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Essays In Corporate Finance

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Abstract
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The second chapter, "Corporate Control Activism", co-authored with Doron Levit, studies the role of activist investors in the M&A market. Our theory proposes that activist investors have an inherent advantage relative to bidders in pressuring entrenched incumbents to sell. As counterparties to the acquisition, bidders have a fundamental conflict of interests with target shareholders from which activist investors are immune. Therefore, unlike activists, the ability of bidders to win proxy fights is very limited. This result is consistent with the large number of activist campaigns that have resulted with the target's sale to a third party and the evidence that most proxy fights are launched by activists, not by bidders.

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ABSTRACT

ESSAYS IN CORPORATE FINANCE

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Doron Levit

In the first chapter, "Activist Settlements", I provide a theoretical framework to study the economics of settlements between activist investors and boards. The activist can demand that his proposal be implemented right away ("action settlement") or demand a number of board seats ("board settlement"), which also gives the activist access to better information. I find that the incumbent's rejection of board settlement reflects more of its private information than the rejection of action settlement does. Therefore, demanding board settlement increases the activist's credibility to run a proxy fight upon rejection and leads to a higher likelihood of reaching a settlement in the first place. I draw several implications and empirical predictions of my model, e.g., related to shareholder value, costs of proxy fight, and activist expertise.

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1.1. Introduction

Shareholder activism is on the rise.[1] To influence the corporate policies of their target firms, activist investors employ a variety of tactics, some more antagonistic than others. For example, under many jurisdictions, one path utilized by activists to exert control on firms is to challenge boards with a contested election ("proxy fight"), which is widely studied in literature.[2] However, there is a second path an activist can pursue to influence control: The activist can negotiate directly with the incumbent board, and if the incumbent agrees to the activist's demands, they reach a settlement, thereby effectively bypassing the shareholders. Interestingly, as documented by Bebchuk, Brav, Jiang, and Keusch (2017) and Schoenfeld (2017), such settlements are common and their number has surpassed the number of proxy fights launched.[3] In spite of the prevalence of activist settlements, they have not received much attention in literature. The objective of this paper is to provide a theoretical framework in order to study the economics behind activist settlements.

Importantly, there are two types of settlements that can be reached between activists and incumbents. In a "board settlement", the activist obtains board seats and joins the decision-making in the boardroom to execute his agenda. For example, in 2008, Carl Icahn first received representation on the board of Motorola with two directors after approaching the

[1] One example of this rise is the tremendous growth in activist hedge funds over the last two decades, recently exceeding $170 billion in assets under management (see HLS Forum on Corporate Governance and Financial Regulation, "The Activist Investing Annual Review 2017", 02/21/2017.). Moreover, there is empirical evidence suggesting that there are positive returns around activist interventions (see, e.g., Brav, Jiang, Partnoy, and Thomas (2008), Greenwood and Schor (2009), Bebchuk, Brav, and Jiang (2015), and Becht, Franks, Grant, and Wagner (2017)).

[2] For empirical literature, see, e.g., Dodd and Warner (1983), DeAngelo and DeAngelo (1989), Ikenberry and Lakonishok (1993), Mulherin and Poulsen (1998), Alexander, Chen, Seppi, and Spatt (2010), Buchanan, Netter, Poulsen, and Yang (2012), Helwege, Intintoli, and Zhang (2012), Gantchev (2013), Fos and Tsoutsoura (2014), Appel, Gormley, and Keim (2016), Fos and Jiang (2016), Fos (2017). For theoretical literature, see, e.g., Shleifer and Vishny (1986), Harris and Raviv (1988), Bhattacharya (1997), Maug (1999), Yılmaz (1999), Bebchuk and Hart (2001), Gilson and Schwartz (2001), Corum and Levit (2017).

[3] Schoenfeld (2017) documents that in the US the total number of agreements reached between a firm and its shareholder is over 4,400 from 1996 to 2015. Bebchuk, Brav, Jiang, and Keusch (2017) focus on campaigns by activist hedge funds and report that while 167 settlements were reached from 2007 to 2011, in the same time frame 109 proxy fights were initiated. Moreover, 51 of the latter were settled and therefore did not to go to a shareholder vote.

firm with the aim of splitting it.[4] Bebchuk, Brav, Jiang, and Keusch (2017) document that 87% of the settlement contracts with activist hedge funds between 2007-2011 resulted in the appointment of new directors to the board. On the other hand, in an "action settlement", the incumbent agrees to implement the activist's proposal right away.[5] For example, in 2012, AOL agreed to sell more than 800 patents for $1.1bn to Microsoft after pressured by the hedge fund Starboard Value, although Starboard did not have any presence on the board of AOL.[6]

Given that the activist can demand that the firm implement his proposal, why do we see so many board settlements? More generally, what are the trade-offs between board and action settlements, and what determines the likelihood of reaching a settlement? Also, as shareholders in general are left out of the settlement negotiation, do shareholders benefit from these settlements? For example, Blackrock, the world's largest asset manager, has expressed that "there is a real concern among investors that standard negotiated settlements—such as giving board seats to a dissident or announcing a stock buyback—may favor short-term gains at the expense of long-term performance".[7]

I tackle these questions by analyzing a model in which the activist can either settle (i.e., negotiate a compromise) with the incumbent board or run a proxy fight to replace it. The incumbent board is privately informed about the value of the project on the table, and the incumbent enjoys private benefits from keeping the status quo. The activist is uninformed about the project's value but he is aligned with the shareholders, an assumption which I relax later. The novel feature of my model is that the activist can demand a settlement; specifically, he can demand that the incumbent implement the project (action settlement) or

[4]Motorola eventually split into two subsidiaries in 2011, one of which got acquired shortly after by Google for $12.5bn. See The New York Times, "Motorola and Icahn Reach Compromise on Directors", 4/08/2008; The New York Times, "In Google's Motorola Deal, Icahn Gets His Wish (Again)", 8/15/2011.

[5]Moreover, many of these settlements are not explicit, implying that the real number of settlements reached between activists and firms is even larger than those measured by contracts.

[6]The share price of AOL jumped 43% upon the announcement of this sale. See Wall Street Journal, "AOL's Deal Eases Pressure", 9/04/2012.

[7]See HLS Forum on Corporate Governance and Financial Regulation, "Getting Along with BlackRock", 11/06/2017.

give him several board seats (board settlement), the latter of which provides the activist with better information regarding the value of the project and some level of decision authority over the implementation of the project.

A key insight in my findings is that compared to action settlement, the response of the incumbent to the demand of board settlement is more sensitive to the incumbent's private information, because the future decision of the activist in the board depends on the value of the project. If the activist demands action settlement, the incumbent's incentives to reject are stronger for project returns that are smaller. Therefore, although the incumbent rejects some positive NPV projects (due to the private benefits it keeps by doing so), it always rejects when the project NPV is negative, as illustrated in Figure 1.1. This rejection behavior of the incumbent upon action settlement demand leaves the activist in the dark regarding whether the project return is large enough to justify the costs of launching a proxy fight. Moreover, the weak credibility of the activist to run a proxy fight further encourages the incumbent to reject the action settlement in the first place.

In contrast, if the activist demands board settlement, the incumbent's incentive to accept is non-monotonic with respect to the project return. Specifically, the incumbent accepts board settlement when the project is negative NPV because it knows that the activist will not implement the project upon joining the board. Thus, compared to action settlement, there are two advantages in demanding board settlement: First, the activist saves the cost of a proxy fight when the project is negative NPV. Second, upon rejection of his demand the activist perfectly understands that the project NPV is positive. This inference of the activist increases the credibility of his proxy fight threat upon rejection, which in turn pushes the incumbent to accept the settlement with higher likelihood even when the project has a positive NPV.

I start my analysis in Section 1.3.1 with a baseline version of the model where the activist always learns the value of the project upon joining the board. In this case, the activist demands board settlement if and only if it provides him with a high decision authority.

The model has several interesting implications and predictions. First, acceptance of action settlements always leads to higher average shareholder return than acceptance of board settlements. This result is consistent with Bebchuk, Brav, Jiang, and Keusch (2017), who find that a settlement that contracts departure of the CEO leads to an average announcement return of about 6-12%, while a settlement that gives the activist board seats on average yields an announcement return of about 1%. Therefore, one may raise the question of whether the ability of activists to demand board seats through settlements decreases shareholder value. However, I find that demanding a high number of board seats in fact increases *ex-ante* shareholder value more than demanding action settlement, because it increases the likelihood of reaching a settlement, as well as the likelihood of a proxy fight upon rejection. Related, given any settlement demand, decreasing the cost of waging a proxy fight reduces the shareholder return conditional on settlement as well as conditional on proxy fight, although the shareholder value conditional on the activist's demand increases.[8] For these reasons, when evaluating the effects of shareholder activism, proxy fights and settlements should be taken into account together. In other words, measuring shareholder value conditional on the demand of the activist rather than conditional on the ex-post response of the incumbent may yield more accurate estimates for the effect of activism on firm value.

Second, the probability that the activist's proposal is implemented conditional on obtaining access to the board is lower if these board seats were obtained through a settlement than through a proxy fight (even if the number of board seats is identical in both cases). This observation follows from the result that the incumbent rejects board settlement only if the project NPV is positive, while it always accepts if the project NPV is negative. Therefore, although some might interpret activists' insistence on their proposal after winning a proxy fight as short-termism or as overconfidence, this result provides another explanation as to why activists might be more aggressive with their agenda in the boardroom after a successful proxy fight. Third, the number of board seats demanded by the activist, the likelihood of a

[8]Gantchev (2013) finds that a campaign ending in a proxy fight has average costs of $10.7 million for the activist and that these costs are equal to the two-thirds of the mean abnormal activist return, pointing to significance of these costs from the perspective of the activist.

proxy fight, and shareholder value can be non-monotonic with respect to the cost of waging a proxy fight. Therefore, making activist interventions difficult can improve value of the firm even when the activist's preferences do not conflict with maximizing firm value. This result complements the policy proposals to curb activism that often build on the argument that activists destroy firm value due to their short-term focus.[9]

While the assumption in the baseline model that the activist always learn the project's value upon joining the board is a simplifying one, it is not realistic. Importantly, it masks a disadvantage of board settlement relative to action settlement: Upon rejection of board settlement, the activist cannot immediately infer whether the project NPV is negative or positive. In other words, an important trade-off the activist faces between demanding action settlement and board settlement is that in the latter, the information of the activist becomes *finer upon rejection*, but it becomes *coarser upon acceptance*. Therefore, an important factor determining the activist's choice of settlement demand is his ability to learn the project's value upon joining the board, i.e., his expertise in the industry of the target. To analyze how this ability affects the activist's demand, in Section 1.3.2, I endogenize the decision of the incumbent to disclose the value of the project to the activist after the activist joins the board. In this case, if the activist is likely to be informed upon board settlement of the project's value, then he demands board settlement. On the other hand, if the activist is likely to remain uninformed upon board settlement, then he is often unable to exercise his authority after board settlement, and therefore the activist prefers demanding action settlement instead. However, I show that by demanding fewer seats, which reduces the activist's formal control within the board, or by nominating candidates with less industry expertise, the activist can incentivize the incumbent to disclose the project's value, increasing the probability that the project is implemented. This result can help explain why the number

[9]One example is the Brokaw Act proposed in 2016 by the US senators Tammy Baldwin and Jeff Merkley. The bill introduces more stringent disclosure rules for activists, aiming to make it more difficult for activists to accumulate shares in firms, which would therefore make intervention more costly per share owned by activists. In the press release of the proposal, it is stated that "Activist hedge funds are leading the short-termism charge in our economy. [...] They often make demands to benefit themselves at the expense of the company's long-term interests." See www.baldwin.senate.gov/press-releases/brokaw-act.

of board seats activists obtain in board settlements is fairly low (around 2).[10] Moreover, this result also suggests that "generalist" activists with low industry expertise can be more effective than "specialized" activists in that industry.

Finally, in Section 1.4, I relax the assumption that the activist's preferences are aligned with shareholders, allowing for the activist to be willing to undertake value-destroying projects. Specifically, I examine the question of whether activists destroy value through settlements, as some shareholders have expressed concern that settlements may harm shareholder value. Interestingly, I show that whenever a proxy fight occurs with positive probability, the activist never destroys shareholder value through settlements but only after the activist wins a proxy fight with the support of the shareholders.

My paper is related to the literature on corporate governance and shareholder activism. In general, there are two kinds of governance mechanisms: Voice and exit.[11] My paper belongs to the strand of literature that focuses on voice. Typically, this strand does not distinguish between different types of intervention methods and builds on the notion that the activist can force his intervention on the firm without persuading the incumbent or shareholders.[12] On the contrary, my paper includes settlements as a form of voice mechanism, alongside proxy fight. Moreover, the success of the activist's intervention attempts depends on the belief of the incumbent regarding the activist's threat of running a proxy fight and on the belief of the shareholders regarding the value the activist will create in the event of a proxy fight. The role of proxy fights in exerting control is extensively studied in literature.[13] Distinctively from this literature, however, here I focus on the trade-off between different types of settlements, and their interaction with the activist's decision to run a proxy fight

[10] See Bebchuk, Brav, Jiang, and Keusch (2017).

[11] For surveys on voice and exit, see, e.g., Edmans (2014) and Edmans and Holderness (2017). For the literature on exit, see, e.g., Admati and Pfleiderer (2009), Edmans (2009), Goldman and Strobl (2013), and Edmans et al. (2017).

[12] See, e.g., Shleifer and Vishny (1986), Kyle and Vila (1991), Admati, Pfleiderer, and Zechner (1994), Burkart, Gromb, and Panunzi (1997), Maug (1998), Kahn and Winton (1998), Bolton and von Thadden (1998), Noe (2002), Aghion, Bolton, and Tirole (2004), Faure-Grimaud and Gromb (2004), Edmans and Manso (2011), and Dasgupta and Piacentino (2015).

[13] See, e.g., the papers listed in footnote 2 on page 2.

as a result of the activist's inference. My paper is also related to Levit (2017) who studies communication, alongside with voice and exit, as a form of shareholder activism. Although both models share the idea that voice (i.e., a proxy fight) is an outcome of a failure to resolve the conflict by other means, Levit (2017) focuses on persuasion (i.e., communication of private information) by the activist, while my model focuses on settlements as a form of bargaining. I show that a key factor behind the activist's demand is the information content of the incumbent's response, and that this endogeneity results in many novel predictions. Cohn and Rajan (2013) also study the effect of an activist investor on the board's decision-making. However, in their model the role of the activist is to produce information, and the board acts as an unbiased arbitrator between the management and the activist with the aim of maximizing shareholder value. The focus of their analysis is the interaction between the "internal governance" determined by the board and the "external governance" provided by the activist. In contrast, in my model I treat the board and management as a monolithic entity, who is conflicted with maximizing shareholder value, and I study the relation among different kind of intervention methods (i.e., settlements and proxy fight) the activist can utilize to correct this behavior.

In order to estimate the costs of various stages of activism, Gantchev (2013) builds a sequential decision model where the activist decides at each stage whether to exit or escalate his intervention tactic. However, since he employs structural estimation, he deliberately leaves other aspects exogenous, including the intervention method at each stage.[14] In contrast, a novel feature of my framework is that I explicitly model the critical differences between a proxy fight and settlements, as well as within settlements. I show that these differences, combined with the endogeneity of the decisions of the incumbent and shareholders, shape the activist's settlement demand as well as the decision to run a proxy fight.

The distinction between real and formal control was coined by Aghion and Tirole (1997). In this literature, my paper relates to Dessein (2005), who builds on this distinction and

[14]Boyson and Pichler (2017) also empirically focus on the resistance of activists' targets and the counter-resistance by activists.

studies the allocation of control rights between a privately informed entrepreneur and an investor. While both papers show that lower formal control can be associated with higher real control, the dynamics behind this result are quite different between the two models. In Dessein (2005), as the information asymmetry increases, the entrepreneur relinquishes more formal control to signal to the investor the congruence of their preferences, increasing the entrepreneur's real control. In my paper, by contrast, the activist utilizes his information inference from prior negotiations to increase his real control. In particular, by demanding lower formal control, the activist increases his credibility to implement the project upon the incumbent's nondisclosure, which in turn incentivizes the incumbent to disclose the project's value when it is negative.

Finally, my paper is also related to the literature on bargaining under asymmetric information (See Kennan and Wilson (1993) for an early survey). In comparison to this literature, I allow the parties to negotiate on two different dimensions, as opposed to one dimension: actions and board composition. The latter is effectively a bargaining over rights on access to information and decision making authority. However, negotiations on action versus board seats do not lead to the same outcome since negotiations over rights can incorporate private information. In this sense, my paper is related to Eraslan and Yılmaz (2007) who consider bargaining with securities that allow eventual payoffs to depend on privately held information at the time of negotiations.

1.2. Setup

Consider a model with an activist investor, a publicly traded firm which is initially run by its incumbent board of directors, and passive shareholders of the target. The activist and the incumbent own some shares in the firm as well. There is a project that the firm can implement. I use "project" and "action" interchangeably. Denote by $x = 1$ if the project is implemented, and $x = 0$ otherwise (i.e., status quo). The project creates a value of Δ per share for the activist and shareholders, while the incumbent's payoff per share from implementation is $\Delta - b$, where b represents the private benefit that the incumbent

loses (per share owned) if project is implemented (i.e., $x = 1$).[15] In Section 1.4, I relax the assumption that the preferences of the activist and shareholders are aligned. Δ follows the cumulative distribution function F, which is continuous with full support on $(\underline{\Delta}, b)$, which is the activist's and shareholders' prior information about Δ. On the other hand, the incumbent privately knows Δ. The timeline of the game consists of three phases and is illustrated in Figure 1.2.

In the first phase, the activist and the incumbent negotiates. This phase consists of two stages.

1. (Proposal stage) First, the activist decides whether to make any demand. I denote his demand by η. If the activist does not make any demand, $\eta = \varnothing$. Alternatively, the activist can demand one of the following:

   - Action settlement ($\eta = A$): The activist demands the incumbent to implement the project.

   - Board settlement with activist control of $\alpha_B > 0$ ($\eta = B(\alpha_B)$): The activist demands board seat(s) that give him α_B control in the board. A board control of α gives the activist decision authority in the implementation stage with probability α.

2. (Response stage) If the activist has made a settlement demand, then the incumbent can accept the demand or reject it. If the incumbent accepts a settlement, I assume that the activist cannot run a proxy fight, e.g., due to a stanstill agreement. If the incumbent accepts action settlement, then the project is implemented, payoffs are realized, and the game ends.

The second phase occurs if the incumbent has rejected the activist's demand, or the activist has not made any demand. This phase consists of two stages.

[15] Denoting the incumbent's stake by n_I and absolute private benefits from keeping status quo by B_I, b can be expressed as $b = \frac{B_I}{n_I}$. Therefore, if $n_I\Delta < B_I < \Delta$, then implementing the project is the efficient outcome even when the incumbent's private benefits are considered.

1. (Proxy fight stage) The activist decides whether to launch a proxy fight by incurring a cost of $\kappa > 0$ per share he owns. Let $e = 1$ if a proxy fight is launched, and $e = 0$ otherwise. If the activist runs a proxy fight, the incumbent incurs a cost of $c_{p,1} > 0$.

2. (Voting stage) If the activist has launched a proxy fight, with probability $1 - \phi < 1$ it fails for exogenous reasons, e.g., lack of legal expertise of the activist, the shareholders' fear for retaliation by the incumbent.[16] With probability ϕ, shareholders vote on the merit of the activist's proposal, and the proxy fight succeeds if and only if the shareholders support the activist. Let $\tau = 1$ if the shareholder support the activist, and $\tau = 0$ otherwise. If the activist wins a proxy fight, then he obtains a control of $\alpha_P = 1$ in the board, and the incumbent incurs a cost of $c_{p,2}$, which is in addition to $c_{p,1}$.[17] I let $c_p \equiv c_{p,1} + \phi c_{p,2}$ and assume that

$$c_p < (1 - \phi)(b - \underline{\Delta}). \tag{1.1}$$

   If the activist has not launched a proxy fight or loses it, the payoffs are realized, and the game ends.

The third and final phase takes place if the activist has achieved some $\alpha > 0$ board control, either through board settlement or proxy fight. This phase consists of three stages.

1. (Learning stage) The activist receives a signal $s = \Delta$ with probability q, and does not receive any signal otherwise.

2. (Disclosure stage) The incumbent chooses whether to disclose Δ to the activist. This disclosure is verifiable.[18]

[16] In unreported analysis, I show the results qualitatively do not change under the alternative assumption that the activist does not run a proxy fight with probability ϕ for exogenous reasons, e.g., exit due to a liquidity shock, finding out that the cost of a proxy fight will be too high, etc.

[17] Fos and Tsoutsoura (2014) find that facing a direct threat of removal is associated with \$1.3-2.9 million in foregone income until retirement for the median incumbent director. They also find that after a proxy fight, not only incumbent directors that were up for re-election during the proxy fight lose on average 0.71 on other boards, but also the other incumbent directors (who were not up for re-election) lose on average 0.45 seats on other boards.

[18] I assume that the incumbent cannot disclose Δ unless the activist joins the board. The rationale

3. (Implementation stage) The activist obtains decision authority with probability α, and the incumbent obtains decision authority otherwise. Whoever has the decision authority decides whether to implement the action. Payoffs are realized, and the game ends.

1.2.1. Payoffs

Denoting the payoff of the incumbent, activist, and shareholder by Π_I, Π_a, and Π_{sh} respectively,

$$\Pi_I(\Delta, e, \tau) = x \cdot (\Delta - b) - e \cdot (c_{p,1} + \phi \cdot \tau \cdot c_{p,2}), \tag{1.2}$$

$$\Pi_a(\Delta, e) = x \cdot \Delta - e \cdot \kappa, \tag{1.3}$$

$$\Pi_{sh}(\Delta, e) = x \cdot \Delta. \tag{1.4}$$

As mentioned earlier, I modify the model in Section 1.4 such that the activist has a bias as well.

1.3. Analysis

I solve for the Perfect Bayesian Equilibria of the game, where I allow for mixed strategies. All proofs not in the main text are in the Appendix. Throughout the analysis, I denote the probability that the activist runs a proxy fight if no settlement is reached by ρ. I start with the following preliminary result.

Lemma 1. (*i*) *Consider the implementation stage.*

(a) If the incumbent board has the decision authority and an action settlement has

behind this assumption is that due to Regulation FD, outside the board, the incumbent has to make public disclosure of any material information disclosed to a shareholder that is likely to trade, such as an activist. However, public disclosure of proprietary information may harm the firm value and therefore may result in the breach of fiduciary duty of the incumbent. Consistent with this, upon joining the board many directors nominated by activists sign confidentiality agreements that restrict their information sharing outside the board. See http://clsbluesky.law.columbia.edu/2016/12/15/sullivan-cromwell-reviews-and-analyzes-2016-u-s-shareholder-activism/

not been reached, then the incumbent does not implement the project.

(b) If the activist has acquired board seat(s), has the decision authority, and has received a signal (or Δ is disclosed), then the activist implements the project if $\Delta > 0$ and does not implement if $\Delta < 0$.

(ii) In any equilibrium where the activist runs a proxy fight with positive probability, he wins with probability ϕ.

At the implementation stage, the incumbent strictly prefers not implementing the project for any Δ since its private benefits b per share from keeping status quo is always strictly larger than the increase Δ in the share value from implementing the project. On the other hand, since the activist does not have private benefits from keeping the status quo, if he learns Δ in the board then he pushes for the project if $\Delta > 0$ and prefers status quo if $\Delta < 0$.

If the activist runs a proxy fight, as described in Section 1.2, with probability $1 - \phi$ the proxy fight fails for exogenous reasons, and with probability ϕ the shareholders vote on the merit of the activist's proposal. For the activist to be willing to incur to cost of a proxy fight, it must be that $\Delta > 0$ with positive probability since the source of the activist's profit is the increase in the share price. Since the preferences of the shareholders and the activist are aligned, in the event of a proxy fight, the activist wins with probability ϕ.

Throughout the rest of this section, I assume that the activist's cost of proxy fight κ satisfies[19]

$$\kappa \leq \kappa_0 \equiv \phi E\left[\max\left\{0, \Delta\right\}\right]. \tag{1.5}$$

[19]This assumption ensures that in any equilibrium upon rejection the activist runs a proxy fight with positive probability. In the Appendix I relax this assumption and show that the only additional equilibria to those described in the main text are the ones where the activist never runs a proxy fight upon rejection.

1.3.1. Baseline model: Non-strategic disclosure

In this section, I assume that whenever the activist joins the board (through board settlement or proxy fight) he learns Δ, either because $q = 1$ or because the incumbent always discloses Δ.

1.3.1.1. No settlement offer

I start the analysis with the subgame where the activist has not demanded any settlement.

Lemma 2. *Suppose that the activist has demanded no settlement. Then, an equilibrium of this subgame exists, is unique, and in equilibrium the activist always runs a proxy fight.*

If the activist has not made any demand, then upon running a proxy fight then the activist wins with probability ϕ. Therefore, the expected increase in the share value if the activist runs a proxy fight is given by $\kappa_0 = \phi E\left[\max\left\{0, \Delta\right\}\right]$. Since $\kappa < \kappa_0$, the activist always runs a proxy fight.

1.3.1.2. Action settlement

In this section, I consider the subgame where the activist has demanded action settlement. The proposition below characterizes the equilibrium.

Proposition 1. *Suppose that the activist has demanded action settlement. Then, an equilibrium of this subgame exists, is unique, and in equilibrium:*

(*i*) *The incumbent accepts the action settlement if and only if* $\Delta > \Delta_A^*$*, where*

$$\Delta_A^*\left(\phi\right) \equiv \max\left\{\hat{\Delta}_A\left(\phi\right),\ b - \frac{c_p}{1-\phi}\right\} \in \left(0, b\right), \tag{1.6}$$

where $\hat{\Delta}_A\left(\phi\right)$ *is unique and given by the solution of*

$$\kappa = \phi E\left[\max\left\{0, \Delta\right\} | \Delta \leq \hat{\Delta}_A\right]. \tag{1.7}$$

(*ii*) *Upon rejection, the activist runs a proxy fight with probability*

$$\rho_A^*(\phi) \equiv \min\left\{1, \frac{1}{\phi + \frac{c_p}{b - \hat{\Delta}_A}}\right\} > 0. \tag{1.8}$$

A key driver behind Proposition 1 is that in equilibrium the incumbent follows a threshold strategy. Intuitively, for given Δ and the probability ρ that the activist runs a proxy fight upon rejection, accepting action settlement gives the incumbent a payoff of $\Delta - b$, while rejecting gives it an expected payoff of $\rho[-c_p + \phi(\Delta - b)]$ if $\Delta \geq 0$ and $-\rho c_p$ if $\Delta < 0$. Specifically, for the incumbent there are two differences of rejecting compared to accepting action settlement: While it bears the risk of facing a proxy fight and the associated expected cost of ρc_p, the probability that the project will be implemented, $1_{\{\Delta \geq 0\}}\rho\phi$, is smaller than one. For Δ values that are close to b, the incumbent is better off by just accepting to implement the project instead facing the risk of proxy fight. On the other hand, for smaller Δ, the incumbent is willing to incur the damages of a proxy fight in order to decrease the probability that the project is eventually implemented. Therefore, the incumbent's incentive to accept the settlement is strictly increasing in Δ, and there is a threshold $\Delta_A^*(\phi, \rho)$ such that the incumbent accepts action settlement if and only if $\Delta > \Delta_A^*(\phi, \rho)$, where if $\rho < \frac{1}{\phi + \frac{c_p}{b}}$ then

$$\Delta_A^*(\phi, \rho) \equiv b - \frac{c_p}{\frac{1}{\rho} - \phi} \tag{1.9}$$

and $\Delta_A^*(\phi, \rho) > 0$. Although $\Delta_A^*(\phi, \rho)$ decreases further and becomes nonpositive if ρ is any larger, this never takes place in equilibrium since otherwise the activist would have no incentive to launch a proxy fight upon rejection.

Combined with the threshold strategy of the incumbent, the activist's cost κ of running a proxy fight pins down the equilibrium ρ^*. Since the activist is willing to run a proxy fight upon rejection if and only if there is sufficient potential to increase the value of the firm, the activist has a unique threshold $\hat{\Delta}_A$ given by (1.7) such that upon rejection he always runs a proxy fight if $\Delta_A^* > \hat{\Delta}_A$, never runs a proxy fight if $\Delta_A^* < \hat{\Delta}_A$, and is indifferent otherwise,

where $\hat{\Delta}_A$ is increasing in κ. Specifically, if the cost of proxy is small, i.e., $\hat{\Delta}_A(\kappa) < b - \frac{c_p}{1-\phi}$, then the threshold strategy that the incumbent follows is always larger than $\hat{\Delta}_A$, and hence the activist always run a proxy fight upon rejection, resulting in $\rho^* = 1$. However, if the cost of proxy fight is relatively large, i.e., $\hat{\Delta}_A(\kappa) \geq b - \frac{c_p}{1-\phi}$, then ρ^* is sensitive to the incumbent's strategy Δ_A^*. This results in $\Delta_A^* = \hat{\Delta}_A$, because if Δ_A^* is any larger then the activist's threat is too large to justify the large Δ_A^*, and if Δ_A^* is any smaller then the activist has no threat on the incumbent. In turn, $\Delta_A^* = \hat{\Delta}_A$ determines ρ^*, given by (1.8).

The next Corollary lays out some important implications of Proposition 1.

Corollary 1. *Suppose that the activist has demanded action settlement. Then, in the equilibrium,*

(*i*) *Upon winning a proxy fight, the activist sometimes does not implement the project.*

(*ii*) *The average shareholder return of action settlement is strictly larger than the average shareholder return of a proxy fight. Moreover, the announcement return of action settlement is positive.*

(*iii*) *Compared to the equilibrium where the activist does not demand any settlement, the expected payoff of the activist is strictly larger, while expected shareholder value is strictly smaller if and only if*

$$\rho_A^* < 1 - \frac{1-\phi}{\phi} \frac{P(\Delta > \Delta_A^*) E\left[\Delta | \Delta > \Delta_A^*\right]}{P(\Delta \in [0, \Delta_A^*]) E\left[\Delta | \Delta \in [0, \Delta_A^*]\right]} \tag{1.10}$$

Corollary 1 starts with two simple observations. First, even if the incumbent rejects the action settlement and the activist runs and wins a proxy fight, the activist may end up not pushing for the project. This is because the activist does not know upon running a proxy fight whether the project is negative or positive NPV, and therefore if it turns out that it is negative NPV, the activist will not implement the project even if he achieves decision authority in the board. As I will show in the next section, this will be in contrast with the

activist's behavior upon rejection if he has demanded board settlement. Second, the action settlement is always the better outcome from the perspective of shareholders since it occurs if and only if $\Delta \geq \Delta_A^*$. This observation also implies that the announcement return of action settlement should be positive and larger than the combined announcement returns of the incumbent's rejection and the activist's proxy fight.

Part (iii) of Corollary 1 describes a more subtle implication of Proposition 1. The activist strictly prefers to demand action settlement over demanding nothing since demanding action settlement not only guarantees project implementation in the region $\Delta \geq \Delta_A^*$, but it also saves the activist the cost of launching a proxy fight in this region. Interestingly, however, while the first effect is an advantage for the shareholders as well, the second effect is a disadvantage for them when it reduces ρ^* below one, since if the activist demands nothing then $\rho^* = 1$. For this reason, if the former effect is dominated by the decrease in ρ^*, shareholders are in fact *worse off* by the activist's demand of action settlement compared to making no demand. Therefore, even though the preferences of the activist and shareholders are aligned, shareholders can be adversely affected by the activist's ability to make demands from the incumbent.

The next Corollary specifies some comparative statics with respect to κ and c_p.

Corollary 2. *Suppose that the activist has demanded action settlement. Then, in the equilibrium,*

(*i*) *As κ decreases, the expected shareholder value conditional on settlement as well as conditional on proxy fight decreases, while the unconditional expected shareholder value increases.*

(*ii*) *As c_p increases,*

(*a*) *If $c_p < (1-\phi)(b - \hat{\Delta}_A)$, then part (i) strictly holds. Moreover, the activist's expected payoff strictly increases.*

(b) *If* $c_p \geq (1-\phi)(b - \hat{\Delta}_A)$*, then expected shareholder value strictly decreases, the activist's expected payoff does not change.*

In part (i), as the activist's cost κ of running a proxy fight increases, the activist's threat ρ^* increases. Therefore, the incumbent is more likely to accept the settlement, resulting in a drop in Δ_A^*, which in turn decreases both the expected shareholder value conditional on settlement, $E[\Delta|\Delta > \Delta_A^*]$, and the expected shareholder value conditional on proxy fight, $\phi E[\max\{0, \Delta\}|\Delta \leq \Delta_A^*]$. On the other hand, the unconditional shareholder value becomes larger for two reasons: The probability of reaching an action settlement, $P(\Delta > \Delta_A^*)$, increases, which always creates more value than a proxy fight would for the same Δ, and the probability ρ^* of a proxy fight upon rejection increases as well. Importantly, part (i) points out how careful empirical findings should be interpreted when evaluating the effectiveness of activism. Specifically, measuring the shareholder returns following only settlements or only proxy fights might be misleading, because they are intertwined.

The comparative statics of shareholder value with respect c_p, the damages incurred by the incumbent if it loses a proxy fight, share the same characteristics with the comparative statics with respect to κ if c_p is small as described in part (ii.a). This is because as c_p increases, the incumbent again becomes more likely to accept the settlement, resulting in a drop in Δ_A^*, although the activist's threat $\rho^* = 1$ does not change. The activist becomes better off as well since in addition to the increase in the shareholder value, the probability that he will need to run a proxy fight decreases since the rejection likelihood $P(\Delta \leq \Delta_A^*)$ decreases. On the other hand, if c_p is already large as specified by part (ii.b), then interestingly shareholder value is strictly *decreasing* in c_p. To understand this result, note that $\Delta_A^* = \hat{\Delta}_A$ since Δ_A^* cannot be any lower for the activist has a credible threat on the incumbent. Therefore, as c_p increases, for the incumbent to still choose the threshold $\Delta_A^* = \hat{\Delta}_A$, due to (1.9) it must be that the activist's threat ρ^* *decreases*, which results in a drop in shareholder value. However, the activist does not internalize this loss in shareholder value, because upon rejection he is indifferent between running a proxy fight

and not since $\Delta_A^* = \hat{\Delta}_A$. Combined with part (ii.a), this implies that overall the activist weakly prefers larger c_p, although increasing c_p too much harms shareholder value and the activist is unbiased. Therefore, even when shareholders believe that their preferences are aligned with an activist, they should beware activist campaigns for policies that increase c_p, such as eliminating golden parachutes.

1.3.1.3. Board settlement

In this section, I assume that the activist has demanded board settlement with control $\alpha_B > 0$. The next proposition characterizes the equilibrium.

Proposition 2. *Suppose that the activist has demanded board settlement with activist control of $\alpha_B \in (0, 1]$. Then, an equilibrium of this subgame with on the equilibrium path proxy fight exists, is unique, and in this equilibrium:*[20]

(*i*) *The incumbent accepts the settlement if and only if $\Delta \in \mathbf{B}^*(\alpha_B) \equiv (\underline{\Delta}, 0) \cup (\Delta_B^*(\alpha_B), b)$, where $\Delta_B^* \in (0, b)$ is given by*

$$\Delta_B^*(\alpha_B) \equiv \begin{cases} b - \frac{c_p}{\alpha_B - \phi}, & \text{if } \alpha_B > \hat{\alpha}_L \\ \hat{\Delta}_B(\phi), & \text{otherwise} \end{cases}, \tag{1.11}$$

where

$$\hat{\alpha}_L \equiv \phi + \frac{c_p}{b - \hat{\Delta}_B(\phi)}, \tag{1.12}$$

and $\hat{\Delta}_B$ is unique and given by the solution of

$$\kappa = \phi E\left[\Delta | 0 \leq \Delta \leq \hat{\Delta}_B\right]. \tag{1.13}$$

[20] Throughout the analysis, I focus on this "proxy fight equilibrium", where proxy fight is on the equilibrium path. As I show in the Appendix, the only other equilibrium that exists is the "acceptance equilibrium" where the incumbent accepts for all Δ, which exists if and only if $\alpha_B \leq \phi + \frac{c}{b}$. However, this equilibrium is not robust to perturbations (e.g., consider any distribution $G_n(\cdot)$ of Δ such that $G_n(\Delta) > 0$ for all $\Delta \leq b$, and suppose that the activist makes a mistake with probability $\varepsilon_n > 0$ at the implementation stage. Then, as $G_n(\cdot) \xrightarrow{p} F(\cdot)$ and $\varepsilon_n \to 0$, no equilibrium converges to the acceptance equilibrium, while proxy fight equilibrium does emerge). Nevertheless, I show in the Appendix that many of the results continue to hold qualitatively under the alternative selections of equilibrium.

(*ii*) *Upon rejection the activist runs a proxy fight with probability* $\rho_B^*(\alpha_B) \equiv \min\left\{1, \frac{\alpha_B}{\alpha_L}\right\}$.

Proposition 2 starts with the simple observation that in equilibrium the probability ρ that the activist runs a proxy fight upon rejection is positive. Indeed, if $\rho^* = 0$, then the incumbent strictly prefers to reject for all $\Delta > 0$, because the incumbent knows that if it accepts board settlement, the activist will implement the project whenever he has the decision authority, which will occur with probability α_B. Since the incumbent would reject for all $\Delta > 0$, a proxy fight would be strictly profitable for the activist since $\kappa < \phi E[\max\{0, \Delta\}]$.

To understand the incumbent's strategy, there are two cases to consider. If $\Delta < 0$, then the incumbent does not have anything to fear from having the activist in the board, since the activist will learn that $\Delta < 0$ and hence will not push to implement the project. On the other hand, the incumbent faces the risk of a proxy fight if it rejects. Therefore, the incumbent strictly prefers to accepts board settlement for all $\Delta < 0$. On the other hand, if $\Delta \geq 0$, then the incumbent knows that if the activist gets decision authority in the board then he will implement the project, and therefore the incumbent follows a threshold strategy. Specifically, the incumbent accepts board settlement if and only if

$$\alpha_B(\Delta - b) > \rho[-c_p + \phi(\Delta - b)], \tag{1.14}$$

or, equivalently for all $\Delta > \Delta_B^*(\alpha_B, \rho)$, where if $\rho < \frac{\alpha_B}{\phi + \frac{c_p}{b}}$ then

$$\Delta_B^*(\alpha_B, \rho) \equiv b - \frac{c_p}{\frac{\alpha_B}{\rho} - \phi}, \tag{1.15}$$

and $\Delta_B^*(\alpha_B, \rho) > 0$. Although $\Delta_B^*(\alpha_B, \rho)$ decreases further and becomes nonpositive if ρ is any larger, this would imply that the incumbent accepts for all Δ, which does not take place in the equilibrium where proxy fight is on the equilibrium path.

In turn, ρ^* is pinned down in a similar fashion to the case where the activist demands action settlement. Specifically, there is a unique threshold $\hat{\Delta}_B$ such that upon rejection the activist always runs a proxy fight if $\Delta_B^* > \hat{\Delta}_B$, never runs a proxy fight if $\Delta_B^* < \hat{\Delta}_B$, and is

indifferent otherwise, where $\hat{\Delta}_B$ is increasing in κ. If the control demand of the activist is high, i.e., $\alpha_B > \hat{\alpha}_L$, then since the threshold strategy that the incumbent follows is always larger than $\hat{\Delta}_B$, the activist always run a proxy fight upon rejection, resulting in $\rho^* = 1$. However, if the control demand of the activist is low, i.e., $\alpha_B \leq \hat{\alpha}_L$, then ρ^* is sensitive to the incumbent's strategy Δ_B^*, resulting in $\Delta_B^* = \hat{\Delta}_B$, which in turn determines ρ_B^*.

The next Corollary establishes some implications of Proposition 2.

Corollary 3. *Suppose that the activist has demanded board settlement with activist control of $\alpha_B > 0$. Then, in any equilibrium of this subgame where proxy fight is on the equilibrium path,*

(*i*) *Upon board settlement the activist sometimes does not implement the project even if he achieves the decision authority, while upon winning a proxy fight the activist always implements the project if he achieves the decision authority.*

(*ii*) *The average shareholder return of board settlement is always strictly smaller than the average return of an action settlement. Moreover, $\Delta_B^*(\alpha_B) \leq \Delta_A^*$ for any α_B, and the average shareholder return of board settlement is strictly smaller than the average shareholer return of a proxy fight if and only if $\Delta_B^*(\alpha_B) > \bar{\Delta}_B(\alpha_B)$, where $\bar{\Delta}_B(\alpha_B) \in (0, b)$ is unique and given by*

$$\alpha_B E\left[\max\{0, \Delta\} | \Delta \notin \left[0, \bar{\Delta}_B\right]\right] = \phi E\left[\Delta | \Delta \in \left[0, \bar{\Delta}_B\right]\right]. \tag{1.16}$$

(*iii*) *Suppose $\alpha_B = 1$. Then,*

(*a*) *The expected payoff of the activist is strictly larger than in the equilibrium where he has not demanded any settlement or where he has demanded action settlement.*

(*b*) *The expected shareholder value is strictly larger than in the equilibrium where he the activist demanded action settlement if $\rho_A^* < 1$.*

Upon any board settlement, it is revealed that the project NPV is negative with some probability. Therefore, whenever this is the case, the activist does not push for the project in the boardroom. On the other hand, upon rejection the activist perfectly understands that the project NPV is nonnegative. Therefore, if the activist runs a proxy fight upon rejection, then upon winning he will be very aggressive with his agenda in the boardroom, always implementing the project as long as he has the decision authority. Note that this is also in contrast with the activist's behavior upon winning a proxy fight if the board has rejected an action settlement as described in Corollary 1 part (i). For this reason, the dynamics in the boardroom not only depend on the amount of control the activist has achieved, but also heavily depend on the path the activist has achieved that control (i.e., proxy fight vs. board settlement) as well as on the prior demand of the activist.

Part (ii) compares the average return of board settlement with the return of action settlement as well as proxy fight upon rejection of board settlement. An important difference action settlement and board settlement is that while action settlement takes place if and only $\Delta \geq \Delta_A^*$, where the project is implemented with probability one, board settlement takes place for all $\Delta \in (\underline{\Delta}, 0) \cup (\Delta_B^*(\alpha_B), b)$, where $\Delta_B^*(\alpha_B) \leq \Delta_A^*$. Moreover, under board settlement the project is implemented at most with probability α_B. Therefore, the average return of board settlement is strictly smaller than that of action settlement, consistent with Bebchuk, Brav, Jiang, and Keusch (2017) who find that board settlements have an average announcement return of about 1%, while settlements that specify the departure of the CEO have an average announcement return of 6-12%. In fact, if $\Delta_B^*(\alpha_B)$ is close to b then board settlement also has a lower average announcement return than that of a proxy fight, because the announcement of board settlement reveals that with high likelihood $\Delta < 0$ and hence the project will not be implemented, while proxy fight reveals that $\Delta \geq 0$. The fact that this result holds even if $\alpha_B = 1$ once again emphasizes the point that for the final decisions that come out of the new board, in addition to the amount of control the activist has gained in the board, the way with which the activist has achieved this control is also crucial.

Although part (ii) of Corollary 3 state that if looked at the data, the return of board settlements will seem small compared to action settlement, this does not mean that *demanding* board settlement produces less value then demanding action settlement. Part (iii) articulates this contrast, and tells that both the activist and shareholders always prefer demanding board settlement with $\alpha_B = 1$ over demanding action settlement. To see this result, note that compared to demanding action settlement, when the activist demands board settlement with $\alpha_B = 1$, (1) the board accepts board settlement if $\Delta < 0$, saving the activist the cost of launching a proxy fight, (2) the activist increases his proxy fight threat from ρ_A^* to ρ_B^* because upon rejection the activist understands that $\Delta \geq 0$, increasing shareholder value, and (3) the increase in ρ^* incentivizes the incumbent to accept the settlement offer more, i.e., $\Delta_B^* \leq \Delta_A^*$, benefiting both the the activist and shareholders. The last point has a double benefit for the activist, because not only it increases shareholder value, but it further saves him cost of a proxy fight. Moreover, when demanding board settlement, the activist can further increase his expected payoff by adjusting his demand α_B, as I show in Section 1.3.1.4.

The next Corollary specifies some comparative statics with respect to κ and c_p.

Corollary 4. *Suppose that the activist has demanded board settlement with activist control of $\alpha_B > 0$. Then, in any equilibrium of this subgame where proxy fight is on the equilibrium path,*

(*i*) *As κ decreases, the expected shareholder value conditional on settlement as well as conditional on proxy fight decreases, while the unconditional shareholder value increases.*

(*ii*) *As c_p increases:*

(*a*) *If $c_p < (\alpha_B - \phi)(b - \hat{\Delta}_B)$, part (i) strictly holds. Moreover, the activist's expected payoff strictly increases, while the incumbent board's ex-ante expected payoff strictly decreases.*

(*b*) *If $c_p \geq (\alpha_B - \phi)(b - \hat{\Delta}_B)$, then expected shareholder value strictly decreases,*

the activist's expected payoff does not change, and the incumbent board's ex-ante expected payoff strictly increases.

The comparative statics with respect to κ and c_p are similar with their counterpart under action settlement demand in Corollary 4, with one addition: If c_p is small as specified by part (ii.a), then the incumbent's rejection threshold is so high that $\rho^* = 1$, and hence the incumbent is strictly worse of by an increase in c_p. However, if c_p is large as described by (ii.b), then surprisingly incumbent's ex-ante expected payoff is strictly increasing in c_p! This is because $\Delta_B^* = \hat{\Delta}_B$ for all such c_p, and for Δ_B^* to stay constant upon an increase in c_p, the activist's threat ρ^* decreases so much that this decrease dominates the increase in c_p, increasing the incumbent's expected payoff in the region $\Delta \in [0, \hat{\Delta}_B]$ from rejecting. Therefore, even though some incumbent boards may willingly make themselves more vulnerable for a proxy fight, for example by reducing or eliminating golden parachutes, doing so may effectively shield them more from activists and does not necessarily mean that the boards in these firms are not conflicted with the shareholders. In fact, the incumbent prefers larger c_p if and only if doing so decreases shareholders value, i.e., $c_p \geq (\alpha_B - \phi)\left(b - \hat{\Delta}_B\right)$. Moreover, since the activist always prefers higher c_p, if this condition holds, then activists and incumbents are in agreement for policies that increase c_p, although it harms shareholder value.

1.3.1.4. Equilibrium demand

In this section, I endogenize the settlement demand of the activist. Empirically, we do not observe an incumbent board handing all of the board seats to an activist in a settlement (see, e.g., Bebchuk, Brav, Jiang, and Keusch (2017)). Therefore, in this section I restrict the level of control the activist can demand in board settlement to $\alpha_B \in (0, \alpha_h]$, where $\alpha_h \in (0, 1]$ is exogenous.[21]

[21] One of the possible justifications for this assumption is that it may be costly for the incumbent board to give board seats to the activist. In an unreported analysis, I endogenize α_h and show that the incumbent rejects board settlement for all Δ if and only if $\alpha_B > \alpha_h$ under the assumption that the incumbent board suffers additional cost that increases monotonically with the activist's control α.

As α_B decreases to zero, the activist's payoff from demanding board settlement diminishes to zero as well, because not only the activist's decision authority upon board settlement becomes insignificant, but also upon rejection the activist becomes indifferent between running a proxy fight and not. In contrast, by Corollary 3, the activist strictly prefers demanding board settlement with control α_B over demanding action settlement if α_B is sufficiently large. Moreover, the activist's payoff from demanding action settlement is strictly positive by Proposition 1, because then action settlement is reached with positive probability. Therefore, when deciding whether to demand action settlement or board settlement, the activist demands board settlement if and only if α_h is large. The next result formalizes this finding, as well as characterizing the equilibrium α_B^* the activist demands when he decides to demand board settlement.

Proposition 3. *Suppose that for any $\alpha_B > 0$, the equilibrium with on the equilibrium path proxy fight is in play. Then, an equilibrium always exists, and there exists a unique $\alpha_l \in (0,1)$ such that in any equilibrium the activist demands board settlement if and only if $\alpha_h > \alpha_l$. Moreover, if $\alpha_h > \alpha_l$, then in any equilibrium the activist demands board settlement with $\alpha_B^* \in \Lambda \equiv \arg\max_{\min\{\alpha_h, \hat{\alpha}_L\} \leq \alpha_B \leq \alpha_h} \Pi_a(\alpha_B)$ and*

(*i*) *In equilibrium, α_B^* is unique if any of the following holds:*

(*a*) *If $\hat{\alpha}_L \geq \alpha_h$, then, $\alpha_B^* = \alpha_h$.*

(*b*) *If $\hat{\alpha}_L < \alpha_h$, $\kappa < \frac{c_p}{2}$, and $f'(\Delta) \geq 0$ for all $\Delta \in \left[\hat{\Delta}_B(\phi), b - \frac{c_p}{\alpha_h - \phi}\right]$, then*

$$\alpha_B^* = \begin{cases} \alpha_h, & \text{if } \Pi_a'(\alpha_h) \geq 0, \\ \hat{\alpha}_L, & \text{if } \Pi_a'(\hat{\alpha}_L) \leq 0, \\ \alpha_B^{**} \in (\hat{\alpha}_L, \alpha_h) \text{ s.t. } \Pi_a'(\alpha_B^{**}) = 0, & \text{otherwise.} \end{cases} \tag{1.17}$$

(*ii*) *There exists $\alpha_{sh}^* \in (0, \alpha_h]$ that maximizes shareholder value, and $\alpha_{sh}^* \geq \min\{\alpha_h, \hat{\alpha}_L\}$. Moreover, any α_{sh}^* satisfies $\alpha_{sh}^* > \max\Lambda$ if $\hat{\alpha}_L < \max\Lambda < \alpha_h$, and $\alpha_{sh}^* \geq \max\Lambda$ otherwise.*

(iii) Suppose that $\Delta \sim U(\underline{\Delta}, b)$. *Then,*

(a) In equilibrium α_B^* *is unique and* $\alpha_B^* = \alpha_h$ *if* $\hat{\alpha}_L \geq \alpha_h$ *or* $\kappa \leq \frac{c_p}{2}$, *and* $\alpha_B^* = \hat{\alpha}_L$ *otherwise, where* $\hat{\alpha}_L(\kappa) = \phi + \frac{c_p}{b - \frac{2\kappa}{\phi}}$.[22]

(b) $\Pi_{sh}(\alpha_B|\kappa)$ *is strictly increasing in* α_B *for any* κ. *Moreover, if* $\kappa_H > \frac{c_p}{2}$ *and* $\alpha_h > \phi$, *then in equilibrium* $\Pi_{sh}(\alpha_B^*|\kappa)$ *is maximized if and only if* $\kappa \in (0, \frac{c_p}{2}] \cup \{\kappa_H\}$, *where*

$$\kappa_H \equiv \frac{\phi}{2} \cdot \left(b - \frac{c_p}{\alpha_h - \phi} \right).$$

To see how the activist determines the level of control α_B to demand when he decides to demand board settlement, note that the activist's expected profit by demanding board settlement is given by

$$\Pi_a(\alpha_B) = \alpha_B \int_{\Delta_B^*(\alpha)}^{b} \Delta dF(\Delta) + \int_0^{\Delta_B^*(\alpha_B)} (\phi\Delta - \kappa) dF(\Delta), \tag{1.18}$$

where the first and second terms represent the activist's expected payoff upon acceptance of board settlement and upon rejection, respectively. If $\alpha_B < \hat{\alpha}_L$, then $\Delta_B^*(\alpha_B) = \hat{\Delta}_B$ does not change with α_B, and hence $\Pi_A(\alpha_B)$ is strictly increasing in α_B. This is because for the activist to have credibility against the incumbent, $\Delta_B^*(\alpha_B)$ has to be sufficiently large, i.e., $\Delta_B^*(\alpha_B) \geq \hat{\Delta}_B$. When $\alpha_B < \hat{\alpha}_L$, this constraint binds, resulting in $\Delta_B^*(\alpha_B) = \hat{\Delta}_B$. On the other hand, if $\alpha_B > \hat{\alpha}_L$, then

$$\Pi_a'(\alpha_B) = \int_{b - \frac{c_p}{\alpha_B - \phi}}^{b} \Delta dF(\Delta) - \frac{c_p}{(\alpha_B - \phi)^2} f\left(b - \frac{c_p}{\alpha_B - \phi} \right) \left[(\alpha_B - \phi) \left(b - \frac{c_p}{\alpha_B - \phi} \right) + \kappa \right]. \tag{1.19}$$

In this case, demanding higher α_B has three distinct effects: While it gives the activist higher control conditional on board settlement, as represented by the first term in (1.19), it also increases the likelihood of rejection, as represented by the second term. In the latter case, not only the activist has to incur the cost of a proxy fight to have the project implemented,

[22] If $\kappa = \frac{c_p}{2}$ and $\alpha_L < 1$, the activist's profit is maximized at any $\alpha \in [\alpha_L, 1]$.

but also the probability that it will be eventually implemented drops from α_B to ϕ even though the activist runs a proxy fight. These effects determine in equilibrium the level of α_B the activist demands.

Part (ii) of Proposition 3 points outs that the optimal α_B for shareholders is larger than the equilibrium choice of the activist. To see this result, note that the expected shareholder value is given by

$$\Pi_{sh}(\alpha_B) = \alpha_B \int_{\Delta_B^*(\alpha_B)}^{b} \Delta dF(\Delta) + \rho_B^*(\alpha_B)\phi \int_0^{\Delta_B^*(\alpha_B)} \Delta dF(\Delta). \tag{1.20}$$

When $\alpha_B < \hat{\alpha}_L$, shareholder value is strictly increasing in α_B since $\rho_B^*(\alpha_B)$ strictly increases. Therefore, for all $\alpha_B < \hat{\alpha}_L$, the interests of the activist and shareholders are aligned, and both prefer larger α_B. In contrast, if $\alpha_B > \hat{\alpha}_L$, then shareholders and the activist may differ about what α_B should be demanded. Specifically, as α_B increases, the likelihood of rejection increases; however, shareholders do not internalize the increased expected proxy fight cost the activist will incur due to higher probability of rejection. In other words, $\Pi'_{sh}(\alpha_B) = \Pi'_a(\alpha_B|\kappa = 0)$, and hence $\Pi'_{sh}(\alpha_B) \geq \Pi'_a(\alpha_B)$. Therefore, shareholders may end up wishing that the activist were more aggressive in his demand and would demand higher α_B.

