

$$
\Pi_{inc}(\Delta, q) = (1 - s) \left[ (q + b) \cdot 1_{\{\Delta < b + \frac{1-\varphi}{\varphi} (q_H - q_L)\}} + (q_H + b) \cdot 1_{\{\Delta \geq b + \frac{1-\varphi}{\varphi} (q_H - q_L)\}} \right] + s \left[ (q + b) \cdot 1_{\{\Delta < b\}} + (q + b + (\Delta - b) 1_{\{q = q_L\}}) \cdot 1_{\{b + (1-\varphi) (q_H - q_L) > \Delta\}} + (E[q] + \Delta) \cdot 1_{\{\Delta \geq b + (1-\varphi) (q_H - q_L)\}} \right]
$$

$$
= \begin{cases} 
q + b & \text{if } \Delta < b \\
q + b + s (\Delta - b) 1_{\{q = q_L\}} & \text{if } b \leq \Delta < b + (1-\varphi) (q_H - q_L) \\
(1 - s) (q + b) + s (E[q] + \Delta) & \text{if } b + (1-\varphi) (q_H - q_L) \leq \Delta < b + \frac{1-\varphi}{\varphi} (q_H - q_L) \\
(1 - s) (q_H + b) + s (E[q] + \Delta) & \text{if } b + \frac{1-\varphi}{\varphi} (q_H - q_L) \leq \Delta.
\end{cases}
$$

There are two cases to consider.

- If $b + \frac{1-\varphi}{\varphi} (q_H - q_L) \leq \Delta$ then indeed $\Delta \not\in \Gamma(\alpha)$ and $\Pi_{inc}(\Delta, q)$ is independent of $q$. Since both the bidder and the incumbent are risk-neutral, they would agree on a price that provides the incumbent with his expected reservation value, $\Pi_{inc}(\Delta, q)$, given by $(1 - s) (q_H + b) + s (E[q] + \Delta)$.

- If $\Delta < b + \frac{1-\varphi}{\varphi} (q_H - q_L)$ and $\Delta \not\in \Gamma(\alpha)$ then $\Pi_{inc}(\Delta, q)$ depends on $q$. Since the incumbent would not agree to get less in the first round and the bidder will not agree to pay more than he is expected to pay in the second round, based on Lemma 7, the first round offer must fail. Since $\Delta < b + \frac{1-\varphi}{\varphi} (q_H - q_L)$ and $\Delta \not\in \Gamma(\alpha)$ then based on Lemma
8 parts ii.b and ii.c there is a positive probability that the takeover fails in the second round. Based on parts ii.c and iii.c, if $\Delta < b$ then the takeover always fails in the second round.

Suppose a proxy fight is expected upon failure of negotiations in the first round, $\Delta \in \Gamma (\alpha)$. This requires $\Delta < b + \frac{1-\varphi}{\varphi} (q_H - q_L)$. Based on Lemma 8, the incumbent’s expected payoff conditional on $q$ in the second round of negotiations is

$$
\Pi_{Inc} (\Delta, q) = (1 - s) \left[ \frac{q \cdot 1 \{ \Delta < \frac{1-\varphi}{\varphi} (q_H - q_L) \}}{+ q_H \cdot 1 \{ \Delta \geq \frac{1-\varphi}{\varphi} (q_H - q_L) \}} \right] + s \left[ \left( q + \Delta 1 \{ q = q_L \} \right) 1 \{ (1-\varphi)(q_H - q_L) > \Delta \} + (E[q] + \Delta) \cdot 1 \{ \Delta \geq (1-\varphi)(q_H - q_L) \} \right]
$$

There are two cases to consider.

- If $\frac{1-\varphi}{\varphi} (q_H - q_L) \leq \Delta$ and $\Delta \in \Gamma (\alpha)$ then $\Pi_{Inc} (\Delta, q)$ is independent of $q$. Since both the bidder and the incumbent are risk-neutral, they would agree on a price that provides the incumbent with his expected reservation value, $\Pi_{Inc} (\Delta, q)$, given by $(1 - s) q_H + s (E[q] + \Delta)$.