If $\hat{\alpha}_L(\kappa) > \alpha_h$, then the activist demands $\alpha_B^* = \alpha_h$, and hence Corollary 4 implies that expected shareholder value is decreasing in κ and c_p. In the case where c_p is small such that $\hat{\alpha}_L(\frac{c_p}{2}) < \alpha_h$, part (iii) of Proposition 3 implies some additional interesting comparative statics with respect to κ and c_p. Under uniform distribution, shareholder value is strictly increasing in α_B. Therefore, if the cost of a proxy fight is small, i.e., $\kappa < \frac{c_p}{2}$, the activist makes the highest demand possible, $\alpha_B^* = \alpha_h$, and the shareholder value is maximized. On the other hand, increasing κ over this threshold results in a drop in the demand of the activist to $\hat{\alpha}_L$, because the importance the activist puts on minimizing the need of a proxy fight outweighs the benefits of maximizing shareholder value. Note that this drop is substantial if $\hat{\alpha}_L(\frac{c_p}{2})$ is small, e.g., if b is large or c_p is small. Therefore, small changes in

policies that affect the activist's ability to run a proxy fight or the incumbent's ability to resist might have significant effects on the activist's demand and, therefore, on shareholder value. Futhermore, even more interestingly, although increasing κ from below $\frac{c_p}{2}$ to above it results in a loss of shareholder value, further increasing it can raise shareholder value! Specifically, if $\frac{c_p}{2} < \kappa < \kappa_H$, raising κ strictly increases the equilibrium demand α_B^* of the activist since $\alpha_B^* = \hat{\alpha}_L(\kappa)$ and $\hat{\alpha}_L(\kappa)$ increases with κ. Intuitively, upon larger κ, the lowerbound $\hat{\Delta}_B(\kappa)$ for the rejection threshold Δ_B^* of the incumbent increases, since upon rejection the activist must have sufficient incentives to challenge the incumbent. Therefore, demanding α_B lower than the new, larger $\hat{\alpha}_L(\kappa)$ has no benefit to the activist anymore, because doing so does not decrease Δ_B^* as it did under smaller κ. In other words, under larger κ, since the activist has a credible threat to run a proxy fight only if the expected project return upon rejection is larger, the activist demands higher α_B^* so that it is rejected more often. Therefore, as κ increases, not only the activist becomes more aggressive in the number of seats he demands, but also negotiations end in a proxy fight more frequently. The increase in α_B^* with respect to κ continues up to $\kappa = \kappa_H$, which results in $\hat{\alpha}_L(\kappa) = \alpha_h$ and hence forces the activist to demand $\alpha_B^* = \alpha_h$, once again maximizing shareholder value. More generally, I show in the Appendix that under any distribution, as long as for some κ the activist does not demand the highest level of control he can demand, then expected shareholder value is nonmonotonic with respect to κ and is maximized if and only if $\kappa \in [0, \kappa_L] \cup \{\kappa_H\}$ for some $0 < \kappa_L < \kappa_H$.[23]

1.3.2. Strategic disclosure

In this section, I assume that the activist does not always receive a signal that reveals Δ to him upon getting $\alpha > 0$ control in the board, i.e., $q \in (0, 1)$, and the incumbent is strategic when deciding to disclose Δ to the activist in the boardroom. Upon gaining board control through board settlement (proxy fight), I denote by γ_B (γ_P) the probability with which the activist implements the project when he does not receive a signal and the incumbent

[23] In the Appendix, I also derive the sufficient conditions under which α_B^* is nonmonotonic under alternative selections of equilibrium.

does not disclose Δ. Noting that Lemma 1 still holds, I start the analysis with another preliminary lemma.

Lemma 3. *Suppose that the activist has acquired $\alpha > 0$ control, and consider any equilibrium. Then, after acquiring board seats, if the activist believes that $\Delta > 0$ with positive probability, then in any equilibrium $\gamma^* = 1$ or $\gamma^* = 0$. Moreover,*

(*i*) *If $\gamma^* = 0$, the incumbent weakly prefers not to disclose Δ for any Δ. Moreover, the project is not implemented if the activist does not receive a signal.*

(*ii*) *If $\gamma^* = 1$, the incumbent strictly prefers to disclose Δ if $\Delta < 0$, and is indifferent between disclosing and not if $\Delta > 0$. Moreover, the project is implemented if the activist has decision authority and $\Delta > 0$, and is not implemented if $\Delta < 0$.*

Intuitively, upon joining the board if the activist believes that $\Delta > 0$ with positive probability, which will be the case in any equilibrium as we will see in the following sections, then it cannot be that $\gamma^* \in (0, 1)$, because if it were then the incumbent would always disclose Δ to the activist whenever $\Delta < 0$, inducing the activist to update his belief upon nondisclosure to $\Delta \geq 0$. Therefore, in any equilibrium, $\gamma_B^*, \gamma_P^* \in \{0, 1\}$.

If $\gamma^* = 0$, then the incumbent knows that the activist will not implement the project if he does not get any signal, and thefore has no incentive to disclose Δ to the activist. Moreover, if the activist will push for the project with positive probability upon disclosure, e.g., $\Delta > 0$, then the incumbent strictly prefers not to disclose. Therefore, the incumbent does not engage in any disclosure that might result in the implementation of the project, and the project is implemented only if the activist learns on his own that $\Delta \geq 0$.

On the other hand, if $\gamma^* = 1$, then the incumbent has strict incentives to disclose if $\Delta < 0$, because doing so will change the activist's mind to not implementing the project. If $\Delta > 0$, however, then disclosing or not disclosing will not make a difference since the activist will implement the project either way.

Throughout the rest of the analysis, whenever multiple equilibria exist, for exposition purposes I select the equilibria where the incumbent does not disclose if it is indifferent between disclosing and not disclosing. This selection does not have any material impact on the outcome, because by Lemma 3, conditional on $\gamma^* \in \{0, 1\}$, in equilibrium the disclosure policy of the incumbent when it is indifferent does not affect the implementation probability of the project. In addition, for technical reasons, whenever multiple equilibria exist I also select the equilibria where the activist implements the project if he is indifferent between implementing and not.[24] Finally, for simplicity I assume that $E[\Delta] > 0$.[25]

1.3.2.1. No settlement offer

As I did in the baseline model, I start the analysis with the subgame where the activist has not demanded any settlement.

Lemma 4. *Suppose that the activist has not demanded any settlement. Then, an equilibrium of this subgame exists, and in equilibrium the activist runs a proxy fight and* $\gamma_P^* = 1$.

In equilibrium it can never be that $\gamma_P^* = 0$, because if it were then the incumbent would never disclose Δ for any $\Delta > 0$, and therefore upon nondisclosure the activist would deviate to implementing the project. Therefore, in equilibrium $\gamma_P^* = 1$, and the equilibrium is identical to the equilibrium in Lemma 2 in the baseline model, with the exception that the incumbent does not disclose Δ if $\Delta \geq 0$. However, this difference does not have any impact on the equilibrium outcome, because neither it changes the ex-ante incentives of the activist to run a proxy fight or of the shareholders to elect the activist in the event of a proxy fight, nor it changes the ex-post incentives of the activist to implement the project at any Δ, including in the event of nondisclosure, which occurs only if $\Delta \geq 0$.

[24] In the Appendix I derive the equilibria without any of these selections, and show that they do not have a material effect on the outcome.

[25] This assumption constitutes a more interesting scenario by ensuring that the equilibrium where the incumbent does not disclose Δ to the activist once the activist gets board seat does not always exist. Again, I relax this assumption in the Appendix and show that many of the results continue to hold qualitatively.

1.3.2.2. Action settlement

In this section, I consider the subgame where the activist has demanded action settlement. The next Proposition characterizes the equilibria.

Proposition 4. *Suppose that the activist has demanded action settlement. Then, an equilibrium of this subgame exists, and in any equilibrium the incumbent accepts action settlement if and only if* $\Delta > \Delta_A^*(\phi\beta_P^*)$*, upon rejection the activist runs a proxy fight with probability* $\rho_A^*(\phi\beta_P^*)$*, and* $\gamma_P^* \in \{0, 1\}$*. Moreover,*

(*i*) ***(Disclosure equilibrium)*** *An equilibrium where* $\gamma_P^* = 1$ *always exists. Moreover, in equilibrium,* $\beta_P^* = 1$*, and if the activist runs and wins a proxy fight then the incumbent discloses* Δ *if and only if* $\Delta < 0$*.*

(*ii*) ***(Nondisclosure equilibrium)*** *An equilibrium where* $\gamma_P^* = 0$ *exists if and only if* $E[\Delta|\Delta \leq \Delta_A^*(\phi q)] < 0$.[26] *Moreover, in equilibrium,* $\beta_P^* = q$*, and if the activist runs and wins a proxy fight then the incumbent discloses* Δ *if and only if* $\Delta < 0$*.*

In the disclosure equilibrium, $\gamma_P^* = 1$, and hence the incumbent discloses Δ to the activist upon board settlement if $\Delta < 0$. Therefore, the disclosure equilibrium is identical to the equilibrium in Proposition 1 in the baseline model, with the exception that the incumbent does not disclose Δ if $\Delta \geq 0$. However, again, this difference does not have any impact on the equilibrium outcome because it does not affect the probability that the project is implemented for any Δ. Importantly, this equilibrium always exists, because $\gamma_P^* = 1$ implies that the incumbent discloses Δ to the activist for all $\Delta < 0$, which justifies $\gamma_P^* = 1$.

In contrast, in the nondisclosure equilibrium the incumbent does not disclose Δ to the activist for any Δ, with the expectation that the activist will not implement the project if he has not received a signal. In turn, the activist does not implement the project upon nondisclosure (i.e., $\gamma_P^* = 0$) if and only if $E[\Delta|\Delta \leq \Delta_A^*] < 0$, which is therefore also the

[26] This inequality holds weakly without the focus on the equilibria where the activist implements the project when he is indifferent between implementing and not implementing.

existence condition of the equilibrium. Therefore, although the activist has a decision authority with probability 1 upon winning a proxy fight, he can utilize this control as long as he learns Δ himself, i.e., only with probability q. In other words, while the activist has a formal control of $\alpha_P = 1$ upon winning a proxy fight, his *effective control* is $\beta_P^* = q$, where

$$\beta_P(\gamma_P) \equiv \alpha_P \left[q + (1-q)\,\gamma_P\right]. \tag{1.21}$$

On the other hand, in the disclosure equilibrium, the effective control of the activist is equal to his formal control, i.e., $\beta_P^* = \alpha_P = 1$. Therefore, the underlying difference between the disclosure and nondisclosure equilibrium is the effective control of the activist, which is the probability that the activist has the decision authority *and* is able to make an informed decision. Specifically, apart from its existence condition and change in the disclosure policy of the incumbent, the nondisclosure equilibrium plays out the same way the equilibrium in Lemma 2 in the baseline model would play out if the formal control of the activist $\alpha_P = 1$ were to be replaced with $\beta_P^* = q$.

The next result lists some of the implications of Proposition 4.

Corollary 5. *Suppose that the activist has demanded action settlement. Then,*

(*i*) *Consider the disclosure or the nondisclosure equilibrium. Then, Corollary 1 except for part (iii) and Corollary 2 hold for any $q \in (0,1)$, where ϕ everywhere is replaced with $\phi\beta_P^*$.*

(*ii*) *Suppose that $q < 1$ and nondisclosure equilibrium exists. Then,*

  (*a*) *The activist and shareholders are strictly better off under the disclosure equilibrium.*

  (*b*) *The incumbent is strictly better off under the nondisclosure equilibrium if $\kappa < \kappa_0(\phi q)$ and $\hat{\Delta}_A(\phi) \leq b - \frac{c_p}{1-\phi}$.*

(*iii*) *Suppose that nondisclosure equilibrium is in play whenever it exists. Then, the ac-*

tivist's expected payoff is maximized if and only if $q \in (0, q_A]$*, where* q_A *is unique and given by*

$$E\left[\Delta|\Delta \leq \max\left\{\hat{\Delta}_A\left(\phi q_A\right), b - \frac{c_p}{\max\{1-\phi q_A, \frac{c_p}{b-\underline{\Delta}}\}}\right\}\right] = 0. \tag{1.22}$$

Within the disclosure and nondisclosure equilibrium, Corollaries 1 and 2 mostly hold since in both equilibria the outcomes are the same with the version of the baseline model where the formal control α_P of the activist is replaced with his effective control β_P^*. The exception to this is Corollary 1 part (iii), because it compares the case where the activist has demanded action settlement with the case where the activist has not the demanded anything. In this comparison, while in the baseline model the activist always preferred demanding action settlement over demanding nothing, under strategic disclosure this is not necessarily true anymore. Specifically, the activist prefers demanding nothing if nondisclosure equilibrium is in play when he demands action settlement and q is small.[27] This is because if the activist demands action settlement, as the effective control of the activist $\beta_P^* = q$ upon winning a proxy fight decreases, not only the probability that a positive NPV project is implemented after a successful proxy fight is reduced, but also the incumbent is incentivized to reject more often, increasing Δ_A^* and hence decreasing the probability of settling on the implementation of the project. This observation also implies that the activist is worse off under the nondisclosure equilibrium than under disclosure equilibrium. On the other hand, the incumbent is better off under nondisclosure equilibrium if the probability that the activist runs a proxy fight is not substantially larger compared to the nondisclosure equilibrium, e.g., if the condition in part (ii.b) holds.

Interestingly, the activist can overcome the nondisclosure problem by committing to a low q. Suppose that the activist could also choose q while demanding action settlement in

[27] An example is $\Delta \sim U(\underline{\Delta}, b), \underline{\Delta} = -40$, $b = 60, \phi = 0.9$, $c_p = 12, \kappa = 3$, $q = 0.5$. Under these parameters, if the activist demands action settlement and nondisclosure equilibrium is in play, then the expected payoff of the activist is $\Pi_a^* = 11.64$. However, if the activist does not demand anything, then in equilibrium $\Pi_a^* = 13.2$. Therefore, the activist strictly prefers the latter.

conjunction with the demand he is making. Since q represents the expertise of director nominees of the activist, the activist can adjust q through his candidates for the board. Specifically, nondisclosure equilibrium exists if and only if $q > q_A$, and therefore setting $q \leq q_A$ maximizes the activist's expected payoff. The intuition behind this result is that for large q, the incumbent is more likely to accept action settlement, resulting in a low $\Delta_A^*(\phi q)$ and hence $E\left[\Delta | \Delta \leq \Delta_A^*(\phi q)\right]$. Therefore, in the boardroom, upon nondisclosure of the incumbent, the activist does not implement the project. In other words, the activist cannot credibly threaten the board with implementing the project if the board does not disclose, because the board knows that the activist does not have sufficient incentives to implement the project if he is uninformed about Δ. On the other hand, as q decreases, in the nondisclosure equilibrium the incumbent becomes more likely to reject because the activist's effective control in the board decreases. However, this drives $\Delta_A^*(\phi q)$ up, and therefore for low q, the expected value of the project upon proxy fight, $E\left[\Delta | \Delta \leq \Delta_A^*(\phi q)\right]$, becomes positive. Therefore, in the boardroom the activist credibly threatens the board by implementing the project in the event of nondisclosure, triggering disclosure if $\Delta < 0$. For this reason, the activist can eliminate the nondisclosure equilibrium with $q \leq q_A$, and the activist's expected profit is maximized at $q \leq q_A$. This finding demonstrates how a "generalist" activist with low expertise in the industry of the target firm can be as effective as, or even more effective than a "specialized" activist in that industry.

While the activist can overcome the nondisclosure equilibrium by setting q low, there is a commitment issue involved. Specifically, within the nondisclosure equilibrium, at the proposal stage if the activist tells the incumbent that he will run a proxy fight with a specific q if the incumbent rejects action settlement, the activist has no reason to actually do it in the case of a rejection. To the contrary, at the proxy fight stage the activist strictly prefers highest q possible to maximize this profits. Therefore, the activist's inability to commit to low q at the proxy fight stage increases the likelihood of the existence nondisclosure equilibrium. As I will show in the next section, demanding board settlement will make the activist immune to this commitment problem.

1.3.2.3. Board settlement

In this section, I assume that the activist has demanded board settlement with control $\alpha_B > 0$. The next proposition characterizes the equilibria.

Proposition 5. *Suppose that the activist has demanded board settlement with activist control of $\alpha_B \in (0,1]$. Then, an equilibrium of this subgame with on the equilibrium path proxy fight exists,*[28] *and in this equilibrium $\rho^* = \rho_B^*(\beta_B^*)$, $\gamma_P^* = 1$, $\gamma_B^* \in \{0,1\}$, and the incumbent accepts the settlement if and only if $\Delta \in \mathbf{B}^*(\beta_B^*) = (\underline{\Delta}, 0) \cup (\Delta_B^*(\beta_B^*), b)$, where*

$$\beta_B^*(\alpha_B) \equiv \alpha_B \left[q + (1-q)\gamma_B^*\right]. \tag{1.23}$$

Moreover,

(*i*) ***(Disclosure equilibrium)*** *Such an equilibrium with $\gamma_B^* = 1$ always exists. Moreover, in this equilibrium the incumbent discloses Δ upon board settlement if and only if $\Delta < 0$.*

(*ii*) ***(Nondisclosure equilibrium)*** *Such an equilibrium with $\gamma_B^* = 0$ exists if and only if*[29]

$$E\left[\Delta | \Delta \notin [0, \Delta_B^*(\beta_B^*)]\right] < 0. \tag{1.24}$$

Moreover, in this equilibrium the incumbent does not disclose Δ for any Δ upon board settlement .

As in the baseline model, in any equilibrium with on the equilibrium path proxy fight, the incumbent accepts board settlement for all $\Delta < 0$ since it can disclose Δ to the activist and prevent project implementation. Therefore, upon rejection, the activist perfectly un-

[28] Similar to in Section 1.3.1.3, throughout the analysis I focus on this "proxy fight equilibrium", where proxy fight is on the equilibrium path. As I show in the Appendix, the only other equilibrium that exists is the "acceptance equilibrium" where the incumbent accepts for all Δ, which exists if and only if $\alpha_B \leq \phi + \frac{c}{b}$. However, this equilibrium is again not robust to perturbations. Nevertheless, I show in the Appendix that many of the results continue to hold qualitatively under the alternative selections of equilibrium.

[29] Without the focus on the equilibria where the activist implements the project when he is indifferent between implementing and not implementing, this equilibrium also exists when (1.24) holds with equality.

derstands that $\Delta \geq 0$. Moreover, for the activist to make profit by running a proxy fight, it must be that $\Delta > 0$ with positive probability. Therefore, as in the baseline model, the activist always implements the project upon running and winning a proxy fight. This holds true regardless of whether the activist learns Δ or not, resulting in $\gamma_P^* = 1$, and making the disclosure policy of the incumbent is irrelevant after proxy fight. For this reason, the effective control of the activist upon proxy fight is equal to his formal control. i.e., $\beta_P^* = \alpha_P = 1$, and strategic disclosure matters only upon board settlement. Specifically, "disclosure" and "nondisclosure" in the categorization of the equilibria in Proposition 1 refers to the dynamics upon board settlement.

In the disclosure equilibrium, $\gamma_B^* = 1$, and hence the incumbent discloses Δ to the activist upon board settlement if $\Delta < 0$. Therefore, the disclosure equilibrium is identical to the equilibrium in Proposition 1 in the baseline model, with the exception that the incumbent does not disclose Δ if $\Delta \geq 0$. However, this difference does not have any impact on the equilibrium outcome, because neither it changes the ex-ante incentives of the activist to run a proxy fight and of the shareholders to elect the activist in the event of a proxy fight, nor it changes the ex-post incentives of the activist to implement the project at any Δ in the event of nondisclosure, which occurs only if $\Delta \geq 0$. Importantly, the effective control of the activist upon board settlement is equal to his formal control. i.e., $\beta_B^* = \alpha_B$. This equilibrium always exists, because upon nondisclosure the activist infers that $\Delta \geq 0$, which justifies $\gamma_B^* = 1$.

In the nondisclosure equilibrium the incumbent does not disclose Δ to the activist upon board settlement, with the expectation that the activist will not implement the project if he has not received a signal. In turn, the activist does not implement the project upon nondisclosure (i.e., $\gamma_B^* = 0$) if and only if $E[\Delta|\Delta \in \mathbf{B}^*] < 0$, which is therefore also the existence condition of the equilibrium. Therefore, in this equilibrium the effective control of the activist in the board is reduced to $\beta_P^* = \alpha_B q$, although he has a formal control of α_B. For this reason, the underlying difference between the disclosure and nondisclosure

equilibrium is the effective control of the activist upon board settlement, and apart from its existence condition and change in the disclosure policy of the incumbent, the nondisclosure equilibrium plays out the same way the equilibrium in Proposition 1 in the baseline model would play out if the formal control of the activist α_B upon board settlement were to be replaced with $\beta_B^* = \alpha_B q$.

Since in nondisclosure equilibrium the probability that the activist implements the project upon board settlement decreases, the incumbent prefers the nondisclosure equilibrium over disclosure equilibrium. The next corollary formalizes this result, and also states that Corollaries 3 and 4 mostly holds within the disclosure and disclosure equilibrium since in both equilibria the outcomes are the same with the version of the baseline model where the formal control α_B of the activist upon board settlement replaced with his effective control β_B^*.

Corollary 6. *Suppose that the activist has demanded board settlement with $\alpha_B \in (0, 1]$. Then, in any equilibrium where proxy fight is on the equilibrium path,*

(*i*) *Consider the disclosure or nondisclosure equilibrium. Then, Corollary 3 except for part (iii) and Corollary 4 hold, where α_B is replaced with $\beta_B^*(\alpha_B)$ given by Proposition 5.*

(*ii*) *The incumbent's ex-ante expected payoff is strictly decreasing with β_B^*.*

An implication of part (i) is that the lack of disclosure is a second reason why activists might be more aggressive with their agenda after winning proxy fights, compared to after board settlements. This is because upon rejection the activist learns that $\Delta \geq 0$, but upon board settlement not only the activist does not know whether Δ is positive or negative, but also even if it is positive he may not implement the project unless he receives a positive signal.

Corollary 3 part (iii) compares the case where the activist has demanded board settlement with $\alpha_B = 1$ to the cases where the activist has demanded action settlement and where the has not demanded anything. If disclosure equilbrium is in play when the activist demands

board settlement with $\alpha_B = 1$, then the activist still prefers demanding board settlement as in the baseline model, and even more so because if the activist demands action settlement, then nondisclosure equilibrium might be in play, which drives the activist's expected profit further down. However, if nondisclosure equilibrium is in play when the activist demands board setlement, then the activist might prefer demanding action settlement or demanding nothing instead. However, even if this is the case, interestingly the activist might overcome this problem associated with nondisclosure equilibrium and trigger disclosure by demanding board setttlement with lower α_B, as I show next.

By Proposition 5, nondisclosure equilibrium exists if and only if (1.24) holds. Since $\Delta_B^*(\alpha_B q)$ is decreasing in α_B with a lowerbound of $\hat{\Delta}_B$, if $E\left[\Delta|\Delta \notin [0, \hat{\Delta}_B]\right] \geq 0$, then there exists $\hat{\alpha}_D > 0$ such that nondisclosure equilibrium exists if and only if $\alpha_B > \hat{\alpha}_D$. Intuitively, if the activist demands large α_B, then $\Delta_B^*(\alpha_B q)$ is high since the incumbent is reluctant to give the activist large control when $\Delta \geq 0$. Since the incumbent always accepts board settlement when $\Delta < 0$, the conditional expectation of Δ upon board settlement is negative. Therefore, the activist cannot credibly threaten the incumbent with implementing the action upon nondisclosure. On the other hand, as α_B decreases, then the incumbent becomes more likely to accept board settlement, which drives $\Delta_B^*(\alpha_B q)$ down. Once the conditional expectation of Δ upon board settlement becomes positive, the activist can start credibly threatening the incumbent with implementing the action upon nondisclosure, triggering disclosure, and therefore eliminating nondisclosure equilibrium. Therefore, for $\alpha_B \leq \hat{\alpha}_D$, the effective control of the activist increases from $\alpha_B q$ to α_B. Moreover, interestingly, the threshold $\hat{\alpha}_D(q)$ that triggers disclosure gets larger as q decreases, because for a given α_B, in nondisclosure equilibrium decreasing q incentivizes the incumbent to accept the board settlement, making the nondisclosure equilibrium more fragile. The next corollary formalizes these results and the associated $\hat{\alpha}_D$, as well as giving details on the the effective control the activist can achieve in equilibrium with adjusting α_B.

Corollary 7. *Suppose that the activist has demanded board settlement with some $\alpha_B > 0$, and consider any equilibrium where proxy fight is on the equilibrium path. Then,*

(*i*) *Nondisclosure equilibrium exists if and only if* $E[\Delta|\Delta \notin [0,\hat{\Delta}_B]] < 0$, *or* $E[\Delta|\Delta \notin [0,\hat{\Delta}_B]] \geq 0$ *and* $\alpha_B > \hat{\alpha}_D(q)$, *where* $\hat{\alpha}_D(q)$ *is unique and is given by*

$$E\left[\Delta|\Delta \notin \left[0, b - \frac{c_p}{q\hat{\alpha}_D(q) - \phi}\right]\right] = 0. \tag{1.25}$$

Moreover, $\hat{\alpha}_D(q) \geq \hat{\alpha}_L$, *and* $\hat{\alpha}_D(q)$ *is strictly decreasing in* q.

(*ii*) *Suppose that nondisclosure equilibrium is in play whenever it exists. Then,* $\beta_B^*(\alpha_B) = \beta$ *for some* $\alpha_B \in (0,1]$ *if and only if* $\beta \in (0,\bar{\beta}]$, *where*

$$\bar{\beta}(q) = \begin{cases} q, & \text{if } E[][\Delta|\Delta \notin [0,\hat{\Delta}_B]] < 0, \\ 1, & \text{if } E[\Delta|\Delta \notin [0,\hat{\Delta}_B]] \geq 0 \text{ and } \hat{\alpha}_D(1) \geq 1 \\ \min\{1, \max\{q, \hat{\alpha}_D(q)\}\}, & \text{if } E[\Delta|\Delta \notin [0,\hat{\Delta}_B]] \geq 0 \text{ and } \hat{\alpha}_D(1) < 1 \end{cases} \tag{1.26}$$

Moreover, if $E[\Delta|\Delta \notin [0,\hat{\Delta}_B]] \geq 0$ *and* $\hat{\alpha}_D(1) < 1$, *then there exist unique* $q_L^B, q_H^B \in (0,1)$ *such that* $q_L^B < q_H^B$ *and*

$$\bar{\beta}(q) = \begin{cases} q, & \text{if } q_H^B \leq q, \\ \hat{\alpha}_D(q), & \text{if } q_L^B < q < q_H^B, \\ 1, & \text{if } q \leq q_L^B, \end{cases} \tag{1.27}$$

As mentioned earlier, if the activist demands board settlement, then the activist's effective control upon winning a proxy fight is equal to his formal control, i.e., $\beta_P^* = \alpha_P = 1$, and therefore the only underlying difference between the disclosure and nondisclosure equilibrium is the effective control of the activist upon board settlement. Suppose that nondisclosure equilibrium is in play whenever it exists.[30] Then, there is a maximum effective control $\bar{\beta}$ such that the activist can achieve an effective control of β by demanding some $\alpha_B > 0$ if and only if $\beta \leq \bar{\beta}$. Specifically, if $E[\Delta|\Delta \notin [0,\hat{\Delta}_B]] < 0$, then nondisclosure equilibrium exists

[30]One justification behind this selection would be that the incumbent is strictly better off under the nondisclosure equilibrium by Corollary 6, and ultimately it is the incumbent who is deciding whether to disclose Δ to the activist.

for all α_B. Therefore the effective control of the activist for a given α_B is $\beta_B^*(\alpha_B) = \alpha_B q$, and $\bar{\beta} = q$. In this case, the activist prefers larger q, because it gives the activist more choices of β_B^* by varying α_B. If $E[\Delta|\Delta \notin [0, \hat{\Delta}_B]] \geq 0$ and $\hat{\alpha}_D(1) \geq 1$, then nondisclosure equilibrium does not exist for any α_B. Therefore $\beta_B^*(\alpha_B) = \alpha_B$ for any α_B, and $\bar{\beta} = 1$. Since the set of effective controls the activist can choose from does not change with q, the activist is indifferent among all q.

On the other hand, the dynamics change if $E[\Delta|\Delta \notin [0, \hat{\Delta}_B]] \geq 0$ and $\hat{\alpha}_D(1) < 1$. Then, for any $q > q_L^B$, the nondisclosure equilibrium exists if and only if $\alpha_B > \hat{\alpha}_D(q)$. Therefore, $\beta_B^*(\alpha_B) = \alpha_B q$ if $\alpha_B > \hat{\alpha}_D$, and $\beta_B^*(\alpha_B) = \alpha_B$ if $\alpha_B \leq \hat{\alpha}_D$. This implies that $\bar{\beta} = \max\{q, \hat{\alpha}_D\}$, because the activist either achieves maximum effective control by demanding $\alpha_B^* = 1$ or by demanding $\alpha_B^* = \hat{\alpha}_D$. If q is large, i.e, if $q \geq q_H^B$, then demanding $\alpha_B = 1$ yields the activist the largest effective control, as it might be expected. However, if q is relatively smaller, i.e., $q \in (q_L^B, q_H^B)$, then the activist achieves $\beta_B^*(\alpha_B) = \bar{\beta}$ if and only if $\alpha_B = \hat{\alpha}_D$. In other words, the activist can achieve higher effective control in the board by demanding less formal control! Therefore, an important reason why activists receive about 2 board seats on average in settlements (Bebchuk, Brav, Jiang, and Keusch (2017)) although the activist could (and sometimes do) ask for more seats may be to increase the probability that project is implemented by enhancing communication in the boardroom. Moreover, interestingly, whenever this is the case, i.e., $q \in (q_L^B, q_H^B)$, the activist can further increase $\bar{\beta}$ by decreasing q, because as explained earlier, decreasing q increases $\hat{\alpha}_D(q)$ by incentivizing the incumbent to accept settlement more often, making the nondisclosure equilibrium more fragile. In fact, if the activist chooses $q \leq q_L^B$, then nondisclosure equilibrium does not exist for any α_B, and therefore the activist can achieve the maximum effective control that he could achieve in the baseline model, i.e., when $q = 1$. For this reason, the activist prefers $q \in (0, q_L^B]$. Again, as in the case where the activist demanded action settlement, this finding demonstrates how a "generalist" activist with low expertise in the industry of the target firm can be as effective as, or even more effective than a "specialized" activist in that industry.

Under strategic disclosure, another advantage of demanding board settlement over demanding action settlement is that in the former, the activist is not subject to the commitment problem that he would have in the latter and that would make it difficult to get rid of the nondisclosure equilibrium. Specifically, setting q low when demanding board settlement does not pose a commitment problem on the activist, because in equilibrium q does not affect proxy fight stage since upon rejection the activist perfectly knows that $\Delta \geq 0$, unlike when he demanded action settlement. In contrast, as explained in Section 1.3.2.2, if the activist demands action settlement and it is rejected, then at the proxy fight stage he always prefers nominating candidates with higher q, making difficult committing a low q at the negotiations stage.

1.3.2.4. Equilibrium demand

In this section, I allow the activist the choose among demanding nothing, action settlement, board settlement with any α_B. First, I characterize the equilibrium conditional on the activist demands board settlement. Since the only underlying difference between disclosure and nondisclosure equilibrium is the effective control of the activist upon board settlement, and by Corollary 7 the activist can achieve an effective control β by demanding some α_B if and only if $\beta \leq \bar{\beta}$, the activist's maximization problem at the proposal stage where he decides what α_B to demand is very similar to his maximization problem in the baseline model, where he could choose from any effective control $\beta \leq 1$. Therefore, the only difference under strategic disclosure is that the activist optimizes over a more restricted set of effective controls, $\beta \leq \bar{\beta}$. The next corollary formalizes this result by characterizing equilibrium β_B^* and providing sufficient conditions for uniqueness of β_B^*.

Corollary 8. *Suppose that the activist can only demand board settlement, and if rejected, consider any subgame equilibrium where proxy fight is on the equilibrium path. Moreover, suppose that nondisclosure equilibrium is in play whenever it exists. Then, an equilibrium always exists, and in any equilibrium the activist demands board settlement with α_B^* such that $\beta_B^*(\alpha_B^*) \in \Lambda(q) \equiv \arg\max_{\beta \in [\min\{\bar{\beta}(q), \hat{\alpha}_L\}, \bar{\beta}(q)]} \Pi_A(\beta)$, where $\bar{\beta}(q)$ is given by (1.26).*

Moreover,

(*i*) *In equilibrium, β_B^* is unique if any of the following holds:*

(a) If $\hat{\alpha}_L \geq \bar{\beta}$, then, $\alpha_B^* = \bar{\beta}$.

(b) If $\hat{\alpha}_L < \bar{\beta}$, $\kappa < \frac{c_p}{2}$, and $f'(\Delta) \geq 0$ for all $\Delta \in \left[\hat{\Delta}_B(\phi), b - \frac{c_p}{\bar{\beta}-\phi}\right]$, then

$$\beta_B^* = \begin{cases} \bar{\beta}, & \text{if } \Pi_A'\left(\bar{\beta}\right) \geq 0, \\ \hat{\alpha}_L, & \text{if } \Pi_A'\left(\hat{\alpha}_L\right) \leq 0, \\ \beta_B^{**} \in \left(\hat{\alpha}_L, \bar{\beta}\right) \text{ s.t. } \Pi_A'\left(\beta_B^{**}\right) = 0, & \text{otherwise.} \end{cases} \tag{1.28}$$

(*ii*) *There exists $\beta_{SH}^* \in (0, \bar{\beta}]$ that maximizes shareholder value, and $\beta_{SH}^* \geq \min\left\{\bar{\beta}, \hat{\alpha}_L\right\}$. Moreover, any β_{SH}^* satisfies $\beta_{SH}^* > \max\Lambda$ if $\hat{\alpha}_L < \max\Lambda < \bar{\beta}$, and $\beta_{SH}^* \geq \max\Lambda$ otherwise.*

(*iii*) *Suppose that $\Delta \sim U(\underline{\Delta}, b)$. Then,*

(a) In equilibrium β_B^* is unique and $\beta_B^* = \bar{\beta}$ if $\hat{\alpha}_L \geq \bar{\beta}$ or $\kappa < \frac{c_p}{2}$, and $\beta^* = \hat{\alpha}_L$ otherwise.[31]

(b) Shareholder value is strictly increasing in β_B.

Next, I allow the activist to make any demand from the incumbent. In the baseline model the activist always prefers demanding board settlement by Corollary 3 part (iii), because the activist was not restricted in the maximum effective control he could achieve upon board settlement, which was always equal to his formal control. Therefore, the activist continues to demand board settlement under strategic disclosure as well if and only if the maximum effective control the activist can achieve upon board settlement in equilibrium is sufficiently high. The next Proposition formalizes this result.

Proposition 6. *Consider any subgame equilibrium where proxy fight is on the equilibrium*

[31] If $\kappa = \frac{c_p}{2}$ and $\alpha_L < \bar{\beta}$, the activist's profit is maximized at any $\beta \in [\alpha_L, 1]$.

path if the activist's demand is rejected. Moreover, suppose that nondisclosure equilibrium is in play whenever it exists. Then, an equilibrium always exists. Moreover, there exists unique $\underline{\beta} \in (0,1)$ *such that there is an equilibrium where the activist demands board settlement if and only if* $\bar{\beta} \geq \underline{\beta}$.

An important implication of Proposition 6 is that since $\bar{\beta}$ converges to one as q increases to one, for sufficiently large q the activist always demands board settlement. In other words, if q is sufficiently large, then the restriction it puts little restriction on the effective control the activist can achieve upon board settlement, and therefore the activist is still strictly better off by demanding board settlement. For this reason, the activist demands action settlement only if q is small. The next Corollary formalizes this result and also gives sufficient conditions under which the activist prefers demanding action settlement over demanding board settlement.

Corollary 9. *There exists* $\bar{q} < 1$ *such that the activist demands board settlement if* $q > \bar{q}$. *Moreover, if* $E[\Delta|\Delta \notin [0, \hat{\Delta}_B]] < 0$ *and nondisclosure equilibrium described by Proposition 5 is in play for any* α_B, *then there exists* $\underline{q} \in (0, \bar{q})$ *such that if* $q < \underline{q}$ *then the activist strictly prefers demanding action settlement over demanding board settlement with any* α_B.

To see why the activist would prefer demanding action settlement over demanding board settlement, suppose $E[\Delta|\Delta \notin [0, \hat{\Delta}_B]] < 0$. Then, if the activist has demanded board settlement, for any α_B, nondisclosure equilibrium exists and under this equilibrium the activist's expected payoff converges to zero as q decreases to zero, because not only the activist's effective control upon board settlement decreases, but also upon rejection he becomes indifferent between running a proxy fight and not. On the other hand, if the activist demands action settlement, as shown by Corollary 5, as q decreases only disclosure equilibrium survives, enabling the activist to get the expected payoff he would get in the baseline model where $q = 1$. Therefore, whenever q is small, i.e., $q < \underline{q}$, the activist prefers demanding action settlement over demanding board settlement.[32]

[32] An example is $\Delta \sim U(\underline{\Delta}, b), \underline{\Delta} = -50, b = 55, \phi = 0.8, c = 3, \kappa = 10$. Then, $\underline{q} \approx 0.22$.

1.4. Biased activist

In this section I generalize the setup by allowing for a bias of $b_A \in (-\infty, \infty)$ in the activist's payoff. Specifically, I assume that the activist's payoff when the project is implemented is $\Delta - b_A$, and hence with this modification the activist's payoff is given by

$$\Pi_A(\Delta, x, e) = x \cdot (\Delta - b_A) - e \cdot \kappa, \tag{1.29}$$

where $e = 1$ if the activist runs a proxy fight and $x = 1$ if the project is implemented. Therefore, compared to the shareholders, $b_A > 0$ ($b_A < 0$) means that the activist has a bias against (in favor) of implementing the project. I let $q > 0$, and allow strategic disclosure.

Proposition 7. *Suppose that the activist has a bias of $b_A \in (-\infty, \infty)$ and has demanded a settlement. Then, an equilibrium always exists. Moreover,*

(*i*) *Suppose $b_A < 0$. Then, there always exists an equilibrium where the project is never implemented upon settlement if $\Delta < 0$. Moreover, in any equilibrium where proxy fight is on the equilibrium path, for any $\Delta < 0$ the project is never implemented following a settlement, while for all $b_A < \Delta < 0$ the activist runs and wins the proxy fight and implements the project with positive probability.*

(*ii*) *Suppose $b_A \geq 0$. Then, in any equilibrium, the project is never implemented if $\Delta < 0$.*

If the activist has a bias against the project (i.e., $b_A > 0$), then a shareholder value destroying project is never implemented since both the activist and the incumbent are against such a project. Therefore, if a value destroying project is ever implemented in equilibrium, it must be that the activist has a bias in favor of the project, i.e., he must be profiting from the implementation of the project if $b_A < \Delta < 0$ for some $b_A < 0$. Therefore, a question that arises is that since shareholders are not at the negotiation table when settlements are reached, could the activist be destroying shareholder value through settlements?

However, even if $b_A < 0$, Proposition 7 tells that in any equilibrium where proxy fight is on the equilibrium path, the project is never implemented upon settlement if the project destroys shareholder value. On the other hand, in any such equilibrium, negative NPV projects do get implemented, and interestingly this takes place exclusively after the activist runs and wins a proxy fight! To see the intuition behind this result, note that if proxy fight is on the equilibrium path, it must be that the shareholders elect the activist with positive probability. Consider any settlement demand that can be made by the activist. If the activist has demanded action settlement, then similar to the intuition in Proposition 1, the incumbent follows a threshold strategy Δ_A^* such that it accepts if and only if $\Delta > \Delta_A^*$. Therefore, for any value destruction to take place through settlement, it must be $\Delta_A^* < 0$. However, then upon rejection and the activist's proxy fight, shareholder perfectly understand the activist will destroy value if he gets seats in the board, and therefore they never elect him. For this reason, value destroying projects are implemented only after the activist runs a proxy fight. The case where the activist demands board settlement is similar. In this case, the incumbent accepts board settlement for all $\Delta < b_A$, because it knows that the activist will not push for the project once he learns Δ. Similar to the case with the unbiased activist in Proposition 2, there is a second threshold Δ_B^* such that the incumbent rejects if and only if $\Delta \in [b_A, \Delta_B^*]$. However, it cannot be that $\Delta_B^* < 0$, because then the shareholders never elect the activist to the board in the case of a proxy fight. Therefore, again, no value destroying project is implemented upon board settlement, but such projects do get implemented with positive probability after the activist runs a proxy fight.

The next result states that an activist that does not suffer from information asymmetry after joining the board always prefers demanding board settlement over demanding action settlement, regardless of his bias b_A.

Corollary 10. *Suppose that $q = 1$ or for all Δ the incumbent discloses Δ to the activist if he gets board seat(s). Then, the activist weakly prefers demanding board settlement with $\alpha_B = 1$ over demanding action settlement.*

The intuition behind this result is similar to the intuition in the baseline model. Compared to demanding action settlement, by demanding board settlement the activist not only saves cost of running a proxy fight if $\Delta < b_A$, but also increases his credibility upon rejection since he learns that $\Delta \geq b_A$, which therefore pushes the incumbent to accept settlement more.

However, instead of demanding board settlement, the activist might prefer demanding nothing, and running a proxy fight right away! To understand this result, note that if the activist demands board settlement, upon rejection information regarding Δ is revealed not only to the activist, but also to the shareholders. To be precise, if the larger rejection threshold Δ_B^* of the incumbent is small, then upon a rejection, the shareholders are indifferent between supporting the activist and not if the activist runs a proxy fight since $E[\Delta|\Delta \in [b_A, \Delta_B^*]] = 0$, and they will not always elect him to the board. On the other hand, if the activist does not demand anything, then no information is revealed to the shareholders, and therefore the shareholders strictly prefer to elect the activist to the board if $E[\Delta|\Delta \in [b_A, b]] > 0$. Therefore, if the information advantage of demanding board settlement for the activist is dominated by its disadvantage due to the information revealed to the shareholders, the activist decides to demand no settlement, and run a proxy fight directly.[33]

This observation has to two interesting implications. First, shareholders might actually be worse-off under the choice of the activist to make no demand than under his board settlement demand, although the reason why the activist chooses the former in the first place is because the shareholders do not always support him in the latter. In other words, sharehold-

[33] An example is $\Delta \sim U(-10, 15)$, $\phi = 0.8$, $c_p = 4$, $c_{p,2} = 2.5$, $\kappa = 1$, $b_A = -10$, $q = 1$. Suppose that proxy fight equilibrium is in play if the activist demand board settlement. Then, under these parameters, the activist's expected payoff from demanding board settlement strictly increases with α_B, yielding an expected payoff of $\Pi_a^* = 6.9$ if $\alpha_B = 1$, where the shareholders support the activist with probability $\sigma^* = 0.5$. On the other hand, making no demand and running a proxy fight gives the activist an expected payoff of $\Pi_a^* = 9$, where the shareholders always elect the activist upon running a proxy fight, i.e., $\sigma^* = 1$. Morever, the ex-ante expected payoff of shareholders is $\Pi_{sh}^* = 2.5$ in the former, while it is $\Pi_{sh}^* = 2$ in the latter, which is the equilibrium. If the shareholders could commit to $\sigma^* = 1$, then the activist would demand board settlement with $\alpha_B^* = 1$, resulting in $\Pi_{sh}^* = 2.8$.

ers' information inference from the demand of the activist may actually hurt themselves, and hence shareholders may desire remaining uninformed, or alternatively, committing to support the activist in a proxy fight, even though the activist is biased. Second, the probability that the activist runs a proxy fight can be increasing with his bias.

1.5. Conclusion

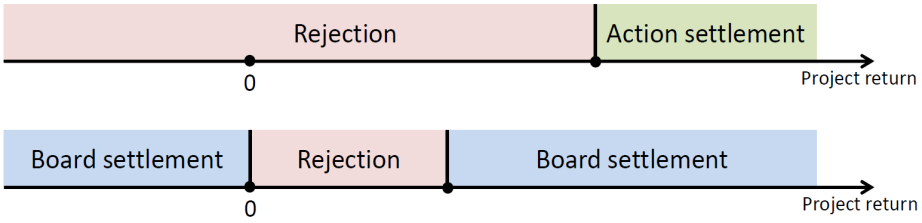
In this paper, I study the economics of settlements between activist investors and incumbent boards. The activist can demand an action to be implemented right away ("action settlement") or demand a number of board seats ("board settlement") which gives the activist partial decision authority and access to better information about the prospects of the proposal.

I find that compared to action settlement, demanding board settlement increases the activist's credibility upon rejection and real control upon a successful proxy fight. Therefore, the activist prefers demanding board settlement unless the real control he can achieve upon board settlement is too small. Interestingly, the activist can mitigate this obstacle and achieve higher real control by demanding lower formal control (i.e., fewer seats) or nominating candidates with less expertise. On the other hand, to minimize the risk of rejection, activists may demand too few seats and not maximize shareholder value. Surprisingly, increasing the cost of a proxy fight can alleviate this conflict and make the activist more aggressive. The model has several other implications and empirical predictions, e.g., related to shareholder value, costs of proxy fight, and activist expertise. Importantly, the characteristics of ex-ante shareholder value conditional on the demand of the activist are different than those of ex-post shareholder value conditional on the outcome (e.g., reaching a settlement or a proxy fight). Specifically, the latter might be smaller under the activist's demand of board settlement than under action settlement or might be increasing (decreasing) in the cost of a proxy fight for the activist (the incumbent). However, the opposite may be true for the ex-ante shareholder value. Therefore, when trying to identify the effects of activism on firm value, measuring shareholder value at the demand level of the activist

might produce more accurate results. Finally, I examine whether activists destroy value through settlements when not aligned with shareholders, and show that value destroying proposals are not typically implemented following settlements, but rather, after the activist wins a proxy fight.

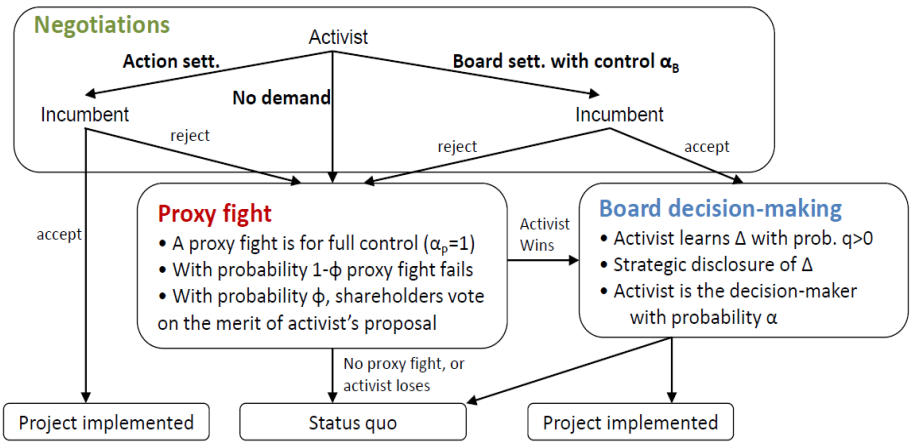
One of the potential routes for future research is to study the effect of proxy advising on the demands of the activist. Proxy advising, provided by firms such as Institutional Shareholder Services and Glass Lewis, is a relatively new phenomenon in corporate governance, and it aims to help shareholders make an informed decision when they vote. However, the impact of proxy advisors on the decision-making of shareholders, firms, and activists is not fully understood. For example, their overall effect on shareholder value is unclear, since shareholders are sometimes better-off by remaining uninformed, e.g., in order not to adversely affect the activist's demand as demonstrated in Section 1.4.

Figure 1.1: The incumbent's equilibrium behavior under different settlement demands



Notes: Figure illustrates of the incumbent's equilibrium behavior under different settlement demands.

Figure 1.2: The timeline



Notes: Figure depicts the timeline of the model.

CHAPTER 2 : Corporate Control Activism

(with Doron Levit)

"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]

2.1. Introduction

Corporate boards have the power to resist a takeover of their company, for example, by issuing a shareholder rights plan ("poison pill").[2] In principle, directors should use this power to negotiate a higher takeover premium or to reject coercive bids. However, the separation of ownership and control creates agency conflicts (Berle and Means (1932)): There is a risk that this power would be abused to protect insiders' private benefits of control and block takeovers that would otherwise create a shareholder value. In those cases, 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)).

Shareholders, however, cannot vote out the incumbent directors unless an alternative slate is put on the ballot. Empirically, bidders rarely launch proxy fights to replace all or part of the resisting target board.[3] Most proxy fights are launched by activist hedge funds (Fos (2017)), who often demand from companies they invest in to sell all or part of their assets

[1] The New York Times, "Will Credit Crisis End the Activists' Run?", 8/27/2007.

[2] Under 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.

[3] Fos (2017) find that only 5% of all proxy fights between 2003 and 2012 were sponsored by corporations (i.e., potential bidders).

(Brav, Jiang, Partnoy, and Thomas (2008), Becht, Franks, Grant, and Wagner (2017)). Greenwood and Schor (2009) and Boyson, Gantchev, and Shivdasani (2017) document hundreds of activist campaigns that resulted with a takeover bid by a third party, and argue a causal link. 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] As another example, in 2013, the private-equity firm KKR acquired Gardner Denver for $3.7 billion after the activist hedge fund ValueAct Capital accumulated a 5% stake in the company, filed a schedule 13D, and agitated for its sale. Highlighting the activist's role in the deal, KKR's co-CEO, George Roberts, said: "We wouldn't have bought Gardner Denver had not an activist shown up. They are a nicer form of what in the old days the green mailers and the hostile raiders used to do. They were great for our business."[5]

In principle, both bidders and activist investors can use proxy fights to pressure companies to sell, but the evidence suggests that this tactic is mostly employed by activists, not bidders. Why? What is the relative advantage of activists, if any? In this paper we propose a novel theory that answers these questions and explains the unique role of activist investors in the M&A market. In the spirit of Occam's razor, our main argument is simple. We argue that, as counterparties to the acquisition, bidders have a fundamental conflict of interests with target shareholders from which activist investors are immune, and as a result, the ability of bidders to win proxy fights is very limited. Since activist investors have a relative advantage in pressuring corporate boards to relinquish control, our theory proposes that their unique role in the M&A market is making corporate assets available for sale.[6] This result holds even if bidders and activists have similar expertise and can use similar techniques to challenge incumbents.

[4]See The New York Times, "Under Pressure From Jana, PetSmart Says It Will Explore Potential Sale", 8/19/2014; The New York Times, "Elliott and Jana, Activist Investors, Are Behind 2 Big Buyouts", 12/15/2014; and The Deal Pipeline, "Jana Unveils Potential Board Slate for PetSmart", 11/21/2014.

[5]Reuters, "Activism, Economy Weighed on M&A in 2013, Issues Could Linger", 12/19/2013.

[6]We focus on takeovers, but our theory can be applied to divestitures and assets sales as well.

In Section 2.2 we formalize our key argument. We analyze a simple dynamic bargaining model in which the identity of the target board, who is negotiating an acquisition agreement on behalf of target shareholders, is endogenized by an interim proxy fight stage. The incumbent board, who has private benefits from controlling the target, can at least partially resist a takeover. A proxy fight to oust the resisting incumbent can be initiated by the bidder or the activist, but its success requires the vote of target shareholders. Crucially, a proxy fight is not a referendum on the terms of the takeover, but rather a vote on the composition of the board. We show that once the bidder's nominees are elected, the bidder will be tempted to abuse his control of the target board, exploit its access to the target's proprietary information, and low-ball the takeover premium. Indeed, as their counterparty, the bidder has the *opposite* preferences of target shareholders. In other words, a buyer cannot be expected to act in the best interests of the seller. This is the fundamental conflict of interests between the bidder and target shareholders. Since this conflict cannot be easily solved, target shareholders cannot trust the bidder; they will vote against his nominees and the proxy fight will fail. By contrast, activist investors buy shares with the expectation that the target will be acquired. Unlike bidders, activists are typically on the sell-side of the negotiating table and have incentives to bargain the highest takeover premium possible. Since activists enjoy a higher credibility when campaigning against incumbents, they are also more successful in winning proxy fights. As a result, the threat of activists to launch a proxy fight and replace the incumbent is sufficient to induce the latter to accept takeover offers that they would have otherwise rejected.

As a whole, our theory proposes that activist investors have an inherent advantage relative to bidders in pressuring entrenched incumbents to sell. Importantly, our key observation is in relative terms. It does not imply that bidders can never use proxy fights to pressure incumbents to sell the firm, but it does suggest that these events are less frequent than campaigns in which an activist pushes for the sale of the target company. This prediction is supported by the empirical evidence that bidders rarely run proxy fights (Fos (2017)), while activist investors frequently launch campaigns with the objective of selling the target

company (Greenwood and Schor (2009), Boyson, Gantchev, and Shivdasani (2017)). In addition, our analysis emphasizes the benefit from separating the capacity to disentrench boards from the capacity to increase firm value through acquisitions; one party cannot combine two roles that rely on opposing preferences. The complementarity between the activist and the bidder suggests that the role of activist investors in the M&A market is unique.

To further study the implications of activist interventions on the M&A market, we consider two extensions to the baseline model. In Section 2.3 we consider the possibility that the activist would start a proxy fight in anticipation of a takeover offer. Why would an activist start a proxy fight *before* a specific bidder arrives? Intuitively, overcoming the resistance of the incumbent requires the bidder to offer the target a hefty takeover premium. Knowing that a takeover is likely to be pricey discourages the bidder from performing due-diligence of the target. By replacing the entrenched incumbent, the activist and other shareholders effectively incentivize potential bidders to perform due-diligence by assuring them that they will be able to negotiate a "fair" deal with the new board. Unlike the baseline model, here proxy fights are not only used as threats; they are actually initiated and completed by the activist on the equilibrium path.