- If $\Delta < \frac{1-\varphi}{\varphi} (q_H - q_L)$ and $\Delta \in \Gamma (\alpha)$ then $\Pi_{Inc} (\Delta, q)$ depends on $q$. Similar to the argument above, the first round offer must fail. A successful proxy fight follows, and based on Lemma 8 parts ii and iii, $\beta = 0$ implies that the takeover always has a positive probability of success.

**Remark:** Under the conditions of Part (i) of Proposition 9, if $\frac{1-\varphi}{\varphi} (q_H - q_L) \leq \Delta$ and $\Delta \in \Gamma (\alpha)$, a proxy fight is effective as a threat. Under the conditions of Part (iii) of Proposition 9, a proxy fight is on the equilibrium path.
C Supplemental material

C.1 Full commitment

Suppose the bidder can commit to act in the best interests of target shareholders after winning a proxy fight. Under this assumption, the bidder can credibly promise to pay target shareholders the “fair price”, \( q + s\Delta \), if he is given control of the board. Therefore, target shareholders are indifferent between giving control to the bidder and the activist, as in both cases the shareholder value is \( q + s\Delta \). If \( b \leq \Delta \), shareholders reelect the incumbent regardless of the identity of the rival team. If \( \Delta < b \) and a proxy fight is initiated, the incumbent always loses. The bidder has incentives to run a proxy fight only if his expected payoff, \((1 - s)\Delta - \kappa\), is non-negative. The activist’s incentives are the same as in Lemma 2 part (ii). Clearly, the bidder and the activist have no incentives to incur the costs and run a proxy fight if the other party is also expected to do so.

**Lemma 10** Suppose the first round of negotiations fails. Then:

(i) The bidder runs a proxy fight if and only if the activist does not run a proxy fight and

\[
\frac{\kappa}{1 - s} \leq \Delta < b. \tag{29}
\]

Whenever the bidder runs a proxy fight, she wins.

(ii) If the activist owns \( \alpha \) shares of the target, the activist runs a proxy fight if and only if the bidder does not run a proxy fight and

\[
\frac{\kappa/s}{\alpha} \leq \Delta < b. \tag{30}
\]

Whenever the activist runs a proxy fight, she wins.

**Proof.** If the incumbent board retains control of the target in the second round of negotiations, then shareholder value is \( q + 1_{\{b \leq \Delta\}} \cdot [s\Delta + (1 - s)b] \). If the activist or the bidder obtains control of the target board, an agreement will be reached in the second round and the expected shareholder value is \( q + s\Delta \). Therefore, if \( b \leq \Delta \) then neither the bidder nor the activist can win a proxy fight, and hence, they will not initiate one. Suppose \( \Delta < b \) and the first round of negotiations failed. Shareholders will support whoever runs a proxy fight, knowing that in both cases an agreement will be reached in the second round of negotiations and that the
expected shareholder value will be \( q + s\Delta \). Therefore, if one player is going to run a proxy fight, the other player does not have incentives to run a proxy fight, since by doing so he will obtain the same profit but will in addition incur the cost \( \kappa \). Consider the case where the bidder runs a proxy fight. If the bidder runs a proxy fight then his expected payoff is \((1 - s) \Delta - \kappa \). If neither the bidder nor the activist runs a proxy fight, then the firm will remain independent, and the bidder’s profit will be zero. Therefore, the bidder will run a proxy fight if and only if \( \frac{\kappa}{1 - s} \leq \Delta \). This completes part (i). Consider the case where the activist runs a proxy fight. If the activist runs a proxy fight then her expected payoff is \( \alpha (q + s\Delta) - \kappa \). If neither the bidder nor the activist runs a proxy fight, then the firm will remain independent, and the activist’s profit will be \( \alpha q \). Therefore, the activist will run a proxy fight if and only if \( \frac{\kappa}{\alpha} \leq \Delta \). This completes part (ii).

The result above shows that the activist’s threat of running a proxy fight is more credible than the bidder’s if \( \frac{\kappa}{\alpha} < \frac{\kappa}{1 - s} \). The activist is likely to have stronger incentives than the bidder to run a proxy fight for two reasons. First, since activists have more governance expertise due to their experience in challenging entrenched incumbents of other public companies (e.g., understanding the proxy solicitation process), they are likely to face lower costs of running a proxy fight. Second, target shareholders typically extract most of the value that is created by the takeover (high \( s \); for example, see Betton et al. (2008)), and hence, the activist has more to gain from running a proxy fight. Overall, if \( \frac{\kappa}{\alpha} < \frac{\kappa}{1 - s} \), the activist complements the bidder’s effort to acquire the target even if the bidder can commit to act in the best interests of target shareholders.

Importantly, if \( b \leq \frac{\kappa}{1 - s} \) then the bidder does not run a proxy fight to replace the target board in any equilibrium of the subgame, and the analysis is identical to Section 3. In Section 3, the threat of running a proxy fight is not credible because target shareholders never elect the bidder’s nominees to the board, while here the threat is not credible because the benefit from replacing the incumbent does not compensate the bidder for the cost of running a proxy fight.

The next result shows that the results in Section 3 continue to hold qualitatively when \( \frac{\kappa}{1 - s} < b \). They key difference is that the region in which the bidder can reach an agreement with the incumbent board without the activist’s pressure is expanded from \([b, \infty)\) to \([\frac{\kappa}{1 - s}, \infty)\), and the region in which the activist’s pressure is necessary is scaled down from \([\frac{\kappa}{\alpha}, b)\) to \([\frac{\kappa}{\alpha}, \frac{\kappa}{1 - s})\).

**Proposition 10** Suppose \( \frac{\kappa}{1 - s} < b \).\(^{\text{38}}\) If the activist owns \( \alpha \) shares of that target and the bidder

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\(^{38}\)According to Lemma 10, if \( \frac{\kappa}{1 - s} < b \) then more than one equilibrium of the subgame that follows the first round of negotiations may exist. We assume that whenever there is an equilibrium in which the bidder runs a proxy fight, this equilibrium is in play. This selection tilts the analysis against our result that the activist has
conducted due diligence then the unconditional shareholder value is \( q + \hat{v}(\alpha) \) where

\[
\hat{v}(\alpha) = \int_{b}^{\infty} [s\Delta + (1 - s)b] dF(\Delta) + \int_{b}^{b} [s\Delta + s\kappa] dF(\Delta) + \int_{\frac{\kappa}{1-s}}^{\frac{\kappa}{1-s}} s\Delta dF(\Delta). \tag{31}
\]

**Proof.** We start by proving that if \( b \leq \Delta \) the bidder pays \( q + s\Delta + (1 - s)b \) and takes over the target after the first round of negotiations. Based on Lemma 10, if \( b \leq \Delta \) then neither the bidder nor the activist will run a proxy fight. Therefore, both the bidder and the incumbent board expect that in the second round of negotiations they will reach an agreement with an expected premium of \( s\Delta + (1 - s)b \). Therefore, the bidder will not agree to pay more than this amount and the incumbent board will not accept less than this amount. They will reach an agreement in the first round of negotiations, in which the bidder pays a premium of \( s\Delta + (1 - s)b \).