The analysis offers a number of interesting empirical implications. First, it predicts a non-monotonic relationship between the frequency of proxy fights and board entrenchment. Intuitively, if the incumbent is not entrenched then a proxy fight is not needed; the bidder will be able to reach an agreement even without the activist's intervention (or threat to do so). However, if the incumbent is highly entrenched then all parties involved correctly anticipate the strong incentives of the activist to intervene, and as a result, the threat of a proxy fight is sufficient to pressure the incumbent to sell. In all other cases, the activist launches a proxy fight since the threat of doing so is not strong enough to encourage the bidder to engage with the target. Second, the model predicts that proxy fights with a stated objective of selling the target should be observed before a specific bidder arrives. Moreover,

when such a proxy fight is taking place, it is expected to increase the probability that the target receives a takeover offer afterwards, and as a result, the expected shareholder value should be higher. As we discuss in Section 2.3, this prediction is consistent with the empirical evidence: Announcements of proxy fights with a stated goal of selling the firm to a third party generate positive abnormal stock returns for the target firm, and these target firms are significantly more likely to be acquired within two years after the proxy fight.

In Section 2.4 we endogenize the decision of the activist to become a target shareholder. In general, activists invest either because they believe the company is likely to become a takeover target or because they can facilitate its takeover by putting the company into play. In the former case, the activist uses her private information to speculate on the possibility of a takeover, but her investment has no real effect on the target. We refer to these cases as "selection," since the activist's investment in the target is correlated with a higher probability of a takeover, but the link is not causal. By contrast, in the latter case, the activist uses her private information to identify firms that could be a takeover target, and by doing so, the activist increases the probability of a takeover. Essentially, bidders interpret the presence of an activist as a signal that the target is available for sale, and as a result, they are more likely to start takeover negotiations with the target. In other words, the activist is soliciting offers by assuring bidders that they will face a weaker opposition to the takeover. We refer to these cases as "treatment," since the activist's investment in the target directly affects the probability of a takeover and its terms.

While the aforementioned empirical literature finds evidence that is consistent with the treatment effect (e.g., the probability of a takeover is several times higher when an activist hedge fund is a shareholder of the target), it is hard to rule out the possibility of a selection effect, especially when a proxy fight is not observed. We show that the model's comparative statics with respect to the incumbent's private benefits of control and the cost of running a proxy fight are sensitive to the existence of the treatment effect in equilibrium. Importantly, this feature can be used to create identification strategies for empirical research. For exam-

ple, 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, when the treatment effect is in play, more resistance of incumbents to takeovers can result in a *higher* volume of M&A. Intuitively, the resistance of incumbents to takeovers provides activist investors with opportunities to facilitate transactions that otherwise would not have taken place. The expectation that incumbents would be pressured to accept their takeover offers increases the incentives of potential bidders to approach these companies, thereby increasing the overall probability of a takeover. Based on this logic, the treatment effect can be identified in data by a positive relationship between the severity of agency problems in the cross section of target firms and the likelihood of a takeover.

Our paper contributes to the literature on takeovers and shareholder activism (for surveys, see Becht, Bolton, and Röell, 2003 and Edmans, 2014, respectively). Unlike studies in which the bidder is also a target shareholder (e.g., Shleifer and Vishny (1986), Hirshleifer and Titman (1990); Kyle and Vila (1991), Burkart (1995), Maug (1998), Singh (1998), Bulow, Huang, and Klemperer (1999)), our analysis emphasizes the benefit from separating the capacity to disentrench boards from the capacity to increase firm value through acquisitions, and highlights the complementarity between shareholder activism and takeovers. The interaction between bidders and target blockholders was also studied by Burkart, Gromb, and Panunzi (2000), Cornelli and Li (2002), Gomes (2012), and Burkart and Lee (2017). Different from these papers, however, we focus on agency problems within the target firm and on the ability of activists to relax the resistance of incumbents to takeovers. Finally, models in which the target board can resist a takeover offer were studied by Bagnoli, Gordon, and Lipman (1989), Baron (1983), Berkovitch and Khanna (1990), Hirshleifer and Titman (1990), Harris and Raviv (1988), and Ofer and Thakor (1987). Proxy fights as a mechanism to transfer corporate control were studied by Shleifer and Vishny (1986), Harris and Raviv (1988), Bhattacharya (1997), Maug (1999), Yılmaz (1999), Bebchuk and Hart (2001), and Gilson and Schwartz (2001). We add to these two strands of the literature by

identifying the advantage of activist investors relative to bidders in utilizing proxy fights to relax managerial resistance.

2.2. Baseline model

2.2.1. Setup

We consider a model with a bidder, an activist investor, passive shareholders, and one public firm, the target. The target is run by its incumbent board of directors. We do not distinguish between the manager and other board members; we treat them as one. At the outset, the bidder decides whether to perform due-diligence of the target and start takeover negotiations with its board. There are two rounds of negotiations which are separated by a proxy fight stage. All agents are risk-neutral and have a zero discount rate. As we describe below, the fundamental conflict of interests among the bidder, the incumbent, and target shareholders will play a central role in the analysis. Figure 2.1 describes the sequence of events.

A successful acquisition of the target firm requires at least 50% of its voting rights. Each target share carries one vote. We normalize the number of shares to one and assume that they are perfectly divisible. The standalone value of the target is normalized to zero. The expected value of the target post-acquisition is $x \in \{\Delta, -\infty\}$, where $\Delta > 0$ and $\Pr[x = \Delta] = \tau \in (0, 1)$. The bidder is initially uninformed about x. If $x = \Delta$ then the acquisition is expected to create value. For example, Δ is an operational or financial synergy from a strategic merger, or operational improvements from a going private transaction. If $x = -\infty$ then the acquisition destroys value. Intuitively, acquisitions often involve transaction costs, distraction to management and employees, higher uncertainty, and heightened scrutiny from regulators, but only rarely they create significant synergies to the buyer. Assuming x can be sufficiently negative guarantees that the bidder will never acquire the target without first performing due-diligence about x. Specifically, the bidder can pay a cost $c \geq 0$ and privately learn the exact value of x. The cost c, which is independent of x, is drawn from a

continuous density distribution f with full support on $[0, \infty)$. If the bidder did not perform due diligence or if he learned that $x = -\infty$, he would walk away from the deal and the target remains independent. However, if the bidder performed due-diligence and learned that $x = \Delta$, he would start takeover negotiations with the target as we describe below. Notice that by construction the bidder's decision to start takeover negotiations reveals that $x = \Delta$.

The bidder negotiates with the target board a cash offer to acquire all target shares. The bidder cannot bypass the target board and make a tender offer directly to target shareholders, possibly because the target board can block these attempts using poison pills,[7] or because overcoming the free-rider problem of Grossman and Hart (1980) is too costly. In Appendix B we show that the only important assumption is that the incumbent can at least partially resist a takeover. There are two rounds of negotiations which are separated by a proxy fight stage. In each round, the proposer is decided randomly and independently. 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, and so, s represents the bargaining power of the target firm.[8] Any acquisition agreement must be approved by a majority of the target shareholders in a vote. At any voting stage, target shareholders do not play weakly dominated strategies. If target shareholders approve the agreement, each shareholder receives the agreed upon takeover premium for each share he owns, and the target is acquired by the bidder.

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 start a proxy fight to replace the incumbent board.[9] If a proxy fight is initiated, the challenger incurs a non-

[7] Corporate boards can adopt a poison pill on a short notice; it does not have to be in place prior to the takeover to deter bidders ("shadow pills"). Triggering a poison pill by moving forward with a tender offer significantly dilutes the bidder and is therefore extremely costly. Virtually all tender offers are conditioned on the redemption of a poison pill exactly for this reason (nonredeemable pills are illegal in most states, including New York and Delaware). Moreover, a poison pill has never been intentionally triggered, which is consistent with the pill being a powerful takeover deterrent.

[8] The Nash bargaining protocol can be microfounded using Rubinstein's (1982) model of alternating offers.

[9] We implicitly assume that the majority of directors stand for reelection. In 2013, only 11% of the S&P

reimbursable campaigning cost $\kappa > 0$. Target shareholders then decide whether to vote for the incumbent or one of the rival teams. The team that receives the largest number of votes is elected and takes control of the target board. If shareholders are indifferent between electing the rival (the bidder or the activist) and retaining the incumbent, they choose the latter.[10]

Winning a proxy fight gives the rival team 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. The newly elected directors maximize the value of the party with which they are affiliated, even if it conflicts with maximizing target shareholder value. In other words, the enforcement of directors' fiduciary duties is limited, and the bidder and the activist cannot commit to act in the best interests of target shareholders. 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, with the exception that if no agreement is reached or shareholders reject the deal, the target remains independent and its standalone value is realized.

2.2.1.1. Payoffs

Incumbent: The incumbent board owns $n \geq 0$ target shares and has private benefits of control $B > 0$. These private benefits, which are lost if the firm is acquired or if shareholders elect a new board, may include excessive salaries, perquisites, investment in 'pet' projects,

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"). Alternatively, 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. Since taking control of a staggered board requires winning two proxy fights, staggered boards can also be viewed as a mechanism to increase the cost of a proxy fight. See Bebchuk, Coates IV, and Subramanian (2002) for a discussion on staggered board.

[10] Intuitively, if the target firm were to remain independent under the control of the rival team, the rival team would divert corporate resources, for example, by exploiting the privileged access of directors to the target's proprietary information or through self-dealing transactions. See Atanasov, Black, and Ciccotello (2014) for a discussion on the various forms of tunneling, and Atanasov, Boone, and Haushalter (2010), Bates, Lemmon, and Linck (2006), and Gordon, Henry, and Palia (2004) for evidence on tunneling in the U.S.

access to private information, pleasure of command, prestige, or publicity. We assume that compensation contracts, including golden parachutes, cannot fully align the incentives of the incumbent board with the shareholders, which is consistent with the evidence by Jenter and Lewellen (2015) who show that managers are reluctant to relinquish control due to career concerns.[11] We denote the incumbent's private benefits *per share* by $b \equiv B/n$.

Activist: The activist owns $\alpha \geq 0$ shares of the target, which we endogenize in Section 2.4. The activist cannot affect the standalone value of the target or make a takeover bid. These assumptions are discussed in Section 2.2.3.2 and relaxed in Appendix C. While the activist is a target shareholder, she may be conflicted with other shareholders: The activist obtains private benefits $\gamma \geq 0$ from controlling the target board as an independent firm. We assume $\gamma < \kappa$. Intuitively, γ is not large enough to fully compensate the activist for the cost of launching a proxy fight. While we do not rule out $\gamma \geq B$, activists are likely to have fewer private benefits than incumbents.[12] Activists are also likely to own a larger stake in the target ($\alpha \geq n$).[13] Therefore, we focus the analysis on cases where $\gamma/\alpha < b$.

Bidder: The bidder initially does not own any shares of the target. Allowing the bidder to have a toehold will not change the main results. Apart from increasing the value of the target by x, the bidder does not have additional benefits from the acquisition.

Passive target shareholders: Passive investors do not have private benefits from control or any ability (or incentives) to start a proxy fight. We assume that collectively these

[11] Compensation contracts cannot perfectly undo the incumbent's private benefits if, for example, these private benefits are unknown at the time the contract is set. For additional evidence, see Walkling and Long (1984), Martin and McConnell (1991), Agrawal and Walkling (1994), Hartzell, Ofek, and Yermack (2004), and Wulf and Singh (2011).

[12] Activists often stay on the board of a portfolio company for less than a year (partly because insider trading rules put restrictions on activists, who ultimately seek to exit and pursue other investment opportunities). A short tenure on the board limits the ability of activist hedge fund managers to consume private benefits from keeping the firm independent (e.g., perquisites, publicity, prestige). Moreover, executives and directors of public companies, whose human capital is often firm specific, are unlikely to find a comparable job if they are fired following a takeover (e.g., Harford (2003)). By contrast, activist hedge fund managers hold a portfolio of 10-15 firms and their reputation depend on the aggregate performance of their portfolio.

[13] Activists typically own 8-9% of the target firm when they run a campaign (e.g., Brav, Jiang, Partnoy, and Thomas (2008)), while managers and non-CEO executives own much less (e.g., Murphy (2013)). Moreover, directors typically earn annually no more than $250K, a large portion of which is in fixed salaries.

investors hold more than 50% of the target voting rights.

2.2.2. Analysis

We study Subgame Perfect Equilibria in pure strategies and solve the game backward. All proofs not in the main text are in Appendix A. Suppose the bidder performed due-diligence and learned that $x = \Delta$. Define

$$\pi_z \equiv [s\Delta + (1-s)z] \cdot \mathbf{1}_{z \leq \Delta}. \tag{2.1}$$

The first result describes the outcome of the second round of negotiations.

Lemma 5. *Suppose the first round of negotiations failed. Then, the expected target shareholder value in the second round of negotiations is*

$$\begin{cases} \pi_b & \text{if the incumbent retains control} \\ \pi_{\gamma/\alpha} & \text{if the activist controls the board} \\ 0 & \text{if the bidder controls the board.} \end{cases} \tag{2.2}$$

Lemma 5 can be understood in three steps. First, suppose the incumbent is reelected. Since it is the second and last round of negotiations, the incumbent can block the takeover. Therefore, he would agree to sell the firm only if the offer embeds a premium larger than b, his private benefits per share. On the other hand, the bidder makes a profit of $\Delta - \pi$ if he acquires the target by paying a premium of π. Therefore, the highest premium the bidder can afford to pay is Δ. There are two sub-cases to consider. First, suppose $b \leq \Delta$. If the incumbent is the proposer then he would demand a premium of Δ. If the bidder is the proposer then he would offer the lowest premium that is acceptable to the incumbent board and target shareholders, which is b. Indeed, target shareholders approve any agreement that offers them more than the target standalone value. Note that the bidder overcomes the incumbent's resistance to the takeover by compensating him for the

loss of his private benefits of control. In this case, the entrenchment of the incumbent benefits target shareholders (at least ex-post) since it forces the bidder to offer a higher premium without endangering the deal. Overall, if $b \leq \Delta$ then the incumbent and the bidder reach an agreement and the expected takeover premium is $s\Delta + (1-s)b$. Second, if $\Delta < b$ then the bidder cannot afford to compensate the incumbent for the loss of his private benefits of control. The bidder walks away from the takeover negotiations, no agreement is reached, and the target remains independent under the incumbent's control. In this case, the entrenched incumbent blocks a takeover that was expected to increase target shareholder value.[14] This tension between the incumbent and target shareholders is at the core of our analysis. Overall, the expected shareholder value under the incumbent's control is π_b.

Second, if the activist is elected to the target board then the expected shareholder value is $\pi_{\gamma/\alpha}$. The only difference from the case in which the incumbent is reelected is that under the activist's control the target board has private benefits per share of γ/α instead of b.

Third, if the bidder somehow was able to win a proxy fight then the dynamic above changes. The control of the target board gives the bidder the authority to negotiate on behalf of target shareholders. Effectively, the bidder is sitting on both sides of the negotiating table. Unlike the activist, the bidder is interested in acquiring the target for the lowest price possible. Therefore, whether the proposer is the target board or the bidder, the bidder would be tempted to offer target shareholders their reservation price, zero.[15] This discussion completes the proof of Lemma 5.

Target shareholders, who have rational expectations, expect the bidder to abuse the power of the board once given to him. Therefore, they never elect the bidder to their board. Since running a proxy fight is both costly and inefficacious, the bidder does not run a proxy fight

[14] If $n\Delta < B < \Delta$ then a takeover is the efficient outcome under the incumbent's control even when the incumbent's private benefits are taken into account.

[15] Notice that this argument does not imply that if a bidder wins a proxy fight, the offered takeover premium should necessarily drop. If the bidder believes that he can win a proxy fight and capture the target board even without committing to act in the best interests of target shareholders, he would low-ball the takeover premium in advance (in the first round), anticipating his ability to abuse the power of the target board once elected.

in any equilibrium of the subgame.

Proposition 8. *The bidder never starts a proxy fight.*

Notice that Proposition 8 holds regardless of the gains from the takeover (Δ), the cost of running a proxy fight (κ), the incumbent board's private benefits of control (b), the activist's private benefits of control (γ), the size of the activist's stake (α), and whether or not the activist is also running a proxy fight.

Define

$$\delta \equiv \gamma + (\kappa - \gamma)/s. \tag{2.3}$$

The next result describes the circumstances under which the activist launches a proxy fight.

Proposition 9. *Suppose the first round of negotiations failed. The activist starts a proxy fight if and only if $\pi_{\gamma/\alpha} - \pi_b \geq \kappa/\alpha$, which is equivalent to*

$$\delta/\alpha \leq \Delta < b. \tag{2.4}$$

If the activist starts a proxy fight, she wins the control of the target board and then sells the firm for an expected takeover premium of $\pi_{\gamma/\alpha} > 0$.

Proposition 9 establishes our observation that although both bidders and activists can launch a proxy fight and face the same costs of doing so, only activists can relax the resistance of incumbents and facilitate a takeover. To understand this result, notice that unlike the bidder, shareholders expect the activist to negotiate a premium of $\pi_{\gamma/\alpha}$ if they elect her to the board. Being on the sell-side gives the activist an advantage relative to the bidder when campaigning against the incumbent. Nevertheless, shareholders elect the activist only if she is expected to outperform the incumbent, that is, $\pi_{\gamma/\alpha} > \pi_b$.[16] The activist, however, does not necessarily start a proxy fight even if she expects to win it; a proxy fight has to increase the activist's net expected payoff. If the activist launches a

[16]Note that even though we assume $\gamma/\alpha < b$, the indicator function in expression (2.1) implies that $\pi_{\gamma/\alpha} > \pi_b$ is satisfied whenever $\gamma/\alpha \leq \Delta < b$.

proxy fight and wins control of the board then her net payoff would be $\max\{\alpha\pi_{\gamma/\alpha}, \gamma\} - \kappa$. Indeed, if the activist reaches an agreement with the bidder then the takeover premium is $\pi_{\gamma/\alpha}$. Otherwise, the target remains independent and the activist can consume her private benefits γ. In the proof of Proposition 9 we show that if shareholders are willing to elect the activist to the board, it must be both feasible and in the best interest of the activist to sell the firm rather than keep it independent, that is, $\pi_{\gamma/\alpha} > \pi_b$ implies $\pi_{\gamma/\alpha} \geq \gamma/\alpha$. Therefore, the activist starts a proxy fight if and only if $\alpha\pi_{\gamma/\alpha} - \kappa \geq \alpha\pi_b$, which is equivalent to $\pi_{\gamma/\alpha} - \pi_b \geq \kappa/\alpha$.

Proposition 9 also shows that $\pi_{\gamma/\alpha} - \pi_b \geq \kappa/\alpha$ is equivalent to $\delta/\alpha \leq \Delta < b$. Since $\gamma \leq \delta$, this observation implies that the activist's threat to run a proxy fight is credible only if the activist is less biased than the incumbent against the takeover, that is, $\gamma/\alpha < b$. Intuitively, if $\gamma/\alpha \leq \Delta < b$ then shareholders expect the incumbent to block the takeover, but at the same time, they expect the activist to sell the target for a strictly positive premium if she is given the opportunity to do so. Thus, shareholders will support the activist if she decides to run a proxy fight. The activist has incentives to run a proxy fight only if the expected premium she can negotiate with the bidder is sufficiently high to compensate her for the cost of running a proxy fight, which is captured by the additional condition $\delta/\alpha \leq \Delta$. Overall, the activist starts a proxy fight if and only if $\delta/\alpha \leq \Delta < b$.[17]

Given the analysis of the proxy fight stage, we turn to characterizing the equilibrium of the game. To that end, we denote by π^* the expected takeover premium the bidder pays in equilibrium, conditional on reaching an acquisition agreement with the target.

Proposition 10. *A unique equilibrium exists. In equilibrium, the bidder performs due*

[17] If $b < \gamma/\alpha \leq \Delta$ then $\pi_{\gamma/\alpha} > \pi_b > 0$ and shareholders would like to replace the incumbent with the activist to receive a higher takeover premium. However, as we show in the proof of Proposition 9, the assumption $\gamma < \kappa$ implies that the activist does not have incentives to launch a proxy fight in those cases; the premium she is expected to negotiate is not high enough to compensate her for the cost of launching a proxy fight. If instead we assume $b + \frac{\kappa/\alpha}{1-s} < \gamma/\alpha \leq \Delta$, then the activist can credibly threaten the incumbent with a proxy fight if the incumbent does not demand a higher premium from the bidder (Jiang, Li, and Mei (2018)). This case can also apply to situations in which the incumbent is too motivated to sell the firm, e.g., in management buyouts or when incumbents are promised large bonuses if the takeover succeeds (Grinstein and Hribar (2004), Hartzell, Ofek, and Yermack (2004)).

diligence if and only if $\min\{b, \delta/\alpha\} \leq \Delta$ *and* $c \leq \tau(\Delta - \pi^*)$*, where*

$$\pi^* = \begin{cases} \pi_b & \text{if } b \leq \Delta \\ \pi_{\gamma/\alpha} & \text{if } \delta/\alpha \leq \Delta < b. \end{cases} \tag{2.5}$$

If the bidder performs due diligence and $x = \Delta$ *then the bidder and the incumbent board reach an acquisition agreement in the first round of negotiations. Under this agreement the bidder pays a premium of* $\pi^* > 0$ *for the target shares. In all other cases, no proxy fight is initiated and the target remains independent under the incumbent's control.*

To understand Proposition 10, suppose the bidder performed due diligence and learned that $x = \Delta$. If $\Delta < \delta/\alpha$ or $b \leq \Delta$ then the activist has no effect on the outcome of the takeover. Without the intervention of the activist, the bidder and the incumbent expect to reach an agreement in the second round of negotiations if and only if $b \leq \Delta$, and if they reach an agreement then the expected takeover premium is π_b. By contrast, if $\delta/\alpha \leq \Delta < b$ then all parties involved correctly anticipate that if the first round of negotiations fails, the activist will start a proxy fight, win control of the target board, and then negotiate an acquisition agreement with an expected premium of $\pi_{\gamma/\alpha} > 0$. Since the activist's threat of running a proxy fight is credible, any first round offer below $\pi_{\gamma/\alpha}$ is rejected by shareholders, and any offer above $\pi_{\gamma/\alpha}$ is rejected by the bidder. The incumbent board understands that the takeover is inevitable, and therefore, accepts any offer higher than $\pi_{\gamma/\alpha}$ in order to avoid the adverse consequences of losing the proxy fight (e.g., embarrassment or loss of reputation). Overall, the activist does not need to launch a proxy fight on the equilibrium path, her threat to do so is sufficient to facilitate the takeover. Indeed, in equilibrium, the bidder and the incumbent board reach an acquisition agreement in the first round of negotiations, and under this agreement the target is sold for a premium $\pi_{\gamma/\alpha}$.

Proposition 10 shows that conditional on performing due diligence, the bidder acquires the target and makes a positive profit if and only if $x = \Delta$ and either $b \leq \Delta$ or $\delta/\alpha \leq \Delta < b$. In the former case the bidder's expected profit (gross of the due-diligence cost) is $\tau(\Delta - \pi_b) =$

$\tau(1-s)(\Delta-b)$ and in the latter case it is $\tau\left(\Delta-\pi_{\gamma/\alpha}\right)=\tau(1-s)(\Delta-\gamma/\alpha)$. Therefore, if $\min\{b,\delta/\alpha\}\leq\Delta$ then the bidder performs due diligence as long as the cost is lower than the expected profit, that is, $c\leq\tau(\Delta-\pi^*)$. If $\Delta<\min\{b,\delta/\alpha\}$ then the bidder expects the takeover to fail even if $x=\Delta$, and therefore, he has no incentives to perform due diligence irrespective of the cost c.

Let θ^* and h^* be the probability of a takeover and the expected shareholder value in equilibrium, respectively. Since the standalone value of the target is zero, h^* is the probability of a takeover times the premium the bidder pays to target shareholders conditional on reaching an acquisition agreement, that is, $h^*=\theta^*\pi^*$. The next corollary follows immediately from Proposition 10.

Corollary 11. *In equilibrium, the probability of a takeover is given by*

$$\theta^*=\begin{cases}\tau F\left(\tau(1-s)(\Delta-b)\right) & \text{if } b\leq\Delta\\ \tau F\left(\tau(1-s)(\Delta-\gamma/\alpha)\right) & \text{if } \delta/\alpha\leq\Delta<b\\ 0 & \text{if } \Delta<\min\{b,\delta/\alpha\}.\end{cases}\tag{2.6}$$

Moreover, θ^* increases in α and $h^*(\alpha)\geq h^*(0)$ for every $\alpha>0$.

Intuitively, the probability of a takeover increases with the size of the activist's stake, as a larger stake increases the credibility of her threat to launch a proxy fight if the incumbent does not reach an agreement with the bidder. The effect of α on h^* is more nuanced since a higher α also implies that the activist puts less weight on her private benefits from controlling the target as an independent firm, which harms her ability to bargain a higher takeover premium ($\pi_{\gamma/\alpha}$ decreases in α). Nevertheless, the expected shareholder value in equilibrium is always higher when the activist is a target shareholder than when she is not, that is, $h^*(\alpha)\geq h^*(0)$.

2.2.3. Discussion

2.2.3.1. The relative advantage of activist investors

Our theory proposes that activist investors have an inherent advantage relative to bidders in pressuring entrenched incumbents to sell. Importantly, our key observation is in relative terms: Since the bidder is the counterparty to the takeover and the activist is not, the conflict of interests between the bidder and target shareholders is stronger than the conflict they may have with the activist. In practice, the conflict between the bidder and target shareholders can be alleviated, but only imperfectly. For example, enforcement of directors' fiduciary duties to target shareholders requires litigation which is often costly, uncertain, and limited to verifiable outcomes. Since this intrinsic conflict cannot be easily solved,[18] activist investors, who suffer from this problem to a lesser extent, maintain their advantage in pressuring firms to sell.[19] Notice that our argument does not necessarily imply that bidders can never use proxy fights to exert pressure on their target. Instead, it suggests that these events are significantly less frequent than campaigns in which the activist pressures the company to sell, a prediction which is consistent with the empirical evidence of Greenwood and Schor (2009) and Boyson, Gantchev, and Shivdasani (2017).

2.2.3.2. The role of a majority stake

Our model assumes that bidders cannot create value unless they acquire at least 50% of the target's voting rights. For example, a strategic bidder can realize a synergy only if the target is merged into the acquiring firm's assets, and a private equity fund can execute its operational improvements only if the target is taken private, insulating it from public

[18] 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 this rule, the bidder can effectively commit to a certain acquisition price. Our analysis suggests that under this proposed rule, the role of activist investors in the M&A market would be diminished.

[19] Notice that the incentives of activists to negotiate a high takeover premium could be distorted by derivatives, ownership in the bidding firm, or explicit and implicit agreements with the bidder. However, in most jurisdictions, these arrangements have to be disclosed when votes are solicited. According to SEC Rule 14a-9, activists are required to disclose their net economic exposure to the target and the bidding firm as part of the proxy solicitation process.

markets. Our main result emphasizes that these bidders cannot help target shareholders to disentrech their incumbent board by threatening to launch a proxy fight. However, in Appendix C we show that if the bidder has the ability (and incentives) to increase the value of the target even without acquiring a majority stake, then he can make such credible threats. Intuitively, while these bidders may still be tempted to low-ball the takeover offer once they get control of the target board, these attempts are doomed to fail: Target shareholders know that if they reject the offer, the bidder will inevitably use the power of the board to maximize the value of his own (minority) stake in the target, e.g., by implementing a value-increasing proposal. In other words, unlike the bidders in the baseline model, here the bidder can successfully acquire the target after winning a proxy fight only if the offered takeover premium is fair. As a result, in this case the fundamental conflict of interests between the bidder and target shareholders is weaker. Since shareholders would not fear electing bidders in this category to their board, their threat to replace the target board is more credible.

Incidentally, activist hedge funds who often make proposals to improve the governance or the operations of their target firms fit this category. Clearly, an activist's threat to remove an entrenched incumbent is more credible if the only goal of the activist is to control the operations of the target and implement value-increasing proposals. However, the discussion above suggests that because an activist investor can act as an alternative manager to the firm, her threat to remove the incumbent board is credible even if the activist has the ability and will to make a takeover bid for the target. In this regard, activist hedge funds have a weaker conflict of interests with target shareholders relative to bidders who can only create value by acquiring a majority stake of the target.[20]

[20]Consistent with this argument, Boyson, Gantchev, and Shivdasani (2017) find that in 15% of the events in their sample the activist is also making a takeover bid to the target company.

2.3. Proxy fight in anticipation of a takeover bid

In practice, activist investors start proxy fights with the objective of selling the target even before a specific bidder arrives. To account for this possibility, we extend our analysis by allowing the activist to launch a proxy fight *before* the bidder decides whether to perform due-diligence and start takeover negotiations with the target. As we demonstrate below, this extension does not alter our main conclusion that bidders cannot win a proxy fight while activists can, but it adds structure to the model that is both realistic and yields new empirical predictions.

Specifically, when the activist decides whether to start a proxy fight before the bidder arrives, she does not know c, and therefore, she faces uncertainty about the bidder's incentives to perform due-diligence. If the activist decides not to start a proxy fight or if shareholders reelect the incumbent, the game unfolds as in the baseline model. Instead, if the activist starts a proxy fight and wins the control of the board then the bidder can expect to negotiate with the activist. In both cases, the bidder and the activist have the option to launch a proxy fight if the first round of negotiations fails. To ease the exposition, let

$$\theta_z \equiv \tau F\left(\tau\left(1-s\right)\left(\Delta-z\right)\right), \tag{2.7}$$

which is the probability of a takeover if the bidder expects to pay a premium of π_z when learning $x=\Delta$. The next result follows.

Proposition 11. *A unique equilibrium exists. In equilibrium, the activist starts a proxy fight before the bidder's arrival if and only if* $\Delta \geq b$ *and*

$$\theta_{\gamma/\alpha}\pi_{\gamma/\alpha} + \left(1-\theta_{\gamma/\alpha}\right)\gamma/\alpha - \theta_b\pi_b \geq \kappa/\alpha. \tag{2.8}$$

(*i*) *If the activist starts a proxy fight before the bidder's arrival then she wins the control of the target board and the bidder performs due diligence if and only if* $c \leq \tau\left(\Delta - \pi_{\gamma/\alpha}\right)$. *If the bidder performs due diligence and* $x=\Delta$ *then the bidder and the activist reach*

an acquisition agreement in the first round of negotiations. Under this agreement the bidder pays a premium of $\pi_{\gamma/\alpha} \in (0, \Delta]$ *for the target shares. In all other cases the target remains independent under the activist's control.*

(*ii*) *If the activist does not start a proxy fight before the bidder's arrival then the equilibrium of the game unfolds as described by Proposition 10.*

To understand Proposition 11 and its implications, suppose first that $\Delta < b$. Since in this case the incumbent blocks the takeover unless he is pressured to do otherwise, target shareholders support the activist whenever she starts a proxy fight. The activist, however, has different considerations. Note that regardless of the timing at which the activist takes control of the target board, the expected shareholder value is $\theta_{\gamma/\alpha}\pi_{\gamma/\alpha}$. Indeed, if the activist controls the board prior to the bidder's arrival, the bidder will negotiate directly with the activist. Otherwise, the bidder will negotiate with the incumbent under the activist's pressure to sell. Since shareholders will support the activist if she chooses to start a proxy fight, the threat to do so is sufficient to pressure the incumbent to negotiate a takeover with exactly the same terms that the activist would. However, since the threat of a proxy fight is as effective as the proxy fight itself, the activist is strictly better off saving the cost κ and not starting a proxy fight before the bidder arrives.

This dynamic changes when $\Delta \geq b$. According to Proposition 10, if the incumbent still retains control after the bidder arrives then the activist would have no effect on the outcome of the takeover. In these cases, the bidder would reach an agreement with the incumbent and the expected shareholder value is $\theta_b\pi_b$. By contrast, if the activist wins control of the target board before the bidder arrives then the activist's expected payoff (per share) is $\theta_{\gamma/\alpha}\pi_{\gamma/\alpha} + \left(1 - \theta_{\gamma/\alpha}\right)\gamma/\alpha - \kappa/\alpha$. The comparison between this payoff and $\theta_b\pi_b$ gives condition (2.8). Therefore, if $\Delta \geq b$ and (2.8) holds then a proxy fight is on the equilibrium path. The contrast between this result and Proposition 10 yields the following prediction.

Prediction 1. *Proxy fights with a stated objective of selling the target to a third party are*

launched by activist investors before a specific bidder arrives.

Importantly, if $\Delta \geq b$ and (2.8) hold then a proxy fight is on the equilibrium path although the incumbent is expected to sell the target when a bidder arrives, and for a premium which is higher than what the activist could negotiate. Indeed, in the proof of Proposition 11 we show that if condition (2.8) holds then $\gamma/\alpha < b$, which implies $\pi_{\gamma/\alpha} < \pi_b$. In fact, precisely for this reason shareholders and the activist would like to replace the incumbent. Intuitively, since in this region the incumbent is not too entrenched (i.e., $b \leq \Delta$), the bidder can reach an agreement with the incumbent once the takeover negotiations start. However, since the incumbent is not free of agency problems either (i.e., $\gamma/\alpha < b$), the bidder will have to compensate the incumbent for the loss of his private benefits of control, which could be pricey to do. While the bidder expects to make a positive profit whenever he learns that $x = \Delta$, the expected profit is too small to justify incurring the cost of the due-diligence. The activist launches a proxy fight in order to assure the bidder that he will face a weaker opposition to the takeover. Since the bidder expects to pay a lower expected premium when the activist controls the target board, the likelihood that the bidder will approach the target following a successful proxy fight is higher. Indeed, the activist starts a proxy fight only if it increases the incentives of the bidder to perform due diligence. In this case, a proxy fight can be considered as a solicitation of a takeover offer, an observation that implies the following prediction.

Prediction 2. *Everything else held equal, proxy fights in which the activist's stated goal is selling the target to a third party increase the probability that the target receives a takeover offer afterwards.*

Prediction 2 is consistent with the data. Using the Factset Shark Watch Database, we identify 232 proxy fights from 1994-2015 in which the activist's stated goal was to sell the target company to a third party. Using CRSP, we find that in 36% of these cases the target firm is delisted due to an M&A event in the 24-months period that follows the announcement

of the proxy fight, which is significantly larger than 5%, the unconditional probability of a takeover of a public U.S. firm (Doidge, Karolyi, and Stulz (2017)).

Proposition 11 also has implications on the market reaction to the announcement of a proxy fight. Specifically, once a proxy fight is started the target share price is expected to jump upward from $\theta_b \pi_b$ to $\theta_{\gamma/\alpha} \pi_{\gamma/\alpha}$. Intuitively, a proxy fight increases the expected shareholder value by increasing the probability that the target will receive a takeover bid. Indeed, the activist launches a proxy fight only if doing so increases the expected share price. If following the proxy fight the target is acquired then its share price is expected to further jump upward from $\theta_{\gamma/\alpha} \pi_{\gamma/\alpha}$ to $\pi_{\gamma/\alpha}$, reflecting the realization of the takeover. However, if the target remains independent after the proxy fight (since the bidder decided not to perform due-diligence or he learned that the synergy is negative) then the share price should jump downward to zero, the standalone value of the target. These observations are summarized in the following prediction.

Prediction 3. *The announcement of a proxy fight in which the activist's stated goal is selling the firm to a third party generates positive abnormal returns for the target share. Following such a proxy fight, the share price experiences additional positive abnormal returns if the target is acquired, and negative abnormal returns otherwise.*

Consistent with Prediction 3, Fos (2017) finds that the cumulative abnormal returns (CARs) of the target stock price around the announcement date of a proxy fight in which the activist's stated goal is to sell the company is 10% in a one year event-window. Moreover, the CARs are positive for any event window that starts 6 months before the announcement date and up to 24 months afterwards.[21] These positive CARs are consistent with the prediction that these proxy fights create shareholder value.[22]

[21] See Panel B of Figure 5 in Fos (2017).

[22] Note that our interpretation is different from Fos (2017). Fos (2017) finds that the CARs are zero over a 4 year event-window and interprets this finding as an evidence that proxy fights in this category create little or no value on average. However, the zero CARs in a 4 year event-window could also be explained by an unavoidable survival bias: Over time, the only firms that are left in the sample are those which were not acquired. As our evidence above suggests, around 36% of the firms are eventually delisted due to an M&A

Finally, notice that Proposition 11 reveals a non-monotonic relationship between the frequency of proxy fights and the private benefits of the incumbent from keeping the firm private, i.e., parameter b. Indeed, if $\Delta < b$ then a proxy fight is not observed since the threat of doing so is sufficiently credible to pressure the entrenched incumbent to sell. If b has an intermediate value (i.e., $\gamma/\alpha < b \leq \Delta$), then for the aforementioned reasons, a proxy fight is on the equilibrium path as long as (2.8) holds. However, if b is relatively small (i.e., $b \leq \min\{\gamma/\alpha, \Delta\}$) then a proxy fight is not observed since it is not needed; the incumbent has enough incentives to voluntarily sell the firm to the bidder when the latter arrives. While challenging, parameter b can be proxied by a low managerial ownership in the target, distance of the CEO from retirement, strength of anti-takeover defenses, and low independence of the board. The next prediction follows.

Prediction 4. *The frequency of proxy fights with a stated objective of selling the target to a third party has an inverted U-shape as a function of the private benefits of the incumbent board.*

2.4. Position building in anticipation of a takeover

In this section we endogenize the decision of the activist to become a target shareholder. Our goal is to identify patterns that can differentiate between cases in which the activist buys target shares because she expects the target to be acquired and cases in which the presence of the activist on its own affects the takeover.

For this purpose, we extend the model as follows. At the outset, the activist does not own any shares of the target, but she privately observes signal $y \in \{0, 1\}$ on the possibility of a takeover. Specifically, if $y = 1$ then the synergy from a takeover is $x \in \{\Delta, -\infty\}$, where $\Pr[x = \Delta] = \tau$ as in the baseline model. If $y = 0$ then the synergy is $-\infty$ for sure. We assume that y is independent of x and $\Pr[y = 1] = \mu \in (0, 1)$. Given y, the activist

event in the 24-months period that follows the announcement of the proxy fight. Since takeovers on average create value to target shareholders (e.g., Andrade, Mitchell, and Stafford (2001)), the post-announcement CARs could be biased downward if they exclude the returns of firms which were acquired.

submits an order to buy $\alpha \geq 0$ shares of the target. Short sales are not allowed. If the activist is indifferent between investing and not, we assume that she does not invest. The activist trades with a risk-neutral, competitive, and uninformed market maker. The share price, denoted by p, is set equal to the expected value of the target conditional on the total order flow. For simplicity, we assume that the market maker can condition the price on the order-flow if and only if the order is strictly larger than $\overline{\alpha} \in (0, 1)$. That is, the stock is perfectly liquid (illiquid) for small (large) orders.[23] Parameter $\overline{\alpha}$ can also be interpreted as a disclosure threshold (e.g., regulation 13D). Moreover, buying up to $\overline{\alpha}$ shares does not trigger a poison pill if such exists. Empirically, $\overline{\alpha} \in [5\%, 10\%]$. After trading, the activist's ownership in the target becomes public. The bidder observes the number of shares own by the activist, signal y, and the cost c. Given all of this information, the bidder decides whether to perform due diligence and start takeover negotiations with the target, as in the baseline model.[24,25]

Proposition 12. *A unique equilibrium always exists.*[26] *In equilibrium:*

(*i*) *The activist buys α^* target shares where*

$$\alpha^* = \begin{cases} \overline{\alpha} & \text{if } y = 1, \text{ and either } \delta/\overline{\alpha} \leq \Delta < b \text{ or } b < \Delta \\ 0 & \text{else.} \end{cases} \tag{2.9}$$

[23] A previous version of the paper assumed the existence of liquidity traders a la Kyle (1985) and showed that similar results hold under this alternative formulation.

[24] Assuming that the bidder's decision to perform due diligence is made after the activist's position is revealed is consistent with Boyson, Gantchev, and Shivdasani (2017), who find that in 70% of the events in their sample a takeover bid is announced within 2 years of a hedge fund initiating an activist campaign.

[25] Assuming that the activist cannot launch a proxy fight before the bidder arrives is for simplicity. Identifying the activist's effect on the takeover, which is the focus of this section, is challenging when a proxy fight is only used as a threat.

[26] We focus on Perfect Bayesian Equilibrium in pure strategies. The equilibrium is unique if $h^*(\alpha)$ is non-decreasing in α, which is satisfied under an additional technical assumption that we specify in the proof.

(*ii*) *Given order flow* $\alpha \geq 0$*, the market maker sets the target share price to be*

$$p^*(\alpha) = \begin{cases} \mu h^*(\alpha^*) & \text{if } \alpha \leq \overline{\alpha} \\ h^*(\alpha^*) & \text{if } \alpha > \overline{\alpha}. \end{cases} \tag{2.10}$$

(*iii*) *If* $y = 0$ *then the bidder does not perform due diligence and the target remains independent under the incumbent control. If* $y = 1$ *and the activist owns* α *shares of the target then the bidder's decision to perform due diligence and the takeover negotiations unfold as described by Proposition 10.*

To understand Proposition 12, first notice that in order to conceal her position from the market maker, the activist never buys more than $\overline{\alpha}$ shares of the target. Recall that according to Proposition 10, if $\Delta < \min\{b, \delta/\overline{\alpha}\}$ then the target will never be acquired even if the activist buys $\overline{\alpha}$ shares. In those cases, the entrenched incumbent will not sell the firm voluntarily, and the activist's ownership is not high enough to make the threat of a proxy fight credible. Moreover, if $\Delta = b$ then by Corollary 11 the bidder will never perform due diligence since he cannot profit from a takeover. Therefore, if $y = 0$, $\Delta < \min\{b, \delta/\overline{\alpha}\}$, or $\Delta = b$, then the activist expects any takeover to fail for sure, and since the activist cannot profit from investing in the target, she does not buy any of its shares, that is, $\alpha^* = 0$. By contrast, if $y = 1$, and $\delta/\overline{\alpha} \leq \Delta < b$ or $b < \Delta$, then a takeover is possible and investing in the target can be profitable. To fully exploit her private information, the activist buys the maximum stake that keeps her trade concealed, that is, $\alpha^* = \overline{\alpha}$. The market maker, who is uninformed about y but has rational expectations, sets the price at $\mu h^*(\alpha^*)$ as long as $\alpha \leq \overline{\alpha}$, which is the fair value of the target shares.[27] This explains Proposition 12.

2.4.1. Selection vs. treatment

If $b \leq \Delta$ then the equilibrium exhibits "selection." Namely, the activist invests in firms that are likely to receive a takeover offer, but her investment has no real effect on the outcome.

[27] Off-equilibrium, if $\alpha > \overline{\alpha}$ then the market maker assumes $y = 1$ and sets $p = h^*(\alpha)$.

In other words, knowing the target is likely to receive a takeover offer when $y = 1$ gives the activist informational advantage relative to the market maker that makes the purchase of these shares a profitable investment. While the activist's presence as a target shareholder is correlated with a higher probability of a takeover, the link is not causal.

By contrast, if $\Delta < b$ and $\overline{\alpha} \geq \delta/\Delta$ then the equilibrium exhibits "treatment." Namely, the activist invests in firms that could be a target for a takeover, and by doing so, the activist increases the probability that the takeover happens. In those cases, the link is causal. The activist buys a stake that is sufficiently large to make her threat to start a proxy fight credible. There are two effects. First, as in the baseline model, once the bidder arrives the activist can pressure the incumbent to accept an offer that he would otherwise reject. Second, the activist increases the likelihood that a takeover offer is made by *soliciting* a deal: The presence of the activist as a target shareholder signals the bidder that the incumbent is likely to be pressured by its shareholders to sell the firm, and therefore, the bidder has stronger incentives to perform due diligence and start takeover negotiations. In other words, 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.[28] This observation has the following implication.

Prediction 5. *Policies and regulations that undermine shareholder activism but do not affect bidders directly will still have a negative effect on takeovers.*

For example, the legalization of two-tier "anti-activism" poison pills will adversely affect M&A even if "standard pills" that prevent takeovers are already prevalent.

The discussion above suggests that whether the equilibrium exhibits selection or treatment, the probability of a takeover is higher when the activist is present as a target shareholder than when she is not. This observation is the reason why identifying a causal link between

[28] Similarly, if the activist were to acquire a stake after the bidder approaches the target, the anticipation that an activist would show up and pressure the target board to accept the takeover offer can also increase the bidder's incentives to engage in takeover negotiations.

activist investors' presence and the likelihood of a takeover is challenging, especially when a proxy fight with an objective to sell the firm is not observed. Notice that the probability of a takeover in equilibrium is $\theta^{**} \equiv \mu\theta^*(\alpha^*)$. In what follows, we show that the comparative statics of θ^{**} with respect to b and κ are different when the equilibrium exhibits selection and when it exhibits treatment. These differences provide predictions that can help distinguish between the selection and the treatment effects in data.

Corollary 12.

(*i*) *If $b \leq \Delta$ then θ^{**} is strictly decreasing in b, where $\theta^{**} = 0$ when $b = \Delta$. If $b > \Delta$ then θ^{**} is invariant to b, where $\theta^{**} > 0$ if and only if $\delta/\bar{\alpha} \leq \Delta$.*

(*ii*) *If $b \leq \Delta$ then θ^{**} is invariant to κ, and if $\Delta < b$ then θ^{**} is decreasing in κ.*

If the equilibrium exhibits selection ($b \leq \Delta$) then the probability of a takeover is strictly decreasing in b. Intuitively, in this region the bidder can reach an acquisition agreement with the incumbent. However, higher b implies that the bidder has to pay a higher premium in order to acquire the target, which weakens his incentives to perform due diligence in the first place. This can be seen in the left panel of Figure 2.2 by the fact that at any point left to the dashed vertical line, which marks the border of the selection region, the curve is downward slopping. However, the probability of a takeover can *increase* with b when the equilibrium also exhibits treatment. In fact, if $\gamma = 0$ (the activist is unbiased) then the probability of a takeover when $b > \Delta$ is the highest possible. Intuitively, when $b > \Delta$ the bidder cannot afford to pay a premium high enough to convince the incumbent to forgo his private benefits and sell. In those cases, the activist can leverage the support of shareholders to pressure the incumbent to sell. In other words, the threat of launching a proxy fight is credible. Since the incumbent is negotiating under the activist's pressure in this range, the bidder expects to pay a smaller takeover premium as determined by the activist's bargaining power. As a result, the bidder has stronger incentives to perform due-diligence and the probability of a takeover is higher. This result highlights that, contrary to the common wisdom, the probability of a takeover can increase with the private benefits that

incumbents obtain from keeping their firm independent. This comparative static implies that the treatment effect can be identified in the data if in the cross section of firms there is a positive association between b (which can be proxied as described in Section 2.3) and the probability of a takeover. The next prediction summarizes these observations.

Prediction 6. *The probability of a takeover has a U-shape as a function of the private benefits of the incumbent board. Moreover, a positive association is an indication of the treatment effect.*

According to Corollary 12 part (ii), the comparative statics with respect to κ can also help identify the treatment effect in the data. Indeed, κ should have no effect on the probability of a takeover in the selection region, as in this region the activist has no effect on the takeover. However, in the treatment region, the incumbent sells the firm only if the activist can pressure him to do so. Since a higher κ (which implies a higher δ) reduces the credibility of the activist's threat to run a proxy fight, her ability to pressure the incumbent to sell decreases with κ. As a result, the probability of a takeover decreases with κ. Therefore, the treatment effect can be identified in the data if in the cross section of firms there is a negative association between κ and the probability of a takeover, especially when b is large. Parameter κ can be proxied by the dispersion of ownership of the target firm, the difficulty of proxy access, the existence of a staggered board, or low governance expertise of the activist. The next prediction summarizes this observation.

Prediction 7. *The probability of a takeover is weakly decreasing in the cost of a proxy fight. Moreover, a negative association is an indication of the treatment effect.*

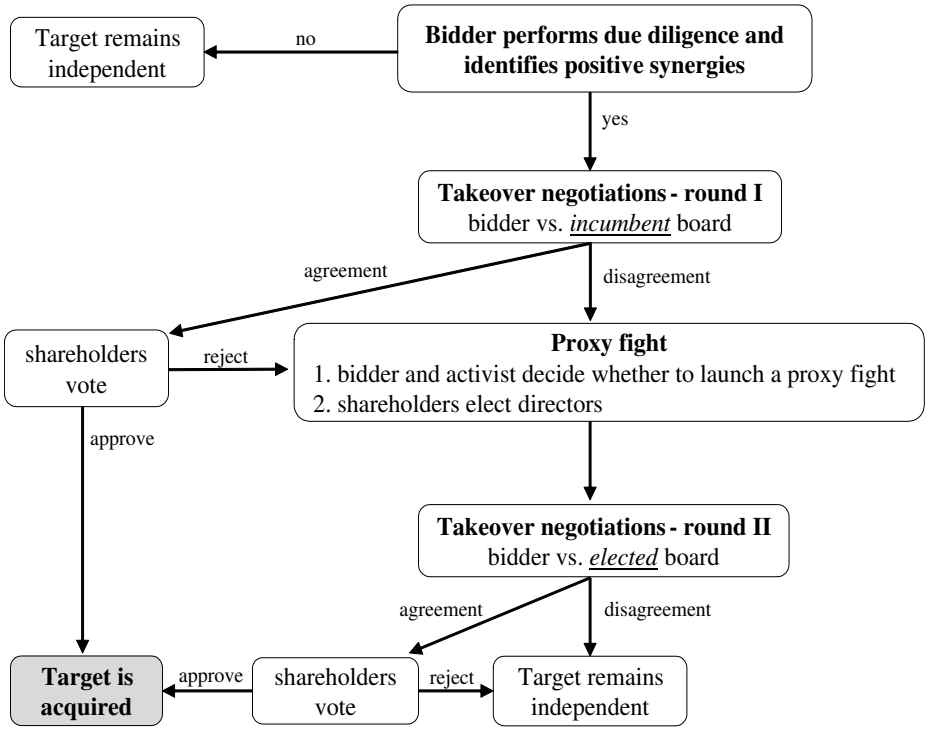
2.5. Conclusion

This paper studies the role of activist investors in the M&A market. We identify a conflict of interests between bidders and the shareholders of their target firms that prevents bidders from unseating the resisting incumbent directors of these firms through proxy fights. 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 incumbent board. Building on this insight, we demonstrate that although both bidders and activists can use similar techniques to challenge corporate boards (i.e., proxy fights), activists are more effective in relaxing the resistance of incumbent directors to takeovers. Our model is consistent with the fact that most proxy fights are launched by activists and not by bidders, with the large number of activist campaigns that have resulted in a takeover bid by a third party, with the positive market reaction to announcements of proxy fights by activists whose stated goal is selling the target firm to a third party, and with a higher probability of a takeover following such proxy fights. Moreover, the model provides novel predictions on the circumstances under which proxy fights of this sort are likely to be observed.

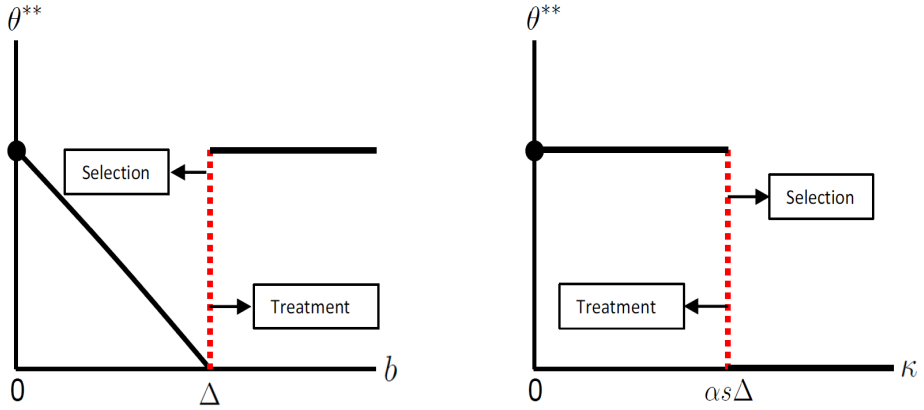
Our analysis emphasizes the benefit of separating the capacity to disentrench boards from the capacity to increase firm value through acquisitions; one party cannot combine two roles that rely on opposing preferences. Moreover, the analysis highlights the complementarity between shareholder activism and takeovers: Activist investors benefit from the possibility that companies in which they invest will become a takeover target, while bidders, who interpret the presence of an activist as a signal that the target will show weaker resistance, are more likely start takeover negotiations when the target has an activist as a shareholder. We show that the model's comparative statics (of the probability of a takeover) with respect to the incumbent's private benefits of control and the activist's cost of running a proxy fight are sensitive to the existence of the treatment effect in equilibrium, a feature which can be used to create identification strategies for the treatment effect of shareholder activism in takeovers. As a whole, the analysis sheds light on the interaction between M&A and shareholder activism.

Figure 2.1: The sequence of events in the baseline model



Notes: Figure depicts the sequence of events in the baseline model.

Figure 2.2: Comparative statics of probability of a takeover



Notes: The left (right) panel shows the effect of b (κ) on the probability of a takeover θ^{**}, where $\gamma = 0$, $c \sim U[0, \overline{c}]$, and $\overline{c} \geq \tau(1-s)\Delta$. In addition, the left (right) panel assumes $\delta/\alpha < \Delta$ ($\Delta < b$).

APPENDIX

A1. Appendix for Chapter 1

A1.1. Proofs of main results

In many of the proofs below, I prove the results with generalizing the model to any bias $b_A \in (-\infty, b)$ and cost of proxy fight $\kappa > 0$ of the activist. To see the details of the biased activist modification, see the beginning of Section 1.4. Any generalization applied are noted before each proof. For simplicity, throughout I drop the subscript B from α_B and β_B.

I prove Lemma 2 with the following generalization for any $b_A \in (-\infty, b)$ and $\kappa > 0$.

Lemma 6. *Suppose that the activist has demanded no settlement. Then, an equilibrium of this subgame exists and is unique. Specifically, in equilibrium, the activist never runs a proxy fight if $\kappa > \kappa_0$ or $E[\Delta|\Delta \geq b_A] < 0$, and he always runs a proxy fight if $\kappa < \kappa_0$ and $E[\Delta|\Delta \geq b_A] > 0$, where*

$$\kappa_0(\phi) \equiv \phi \int_{b_A}^{b} (\Delta - b_A) dF(\Delta). \tag{A.1}$$

Proof. Note that in any equilibrium, at the implementation stage, if the incumbent board has the decision authority then it never implements the action, while if the activist has the decision authority and has received signal or is disclosed Δ, then the activist always implements the project if $\Delta > b_A$, never implements if $\Delta < b_A$, and is indifferent if $\Delta = b_A$. Therefore, in any subgame where the activist has acquired α control, in equilibrium the activist's payoff (excluding the cost of proxy fight) is given by $\alpha(\Delta - b_A)$ if $\Delta \geq b_A$ and zero if $\Delta < b_A$, the incumbent's payoff is given by $\alpha(\Delta - b)$ if $\Delta > b_A$ and zero if $\Delta < b_A$, and the shareholders' payoff is given by $\alpha\Delta$ if $\Delta > b_A$ and zero if $\Delta < b_A$. Note that the arguments made for $\Delta > b_A$ also hold for $\Delta = b_A$ if the activist implements the project when he is indifferent.

Suppose that $\kappa > \kappa_0$. Since by the first step κ_0 is the upperbound on the activist's payoff from running a proxy fight, the activist never runs a proxy fight. Note that this also implies

that if $\kappa = \kappa_0$, then the activist weakly prefers not running a proxy fight.

Suppose that $E[\Delta|\Delta \geq b_A] < 0$. Since by the first step the shareholders' payoff from supporting the activist is negative, they never support the activist.

Suppose that $\kappa < \kappa_0$ and $E[\Delta|\Delta \geq b_A] > 0$. By the first step the shareholders always support the activist in a proxy fight since $E[\Delta|\Delta \geq b_A] > 0$, and hence the activist's the payoff from running a proxy fight is κ_0. Therefore, the activist always runs a proxy fight. □

I prove Proposition 1 with the following generalization for any $b_A \in (-\infty, b)$ and $\kappa > 0$.

Proposition 13. *Suppose that the activist has demanded action settlement. Then, an equilibrium of this subgame exists, the equilibrium is unique, and in equilibrium:*

(*i*) *If $\kappa \geq \kappa_0(\phi)$ or $E[\Delta|\Delta \geq b_A] \leq 0$, then the board always rejects the settlement, and the activist never runs a proxy fight.*

(*ii*) *If $\kappa < \kappa_0(\phi)$ and $E[\Delta|\Delta \geq b_A] > 0$, then:*

(*a*) *The board accepts the action settlement if $\Delta > \Delta_A^*$ and rejects if $\Delta < \Delta_A^*$, where*

$$\Delta_A^*(\phi, \rho_A^*) \equiv b - \frac{c_{p,1} + \sigma^* \phi c_{p,2}}{\frac{1}{\rho^*} - \sigma^* \phi} \in (0, b), \tag{A.2}$$

or, equivalently,

$$\Delta_A^*(\phi) \equiv \max\left\{\hat{\Delta}_A(\phi),\ b - \frac{c_p}{1-\phi}, \check{\Delta}_A\right\} \in (0, b), \tag{A.3}$$

where $\hat{\Delta}_A(\phi)$ and $\check{\Delta}_A$ are unique and given by

$$\hat{\Delta}_A = \begin{cases} \underline{\Delta}, & \text{if } \kappa \leq \phi(\underline{\Delta} - b_A) \\ x > \max\{\underline{\Delta}, b_A\} & \\ \text{s.t. } \kappa = \phi \frac{1}{F(x)} \int_{b_A}^{x} (\Delta - b_A)\, dF(\Delta), & \text{otherwise} \end{cases} \tag{A.4}$$

$$\check{\Delta}_A = \begin{cases} b_A, & \text{if } b_A \geq 0 \\ x > \underline{\Delta} \text{ s.t. } 0 = \int_{b_A}^{x} \Delta dF(\Delta), & \text{otherwise} \end{cases} \tag{A.5}$$

(b) Upon rejection, the activist runs a proxy fight with probability

$$\rho_A^*(\phi) \equiv \min \left\{ 1, \frac{1}{\tilde{\sigma}_A \phi + \frac{c_{p,1} + \tilde{\sigma}_A \phi c_{p,2}}{b - \check{\Delta}_A}} \right\} \tag{A.6}$$

where $\tilde{\sigma}_A$ is unique and given by

$$\tilde{\sigma}_A \equiv \min \left\{ 1, \frac{\kappa}{\phi \frac{1}{F(\check{\Delta}_A)} \int_{b_A}^{\check{\Delta}_A} (\Delta - b_A) dF(\Delta)} \right\}. \tag{A.7}$$

(c) Upon proxy fight, shareholders support the activist with probability

$$\sigma_A^*(\phi) = \begin{cases} 1, & \text{if } 0 \leq b_A \text{ or } \check{\Delta}_A \leq \max\{\hat{\Delta}_A(\phi), b - \frac{c_p}{1-\phi}\} \\ \max\{\tilde{\sigma}_I, \tilde{\sigma}_A\} \in (0,1), & \text{if } b_A < 0 \text{ and } \max\{\hat{\Delta}_A(\phi), b - \frac{c_p}{1-\phi}\} < \check{\Delta}_A \end{cases} \tag{A.8}$$

where

$$\tilde{\sigma}_I \equiv \frac{b - \check{\Delta}_A - c_{p,1}}{\phi\left(b - \check{\Delta}_A\right) + \phi c_{p,2}}. \tag{A.9}$$

Proof. Suppose the activist has demanded action settlement, and $\kappa > 0$. The proof consists of several steps:

Note that in any equilibrium, at the implementation stage, if the incumbent board has the decision authority then it never implements the action, while if the activist has the decision authority and has received signal or is disclosed Δ, then the activist always implements the project if $\Delta > b_A$, never implements if $\Delta < b_A$, and is indifferent if $\Delta = b_A$. Therefore, in

any subgame where the activist has acquired α control, in equilibrium the activist's payoff (excluding the cost of proxy fight) is given by $\alpha(\Delta - b_A)$ if $\Delta \geq b_A$ and zero if $\Delta < b_A$, the incumbent's payoff is given by $\alpha(\Delta - b)$ if $\Delta > b_A$ and zero if $\Delta < b_A$, and the shareholders' payoff is given by $\alpha\Delta$ if $\Delta > b_A$ and zero if $\Delta < b_A$. Note that the arguments made for $\Delta > b_A$ also hold for $\Delta = b_A$ if the activist implements the project when he is indifferent.

First, I show that for any given ρ and σ, in equilibrium the incumbent follows a threshold strategy at the response stage. Denote the payoff of the incumbent by Π_I and its decision by $\chi \in \{A, R\}$, where A represents action settlement and R represents rejection. Suppose the the activist runs a proxy fight upon rejection with probability ρ and shareholders support him with probability σ. Then,

$$\Pi_I(\chi|\Delta,\rho,\sigma) = \begin{cases} \Delta - b, & \text{if } \chi = A \\ \rho\left[-c_{p,1} + \sigma\left(-\phi c_{p,2} + \phi(\Delta - b)\right)\right], & \text{if } \chi = R \text{ and } \Delta > b_A \\ \in \left[\rho\left[-c_{p,1} + \sigma\left(-\phi c_{p,2} + \phi(\Delta - b)\right)\right], \right. & \\ \left. \rho\left[-c_{p,1} - \sigma\phi c_{p,2}\right]\right] & \text{if } \chi = R \text{ and } \Delta = b_A \\ \rho\left[-c_{p,1} - \sigma\phi c_{p,2}\right], & \text{if } \chi = R \text{ and } \Delta < b_A \end{cases} \tag{A.10}$$

where $\Pi_I(R|b_A,\rho,\sigma)$ depends on the probability that the activist implements the action when he is indifferent between implementing and not implementing. Since $\Pi_I(A|\Delta,\rho,\sigma) - \Pi_I(R|\Delta,\rho,\sigma)$ is strictly increasing in Δ, for any ρ and σ, there exists a unique $\Delta_A \in [\underline{\Delta}, b]$ such that the incumbent accepts settlement if $\Delta > \Delta_A$ and rejects if $\Delta < \Delta_A$. Moreover,

- $\Delta_A \leq \max\{\underline{\Delta}, b_A\}$ if $\frac{1}{\rho} - \sigma\phi \leq \frac{c_{p,1}+\sigma\phi c_{p,2}}{b - \max\{\underline{\Delta}, b_A\}}$,
- $\Delta_A \geq b - \frac{c_{p,1}+\sigma\phi c_{p,2}}{\frac{1}{\rho}-\sigma\phi}$ if $\frac{1}{\rho} - \sigma\phi > \frac{c_{p,1}+\sigma\phi c_{p,2}}{b-\underline{\Delta}}$, and
- $\Delta_A = b - \frac{c_{p,1}+\sigma\phi c_{p,2}}{\frac{1}{\rho}-\sigma\phi} > \underline{\Delta}$ if $\frac{1}{\rho} - \sigma\phi > \frac{c_{p,1}+\sigma\phi c_{p,2}}{b-\underline{\Delta}}$, and $b - \frac{c_{p,1}+\sigma\phi c_{p,2}}{\frac{1}{\rho}-\sigma\phi} \geq b_A$ or $\Delta_A > b_A$.

Also note that if $\Delta_A > b_A$, then the incumbent is indifferent between accepting and rejecting when $\Delta = \Delta_A$.

Second, note that for any threshold strategy $\Delta_A > \underline{\Delta}$ that the incumbent follows and any σ, in equilibrium the best response of the activist is given by

$$\rho\left(\Delta_A, \sigma\right) = \begin{cases} 1, & \text{if } \Pi_A\left(\Delta_A, \sigma\right) > 0, \\ \in [0,1] & \text{if } \Pi_A\left(\Delta_A, \sigma\right) = 0, \\ 0, & \text{if } \Pi_A\left(\Delta_A, \sigma\right) < 0, \end{cases} \tag{A.11}$$

where Π_A is the activist's profit from running a proxy fight upon rejection, i.e.,

$$\Pi_A\left(\Delta_A, \sigma\right) = \sigma\phi \frac{1}{F\left(\max\left\{\Delta_A, b_A\right\}\right)} \int_{b_A}^{\max\{\Delta_A, b_A\}} \left(\Delta - b_A\right) dF\left(\Delta\right) - \kappa, \tag{A.12}$$

and for any $\Delta_A > \underline{\Delta}$ and any ρ, in equilibrium the best response of the shareholders is given by

$$\sigma\left(\Delta_A\right) = \begin{cases} 1, & \text{if } \Pi_{SH}\left(\Delta_A\right) > 0, \\ \in [0,1] & \text{if } \Pi_{SH}\left(\Delta_A\right) = 0, \\ 0, & \text{if } \Pi_{SH}\left(\Delta_A\right) < 0, \end{cases} \tag{A.13}$$

where Π_{SH} is the shareholders' payoff from supporting the activist if the activist runs a proxy fight, i.e.,

$$\Pi_{SH}\left(\Delta_A\right) = \phi \frac{1}{F\left(\max\left\{\Delta_A, b_A\right\}\right)} \int_{b_A}^{\max\{\Delta_A, b_A\}} \Delta dF\left(\Delta\right). \tag{A.14}$$

Also note that:

$$\Delta_A > (<) \hat{\Delta}_A\left(\sigma\phi\right) \iff \Pi_A\left(\Delta_A, \sigma\right) > (<) 0, \tag{A.15}$$

$$\Delta_A > \check{\Delta}_A \iff \Pi_{SH}\left(\Delta_A\right) > 0, \tag{A.16}$$

$$\Delta_A = \check{\Delta}_A \text{ or } \Delta_A < b_A \Rightarrow \Pi_{SH}\left(\Delta_A\right) = 0 \tag{A.17}$$

$$b_A < \Delta_A < \check{\Delta}_A \Rightarrow \Pi_{SH}(\Delta_A) < 0. \tag{A.18}$$

Third, I show that in any equilibrium where rejection is on the equilibrium path, $\Delta_A^* = b$ if $\rho^* = 0$, and $\Delta_A^* \in [0, b)$ if $\rho^* > 0$. The former result is straightforward since the incumbent is strictly better off by rejecting for all Δ if $\rho^* = 0$. To see the latter result, note that if $\rho^* > 0$ in equilibrium, it must be that $\sigma^* > 0$ and $b_A < b$ as well, because otherwise the activist would never run a proxy fight since $\Pi_A(\Delta_A, \sigma^*) < 0$. Therefore, by the first step it must be that $\Delta_A^* < b$. Moreover, it must also be that $\Delta_A^* > 0$ since $\Delta_A^* \leq 0$ yields a contradiction with $\sigma^* > 0$ if $b_A < 0$, and yields a contradiction with $\rho^* > 0$ if $b_A \geq 0$.

Fourth, I show that in any equilibrium where rejection is on the equilibrium path, the equilibrium is as described in the Proposition. I will also show that in any such equilibrium,

$$\Delta_A^* = \begin{cases} b, & \text{if } \begin{array}{l} \kappa \geq \phi \int_{b_A}^{b} (\Delta - b_A)\, dF(\Delta) \\ \text{or } \int_{b_A}^{b} \Delta dF(\Delta) \leq 0 \end{array} \\ \max \left\{ \begin{array}{c} \hat{\Delta}_A(\phi), \\ b - \frac{c_p}{1-\phi}, \check{\Delta}_A \end{array} \right\} \in (0, b), & \text{otherwise.} \end{cases}, \tag{A.19}$$

There are three cases to consider:

- Suppose $\int_{b_A}^{b} \Delta dF(\Delta) \leq 0$. Then, in no equilibrium $\rho^* > 0$, because otherwise $\Delta_A^* < b$ and hence $\sigma^* = 0$ if $\Delta_A^* \in (b_A, b)$ and $\rho^* = 0$ if $\Delta_A^* \leq b_A$, yielding a conradiction with $\rho^* > 0$. On the other hand, $\rho^* = 0$ is an equilibrium, since then by the third step $\Delta_A^* = b$, to which $\sigma^* = 0$ and hence $\rho^* = 0$ are best responses by the second step.

- Suppose $\kappa \geq \phi \int_{b_A}^{b} (\Delta - b_A)\, dF(\Delta)$. Then, in no equilibrium $\rho^* > 0$, because otherwise $\Delta_A^* < b$ and hence $\Pi_A(\Delta_A^*, \sigma^*) < 0$, yielding a contradiction. On the other hand, $\rho^* = 0$ is an equilibrium, since then by the third step $\Delta_A^* = b$, to which $\rho^* = 0$ is a best response by the second step.

- Suppose $\kappa < \phi \int_{b_A}^{b} (\Delta - b_A)\, dF(\Delta)$ and $\int_{b_A}^{b} \Delta dF(\Delta) > 0$. Note that then $\max\{\hat{\Delta}_A(\phi), b - \frac{c_p}{1-\phi}, \check{\Delta}_A\} < b$. I derive the equilibrium in four steps. In any equilibrium with on equilibrium path rejection,

  1. First, I show that $\frac{1}{\rho^*} - \sigma^*\phi > \frac{c_{p,1}+\sigma^*\phi c_{p,2}}{b-\max\{\underline{\Delta},b_A\}}$, which implies that $\Delta_A^* = b - \frac{c_{p,1}+\sigma^*\phi c_{p,2}}{\frac{1}{\rho^*}-\sigma^*\phi} > \max\{\underline{\Delta}, b_A\}$ by the first step. To see this result, suppose $\frac{1}{\rho^*} - \sigma^*\phi \leq \frac{c_{p,1}+\sigma^*\phi c_{p,2}}{b-\max\{\underline{\Delta},b_A\}}$. Then by the first step $\Delta_A^* \leq \max\{\underline{\Delta}, b_A\}$. However, if $\Delta_A^* \leq \underline{\Delta}$, it yields a contradiction with rejection being on the equilibrium path, and if $\Delta_A^* \leq b_A$, then the activist deviates to $\rho = 0$ by the second step, yielding a contradiction with $\Delta_A^* \leq b_A < b$ by the first step.

  2. First, I show that

$$\Delta_A^* = \Delta_A(\sigma^*) \equiv \begin{cases} b, & \text{if } \kappa \geq \sigma^*\phi \int_{b_A}^{b} (\Delta - b_A)\, dF(\Delta), \\ \max\left\{ \begin{array}{l} \hat{\Delta}_A(\phi, \sigma^*), \\ b - \frac{c_{p,1}+\sigma^*\phi c_{p,2}}{1-\sigma^*\phi} \end{array} \right\}, & \text{otherwise.} \end{cases} \tag{A.20}$$

  where $\hat{\Delta}_A(\phi, \sigma^*) \equiv \hat{\Delta}_A(\phi\sigma^*)$.

  Suppose $\kappa \geq \sigma^*\phi \int_{b_A}^{b} (\Delta - b_A)\, dF(\Delta)$. Then, in equilibrium it must be that $\rho^* = 0$, because otherwise $\Delta_A^* < b$ and hence $\Pi_A(\Delta_A^*, \sigma^*) < 0$, yielding a contradiction. On the other hand, $\rho^* = 0$ is an equilibrium, since then by the third step $\Delta_A^* = b$, to which $\rho^* = 0$ is a best response by the second step.

  Suppose $\kappa < \sigma^*\phi \int_{b_A}^{b} (\Delta - b_A)\, dF(\Delta)$. Then, noting that $\Delta_A(\sigma^*) \in (b_A, b)$ since $\kappa > 0$, there are two cases to consider. Suppose $\Delta_A^* > \Delta_A(\sigma^*)$. Then, by the second step $\Pi_A(\Delta_A^*, \sigma^*) > 0$, and therefore $\rho^* = 1$. However, then by the first substep $\Delta_A^* = b - \frac{c_{p,1}+\sigma^*\phi c_{p,2}}{1-\sigma^*\phi}$, yielding a contradiction with $\Delta_A^* > \Delta_A(\sigma^*)$. Suppose $\Delta_A^* < \Delta_A(\sigma^*)$. Note that it must be $\underline{\Delta} < \Delta_A^*$ for rejection to be on the equilibrium path. There are two subcases to consider. If $\underline{\Delta} < \Delta_A^* < \hat{\Delta}_A(\phi, \sigma^*)$, then by the second step $\Pi_A(\Delta_A^*, \sigma^*) < 0$, and therefore $\rho^* = 0$, resulting in

$\Delta_A^* = b > \hat{\Delta}_A(\phi, \sigma^*)$ by the first step, yielding a contradiction. If $\underline{\Delta} < \Delta_A^* < b - \frac{c_{p,1}+\sigma^*\phi c_{p,2}}{1-\sigma^*\phi}$, then $\Delta_A^* < b - \frac{c_{p,1}+\sigma^*\phi c_{p,2}}{\frac{1}{\rho^*}-\sigma^*\phi}$, contradicting with the first substep.

3. Second, suppose that $0 \leq b_A$, or $b_A < 0$ and $\check{\Delta}_A \leq \max\left\{\hat{\Delta}_A(\phi), b - \frac{c_p}{1-\phi}\right\}$. Then,

   (a) If $0 \leq b_A$, then in any equilibrium $\sigma^* = 1$, because otherwise by (A.20) $b_A < \Delta_A(\sigma^*)$ since $b_A < b$, and hence $\Pi_{SH}(\Delta_A^*) > 0$, yielding a contradiction with $\sigma^* < 1$.

   (b) If $b_A < 0$ and $\check{\Delta}_A \leq \max\left\{\hat{\Delta}_A(\phi), b - \frac{c_p}{1-\phi}\right\}$, then in any equilibrium $\sigma^* = 1$, because otherwise by (A.20) $\check{\Delta}_A < \Delta_A(\sigma^*)$ since $\check{\Delta}_A < b$, and hence $\Pi_{SH}(\Delta_A^*) > 0$, yielding a contradiction with $\sigma^* < 1$.

   Since in any equilibrium $\sigma^* = 1$, by (A.20) $\Delta_A^* = \max\left\{\hat{\Delta}_A(\phi), b - \frac{c_p}{1-\phi}\right\}$. Since $\Delta_A^* = b - \frac{c_{p,1}+\phi c_{p,2}}{\frac{1}{\rho^*}-\phi}$ by the first substep, this implies that in equilibrium it must be that $\rho^* = \min\left\{1, \frac{1}{\phi + \frac{c_p}{b-\check{\Delta}_A(\phi)}}\right\}$.

   Note that ρ^* also satisfies $\rho^* = \min\left\{1, \frac{1}{\tilde{\sigma}_A\phi + \frac{c_{p,1}+\tilde{\sigma}_A\phi c_{p,2}}{b-\check{\Delta}_A}}\right\}$. To see this, there are two cases to consider: Suppose $0 \leq b_A$. Then $\check{\Delta}_A = b_A$, and hence $\tilde{\sigma}_A = \min\{1, \infty\} = 1$. Suppose $b_A < 0$ and $\check{\Delta}_A \leq \max\left\{\hat{\Delta}_A(\phi), b - \frac{c_p}{1-\phi}\right\}$. Then, there are two subcases to consider. If $\check{\Delta}_A \leq \hat{\Delta}_A(\phi)$, then $\frac{\kappa}{\phi\frac{1}{F(\check{\Delta}_A)}\int_{b_A}^{\check{\Delta}_A}(\Delta - b_A)dF(\Delta)} \geq 1$ and hence $\tilde{\sigma}_A = \min\{1, \frac{\kappa}{\phi\frac{1}{F(\check{\Delta}_A)}\int_{b_A}^{\check{\Delta}_A}(\Delta - b_A)dF(\Delta)}\} = 1$. If $\hat{\Delta}_A(\phi) < \check{\Delta}_A \leq b - \frac{c_p}{1-\phi}$, then $\rho^* = \min\left\{1, \frac{1}{\phi + \frac{c_p}{b-\check{\Delta}_A(\phi)}}\right\} = 1$, and hence $1 = \min\left\{1, \frac{1}{\tilde{\sigma}_A\phi + \frac{c_{p,1}+\tilde{\sigma}_A\phi c_{p,2}}{b-\check{\Delta}_A}}\right\}$ for all $\tilde{\sigma}_A \in [0,1]$ since $\frac{1}{\tilde{\sigma}_A\phi + \frac{c_{p,1}+\tilde{\sigma}_A\phi c_{p,2}}{b-\check{\Delta}_A}}$ is decreasing in $\tilde{\sigma}_A$.

   Note that $(\Delta_A^*, \rho^*, \sigma^*)$ derived indeed constitute an equilibrium by the first and second steps, because $\Delta_A^* = b - \frac{c_{p,1}+\sigma^*\phi c_{p,2}}{\frac{1}{\rho^*}-\sigma^*\phi}$ is the incumbent's best response since $\frac{1}{\rho^*} - \sigma^*\phi > \frac{c_{p,1}+\sigma^*\phi c_{p,2}}{b-\max\{\underline{\Delta}, b_A\}}$ (because $b > \Delta_A(\sigma^* = 1) = b - \frac{c_{p,1}+\sigma^*\phi c_{p,2}}{\frac{1}{\rho^*}-\sigma^*\phi} \geq \hat{\Delta}_A(\phi) >$

$\max\{\underline{\Delta}, b_A\})$, $\rho^* = \min\left\{1, \frac{1}{\phi + \frac{c_p}{b - \hat{\Delta}_A(\phi)}}\right\}$ is in the activist's best response since $\hat{\Delta}_A(\phi, \sigma^*) = \Delta_A^*$ (because $b - \frac{c_p}{1-\phi} \leq \hat{\Delta}_A(\phi, \sigma^*) = \Delta_A^*$) if $\frac{1}{\phi + \frac{c_p}{b - \hat{\Delta}_A(\phi)}} \leq 1$ and $\hat{\Delta}_A(\phi, \sigma^*) < \Delta_A^*$ (because $\hat{\Delta}_A(\phi, \sigma^*) < b - \frac{c_p}{1-\phi} = \Delta_A^*$) if $\frac{1}{\phi + \frac{c_p}{b - \hat{\Delta}_A(\phi)}} > 1$, and $\sigma^* = 1$ is in the shareholders' best response since $\check{\Delta}_A \leq \Delta_A^*$.

4. Third, suppose that $b_A < 0$ and $\max\left\{\hat{\Delta}_A(\phi), b - \frac{c_p}{1-\phi}\right\} < \check{\Delta}_A$. Then, in any equilibrium $\Delta_A^* = \check{\Delta}_A$. Suppose that there is an equilibrium where $\Delta_A^* \neq \check{\Delta}_A$. There are two cases to consider. If $\Delta_A^* < \check{\Delta}_A$, then $\rho^* = 0$ by the second step because either $\Delta_A^* \leq b_A$, or $b_A < \Delta_A^* < \check{\Delta}_A$ and hence $\sigma^* = 0$. This results in $\Delta_A^* = b$ due to the first step, yielding a contradiction with $\Delta_A^* < \check{\Delta}_A < b$. If $\Delta_A^* > \check{\Delta}_A$, then by the second step $\sigma^* = 1$, and hence by (A.20) $\Delta_A^* = \max\left\{\hat{\Delta}_A(\phi), b - \frac{c_p}{1-\phi}\right\} < \check{\Delta}_A$, yielding a contradiction with $\Delta_A^* > \check{\Delta}_A$.

   Next, I derive σ^* and ρ^*. Note that by (A.20), σ^* satisfies $\check{\Delta}_A = \Delta_A(\sigma^*)$, and σ^* is unique since $\Delta_A(\sigma^*)$ is strictly decreasing in σ^*. To derive σ^*, let $\tilde{\sigma}_A$ such that it satisfies $\hat{\Delta}_A(\phi, \tilde{\sigma}_A) = \check{\Delta}_A$, or in other words let

$$\tilde{\sigma}_A \equiv \frac{\kappa}{\phi \frac{1}{F\left(\check{\Delta}_A\right)} \int_{b_A}^{\check{\Delta}_A} (\Delta - b_A)\, dF(\Delta)}, \tag{A.21}$$

   where $\tilde{\sigma}_A > 0$ since $b_A < 0 < \check{\Delta}_A$ and $\int_{b_A}^{\check{\Delta}_A} \Delta dF(\Delta) = 0$, and $\tilde{\sigma}_A < 1$ since $\hat{\Delta}_A(\phi) < \check{\Delta}_A$. There are two cases to consider:

   (a) Suppose $b - \frac{c_{p,1} + \tilde{\sigma}_A \phi c_{p,2}}{1 - \tilde{\sigma}_A \phi} \geq \check{\Delta}_A$. Then, in any equilibrium $\sigma^* = \tilde{\sigma}_I$, where $b - \frac{c_{p,1} + \tilde{\sigma}_I \phi c_{p,2}}{1 - \tilde{\sigma}_I \phi} = \check{\Delta}_A$, or equivalently

$$\tilde{\sigma}_I \equiv \frac{b - \check{\Delta}_A - c_{p,1}}{\phi\left(b - \check{\Delta}_A\right) + \phi c_{p,2}}. \tag{A.22}$$

   To see this, there are two cases to consider. If $\sigma^* < \tilde{\sigma}_I$, then $b - \frac{c_{p,1} + \sigma^* \phi c_{p,2}}{1 - \sigma^* \phi} > \check{\Delta}_A$ since $\check{\Delta}_A < b$, and hence $\Delta_A(\sigma^*) > \check{\Delta}_A$ by (A.20), yielding a contradiction with $\Delta_A^* = \check{\Delta}_A$. If $\sigma^* > \tilde{\sigma}_I$, then $b - \frac{c_{p,1} + \sigma^* \phi c_{p,2}}{1 - \sigma^* \phi} < \check{\Delta}_A$, and

$\hat{\Delta}_A(\phi, \sigma^*) < \check{\Delta}_A$ as well since $\sigma^* > \tilde{\sigma}_A$ due to $\tilde{\sigma}_I \geq \tilde{\sigma}_A$, resulting in $\Delta_A(\sigma^*) < \check{\Delta}_A$ by (A.20), and hence yielding a contradiction with $\Delta_A^* = \check{\Delta}_A$.

Also, note that $\tilde{\sigma}_I > 0$ since $\tilde{\sigma}_I \geq \tilde{\sigma}_A > 0$, and $\tilde{\sigma}_I < 1$ since $b - \frac{c_p}{1-\phi} < \check{\Delta}_A = b - \frac{c_{p,1} + \tilde{\sigma}_I \phi c_{p,2}}{1 - \tilde{\sigma}_I \phi}$.

Note that in any equilibrium $\rho^* = 1$, because $\Delta_A^* > b_A$ implies that $\Delta_A^* = b - \frac{c_{p,1} + \sigma^* \phi c_{p,2}}{\frac{1}{\rho^*} - \sigma^* \phi}$ by the first step, and $\sigma^* = \tilde{\sigma}_I$ and $\Delta_A^* = \check{\Delta}_A = b - \frac{c_{p,1} + \tilde{\sigma}_I \phi c_{p,2}}{1 - \tilde{\sigma}_I \phi}$ implies that $\rho^* = 1$. Also note that $\frac{1}{\tilde{\sigma}_A \phi + \frac{c_{p,1} + \tilde{\sigma}_A \phi c_{p,2}}{b - \check{\Delta}_A}} \geq 1$ since $b - \frac{c_{p,1} + \tilde{\sigma}_A \phi c_{p,2}}{1 - \tilde{\sigma}_A \phi} \geq \check{\Delta}_A$, and therefore $\rho^* = \min \left\{ 1, \frac{1}{\tilde{\sigma}_A \phi + \frac{c_{p,1} + \tilde{\sigma}_A \phi c_{p,2}}{b - \check{\Delta}_A}} \right\}$ holds.

Note that $(\Delta_A^*, \rho^*, \sigma^*)$ derived indeed constitute an equilibrium by the first and second steps, because $\Delta_A^* = b - \frac{c_{p,1} + \sigma^* \phi c_{p,2}}{\frac{1}{\rho^*} - \sigma^* \phi}$ is the incumbent's best response since $\frac{1}{\rho^*} - \sigma^* \phi > \frac{c_{p,1} + \sigma^* \phi c_{p,2}}{b - \max\{\underline{\Delta}, b_A\}}$ (because $b > b - \frac{c_{p,1} + \sigma^* \phi c_{p,2}}{\frac{1}{\rho^*} - \sigma^* \phi} = \check{\Delta}_A > 0 > \max\{\underline{\Delta}, b_A\}$), $\rho^* = 1$ is in the activist's best response since $\hat{\Delta}_A(\phi, \sigma^*) \leq \Delta_A^*$ (because $\hat{\Delta}_A(\phi, \sigma^*) = \hat{\Delta}_A(\phi, \tilde{\sigma}_I) \leq \hat{\Delta}_A(\phi, \tilde{\sigma}_A) = \check{\Delta}_A = \Delta_A^*$), and $\sigma^* = \tilde{\sigma}_I$ is in the shareholders' best response since $\Delta_A^* = \check{\Delta}_A$.

(b) Suppose $b - \frac{c_{p,1} + \tilde{\sigma}_A \phi c_{p,2}}{1 - \tilde{\sigma}_A \phi} < \check{\Delta}_A$. Then, in any equilibrium $\sigma^* = \tilde{\sigma}_A$. To see this, there are two cases to consider. If $\sigma^* < \tilde{\sigma}_A$, then $\Delta_A^* \geq \hat{\Delta}_A(\phi, \sigma^*) > \check{\Delta}_A$ by (A.20), yielding a contradiction with $\Delta_A^* = \check{\Delta}_A$. If $\sigma^* > \tilde{\sigma}_A$, then $b - \frac{c_{p,1} + \sigma^* \phi c_{p,2}}{1 - \sigma^* \phi} < \check{\Delta}_A$ and $\hat{\Delta}_A(\phi, \sigma^*) < \check{\Delta}_A$, and therefore $\Delta_A^*(\sigma^*) < \check{\Delta}_A$ by (A.20), yielding a contradiction with $\Delta_A^* = \check{\Delta}_A$.

Also note that $\tilde{\sigma}_A > \tilde{\sigma}_I$.

In any equilibrium, $\Delta_A^* > b_A$ implies that $\Delta_A^* = b - \frac{c_{p,1} + \sigma^* \phi c_{p,2}}{\frac{1}{\rho^*} - \sigma^* \phi}$ by the first step, and $\sigma^* = \tilde{\sigma}_A$ and $\Delta_A^* = \check{\Delta}_A$ implies that

$$\rho^* = \frac{1}{\tilde{\sigma}_A \phi + \frac{c_{p,1} + \tilde{\sigma}_A \phi c_{p,2}}{b - \check{\Delta}_A}} \in (0, 1). \tag{A.23}$$

Note that $(\Delta_A^*, \rho^*, \sigma^*)$ derived indeed constitute an equilibrium by the first and second steps, because $\Delta_A^* = b - \frac{c_{p,1}+\sigma^*\phi c_{p,2}}{\frac{1}{\rho^*}-\sigma^*\phi}$ is the incumbent's best response since $\frac{1}{\rho^*} - \sigma^*\phi > \frac{c_{p,1}+\sigma^*\phi c_{p,2}}{b-\max\{\underline{\Delta},b_A\}}$ (because $b > b - \frac{c_{p,1}+\sigma^*\phi c_{p,2}}{\frac{1}{\rho^*}-\sigma^*\phi} = \check{\Delta}_A > 0 > \max\{\underline{\Delta}, b_A\}$), any ρ^* is in the activist's best response since $\hat{\Delta}_A(\phi, \sigma^*) = \Delta_A^*$ (because $\hat{\Delta}_A(\phi, \sigma^*) = \hat{\Delta}_A(\phi, \tilde{\sigma}_A) = \check{\Delta}_A = \Delta_A^*$), and $\sigma^* = \tilde{\sigma}_A$ is in the shareholders' best response since $\Delta_A^* = \check{\Delta}_A$.

Also, note that ρ^* and σ^* derived in the second and third substeps above indeed satisfy $\frac{1}{\rho^*} - \sigma^*\phi > \frac{c_{p,1}+\sigma^*\phi c_{p,2}}{b-\underline{\Delta}}$.

Fifth, I show that an equilibrium where the incumbent accepts action settlement for all Δ does not exist if $\underline{\Delta} < b - \frac{c_p}{1-\phi}$. To see this result, suppose that $\underline{\Delta} < b - \frac{c_p}{1-\phi}$. Then, by the first step, $\Delta_A^* \geq b - \frac{c_{p,1}+\sigma^*\phi c_{p,2}}{\frac{1}{\rho^*}-\sigma^*\phi} \geq b - \frac{c_p}{1-\phi}$ since $\frac{1}{\rho^*} - \sigma^*\phi > \frac{c_{p,1}+\sigma^*\phi c_{p,2}}{b-\underline{\Delta}}$ (because $\frac{1}{\rho^*} - \sigma^*\phi \geq 1 - \phi > \frac{c_p}{b-\underline{\Delta}} \geq \frac{c_{p,1}+\sigma^*\phi c_{p,2}}{b-\underline{\Delta}}$). Therefore, the incumbent rejects action settlement for all $\Delta \in (\underline{\Delta}, b - \frac{c_p}{1-\phi})$. □

I prove Corollaries 1 and 2 with the following generalization for any $\kappa > 0$.

Corollary 13. *Suppose that the activist has demanded action settlement. Then, in the equilibrium,*

(*i*) *Upon running and winning a proxy fight, the activist sometimes does not implement the project even if he achieves the authority.*

(*ii*) *If action settlement is on the equilibrium path, then*

(*a*) *The average shareholder return of action settlement is strictly larger than the average shareholer return of a proxy fight.*

(*b*) *The announcement return of action settlement is positive.*

(*iii*) *Compared to the equilibrium where the activist does not demand any settlement,*

(a) *If $\kappa > \kappa_0(\phi)$, the expected payoff of the activist and shareholder value is the same.*

(b) *If $\kappa < \kappa_0(\phi)$, the expected payoff of the activist is strictly larger, while expected shareholder value is strictly smaller if and only if*

$$\rho_A^* < 1 - \frac{1-\phi}{\phi} \frac{P(\Delta > \Delta_A^*) E\left[\Delta | \Delta > \Delta_A^*\right]}{P(\Delta \in [0, \Delta_A^*]) E\left[\Delta | \Delta \in [0, \Delta_A^*]\right]} \tag{A.24}$$

(*iv*) *As κ decreases,*

(a) *The expected shareholder value conditional on settlement as well as conditional on proxy fight decreases.*

(b) *The unconditional expected shareholder value increases.*

(*v*) *As c_p increases, if $\kappa > \kappa_0(\phi)$, then no player's payoff changes, and if $\kappa < \kappa_0(\phi)$, then:*

(a) *If $c_p < (1-\phi)(b - \hat{\Delta}_A)$, then parts (iv.a) and (iv.b) strictly hold. Moreover, the activist's expected payoff strictly increases.*

(b) *If $c_p \geq (1-\phi)(b - \hat{\Delta}_A)$, then expected shareholder value strictly decreases, the activist's expected payoff does not change*

Proof. Part (i) follows directly from Proposition 13.

Consider part (ii). Note that by Proposition 13, action settlement is on the equilibrium path if and only if $\kappa < \kappa_0(\phi)$. Suppose that $\kappa < \kappa_0(\phi)$. Then, the average shareholder return of action settlement is given by $E[\Delta | \Delta > \Delta_A^*]$ while the it is $\phi E[\max\{0, \Delta\} | \Delta \leq \Delta_A^*]$ for proxy fight. Since $\Delta_A^* > 0$, the former is strictly larger. The share price before the announcement of decision of the incumbent is given by

$$\begin{aligned} &P(\Delta \leq \Delta_A^*) \rho_A^* \phi E[\max\{0, \Delta\} | \Delta \leq \Delta_A^*] \\ &+ P(\Delta > \Delta_A^*) E[\Delta | \Delta > \Delta_A^*], \end{aligned} \tag{A.25}$$

where the standalone value of the firm is normalized to zero. Since the share price increases to $E[\Delta|\Delta > \Delta_A^*]$ upon the announcement of action settlement, the announcement return of action settlement is strictly positive.

Consider part (iii). There are two cases to consider. Suppose that $\kappa > \kappa_0(\phi)$. Then, by Propositions 13 and 6 the activist never runs a proxy fight regardless of whether he has demanded action settlement or nothing, giving him and the shareholders a payoff of zero in equilibrium. Suppose that $\kappa < \kappa_0(\phi)$. In this case, if the activist does not demand anything, then by Lemma 6 in equilibrium $\rho^* = 1$, and hence at any Δ his payoff is $\Pi_A^*(\Delta) = \phi \max\{0, \Delta\} - \kappa$, and if the activist demands action settlement, then by Proposition 13 in equilibrium $\Pi_A^*(\Delta) = \Delta$ if $\Delta > \Delta_A^*$ and $\Pi_A^*(\Delta) = \rho_A^* \cdot (\phi \max\{0, \Delta\} - \kappa)$ if $\Delta \leq \Delta_A^*$. Since $\rho_A^* = 1$ if $E[\phi \max\{0, \Delta\} - \kappa | \Delta \leq \Delta_A^*] > 0$, and also $\Delta_A^* \in (0, b)$ due to $\kappa < \kappa_0(\phi)$, $E[\Pi_A^*(\Delta)]$ is strictly larger if the activist demands action settlement compared to demanding nothing. On the other hand, expected shareholder value is given by

$$\Pi_{SH}^* = \begin{cases} \int_0^b \Delta dF(\Delta), & \text{if activist demands nothing} \\ \rho^* \phi \int_0^{\Delta_A^*} \Delta dF(\Delta) & \\ + \int_{\Delta_A^*}^b \Delta dF(\Delta), & \text{if activist demands action settlement} \end{cases} \tag{A.26}$$

Therefore, the shareholders strictly prefer the activist to demand nothing over demanding action settlement if and only if

$$\rho^* < 1 - \frac{1-\phi}{\phi} \frac{\int_{\Delta_A^*}^b \Delta dF(\Delta)}{\int_0^{\Delta_A^*} \Delta dF(\Delta)}. \tag{A.27}$$

Consider part (iv). There are two cases to consider. Suppose that $\rho_A^* = 1$ or $\kappa > \kappa_0(\phi)$. Then, by Proposition 13, there exists $\varepsilon > 0$ such that for all $\kappa' \in [\kappa - \varepsilon, \kappa]$, ρ^* is the same, and therefore the expected shareholder value conditional on settlement as well as conditional on proxy fight is the same as well. Since ρ^* does not change, unconditional shareholder value does not change either. Suppose that $\rho_A^* < 1$ and $\kappa \leq \kappa_0(\phi)$. Then,

as κ decreases, ρ_A^* strictly increases and Δ_A^* strictly decreases. Therefore, the expected shareholder value conditional on settlement $E\left[\Pi_{SH}^*(\Delta)|\Delta > \Delta_A^*\right] = E\left[\Delta|\Delta > \Delta_A^*\right]$ as well as conditional on proxy fight $E\left[\Pi_{SH}^*(\Delta)|e = 1 \wedge \Delta \leq \Delta_A^*\right] = \phi E\left[\max\left\{0, \Delta\right\}|\Delta \leq \Delta_A^*\right]$ strictly decrease. However, unconditional expected shareholder value

$$E\left[\Pi_{SH}^*(\Delta)\right] = \rho_A^* \phi \int_0^{\Delta_A^*} \Delta dF\left(\Delta\right) + \int_{\Delta_A^*}^{b} \Delta dF\left(\Delta\right) \tag{A.28}$$

strictly increases.

Consider part (v). There are three cases to consider. Suppose that $\kappa > \kappa_0(\phi)$. Then, by Proposition 13, for any c_p the activist never runs a proxy fight and the incumbent always rejects the action settlement, and therefore in equilibrium each player's payoff is zero for all Δ. Suppose that $\kappa < \kappa_0(\phi)$ and $b - \frac{c_p}{1-\phi} > \hat{\Delta}_A$. Then, by Proposition 13, $\rho_A^* = 1$, and as c_p increases $\rho_A^* = 1$ does not change while Δ_A^* strictly decreases. Therefore, the expected shareholder value conditional on settlement as well as conditional on proxy fight strictly decrease, while unconditional expected shareholder value (A.28) strictly increases. Moreover, the activist's expected payoff in equilibrium

$$\Pi_A^* = \int_{\underline{\Delta}}^{\Delta_A^*} \left(\phi \max\left\{0, \Delta\right\} - \kappa\right) dF\left(\Delta\right) + \int_{\Delta_A^*}^{b} \Delta dF\left(\Delta\right) \tag{A.29}$$

strictly increases as well, where the first term is strictly positive since $\Delta_A^* = b - \frac{c_p}{1-\phi} > \hat{\Delta}_A$. Finally, suppose that $\kappa < \kappa_0(\phi)$ and $b - \frac{c_p}{1-\phi} \leq \hat{\Delta}_A$. Then, by Proposition 13, $\Delta_A^* = \hat{\Delta}_A$, and as c_p increases Δ_A^* does not change while ρ_A^* strictly decreases, and therefore the unconditional expected shareholder value (A.28) decreases while the activist's expected payoff (A.29) does not change since $\Delta_A^* = \hat{\Delta}_A$. □

I prove Proposition 2 with the following generalization for any $b_A \in (-\infty, b)$ and $\kappa > 0$. I denote the set of Δ for which the board accepts by board settlement by $\mathbf{B}$.

Proposition 14. *Suppose that the activist has demanded board settlement with activist control of $\alpha \in (0, 1]$. Then, denoting by $\rho_B^*(\alpha)$ the probability of the activist running a*

proxy fight upon rejection,

(*i*) ***(Rejection equilibrium)*** *An equilibrium where* $\rho^* = 0$ *exists if and only if* $\kappa \geq \phi \cdot \int_{b_A}^{b} (\Delta - b_A)\, dF(\Delta)$ *or* $E[\Delta | \Delta \geq b_A] \leq 0$. *In any such equilibrium, the project is never implemented for any* Δ, *and for all* Δ *the incumbent weakly prefers to reject the board settlement. Moreover, whenever such an equilibrium exists, there exists an equilibrium where* $\rho^* = 0$, $\sigma^* = \mathbf{1}_{\{0 < E[\Delta | \Delta \geq b_A]\}}$, *and the incumbent rejects board settlement for all* Δ.

(*ii*) ***(Proxy fight equilibrium)*** *An equilibrium where* $\rho_B^* > 0$ *and the incumbent rejects board settlement for some* Δ *exists if and only if* $\kappa < \phi \frac{1}{1-F(b_A)} \int_{b_A}^{b} (\Delta - b_A)\, dF(\Delta)$ *and* $E[\Delta | \Delta \geq b_A] > 0$. *Moreover, in any such equilibrium,*

(*a*) *The incumbent accepts the settlement if* $\Delta \in (\underline{\Delta}, b_A) \cup (\Delta_B^*, b)$ *and rejects if* $\Delta \in (b_A, \Delta_B^*)$, *where* $\Delta_B^* \in (0, b)$ *is given by*

$$\Delta_B^*(\alpha) \equiv \begin{cases} b - \frac{c_p}{\alpha - \phi}, & \text{if } \alpha > \alpha_L \\ \max\left\{\hat{\Delta}_B(\phi), \check{\Delta}_A\right\}, & \text{otherwise} \end{cases}, \tag{A.30}$$

where α_L, $\hat{\Delta}_B(\phi)$, *and* $\check{\Delta}_B$ *are unique and given by*

$$\alpha_L \equiv \phi + \frac{c_p}{b - \max\left\{\hat{\Delta}_B(\phi), \check{\Delta}_A\right\}} \tag{A.31}$$

$$\hat{\Delta}_B = \begin{cases} \underline{\Delta}, & \text{if } \kappa \leq \phi(\underline{\Delta} - b_A) \\ x > \max\{\underline{\Delta}, b_A\} \ \ s.t. & \\ \kappa = \phi E[\Delta - b_A | b_A \leq \Delta \leq x], & \text{otherwise} \end{cases} \tag{A.32}$$

$$\check{\Delta}_B = \begin{cases} b_A, & \text{if } b_A \geq 0 \\ x > \underline{\Delta} \ s.t. \ 0 = \int_{b_A}^{x} \Delta dF(\Delta), & \text{otherwise} \end{cases} \tag{A.33}$$

(b) Upon rejection the activist runs a proxy fight with probability

$$\rho_B^*(\alpha) \equiv \begin{cases} \min\left\{1, \frac{\alpha}{\phi + \frac{c_p}{b - \hat{\Delta}_B(\phi)}}\right\}, & \text{if } 0 \leq b_A, \\ \min\left\{1, \frac{\alpha}{\tilde{\sigma}_A \phi + \frac{c_{p,1} + \tilde{\sigma}_A \phi c_{p,2}}{b - \hat{\Delta}_B(\phi)}}\right\}, & \text{if } b_A < 0 \end{cases} \tag{A.34}$$

where

$$\tilde{\sigma}_A \equiv \min\left\{1, \frac{\kappa}{\phi E\left[\Delta - b_A | b_A \leq \Delta \leq \check{\Delta}_B\right]}\right\} \tag{A.35}$$

(c) Upon proxy fight, shareholders support the activist with probability

$$\sigma_B^*(\alpha) = \begin{cases} 1, & \text{if } \begin{array}{l} 0 \leq b_A \text{ or } \check{\Delta}_B \leq \hat{\Delta}_B(\phi) \\ \text{or } \phi + \frac{c_p}{b - \check{\Delta}_B} \leq \alpha, \end{array} \\ \max\{\tilde{\sigma}_I, \tilde{\sigma}_A\} \in (0,1), & \text{if } \begin{array}{l} b_A < 0 \text{ and } \hat{\Delta}_B(\phi) < \check{\Delta}_B, \\ \text{and } \alpha < \phi + \frac{c_p}{b - \check{\Delta}_B}, \end{array} \end{cases} \tag{A.36}$$

where

$$\tilde{\sigma}_I \equiv \frac{\alpha\left(b - \check{\Delta}_B\right) - c_{p,1}}{\phi\left(b - \check{\Delta}_B\right) + \phi c_{p,2}}. \tag{A.37}$$

*(iii) (**Acceptance equilibrium**) An equilibrium where the incumbent accepts board settlement for all Δ exists if and only if $\alpha \leq \phi + \frac{c_p}{b - \max\{b_A, \underline{\Delta}\}}$ and $\kappa < \phi(b - b_A)$. Moreover, whenever such an equilibrium exists, it also exists with $\sigma^* = \rho^* = 1$.*

Proof. Suppose the activist has demanded board settlement with control $\alpha > 0$. Throughout, denote the set of Δ for which the board accepts board settlement by $\mathbf{B}$. The proof consists of several steps:

First, note that in any equilibrium, at the implementation stage, if the incumbent board has the decision authority then it never implements the action, while if the activist has the decision authority and has received a signal or is disclosed Δ, then the activist always

implements the project if $\Delta > b_A$, never implements if $\Delta < b_A$, and is indifferent if $\Delta = b_A$. Therefore, in any subgame where the activist has acquired α control, in equilibrium the activist's payoff (excluding the cost of proxy fight) is given by $\alpha(\Delta - b_A)$ if $\Delta \geq b_A$ and zero if $\Delta < b_A$, the incumbent's payoff is given by $\alpha(\Delta - b)$ if $\Delta > b_A$ and zero if $\Delta < b_A$, and the shareholders' payoff is given by $\alpha\Delta$ if $\Delta > b_A$ and zero if $\Delta < b_A$. Note that the arguments made for $\Delta > b_A$ also hold for $\Delta = b_A$ if the activist implements the project when he is indifferent.

Second, I prove part (i). I start with the existence of the equilibrium where $\rho^* = 0$. There are three cases to consider:

- Suppose $\kappa \geq \phi \int_{b_A}^{b} (\Delta - b_A) dF(\Delta)$ and $\mathbf{B}^* = \varnothing$. Then, by the first step, the activist's payoff from running a proxy fight is bounded by $\phi \int_{b_A}^{b} (\Delta - b_A) dF(\Delta) - \kappa \leq 0$, and therefore $\rho^* = 0$ is in the best response of the activist. $\mathbf{B}^* = \varnothing$ is in the best response of the incumbent since by the first step in this equilibrium its payoff is zero for all Δ, which is the upperbound on its payoff.

- Suppose $\int_{b_A}^{b} \Delta dF(\Delta) \leq 0$ and $\mathbf{B}^* = \varnothing$. Then, by the first step, the shareholders' payoff from supporting the activist in a proxy fight is bounded by $\phi \int_{b_A}^{b} \Delta dF(\Delta) \leq 0$, and therefore $\sigma^* = 0$ is in the best response of the shareholders. Therefore, $\rho^* = 0$ is in the best response of the activist. Again, $\mathbf{B}^* = \varnothing$ is in the best response of the incumbent due to same reason with the previous step.

- Suppose $\kappa < \phi \int_{b_A}^{b} (\Delta - b_A) dF(\Delta)$ and $\int_{b_A}^{b} \Delta dF(\Delta) > 0$. Suppose that there is an equilibrium where $\rho^* = 0$. However, then by the first step, in any such equilibrium, $\mathbf{B}^*$ satisfies $\mathbf{B}^* = \varnothing$ if $b_A < \underline{\Delta}$, and $\mathbf{B}^* \subseteq (\underline{\Delta}, b_A]$ if $\underline{\Delta} \leq b_A$. However, then $P(\Delta > b_A \wedge \Delta \notin \mathbf{B}^*) > 0$, $E[\Delta | \Delta > b_A \wedge \Delta \notin \mathbf{B}^*] > 0$, and $\phi E[\max\{0, \Delta - b_A\} | \Delta \notin \mathbf{B}^*] > \kappa$. Therefore, by the first step, in any proxy fight $\sigma^* = 1$, and therefore the activist deviates to $\rho^* = 1$.

Next, suppose that the existence condition of the equilibrium is satisfied. Note that by the

first step the incumbent strictly prefers to reject if $\Delta > b_A$.

- Project is never implemented for any Δ on the equilibrium path, because if it is implemented for some Δ, then it must be implemented through board settlement, which results in the incumbent to deviate to rejecting the settlement.

- Since $\rho^* = 0$, the incumbent's payoff from rejecting is zero, which is the upperbound on its payoff, and therefore in any such equilibrium the incumbent weakly prefers to reject.

- Finally, note that by the proof of the existence of the equilibrium, $\mathbf{B}^* = \varnothing$, $\rho^* = 0$, and $\sigma^* = \mathbf{1}_{\{0<E[\Delta|\Delta\geq b_A]\}}$ always constitute an equilibrium, where σ^* follows from the first step and the off-equilibrium belief of shareholders that upon rejection $\Delta \in (\underline{\Delta}, b)$.

Third, I derive the incumbent's best response in equilibrium for any given $\rho > 0$ and $\sigma \in [0,1]$. Denote the payoff of the incumbent by Π_I and its decision by $\chi \in \{B(\alpha), R\}$, where $B(\alpha)$ represents board settlement with α and R represents rejection. If $\Delta < b_A$, then the incumbent accepts since by the first step its payoff from accepting is zero, while it is negative from rejecting. If $\Delta \geq b_A$, then

$$\Pi_I(\chi|\Delta,\rho,\sigma) = \begin{cases} \alpha(\Delta - b), & \text{if } \chi = B(\alpha) \text{ and } \Delta > b_A \\ \in [0, \alpha(\Delta - b)] & \text{if } \chi = B(\alpha) \text{ and } \Delta = b_A \\ \rho\left[-c_{p,1} + \sigma\left(-\phi c_{p,2} + \phi(\Delta - b)\right)\right], & \text{if } \chi = R \text{ and } \Delta > b_A \\ \in \left[\rho\left[-c_{p,1} + \sigma\left(-\phi c_{p,2} + \phi(\Delta - b)\right)\right], \right. & \\ \left. \rho\left[-c_{p,1} - \sigma\phi c_{p,2}\right]\right] & \text{if } \chi = R \text{ and } \Delta = b_A \end{cases}, \tag{A.38}$$

where $\Pi_I(\chi|b_A,\rho,\sigma)$ depends on the probability that the activist implements the action when he is indifferent between implementing and not implementing. Since $\Pi_I(B(\alpha)|\Delta,\rho,\sigma) - \Pi_I(R|\Delta,\rho,\sigma)$ is strictly increasing in $\Delta > b_A$, for any ρ and σ, there exists a unique $\Delta_B \in [\max\{\underline{\Delta}, b_A\}, b]$ such that the incumbent accepts settlement if $\Delta_B < \Delta < b$ and

rejects if $\max\{\underline{\Delta}, b_A\} < \Delta < \Delta_B$.[1] Moreover, note that

- $\Delta_B = \max\{\underline{\Delta}, b_A\}$ if $\frac{\alpha}{\rho} - \sigma\phi \leq \frac{c_{p,1}+\sigma\phi c_{p,2}}{b-\max\{\underline{\Delta}, b_A\}}$, and
- $\Delta_B = b - \frac{c_{p,1}+\sigma\phi c_{p,2}}{\frac{\alpha}{\rho}-\sigma\phi} > \max\{\underline{\Delta}, b_A\}$ if $\frac{\alpha}{\rho} - \sigma\phi > \frac{c_{p,1}+\sigma\phi c_{p,2}}{b-\max\{\underline{\Delta}, b_A\}}$ or $\Delta_B > \max\{\underline{\Delta}, b_A\}$.