Next, we prove that if \( \frac{\kappa}{1-s} < \Delta < b \) the bidder pays an expected price of \( q + s\Delta + s\kappa \) and takes over the target in the first round of negotiations. Recall the assumption that if there is an equilibrium in the subgame that follows the first round of negotiations in which the bidder runs a proxy fight, then this equilibrium is in play. Based on Lemma 10, if the first round of negotiations fails, the bidder will run a proxy fight if and only if \( \frac{\kappa}{1-s} \leq \Delta < b \). In this case, the bidder will run and win the proxy fight if the first round of negotiations fails. In the second round, the expected premium is \( q + s\Delta \), and the bidder’s expected profit is \( \Delta (1 - s) - \kappa > 0 \). In the first round of negotiations, shareholders would reject any offer lower than \( q + s\Delta \), and accept any offer higher than that amount. If the bidder is the proposer, he will offer \( q + s\Delta \), and both the board and the shareholders will accept it. If the board is the proposer, he will offer \( q + s\Delta + \kappa \), which leaves the bidder with a profit of \( \Delta (1 - s) - \kappa > 0 \), and hence, the bidder will accept this deal. Overall, the expected takeover premium is \( q + s\Delta + s\kappa \), as required.

Next, we prove that if \( \frac{\kappa}{1-s} \leq \Delta < \frac{\kappa}{1-s} \alpha \) and the activist owns \( \alpha \) shares in the target, the bidder pays \( q + s\Delta \) and takes over the target after the first round of negotiations. Based on Lemma 10, if the first round of negotiations fails and \( \frac{\kappa}{1-s} \leq \Delta < \frac{\kappa}{1-s} \alpha \) then the bidder will not run a proxy fight but the activist will. Therefore, both the bidder and the incumbent board expect that in the second round of negotiations the bidder will negotiate with the activist and they will reach an agreement with expected premium of \( s\Delta \). Therefore, the bidder will not agree to pay more than this amount and the incumbent board will not accept anything less than this amount. They will reach an agreement in the first round of negotiations, in which any effect on the outcome of the takeover, and ensures that the equilibrium in play is the one that obtains the highest shareholder value in the subgame.

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the bidder pays a premium of $s\Delta$, as required.

Last, we show that in all other cases, the target remains independent under the incumbent board’s control. In all other cases, $\Delta < \min\left\{ \frac{\kappa}{1-s}, b \right\}$ and either $\Delta < \min\left\{ \frac{\kappa/s}{\alpha}, b \right\}$ or the activist is not a shareholder of the target. Based on Lemma 10, neither the bidder nor the activist will run a proxy fight. Since $\Delta < b$, the target remains independent under the incumbent board’s control, as required. The proof is completed by noting that (31) is average of these four cases.

\[ \textbf{Remark:} \] The proofs for the results in Section 3.2 and Section 3.3 continue to hold under the assumptions of Section C.1 with the exceptions that $v(\alpha)$ is replaced by $\hat{v}(\alpha)$ and $w(\alpha)$ is replaced by $\hat{w}(\alpha) = \int_{\min\{1-s,\frac{\kappa/s}{\alpha}\}}^{\infty} \Delta dF(\Delta)$.

### C.2 Biased Activist

In this section we analyze the takeover negotiations and proxy fights phase under the assumption that the activist is biased. Specifically, we assume that the activist and the bidder can divert a non-trivial amount of corporate resources as private benefits after winning control of the target board, if the target remains independent. We denote the value transfer by $q\eta$, where $\eta \in (0, 1)$. In the baseline model, $\eta \to 0$. For simplicity, we assume that the transfer involves no deadweight loss. Moreover, consistent with the common critique that activist investors have a short-term investment horizon (for example, because of their desire to establish reputation, higher alternative cost of capital, or the need to meet interim fund out-flows), we assume that the activist discounts the standalone value of each firm by $1 - \gamma \in [0, 1]$. Since the proceeds from a takeover are received by shareholders before the standalone value of the firm is realized, this assumption implies that relative to other investors, the activist is biased toward selling the firm.