Also note that if $\Delta_B > \max\{\underline{\Delta}, b_A\}$, then the incumbent is indifferent between accepting and rejecting when $\Delta = \Delta_B$.

Fourth, note that for any acceptance strategy $\mathbf{B}^* = (\underline{\Delta}, b_A) \cup (\Delta_B, b)$ (or, $\mathbf{B}^* = (\Delta_B, b)$ if $b_A \leq \underline{\Delta}$) with $\Delta_B > \max\{\underline{\Delta}, b_A\}$ that the incumbent follows,[2] in equilibrium the best response of the activist is given by

$$\rho(\Delta_B, \sigma) = \begin{cases} 1, & \text{if } \Pi_A(\Delta_B, \sigma) > 0, \\ \in [0,1] & \text{if } \Pi_A(\Delta_B, \sigma) = 0, \\ 0, & \text{if } \Pi_A(\Delta_B, \sigma) < 0, \end{cases} \tag{A.39}$$

for any σ, where Π_A is the activist's profit from running a proxy fight upon rejection, i.e.,

$$\Pi_A(\Delta_B, \sigma) = \sigma\phi E[\Delta | b_A \leq \Delta \leq \Delta_B] - \kappa, \tag{A.40}$$

and in equilibrium the best response of the shareholders is given by

$$\sigma(\Delta_B) = \begin{cases} 1, & \text{if } \Pi_{SH}(\Delta_B) > 0, \\ \in [0,1] & \text{if } \Pi_{SH}(\Delta_B) = 0, \\ 0, & \text{if } \Pi_{SH}(\Delta_B) < 0, \end{cases} \tag{A.41}$$

for any ρ, where Π_{SH} is the shareholders' payoff from supporting the activist if the activist runs a proxy fight, i.e.,

$$\Pi_{SH}(\Delta_A) = \phi E[\Delta | b_A \leq \Delta \leq \Delta_B]. \tag{A.42}$$

[1] If $\underline{\Delta} < b_A < \Delta_B$ and the activist implements the project when he is indifferent, then the incumbent strictly prefers to reject the settlement if $\Delta = b_A$.

[2] Note that the best response of the activist or the shareholders does not change if $\mathbf{B}^*$ includes the points $\{b_A\}$ and/or $\{\Delta_B\}$, because they are zero probability events.

Note that

$$\Delta_B > (<)\hat{\Delta}_B(\sigma\phi) \iff \Pi_A(\Delta_B, \sigma) > (<)0, \tag{A.43}$$

$$\Delta_B > \check{\Delta}_B \iff \Pi_{SH}(\Delta_B) > 0, \tag{A.44}$$

$$\Delta_B = \check{\Delta}_B \text{ or } \Delta_B < b_A \Rightarrow \Pi_{SH}(\Delta_B) = 0 \tag{A.45}$$

$$b_A < \Delta_B < \check{\Delta}_B \Rightarrow \Pi_{SH}(\Delta_B) < 0. \tag{A.46}$$

Fifth, I derive the equilibria with $\rho^* > 0$ and on the equilibrium path rejection when $\kappa = 0$ and $b_A = 0$. Specifically, I show that such an equilibrium always exists and in this equilibrium part (ii.a) holds with $\Delta_B^* = b - \frac{c_p}{\alpha - \phi}$ and $\rho^* = \sigma^* = 1$ if $\alpha > \phi + \frac{c_p}{b}$, and $\Delta_B^* = 0$ and any (ρ^*, σ^*) such that

$$\begin{aligned} & \rho^*\left[-c_{p,1} + \sigma^*\left(-\phi c_{p,2} + \phi(-b)\right)\right] \\ \leq \quad & \alpha(-b) \leq \rho^*\left[-c_{p,1} + \sigma^*\left(-\phi c_{p,2}\right)\right] \end{aligned} \tag{A.47}$$

otherwise. Note that under either of these conditions in any equilibrium $\rho^* > 0$, because if $\rho^* = 0$ then by the first step the board rejects board settlement for all $\Delta \in (0, b)$, and therefore $\sigma = 1$ and the activist deviates to $\rho = 1$. There are two cases to consider. Suppose $\alpha > \phi + \frac{c_p}{b}$. Since $\rho^* > 0$, by the third step the best response of the incumbent is accepting for all $\Delta \in (\underline{\Delta}, 0) \cup (\Delta_B^*, b)$ and rejecting for all $\Delta \in (0, \Delta_B^*)$, where $\Delta_B^* = b - \frac{c_{p,1} + \sigma^* \phi c_{p,2}}{\alpha - \sigma^* \phi} > 0$ since $\alpha - \sigma^*\phi > \frac{c_{p,1} + \sigma^* \phi c_{p,2}}{b}$ for any $\sigma^* \in [0, 1]$. Since $\Delta_B^* > 0 = b_A$, by the fourth step $\sigma^* = 1$ is the best response of the shareholders, and $\rho^* = 1$ is in the best response of the activist since $\kappa = 0$. Next, suppose $\alpha < \phi + \frac{c_p}{b}$. Then, it must be that the incumbent rejects the settlement with positive probability if $\Delta = 0$, and accepts otherwise. This is because by the third step any other strategy the incumbent follows at the response stage that includes

rejection must include rejecting for all $\Delta \in (0, \Delta_B)$ for some $\Delta_B > 0$ and accepting for all $\Delta < 0$, and therefore by the fourth step the activist's and the shareholders' unique best response would be $\rho = \sigma = 1$, yielding a contradiction with $\Delta_B > 0$ due to the third step. Due to the incumbent's equilibrium response strategy, by the third step in any equilibrium it must be that (A.47) holds, because if $\rho^* \left[-c_{p,1} + \sigma^* \left(-\phi c_{p,2} + \phi \left(-b\right)\right)\right] > \alpha \left(-b\right)$, then the incumbent rejects for some positive Δ, and if $\alpha \left(-b\right) > \rho^* \left[-c_{p,1} + \sigma^* \left(-\phi c_{p,2}\right)\right]$, then the incumbent accepts for all Δ. On the other hand, if (A.47) holds then there exists $x_P, x_B \in [0,1]$ such that $\rho^* \left[-c_{p,1} + \sigma^* \left(-\phi c_{p,2} + \phi x_P \left(-b\right)\right)\right] = \alpha x_B \left(-b\right)$, where x_B (x_P) represents the probability that the activist implements the project when he is indifferent between implementing and not upon board settlement (winning a proxy fight). Moreover, any such σ^*, ρ^*, x_B, and x_P are in the best response of the shareholders and activist by the first step.

Sixth, I show that in any equilibrium where $\rho^* > 0$ and rejection is on the equilibrium path, the equilibrium is as described in the Proposition. I will also show that whenever such an equilibrium exists,

$$\Delta_B^* = \max \left\{ \hat{\Delta}_B \left(\phi\right), b - \frac{c_p}{\max\left\{\alpha, \alpha_L\right\} - \phi}, \check{\Delta}_B \right\} \in (0, b). \tag{A.48}$$

Note that in any equilibrium with $\rho^* > 0$, by the third step there exists a unique $\Delta_B^* \geq b_A$ such that the incumbent accepts if $\Delta < b_A$ or $\Delta > \Delta_B^*$, and rejects if $b_A < \Delta < \Delta_B^*$. There are three cases to consider:

- Suppose $\int_{b_A}^{b} \Delta dF\left(\Delta\right) \leq 0$. Then, in no equilibrium $\rho^* > 0$, because otherwise $\Delta_B^* < b$ and hence $\sigma^* = 0$ if $\Delta_B^* \in (b_A, b)$ and $\rho^* = 0$ if $\Delta_B^* \leq b_A$, yielding a conradiction with $\rho^* > 0$.

- Suppose $\kappa \geq \phi \int_{b_A}^{b} \left(\Delta - b_A\right) dF\left(\Delta\right)$. Then, in no equilibrium $\rho^* > 0$, because otherwise $\Delta_B^* < b$ and hence $\Pi_A \left(\Delta_B^*, \sigma^*\right) < 0$, yielding a contradiction.

- Suppose $\kappa < \phi \int_{b_A}^{b} \left(\Delta - b_A\right) dF\left(\Delta\right)$ and $\int_{b_A}^{b} \Delta dF\left(\Delta\right) > 0$. Note that then $\max\{\hat{\Delta}_A \left(\phi\right),$

$b - \frac{c_p}{\max\{\alpha,\alpha_L\}-\phi}, \check{\Delta}_A\} < b$. I derive the equilibrium in four steps. In any equilibrium where $\rho^* > 0$ and rejection is on the equilibrium path,

1. First, I show that $\frac{\alpha}{\rho^*} - \sigma^*\phi > \frac{c_{p,1}+\sigma^*\phi c_{p,2}}{b-\max\{\underline{\Delta},b_A\}}$, which implies that $\Delta_B^* = b - \frac{c_{p,1}+\sigma^*\phi c_{p,2}}{\frac{\alpha}{\rho^*}-\sigma^*\phi} > \max\{\underline{\Delta}, b_A\}$ by the first step. To see this result, suppose $\frac{\alpha}{\rho^*}-\sigma^*\phi \leq \frac{c_{p,1}+\sigma^*\phi c_{p,2}}{b-\max\{\underline{\Delta},b_A\}}$. Then by the third step $\Delta_B^* = \max\{\underline{\Delta}, b_A\}$. However, if $\Delta_B^* = \underline{\Delta}$, it yields a contradiction with rejection being on the equilibrium path, and if $\Delta_B^* = b_A$, then the activist deviates to $\rho = 0$ by the fourth step, yielding a contradiction with $\Delta_B^* \leq b_A < b$ by the third step.

2. Second, I show that $\kappa < \sigma^*\phi E[\Delta - b_A|\Delta \geq b_A]$ and

$$\Delta_B^* = \Delta_B(\sigma^*) \equiv \max\left\{ \begin{array}{c} \hat{\Delta}_B(\phi,\sigma^*), \\ b - \frac{c_{p,1}+\sigma^*\phi c_{p,2}}{\max\left\{\alpha-\sigma^*\phi, \frac{c_{p,1}+\sigma^*\phi c_{p,2}}{b-\underline{\Delta}}\right\}} \end{array} \right\}, \tag{A.49}$$

   where $\hat{\Delta}_B(\phi,\sigma^*) \equiv \hat{\Delta}_B(\phi\sigma^*)$.

   Suppose $\kappa \geq \sigma^*\phi E[\Delta - b_A|\Delta \geq b_A]$. Then, in equilibrium it must be that $\rho^* = 0$, because otherwise $\Delta_B^* < b$ and hence $\Pi_A(\Delta_B^*,\sigma^*) < 0$, yielding a contradiction.

   Suppose $\kappa < \sigma^*\phi E[\Delta - b_A|\Delta \geq b_A]$. Then, noting that $\Delta_B(\sigma^*) \in (b_A, b)$ since $\kappa > 0$, there are two cases to consider. Suppose $\Delta_B^* > \Delta_B(\sigma^*)$. Then, by the fourth step $\Pi_A(\Delta_B^*,\sigma^*) > 0$, and therefore $\rho^* = 1$. However, then by the first substep $\Delta_B^* = b - \frac{c_{p,1}+\sigma^*\phi c_{p,2}}{\alpha-\sigma^*\phi} > \underline{\Delta}$, yielding a contradiction with $\Delta_B^* > \Delta_B(\sigma^*)$. Suppose $\Delta_B^* < \Delta_B(\sigma^*)$. Note that it must be $\underline{\Delta} < \Delta_B^*$ for rejection to be on the equilibrium path. There are two subcases to consider. If $\underline{\Delta} < \Delta_B^* < \hat{\Delta}_B(\phi,\sigma^*)$, then by the fourth step $\Pi_A(\Delta_B^*,\sigma^*) < 0$, and therefore $\rho^* = 0$, resulting in $\Delta_B^* = b > \hat{\Delta}_B(\phi,\sigma^*)$ by the third step, yielding a contradiction with $\Delta_B^* < \hat{\Delta}_B(\phi,\sigma^*)$. If $\underline{\Delta} < \Delta_B^* < b - \frac{c_{p,1}+\sigma^*\phi c_{p,2}}{\alpha-\sigma^*\phi}$, then $\Delta_B^* < b - \frac{c_{p,1}+\sigma^*\phi c_{p,2}}{\frac{\alpha}{\rho^*}-\sigma^*\phi}$, contradicting with the first substep.

3. Third, suppose that $0 \leq b_A$, or $b_A < 0$ and $\check{\Delta}_B \leq \max\left\{\hat{\Delta}_B(\phi), b - \frac{c_p}{\max\left\{\alpha-\phi, \frac{c_p}{b-\underline{\Delta}}\right\}}\right\}$. Then,

   (a) If $0 \leq b_A$, then in any equilibrium $\sigma^* = 1$, because otherwise by (A.49) $b_A < \Delta_B(\sigma^*)$ since $b_A < b$, and hence $\Pi_{SH}(\Delta_B^*) > 0$, yielding a contradiction with $\sigma^* < 1$.

   (b) If $b_A < 0$ and $\check{\Delta}_B \leq \max\left\{\hat{\Delta}_B(\phi), b - \frac{c_p}{\max\left\{\alpha-\phi, \frac{c_p}{b-\underline{\Delta}}\right\}}\right\}$, then in any equilibrium $\sigma^* = 1$, because otherwise by (A.49) $\check{\Delta}_B < \Delta_B(\sigma^*)$ since $\check{\Delta}_B < b$, and hence $\Pi_{SH}(\Delta_B^*) > 0$, yielding a contradiction with $\sigma^* < 1$.

   Since in any equilibrium $\sigma^* = 1$, by (A.49) $\Delta_B^* = \Delta_B(\sigma^* = 1)$. Since $\Delta_B^* = b - \frac{c_{p,1}+\sigma^*\phi c_{p,2}}{\frac{\alpha}{\rho^*}-\sigma^*\phi}$ by the first substep, this implies that in equilibrium it must be that $\rho^* = \min\left\{1, \frac{\alpha}{\phi+\frac{c_p}{b-\hat{\Delta}_B(\phi)}}\right\}$.

   Note that ρ^* also satisfies $\rho^* = \min\left\{1, \frac{\alpha}{\tilde{\sigma}_A\phi+\frac{c_{p,1}+\tilde{\sigma}_A\phi c_{p,2}}{b-\check{\Delta}_B}}\right\}$. To see this, there are two cases. Suppose $0 \leq b_A$. Then $\check{\Delta}_A = b_A$, and hence $\tilde{\sigma}_A = \min\{1, \infty\} = 1$. Suppose $b_A < 0$ and $\check{\Delta}_B \leq \max\left\{\hat{\Delta}_B(\phi), b - \frac{c_p}{\max\left\{\alpha-\phi, \frac{c_p}{b-\underline{\Delta}}\right\}}\right\}$. Then, there are two cases to consider. If $\check{\Delta}_B \leq \hat{\Delta}_B(\phi)$, then $\frac{\kappa}{\phi E\left[\Delta - b_A | b_A \leq \Delta \leq \check{\Delta}_B\right]} \geq 1$ and hence $\tilde{\sigma}_A = \min\{1, \frac{\kappa}{\phi E\left[\Delta - b_A | b_A \leq \Delta \leq \check{\Delta}_B\right]}\} = 1$. If $\hat{\Delta}_B(\phi) < \check{\Delta}_B \leq b - \frac{c_p}{\max\left\{\alpha-\phi, \frac{c_p}{b-\underline{\Delta}}\right\}}$, then $\rho^* = \min\left\{1, \frac{\alpha}{\phi+\frac{c_p}{b-\hat{\Delta}_B(\phi)}}\right\} = 1$, and hence $1 = \min\left\{1, \frac{\alpha}{\tilde{\sigma}_A\phi+\frac{c_{p,1}+\tilde{\sigma}_A\phi c_{p,2}}{b-\hat{\Delta}_B}}\right\}$ for all $\tilde{\sigma}_A \in [0,1]$ since $\frac{1}{\tilde{\sigma}_A\phi+\frac{c_{p,1}+\tilde{\sigma}_A\phi c_{p,2}}{b-\check{\Delta}_B}}$ is decreasing in $\tilde{\sigma}_A$.

   Note that $(\Delta_B^*, \rho^*, \sigma^*)$ derived indeed constitute an equilibrium by the third and fourth steps, because $\Delta_B^* = b - \frac{c_{p,1}+\sigma^*\phi c_{p,2}}{\frac{\alpha}{\rho^*}-\sigma^*\phi}$ is the incumbent's best response since $\frac{\alpha}{\rho^*} - \sigma^*\phi > \frac{c_{p,1}+\sigma^*\phi c_{p,2}}{b-\max\{\underline{\Delta}, b_A\}}$ (because $b > \Delta_B(\sigma^* = 1) = b - \frac{c_{p,1}+\sigma^*\phi c_{p,2}}{\frac{\alpha}{\rho^*}-\sigma^*\phi} \geq \hat{\Delta}_B(\phi) > \max\{\underline{\Delta}, b_A\}$), $\rho^* = \min\left\{1, \frac{\alpha}{\phi+\frac{c_p}{b-\hat{\Delta}_B(\phi)}}\right\}$ is in the activist's best response since $\hat{\Delta}_B(\phi, \sigma^*) = \Delta_B^*$ (because $b - \frac{c_p}{\max\left\{\alpha-\phi, \frac{c_p}{b-\underline{\Delta}}\right\}} \leq \hat{\Delta}_B(\phi, \sigma^*) = \Delta_B^*$) if $\frac{\alpha}{\phi+\frac{c_p}{b-\hat{\Delta}_B(\phi)}} \leq$

1 and $\hat{\Delta}_B(\phi,\sigma^*) < \Delta_B^*$ (because $\hat{\Delta}_B(\phi,\sigma^*) < b - \frac{c_p}{\max\left\{\alpha-\phi,\frac{c_p}{b-\underline{\Delta}}\right\}} = \Delta_B^*$) if $\frac{\alpha}{\phi+\frac{c_p}{b-\hat{\Delta}_B(\phi)}} > 1$, and $\sigma^* = 1$ is in the shareholders' best response since $\check{\Delta}_B \leq \Delta_B^*$.

4. Fourth, suppose that $b_A < 0$ and $\max\left\{\hat{\Delta}_B(\phi), b - \frac{c_p}{\max\left\{\alpha-\phi,\frac{c_p}{b-\underline{\Delta}}\right\}}\right\} < \check{\Delta}_B$. Then, in any equilibrium $\Delta_B^* = \check{\Delta}_B$. Suppose that there is an equilibrium where $\Delta_B^* \neq \check{\Delta}_B$. There are two cases to consider. If $\Delta_B^* < \check{\Delta}_B$, then $\rho^* = 0$ by the fourth step because either $\Delta_B^* \leq b_A$, or $b_A < \Delta_B^* < \check{\Delta}_B$ and hence $\sigma^* = 0$. This results in $\Delta_B^* = b$ due to the third step, yielding a contradiction with $\Delta_B^* < \check{\Delta}_B < b$. If $\Delta_B^* > \check{\Delta}_B$, then by the fourth step $\sigma^* = 1$, and hence by (A.49) $\Delta_B^* = \max\left\{\hat{\Delta}_B(\phi), b - \frac{c_p}{\max\left\{\alpha-\phi,\frac{c_p}{b-\underline{\Delta}}\right\}}\right\} < \check{\Delta}_B$, yielding a contradiction with $\Delta_B^* > \check{\Delta}_B$.

Next, I derive σ^* and ρ^*. Note that by (A.49), σ^* satisfies $\check{\Delta}_B = \Delta_B(\sigma^*)$, and σ^* is unique since $\Delta_B(\sigma^*)$ is strictly decreasing in σ^* if $\Delta_B(\sigma^*) > \underline{\Delta}$. To derive σ^*, let $\tilde{\sigma}_A$ such that it satisfies $\hat{\Delta}_A(\phi,\tilde{\sigma}_A) = \check{\Delta}_A$, or in other words let

$$\tilde{\sigma}_A \equiv \frac{\kappa}{\phi E\left[\Delta - b_A | b_A \leq \Delta \leq \check{\Delta}_B\right]}, \tag{A.50}$$

where $\tilde{\sigma}_A > 0$ since $b_A < 0 < \check{\Delta}_B$ and $\int_{b_A}^{\check{\Delta}_B} \Delta dF(\Delta) = 0$, and $\tilde{\sigma}_A < 1$ since $\hat{\Delta}_B(\phi) < \check{\Delta}_B$. There are two cases to consider:

(a) Suppose $\alpha - \tilde{\sigma}_A\phi \geq \frac{c_{p,1}+\tilde{\sigma}_A\phi c_{p,2}}{b-\check{\Delta}_A}$. Then, in any equilibrium $\sigma^* = \tilde{\sigma}_I$, where $b - \frac{c_{p,1}+\tilde{\sigma}_I\phi c_{p,2}}{\alpha-\tilde{\sigma}_I\phi} = \check{\Delta}_B$, or equivalently

$$\tilde{\sigma}_I = \frac{\alpha\left(b-\check{\Delta}_B\right) - c_{p,1}}{\phi\left(b-\check{\Delta}_B\right) + \phi c_{p,2}} \tag{A.51}$$

To see this, there are two cases to consider. If $\sigma^* < \tilde{\sigma}_I$, then $b - \frac{c_{p,1}+\sigma^*\phi c_{p,2}}{\alpha-\sigma^*\phi} > \check{\Delta}_B$ since $\check{\Delta}_B < b$, and hence $\Delta_B(\sigma^*) > \check{\Delta}_B$ by (A.49), yielding a contradiction with $\Delta_B^* = \check{\Delta}_B$. If $\sigma^* > \tilde{\sigma}_I$, then $b - \frac{c_{p,1}+\sigma^*\phi c_{p,2}}{\max\left\{\alpha-\sigma^*\phi,\frac{c_{p,1}+\sigma^*\phi c_{p,2}}{b-\underline{\Delta}}\right\}} < \check{\Delta}_B$,

and $\hat{\Delta}_B(\phi, \sigma^*) < \check{\Delta}_B$ as well since $\sigma^* > \tilde{\sigma}_A$ due to $\tilde{\sigma}_I \geq \tilde{\sigma}_A$, resulting in $\Delta_B(\sigma^*) < \check{\Delta}_B$ by (A.49), and hence yielding a contradiction with $\Delta_B^* = \check{\Delta}_B$.

Also, note that $\tilde{\sigma}_I > 0$ since $\tilde{\sigma}_I \geq \tilde{\sigma}_A > 0$, and $\tilde{\sigma}_I < 1$ since $b - \frac{c_p}{\max\left\{\alpha - \phi, \frac{c_p}{b - \underline{\Delta}}\right\}} < \check{\Delta}_B = b - \frac{c_{p,1} + \tilde{\sigma}_I \phi c_{p,2}}{\alpha - \tilde{\sigma}_I \phi}$.

Note that in any equilibrium $\rho^* = 1$, because $\Delta_B^* > \max\{\underline{\Delta}, b_A\}$ implies that $\Delta_B^* = b - \frac{c_{p,1} + \sigma^* \phi c_{p,2}}{\frac{\alpha}{\rho^*} - \sigma^* \phi}$ by the third step, and $\sigma^* = \tilde{\sigma}_I$ and $\Delta_A^* = \check{\Delta}_B = b - \frac{c_{p,1} + \tilde{\sigma}_I \phi c_{p,2}}{\alpha - \tilde{\sigma}_I \phi}$ implies that $\rho^* = 1$. Also note that $\frac{\alpha}{\tilde{\sigma}_A \phi + \frac{c_{p,1} + \tilde{\sigma}_A \phi c_{p,2}}{b - \check{\Delta}_B}} \geq 1$ since $b - \frac{c_{p,1} + \tilde{\sigma}_A \phi c_{p,2}}{\alpha - \tilde{\sigma}_A \phi} \geq \check{\Delta}_B$, and therefore $\rho^* = \min\left\{1, \frac{1}{\tilde{\sigma}_A \phi + \frac{c_{p,1} + \tilde{\sigma}_A \phi c_{p,2}}{b - \check{\Delta}_A}}\right\}$ holds.

Note that $(\Delta_B^*, \rho^*, \sigma^*)$ derived indeed constitute an equilibrium by the third and fourth steps, because $\Delta_B^* = b - \frac{c_{p,1} + \sigma^* \phi c_{p,2}}{\frac{\alpha}{\rho^*} - \sigma^* \phi}$ is the incumbent's best response since $\frac{\alpha}{\rho^*} - \sigma^* \phi > \frac{c_{p,1} + \sigma^* \phi c_{p,2}}{b - \max\{\underline{\Delta}, b_A\}}$ (because $b > b - \frac{c_{p,1} + \sigma^* \phi c_{p,2}}{\frac{\alpha}{\rho^*} - \sigma^* \phi} = \check{\Delta}_B > 0 > \max\{\underline{\Delta}, b_A\}$), $\rho^* = 1$ is in the activist's best response since $\hat{\Delta}_B(\phi, \sigma^*) \leq \Delta_B^*$ (because $\hat{\Delta}_B(\phi, \sigma^*) = \hat{\Delta}_B(\phi, \tilde{\sigma}_I) \leq \hat{\Delta}_B(\phi, \tilde{\sigma}_A) = \check{\Delta}_B = \Delta_B^*$), and $\sigma^* = \tilde{\sigma}_I$ is in the shareholders' best response since $\Delta_B^* = \check{\Delta}_B$.

(b) Suppose $\alpha - \tilde{\sigma}_A \phi < \frac{c_{p,1} + \tilde{\sigma}_A \phi c_{p,2}}{b - \check{\Delta}_A}$. Then, in any equilibrium $\sigma^* = \tilde{\sigma}_A$. To see this, there are two cases to consider. If $\sigma^* < \tilde{\sigma}_A$, then $\Delta_B^* \geq \hat{\Delta}_B(\phi, \sigma^*) > \check{\Delta}_B$ by (A.49), yielding a contradiction with $\Delta_B^* = \check{\Delta}_B$. If $\sigma^* > \tilde{\sigma}_A$, then $b - \frac{c_{p,1} + \sigma^* \phi c_{p,2}}{\max\left\{\alpha - \sigma^* \phi, \frac{c_{p,1} + \sigma^* \phi c_{p,2}}{b - \underline{\Delta}}\right\}} < \check{\Delta}_B$ and $\hat{\Delta}_B(\phi, \sigma^*) < \check{\Delta}_B$, and therefore $\Delta_B^*(\sigma^*) < \check{\Delta}_B$ by (A.49), yielding a contradiction with $\Delta_B^* = \check{\Delta}_B$.

Also, note that $\tilde{\sigma}_A > \tilde{\sigma}_I$.

In any equilibrium, $\Delta_B^* > \max\{\underline{\Delta}, b_A\}$ implies that $\Delta_B^* = b - \frac{c_{p,1} + \sigma^* \phi c_{p,2}}{\frac{\alpha}{\rho^*} - \sigma^* \phi}$ by the third step, and $\sigma^* = \tilde{\sigma}_A$ and $\Delta_B^* = \check{\Delta}_B$ implies that

$$\rho^* = \frac{\alpha}{\tilde{\sigma}_A \phi + \frac{c_{p,1} + \tilde{\sigma}_A \phi c_{p,2}}{b - \check{\Delta}_B}} \in (0, 1), \tag{A.52}$$

where $\rho^* \in (0,1)$ follows from $\alpha - \tilde{\sigma}_A \phi < \frac{c_{p,1}+\tilde{\sigma}_A \phi c_{p,2}}{b-\check{\Delta}_A}$.

Note that $(\Delta_B^*, \rho^*, \sigma^*)$ derived indeed constitute an equilibrium by the third and fourth steps, because $\Delta_B^* = b - \frac{c_{p,1}+\sigma^* \phi c_{p,2}}{\frac{\alpha}{\rho^*}-\sigma^* \phi}$ is the incumbent's best response since $\frac{\alpha}{\rho^*} - \sigma^* \phi > \frac{c_{p,1}+\sigma^* \phi c_{p,2}}{b-\max\{\underline{\Delta}, b_A\}}$ (because $b > b - \frac{c_{p,1}+\sigma^* \phi c_{p,2}}{\frac{\alpha}{\rho^*}-\sigma^* \phi} = \check{\Delta}_B > 0 > \max\{\underline{\Delta}, b_A\}$), any ρ^* is in the activist's best response since $\hat{\Delta}_B(\phi, \sigma^*) = \Delta_B^*$ (because $\hat{\Delta}_B(\phi, \sigma^*) = \hat{\Delta}_B(\phi, \tilde{\sigma}_A) = \check{\Delta}_B = \Delta_B^*$), and $\sigma^* = \tilde{\sigma}_A$ is in the shareholders' best response since $\Delta_B^* = \check{\Delta}_A$.

Also, note that ρ^* and σ^* derived in the second and third substeps above indeed satisfy $\frac{1}{\rho^*} - \sigma^* \phi > \frac{c_{p,1}+\sigma^* \phi c_{p,2}}{b-\underline{\Delta}}$.

Seventh, I prove part (iii), i.e., that an equilibrium where the incumbent accepts board settlement for all Δ exists if and only if $\alpha < \phi + \frac{c_p}{b-\max\{b_A, \underline{\Delta}\}}$ and $\kappa < \phi(b - b_A)$. There are three cases to consider:

- Suppose $\kappa \geq \phi(b - b_A)$. Then, by the first step in any equilibrium, for any $\mu \subseteq (\underline{\Delta}, b)$ such that the activist believes that $\Delta \in \mu$ upon rejection, the activist strictly prefers not to run a proxy fight. Therefore, by the first step the incumbent rejects for all $\Delta \in (b_A, b)$.

- Suppose $\alpha > \phi + \frac{c_p}{b-\max\{b_A, \underline{\Delta}\}}$. Then, the board rejects for all $\Delta \in (b_A, b)$ by the first step if $\rho = 0$, and for all $\Delta \in (b_A, \Delta_B(\rho, \sigma))$ by the third step if $\rho > 0$, where $\Delta_B(\rho, \sigma) > \max\{b_A, \underline{\Delta}\}$ for all $\rho > 0$ and $\sigma \in [0,1]$.

- Suppose $\alpha \leq \phi + \frac{c_p}{b-\max\{b_A, \underline{\Delta}\}}$ and $\kappa < \phi(b - b_A)$. Then, by the first step in any equilibrium, there exists an off-equilibrium belief $\mu \subseteq (\underline{\Delta}, b)$ such that if the activist and shareholders believe that $\Delta \in \mu$ upon rejection, then $\rho^* = 1$ and $\sigma^* = 1$. If the activist implements the project whenever he is indifferent, then by the third step the incumbent strictly prefers to accept board settlement if $\Delta \neq b_A$, and weakly prefers board settlement if $\Delta = b_A$, concluding the argument.

□

I prove Corollaries 3 and 4 with the following generalization for any $\kappa > 0$.

Corollary 14. *Suppose that the activist has demanded board settlement with activist control of $\alpha_B \in (0, 1]$. Then, in any equilibrium of this subgame,*

(*i*) *In any equilibrium where board settlement is on the equilibrum path, upon board settlement the activist sometimes does not implement the project even if he achieves the authority. In contrast, in any equilibrium where proxy fight is on the equilibrium path, upon running and winning a proxy fight the activist always implements the project if he achieves the authority.*

(*ii*) *The average shareholder return of board settlement is always strictly smaller than the average return of an action settlement. Moreover, if proxy fight is on the equilibrium path, then $\Delta_B^*(\alpha_B) \leq \Delta_A^*$ for any α_B, and*

(*a*) *The average shareholder return of board settlement is strictly smaller than the average shareholer return of a proxy fight if and only if $\Delta_B^*(\alpha_B) > \bar{\Delta}_B(\alpha_B)$, where $\bar{\Delta}_B(\alpha_B) \in (0, b)$ is unique and given by*

$$\alpha_B E\left[\max\{0, \Delta\} | \Delta \notin \left[0, \bar{\Delta}_B\right]\right] = \phi E\left[\Delta | \Delta \in \left[0, \bar{\Delta}_B\right]\right]. \tag{A.53}$$

(*b*) *The announcement return of board settlement is negative if $\alpha_B \geq \hat{\alpha}_L$ and $\Delta_B^*(\alpha_B) > \bar{\Delta}_B$.*

(*iii*) *Suppose $\alpha_B = 1$. Then,*

(*a*) *The expected payoff of the activist is strictly larger than in the equilibrium where he has not demanded any settlement or where he has demanded action settlement if proxy fight or acceptance equilibrium is in play, and equal otherwise.*

(b) The expected shareholder value is strictly larger than in the equilibrium where he the activist demanded action settlement if acceptance equilibrium is in play or proxy fight equilibrium is in play and $\rho_A^* < 1$, and equal otherwise.

(*iv*) *Suppose that proxy fight equilibrium is in play. Then, as κ decreases,*

(a) The expected shareholder value conditional on settlement as well as conditional on proxy fight decreases.

(b) The unconditional shareholder value increases.

(*v*) *Suppose that proxy fight equilibrium is in play. Then, as c_p increases:*

(a) If $\alpha_B > \alpha_L(c_p)$, parts (iv.a) and (iv.b) strictly hold. Moreover, the activist's expected payoff strictly increases, while the incumbent board's ex-ante expected payoff strictly decreases.

(b) If $\alpha_B \leq \alpha_L(c_p)$, then expected shareholder value strictly decreases, the activist's expected payoff does not change, and the incumbent board's ex-ante expected payoff strictly increases.

Proof. Part (i) follows directly from Proposition 14.

Consider part (ii). Note that by Proposition 13, if the activist demands action settlement, settlement is on the equilibrium path if and only if $\kappa < \kappa_0(\phi)$, and if $\kappa < \kappa_0(\phi)$, then the average shareholder return of action settlement is given by $E[\Delta|\Delta \geq \Delta_A^*(\phi)]$. Suppose that $\kappa < \kappa_0(\phi)$. Noting that then rejection equilibrium does not exist for any α if the activist demands board settlement, there are two cases to consider. The average shareholder value of board settlement is $\alpha E[\max\{0, \Delta\}]$ if acceptance equilibrium is in play and $\alpha E[\max\{0, \Delta\} | \Delta < 0 \text{ or } \Delta > \Delta_B^*]$ if proxy fight equilibrium is in play, where $\Delta_B^*(\alpha) \leq \Delta_A^*(\phi)$ for any α. In both cases, it is strictly smaller than $E[\Delta|\Delta \geq \Delta_A^*(\phi)]$.

Consider parts (ii.a). Note that by Proposition 14, if the activist demands board settlement, proxy fight is on the equilibrium path if and only if proxy fight equilibrium is in play. Also note that in this equilibrium board settlement is on the equilibrium path as well. The average shareholder value upon board settlement is $\alpha E\left[\max\left\{0,\Delta\right\}|\Delta\notin[0,\Delta_B^*]\right]$ while upon proxy fight it is $\phi E\left[\Delta|\Delta\in[0,\Delta_B^*]\right]$. Since the former is strictly larger if $\Delta_B^*=0$ and is strictly smaller if $\Delta_B^*=b$, and both are continuous in Δ_B^*, there exists $\bar{\Delta}_B(\alpha)\in(0,b)$ such that (A.53) holds. Note that the LHS is strictly decreasing in Δ_B^* for all $\Delta_B^*\in(0,b)$ and the RHS is strictly increasing in Δ_B^* for all $\Delta_B^*\in(0,b)$. This also implies that $\bar{\Delta}_B(\alpha)$ is unique.

Consider part (ii.b). The share price before the announcement of decision of the incumbent is given by

$$\begin{aligned}&P\left(\Delta\in[0,\Delta_B^*]\right)\rho^*\phi E\left[\Delta|\Delta\in[0,\Delta_B^*]\right]\\&+P\left(\Delta\notin[0,\Delta_B^*]\right)\alpha E\left[\max\left\{0,\Delta\right\}|\Delta\notin[0,\Delta_B^*]\right],\end{aligned}\tag{A.54}$$

where the standalone value of the firm is normalized to zero. Since the share price changes to $\alpha E\left[\max\left\{0,\Delta\right\}|\Delta\notin[0,\Delta_B^*]\right]$ upon the announcement of board settlement, the announcement return of board settlement is strictly negative if $\rho^*=1$ and $\Delta_B^*(\alpha)>\bar{\Delta}_B$. Note that by 14, in proxy fight equilibrium $\rho^*=1$ if and only if $\alpha\geq\alpha_L$.

Consider part (iii). There are three cases to consider.

- Suppose that rejection equilibrium is in play. Then, by Proposition 14, it must be that $\kappa\geq\kappa_0(\phi)$. Then, the expected payoffs of the activist and shareholders are zero if he demands board settlement with $\alpha=1$ or if he demands action settlement by Proposition 13. Moreover, by Lemma 6, if the activist does not demand anything, then his expected payoff is zero as well (If $\kappa=\kappa_0(\phi)$ and the activist has not made any demand, then by the proof of Lemma 6 he weakly prefers not running a proxy fight, which again gives him a payoff of zero.).

- Suppose that acceptance equilibrium is in play. Then, the activist's expected payoff as well as shareholder value is $E[\max\{0,\Delta\}]$ if he demands board settlement, both of which are strictly smaller than if the activist demands action settlement or he does not demand anything.

- Suppose that proxy fight equilibrium is in play. If the activist does not demand anything, then by Lemma 6 in equilibrium his expected payoff is

$$\Pi_A^* = \max\{0, E[\phi \max\{0,\Delta\} - \kappa]\}, \tag{A.55}$$

and if he demands action settlement, then by Proposition 13 in equilibrium his payoff and shareholder value are

$$\Pi_A^* = \max\left\{0, \begin{array}{c} P(\Delta \leq \Delta_A^*) E[\phi \max\{0,\Delta\} - \kappa | \Delta \leq \Delta_A^*] \\ +P(\Delta > \Delta_A^*) E[\Delta | \Delta > \Delta_A^*] \end{array}\right\}, \tag{A.56}$$

$$\begin{aligned} \Pi_{SH}^* &= P(\Delta \in [0,\Delta_A^*]) \rho_A^* \phi E[\Delta | \Delta \leq \Delta_A^*] \\ &\quad +P(\Delta > \Delta_A^*) E[\Delta | \Delta > \Delta_A^*]. \end{aligned} \tag{A.57}$$

On the other hand, if the activist demands board settlement with $\alpha = 1$, then by Proposition 14 in equilibrium his expected payoff and shareholder value are

$$\begin{aligned} \Pi_A^* &= P(\Delta \in [0,\Delta_B^*]) E[\phi\Delta - \kappa | \Delta \in [0,\Delta_B^*]] \\ &\quad +P(\Delta > \Delta_B^*) E[\Delta | \Delta > \Delta_B^*] \\ &> 0, \end{aligned} \tag{A.58}$$

$$\begin{aligned} \Pi_{SH}^* &= P(\Delta \in [0,\Delta_B^*]) \rho_B^* \phi E[\Delta | \Delta \in [0,\Delta_B^*]] \\ &\quad +P(\Delta > \Delta_B^*) E[\Delta | \Delta > \Delta_B^*], \end{aligned} \tag{A.59}$$

where the first term in Π_A^* is nonnegative since $\rho_B^* > 0$. Since $\Delta_B^* \in (0, b)$, $\Delta_B^* \leq \Delta_A^*$ and $\kappa > 0$, Π_A^* is strictly largest if the last case. Moreover, since in addition $\rho_B^* > \rho_A^*$ if $\rho_A^* < 1$ and $\rho_B^* = 1$ if $\rho_A^* = 1$, Π_{SH}^* is strictly larger when the activist demands board settlement with $\alpha = 1$ compared to when he demands action settlement if $\rho_A^* < 1$ and equal otherwise.

Consider part (iv). Suppose that proxy fight equilibrium is in play. Note that this implies $\kappa < \frac{1}{1-F(0)}\kappa_0(\phi)$. There are two cases to consider. Suppose that $\alpha \geq \alpha_L(\kappa)$. Then, by Proposition 14, $\forall \kappa' \leq \kappa$ $\rho^* = 1$, and therefore the expected shareholder value conditional on settlement as well as conditional on proxy fight is the same as well. Since ρ^* does not change, unconditional shareholder value does not change either. Suppose that $\alpha < \alpha_L(\kappa)$. Then, as κ decreases, ρ_B^* strictly increases and Δ_B^* strictly decreases. Therefore, the expected shareholder value conditional on settlement $E[\Pi_{SH}^*(\Delta)|\Delta \notin [0, \Delta_B^*]] = \alpha E[\max\{0, \Delta\}|\Delta \notin [0, \Delta_B^*]]$ as well as conditional on proxy fight $E[\Pi_{SH}^*(\Delta)|e = 1 \wedge \Delta \in [0, \Delta_B^*]] = \phi E[\Delta|\Delta \in [0, \Delta_B^*]]$ strictly decrease. However, unconditional expected shareholder value

$$E[\Pi_{SH}^*(\Delta)] = \rho_B^* \phi \int_0^{\Delta_B^*} \Delta dF(\Delta) + \alpha \int_{\Delta_B^*}^{b} \Delta dF(\Delta) \tag{A.60}$$

strictly increases since $\rho_B^* \phi < \alpha$.

Consider part (v). Suppose that proxy fight equilibrium is in play. There are two cases to consider. Suppose that $\alpha > \alpha_L$. Then, by Proposition 14, $\rho_B^* = 1$, and as c_p increases $\rho_B^* = 1$ does not change while Δ_B^* strictly decreases. Therefore, the expected shareholder value conditional on settlement as well as conditional on proxy fight strictly decrease, while unconditional expected shareholder value (A.60) strictly increases since $\alpha > \alpha_L$ implies that $\alpha > \phi$. Moreover, the activist's expected payoff in equilibrium

$$\Pi_A^* = \int_0^{\Delta_B^*} (\phi\Delta - \kappa) dF(\Delta) + \alpha \int_{\Delta_B^*}^{b} \Delta dF(\Delta) \tag{A.61}$$

strictly increases as well since $\alpha > \phi$. Also note that the incumbent's ex-ante expected

payoff

$$\begin{aligned}\Pi_I^* &= \int_0^{\Delta_B^*} \rho_B^* \left[-c_p + \phi\left(\Delta - b\right)\right] dF\left(\Delta\right) \\ &\quad + \alpha \int_{\Delta_B^*}^{b} \left(\Delta - b\right) dF\left(\Delta\right)\end{aligned} \tag{A.62}$$

strictly decreases because $\rho_B^* = 1$ and for a given c_p, $\rho_B^* \left[-c_p + \phi\left(\Delta - b\right)\right] > \alpha\left(\Delta - b\right)$ if $\Delta < \Delta_B^*$.

Suppose $\alpha \leq \alpha_L$. Then, as c_p increases, $\Delta_B^* = \hat{\Delta}_B$ does not change while ρ_B^* strictly decreases. Therefore, the activist's expected payoff in equilibrium (A.62) does not change while the expected shareholder value (A.60) strictly decreases. Finally, the incumbent's expected payoff strictly increases since $\Delta_B^* = b - \frac{c_p}{\frac{\alpha}{\rho_B^*} - \phi}$ stays constant upon increasing c_p, and hence by the implicit function theorem

$$\frac{d\rho_B^*}{dc_p} = -\frac{1}{c_p}\rho_B^* \left(1 - \frac{\rho_B^* \phi}{\alpha}\right). \tag{A.63}$$

Therefore, taking a total derivative of (A.62) with respect to c_p yields

$$\begin{aligned}\frac{d\Pi_I^*}{dc_p} &= \frac{d\rho_B^*}{dc_p} \int_0^{\Delta_B^*} \left[-c_p + \phi\left(\Delta - b\right)\right] dF\left(\Delta\right) + \int_0^{\Delta_B^*} \left(-\rho_B^*\right) dF\left(\Delta\right) \\ &= \frac{\rho_B^* \phi}{\alpha c_p} \int_0^{\Delta_B^*} \left[\rho_B^* \left[-c_p + \phi\left(\Delta - b\right)\right] - \alpha\left(\Delta - b\right)\right] dF\left(\Delta\right),\end{aligned} \tag{A.64}$$

which is strictly positive since $\rho_B^* \left[-c_p + \phi\left(\Delta - b\right)\right] > \alpha\left(\Delta - b\right)$ for all $\Delta < \Delta_B^*$. □

Proof of Proposition 3. By Proposition 14, the expected payoff $\Pi_A\left(\alpha\right)$ of the activist from demanding board settlement with $\alpha > 0$ is given by

$$\Pi_A\left(\alpha\right) = \int_0^{\Delta_B^*(\alpha)} \left(\phi\Delta - \kappa\right) dF\left(\Delta\right) + \alpha \int_{\Delta_B^*(\alpha)}^{b} \Delta dF\left(\Delta\right), \tag{A.65}$$

which is continuous in α. Moreover, since $\Delta_B^*\left(\alpha\right) = \hat{\Delta}_A\left(\phi\right)$ for any $\alpha \leq \alpha_L$, $\Pi_A\left(\alpha\right)$ is

strictly increasing in α for all $\alpha < \alpha_L$. Therefore, $\Pi_A(\alpha)$ has a maximum, and $\Lambda = \arg\max_{0<\alpha\leq\alpha_h} \Pi_A(\alpha) = \arg\max_{\min\{\alpha_h,\alpha_L\}\leq\alpha\leq\alpha_h} \Pi_A(\alpha)$. Moreover, $\lim_{\alpha\to 0} \Pi_A(\alpha) = 0$, and due to Corollary 14 part (iii), the activist strictly prefers demanding board settlement with $\alpha = 1$ over demanding action settlement. Since the activist's payoff from demanding action settlement is strictly positive due to Proposition 1, there exists a unique $\alpha_l \in (0,1)$ such that the activist strictly prefers demanding board settlement over demanding action settlement if and only if $\alpha_h > \alpha_l$. Note that by Corollary 13, the activist strictly prefers to demand action settlement over demanding nothing, and therefore in equilibrium the activist will always demand a settlement.

Next, consider part (i). By the previous step, $\alpha^* \geq \min\{\alpha_h, \alpha_L\}$. Therefore, if $\alpha_L \geq \alpha_h$, then $\alpha^* = \alpha_h$. Suppose that $\alpha_L < \alpha_h$, $\kappa < \frac{c_p}{2}$, and $f'(\Delta) \geq 0$ for all $\Delta \in \left[\hat{\Delta}_B(\phi), b - \frac{c_p}{\alpha_h - \phi}\right]$. Then, this implies that $\Pi_A''(\alpha) < 0$ for all $\alpha \in (\alpha_L, \alpha_h]$ since

$$0 > \Pi_A''(\alpha) \iff \frac{f'\left(b - \frac{c_p}{\alpha-\phi}\right)}{f\left(b - \frac{c_p}{\alpha-\phi}\right)} > \frac{\frac{2\kappa}{c_p} - 1}{b + \frac{\kappa - c_p}{\alpha - \phi}} \tag{A.66}$$

Next, consider part (ii). First, I show that there exists α_{SH}^* that maximizes shareholder value, and $\alpha_{SH}^* \geq \min\{\alpha_h, \alpha_L\}$. Since expected shareholder value if the activist demands board settlement with $\alpha > 0$ is given by

$$\Pi_{SH}(\alpha) = \rho_B^*(\alpha) \int_0^{\Delta_B^*(\alpha)} \phi \Delta dF(\Delta) + \alpha \int_{\Delta_B^*(\alpha)}^{b} \Delta dF(\Delta), \tag{A.67}$$

$\Pi_{SH}(\alpha)$ is continuous for all $\alpha \in (0, \alpha_h]$, and also strictly increasing in α for all $\alpha \leq \min\{\alpha_h, \alpha_L\}$. Therefore, $\Pi_{SH}(\alpha)$ has a maximum, and $\Lambda_{SH} \equiv \arg\max_{\alpha>0} \Pi_{SH}(\alpha) = \arg\max_{\min\{\alpha_h,\alpha_L\}\leq\alpha\leq\alpha_h} \Pi_{SH}(\alpha)$. Denote $\underline{\alpha}_{SH} \equiv \min \Lambda_{SH}$ and $\bar{\alpha} \equiv \max \Lambda$.

Second, I show that $\underline{\alpha}_{SH} \geq \bar{\alpha}$. Suppose that $\underline{\alpha}_{SH} < \bar{\alpha}$. Then, by the first step it must be that $\underline{\alpha}_{SH} \geq \alpha_L$, and therefore $\rho_B^*(\underline{\alpha}_{SH}) = \rho_B^*(\bar{\alpha}) = 1$ and

$$
\begin{aligned}
\Pi_A\left(\underline{\alpha}_{SH}\right) &= \int_0^{\Delta_B^*(\underline{\alpha}_{SH})} \left(\phi\Delta-\kappa\right) dF\left(\Delta\right) + \underline{\alpha}_{SH} \int_{\Delta_B^*(\underline{\alpha}_{SH})}^{b} \Delta dF\left(\Delta\right) \qquad \text{(A.68)} \\
&= \Pi_{SH}\left(\underline{\alpha}_{SH}\right) - \int_0^{\Delta_B^*(\underline{\alpha}_{SH})} \kappa dF\left(\Delta\right) \\
&> \Pi_{SH}\left(\bar{\alpha}\right) - \int_0^{\Delta_B^*(\bar{\alpha})} \kappa dF\left(\Delta\right) \\
&= \int_0^{\Delta_B^*(\bar{\alpha})} \left(\phi\Delta-\kappa\right) dF\left(\Delta\right) + \bar{\alpha} \int_{\Delta_B^*(\bar{\alpha})}^{b} \Delta dF\left(\Delta\right) \\
&= \Pi_A\left(\bar{\alpha}\right),
\end{aligned}
$$

where the inequality follows from $\Delta_B^*\left(\underline{\alpha}_{SH}\right) < \Delta_B^*\left(\bar{\alpha}\right)$ and $\Pi_{SH}\left(\underline{\alpha}_{SH}\right) \geq \Pi_{SH}\left(\bar{\alpha}\right)$. However, $\Pi_A\left(\underline{\alpha}_{SH}\right) > \Pi_A\left(\bar{\alpha}\right)$ contradicts with $\bar{\alpha} \in \Lambda$.

Third, I show that $\underline{\alpha}_{SH} > \bar{\alpha}$ if $\alpha_L < \bar{\alpha} < \alpha_h$. Suppose $\alpha_L < \bar{\alpha} < \alpha_h$ and $\underline{\alpha}_{SH} \leq \bar{\alpha}$. Note that by the second step it must be that $\underline{\alpha}_{SH} = \bar{\alpha}$. By definition of $\underline{\alpha}_{SH}$, $\underline{\alpha}_{SH}$ must satisfy $\Pi'_{SH}\left(\underline{\alpha}_{SH}\right) = 0$ since $\alpha_L < \underline{\alpha}_{SH} = \bar{\alpha} < \alpha_h$. However, this implies that $\Pi'_A\left(\bar{\alpha}\right) < 0$, which is a contradiction with $\bar{\alpha} \in \left(\alpha_L, \alpha_h\right)$ and $\bar{\alpha} \in \Lambda$.

Next, consider part (iii.a). $\alpha_L(\kappa) = \phi + \frac{c_p}{b - \frac{2\kappa}{\phi}}$ follows from $\hat{\Delta}_B = \frac{2\kappa}{\phi}$. By part (i), $\alpha^* \geq \min\left\{\alpha_h, \alpha_L\right\}$. Therefore, $\alpha^* = \alpha_h$ if $\alpha_L \geq \alpha_h$. Suppose that $\alpha_L < \alpha_h$. Then, for all $\alpha \in \left(\alpha_L, \alpha_h\right]$

$$
\Pi'_A\left(\alpha\right) = \frac{1}{b - \underline{\Delta}} \frac{c_p}{\left(\alpha - \phi\right)^2} \left(\frac{c_p}{2} - \kappa\right), \qquad \text{(A.69)}
$$

therefore the activist strictly chooses $\alpha^* = \alpha_h$ if $\frac{c_p}{2} > \kappa$ and $\alpha^* = \alpha_L$ if $\frac{c_p}{2} < \kappa$.

Finally, consider part (iii.b). Shareholder value is strictly increasing in α since

$$
\Pi'_{SH}\left(\alpha\right) = \begin{cases} \frac{1}{b-\underline{\Delta}} \frac{c_p}{(\alpha-\phi)^2} \frac{c_p}{2} > 0, & \text{if } \alpha > \alpha_L, \\ \frac{d\rho_B^*(\alpha)}{d\alpha} \int_0^{\Delta_B^*(\alpha)} \phi\Delta dF\left(\Delta\right) & \\ \quad + \int_{\Delta_B^*(\alpha)}^{b} \Delta dF\left(\Delta\right) > 0, & \text{if } \alpha < \alpha_L, \end{cases} \qquad \text{(A.70)}
$$

where the inequality in the second line follows from $\frac{d\rho_B^*(\alpha)}{d\alpha} > 0$ when $\alpha < \alpha_L$. Suppose that

$\kappa_H > \frac{c_p}{2}$ and $\alpha_h > \phi$, which is equivalent to $\alpha_L(\frac{c_p}{2}) < \alpha_h$. Note that $\alpha_L(\kappa_H) = \alpha_h$. Then, if $\kappa \in (0, \frac{c_p}{2}] \cup \{\kappa_H\}$, then $\Pi_{SH}(\alpha^*)$ given by (A.67) becomes $\bar{\Pi}_{SH}$, where

$$\bar{\Pi}_{SH} \equiv \int_0^{b-\frac{c_p}{\alpha_h-\phi}} \phi \Delta dF(\Delta) + \int_{b-\frac{c_p}{\alpha_h-\phi}}^{b} \Delta dF(\Delta), \tag{A.71}$$

since part (iii.a) and Proposition 14 imply that $\alpha^* = \alpha_h$, $\rho_B^*(\alpha^*) = 1$, and hence $\Delta_B^*(\alpha^*) = b - \frac{c_p}{\alpha_h-\phi}$. On the other hand, if $\kappa \in (\frac{c_p}{2}, \kappa_H)$ then under uniform distribution $\Pi_{SH}(\alpha^*) < \bar{\Pi}_{SH}$ since $\alpha^* = \alpha_L(\kappa) < \alpha_h$, $\Pi_{SH}(\alpha)$ is strictly increasing in α, and $\Pi_{SH}(\alpha) = \bar{\Pi}_{SH}$ if $\alpha = \alpha_h$. If $\kappa > \kappa_H$ then $\Pi_{SH}(\alpha^*) < \bar{\Pi}_{SH}$ as well since $\alpha^* = \alpha_h$, $\rho_B^* < 1$, and $\Delta_B^*(\alpha) = b - \frac{c_p}{\frac{\alpha_h}{\rho_B^*}-\phi}$. □

For the next result, denote the set of $\alpha > 0$ that maximize $\Pi_A(\alpha|\kappa)$ ($\Pi_{SH}(\alpha|\kappa)$) by $\Lambda(\alpha|\kappa)$ ($\Lambda_{SH}(\alpha|\kappa)$).