**Lemma 11** In the second round of negotiations, the target is acquired by the bidder unless the incumbent board retains control and $\Delta < b$, or the activist obtains control and $\Delta < \beta(\alpha, \eta)$ where

\[
\beta(\alpha, \eta) \equiv q[\eta(1-\alpha)/\alpha - \gamma(1-\eta)].
\]
Moreover, the expected shareholder value is given by

\[
\Pi_{SH}(\Delta) = \begin{cases} 
q + 1_{\{\nu \leq \Delta\}} \cdot [s\Delta + (1-s)b] & \text{if the incumbent board retains control,} \\
(1-\eta)q & \text{if the bidder controls the board,} \\
(1-\eta)q & \text{if the activist controls the board and } \beta(\alpha, \eta) > \Delta, \\
q + s\Delta + (1-s)m(\alpha, \eta) & \text{if the activist controls the board and } \beta(\alpha, \eta) \leq \Delta.
\end{cases}
\]

where

\[
m(\alpha, \eta) \equiv \max \{-\eta q, \beta(\alpha, \eta)\}
\]

**Proof.** There are three scenarios to consider. In the first scenario, the incumbent board retains control of the target. Then the proof is identical to the first scenario of Lemma 1. In the second scenario, the bidder controls the board. With control, the bidder uses the board’s authority to sign on a deal that offers target shareholders the lowest amount they would accept. Moreover, by controlling the target board, the bidder can extract \(q\eta\) from the target’s standalone value. Therefore, in this case, the bidder offers shareholders \((1-\eta)q\), and shareholders, who at this point cannot prevent the bidder from extracting \(q\eta\), accept this offer.

In the third scenario, the activist controls the target board. If no agreement is reached with the bidder, the activist’s payoff is \(\alpha q(1-\eta)(1-\gamma) + q\eta\). Abusing her control of the board, the activist extracts \(q\eta\) from the target. In addition, each share of the target has a value of \(q(1-\eta)(1-\gamma)\), which is the standalone value of the target from the activist’s perspective, taking into account the adverse effect of the value extraction and the activist’s higher discount rate, \(1-\gamma\). The activist agrees to sell the firm if and only if her proceeds from the takeover are higher than \(\alpha q(1-\eta)(1-\gamma) + q\eta\), which holds if and only if \(q + \beta(\alpha, \eta) \leq \pi_2\). Once the activist has control of the board, shareholders would vote to approve the takeover if and only if the price is higher than \(q(1-\eta)\), and the bidder will never offer more than \(q + \Delta\).

The bidder and the activist reach an acquisition agreement that is acceptable to shareholders if and only if \(\beta(\alpha, \eta) \leq \Delta\). If \(\beta(\alpha, \eta) > \Delta\) then the firm remains independent, and the long term shareholder value is \(q(1-\eta)\). If \(\beta(\alpha, \eta) \leq \Delta\) then the firm is sold to the bidder in the second round of negotiations. With probability \(s\) the activist offers \(\pi_2 = q + \Delta\), an offer which is always accepted by the bidder and the target shareholders, and with probability \(1-s\) the bidder offers \(\pi_2 = q + \max \{-\eta q, \beta(\alpha, \eta)\}\), which is always accepted by the activist and the shareholders. ■

**Lemma 12** Suppose the first round of negotiations fails. Then:
(i) The bidder never runs a proxy fight.

(ii) If the activist owns $\alpha$ shares in the target, the activist runs a proxy fight if and only if
\[
\rho(\alpha, \eta) \leq \Delta < b \quad \text{or} \quad b + \frac{\kappa/\alpha}{1-s} \leq \beta(\alpha, \eta) \leq \Delta,
\]
where
\[
\rho(\alpha, \eta) \equiv \max \left\{ \beta(\alpha, \eta), -\frac{1-s}{s} m(\alpha, \eta), \frac{\kappa/\alpha - q\gamma}{s} - \frac{1-s}{s} m(\alpha, \eta) \right\}. \tag{36}
\]

Whenever the activist runs a proxy fight, she wins.\textsuperscript{39}

Proof. Consider part (i). Based on Lemma 11, without the ability to commit not to abuse the power of the board, target shareholders are always worse off if they elect the bidder. Since $\kappa > 0$, no party initiates a proxy fight she expects to lose. Hence, in equilibrium the bidder never runs a proxy fight. Consider part (ii). Based on Lemma 11, if $\beta(\alpha, \eta) > \Delta$ and the activist obtains control, shareholder value is $q(1-\eta)$, and therefore, shareholders would support the incumbent. Suppose $\beta(\alpha, \eta) \leq \Delta$. There are two cases to consider. First, if $b \leq \Delta$ then under the incumbent’s control $\Pi_{SH}(\Delta) = q + s\Delta + (1-s)b$, while under the activist’s control $\Pi_{SH}(\Delta) = q + s\Delta + (1-s) m(\alpha, \eta)$. Therefore, shareholder support the activist if and only if $b \leq m(\alpha, \eta)$. Since $b \geq 0$, this condition becomes $b \leq \beta(\alpha, \eta) \leq \Delta$. The activist runs a proxy fight only if
\[
\alpha [q + s\Delta + (1-s) \beta(\alpha, \eta)] - \kappa \geq \alpha [q + s\Delta + (1-s) b] \iff \beta(\alpha, \eta) \geq b + \frac{\kappa/\alpha}{1-s}. \tag{37}
\]
Combined, the activist runs a proxy fight if and only if $b + \frac{\kappa/\alpha}{1-s} \leq \beta(\alpha) \leq \Delta$, as required.

Second, suppose $\Delta < b$. Under the incumbent’s control $\Pi_{SH}(\Delta) = q$, while under the activist’s control $\Pi_{SH}(\Delta) = q + s\Delta + (1-s) m(\alpha, \eta)$. Therefore, shareholders support the activist only if $-\frac{1-s}{s} m(\alpha, \eta) \leq \Delta$. Combined, the condition becomes
\[
\max \left\{ \beta(\alpha, \eta), -\frac{1-s}{s} m(\alpha, \eta) \right\} \leq \Delta < b. \tag{38}
\]

\textsuperscript{39}If $b + \frac{\kappa/L}{1-s} \leq \beta(L, \eta) \leq \Delta$ then shareholders do not elect the activist to the board because otherwise the incumbent would block the takeover (as in the baseline model), but rather, they elect the activist since she can negotiate a higher takeover premium, similar to our analysis in Section 4.1.
Provided the activist is getting the support from shareholders, she runs a proxy fight if and only if

\[
\alpha [q + s\Delta + (1 - s) m(\alpha, \eta)] - \kappa \geq \alpha q (1 - \gamma) \Leftrightarrow \frac{\kappa/\alpha - q\gamma}{s} - \frac{1-s}{s} m(\alpha, \eta) \leq \Delta
\]  

(39)

Combined, the activist initiates a proxy fight if and only if \( \rho(\alpha, \eta) \leq \Delta < b \), as required. ■

**Proposition 11** Suppose the bidder identifies firm \( i \) as a target and the activist owns \( \alpha \) shares of that firm. Then, the unconditional shareholder value of firm \( i \) is \( q + \tilde{v}(\alpha) \), where \( \tilde{v}(\cdot) \) is given by

\[
\tilde{v}(\alpha) = \int_{b}^{\infty} [s\Delta + (1 - s)b] dF(\Delta) + \int_{\min\{b, \rho(\alpha, \eta)\}}^{b} [s\Delta + (1 - s)m(\alpha, \eta)] dF(\Delta) 
\]

(40)

\[
+1\{b + \frac{\kappa/\alpha}{1-s} \leq \beta(\alpha, \eta)\} \int_{\beta(\alpha, \eta)}^{\infty} (1 - s) (\beta(\alpha, \eta) - b) dF(\Delta)
\]