Corollary 15. *Suppose that $\alpha_h = 1$, $\kappa < \frac{1}{1-F(0)}\kappa_0$, and proxy fight equilibrium is in play if the activist demands board settlement. Let*

$$\bar{\kappa}(\alpha) \equiv \begin{cases} \phi \frac{1}{F(b-\frac{c_p}{\alpha-\phi})-F(0)} \int_0^{b-\frac{c_p}{\alpha-\phi}} \Delta dF(\Delta), & \text{if } \alpha > \phi + \frac{c_p}{b} \\ 0, & \text{otherwise} \end{cases} \tag{A.72}$$

$$\Pi_{SH}^*(\kappa) \equiv \max_{\alpha^* \in \Lambda(\kappa)} \Pi_{SH}(\alpha^*|\kappa) \tag{A.73}$$

Then,

(0) $\Pi_{SH}(\max \Lambda(\kappa)|\kappa) = \Pi_{SH}^*(\kappa)$, *and* $\Pi_{SH}(\alpha|\kappa) < \Pi_{SH}^*(\kappa)$ *for all* $\alpha < \max \Lambda(\kappa)$.

(*i*) *If* $\kappa \geq \bar{\kappa}(1)$, *then* $\Lambda(\kappa) = \{1\}$. *Moreover, if* $\kappa \leq \bar{\kappa}(1)$ *then* $\Pi_{SH}^*(\kappa) \leq \Pi_{SH}^*(0)$, *and if* $\kappa > \bar{\kappa}(1)$, *then* $\Pi_{SH}^*(\kappa) < \Pi_{SH}^*(0)$ *and* $\Pi_{SH}^*(\kappa)$ *is strictly decreasing in* κ.

(*ii*) *Suppose that* $\bar{\kappa}(1) > 0$. *If* $1 \in \Lambda(\kappa)$ *for all* $\kappa < \bar{\kappa}(1)$, *then* $\Pi_{SH}^*(\kappa) = \Pi_{SH}^*(0)$ *for all* $\kappa \leq \bar{\kappa}(1)$. *If* $1 \notin \Lambda(\kappa)$ *for some* $\kappa < \bar{\kappa}(1)$, *then:*

(a) *For all* $\kappa < \bar{\kappa}(1)$*, as* κ *increases,* $\max \Lambda(\kappa)$ *strictly decreases if* $\max \Lambda(\kappa) \in (\alpha_L, 1)$ *and strictly increases if* $\max \Lambda(\kappa) = \alpha_L$*.*

(b) *There exist* $0 \leq \kappa_L < \kappa_H \leq \bar{\kappa}(1)$ *such that* $\Pi^*_{SH}(\kappa) = \Pi^*_{SH}(0)$ *for all* $\kappa \in [0, \kappa_L] \cup \{\kappa_H\}$ *and* $\Pi^*_{SH}(\kappa) < \Pi^*_{SH}(0)$ *for all* $\kappa \in (\kappa_L, \kappa_H)$*. Moreover, if* $\Lambda(0) \neq \{1\}$*, then* $\kappa_L = 0$ *and* $\kappa_H = \bar{\kappa}(\min \Lambda(0)) > 0$*.*

Proof. Suppose that $\kappa < \frac{1}{1-F(0)}\kappa_0$ and proxy fight equilibrium is in play.

For any $\kappa \geq 0$, denote the set of $\alpha > 0$ that maximize $\Pi_A(\alpha|\kappa)$ ($\Pi_{SH}(\alpha|\kappa)$) by $\Lambda(\alpha|\kappa)$ ($\Lambda_{SH}(\alpha|\kappa)$). Note that these sets have a maximum as well as minimum since Π_A and Π_{SH} are continuous functions of α, and $\Lambda(\kappa)$, $\Lambda_{SH}(\kappa) \subseteq \left[\min\{1, \phi + \frac{c_p}{b}\}, 1\right]$ since both Π_A and Π_{SH} are strictly increasing in α if $\alpha < \phi + \frac{c_p}{b} \leq \alpha_L$ by Proposition 14.

First, I show that $\alpha \geq (>)\alpha_L(\kappa)$ if and only if $\alpha \geq \phi + \frac{c_p}{b}$ and $\kappa \leq (<)\bar{\kappa}(\alpha)$. There are three cases to consider: Suppose $\alpha < \phi + \frac{c_p}{b}$. Then, since $\hat{\Delta}_B \geq 0$ is always satisfied, $\alpha < \phi + \frac{c_p}{b} \leq \alpha_L$. Suppose $\alpha = \phi + \frac{c_p}{b}$. Then $\bar{\kappa}(\alpha) = 0$, and hence $\hat{\Delta}_B = 0$ if and only if $\kappa = \bar{\kappa}(\alpha)$. Therefore, $\alpha = \alpha_L(\kappa)$ if $\kappa = \bar{\kappa}(\alpha)$, and $\alpha < \alpha_L(\kappa)$ if $\kappa > \bar{\kappa}(\alpha)$. Suppose $\alpha > \phi + \frac{c_p}{b}$. Then, $\alpha \geq (>)\alpha_L(\kappa) \iff \kappa \leq (<)\bar{\kappa}(\alpha)$ since $\bar{\kappa}(\alpha) > 0$ and

$$\begin{aligned} \kappa \quad &\leq \quad (<)\bar{\kappa}(\alpha) \\ &\iff \quad \kappa \leq (<)\phi \frac{1}{F(b - \frac{c_p}{\alpha - \phi}) - F(0)} \int_0^{b - \frac{c_p}{\alpha - \phi}} \Delta dF(\Delta) \\ &\iff \quad \hat{\Delta}_B(\kappa) \leq (<) b - \frac{c_p}{\alpha - \phi} \\ &\iff \quad \phi + \frac{c_p}{b - \hat{\Delta}_B(\kappa)} \leq (<)\alpha \iff \alpha \geq (>)\alpha_L(\kappa) \end{aligned} \tag{A.74}$$

Second, I show that $\alpha_L(\kappa) \geq 1 \iff \kappa \geq \bar{\kappa}(1)$. There are two cases to consider. First, suppose $\bar{\kappa}(1) = 0$. Then, $1 \leq \phi + \frac{c_p}{b} \leq \alpha_L$, and $\kappa \geq \bar{\kappa}(1)$ for any κ. Suppose $\bar{\kappa}(1) > 0$. Then, $1 > \phi + \frac{c_p}{b}$, and hence $\alpha_L(\kappa) \geq (>)1 \iff \kappa \geq (>)\bar{\kappa}(1)$ by the previous step.

Consider part (0). There are two cases to consider:

- Suppose $\max \Lambda(\kappa) \leq \alpha_L$. Then, by Proposition 14, for any $\alpha \leq \alpha_L$, $\Pi_{SH}(\alpha|\kappa)$ strictly decreases as α decreases.

- Suppose $\max \Lambda(\kappa) > \alpha_L$. Then, there are two subcases to consider:

  - $\alpha_L \leq \alpha < \max \Lambda(\kappa)$: Then, it must be that $\Pi_{SH}(\alpha|\kappa) < \Pi_{SH}(\max \Lambda(\kappa)|\kappa)$, because if $\Pi_{SH}(\alpha|\kappa) \geq \Pi_{SH}(\max \Lambda(\kappa)|\kappa)$ then by Proposition 14,

$$\begin{aligned} \Pi_A(\alpha|\kappa) &= \Pi_{SH}(\alpha|\kappa) - \left[F\left(b - \frac{c_p}{\alpha - \phi}\right) - F(0)\right]\kappa \qquad \text{(A.75)} \\ &> \Pi_{SH}(\max \Lambda(\kappa)|\kappa) \\ &\quad - \left[F\left(b - \frac{c_p}{\max \Lambda(\kappa) - \phi}\right) - F(0)\right]\kappa \\ &= \Pi_A(\max \Lambda(\kappa)|\kappa), \end{aligned}$$

    yielding a contradiction with $\max \Lambda(\kappa) \in \arg\max_{\alpha>0} \Pi_A(\alpha|\kappa)$.

  - $\alpha < \alpha_L$: Then, by Proposition 14, for any $\alpha \leq \alpha_L$, $\Pi_{SH}(\alpha|\kappa)$ strictly decreases as α decreases.

Consider part (i). Note that if $\kappa \geq \bar{\kappa}(1)$ then $\Lambda(\kappa) = \{1\}$ due to the previous proposition and $\kappa \geq \bar{\kappa}(1) \iff \alpha_L \geq 1$. Next, I show that if $\kappa \leq \bar{\kappa}(1)$ then $\Pi^*_{SH}(\kappa) \leq \Pi^*_{SH}(0)$, and if $\kappa > \bar{\kappa}(1)$, then $\Pi^*_{SH}(\kappa) < \Pi^*_{SH}(0)$ and $\Pi^*_{SH}(\kappa)$ is strictly decreasing in κ. First, note that if $\kappa = 0$, then the maximization problem of the shareholders and activists are identical. Therefore, if $\kappa = 0$, for any α^* the activist demands in equilibrium, it must be that $\Pi_{SH}(\alpha^*|\kappa = 0) = \max_{\alpha \in (0,1]} \Pi_{SH}(\alpha|\kappa = 0)$. Second, note that the shareholder value in equilibrium is not directly affected by κ, but rather is determined by α, ρ, and Δ_B. By Proposition 14, any given $\alpha > 0$ and $\kappa \geq 0$ yield unique subgame ρ^* and Δ^*_B. Recall that $\alpha \geq \alpha_L(\kappa)$ if and only if $\alpha \geq \phi + \frac{c_p}{b}$ and $\kappa \leq \bar{\kappa}(\alpha)$. Since $\bar{\kappa}(\alpha) = 0$ if $\alpha \leq \phi + \frac{c_p}{b}$, by Proposition 14, for any $\alpha > 0$, $\rho^*(\kappa) = \rho^*(0)$ and $\Delta^*_B(\kappa) = \Delta^*_B(0)$ if $\kappa \leq \bar{\kappa}(\alpha)$, while $\rho^*(\kappa) < \rho^*(0)$ is strictly decreasing and $\Delta^*_B(\kappa) > \Delta^*_B(0)$ is strictly increasing in κ for all $\kappa > \bar{\kappa}(\alpha)$ (as long as proxy fight equilibrium exists). Therefore, for any $\alpha > 0$,

$\Pi_{SH}(\alpha|\kappa) = \Pi_{SH}(\alpha|0)$ for all $\kappa \leq \bar{\kappa}(\alpha)$, and $\Pi_{SH}(\alpha|\kappa) < \Pi_{SH}(\alpha|0)$ and $\Pi_{SH}(\alpha|\kappa)$ is strictly decreasing in κ for all $\kappa > \bar{\kappa}(\alpha)$. Noting that $\bar{\kappa}(\alpha)$ is weakly increasing in α concludes part (i).

Before proceeding to part (ii), I show three steps for any equilibrium:

1. First, I show that in any equilibrium, if $\kappa \leq \bar{\kappa}(1)$, then $\Pi_{SH}(\alpha^*|\kappa) = \Pi^*_{SH}(0)$ if and only if $\alpha^* \in \Lambda(0)$. There are two cases to consider. Suppose $\bar{\kappa}(1) = 0$. Then the statement holds trivially. Suppose $\bar{\kappa}(1) > 0$. Then, if $\kappa \leq \bar{\kappa}(1)$, then $\alpha_L \leq 1$ and hence $\rho^* = 1$ by Proposition 14. Note that due to part (i), this also implies that $\Pi^*_{SH}(\kappa) = \Pi^*_{SH}(0)$ if $\Lambda(0) \cap \Lambda(\kappa) \neq \varnothing$, and $\Pi^*_{SH}(\kappa) < \Pi^*_{SH}(0)$ if $\Lambda(0) \cap \Lambda(\kappa) = \varnothing$.

2. Second, I show that for any $\kappa > 0$, $\max \Lambda(\kappa) \leq \min \Lambda_{SH}(\kappa)$. There are two cases to consider:

   (a) Suppose $\kappa \geq \bar{\kappa}(1)$. Then, $\alpha_L \geq 1$, and hence $\Lambda(\kappa) = \Lambda_{SH}(\kappa) = \{1\}$ by part (i).

   (b) Suppose $\kappa < \bar{\kappa}(1)$. Then, $\bar{\kappa}(1) > 0$, and hence $\kappa < \bar{\kappa}(1)$ implies that $\alpha_L < 1$. Note that $\min \Lambda_{SH}(\kappa) \geq \alpha_L$ by Proposition 14. Moreover, for any $\alpha > \min \Lambda_{SH}(\kappa)$, $\rho^*_B = 1$ and

$$\begin{aligned} \Pi_A(\alpha|\kappa) &= \Pi_{SH}(\alpha|\kappa) - \left[F\left(b - \frac{c_p}{\alpha - \phi}\right) - F(0)\right]\kappa \qquad \text{(A.76)} \\ &< \Pi_{SH}(\min \Lambda_{SH}(\kappa)|\kappa) \\ &\quad - \left[F\left(b - \frac{c_p}{\min \Lambda_{SH}(\kappa) - \phi}\right) - F(0)\right]\kappa \\ &= \Pi_A(\min \Lambda_{SH}(\kappa)|\kappa) \end{aligned}$$

3. Third, I show that for any $\alpha \in \Lambda(0)$, $\Lambda(\kappa(\alpha)) = \{\alpha\}$. Note that $\min \Lambda(0) > \phi + \frac{c_p}{b}$

since if $\kappa = 0$, then by Proposition 14

$$\Pi_{SH}^{*}(\alpha) = \begin{cases} \alpha \int_{b-\frac{c_p}{\alpha-\phi}}^{b} \Delta dF(\Delta) & \\ +\phi \int_{0}^{b-\frac{c_p}{\alpha-\phi}} \Delta dF(\Delta), & \text{if } \alpha \geq \phi + \frac{c_p}{b} \\ \alpha \int_{0}^{b} \Delta dF(\Delta), & \text{if } \alpha < \phi + \frac{c_p}{b} \end{cases}, \tag{A.77}$$

which implies that $\frac{d\Pi_{SH}(\alpha)}{d\alpha} = \int_0^b \Delta dF(\Delta) > 0$ for all $\alpha \in (0, \phi + \frac{c_p}{b}]$. Suppose $\kappa = \bar{\kappa}(\alpha')$ for some $\alpha' \in \Lambda(0)$. Then, by the proof of part (i), $\rho^*(\alpha') = 1$, and $\Pi_{SH}(\alpha'|\kappa = \bar{\kappa}(\alpha')) = \Pi_{SH}^{*}(0)$. Since $\Pi_{SH}^{*}(\kappa) \leq \Pi_{SH}^{*}(0)$ for all $\kappa \geq 0$ by part (i), this implies that $\alpha' \in \Lambda_{SH}(\kappa)$. By the second step, $\max \Lambda(\kappa) \leq \alpha'$. Since $\alpha_L(\bar{\kappa}(\alpha')) = \alpha'$, any $\alpha'' \in \Lambda(\kappa)$ satisfies $\alpha'' \geq \alpha'$ by Proposition 3. Hence, $\Lambda(\kappa) = \{\alpha\}$.

Consider part (ii), i.e., $\bar{\kappa}(1) > 0$. Suppose $1 \in \Lambda(\kappa)$ for all $\kappa < \bar{\kappa}(1)$. Note that $\Lambda(\bar{\kappa}(1)) = \{1\}$ by part (i). Since $1 \in \Lambda(0)$, by the first step above $\Pi_{SH}(\alpha^*|\kappa) = \Pi_{SH}^{*}(0)$ for all $\kappa \leq \bar{\kappa}(1)$ if $\alpha^* = 1$. Since $1 \in \Lambda(\kappa)$ for all $\kappa \leq \bar{\kappa}$, $\Pi_{SH}^{*}(\kappa) = \Pi_{SH}^{*}(0)$ for all $\kappa \leq \bar{\kappa}(1)$.

Next, consider part (ii.a), i.e., suppose that $\kappa < \bar{\kappa}(1)$. Then, $\alpha_L < 1$. Therefore, by Proposition 3, as κ increases, $\max \Lambda(\kappa)$ strictly increases if $\max \Lambda(\kappa) = \alpha_L$. To see that $\max \Lambda(\kappa)$ strictly decreases in κ if $\max \Lambda(\kappa) \in (\alpha_L, 1)$, suppose that $\kappa' < \bar{\kappa}(1)$ and $\alpha' \equiv \max \Lambda(\kappa') \in (\alpha_L(\kappa'), 1)$. Consider any $\varepsilon > 0$ such that $\alpha_L(\kappa' + \varepsilon) < \alpha'$. Note that such $\varepsilon > 0$ always exists since $\alpha_L(\kappa)$ is a continuous function of κ. Moreover, then $\alpha_L(\kappa'') < \alpha'$ for all $\kappa'' \leq \kappa' + \varepsilon$ since $\alpha_L(\kappa)$ is a weakly increasing function of κ. Consider any $\kappa'' \in (\kappa', \kappa' + \varepsilon]$. Note that $\alpha' > \max\{\alpha_L(\kappa'), \alpha_L(\kappa'')\}$. Denoting $\alpha'' \equiv \max \Lambda(\kappa'')$, there are two cases to consider:

- Suppose that $\alpha'' > \alpha'$. However, since $\min\{\alpha', \alpha''\} > \max\{\alpha_L(\kappa'), \alpha_L(\kappa'')\}$, $\Pi_A(\alpha''|$

$\kappa'') \geq \Pi_A(\alpha'|\kappa'')$ implies by Proposition 14 that

$$\begin{aligned}\Pi_A(\alpha''|\kappa') &= \Pi_A(\alpha''|\kappa'') + \left[F\left(b - \frac{c_p}{\alpha'' - \phi}\right) - F(0)\right](\kappa'' - \kappa') \\ &> \Pi_A(\alpha'|\kappa'') + \left[F\left(b - \frac{c_p}{\alpha' - \phi}\right) - F(0)\right](\kappa'' - \kappa') \\ &= \Pi_A(\alpha'|\kappa'),\end{aligned} \tag{A.78}$$

yielding a contradiction with $\alpha' \in \Lambda(\kappa')$.

- Suppose $\alpha'' = \alpha'$. However, $\alpha' \in (\alpha_L(\kappa'), 1)$ implies that $\left.\frac{d\Pi_A(\alpha|\kappa')}{d\alpha}\right|_{\alpha=\alpha'} = 0$, and hence

$$\begin{aligned}\left.\frac{d\Pi_A(\alpha|\kappa'')}{d\alpha}\right|_{\alpha=\alpha'} &= \left.\frac{d\Pi_{SH}(\alpha|\kappa')}{d\alpha}\right|_{\alpha=\alpha'} \\ &\quad - \frac{c_p}{(\alpha' - \phi)^2} f\left(b - \frac{c_p}{\alpha' - \phi}\right)(\kappa'' - \kappa') \\ &< 0.\end{aligned} \tag{A.79}$$

Therefore, since $\alpha' \in (\alpha_L(\kappa''), 1)$, there exists $\tilde{\alpha} \in (\alpha_L(\kappa''), \alpha')$ such that $\Pi_A(\tilde{\alpha}|\kappa'') > \Pi_A(\alpha'|\kappa'')$, yielding a contradiction with $\alpha' \in \Lambda(\kappa')$.

Next, consider part (ii.b), i.e., $1 \notin \Lambda(\kappa)$ for some $\kappa < \bar{\kappa}(1)$, there are two cases to consider:

1. $\Lambda(0) = \{1\}$: Then, it must be that:

   - If $\kappa \in [0, \bar{\kappa}(1)]$, by part (i) and the first step above, $\Pi^*_{SH}(\kappa) = \Pi^*_{SH}(0)$ if and only if $1 \in \Lambda(\kappa)$.

   - Since $1 \in \Lambda(0)$, $1 \notin \Lambda(\kappa)$ for some $\kappa < \bar{\kappa}(1)$ implies that $1 \notin \Lambda^*(\kappa)$ for some $\kappa \in (0, \bar{\kappa}(1))$.

   By the third step above, $1 \in \Lambda(\bar{\kappa}(1))$. Hence, $\Pi^*_{SH}(\kappa) = \Pi^*_{SH}(0)$ if $\kappa \in \{0, \bar{\kappa}(1)\}$. Since $\Pi^*_A(\alpha, \kappa)$ is a continuous function of α and κ, there exists a compact set $K \subseteq [0, \bar{\kappa}(1)]$ such that given $\kappa \leq \bar{\kappa}(1)$, $1 \in \Lambda(\kappa)$ if and only if $\kappa \in K$. Since $\{0, \bar{\kappa}(1)\} \subseteq K$

and there exists $\kappa \in (0, \bar{\kappa}(1))$ such that $\kappa \notin K$, this concludes the argument for this case.

2. $\Lambda(0) \neq \{1\}$: Then,

   - $\max \Lambda(\kappa) < \min \Lambda(0)$ for all $\kappa \in (0, \kappa_H)$, where $\kappa_H = \bar{\kappa}(\min \Lambda(0)) \leq \bar{\kappa}(1)$. To see this result, note that $\Lambda_{SH}(\kappa) = \Lambda(0)$ for all $\kappa \in (0, \kappa_H)$, because by the proof of part (i):

     – For any α, $\Pi_{SH}(\alpha|\kappa) \leq \Pi_{SH}(\alpha|0)$ for all $\kappa \geq 0$.

     – For any $\alpha \in \Lambda(0)$, $\Pi_{SH}(\alpha|\kappa) = \Pi_{SH}(\alpha|0)$ for all $\kappa < \kappa_H$ since $\kappa_H \leq \bar{\kappa}(\alpha)$.

     Therefore, by the second step above, $\max \Lambda(\kappa) \leq \min \Lambda(0)$. Moreover, since (a) $\min \Lambda(0) > \phi + \frac{c_p}{b}$ by the third step above, (b) $1 > \min \Lambda(0)$, and (c) $\alpha_L(0) = \phi + \frac{c_p}{b}$, by Proposition 14 it must be that $\frac{d\Pi_{SH}(\alpha|\kappa=0)}{d\alpha}\Big|_{\alpha=\min \Lambda(0)} = 0$. If $\kappa \in (0, \kappa_H)$, since $\min \Lambda(0) > \alpha_L(\kappa)$, it follows that:

$$\begin{aligned} \left.\frac{d\Pi_A(\alpha|\kappa)}{d\alpha}\right|_{\alpha=\min \Lambda(0)} &= \left.\frac{d\Pi_{SH}(\alpha|\kappa=0)}{d\alpha}\right|_{\alpha=\min \Lambda(0)} \\ &\quad - \frac{c_p}{(\min \Lambda(0) - \phi)^2} f\left(b - \frac{c_p}{\min \Lambda(0) - \phi}\right)\kappa \\ &< 0 \end{aligned} \tag{A.80}$$

     Therefore, combined with $\max \Lambda(\kappa) \leq \min \Lambda(0)$, it must be that $\max \Lambda(\kappa) < \min \Lambda(0)$. Since $\kappa_H \leq \bar{\kappa}(1)$, by part (i) and the first step above this implies that $\Pi^*_{SH}(\kappa) < \Pi^*_{SH}(0)$ for all $\kappa \in (0, \kappa_H)$.

   - Since $\kappa_H = \bar{\kappa}(\min \Lambda(0))$, by the third step above $\Lambda(\kappa) = \{\min \Lambda(0)\}$. Since $\kappa_H \leq \bar{\kappa}(1)$, by the first step above this implies that $\Pi^*_{SH}(\kappa) = \Pi^*_{SH}(0)$ if $\kappa \in \{0, \kappa_H\}$.

□

I prove Lemma 3 with the following generalization for any $b_A \in (-\infty, b)$ and $\kappa > 0$.

Lemma 7. *Suppose that the activist has acquired $\alpha > 0$ control.*[3]

(*i*) *Suppose that the activist implements the project with probability $\gamma \in [0,1]$ if he achieves decision authority and does not learn Δ. Then, at the disclosure stage,*

(*a*) *If $\Delta < b_A$, then the incumbent strictly prefers to disclose if $\gamma > 0$, and is indifferent between disclosing and not dislosing if $\gamma = 0$.*

(*b*) *If $\Delta > b_A$, then the incumbent strictly prefers not to disclose if $\gamma < 1$, and is indifferent between disclosing and not disclosing $\gamma = 1$.*

(*ii*) *After acquiring board seats, if the the activist believes that $\Delta > b_A$ with positive probability, then in any equilibrium $\gamma^* = 1$ or $\gamma^* = 0$, and if the activist believest that $\Delta < b_A$, then in any equilibrium $\gamma^* = 0$.*

(*iii*) *Consider any equilibrium with $\gamma^* \in \{0, 1\}$.*

(*a*) *If $\gamma^* = 0$, the project is not implemented if the activist does not receive a signal.*

(*b*) *If $\gamma^* = 1$, the project is implemented if the activist has decision authority and $\Delta > b_A$, and is not implemented if $\Delta < b_A$.*

Proof. Consider part (i).

- Suppose $\Delta < b_A$. Then, disclosure is the weakly dominant strategy for the incumbent, because the activist does not implement the action if Δ is disclosed. Specifically, the incumbent strictly prefers to disclose if $\gamma_P > 0$, and it is indifferent between disclosing and not disclosing if $\gamma_P = 0$.

[3]The statements made for $\Delta > b_A$ are also valid for $\Delta = b_A$ if the activist implements the action when he is indifferent between implementing and not.

- Suppose $\Delta > b_A$. Then, nondisclosure is the weakly dominant strategy for the incumbent, because the activist implements the action if Δ is disclosed. Specifically, the incumbent strictly prefers not to disclose if $\gamma_P < 1$, and it is indifferent between disclosing and not disclosing if $\gamma_P = 1$.

- Suppose $\Delta = b_A$. If the activist implements the action when he is indifferent between implementing and not, then the arguments made for $\Delta > b_A$ holds. Otherwise, the incumbent's payoff and disclosure strategy depends on γ_P compared to the probability that the activist implements the action if Δ is disclosed. Specifically, the incumbent discloses if γ_P is larger, does not disclose if γ_P is smaller, and is indifferent otherwise.

Consider part (ii). Suppose that the activist believes that $\Delta > b_A$ with positive probability. To see the result, suppose that there is an equilibrium where after acquiring board seats, the activist believes that $\Delta > b_A$ with positive probability, and $\gamma^* \in (0, 1)$. However, then by part (i), the incumbent board discloses to the activist if $\Delta < b_A$. Therefore, upon nondisclosure, the activist updates his beliefs to $\Delta \geq b_A$. Since the activist believes that $\Delta > b_A$ with positive probability, he deviates to $\gamma = 1$. Note that the argument works with $\Delta \geq b_A$ if the activist implements the action when he is indifferent between implementing and not.

Suppose that the activist believest that $\Delta < b_A$. Then, $\gamma^* = 0$ follows immediately.

Consider part (iii). Suppose that $\gamma^* = 0$, and there exists Δ' such that the project is implemented with positive probability if $\Delta = \Delta'$ and the activist does not receive a signal. Since the incumbent never implements the project and $\gamma^* = 0$, then it must be that if $\Delta = \Delta'$ then the incumbent discloses to the activist and the activist implements the project with positive probability. However, then the incumbent strictly prefers to not disclosing since $\gamma^* = 0$, yielding a conradiction.

Suppose $\gamma^* = 1$. If $\Delta > b_A$, then the activist implements the project regardless of disclosure since $\gamma^* = 1$. Note that this is true also when $\Delta = b_A$ if the activist implements the action

when he is indifferent between implementing and not. If $\Delta < b_A$, then incumbent's unique best response by part (i) is to disclose, and therefore the activist does not implement the project. Since the incumbent never implements the project, the project is never implemente if $\Delta < b_A$. □

I prove Lemma 4 with the following generalization for any $b_A \in (-\infty, b)$ and $\kappa > 0$. I denote the set of Δ for which the incumbent discloses after proxy fight (board settlement) by $\mathbf{D}_P$ ($\mathbf{D}_B$).

Lemma 8. *Suppose that the activist has not demanded any settlement. Then, an equilibrium of this subgame exists, in any equilibrium $\gamma_P^* \in \{0, 1\}$, and in equilibrium*

(*i*) *The activist never runs a proxy fight if $\kappa > \kappa_0(\beta_p^*)$ or $E[\Delta \geq b_A] < 0$, and he always runs a proxy fight if $\kappa < \kappa_0(\beta_p^*)$ and $E[\Delta \geq b_A] > 0$.*

(*ii*) *(**Disclosure equilibrium**) An equilibrium where $\gamma_P^* = 1$ always exists. Moreover,*

(*a*) *In equilibrium, $\beta_p^* = \phi$.*

(*b*) *There exists an equilibrium where $\gamma_P^* = 1$ and $\mathbf{D}_P^* = (\underline{\Delta}, b_A)$ if $\underline{\Delta} < b_A$ and $\mathbf{D}_P^* = \varnothing$ if $b_A \leq \underline{\Delta}$..*

(*iii*) *(**Nondisclosure equilibrium**) An equilibrium where $\gamma_P^* = 0$ exists if and only if $E[\Delta] < b_A$.[4] Moreover, whenever such an equilibrium exists,*

(*a*) *In equilibrium, $\beta_p^* = \phi q$.*

(*b*) *There exists an equilibrium where $\gamma_P^* = 0$ and $\mathbf{D}_P^* = \varnothing$.*

Proof. First, note that for any given γ_P, the results listed in the proof of Proposition 6 hold, where ϕ everywhere is replaced with $\beta_p \equiv q + (1 - q)\gamma_P$. Note that the change in the payoffs the players in the first step follows from disclosure strategy of the incumbent, given

[4]This inequality holds weakly without the focus on the equilibria where the activist implements the project when he is indifferent between implementing and not implementing.

in Lemma 7 part (i). Specifically, if the activist wins a proxy fight, the incumbent always discloses if $\Delta < 0$ and $\gamma_P > 0$, and never discloses if $\Delta > 0$ and $\gamma_P < 1$.

Next, note that in any equilibrium $\gamma_P^* = 0$ or $\gamma_P^* = 1$. This follows from $P(\Delta > b_A) > 0$ and Lemma 7 part (ii). This completes part (i).

Next, I prove part (ii). Consider the equilibrium given $\gamma_P^* = 1$. Given $\gamma_P^* = 1$, if the activist implements the project upon disclosure of $\Delta = b_A$, then by Lemma 7 $\mathbf{D}_P^*$ is in the best response of the incumbent to $\gamma_P^* = 1$ if it satisfies $\mathbf{D}_P^* = (\underline{\Delta}, b_A)$ if $\underline{\Delta} < b_A$ and $\mathbf{D}_P^* = \varnothing$ if $b_A \leq \underline{\Delta}$. Since $P(\Delta \notin \mathbf{D}_P^*) > 0$ and $E[\Delta | \Delta \notin \mathbf{D}_P^*] = E[\Delta | \Delta \in [b_A, \Delta_A^*]] > b_A$, $\gamma_P^* = 1$ is the unique best response of the activist.

Next, I prove part (iii). Consider the equilibrium given $\gamma_P^* = 0$. There are two cases to consider.

- Suppose that $E[\Delta] > b_A$. I show that $\gamma_P^* = 0$ cannot be in the best response of the activist. Note that nondisclosure is on the equilibrium path, because by Lemma 7, $\mathbf{D}_P^* = \varnothing$ if $b_A < \underline{\Delta}$ and $\mathbf{D}_P^* \subseteq (\underline{\Delta}, b_A]$ if $\underline{\Delta} \leq b_A$. Moreover, due to $E[\Delta] > b_A$, this also implies that $P(\Delta \notin \mathbf{D}_P^*) > 0$ and $E[\Delta | \Delta \notin \mathbf{D}_P^*] \geq E[\Delta] > b_A$. Therefore, the activist strictly prefers to deviate to $\gamma_P = 1$.

- Suppose that $E[\Delta] \leq b_A$. Given $\gamma_P^* = 0$, if the activist implements the project upon disclosure of $\Delta = b_A$, then by Lemma 7 $\mathbf{D}_P^* = \varnothing$ is in the best response of the incumbent to $\gamma_P^* = 0$. Since $P(\Delta \notin \mathbf{D}_P^*) > 0$ and $E[\Delta | \Delta \notin \mathbf{D}_P^*] = E[\Delta] \leq b_A$, $\gamma_P^* = 0$ is a best response of the activist (Note that upon nondisclosure the activist is indifferent between implementing and not implementing if and only if $E[\Delta] = b_A$).

□

I prove Proposition 4 with the following generalization for any $b_A \in (-\infty, b)$ and $\kappa > 0$. I denote the set of Δ for which the incumbent discloses after proxy fight (board settlement)

by $\mathbf{D}_P$ ($\mathbf{D}_B$).

Proposition 15. *Suppose that the activist has demanded action settlement. Then, an equilibrium of this subgame exists, and in any equilibrium, $\gamma_P^* \in \{0,1\}$. Moreover,*

(*i*) *If $E[\Delta|\Delta \geq b_A] \leq 0$ or $\kappa \geq \kappa_0(\beta_p^*)$, then the board always rejects the settlement, and the activist never runs a proxy fight.*

(*ii*) *If $E[\Delta|\Delta \geq b_A] > 0$ and $\kappa < \kappa_0(\beta_p^*)$, the incumbent accepts action settlement if and only if $\Delta > \Delta_A^*(\beta_p^*, \rho_A^*)$, upon proxy fight the shareholders support the activist with probability $\sigma_A^*(\beta_p^*)$, and upon rejection the activist runs a proxy fight with probability $\rho_A^*(\beta_p^*)$.*

(*iii*) ***(Disclosure equilibrium)*** *An equilibrium where $\gamma_P^* = 1$ always exists. Moreover,*

(*a*) *In equilibrium, $\beta_p^* = \phi$.*

(*b*) *There exists an equilibrium where $\gamma_P^* = 1$ and $\mathbf{D}_P^* = (\underline{\Delta}, b_A)$ if $\underline{\Delta} < b_A$ and $\mathbf{D}_P^* = \varnothing$ if $b_A \leq \underline{\Delta}$..*

(*iv*) ***(Nondisclosure equilibrium)*** *An equilibrium where $\gamma_P^* = 0$ exists if and only if $E[\Delta \mid \Delta \leq \Delta_A^*(\beta_p^*)] \leq b_A$. Moreover, whenever such an equilibrium exists,*

(*a*) *In equilibrium, $\beta_p^* = \phi q$.*

(*b*) *There exists an equilibrium where $\gamma_P^* = 0$ and $\mathbf{D}_P^* = \varnothing$.*

Proof. Suppose the activist has demanded action settlement, and $\kappa > 0$. The proof consists of several steps.

First, note that for any given γ_P, the results listed in the proof of Proposition 13 hold, where ϕ everywhere is replaced with $\beta_p \equiv q + (1-q)\gamma_P$. Note that the change in the profit functions Π_I, Π_A, and Π_{SH} follow from disclosure strategy of the incumbent, given in Lemma 7 part (i). Specifically, if the activist wins a proxy fight, the incumbent always

discloses if $\Delta < b_A$ and $\gamma_P > 0$, and never discloses if $\Delta > b_A$ and $\gamma_P < 1$.

Next, note that in any equilibrium where rejection is on the equilibrium path, $\gamma_P^* = 0$ or $\gamma_P^* = 1$. This follows from $\Delta_A^* > b_A$ and Lemma 7 part (ii). Note that $\Delta_A^* > b_A$ because otherwise $\rho^* = 0$, which implies by the best response of the incumbent that $\Delta_A^* = b$, contradicting with $\Delta_A^* \leq b_A < b$.

Next, I show that an equilibrium where the incumbent accepts action settlement for all Δ does not exist if $\underline{\Delta} < b - \frac{c_p}{1-\phi}$. To see this result, suppose that $\underline{\Delta} < b - \frac{c_p}{1-\phi}$. Then, by the first step in this proof and the first step in the proof of Proposition 13, $\Delta_A^* \geq b - \frac{c_{p,1}+\sigma^*\phi c_{p,2}}{\frac{1}{\rho^*}-\sigma^*\beta_p} \geq b - \frac{c_p}{1-\beta_p} \geq b - \frac{c_p}{1-\phi}$ since $\frac{1}{\rho^*} - \sigma^*\beta_p > \frac{c_{p,1}+\sigma^*\phi c_{p,2}}{b-\underline{\Delta}}$ (because $\frac{1}{\rho^*} - \sigma^*\beta_p \geq 1 - \phi > \frac{c_p}{b-\underline{\Delta}} \geq \frac{c_{p,1}+\sigma^*\phi c_{p,2}}{b-\underline{\Delta}}$). Therefore, the incumbent rejects action settlement for all $\Delta \in (\underline{\Delta}, b - \frac{c_p}{1-\phi})$. This completes parts (i) and (ii).

Next, I prove part (iii). Consider the equilibrium given $\gamma_P^* = 1$. Given $\gamma_P^* = 1$, if the activist implements the project upon disclosure of $\Delta = b_A$, then by Lemma 7 $\mathbf{D}_P^*$ is in the best response of the incumbent to $\gamma_P^* = 1$ if it satisfies $\mathbf{D}_P^* = (\underline{\Delta}, b_A)$ if $\underline{\Delta} < b_A$ and $\mathbf{D}_P^* = \varnothing$ if $b_A \leq \underline{\Delta}$. Since $P\left(\Delta \leq \Delta_A^* \wedge \Delta \notin \mathbf{D}_P^*\right) > 0$ and $E\left[\Delta | \Delta \leq \Delta_A^* \wedge \Delta \notin \mathbf{D}_P^*\right] = E\left[\Delta | \Delta \in [b_A, \Delta_A^*]\right] > b_A$, $\gamma_P^* = 1$ is the unique best response of the activist.

Next, I prove part (iv). Consider the equilibrium given $\gamma_P^* = 0$. There are two cases to consider.

- Suppose that $E\left[\Delta \leq \Delta_A^*(\beta_p^*)\right] > b_A$. I show that $\gamma_P^* = 0$ cannot be in the best response of the activist. Note that rejection and nondisclosure is on the equilibrium path, because $\Delta_A^* > \max\{\underline{\Delta}, b_A\}$ and by Lemma 7, $\mathbf{D}_P^* = \varnothing$ if $b_A < \underline{\Delta}$, and $\mathbf{D}_P^* \subseteq (\underline{\Delta}, b_A]$ if $\underline{\Delta} \leq b_A$. Moreover, due to $E\left[\Delta \leq \Delta_A^*(\beta_p^*)\right] > b_A$, this also implies that $P\left(\Delta \leq \Delta_A^* \wedge \Delta \notin \mathbf{D}_P^*\right) > 0$ and

$$E\left[\Delta | \Delta \leq \Delta_A^* \wedge \Delta \notin \mathbf{D}_P^*\right] \geq E\left[\Delta \leq \Delta_A^*(\beta_p^*)\right] > b_A. \tag{A.81}$$

Therefore, the activist strictly prefers to deviate to $\gamma_P = 1$.

- Suppose that $E\left[\Delta \leq \Delta_A^*(\beta_p^*)\right] \leq b_A$. Given $\gamma_P^* = 0$, if the activist implements the project upon disclosure of $\Delta = b_A$, then by Lemma 7 $\mathbf{D}_P^* = \varnothing$ is in the best response of the incumbent to $\gamma_P^* = 0$. Since $P\left(\Delta \leq \Delta_A^* \wedge \Delta \notin \mathbf{D}_P^*\right) > 0$ and

$$E\left[\Delta | \Delta \leq \Delta_A^* \wedge \Delta \notin \mathbf{D}_P^*\right] = E\left[\Delta \leq \Delta_A^*\right] \leq b_A, \tag{A.82}$$

$\gamma_P^* = 0$ is a best response of the activist (Note that upon nondisclosure the activist is indifferent between implementing and not implementing if and only if $E\left[\Delta \leq \Delta_A^*\right] = b_A$).

□

I prove Corollary 5 with the following generalization for any $\kappa > 0$.

Corollary 16. *Suppose that the activist has demanded action settlement. Then,*

(*i*) *Consider the disclosure or the nondisclosure equilibrium. Then, Corollary 13 except for part (iii) holds for any $q \in (0,1)$, where ϕ everywhere is replaced with $\phi\beta_P^*$.*

(*ii*) *Suppose that $q < 1$ and nondisclosure equilibrium exists. Then,*

(*a*) *The activist and shareholders prefer the disclosure equilibrium. Moreover, this holds strictly if $\kappa < \kappa_0(\phi)$.*

(*b*) *The incumbent board strictly prefer the nondisclosure equilibrium if $\kappa < \kappa_0(\phi q)$ and $\hat{\Delta}_A(\phi) \leq b - \frac{c_p}{1-\phi}$, or $\kappa \in [\kappa_0(\phi q), \kappa_0(\phi))$.*

(*iii*) *Suppose that $\kappa < \kappa_0(\phi)$, and nondisclosure equilibrium is in play whenever it exists. Then, the activist's expected payoff is strictly maximized at $q = 1$ if $E[\Delta] < 0$ and at*

any $q \in (0, q_A] \cup \{1\}$ *if* $E[\Delta] > 0$*, where* q_A *is unique and given by*

$$E\left[\Delta | \Delta \leq \max\left\{\hat{\Delta}_A(\phi q_A), b - \frac{c_p}{\max\{1-\phi q_A, \frac{c_p}{b-\underline{\Delta}}\}}\right\}\right] = 0. \tag{A.83}$$

Proof. Part (i) holds because any equilibrium described in Proposition 15 is identical to the equilibrium described in Proposition 13, where ϕ everywhere is replaced with β_p^*.

Consider part (ii), and suppose that nondisclosure equilibrium exist. Note that the disclosure equilibrium always exists, and in disclosure equilibrium no player's payoff changes with q. There are three cases to consider.

- Suppose that $\kappa \geq \kappa_0(\phi)$. Then, by Proposition 15, in both equilibria $\rho^* = 0$ and each player's payoff is zero for all Δ.

- Suppose that $\kappa \in [\kappa_0(\phi q), \kappa_0(\phi))$. Then, $\rho^* > 0$ in the disclosure equilibrium and $\rho^* = 0$ in the nondisclosure equilibrium, and in the nondisclosure equilibrium each player's payoff is zero for all Δ, while in the disclosure equilibrium the expected payoff of the incumbent is negative and the expected payoff of the activist and shareholders is positive.

- Suppose that $\kappa < \kappa_0(\phi q)$. Then, the incumbent follows a threshold strategy $\Delta_A^*(\beta_p^*, \rho_A^*) < b$ in both equilibria. Denote the disclosure and nondisclosure equilibrium with (Δ^D, ρ^D) and (Δ^N, ρ^N), respectively, where Δ^i represents the threshold strategy of the incumbent. Note that by the proof of Proposition 15 $\Delta_A^*(\beta_p^*) = \max\{\hat{\Delta}_A(\beta_p^*), b - \frac{c_p}{1-\beta_p^*}\}$, and therefore it must be that $\Delta^D < \Delta^N$. This further implies that

$$\begin{aligned} b - \frac{c_p}{\frac{1}{\rho^D} - \phi} &< b - \frac{c_p}{\frac{1}{\rho^N} - \phi q} \iff \\ \frac{1}{\rho^N} - \phi q &> \frac{1}{\rho^D} - \phi \iff q\left(\frac{1}{q\rho^N} - \phi\right) > \frac{1}{\rho^D} - \phi, \end{aligned} \tag{A.84}$$

  which in turn implies that $\rho^D > q\rho^N$.

– Consider the incumbent's payoff, and suppose that $\hat{\Delta}_A(\phi) \leq b - \frac{c_p}{1-\phi}$. Note that by Proposition 15 $\hat{\Delta}_A(\phi) \leq b - \frac{c_p}{1-\phi}$ implies that $\rho^D = 1$. Since the incumbent's payoff is $\Delta - b$ from accepting and $\rho^* \left[-c_p + 1_{\{\Delta \geq 0\}} \beta_p^* (\Delta - b)\right]$ from rejecting, in any equilibrium the incumbent strictly prefers accepting if $\Delta > \Delta_A^*$ and strictly prefers rejecting if $\Delta < \Delta_A^*$. Therefore, the incumbent's payoff is equal in two equilibria if $\Delta \geq \Delta^N$, is strictly smaller in the disclosure equilibrium if $\Delta \in [0, \Delta^N)$, and weakly smaller in the disclosure equilibrium if $\Delta < 0$. Therefore, the incumbent's expected payoff is strictly smaller in the disclosure equilibrium.

– Consider the expected shareholer value, which is given by

$$\Pi_{SH}^* = \rho^* \beta_p^* \int_0^{\Delta_A^*} \Delta dF(\Delta) + \int_{\Delta_A^*}^{b} \Delta dF(\Delta). \tag{A.85}$$

Since $\rho^D > \rho^N q$ and $\Delta^D < \Delta^N$, the shareholders strictly prefer the disclosure equilibrium.

– Consider the expected payoff of the activist, which is given by

$$\Pi_A^* = \int_{\underline{\Delta}}^{\Delta_A^*} \left(\beta_p^* \max\{0, \Delta\} - \kappa\right) dF(\Delta) + \int_{\Delta_A^*}^{b} \Delta dF(\Delta). \tag{A.86}$$

Note that the first term is nonnegative in both equilibria since $\rho^* > 0$ in both equilibria. Since β_p^* is strictly larger in the disclosure equilibrium and $\Delta^D < \Delta^N$, the activist strictly prefers the disclosure equilibrium.

Consider part (iii). Note that if $q = 1$, at any Δ, each player's equilibrium payoff is the same in the disclosure and nondisclosure equilibria. First, I show that within the nondisclosure equilibrium, as q increases the activist's payoff is strictly increases if $\kappa \leq \kappa_0(\phi q)$ and does not change if $\kappa > \kappa_0(\phi q)$. Note that by Proposition 15, the expected payoff of the activist in the nondisclosure equilibrium is zero if $\kappa \geq \kappa_0(\phi q)$, and is positive and given by (A.86) if $\kappa < \kappa_0(\phi q)$, where $\kappa_0(\phi q)$ is strictly increasing in q. Noting that if $\kappa < \kappa_0(\phi q)$ then the

activist's expected payoff strictly increases with q since $\Delta_A^*(\phi q,\, \rho_A^*)$ strictly decrease and $\beta_p^* = \phi q$ strictly increase with q concludes the argument.

Next, there are three cases to consider.

- Suppose that $\kappa \geq \kappa_0(\phi)$. Then, by Proposition 15, in both disclosure and nondisclosure equilibria the activist's expected payoff is zero for all q.

- Suppose that $\kappa < \kappa_0(\phi)$ and $E[\Delta] < 0$. Then, by Proposition 15, nondisclosure equilibrium exists for all q. Therefore, by the first step, the activist's payoff is maximized if and only if $q = 1$.

- Suppose that $\kappa < \kappa_0(\phi)$ and $E[\Delta] > 0$. Note that combining the first step with part (ii), the activist's expected payoff is maximized if and only if $q = 1$ or disclosure equilibrium is in play. By Proposition 15, nondisclosure equilibrium exists if and only if $E[\Delta \leq \Delta_A^*(\phi q)] < 0$, or equivalently, since

$$\Delta_A^*(\phi q) = \begin{cases} b, & \text{if } \kappa > \kappa_0(\phi q) \\ \max\left\{\hat{\Delta}_A(\phi q), b - \frac{c_p}{\max\{1-\phi q, \frac{c_p}{b-\underline{\Delta}}\}}\right\}, & \text{otherwise,} \end{cases} \tag{A.87}$$

  by the proof of Proposition 15, if and only if $q > q_A$ (This inequality holds weakly without the focus on the equilibria where the activist implements the project when he is indifferent between implementing and not implementing.).

□

I prove Proposition 5 with the following generalization for any $b_A \in (-\infty, b)$ and $\kappa > 0$. I denote the set of Δ for which the incumbent discloses after proxy fight (board settlement) by $\mathbf{D}_P$ ($\mathbf{D}_B$).

Proposition 16. *Suppose that the activist has demanded board settlement with activist control of $\alpha \in (0, 1]$. Then, an equilibrium of this subgame exists, and*

(*i*) ***(Rejection equilibrium)*** *An equilibrium where* $\rho^* = 0$ *exists if and only if* $\kappa \geq \kappa_0(\phi)$*, or* $E[\Delta] \leq b_A$ *and* $\kappa \geq \kappa_0(\phi q)$*, or* $E[\Delta|\Delta \geq b_A] \leq 0$*. In any such equilibrium, the project is never implemented for any* Δ*, and for all* Δ *the incumbent weakly prefers to reject the board settlement. Moreover,*

(*a*) ***(Disclosure equilibrium)*** *If* $\kappa \geq \kappa_0(\phi)$ *or* $E[\Delta|\Delta \geq b_A] \leq 0$*, then there exists an equilibrium where* $\rho^* = 0$*, the incumbent rejects for all* Δ*,* $\sigma^* = \mathbf{1}_{\{0<E[\Delta|\Delta\geq b_A]\}}$*,* $\gamma_P^* = 1$*,* $\gamma_B^* = 1$*, and* $\mathbf{D}_P^* = \mathbf{D}_B^* = (\underline{\Delta}, b_A)$ *if* $\underline{\Delta} < b_A$ *and* $\mathbf{D}_P^* = \mathbf{D}_B^* = \varnothing$ *if* $b_A \leq \underline{\Delta}$*.*

(*b*) ***(Nondisclosure equilibrium)*** *If* $E[\Delta] \leq b_A$*, and* $\kappa \geq \kappa_0(\phi q)$ *or* $E[\Delta|\Delta \geq b_A] \leq 0$*, then there exists an equilibrium where* $\rho^* = 0$*, the incumbent rejects for all* Δ*,* $\sigma^* = \mathbf{1}_{\{0<E[\Delta|\Delta\geq b_A]\}}$*,* $\gamma_P^* = 0$*,* $\mathbf{D}_P^* = \varnothing$*,* $\gamma_B^* = 1$*, and* $\mathbf{D}_B^* = (\underline{\Delta}, b_A)$ *if* $\underline{\Delta} < b_A$ *and* $\mathbf{D}_B^* = \varnothing$ *if* $b_A \leq \underline{\Delta}$*.*

(*ii*) ***(Proxy fight equilibrium)*** *An equilibrium where* $\rho^* > 0$ *and the incumbent rejects for some* Δ *exists if and only if* $\kappa < \frac{1}{1-F(b_A)}\kappa_0(\phi)$ *and* $E[\Delta|\Delta \geq b_A] > 0$*. Moreover, in any such equilibrium,* $\rho^* = \rho_B^*(\beta^*)$*,* $\sigma^* = \sigma_B^*(\beta^*)$*,* $\gamma_P^* = 1$*,* $\gamma_B^* \in \{0, 1\}$*, and the board accepts the settlement if* $\Delta \in (\underline{\Delta}, b_A) \cup (\Delta_B^*(\beta^*), b)$ *and rejects if* $\Delta \in (b_A, \Delta_B^*(\beta^*))$*, where*

$$\beta^* = \alpha[q + (1-q)\gamma_B^*]. \tag{A.88}$$

and $\Delta_B^*(\beta^*) \in (0, b)$*. Moreover,*

(*a*) ***(Disclosure equilibrium)*** *Such an equilibrium with* $\gamma_B^* = 1$ *exists if and only if* $\kappa < \frac{1}{1-F(b_A)}\kappa_0(\phi)$ *and* $E[\Delta|\Delta \geq b_A] > 0$*. Moreover, whenever this equilibrium exists, it also exists with* $\mathbf{D}_P^* = \mathbf{D}_B^* = (\underline{\Delta}, b_A)$ *if* $\underline{\Delta} < b_A$ *and* $\mathbf{D}_P^* = \mathbf{D}_B^* = \varnothing$ *if* $b_A \leq \underline{\Delta}$*.*

(*b*) ***(Nondisclosure equilibrium)*** *Such an equilibrium with* $\gamma_B^* = 0$ *exists if and*

only if $\kappa < \frac{1}{1-F(b_A)}\kappa_0(\phi)$, $E[\Delta|\Delta \geq b_A] > 0$, *and*

$$\int_{\underline{\Delta}}^{\max\{b_A,\underline{\Delta}\}} \Delta dF(\Delta) + \int_{\Delta_B^*(\alpha q)}^{b} \Delta dF(\Delta) \leq b_A. \tag{A.89}$$

Moreover, whenever this equilibrium exists, it also exists with $\mathbf{D}_B^* = \varnothing$, *and* $\mathbf{D}_P^* = (\underline{\Delta}, b_A)$ *if* $\underline{\Delta} < b_A$ *and* $\mathbf{D}_P^* = \varnothing$ *if* $b_A \leq \underline{\Delta}$.

(*iii*) ***(Acceptance equilibrium)*** *An equilibrium where the incumbent accepts board settlement for all* Δ *exists if and only if* $\kappa < \phi(b - b_A)$ *and* $\alpha \leq \phi + \frac{c_p}{b-\max\{b_A,\underline{\Delta}\}}$, *or* $\kappa < \phi(b - b_A)$ *and* $\alpha q \leq \phi + \frac{c_p}{b-\max\{b_A,\underline{\Delta}\}}$ *and* $E[\Delta] \leq b_A$. *Moreover, in any such equilibrium* $\gamma_B^* \in \{0, 1\}$, *and*

(*a*) (***Disclosure equilibrium***) *Such an equilibrium with* $\gamma_B^* = 1$ *exists if and only if* $\kappa < \phi(b - b_A)$ *and* $\alpha \leq \phi + \frac{c_p}{b-\max\{b_A,\underline{\Delta}\}}$. *Moreover, whenever such an equilibrium exists, it also exists with* $\rho^* = \sigma^* = 1$, $\gamma_P^* = 1$, *and* $\mathbf{D}_P^* = \mathbf{D}_B^* = (\underline{\Delta}, b_A)$ *if* $\underline{\Delta} < b_A$ *and* $\mathbf{D}_P^* = \mathbf{D}_B^* = \varnothing$ *if* $b_A \leq \underline{\Delta}$.

(*b*) (***Nondisclosure equilibrium***) *Such an equilibrium with* $\gamma_B^* = 0$ *exists if and only if* $\kappa < \phi(b - b_A)$, $\alpha q \leq \phi + \frac{c_p}{b-\max\{b_A,\underline{\Delta}\}}$ *and* $E[\Delta] \leq b_A$. *Moreover, whenever such an equilibrium exists, it also exists with* $\rho^* = \sigma^* = 1$, $\gamma_P^* = 1$, $\mathbf{D}_B^* = \varnothing$, *and* $\mathbf{D}_P^* = (\underline{\Delta}, b_A)$ *if* $\underline{\Delta} < b_A$ *and* $\mathbf{D}_P^* = \varnothing$ *if* $b_A \leq \underline{\Delta}$.

Proof. Suppose the activist has demanded board settlement with control $\alpha > 0$. Throughout, denote the set of Δ for which the board accepts board settlement by $\mathbf{B}$. The proof consists of several steps:

First, for any given γ_P and γ_B, the results listed in the proof of Proposition 14 hold, where ϕ and α everywhere is replaced with $\beta_p \equiv q + (1-q)\gamma_P$ and $\beta \equiv q + (1-q)\gamma_B$, respectively. Note that the changes in the payoffs the players in the first step and in the profit functions Π_I, Π_A, and Π_{SH} in the third and fourth steps follow from disclosure strategy of the incumbent, given in Lemma 7 part (i). Specifically, if the activist wins a

proxy fight (reaches a board settlement), the incumbent always discloses if $\Delta < b_A$ and $\gamma_P > 0$ ($\gamma_B > 0$), and never discloses if $\Delta > b_A$ and $\gamma_P < 1$ ($\gamma_B < 1$).

Next, I prove part (i).

1. First, by Proposition 14, in any equilibrium with $\rho^* = 0$, the project is never implemented for any Δ, and for all Δ the incumbent weakly prefers to reject the board settlement.

2. Second, note that in any equilibrium with $\rho^* = 0$, it must be that $\gamma_P^* \in \{0, 1\}$ due to Lemma 7, because in any such equilibrium the incumbent strictly prefers to reject if $\Delta > b_A$ by the second step in the proof of Proposition 14.

3. Third, consider any equilibrium with $\rho^* = 0$ given $\gamma_P^* = 1$. There are two cases to consider:

   - Suppose $\kappa < \kappa_0(\phi)$ and $E[\Delta|\Delta \geq b_A] > 0$. Then, this equilibrium cannot exist by Proposition 14 and the first step.

   - Suppose $\kappa \geq \kappa_0(\phi)$ or $E[\Delta|\Delta \geq b_A] \leq 0$. I show that the equilibrium described by part (i.a) exists. Note that given $\gamma_P^* = 1$, by Proposition 14 and the first step this equilibrium exists with $\mathbf{B}^* = \varnothing$ and $\sigma^* = \mathbf{1}_{\{0 < E[\Delta|\Delta \geq b_A]\}}$. Moreover, note that if the activist implements the project upon disclosure of $\Delta = b_A$, then by Lemma 7 $\mathbf{D}_P^*$ is in the best response of the incumbent to $\gamma_P^* = 1$ if it satisfies $\mathbf{D}_P^* = (\underline{\Delta}, b_A)$ if $\underline{\Delta} < b_A$ and $\mathbf{D}_P^* = \varnothing$ if $b_A \leq \underline{\Delta}$. Since $P(\Delta \notin \mathbf{B}^* \cup \mathbf{D}_P^*) > 0$ and $E[\Delta|\Delta \notin \mathbf{B}^* \cup \mathbf{D}_P^*] = E[\Delta|\Delta \geq b_A] > b_A$, $\gamma_P^* = 1$ is the unique best response of the activist.

     Also note that if the activist implements the project upon disclosure of $\Delta = b_A$, then by Lemma 7 $\mathbf{D}_B^*$ is in the best response of the incumbent to $\gamma_B^* = 1$ if it satisfies $\mathbf{D}_B^* = (\underline{\Delta}, b_A)$ if $\underline{\Delta} < b_A$ and $\mathbf{D}_B^* = \varnothing$ if $b_A \leq \underline{\Delta}$. Therefore, if the activist has an off-equilibrium belief of $\Delta \in \nu$ upon board settlement such that

$P(\Delta > b_A | \Delta \in \nu) > 0$, then under any such belief $\gamma_B^* = 1$ is the activist's best response.

4. Fourth, consider any equilibrium with $\rho^* = 0$ given $\gamma_P^* = 0$. There are three cases to consider:

   - Suppose $E[\Delta] > b_A$. I show that $\gamma_P^* = 0$ cannot be in the best response of the activist. Note that by the first step in the proof of Proposition 14 and the first step in this proof, in any such equilibrium, $\mathbf{B}^*$ satisfies $\mathbf{B}^* = \varnothing$ if $b_A < \underline{\Delta}$, and $\mathbf{B}^* \subseteq (\underline{\Delta}, b_A]$ if $\underline{\Delta} \leq b_A$. Therefore rejection is on the equilibrium path, and $E[\Delta] > b_A$ implies that $P(\Delta \notin \mathbf{B}^*) > 0$ and $E[\Delta | \Delta \notin \mathbf{B}^*] \geq E[\Delta] > b_A$. Moreover, in the subgame where the activist runs and wins a proxy fight, nondisclosure is also on the equilibrium path since the board rejects for all $\Delta > b_A$ and by Lemma 7, $\mathbf{D}_P^* = \varnothing$ if $b_A < \underline{\Delta}$, and $\mathbf{D}_P^* \subseteq (\underline{\Delta}, b_A]$ if $\underline{\Delta} \leq b_A$. Moreover, due to $E[\Delta] > b_A$ this also implies that $P(\Delta \notin \mathbf{B}^* \cup \mathbf{D}_P^*) > 0$ and $E[\Delta | \Delta \notin \mathbf{B}^* \cup \mathbf{D}_P^*] \geq E[\Delta] > b_A$. Therefore, the activist strictly prefers to deviate to $\gamma_P = 1$.

   - Suppose $\kappa < \kappa_0(\phi q)$ and $E[\Delta | \Delta \geq b_A] > 0$. Then, this equilibrium cannot exist by Proposition 14 and the first step.

   - Suppose $E[\Delta] \leq b_A$, and $\kappa \geq \kappa_0(\phi q)$ or $E[\Delta | \Delta \geq b_A] \leq 0$. I show that the equilibrium described by part (i.b) exists. Then, given $\gamma_P^* = 0$, by Proposition 14 and the first step this equilibrium exists with $\mathbf{B}^* = \varnothing$ and $\sigma^* = \mathbf{1}_{\{0 < E[\Delta | \Delta \geq b_A]\}}$. Moreover, note that if the activist implements the project upon disclosure of $\Delta = b_A$, then by Lemma 7 $\mathbf{D}_P^* = \varnothing$ is in the best response of the incumbent to $\gamma_P^* = 0$. Since $P(\Delta \notin \mathbf{B}^* \cup \mathbf{D}_P^*) > 0$ and $E[\Delta | \Delta \notin \mathbf{B}^* \cup \mathbf{D}_P^*] = E[\Delta] \leq b_A$, $\gamma_P^* = 0$ is a best response of the activist (Note that upon nondisclosure the activist is indifferent between implementing and not implementing if and only if $E[\Delta] = b_A$).

Also note that if the activist implements the project upon disclosure of $\Delta = b_A$, then by Lemma 7 $\mathbf{D}_B^*$ is in the best response of the incumbent to $\gamma_B^* = 1$ if it satisfies $\mathbf{D}_B^* = (\underline{\Delta}, b_A)$ if $\underline{\Delta} < b_A$ and $\mathbf{D}_B^* = \varnothing$ if $b_A \leq \underline{\Delta}$. Therefore, if the activist has an off-equilibrium belief of $\Delta \in \nu$ upon board settlement such that $P(\Delta > b_A | \Delta \in \nu) > 0$, then under any such belief $\gamma_B^* = 1$ is the activist's best response.

Next, I prove part (ii).

1. First, by Proposition 14, in any equilibrium with $\rho^* > 0$ and $\mathbf{B}^* \neq (\underline{\Delta}, b)$, $\rho^* = \rho_B^*(\beta^*)$, $\sigma^* = \sigma_B^*(\beta^*)$, and the board accepts the settlement if $\Delta \in (\underline{\Delta}, b_A) \cup (\Delta_B^*(\beta^*, \rho_B^*), b)$ and rejects if $\Delta \in (b_A, \Delta_B^*(\beta^*, \rho_B^*))$, where $\Delta_B^*(\beta^*, \rho_B^*) \in (0, b)$, and the incumbent is indifferent between accepting and not if $\Delta = \Delta_B^*$. Also note that if the activist implements the project when he is indifferent, then the incumbent strictly prefers to reject if $\Delta = b_A$.

2. Second, note that in any equilibrium with $\rho^* > 0$ and $\mathbf{B}^* \neq (\underline{\Delta}, b)$, it must be that $\gamma_P^* = 1$. To see this, suppose that $\gamma_P^* < 0$. Then, upon the activist running and winning a proxy fight, by Lemma 7 the incumbent strictly prefers to not disclose Δ if $b_A < \Delta$. However, since the activist knows that upon rejection $\Delta \geq \max\{\underline{\Delta}, b_A\}$ and with positive probability $\Delta > \max\{\underline{\Delta}, b_A\}$, the activist deviates to $\gamma_P = 1$.

3. Third, note that in any equilibrium with $\rho^* > 0$ and $\mathbf{B}^* \neq (\underline{\Delta}, b)$, it must be that $\gamma_B^* \in \{0, 1\}$ due to Lemma 7, because upon board settlement $P(\Delta > b_A) = P(\Delta > \Delta_B^*) > 0$.

4. Fourth, consider any equilibrium with $\rho^* > 0$ and $\mathbf{B}^* \neq (\underline{\Delta}, b)$, given $\gamma_B^* = 1$. There are two cases to consider:

   - Suppose $\kappa \geq \frac{1}{1-F(b_A)}\kappa_0(\phi)$ or $E[\Delta | \Delta \geq b_A] \leq 0$. Then, this equilibrium cannot exist by Proposition 14 and the first step.

- Suppose $\kappa < \frac{1}{1-F(b_A)}\kappa_0(\phi)$ and $E[\Delta|\Delta \geq b_A] > 0$. I show that the equilibrium described by part (ii.a) exists. Note that given $\gamma_B^* = 1$, if the activist implements the project upon disclosure of $\Delta = b_A$, then by Lemma 7 $\mathbf{D}_B^*$ is in the best response of the incumbent to $\gamma_B^* = 1$ if it satisfies $\mathbf{D}_B^* = (\underline{\Delta}, b_A)$ if $\underline{\Delta} < b_A$ and $\mathbf{D}_B^* = \varnothing$ if $b_A \leq \underline{\Delta}$. Since $P(\Delta \in \mathbf{B}^* \backslash \mathbf{D}_B^*) > 0$ and $E[\Delta|\Delta \in \mathbf{B}^* \backslash \mathbf{D}_B^*] = E[\Delta|\Delta \geq \Delta_B^*] > b_A$, $\gamma_B^* = 1$ is the unique best response of the activist.

  Also note that if the activist implements the project upon disclosure of $\Delta = b_A$, then by Lemma 7 $\mathbf{D}_P^*$ is in the best response of the incumbent to $\gamma_P^* = 1$ if it satisfies $\mathbf{D}_P^* = (\underline{\Delta}, b_A)$ if $\underline{\Delta} < b_A$ and $\mathbf{D}_P^* = \varnothing$ if $b_A \leq \underline{\Delta}$. Since $P(\Delta \notin \mathbf{B}^* \cup \mathbf{D}_P^*) > 0$ and $E[\Delta|\Delta \notin \mathbf{B}^* \cup \mathbf{D}_P^*] = E[\Delta|\Delta \in [b_A, \Delta_B^*]] > b_A$, $\gamma_P^* = 1$ is the unique best response of the activist.

5. Fifth, consider any equilibrium with $\rho^* > 0$ and $\mathbf{B}^* \neq (\underline{\Delta}, b)$, given $\gamma_B^* = 0$. There are three cases to consider:

   - Suppose $\int_{\underline{\Delta}}^{b_A} \Delta dF(\Delta) + \int_{\Delta_B^*}^{b} \Delta dF(\Delta) > b_A$. I show that $\gamma_B^* = 0$ cannot be a best response of the activist. Note that nondisclosure upon board settlement is on the equilibrium path since by Lemma 7, $\mathbf{D}_B^* = \varnothing$ if $b_A < \underline{\Delta}$, and $\mathbf{D}_B^* \subseteq (\underline{\Delta}, b_A]$ if $\underline{\Delta} \leq b_A$. However, then $P(\Delta \in \mathbf{B}^* \wedge \Delta \notin \mathbf{D}_B^*) > 0$ and $E[\Delta|\Delta \in \mathbf{B}^* \wedge \Delta \notin \mathbf{D}_B^*] > b_A$. Therefore, the activist strictly prefers to deviate to $\gamma_B = 1$.

   - Suppose $\kappa \geq \frac{1}{1-F(b_A)}\kappa_0(\phi)$ or $E[\Delta|\Delta \geq b_A] \leq 0$. Then, this equilibrium cannot exist by Proposition 14 and the first step.

   - Suppose $\kappa < \frac{1}{1-F(b_A)}\kappa_0(\phi)$, $E[\Delta|\Delta \geq b_A] > 0$, and $\int_{\underline{\Delta}}^{b_A} \Delta dF(\Delta) + \int_{\Delta_B^*}^{b} \Delta dF(\Delta) \leq b_A$. I show that the equilibrium described by part (ii.b) exists. Note that given given $\gamma_B^* = 0$, if the activist implements the project upon disclosure of $\Delta = b_A$, then by Lemma 7 $\mathbf{D}_B^* = \varnothing$ is in the best response of the incumbent to $\gamma_B^* = 0$.

Since $P(\Delta \in \mathbf{B}^* \backslash \mathbf{D}_B^*) > 0$ and

$$E[\Delta | \Delta \in \mathbf{B}^* \backslash \mathbf{D}_B^*] = \int_{\underline{\Delta}}^{b_A} \Delta dF(\Delta) + \int_{\Delta_B^*(\alpha q, \rho_B^*)}^{b} \Delta dF(\Delta) \leq b_A, \qquad (A.90)$$

$\gamma_B^* = 0$ is a best response of the activist (Note that upon nondisclosure the activist is indifferent between implementing and not implementing if and only if the $E[\Delta | \Delta \in \mathbf{B}^* \backslash \mathbf{D}_B^*] = b_A$).

Also note that if the activist implements the project upon disclosure of $\Delta = b_A$, then by Lemma 7 $\mathbf{D}_P^*$ is in the best response of the incumbent to $\gamma_P^* = 1$ if it satisfies $\mathbf{D}_P^* = (\underline{\Delta}, b_A)$ if $\underline{\Delta} < b_A$ and $\mathbf{D}_P^* = \varnothing$ if $b_A \leq \underline{\Delta}$. Since $P(\Delta \notin \mathbf{B}^* \cup \mathbf{D}_P^*) > 0$ and $E[\Delta | \Delta \notin \mathbf{B}^* \cup \mathbf{D}_P^*] = E[\Delta | \Delta \in [b_A, \Delta_B^*]] > b_A$, $\gamma_P^* = 1$ is the unique best response of the activist.

Next, I prove part (iii).

1. First, note that in any equilibrium with $\mathbf{B}^* = (\underline{\Delta}, b)$, it must be that $\gamma_B^* \in \{0, 1\}$ due to Lemma 7, because $P(\Delta > b_A) > 0$.

2. Second, consider any equilibrium with $\mathbf{B}^* = (\underline{\Delta}, b)$ given $\gamma_B^* = 1$. There are two cases to consider:

   - Suppose $\kappa \geq \phi(b - b_A)$ or $\alpha > \phi + \frac{c_p}{b - \max\{b_A, \underline{\Delta}\}}$. Then, this equilibrium cannot exist for any $\gamma_P^* \in [0, 1]$ by Proposition 14 and the first step.

   - Suppose $\kappa < \phi(b - b_A)$ and $\alpha \leq \phi + \frac{c_p}{b - \max\{b_A, \underline{\Delta}\}}$. I show that the equilibrium described by part (iii.a) exists. Note that given $\gamma_B^* = 1$, by Proposition 14 and the first step this equilibrium exists with $\sigma^* = \rho^* = 1$. Moreover, note that if the activist implements the project upon disclosure of $\Delta = b_A$, then by Lemma 7 $\mathbf{D}_B^*$ is in the best response of the incumbent to $\gamma_B^* = 1$ if it satisfies $\mathbf{D}_B^* = (\underline{\Delta}, b_A)$ if $\underline{\Delta} < b_A$ and $\mathbf{D}_B^* = \varnothing$ if $b_A \leq \underline{\Delta}$. Since $P(\Delta \in \mathbf{B}^* \backslash \mathbf{D}_B^*) > 0$ and $E[\Delta | \Delta \in \mathbf{B}^* \backslash \mathbf{D}_B^*] = E[\Delta | \Delta \geq b_A] > b_A$, $\gamma_B^* = 1$ is the unique best response of

the activist.

Also note that if the activist implements the project upon disclosure of $\Delta = b_A$, then by Lemma 7 $\mathbf{D}_P^*$ is in the best response of the incumbent to $\gamma_P^* = 1$ if it satisfies $\mathbf{D}_P^* = (\underline{\Delta}, b_A)$ if $\underline{\Delta} < b_A$ and $\mathbf{D}_P^* = \varnothing$ if $b_A \leq \underline{\Delta}$. Moreover, there exists $\varepsilon > 0$ such that if the activist and the shareholders have the off-equilibrium belief of $\Delta \in \nu = (b - \varepsilon, b)$ upon rejection, then under this belief $\gamma_P^* = 1$ and $\rho^* = 1$ is the activist's best response and $\sigma^* = 1$ is the shareholders' best response, where ρ^* and σ^* are best responses by the first step in the proof of Proposition 14 and the first step in this proof.

3. Third, consider any equilibrium with $\mathbf{B}^* = (\underline{\Delta}, b)$ given $\gamma_B^* = 0$. There are three cases to consider:

   - Suppose $E[\Delta] > b_A$. I show that $\gamma_B^* = 0$ cannot be a best response of the activist. Note that nondisclosure upon board settlement is on the equilibrium path since by Lemma 7, $\mathbf{D}_B^* = \varnothing$ if $b_A < \underline{\Delta}$, and $\mathbf{D}_B^* \subseteq (\underline{\Delta}, b_A]$ if $\underline{\Delta} \leq b_A$. Due to $E[\Delta] > b_A$, this implies that $P(\Delta \in \mathbf{B}^* \wedge \Delta \notin \mathbf{D}_B^*) > 0$ and $E[\Delta | \Delta \in \mathbf{B}^* \wedge \Delta \notin \mathbf{D}_B^*] > b_A$. Therefore, the activist strictly prefers to deviate to $\gamma_B = 1$.

   - Suppose $\kappa \geq \phi(b - b_A)$ or $\alpha q > \phi + \frac{c_p}{b - \max\{b_A, \underline{\Delta}\}}$. Then, this equilibrium cannot exist for any $\gamma_P^* \in [0, 1]$ by Proposition 14 and the first step.

   - Suppose $E[\Delta] \leq b_A$, $\kappa < \phi(b - b_A)$, and $\alpha q \leq \phi + \frac{c_p}{b - \max\{b_A, \underline{\Delta}\}}$. I show that the equilibrium described in part (iii.b) exists. Note that given $\gamma_B^* = 0$, by Proposition 14 and the first step this equilibrium exists with $\sigma^* = \rho^* = 1$. Moreover, note that if the activist implements the project upon disclosure of $\Delta = b_A$, then by Lemma 7 $\mathbf{D}_B^* = \varnothing$ is in the best response of the incumbent to $\gamma_B^* = 0$. Since $P(\Delta \in \mathbf{B}^* \backslash \mathbf{D}_B^*) > 0$ and $E[\Delta | \Delta \in \mathbf{B}^* \backslash \mathbf{D}_B^*] = E[\Delta] \leq b_A$, $\gamma_B^* = 0$ is in the best response of the activist (Note that upon nondisclosure the activist is indifferent between implementing and not implementing if and only if

$E[\Delta] = b_A$).

Also note that if the activist implements the project upon disclosure of $\Delta = b_A$, then by Lemma 7 $\mathbf{D}_P^*$ is in the best response of the incumbent to $\gamma_P^* = 1$ if it satisfies $\mathbf{D}_P^* = (\underline{\Delta}, b_A)$ if $\underline{\Delta} < b_A$ and $\mathbf{D}_P^* = \varnothing$ if $b_A \leq \underline{\Delta}$. Moreover, there exists $\varepsilon > 0$ such that if the activist and the shareholders have the off-equilibrium belief of $\Delta \in \nu = (b - \varepsilon, b)$ upon rejection, then under this belief $\gamma_P^* = 1$ and $\rho^* = 1$ is the activist's best response and $\sigma^* = 1$ is the shareholders' best response, where ρ^* and σ^* are best responses by the first step in the proof of Proposition 14 and the first step in this proof.

□

I prove Corollary 6 with the following generalization for any $\kappa > 0$.

Corollary 17. *Suppose that the activist has demanded board settlement with $\alpha_B \in (0, 1]$. Then,*

(*i*) *Consider the disclosure or nondisclosure equilibrium. Then, Corollary 14 except for part (iii) holds, where α_B is replaced with $\beta_B^*(\alpha_B)$ given by Proposition 16.*

(*ii*) *Within the proxy fight or acceptance equilibrium, the incumbent's ex-ante expected payoff is strictly decreasing with β_B^*.*

Proof. Consider part (i). Then, by the proof of Corollary 14, all statements except for part (iii) hold where α is replaced with $\beta^*(\alpha)$ given by Proposition 16, and if the activist demands action settlement ϕ is replaced with β_p^* given by Proposition 15.

Consider part (ii). There are three cases to consider. Suppose that acceptance equilibrium is in play. Then, the incumbent's ex-ante expected payoff is given by

$$\Pi_I^* = E[\Pi_I^*(\Delta)] = \beta^* P(\Delta \geq 0) E[\Delta - b | \Delta \geq 0], \tag{A.91}$$

which is strictly decreasing with β^*. Suppose that proxy fight equilibrium is in play, and $\beta^* < \alpha_L$, then by Proposition 16

$$\Pi_I^* = \int_0^{\hat{\Delta}_B} \rho_B^*(\beta^*)\left[-c_p + \phi(\Delta - b)\right] dF(\Delta) + \beta^* \int_{\hat{\Delta}_B}^{b} (\Delta - b)\, dF(\Delta), \tag{A.92}$$

which strictly decreases with β^* since ρ_B^* strictly increases with β^* if $\beta^* < \alpha_L$. Suppose that proxy fight equilibrium is in play, and $\beta^* \geq \alpha_L$. Then, by Proposition 16, $\rho_B^* = 1$ and $\Delta_B^*(\beta^*) = b - \frac{c_p}{\beta^* - \phi}$ is strictly increasing with β^*. Therefore the incumbent's ex-ante expected payoff

$$\Pi_I^* = \int_0^{\Delta_B^*(\beta^*)} \left[-c_p + \phi(\Delta - b)\right] dF(\Delta) + \beta^* \int_{\Delta_B^*(\beta^*)}^{b} (\Delta - b)\, dF(\Delta) \tag{A.93}$$

strictly decreases with β^* because $\rho_B^* = 1$ and for a given β^*, $-c_p + \phi(\Delta - b) < \beta^*(\Delta - b)$ if $\Delta > \Delta_B^*(\beta^*)$. □

Proof of Corollary 7. Consider part (i). By Proposition 16, within the proxy fight equilibrium, nondisclosure equilibrium exists if and only if

$$E\left[\Delta | \Delta \notin \left[0, \max\left\{\hat{\Delta}_B, b - \frac{c_p}{q\alpha - \phi}\right\}\right]\right] < 0, \tag{A.94}$$

which always holds if $E\left[\Delta | \Delta \notin \left[0, \hat{\Delta}_B\right]\right] < 0$. Suppose that $E\left[\Delta | \Delta \notin \left[0, \hat{\Delta}_B\right]\right] \geq 0$. Then, α satisfies

$$E\left[\Delta | \Delta \notin \left[0, b - \frac{c_p}{q\alpha - \phi}\right]\right] = 0 \tag{A.95}$$

if and only if $\alpha = \alpha_D(q)$, where $\alpha_D(q)$ is unique. Moreover, $\max\left\{\hat{\Delta}_B, b - \frac{c_p}{q\alpha - \phi}\right\} > b - \frac{c_p}{q\alpha_D(q) - \phi}$ if and only if $\alpha > \alpha_D(q)$. Therefore, (A.94) holds if and only if $\alpha > \alpha_D(q)$. Finally, since $\alpha_D(q)$ is unique, it is strictly decreasing in q.

Consider part (ii). There are three cases to consider.

- Suppose that $E\left[\Delta | \Delta \notin \left[0, \hat{\Delta}_B\right]\right] < 0$. Then, for all $\alpha \in (0, 1]$ and $q \in (0, 1]$, by

Proposition 16 nondisclosure equilibrium is in play, and therefore $\beta^*(\alpha) = \alpha q$.

- Suppose that $E\left[\Delta|\Delta \notin \left[0, \hat{\Delta}_B\right]\right] \geq 0$ and $\alpha_D(1) \geq 1$. Then, by part (i) for any $q \in (0,1]$, $\alpha_D(q) \geq 1$ and hence nondisclosure equilibrium is not in play for any $\alpha \in (0,1]$. Therefore, $\beta^*(\alpha) = \alpha$ for any $q \in (0,1]$.

- $E\left[\Delta|\Delta \notin \left[0, \hat{\Delta}_B\right]\right] \geq 0$ and $\alpha_D(1) < 1$. Then, since $q\alpha_D(q) \in (\alpha_L, 1)$ is a constant for all $q \in (0,1]$, there exist unique $q_L^B, q_H^B \in (0,1)$ such that $\alpha_D(q_H^B) = q_H^B$ and $\alpha_D(q_L^B) = 1$. Moreover, $q_L^B < q_H^B$ since $q\alpha_D(q)$ is a constant. Note that since $\alpha_D(q)$ is strictly decreasing in q by part (i), $\alpha_D(q) > (<) q$ if and only if $q < (>) q_H^B$, and $\alpha_D(q) > (<) 1$ if and only if $q < (>) q_L^B$. Therefore, by part (i) and Proposition 16, there are two subcases to consider:

  - Suppose $q \in (0, q_L^B]$. Then $\beta^*(\alpha) = \alpha$ for any $\alpha \in (0,1]$.

  - Suppose $q \in (q_L^B, 1]$. Then $\alpha_D(q) < 1$ and

$$\beta^*(\alpha) = \begin{cases} \alpha q, & \text{if } \alpha > \alpha_D(q) \\ \alpha, & \text{if } \alpha \leq \alpha_D(q) \end{cases}. \tag{A.96}$$

    Therefore, $\beta^*(\alpha) = \beta$ for some $\alpha \in (0,1]$ if and only if $\beta \in (0, \max\{q, \alpha_D(q)\}]$. Therefore, $\bar{\beta}(q) = \max\{q, \alpha_D(q)\}$, and moreover,

$$\bar{\beta}(q) = \begin{cases} q, & \text{if } q_H^B \leq q, \\ \alpha_D(q), & \text{if } q_L^B < q < q_H^B. \end{cases} \tag{A.97}$$

□

Proof of Corollary 8. Note that by Corollary 7, $\beta^*(\alpha) = \beta$ for some $\alpha \in (0,1]$ if and only if $\beta \in (0, \bar{\beta}]$.

By Proposition 16, the expected payoff $\Pi_A(\beta)$ of the activist for any $\beta > 0$ is given by

$$\Pi_A(\beta) = \int_0^{\Delta_B^*(\beta)} (\phi\Delta - \kappa)\, dF(\Delta) + \beta \int_{\Delta_B^*(\beta)}^{b} \Delta dF(\Delta), \tag{A.98}$$

which is continuous in β. Moreover, since $\Delta_B^*(\beta) = \hat{\Delta}_A(\phi)$ for any $\beta \leq \alpha_L$, $\Pi_A(\beta)$ is strictly increasing in β for all $\beta < \alpha_L$. Therefore, $\Pi_A(\beta)$ has a maximum, and $\Lambda(q) = \arg\max_{\beta \in (0, \bar{\beta}(q)]} \Pi_A(\beta) = \arg\max_{\beta \in [\min\{\bar{\beta}(q), \alpha_L\}, \bar{\beta}(q)]} \Pi_A(\beta)$.

Next, consider part (i). By the previous step, $\beta^* \geq \min\{\bar{\beta}, \alpha_L\}$. Therefore, if $\alpha_L \geq \bar{\beta}$, then $\beta^* = \bar{\beta}$. Suppose that $\alpha_L < \bar{\beta}$, $\kappa < \frac{c_p}{2}$, and $f'(\Delta) \geq 0$ for all $\Delta \in \left[\hat{\Delta}_B(\phi), b - \frac{c_p}{\bar{\beta} - \phi}\right]$. Then, this implies that $\Pi_A''(\beta) < 0$ for all $\beta \in (\alpha_L, \bar{\beta}]$ since

$$0 > \Pi_A''(\beta) \iff \frac{f'\left(b - \frac{c_p}{\beta - \phi}\right)}{f\left(b - \frac{c_p}{\beta - \phi}\right)} > \frac{\frac{2\kappa}{c_p} - 1}{b + \frac{\kappa - c_p}{\beta - \phi}} \tag{A.99}$$

Next, consider part (ii). First, I show that there exists β_{SH}^* that maximizes shareholder value, and $\beta_{SH}^* \geq \min\{\bar{\beta}, \alpha_L\}$. Since expected shareholder value if the activist demands board settlement with $\beta > 0$ is given by

$$\Pi_{SH}(\beta) = \rho_B^*(\beta) \int_0^{\Delta_B^*(\beta)} \phi\Delta dF(\Delta) + \beta \int_{\Delta_B^*(\beta)}^{b} \Delta dF(\Delta), \tag{A.100}$$

$\Pi_{SH}(\beta)$ is continuous for all $\beta \in (0, \bar{\beta}]$, and also strictly increasing in β for all $\beta \leq \alpha_L$. Therefore, $\Pi_{SH}(\beta)$ has a maximum, and

$$\Lambda_{SH}(q) \equiv \arg \max_{\beta \in (0, \bar{\beta}(q)]} \Pi_{SH}(\beta) = \arg \max_{\beta \in [\min\{\bar{\beta}(q), \alpha_L\}, \bar{\beta}(q)]} \Pi_{SH}(\beta) \tag{A.101}$$

. Denote $\underline{\Lambda}_{SH} \equiv \min \Lambda_{SH}$ and $\bar{\Lambda} \equiv \max \Lambda$.

Second, I show that $\underline{\Lambda}_{SH} \geq \bar{\Lambda}$. Suppose that $\underline{\Lambda}_{SH} < \bar{\Lambda}$. Then, by the first step it must be

that $\underline{\Lambda}_{SH} \geq \alpha_L$, and therefore $\rho_B^*\left(\underline{\Lambda}_{SH}\right) = \rho_B^*\left(\bar{\Lambda}\right) = 1$ and

$$\begin{aligned}
\Pi_A\left(\underline{\Lambda}_{SH}\right) &= \int_0^{\Delta_B^*\left(\underline{\Lambda}_{SH}\right)} \left(\phi\Delta - \kappa\right) dF\left(\Delta\right) + \underline{\Lambda}_{SH} \int_{\Delta_B^*\left(\underline{\Lambda}_{SH}\right)}^{b} \Delta dF\left(\Delta\right) \qquad \text{(A.102)} \\
&= \Pi_{SH}\left(\underline{\Lambda}_{SH}\right) - \int_0^{\Delta_B^*\left(\underline{\Lambda}_{SH}\right)} \kappa dF\left(\Delta\right) \\
&> \Pi_{SH}\left(\bar{\Lambda}\right) - \int_0^{\Delta_B^*\left(\bar{\Lambda}\right)} \kappa dF\left(\Delta\right) \\
&= \int_0^{\Delta_B^*\left(\bar{\Lambda}\right)} \left(\phi\Delta - \kappa\right) dF\left(\Delta\right) + \bar{\Lambda} \int_{\Delta_B^*\left(\bar{\Lambda}\right)}^{b} \Delta dF\left(\Delta\right) \\
&= \Pi_A\left(\bar{\Lambda}\right),
\end{aligned}$$

where the inequality follows from $\Delta_B^*\left(\underline{\Lambda}_{SH}\right) < \Delta_B^*\left(\bar{\Lambda}\right)$ and $\Pi_{SH}\left(\underline{\Lambda}_{SH}\right) \geq \Pi_{SH}\left(\bar{\Lambda}\right)$. However, $\Pi_A\left(\underline{\Lambda}_{SH}\right) > \Pi_A\left(\bar{\Lambda}\right)$ contradicts with $\bar{\Lambda} \in \Lambda$.

Third, I show that $\underline{\Lambda}_{SH} > \bar{\Lambda}$ if $\alpha_L < \bar{\Lambda} < \bar{\beta}$. Suppose $\alpha_L < \bar{\alpha} < \bar{\beta}$ and $\underline{\Lambda}_{SH} \leq \bar{\Lambda}$. Note that by the second step it must be that $\underline{\Lambda}_{SH} = \bar{\Lambda}$. By definition of $\underline{\Lambda}_{SH}$, $\underline{\Lambda}_{SH}$ must satisfy $\Pi'_{SH}\left(\underline{\Lambda}_{SH}\right) = 0$ since $\alpha_L < \underline{\Lambda}_{SH} = \bar{\Lambda} < \bar{\beta}$. However, this implies that $\Pi'_A\left(\bar{\Lambda}\right) < 0$, which is a contradiction with $\bar{\Lambda} \in \left(\alpha_L, \bar{\beta}\right)$ and $\bar{\Lambda} \in \Lambda$.

Next, consider part (iii). By part (i), $\beta^* \geq \min\left\{\bar{\beta}, \alpha_L\right\}$. Therefore, $\beta^* = \bar{\beta}$ if $\alpha_L \geq \bar{\beta}$. Suppose that $\alpha_L < \bar{\beta}$. Then, for all $\beta \in (\alpha_L, \bar{\beta}]$

$$\Pi'_A\left(\beta\right) = \frac{1}{b - \underline{\Delta}} \frac{c_p}{\left(\beta - \phi\right)^2} \left(\frac{c_p}{2} - \kappa\right), \qquad \text{(A.103)}$$

therefore the activist strictly chooses $\beta^* = \bar{\beta}$ if $\frac{c_p}{2} > \kappa$ and $\beta^* = \alpha_L$ if $\frac{c_p}{2} < \kappa$. Finally, shareholder value is strictly increasing in β since

$$\Pi'_{SH}\left(\beta\right) = \begin{cases} \frac{1}{b-\underline{\Delta}} \frac{c_p}{(\beta-\phi)^2} \frac{c_p}{2} > 0, & \text{if } \beta > \alpha_L, \\ \frac{d\rho_B^*(\beta)}{d\alpha} \int_0^{\Delta_B^*(\beta)} \phi\Delta dF\left(\Delta\right) & \\ + \int_{\Delta_B^*(\beta)}^{b} \Delta dF\left(\Delta\right) > 0, & \text{if } \beta < \alpha_L, \end{cases} \qquad \text{(A.104)}$$

where inequality in the second line follows from $\frac{d\rho_B^*(\beta)}{d\alpha}$ when $\beta < \alpha_L$. □

I prove Proposition 6 with the following generalization for any $\kappa > 0$.

Proposition 17. *Suppose that $\kappa < \phi E[\Delta|\Delta \geq 0]$, and that if the activist demands board settlement, proxy fight equilibrium is in play. Moreover, suppose that subject to this selection, nondisclosure equilibrium is in play whenever it exists. Then, an equilibrium always exists. Moreover,*

(*i*) *If $\kappa \geq \kappa_0(\phi)$ and $E[\Delta] \geq 0$, or $\kappa \geq \kappa_0(\phi q)$ and $E[\Delta] < 0$, then the activist demands board settlement in any equilibrium.*

(*ii*) *If $\kappa < \kappa_0(\phi)$ and $E[\Delta] \geq 0$, or $\kappa < \kappa_0(\phi q)$ and $E[\Delta] < 0$, then there exists unique $\underline{\beta} \in (0,1)$ such that there is an equilibrium where the activist demands board settlement if and only if $\bar{\beta} \geq \underline{\beta}$.*

Proof. Denote the expected payoff of the activist from demanding nothing by Π_A^0, from demanding action settlement by Π_A^A, and from demanding board settlement with α by $\Pi_A^B(\beta^*(\alpha))$.

Consider part (i). $\Pi_A^0 = \Pi_A^A = 0$ by Lemma 8 and Proposition 15, while $\Pi_A^B(\alpha) > \alpha$ for all $\alpha > 0$ by Proposition 16. Therefore, the activist strictly chooses to demand board settlement.

Consider part (ii). Then, $\Pi_A^0, \Pi_A^A > 0$ by Lemma 8 and Proposition 15. By Proposition 16, $\Pi_A^B(\beta)$ is continuous in β and $\lim_{\beta \downarrow 0} \Pi_A^B(\beta) = 0$. Also note that $\Pi_A^B(\beta = 1) > \max\{\Pi_A^0, \Pi_A^A\}$since by Proposition 15 $\Pi_A^B(\beta = 1)$ is equal to the activist's expected payoff with $\alpha = 1$ in Proposition 14, which is weakly larger than his expected payoff if he does not demand anything or demands action settlement due to Corollary 14 part (iii). Note that for the last point, I utilize that the activist's expected payoff if he demands action settlement or does not make any demand is weakly larger in the disclosure equilibrium due to Corollary 16 and Lemma 8. Finally, by Corollary 7, $\beta^*(\alpha) = \beta$ for some $\alpha \in (0,1]$ if and only if $\beta \in (0, \bar{\beta}]$. Therefore, $\max_{\beta \in (0,\bar{\beta}]} \Pi_A^B(\beta)$ is weakly increasing in $\bar{\beta}$. Combining all of

these, there exists a unique $\underline{\beta} \in (0,1)$ such that $\max_{\beta \in (0,\bar{\beta}]} \Pi_A^B(\beta) \geq \max\left\{\Pi_A^0, \Pi_A^A\right\}$ if and only if $\bar{\beta} \geq \underline{\beta}$. □

Proof of Proposition 7. Suppose that $b_A \geq b$. I show that for any $\eta \in \{\varnothing, A, B(\alpha)\}$, there is an equilibrium where the project is never implemented. First, note that in any equilibrium, it must be that the project is implemented with zero probability. To see this, suppose that the project is implemented with positive probability in equilibrium. There are two cases to consider. If the project is implemented by a player's (i.e., the activist or the incumbent) decision authority in the board, then that player is strictly better of by deviating to not implementing the project since $\Delta < b_A$ for all $\Delta < b$. If the project is implemented with positive probability due to action settlement, then the expected payoff of the activist is negative, and therefore the activist strictly prefers demanding nothing and not running a proxy fight, which gives him a payoff of zero. Second, note that if the activist has demanded nothing, the equilibrium is unique and the activist does not run a proxy fight since the project is never implemented by the first step. Third, I show that if the activist has demanded action settlement or board settlement with any $\alpha > 0$, there exists an equilibrium where the incumbent rejects for all Δ, and the activist never runs a proxy fight upon rejection. Note that the latter is the unique best response for the activist since upon running a proxy fight the project is never implemented by the first step. Therefore, the payoff of the incumbent from rejection is zero, which is the upperbound on its payoff. Hence, rejecting is in a best response of the incumbent for all Δ.

Suppose that $b < b_A$. Then, each result follows directly from Lemmas 6 and 8 and Propositions 13, 14, 15, and 16. □

Proof of Corollary 10. I prove the result in three steps. First, suppose that if the activist demands board settlement with $\alpha = 1$, rejection equilibrium is in play. Then, the activist's payoff from making such a demand is zero. Moreover, by Proposition 13, the activist's payoff from demanding action settlement is zero as well.

Second, suppose that if the activist demands board settlement with $\alpha = 1$, acceptance equilibrium is in play. Then, the activist's payoff from making this demand is strictly larger than his payoff from demanding action settlement. Denoting the activist's equilibrium payoff at Δ by $\Pi_A^*(\Delta)$, this is because $E\left[\Pi_A^*(\Delta)|\Delta > \Delta_A^*\right]$ is the same in both equilibrium, however $E\left[\Pi_A^*(\Delta)|\Delta \leq \Delta_A^*\right]$ is strictly larger if he has demanded board settlement.

Third, suppose that if the activist demands board settlement with $\alpha = 1$, proxy fight equilibrium is in play. I start by showing that in this case it has to be that $\Delta_B^* \leq \Delta_A^*$ (Here, I set $\Delta_A^* = b$ if the board rejects for all Δ when the activist demands action settlement.). Suppose that $\Delta_B^* > \Delta_A^*$. Then, since $\Delta_A^* \geq \breve{\Delta}_A = \breve{\Delta}_B$, it must be that $\sigma_B^* = 1$. However, since $\Delta_i^* = b - \frac{c_{p,1} + \sigma_i^* \phi c_{p,2}}{\frac{1}{\rho_i^*} - \sigma_i^* \phi}$, this implies that $\rho_B^* < \rho_A^*$. However, by the proof of Proposition 13 this implies that $\hat{\Delta}_A(\sigma_A^* \phi) \leq \Delta_A^* < b$ since $0 < \rho_A^*$, and by the proof of Proposition 13 it also implies that $\hat{\Delta}_B(\sigma_B^* \phi) = \Delta_B^* < b$ since $\rho_B^* \in (0,1)$ (because proxy fight equilibrium is in play). However, then $b > \hat{\Delta}_B(\sigma_B^* \phi) = \Delta_B^* > \Delta_A^* \geq \hat{\Delta}_A(\sigma_A^* \phi)$, where $\hat{\Delta}_B(\sigma_B^* \phi) > \hat{\Delta}_A(\sigma_A^* \phi)$ yields a contradiction with $\sigma_B^* = 1 \geq \sigma_A^*$.

Next, to show the result, by Propositions 13 and 14, there are two cases to consider:

1. Suppose that $b_A \leq \underline{\Delta}$. Then, the activist's payoff from demanding board settlement with $\alpha = 1$ is equal to his payoff from demanding action settlement.

2. Suppose that $b_A > \underline{\Delta}$. Note that $\rho_B^* > 0$, and therefore the activist's payoff in the proxy fight equilibrium is positive. If $\rho_A^* = 0$, then the activist's payoff from demanding action settlement is zero, yielding the desired result. Suppose $\rho_A^* > 0$. Note that if the activist demands action settlement, then

$$E\left[\Pi_A^*(\Delta)|\Delta > \Delta_A^*\right] = E\left[\Delta - b_A|\Delta > \Delta_A^*\right], \tag{A.105}$$

$$\begin{aligned} E\left[\Pi_A^*(\Delta)|\Delta \leq \Delta_A^*\right] &= \sigma_A^* \phi E\left[\max\left\{0, \Delta - b_A\right\}|\Delta \leq \Delta_A^*\right] - \kappa \\ &\geq 0 \end{aligned} \tag{A.106}$$

since $\rho_A^* > 0$. However, if the activist demands board settlement with $\alpha = 1$, then

$$E\left[\Pi_A^*(\Delta)|\Delta > \Delta_A^*\right] = E\left[\Delta - b_A|\Delta > \Delta_A^*\right], \tag{A.107}$$

$$E\left[\Pi_A^*(\Delta)|\Delta_B^* < \Delta \leq \Delta_A^*\right] = E\left[\Delta - b_A|\Delta_B^* < \Delta \leq \Delta_A^*\right], \tag{A.108}$$

$$\begin{aligned} E\left[\Pi_A^*(\Delta)|b_A \leq \Delta \leq \Delta_B^*\right] &= \sigma_B^* \phi E\left[\Delta - b_A|\Delta \leq \Delta_A^*\right] - \kappa \\ &\geq 0, \end{aligned} \tag{A.109}$$

$$E\left[\Pi_A^*(\Delta)|\Delta < b_A\right] = 0, \tag{A.110}$$

since $\rho_B^* > 0$, where $\Delta_B^* \leq \Delta_A^*$. Next, to prove the result, there are three subcases to consider:

(a) Suppose that $\sigma_B^* \geq \sigma_A^*$. Then, $E\left[\Pi_A^*(\Delta)\right]$ is strictly larger if the activist has demanded board settlement with $\alpha = 1$, because if he has made this demand then

$$\begin{aligned} E\left[\Pi_A^*(\Delta)|\Delta < \Delta_A^*\right] &= P(\Delta < b_A) E\left[\Pi_A^*(\Delta)|\Delta < b_A\right] \\ &\quad + P\left(b_A \leq \Delta \leq \Delta_B^*\right) E\left[\Pi_A^*(\Delta)|b_A \leq \Delta \leq \Delta_B^*\right] \\ &= P\left(b_A \leq \Delta \leq \Delta_B^*\right)\left(\sigma_B^* \phi E\left[\Delta - b_A|\Delta \leq \Delta_A^*\right] - \kappa\right) \\ &> P\left(b_A \leq \Delta \leq \Delta_B^*\right)\left(\sigma_B^* \phi E\left[\Delta - b_A|\Delta \leq \Delta_A^*\right] - \kappa\right) \\ &\quad + P\left(\Delta < b_A\right)(-\kappa) \\ &= \sigma_B^* \phi E\left[\max\left\{0, \Delta - b_A\right\}|\Delta \leq \Delta_A^*\right] - \kappa \\ &\geq \sigma_A^* \phi E\left[\max\left\{0, \Delta - b_A\right\}|\Delta \leq \Delta_A^*\right] - \kappa. \end{aligned} \tag{A.111}$$

(b) Suppose that $\sigma_B^* < \sigma_A^*$ and $\breve{\Delta}_A \leq \hat{\Delta}_A(\phi\sigma_A^*)$. Then, it must be that $\Delta_B^* = \breve{\Delta}_A \leq \hat{\Delta}_A(\phi\sigma_A^*) \leq \Delta_A^*$. $\Delta_B^* \leq \Delta_A^*$ implies that $\rho_A^* < \rho_B^*$ since $\sigma_B^* < \sigma_A^*$, and therefore it must be that

$$E\left[\Pi_A^*(\Delta)|\Delta \leq \Delta_A^*\right] = 0. \tag{A.112}$$

Since $E\left[\Pi_A^*(\Delta)|\Delta \leq \Delta_B^*\right] \geq 0$ and $\Delta_B^* \leq \Delta_A^*$, this implies that $E\left[\Pi_A^*(\Delta)\right]$ is weakly larger if the activist has demanded board settlement with $\alpha = 1$.

(c) Suppose that $\sigma_B^* < \sigma_A^*$ and $\hat{\Delta}_A(\phi\sigma_A^*) < \breve{\Delta}_A$. I will reach a contradiction. Note that this implies $\Delta_B^* = \breve{\Delta}_A$. Since $\breve{\Delta}_A \leq \Delta_A^*$, it has to be that $\hat{\Delta}_A(\phi\sigma_A^*) < \Delta_A^*$ and hence $\rho_A^* = 1$, which implies that

$$\begin{aligned} \Delta_A^* &= b - \frac{c_{p,1} + \sigma_A^*\phi c_{p,2}}{1 - \sigma_A^*\phi} < b - \frac{c_{p,1} + \sigma_B^*\phi c_{p,2}}{\frac{1}{\rho_B^*} - \sigma_B^*\phi} && \text{(A.113)} \\ &= \Delta_B^* = \breve{\Delta}_A, && \text{(A.114)} \end{aligned}$$

which is a contradiction with $\breve{\Delta}_A \leq \Delta_A^*$.

□

A1.2. Supplemental Proofs

Proposition 18. *Suppose* $b_A = 0$.

(*i*) *Suppose that* $\kappa < \frac{1}{1-F(0)}\kappa_0(\phi)$*, and acceptance equilibrium is in play whenever it exists and proxy fight equilibrium is in play otherwise. Then, an equilibrium always exists, and in any equilibrium the activist demands board settlement. Moreover, denoting the set of equilibrium demand* α^* *of the activist by* Λ*,*

(a) If $\phi + \frac{c_p}{b} < 1$ *and* $\Pi_A(\phi + \frac{c_p}{b}) < \Pi_{A,PF}^*$*, then* $\Lambda = \Lambda_{PF}$*, where*

$$\Pi_{A,PF}^* \equiv \max_{\alpha \geq \min\{1,\alpha_L\}} \Pi_A(\alpha) \tag{A.115}$$

$$\Lambda_{PF} \equiv \arg \max_{\alpha \geq \min\{1,\alpha_L\}} \Pi_A(\alpha) \tag{A.116}$$

(b) If $\phi + \frac{c_p}{b} \geq 1$, *or* $\phi + \frac{c_p}{b} < 1$ *and* $\Pi_A(\phi + \frac{c_p}{b}) > \Pi^*_{A,PF}$, *then* $\Lambda = \left\{\phi + \frac{c_p}{b}\right\}$.

(c) There exists α^*_{SH} *that maximizes shareholder value, and* $\alpha^*_{SH} \geq \max \Lambda$ *for all* α^*_{SH}.

(d) α^* *is unique and strictly increasing in* κ *if* $\alpha_L < 1$, $\Lambda_{PF}(\kappa) = \{\alpha_L(\kappa)\}$, *and* $\Pi_A(\phi + \frac{c_p}{b}) < \Pi_A(\alpha_L(\kappa))$.

(ii) Suppose that $\kappa \in (\kappa_0(\phi), \phi b)$, *and acceptance equilibrium is in play whenever it exists and rejection equilibrium is in play otherwise. Then, an equilibrium always exists, is unique, and in equilibrium the activist demands booard settlement with* $\alpha^* = \phi + \frac{c_p}{b}$, *which also strictly maximizes the shareholder value.*

(iii) Suppose that $\kappa > \kappa_0(\phi)$ *and rejection equilibrium is in play. Then, for any demand of the activist, expected shareholder value and activist's payoff is zero in equilibrium.*

Proof. Consider part (i). By Corollary 14 part (iii), the activist strictly chooses board settlement. By Proposition 14, acceptance equilibrium exists if and only if $\alpha \leq \phi + \frac{c_p}{b}$. Therefore, the expected payoff $\Pi_A(\alpha)$ of the activist and expected shareholder value are given by

$$\Pi_A(\alpha) = \begin{cases} \rho^*_B(\alpha) \int_0^{\Delta^*_B(\alpha)} (\phi\Delta - \kappa)\, dF(\Delta) & \\ \quad + \alpha \int_{\Delta^*_B(\alpha)}^{b} \Delta dF(\Delta), & \text{if } \alpha > \phi + \frac{c_p}{b} \\ \alpha E[\max\{0, \Delta\}], & \text{otherwise,} \end{cases} \tag{A.117}$$

$$\Pi_{SH}(\alpha) = \begin{cases} \rho^*_B(\alpha) \int_0^{\Delta^*_B(\alpha)} \phi\Delta dF(\Delta) & \\ \quad + \alpha \int_{\Delta^*_B(\alpha)}^{b} \Delta dF(\Delta), & \text{if } \alpha > \phi + \frac{c_p}{b} \\ \alpha E[\max\{0, \Delta\}], & \text{otherwise,} \end{cases} \tag{A.118}$$

which are continuous in α for all $\alpha \neq \phi + \frac{c_p}{b}$. There are two cases to consider. Suppose that $\phi + \frac{c_p}{b} \geq 1$. Then, $\Pi_A(\alpha)$ and $\Pi_{SH}(\alpha)$ are strictly increasing in α for all $\alpha \leq 1$, and therefore the activist and shareholders strictly prefer $\alpha^* = 1$. Suppose that $\phi + \frac{c_p}{b} < 1$. Then, since $\Pi_A(\alpha)$ and $\Pi_{SH}(\alpha)$ are strictly increasing in α for all $\alpha < \phi + \frac{c_p}{b}$ and $\alpha \in \left(\phi + \frac{c_p}{b}, \min\{1, \alpha_L\}\right)$, both of $\Pi_A(\alpha)$ and $\Pi_{SH}(\alpha)$ have a maximum and

$$\Lambda_{SH} \equiv \arg\max_{\alpha>0} \Pi_{SH}(\alpha) = \arg \max_{\alpha \in \{\phi + \frac{c_p}{b}\} \cup [\min\{1,\alpha_L\},1]} \Pi_{SH}(\alpha) \tag{A.119}$$

$$\Lambda \equiv \arg\max_{\alpha>0} \Pi_{A}(\alpha) = \arg \max_{\alpha \in \{\phi + \frac{c_p}{b}\} \cup [\min\{1,\alpha_L\},1]} \Pi_{A}(\alpha) \tag{A.120}$$

Therefore, if $\Pi_A(\phi + \frac{c_p}{b}) < \Pi^*_{A,PF}$, then $\Lambda = \Lambda_{PF}$, and if $\Pi_A(\phi + \frac{c_p}{b}) > \Pi^*_{A,PF}$, then $\Lambda = \left\{\phi + \frac{c_p}{b}\right\}$.