**Proof.** Given Lemma 12 and Lemma 11, the proof is similar to the proof of Proposition 1, and for brevity, we only highlight the differences. Based on Lemma 12, if the activist owns \( \alpha \) shares of the target and either \( b + \kappa/\alpha \leq \beta(\alpha, \eta) \leq \Delta \) or \( \rho(\alpha, \eta) \leq \Delta < b \), then the activist would run a successful proxy fight if the first round of negotiations fails. Based on Lemma 11, all players expect that once the activist obtains control of the board, she will reach a sale agreement in which the bidder pays in expectations \( \pi''_2 = q + s\Delta + (1 - s) m(\alpha, \eta) \) per share. Therefore, similar to the proof of Proposition 1, the incumbent and the bidder reach an agreement in the first round where the offer is \( \pi''_2 \). Note that if \( b + \kappa/\alpha \leq \beta(\alpha, \eta) \leq \Delta \) then \( 0 < \beta(\alpha, \eta) \) and hence, \( m(\alpha, \eta) = \beta(\alpha, \eta) \). In all other cases, if \( b \leq \Delta \) the incumbent and the bidder reach an agreement in the first round where the offer is \( q + s\Delta + (1 - s)b \), and if \( b > \Delta \) the target remains independent under the incumbent board’s control. This explains the term behind \( \tilde{v}(\alpha) \). ■

**C.3 Influencing voting outcomes**

Activists can help bidders overcome the resistance of incumbents to takeovers by voting their shares for the bidder’s nominees and lobby other shareholders at the proxy fight stage. To emphasize this channel, suppose the bidder can commit to act in the best interests of target shareholders and the activist’s threat of running a proxy fight is not credible. Our key assumption is that the likelihood that shareholders vote for the bidder’s nominees at the proxy fight is higher when the activist is a shareholder of the target than when she is not. Specifically,
suppose that if the bidder runs a proxy fight then with probability $1 - \varepsilon(\alpha) \in (0, 1)$ target shareholders vote rationally and with probability $\varepsilon(\alpha)$ they vote for the incumbent regardless of the circumstances. Intuitively, diffuse shareholders may abstain or vote blindly for the incumbent because of the false presumption that it is protecting their interests. Alternatively, some shareholders are biased toward management because of their business ties with the target (e.g., Cvijanovic et al. (2015)). Moreover, we assume that $\varepsilon(\cdot)$ is a decreasing function, and for simplicity, $\varepsilon(L) = 0$.

Under these assumptions, if the activist owns $\alpha$ share of the target, the bidder is facing a cost of $\frac{\kappa}{1 - \varepsilon(\alpha)}$ per unit of success when running a proxy fight.\footnote{Suppose the bidder expects to win if all shareholders are rational (otherwise, she never runs a proxy fight). Also, let $\Pi_{\text{win}}$ be the bidder’s payoff if she wins the proxy fight and $\Pi_{\text{lose}}$ if she loses. The bidder will run a proxy fight if and only if $(1 - \varepsilon(\alpha)) \Pi_{\text{win}} + \varepsilon(\alpha) \Pi_{\text{lose}} - \kappa > \Pi_{\text{lose}}$, which holds if and only if $\frac{\Pi_{\text{win}} - \Pi_{\text{lose}}}{\Pi_{\text{lose}}} > \frac{\kappa}{1 - \varepsilon(\alpha)}$.} The analysis of the modified model is the same as in Section C.1 when $b < \rho(L)$, with the exception that $\kappa$ is replaced by $\frac{\kappa}{1 - \varepsilon(L)}$. According to Lemma 10, if $\frac{\kappa}{1 - \varepsilon} < b < \frac{\kappa/(1 - \varepsilon(L))}{1 - \varepsilon}$ then the bidder’s threat of running a proxy fight is credible if and only if the activist is a shareholder of the target. With more credibility, the bidder can overcome the incumbent’s resistance and acquire the target. Through this channel the activist can exercise influence even when her own threat of running a proxy fight is not credible.