Next, I show that $\min \Lambda_{SH} \geq \max \Lambda$, where $\Lambda_{SH} \equiv \arg\max_{\alpha>0} \Pi_{SH}(\alpha)$. Denote $\bar{\alpha} \equiv \max \alpha^*$ and $\underline{\alpha}_{SH} \equiv \min \Lambda_{SH}$. Suppose that $\underline{\alpha}_{SH} < \bar{\alpha}$. Then, it must be that $\phi + \frac{c_p}{b} \leq \underline{\alpha}_{SH}$. There are two cases to consider. First, suppose that $\underline{\alpha}_{SH} = \phi + \frac{c_p}{b} < \bar{\alpha}$. However, then

$$\begin{aligned} \Pi_A(\underline{\alpha}_{SH}) &= \Pi_{SH}(\underline{\alpha}_{SH}) \\ &> \Pi_{SH}(\bar{\alpha}) - \rho^*_B(\bar{\alpha}) \int_0^{\Delta^*_B(\bar{\alpha})} \kappa dF(\Delta) \\ &= \rho^*_B(\bar{\alpha}) \int_0^{\Delta^*_B(\bar{\alpha})} (\phi\Delta - \kappa) dF(\Delta) + \bar{\alpha} \int_{\Delta^*_B(\bar{\alpha})}^{b} \Delta dF(\Delta) \\ &= \Pi_A(\bar{\alpha}), \end{aligned} \tag{A.121}$$

where the inequality follows from $\rho^*_B(\bar{\alpha}) > 0$. However, $\Pi_A(\underline{\alpha}_{SH}) > \Pi_A(\bar{\alpha})$ contradicts with $\bar{\alpha} \in \Lambda$. Second, suppose that $\phi + \frac{c_p}{b} < \underline{\alpha}_{SH} < \bar{\alpha}$. However, then it must be that

$\underline{\alpha}_{SH} \geq \alpha_L$, and therefore $\rho_B^*(\underline{\alpha}_{SH}) = \rho_B^*(\bar{\alpha}) = 1$ and

$$\begin{aligned}
\Pi_A(\underline{\alpha}_{SH}) &= \int_0^{\Delta_B^*(\underline{\alpha}_{SH})} (\phi\Delta - \kappa)\, dF(\Delta) + \underline{\alpha}_{SH} \int_{\Delta_B^*(\underline{\alpha}_{SH})}^{b} \Delta dF(\Delta) \qquad \text{(A.122)} \\
&= \Pi_{SH}(\underline{\alpha}_{SH}) - \int_0^{\Delta_B^*(\underline{\alpha}_{SH})} \kappa dF(\Delta) \\
&> \Pi_{SH}(\bar{\alpha}) - \int_0^{\Delta_B^*(\bar{\alpha})} \kappa dF(\Delta) \\
&= \int_0^{\Delta_B^*(\bar{\alpha})} (\phi\Delta - \kappa)\, dF(\Delta) + \bar{\alpha} \int_{\Delta_B^*(\bar{\alpha})}^{b} \Delta dF(\Delta) \\
&= \Pi_A(\bar{\alpha}),
\end{aligned}$$

where the inequality follows from $\Delta_B^*(\underline{\alpha}_{SH}) < \Delta_B^*(\bar{\alpha})$ and $\Pi_{SH}(\underline{\alpha}_{SH}) \geq \Pi_{SH}(\bar{\alpha})$. However, $\Pi_A(\underline{\alpha}_{SH}) > \Pi_A(\bar{\alpha})$ contradicts with $\bar{\alpha} \in \Lambda$.

Next, I show that α^* is unique and strictly increasing in κ if $\alpha_L(\kappa) < 1$, $\Lambda_{PF}(\kappa) = \{\alpha_L(\kappa)\}$, and $\Pi_A(\phi + \frac{c_p}{b}) < \Pi_A(\alpha_L(\kappa))$. Note that this implies that $\Pi_A(\alpha_L(\kappa)) > \Pi_A(\alpha)$ for all $\alpha > 0$. By parts (i.a) and (i.b), $\Lambda(\kappa) = \Lambda_{PF}(\kappa) = \{\alpha_L(\kappa)\}$, and combined with the continuity of $\Pi_A(\alpha)$ for all $\alpha \neq \phi + \frac{c_p}{b}$, there exists $\varepsilon > 0$ such that $\alpha_L(\kappa+\varepsilon) < 1$ and $\Lambda(\kappa+\varepsilon) = \Lambda_{PF}(\kappa+\varepsilon) = \{\alpha_L(\kappa+\varepsilon)\}$ since $\Lambda(\kappa+\varepsilon) \subseteq \{\phi + \frac{c_p}{b}\} \cup [\alpha_L(\kappa+\varepsilon), 1]$. The fact that $\alpha_L(\kappa+\varepsilon) > \alpha_L(\kappa)$ concludes the argument.

Consider part (ii). Since $\kappa > \kappa_0(\phi)$, by Propositions 6 and 13, shareholder value and the activist's payoff are zero if the activist does not demand anything, demands action settlement, or demands board settlement with $\alpha > \phi + \frac{c_p}{b}$. On the other hand, if the activist demands board settlement with $\alpha \leq \phi + \frac{c_p}{b}$, then $\Pi_A(\alpha) = \Pi_{SH}(\alpha) = \alpha E[\max\{0, \Delta\}]$. Therefore, the activist demands board settlement with $\alpha^* = \phi + \frac{c_p}{b}$, which also strictly maximizes the shareholder value.

Consider part (iii). Since $\kappa > \kappa_0(\phi)$, by Propositions 6 and 13, shareholder value and the activist's payoff are zero if the activist does not demand anything, demands action settlement, or demands board settlement with any α. Therefore, for any demand of the

activist, expected shareholder value and activist's payoff is zero in equilibrium. □

Corollary 18. *Suppose that the activist can only demand board settlement.*

(*i*) *Suppose that* $\kappa < \frac{1}{1-F(0)}\kappa_0(\phi)$*, and acceptance equilibrium is in play whenever it exists and proxy fight equilibrium is in play otherwise. Moreover, suppose that subject to this selection, nondisclosure equilibrium is in play whenever it exists. Then,*

(*a*) *Suppose that* $\phi + \frac{c_p}{b} \geq 1$*. Then, for all* $\alpha \in (0,1]$ *acceptance equilibrium is in play. Moreover, for given* $\beta \in (0,1]$ *there exists* $\alpha \in (0,1]$ *such that* $\beta^*(\alpha) = \beta$ *if and only if* $\beta \in (0, \bar{\beta}^{ac}]$*, where* $\bar{\beta}^{ac}(q) = q$ *if* $0 > E[\Delta]$ *and* $\bar{\beta}^{ac}(q) = 1$ *if* $E[\Delta] \geq 0$*.*

(*b*) *Suppose that* $\phi + \frac{c_p}{b} < 1$*. Then, for given* $\beta \in (0,1]$*, there exists* $\alpha \in (0,1]$ *such that the acceptance equilibrium with* $\beta^*(\alpha) = \beta$ *is in play if and only if* $\beta \in (0, \bar{\beta}^{ac}]$*, where*

$$\bar{\beta}^{ac}(q) = \begin{cases} \min\{q, \phi + \frac{c_p}{b}\}, & \text{if } 0 > E[\Delta] \\ \phi + \frac{c_p}{b}, & \text{if } E[\Delta] \geq 0 \end{cases} \tag{A.123}$$

and for given $\beta \in (0,1]$*, there exists* $\alpha \in (0,1]$ *such that the proxy fight equilibrium with* $\beta^*(\alpha) = \beta$ *is in play if and only if* $\underline{\beta}^{pf} < \beta \leq \bar{\beta}^{pf}$*, where*

$$\underline{\beta}^{pf}(q) = \begin{cases} \min\left\{q, \phi + \frac{c_p}{b}\right\}, & \text{if } 0 > E[\Delta], \\ q \cdot \left(\phi + \frac{c_p}{b}\right), & \text{if } E[\Delta] \geq 0 > E[\Delta | \Delta \notin [0, \hat{\Delta}_B]], \\ \phi + \frac{c_p}{b}, & \text{if } \begin{array}{l} E[\Delta | \Delta \notin [0, \hat{\Delta}_B]] \geq 0 \\ \text{and } \alpha_D(1) \geq 1 \end{array} \\ \phi + \frac{c_p}{b}, & \text{if } \begin{array}{l} E[\Delta | \Delta \notin [0, \hat{\Delta}_B]] \geq 0 \\ \text{and } \alpha_D(1) < 1 \end{array} \end{cases} \tag{A.124}$$

$$\bar{\beta}^{pf}(q) = \begin{cases} q, & \text{if } 0 > E[\Delta], \\ q, & \text{if } E[\Delta] \geq 0 > E[\Delta | \Delta \notin [0, \hat{\Delta}_B]], \\ 1, & \text{if } \begin{array}{l} E[\Delta | \Delta \notin [0, \hat{\Delta}_B]] \geq 0 \\ \text{and } \alpha_D(1) \geq 1 \end{array} \\ \min\{1, \max\{q, \alpha_D(q)\}\}, & \text{if } \begin{array}{l} E[\Delta | \Delta \notin [0, \hat{\Delta}_B]] \geq 0 \\ \text{and } \alpha_D(1) < 1 \end{array} \end{cases} \tag{A.125}$$

Moreover, if $E\left[\Delta | \Delta \notin \left[0, \hat{\Delta}_B\right]\right] \geq 0$ *and* $\alpha_D(1) < 1$*, then there exist unique* $q_L^B, q_H^B \in (0,1)$ *such that* $q_L^B < q_H^B$ *and*

$$\bar{\beta}^{pf}(q) = \begin{cases} q, & \text{if } q_H^B \leq q, \\ \alpha_D(q), & \text{if } q_L^B < q < q_H^B, \\ 1, & \text{if } q \leq q_L^B, \end{cases} \tag{A.126}$$

(c) The activist's expected payoff is maximized if $\phi + \frac{c_p}{b} < 1$ *and*

$$q \in \begin{cases} \{1\}, & \text{if } 0 > E[\Delta | \Delta \notin [0, \hat{\Delta}_B]], \\ (0,1], & \text{if } E[\Delta | \Delta \notin [0, \hat{\Delta}_B]] \geq 0 \text{ and } \alpha_D(1) \geq 1, \\ (0, q_L^B] \cup \{1\}, & \text{if } E[\Delta | \Delta \notin [0, \hat{\Delta}_B]] \geq 0 \text{ and } \alpha_D(1) < 1, \end{cases} \tag{A.127}$$

or $\phi + \frac{c_p}{b} \geq 1$ *and*

$$q \in \begin{cases} \{1\}, & \text{if } 0 > E[\Delta], \\ (0,1], & \text{if } E[\Delta] \geq 0. \end{cases} \tag{A.128}$$

(ii) Suppose that $\kappa < \phi b$*, and acceptance equilibrium is in play whenever it exists and rejection equilibrium is in play otherwise. Moreover, suppose that subject to this selection, nondisclosure equilibrium is in play whenever it exists. Then,*

(a) For given $\beta \in (0,1]$*, there exists* $\alpha \in (0,1]$ *such that the acceptance equilibrium*

with $\beta^*(\alpha) = \beta$ *is in play if and only if* $\beta \in (0, \bar{\beta}^{ac}]$, *where*

$$\bar{\beta}^{ac}(q) = \begin{cases} \min\{q, \phi + \frac{c_p}{b}\}, & \text{if } 0 > E[\Delta] \\ \min\{1, \phi + \frac{c_p}{b}\}, & \text{if } E[\Delta] \geq 0 \end{cases} \tag{A.129}$$

(b) The activist's expected payoff is maximized if

$$q \in \begin{cases} [\min\{1, \phi + \frac{c_p}{b}\}, 1], & \text{if } 0 > E[\Delta], \\ (0, 1], & \text{if } E[\Delta] \geq 0. \end{cases} \tag{A.130}$$

(iii) Suppose that $\kappa \geq \kappa_0(\phi)$ *and* $E[\Delta] \geq 0$, *or* $\kappa \geq \kappa_0(\phi q)$ *and* $E[\Delta] < 0$. *Moreover, suppose that rejection equilibrium is in play, and subject to this selection, nondisclosure equilibrium is in play whenever it exists. Then, the activist's expected payoff is zero for all* $q \in (0, 1]$.

Proof. Consider part (i.a). Due to Proposition 16, for all $\alpha \in (0, 1]$ acceptance equilibrium is in play, and $\beta^* = \alpha q$ if $E[\Delta] < 0$ and $\beta^* = \alpha$ if $E[\Delta] \geq 0$. Therefore, for given $\beta \in (0, 1]$ there exists $\alpha \in (0, 1]$ such that $\beta^*(\alpha) = \beta$ if and only if $\beta \in (0, \bar{\beta}^{ac}]$, where

$$\bar{\beta}^{ac}(q) = \begin{cases} q, & \text{if } 0 > E[\Delta], \\ 1, & \text{if } E[\Delta] \geq 0. \end{cases} \tag{A.131}$$

Since in the acceptance equilibrium the activist's expected payoff is strictly increasing in β^*, the activist's expected payoff is maximized if

$$q \in \begin{cases} \{1\}, & \text{if } 0 > E[\Delta], \\ (0, 1], & \text{if } E[\Delta] \geq 0. \end{cases} \tag{A.132}$$

Consider parts (i.b) and (i.c). There are four cases to consider. Suppose $0 > E[\Delta]$. Then, for any $\alpha \in (0, 1]$ and $q \in (0, 1]$, due to Proposition 16 acceptance equilibrium with

nondisclosure is in play if $\alpha q \leq \phi + \frac{c_p}{b}$, resulting in $\beta^*(\alpha) = \alpha q$, and proxy fight equilibrium with nondisclosure is in play if $\alpha q > \phi + \frac{c_p}{b}$, resulting in $\beta^*(\alpha) = \alpha q$. This yields the described $\bar{\beta}^{ac}$, $\underline{\beta}^{pf}$, and $\bar{\beta}^{pf}$, and concludes part (i.b) for this case. To see part (i.c), there are two subcases to consider.

- Suppose $q \leq \phi + \frac{c_p}{b}$. Then, due to Proposition 16 acceptance equilibrium is in play for all $\alpha \in (0, 1]$, and $\bar{\beta}^{ac}(q)$ is strictly decreases as q decreases. Moreover, the activist strictly prefers $\alpha = 1$, which yields $\beta^*(1) = \bar{\beta}^{ac}$. Therefore, the activist's expected payoff is strictly increasing in q within $q \leq \phi + \frac{c_p}{b}$.

- Suppose $q \geq \phi + \frac{c_p}{b}$. Then, $\bar{\beta}^{ac}(q)$ and $\underline{\beta}^{pf}(q)$ do not change with q, while $\bar{\beta}^{pf}(q)$ strictly increases with q. Therefore, the activist weakly prefers larger q within $q \geq \phi + \frac{c_p}{b}$.

All of the remaining three cases fall under $E[\Delta] \geq 0$. Then, for any $\alpha \in (0, 1]$ and $q \in (0, 1]$, due to Proposition 16 acceptance equilibrium with disclosure is in play if $\alpha \leq \phi + \frac{c_p}{b}$, resulting in $\beta^*(\alpha) = \alpha$, and proxy fight equilibrium is in play if $\alpha > \phi + \frac{c_p}{b}$. This yields the described $\bar{\beta}^{ac} = \phi + \frac{c_p}{b}$. Note that $\bar{\beta}^{ac}$ does not change with q, and therefore what q the activist prefers is solely determined by its effects when proxy fight equilibrium is in play, i.e, when $\alpha > \phi + \frac{c_p}{b}$.

Suppose $E[\Delta] \geq 0 > E[\Delta | \Delta \notin [0, \hat{\Delta}_B]]$. Then, for any $\alpha > \phi + \frac{c_p}{b}$ and $q \in (0, 1]$, due to Proposition 16 proxy fight equilibrium with nondisclosure is in play if $\alpha > \phi + \frac{c_p}{b}$, resulting in $\beta^*(\alpha) = \alpha q$. This yields the described $\underline{\beta}^{pf}$ and $\bar{\beta}^{pf}$, and concludes part (i.b) for this case. To see part (i.c), since for all $\alpha > \phi + \frac{c_p}{b}$ proxy fight equilibrium is in play, there are two subcases to consider:

- Suppose $q \leq \alpha_L$. Then, for any given $\alpha > \phi + \frac{c_p}{b}$, the activist's expected payoff strictly decreases as q decreases due to Proposition 16.

- Suppose $q \geq \alpha_L$. Then, due to Proposition 16 the activist strictly prefers $\alpha = \frac{1}{q}\alpha_L$

(which yields $\beta^*(\alpha) = \alpha_L$) over all $\alpha \in (q \cdot (\phi + \frac{c_p}{b}), \frac{1}{q}\alpha_L)$, where $\frac{1}{q}\alpha_L > q \cdot (\phi + \frac{c_p}{b})$ for all $q \in (0,1]$ since $\alpha_L > \phi + \frac{c_p}{b}$. Since $\bar{\beta}^{pf}$ strictly increases in q and $\underline{\beta}^{pf}(q) \leq \alpha_L$ for all $q \geq \alpha_L$, the activist weakly prefers larger q within $q \geq \alpha_L$.

Suppose $E[\Delta|\Delta \notin [0, \hat{\Delta}_B]] \geq 0$ and $\alpha_D(1) \geq 1$. Then, for any $\alpha > \phi + \frac{c_p}{b}$ and $q \in (0,1]$, due to Proposition 16 proxy fight equilibrium with disclosure is in play if $\alpha > \phi + \frac{c_p}{b}$, resulting in $\beta^*(\alpha) = \alpha$. This yields the described $\underline{\beta}^{pf}$ and $\bar{\beta}^{pf}$, and concludes part (i.b) for this case. To see part (i.c), note that $\underline{\beta}^{pf}$ and $\bar{\beta}^{pf}$ do not change with q.

Suppose $E[\Delta|\Delta \notin [0, \hat{\Delta}_B]] \geq 0$ and $\alpha_D(1) < 1$. Then, for any $\alpha > \phi + \frac{c_p}{b}$ and $q \in (0,1]$, due to Corollary 7 part (i) proxy fight equilibrium with disclosure is in play if $\alpha_D(q) \geq \alpha$, resulting in $\beta^*(\alpha) = \alpha$, and proxy fight equilibrium with nondisclosure is in play if $\alpha > \alpha_D(q)$, resulting in $\beta^*(\alpha) = \alpha q$. Since $q\alpha_D(q) \in (\alpha_L, 1)$ is a constant for all $q \in (0,1]$, there exist unique $q_L^B, q_H^B \in (0,1)$ such that $\alpha_D(q_H^B) = q_H^B$ and $\alpha_D(q_L^B) = 1$. Moreover, $q_L^B < q_H^B$ since $q\alpha_D(q)$ is a constant. Note that since $\alpha_D(q)$ is strictly decreasing in q by Corollary 7 part (i), $\alpha_D(q) > (<) q$ if and only if $q < (>) q_H^B$, and $\alpha_D(q) > (<) 1$ if and only if $q < (>) q_L^B$. Therefore, by Corollary 7 part (i) and Proposition 16, there are two subcases to consider:

- Suppose $q \in (0, q_L^B]$. Then $\alpha_D(q) \geq 1$, and hence $\beta^*(\alpha) = \alpha$ for any $\alpha \in (\phi + \frac{c_p}{b}, 1]$. This yields $\underline{\beta}^{pf} = \phi + \frac{c_p}{b}$ and $\bar{\beta}^{pf} = 1$, and concludes part (i.b) for this subcase.

- Suppose $q \in (q_L^B, 1]$. Then $\alpha_D(q) < 1$, and hence $\beta^*(\alpha) = \alpha$ if $\alpha \in (\phi + \frac{c_p}{b}, \alpha_D(q)]$ and $\beta^*(\alpha) = \alpha q$ if $\alpha \in (\alpha_D(q), 1]$. Moreover, $\beta^*(\alpha) > \phi + \frac{c_p}{b}$ for all $\alpha > \phi + \frac{c_p}{b}$ since $q\alpha_D(q) \geq \alpha_L > \phi + \frac{c_p}{b}$. Therefore, $\beta^*(\alpha) = \beta$ for some $\alpha \in (\phi + \frac{c_p}{b}, 1]$ if and only if $\beta \in (\phi + \frac{c_p}{b}, \max\{q, \alpha_D(q)\}]$, which is not an empty set because $\phi + \frac{c_p}{b} < \alpha_L \leq \alpha_D(q)$. Therefore, $\underline{\beta}^{pf} = \phi + \frac{c_p}{b}$ and $\bar{\beta}^{pf}(q) = \max\{q, \alpha_D(q)\}$, and moreover,

$$\bar{\beta}^{pf}(q) = \begin{cases} q, & \text{if } q_H^B \leq q, \\ \alpha_D(q), & \text{if } q_L^B < q < q_H^B. \end{cases} \tag{A.133}$$

  This concludes part (i.b) for this subcase.

To see part (i.c) for this case, note that $\underline{\beta}^{pf}(q)$ does not change with q, while $\bar{\beta}^{pf}(q) = 1$ if and only if $q \in (0, q_L^B] \cup \{1\}$.

Consider part (ii). There are two cases to consider. Suppose that $E[\Delta] < 0$. Then, by Proposition 16, acceptance equilibrium is in play if $\alpha q \leq \phi + \frac{c_p}{b}$, resulting in $\beta^*(\alpha) = \alpha q$, and rejection equilibrium is in play if $\alpha > \phi + \frac{c_p}{b}$. Therefore, for given $\beta \in (0, 1]$, there exists $\alpha \in (0, 1]$ such that the acceptance equilibrium with $\beta^*(\alpha) = \beta$ is in play if and only if $\beta \in (0, \min\{q, \phi + \frac{c_p}{b}\}]$. Since the activist's expected payoff is positive and is strictly increasing with β^* in the acceptance equilibrium and it is zero in the rejection equilibrium, the activist's expected payoff is strictly increasing in $\bar{\beta}^{ac}$. Therefore, the activist's expected payoff is maximized with respect to q if and only if $q \geq \min\{1, \phi + \frac{c_p}{b}\}$.

Suppose that $E[\Delta] \geq 0$. Then, by Proposition 16, acceptance equilibrium is in play if $\alpha \leq \phi + \frac{c_p}{b}$, resulting in $\beta^*(\alpha) = \alpha$, and rejection equilibrium is in play if $\alpha > \phi + \frac{c_p}{b}$. Since the activist's expected payoff is positive in the acceptance equilibrium for all $\alpha \in (0, \phi + \frac{c_p}{b}]$ and is zero in the rejection equilibrium for all $\alpha > \phi + \frac{c_p}{b}$, the activist's expected payoff in equilibrium does not change with q.

Consider part (iii). By Proposition 16 the project is never implemented and the activist never runs a proxy fight upon rejection for any $q \in (0, 1]$. Therefore, the activist's expected payoff is zero for all $q \in (0, 1]$. □

Proposition 19. *Suppose $b_A = 0$, the activist can only demand board settlement, and $\Delta \sim U(\underline{\Delta}, b)$.*

(*i*) *Suppose that $\left(\frac{2\kappa}{\phi}\right)^2 \leq b^2 - \underline{\Delta}^2$, $\sqrt{b^2 - \underline{\Delta}^2} < b - \frac{c_p}{1-\phi}$, and acceptance equilibrium is in play whenever it exists and proxy fight equilibrium is in play otherwise. Moreover, subject to this selection, suppose that nondisclosure equilibrium is in play whenever it exists. Then, an equilibrium always exists, is unique, and given by*

(*a*) *If $\phi + \frac{c_p}{b} \geq 1$, then $\alpha^* = 1$. Moreover, the activist's expected payoff does not*

change with q.

(b) If $\phi + \frac{c_p}{b} < 1$ and $\kappa > \frac{c_p}{2}$, then $\alpha^* = \phi + \frac{c_p}{b}$. Moreover, the activist's expected payoff is maximized if and only if $q \in [\phi + \frac{c_p}{b}, 1]$.

(c) If $\phi + \frac{c_p}{b} < 1$ and $\kappa < \frac{c_p}{2}$, then

$$\alpha^* = \begin{cases} \phi + \frac{c_p}{b}, & \text{if } \min\{1, \max\{\alpha_D(q), q\}\} < \frac{\phi + \frac{c_p}{b}}{1 - \left(\frac{2\kappa/\phi}{b}\right)^2} \\ \alpha_D(q), & \text{if } \alpha_D(q) \geq \frac{\phi + \frac{c_p}{b}}{1 - \left(\frac{2\kappa/\phi}{b}\right)^2} \text{ and } \alpha_D(q) \in [q, 1], \\ 1, & \text{otherwise,} \end{cases} \tag{A.134}$$

where $\frac{\phi + \frac{c_p}{b}}{1 - \left(\frac{2\kappa/\phi}{b}\right)^2} < \alpha_L$. Moreover, the activist's expected payoff is maximized if and only if $q \in (0, q_L^B] \cup \{1\}$, where

$$q_L^B = \phi + \frac{c_p}{b - \sqrt{b^2 - \underline{\Delta}^2}} < 1. \tag{A.135}$$

(ii) Suppose that $\kappa \in [\kappa_0(\phi), \phi b)$, and acceptance equilibrium is in play whenever it exists and rejection equilibrium is in play otherwise. Moreover, subject to this selection, suppose that nondisclosure equilibrium is in play whenever it exists. Then, an equilibrium always exists, is unique, and in equilibrium the activist strictly prefers $\alpha^* = \phi + \frac{c_p}{b}$ if $E[\Delta] \geq 0$ and $\alpha^* = \frac{1}{q}\left(\phi + \frac{c_p}{b}\right)$ if $E[\Delta] < 0$, which also strictly maximizes the shareholder value. Moreover, the expected payoff of the activist is maximized if and only if $q \in [\min\left\{1, \phi + \frac{c_p}{b}\right\}, 1]$.

(iii) Suppose that $\kappa \geq \kappa_0(\phi)$ and $E[\Delta] \geq 0$, or $\kappa \geq \kappa_0(\phi q)$ and $E[\Delta] < 0$. Moreover, suppose that rejection equilibrium is in play, and subject to this selection, suppose that nondisclosure equilibrium is in play whenever it exists. Then, for any $\alpha > 0$, expected shareholder value and activist's payoff is zero in equilibrium.

Proof. Consider part (i). Note that

$$\left(\frac{2\kappa}{\phi}\right)^2 \leq b^2 - \underline{\Delta}^2 \iff E[\Delta|\Delta \notin [0, \hat{\Delta}_B]] \geq 0 \tag{A.136}$$

$$\alpha_D(q) = \frac{1}{q}\left(\phi + \frac{c_p}{b - \sqrt{b^2 - \underline{\Delta}^2}}\right) \tag{A.137}$$

$$\sqrt{b^2 - \underline{\Delta}^2} < b - \frac{c_p}{1-\phi} \iff \alpha_D(1) < 1 \tag{A.138}$$

Also, $\kappa < \frac{1}{1-F(0)}\kappa_0(\phi)$ because $\hat{\Delta}_B = \frac{2\kappa}{\phi} < b$. In addition, note that by Proposition 16 acceptance equilibrium with nondisclosure never exists since $E[\Delta] > 0$, acceptance equilibrium with disclosure is in play if $\alpha \leq \phi + \frac{c_p}{b}$, and proxy fight equilibrium is in play if $\alpha > \phi + \frac{c_p}{b}$. Therefore, given $\alpha \in (0, 1]$, the activist's expected payoff in equilibrium is given by

$$\Pi_A(\alpha, q) = \frac{1}{b - \underline{\Delta}} \cdot \tag{A.139}$$
$$\begin{cases} b\alpha\frac{b}{2}, & \text{if } \alpha \leq \phi + \frac{c_p}{b}, \\ \left(\begin{array}{l} \Delta_B^*(\beta^*(\alpha))\left(\phi\frac{\Delta_B^*(\beta^*(\alpha))}{2} - \kappa\right) \\ +\beta^*(\alpha)\left(b - \Delta_B^*(\beta^*(\alpha))\right)\left(\frac{b+\Delta_B^*(\beta^*(\alpha))}{2}\right) \end{array}\right) & \text{if } \alpha > \phi + \frac{c_p}{b}, \end{cases}$$

Therefore, within all $\alpha \leq \phi + \frac{c_p}{b}$, the activist strictly prefers $\alpha = \phi + \frac{c_p}{b}$.

Consider part (i.a), i.e., suppose that $\phi + \frac{c_p}{b} \geq 1$. Then, by (A.139), $\Pi_A(\alpha, q)$ is maximized if and only if $\alpha^* = 1$, and moreover, $\Pi_A(1, q)$ does not change with q.

Consider part (i.b), i.e., suppose that $\phi + \frac{c_p}{b} < 1$ and $\kappa > \frac{c_p}{2}$. First, note that by Proposition 16 and the proof of Corollary 3 part (iii), within the proxy fight equilibrium, among any $\beta \in (0, 1]$ the activist strictly prefers $\beta = \min\{1, \alpha_L\}$. Denote by $\Pi_{A,PF}^*$ the activist's

expected payoff in the proxy fight equilibrium with $\beta = \min\{1, \alpha_L\}$, yielding

$$\Pi^*_{A,PF} = \frac{1}{2(b - \underline{\Delta})} \min\{1, \alpha_L\} \left(b^2 - \left(\frac{2\kappa}{\phi} \right)^2 \right) \tag{A.140}$$

since $\Delta^*_B(\min\{1, \alpha_L\}) = \frac{2\kappa}{\phi}$. Second, I show that $\Pi_A\left(\phi + \frac{c_p}{b}, q\right) > \Pi^*_{A,PF}$. This holds because

$$\Pi_A\left(\phi + \frac{c_p}{b}, q\right) > \Pi^*_{A,PF} \iff \min\{1, \alpha_L\} < \frac{\phi b^2 + c_p b}{b^2 - \left(\frac{2\kappa}{\phi}\right)^2} \Leftarrow \kappa > \frac{c_p}{2} \tag{A.141}$$

Since $\Pi_A(\alpha, q) < \Pi_A\left(\phi + \frac{c_p}{b}, q\right)$ for all $\alpha < \phi + \frac{c_p}{b}$, for any $q \in (0, 1]$ the activist strictly prefers $\alpha^* = \phi + \frac{c_p}{b}$. Moreover, note that $\Pi_A\left(\phi + \frac{c_p}{b}, q\right)$ does not change with q.

Consider part (i.c), i.e., $\phi + \frac{c_p}{b} < 1$ and $\kappa < \frac{c_p}{2}$. First, I show that for given $\beta \in (0, 1]$, there exists $\alpha \in (\phi + \frac{c_p}{b}, 1]$ such that the proxy fight equilibrium with $\beta^*(\alpha) = \beta$ is in play if and only if $\underline{\beta}^{pf} \equiv \phi + \frac{c_p}{b} < \beta \leq \bar{\beta}^{pf}(q) \equiv \min\{1, \max\{\alpha_D(q), q\}\}$. To see this, note that proxy fight equilibrium with disclosure is in play if $\alpha_D(q) \geq \alpha > \phi + \frac{c_p}{b}$, yielding $\beta^*(\alpha) = \alpha$, and proxy fight equilibrium with nondisclosure is in play if $\alpha > \alpha_D(q)$, yielding $\beta^*(\alpha) = \alpha q$. Moreover, $q\alpha_D(q) > \phi + \frac{c_p}{b}$ since

$$q\alpha_D(q) = \phi + \frac{c_p}{b - \sqrt{b^2 - \underline{\Delta}^2}} \geq \alpha_L = \phi + \frac{c_p}{b - \frac{2\kappa}{c_p}} > \phi + \frac{c_p}{b}, \tag{A.142}$$

where the first inequality follows from $\left(\frac{2\kappa}{\phi}\right)^2 \leq b^2 - \underline{\Delta}^2$. Therefore, $\underline{\beta}^{pf} < \bar{\beta}^{pf}(q)$ for all $q \in (0, 1]$.

Second, denoting by $\Pi_{A,PF}(\beta)$ the activist's expected payoff in the proxy fight equilibrium for given β, note that by Proposition 16 and the proof of Corollary 3 part (iii), $\Pi_{A,PF}(\beta)$ is strictly increasing with β since $\Pi_{A,PF}(\beta)$ is continuous in β and

$$\Pi'_{A,PF}(\beta) = \begin{cases} \beta \int_{\hat{\Delta}_B}^{b} \Delta dF(\Delta), & \text{if } \beta < \alpha_L, \\ \frac{1}{b - \underline{\Delta}} \frac{c_p}{(\alpha - \phi)^2} \left(\frac{c_p}{2} - \kappa\right), & \text{if } \beta > \alpha_L, \end{cases} \tag{A.143}$$

where the second line follows from (A.69). Combining with the previous step, this also implies that within any $\alpha > \phi + \frac{c_p}{b}$ in equilibrium the activist strictly prefers α such that $\beta^*(\alpha) = \bar{\beta}^{pf}$.

Third, suppose that $\bar{\beta}^{pf} < \alpha_L$. Then, since $\Delta_B^*(\beta) = \frac{2\kappa}{\phi}$ for all $\beta \leq \alpha_L$ by Proposition 16, (A.139) implies that

$$\Pi_A\left(\alpha = \phi + \frac{c_p}{b}\right) > \Pi_{A,PF}\left(\beta = \bar{\beta}^{pf}\right) \iff \bar{\beta}^{pf} < \frac{\phi + \frac{c_p}{b}}{1 - \left(\frac{2\kappa/\phi}{b}\right)^2}, \tag{A.144}$$

where $\kappa < \frac{c_p}{2}$ implies that $\frac{\phi + \frac{c_p}{b}}{1-\left(\frac{2\kappa/\phi}{b}\right)^2} < \alpha_L$. Therefore, the activist strictly chooses $\alpha^* = \phi + \frac{c_p}{b}$ if $\bar{\beta}^{pf} < \frac{\phi + \frac{c_p}{b}}{1-\left(\frac{2\kappa/\phi}{b}\right)^2}$, and chooses $\alpha > \phi + \frac{c_p}{b}$ such that which yields $\beta^*(\alpha) = \bar{\beta}^{pf}$ otherwise. Specifically, in the latter case, there are two subcases to consider. If $\alpha_D(q) \in [q, 1]$, then $\beta^*(\alpha_D(q)) = \bar{\beta}^{pf}$, and hence the activist's expected payoff is maximized at $\alpha^* = \alpha_D(q)$. If $\alpha_D(q) \notin [q, 1]$, then $\beta^*(1) = \bar{\beta}^{pf}$, and hence the activist's expected payoff is maximized at $\alpha^* = 1$.

Fourth, suppose that $\alpha_L \leq \bar{\beta}^{pf}$. Then, since $\underline{\beta}^{pf} < \alpha_L$ by the first step, there exists $\alpha' > \phi + \frac{c_p}{b}$ such that $\beta^*(\alpha') = \alpha_L$. Moreover, by (A.144), $\Pi_A\left(\alpha = \phi + \frac{c_p}{b}\right) > \Pi_{A,PF}(\beta = \alpha_L)$. Therefore, the activist strictly chooses some $\alpha > \phi + \frac{c_p}{b}$ over $\alpha = \phi + \frac{c_p}{b}$. Moreover, similar to previous step, if $\alpha_D(q) \in [q, 1]$ then the activist's expected payoff is maximized at $\alpha^* = \alpha_D(q)$, and if $\alpha_D(q) \notin [q, 1]$ then it is maximized at $\alpha^* = 1$.

Fifth, I show that the activist's expected payoff is maximized if and only if $q \in (0, q_L^B] \cup \{1\}$. Note that $\alpha_L = \phi + \frac{c_p}{b - \frac{2\kappa}{\phi}} \leq 1$ since

$$\frac{2\kappa}{\phi} \leq \sqrt{b^2 - \underline{\Delta}^2} < b - \frac{c_p}{1 - \phi} \tag{A.145}$$

There are two cases to consider. Suppose that $q \in (0, q_L^B] \cup \{1\}$. Then, by the first step $\bar{\beta}^{pf}(q) = 1 \geq \alpha_L$ since $q \leq q_L^B$ implies that $\alpha_D(q) \geq 1$, and hence by the fifth step the

activist's expected payoff in equilibrium is $\Pi_{A,PF}(\beta = 1)$. Suppose that $q \in (q_L^B, 1)$. Then, $\alpha_D(q) < 1$, and hence by the first step $\bar{\beta}^{pf}(q) < 1$. Recall that $\alpha^* \geq \phi + \frac{c_p}{b}$ in equilibrium. Therefore, in equilibrium if $\alpha^* = \phi + \frac{c_p}{b}$ then $\Pi_A(\alpha^*) < \Pi_{A,PF}(\beta = 1)$ by (A.144), and if $\alpha^* > \phi + \frac{c_p}{b}$ then $\Pi_A(\alpha^*) = \Pi_{A,PF}(\beta^*(\alpha^*)) < \Pi_{A,PF}(\beta = 1)$, where the inequality follows from $\beta^*(\alpha^*) \leq \bar{\beta}^{pf}(q)$ due to the first step and that $\Pi_{A,PF}(\beta)$ is strictly increasing in β by the second step.

Consider part (ii). Since $\kappa \geq \kappa_0(\phi)$, rejection equilibrium is in play whenever acceptance equilibrium is not, and hence by Proposition 16, shareholder value and the activist's payoff are zero if $\alpha > \phi + \frac{c_p}{b}$ and $E[\Delta] \geq 0$, or $\alpha q > \phi + \frac{c_p}{b}$ and $E[\Delta] < 0$. On the other hand, if $\alpha \leq \phi + \frac{c_p}{b}$ and $E[\Delta] \geq 0$, then $\Pi_A(\alpha) = \Pi_{SH}(\alpha) = \alpha E[\max\{0, \Delta\}]$, and if $\alpha q \leq \phi + \frac{c_p}{b}$ and $E[\Delta] < 0$, then $\Pi_A(\alpha) = \Pi_{SH}(\alpha) = \alpha q E[\max\{0, \Delta\}]$. Therefore, the activist strictly prefers $\alpha^* = \phi + \frac{c_p}{b}$ if $E[\Delta] \geq 0$, and $\alpha^* = \frac{1}{q}\left(\phi + \frac{c_p}{b}\right)$ if $E[\Delta] < 0$, which also strictly maximizes the shareholder value. Moreover, the expected payoff of the activist is $\left(\phi + \frac{c_p}{b}\right) E[\max\{0, \Delta\}]$ if $q \in [\min\left\{1, \phi + \frac{c_p}{b}\right\}, 1]$, and strictly smaller otherwise.

Consider part (iii). Rejection equilibrium exists for all $\alpha > 0$ by Proposition 16, and hence shareholder value and the activist's payoff are zero for any $\alpha > 0$. □

Proposition 20. *(i) Suppose that $\kappa < \frac{1}{1-F(0)}\kappa_0(\phi)$, and that if the activist demands board settlement, then acceptance equilibrium is in play whenever it exists and proxy fight equilibrium is in play otherwise. Moreover, suppose that subject to this selection, nondisclosure equilibrium is in play whenever it exists. Then, an equilibrium always exists. Moreover,*

(a) If $\kappa \geq \kappa_0(\phi)$ and $E[\Delta] \geq 0$, or $\kappa \geq \kappa_0(\phi q)$ and $E[\Delta] < 0$, then the activist demands board settlement in any equilibrium.

(b) If $\kappa < \kappa_0(\phi)$, $\phi + \frac{c_p}{b} \geq 1$, $E[\Delta] \geq 0$, or $\kappa < \kappa_0(\phi q)$, $\phi + \frac{c_p}{b} \geq q$, $E[\Delta] < 0$, then there exists unique $\underline{\beta}_1 \in (0, 1)$ such that there is an equilibrium where the activist demands board settlement if and only if $\bar{\beta}^{ac} \geq \underline{\beta}_1$.

(c) *If* $\kappa < \kappa_0(\phi)$, $\phi + \frac{c_p}{b} < 1$, $E[\Delta] \geq 0$, *or* $\kappa < \kappa_0(\phi q)$, $\phi + \frac{c_p}{b} < q$, $E[\Delta] < 0$, *then there exist unique* $\underline{\beta}_1, \underline{\beta}_2 \in (0,1)$ *such that there is an equilibrium where the activist demands board settlement if and only if* $\bar{\beta}^{ac} \geq \underline{\beta}_1$ *or* $\bar{\beta}^{pf} \geq \underline{\beta}_2$.

(*ii*) *Suppose that* $\kappa < \phi b$, *and that if the activist demands board settlement, then acceptance equilibrium is in play whenever it exists and rejection equilibrium is in play otherwise. Moreover, suppose that subject to this selection, nondisclosure equilibrium is in play whenever it exists. Then, an equilibrium always exists, and the activist demands board settlement in any equilibrium.*

(*iii*) *Suppose that* $\kappa \geq \kappa_0(\phi)$ *and* $E[\Delta] \geq 0$, *or* $\kappa \geq \kappa_0(\phi q)$ *and* $E[\Delta] < 0$. *Moreover, suppose that if the activist demands board settlement then rejection equilibrium is in play, and subject to this selection, nondisclosure equilibrium is in play whenever it exists. Then, for any demand of the activist, the activist's expected payoff is zero.*

Proof. Denote the expected payoff of the activist from demanding nothing by Π_A^0, from demanding action settlement by Π_A^A, and from demanding board settlement with α by $\Pi_A^B(\beta^*(\alpha))$. Further, for given $\beta \in (0,1]$, if the activist demands board settlement with effective control of β, denote the activist's expected payoff by $\Pi_A^{B,ac}(\beta)$ in the acceptance equilibrium and by $\Pi_A^{B,pf}(\beta)$ in the proxy fight equilibrium.

Consider part (i). There are two cases to consider. Suppose that $\kappa \geq \kappa_0(\phi)$ and $E[\Delta] \geq 0$, or $\kappa \geq \kappa_0(\phi q)$ and $E[\Delta] < 0$. Then, $\Pi_A^0 = \Pi_A^A = 0$ by Lemma 8 and Proposition 15, while $\Pi_A^B(\alpha) > \alpha$ for all $\alpha > 0$ by Proposition 16. Therefore, the activist strictly chooses to demand board settlement. This completes part (i.a).

Suppose that $\kappa < \kappa_0(\phi)$ and $E[\Delta] \geq 0$, or $\kappa < \kappa_0(\phi q)$ and $E[\Delta] < 0$. Then, $\Pi_A^0, \Pi_A^A > 0$ by Lemma 8 and Proposition 15. By Proposition 16, $\Pi_A^{B,pf}(\beta)$ and $\Pi_A^{B,ac}(\beta)$ are continuous in β and $\lim_{\beta \downarrow 0} \Pi_A^{B,pf}(\beta) = \lim_{\beta \downarrow 0} \Pi_A^{B,ac}(\beta) = 0$. Also note that $\min\{\Pi_A^{B,pf}(\beta = 1), \Pi_A^{B,ac}(\beta = 1)\} > \max\{\Pi_A^0, \Pi_A^A\}$since by Proposition 15 $\Pi_A^{B,i}(\beta = 1)$ is equal to the activist's expected

payoff given $\alpha = 1$ in the corresponding equilibrium in Proposition 14, which is weakly larger than his expected payoff if he does not demand anything or demands action settlement due to Corollary 14 part (iii). Note that for the last point, I utilize that the activist's expected payoff if he demands action settlement or does not make any demand is weakly larger in the disclosure equilibrium due to Corollary 16 and Lemma 8. Note that by Corollary 7, for given $\beta \in (0,1]$ there exists $\alpha \in (0,1]$ such that the acceptance equilibrium with $\beta^*(\alpha) = \beta$ is in play if and only if $\beta \in (0, \bar{\beta}^{ac}]$. Moreover, by due to Proposition 16 the activist's expected payoff in the acceptance equilibrium is strictly increasing with β. Therefore, $\max_{\beta \in (0,\bar{\beta}^{ac}]} \Pi_A^{B,ac}(\beta)$ is strictly increasing in $\bar{\beta}^{ac}$. Combining all of these, there exists a unique $\underline{\beta}_1 \in (0,1)$ such that $\max_{\beta \in (0,\bar{\beta}^{ac}]} \Pi_A^{B,ac}(\beta) \geq \max\left\{\Pi_A^0, \Pi_A^A\right\}$ if and only if $\bar{\beta}^{ac} \geq \underline{\beta}_1$. To complete part (i), there are two subcases to consider.

- Suppose that $\phi + \frac{c_p}{b} \geq 1$ and $E[\Delta] \geq 0$, or $\phi + \frac{c_p}{b} \geq q$ and $E[\Delta] < 0$. Then, acceptance equilibrium is in play for all $\alpha > 0$ due to Proposition 16. This completes part (i.b).

- Suppose that $\phi + \frac{c_p}{b} < 1$ and $E[\Delta] \geq 0$, or $\phi + \frac{c_p}{b} < q$ and $E[\Delta] < 0$. Then, due to Proposition 16, acceptance equilibrium is in play if $\alpha \leq \underline{\alpha}$ and proxy fight equilibrium is in play if $\alpha > \underline{\alpha}$, where $\underline{\alpha} = \phi + \frac{c_p}{b}$ if $E[\Delta] \geq 0$ and $\underline{\alpha} = \frac{1}{q}\left(\phi + \frac{c_p}{b}\right)$ if $E[\Delta] < 0$. Moreover, by Corollary 7, for given $\beta \in (0,1]$ there exists $\alpha \in (0,1]$ such that the acceptance equilibrium with $\beta^*(\alpha) = \beta$ is in play if and only if $\beta \in (\underline{\beta}^{pf}, \bar{\beta}^{pf}]$, where $\underline{\beta}^{pf} < \bar{\beta}^{pf}$ and $\underline{\beta}^{pf} < \alpha_L$. Moreover, by Proposition 16, $\Pi_A^{B,pf}(\beta)$ is continuous for all $\beta \in (0,1]$ and strictly increasing in β for all $\beta < \alpha_L$. Therefore, $\max_{\beta \in (\underline{\beta}^{pf}, \bar{\beta}^{pf}]} \Pi_A^{B,pf}(\beta) = \max_{\beta \in [\min\{\alpha_L, \bar{\beta}^{pf}\}, \bar{\beta}^{pf}]} \Pi_A^{B,pf}(\beta)$ is weakly increasing in $\bar{\beta}^{pf}$. Combining all of these, there exists a unique $\underline{\beta}_2 \in (0,1)$ such that $\max_{\beta \in (\underline{\beta}^{pf}, \bar{\beta}^{pf}]} \Pi_A^{B,pf}(\beta) \geq \max\left\{\Pi_A^0, \Pi_A^A\right\}$ if and only if $\bar{\beta}^{pf} \geq \underline{\beta}_2$. This completes part (i.c).

Consider part (ii). There are three cases to consider. Suppose that $\kappa \geq \kappa_0(\phi)$ and $E[\Delta] \geq 0$, or $\kappa \geq \kappa_0(\phi q)$ and $E[\Delta] < 0$. Then, $\Pi_A^0 = \Pi_A^A = 0$ by Lemma 8 and Proposition 15, while $\Pi_A^B(\alpha) > \alpha$ for all $\alpha < \phi + \frac{c_p}{b}$ by Proposition 16. Therefore, the activist strictly chooses to

demand board settlement.

Suppose that $\kappa < \kappa_0(\phi)$ and $E[\Delta] \geq 0$. Then, since rejection equilibrium does not exist by Proposition 16, it must be that acceptance equilibrium with disclosure exists for all $\alpha > 0$, i.e., $\phi + \frac{c_p}{b} \geq 1$. Therefore, the activist's expected payoff from demanding board settlement with $\alpha = 1$ is $E[\max\{0, \Delta\}]$, strictly larger than his expected payoff from demanding action settlement or demanding nothing due to Lemma 8 and Proposition 15.

Suppose that $\kappa < \kappa_0(\phi q)$ and $E[\Delta] < 0$. Then, since rejection equilibrium does not exist by Proposition 16, it must be that acceptance equilibrium with nondisclosure exists for all $\alpha > 0$, i.e., $\phi + \frac{c_p}{b} \geq q$. Therefore, the activist's expected payoff from demanding board settlement with $\alpha = 1$ is $qE[\max\{0, \Delta\}]$, which is strictly larger than his expected payoff from demanding action settlement or demanding nothing since nondisclosure equilibrium is in play in both of these due to Lemma 8 and Proposition 15.

Consider part (iii). If the activist demands board settlement, rejection equilibrium exists for all $\alpha > 0$ by Proposition 16, and the activist's payoff is zero for any $\alpha > 0$. Due to Lemma 8 and Proposition 15, the activist's payoff is also zero if he demand nothing or demands action settlement. □

A2. Appendix for Chapter 2

A2.1. Proofs of main results

Proof of Proposition 9. We first prove that $\pi_{\gamma/\alpha} > \pi_b$ implies $\pi_{\gamma/\alpha} \geq \gamma/\alpha$. To see why, note that $\pi_{\gamma/\alpha} > \pi_b$ and $\pi_b \geq 0$ imply $\pi_{\gamma/\alpha} > 0$. According to (2.1), $\pi_{\gamma/\alpha} > 0$ requires $\Delta \geq \gamma/\alpha$. Since $\pi_{\gamma/\alpha}$ is a weighted average of Δ and γ/α, $\Delta \geq \gamma/\alpha$ implies $\pi_{\gamma/\alpha} \geq \gamma/\alpha$. Therefore, $\pi_{\gamma/\alpha} > \pi_b$ implies $\pi_{\gamma/\alpha} \geq \gamma/\alpha$.

Next, we prove that $\pi_{\gamma/\alpha} - \pi_b \geq \kappa/\alpha$ is equivalent to $\delta/\alpha \leq \Delta < b$. Note that if $\Delta < \gamma/\alpha$ then $\pi_{\gamma/\alpha} = 0$. Since $\kappa > 0$, $\Delta < \gamma/\alpha$ implies that $\pi_{\gamma/\alpha} - \pi_b \geq \kappa/\alpha$ does not hold. Suppose $\gamma/\alpha \leq \Delta$. If in addition $b \leq \Delta$ then $\pi_{\gamma/\alpha} - \pi_b \geq \kappa/\alpha$ is equivalent to

$$[s\Delta + (1-s)\gamma/\alpha] - [s\Delta + (1-s)b] \geq \kappa/\alpha \Leftrightarrow (1-s)\left(\gamma/\alpha - b\right) \geq \kappa/\alpha, \tag{A.146}$$

which never holds since $\gamma < \kappa$. Instead, suppose $\gamma/\alpha \leq \Delta$ and $\Delta < b$. In this case, $\pi_{\gamma/\alpha} - \pi_b \geq \kappa/\alpha$ is equivalent to

$$s\Delta + (1-s)\gamma/\alpha \geq \kappa/\alpha \Leftrightarrow \gamma/\alpha + \left(\kappa/\alpha - \gamma/\alpha\right)/s \leq \Delta, \tag{A.147}$$

which is the same as $\delta/\alpha \leq \Delta$. Since $\gamma \leq \delta$, $\pi_{\gamma/\alpha} - \pi_b \geq \kappa/\alpha$ is equivalent to $\delta/\alpha \leq \Delta < b$, as required. The rest of the proposition follows from the discussion in the main text. □

Proof of Proposition 10. Suppose the bidder performed due diligence and $x = \Delta$. We consider several cases. First, suppose $\delta/\alpha \leq \Delta < b$. Based on Proposition 9, if the first round of the negotiations fails then the activist will run and win a proxy fight. Moreover, based on Lemma 5, in the second round of the negotiations the activist and the bidder will reach an agreement in which the bidder is expected to pay $\pi_{\gamma/\alpha}$. Therefore, in the first round of negotiations, the incumbent board will reject any offer lower than $\pi_{\gamma/\alpha}$. Similarly, the bidder will not agree to pay more than $\pi_{\gamma/\alpha}$ per share, since he can always wait for the

second round of negotiations, and pay $\pi_{\gamma/\alpha} \in (0, \Delta]$ after the activist wins the proxy fight. Overall, if there are arbitrarily small waiting costs to either the bidder or the incumbent board, they will reach an agreement in the first round of negotiations in which the bidder pays a premium of $\pi_{\gamma/\alpha}$. Second, suppose $b \leq \Delta$. Based on Proposition 9, if the first round of the negotiations fails, the activist will not run a proxy fight. Therefore, if the first round of the negotiations fails, the incumbent retains control of the board. Based on Lemma 5, if $b \leq \Delta$ then in the second round of the negotiations the incumbent and the bidder will reach an agreement in which the bidder is expected to pay $\pi_b \in (0, \Delta]$. Therefore, similar to the argument above, the bidder and the incumbent board will reach an agreement in the first round in which the bidder pays a premium of π_b.

The two cases above imply that if the bidder learns that $x = \Delta$ and $\min\{b, \delta/\alpha\} \leq \Delta$ then the target is acquired by the bidder in the first round of negotiations, and the bidder will pay a premium of $\pi_{\gamma/\alpha}$ if $\delta/\alpha \leq \Delta < b$ and a premium of π_b if $b \leq \Delta$. Since $\Pr[x = \Delta] = \tau$, the bidder's expected payoff is $\tau\left(\Delta - \pi_{\gamma/\alpha}\right)$ in the former case, and $\tau(\Delta - \pi_b)$ in the latter case. In both cases, the premium is lower than Δ, and therefore the expected profit is non-negative. The bidder will therefore perform a due-diligence if and only if c is smaller than the expected profit.

Finally, suppose $\Delta < \min\{b, \delta/\alpha\}$. Based on Proposition 9, the activist never runs a proxy fight. Therefore, if the first round of the negotiations fails, the incumbent retains control of the board. Based on Lemma 5, if $\Delta < b$ then the incumbent board and the bidder will not reach an agreement in the second round of negotiations, and the target will remain independent. Therefore, in the first round of negotiations, the incumbent board will reject any offer lower than b, and the bidder will not agree to pay more than Δ per share. Since $\Delta < b$, the parties will not reach an agreement in the first round as well, and the target remains independent. Since the bidder cannot expect to acquire the target and make any profit from the acquisition even if $x = \Delta$, the bidder never performs a due-diligence. □

Proof of Proposition 11. Suppose the activist wins a proxy fight before the bidder arrives. Since Lemma 5 continues to hold and the bidder cannot win a proxy fight, the expected shareholder value if the first round of negotiations fails is $\pi_{\gamma/\alpha}$. Therefore, if $\gamma/\alpha > \Delta$ then $\pi_{\gamma/\alpha} = 0$ and the target will remain independent under the activist's control. If $\gamma/\alpha \leq \Delta$ then $\pi_{\gamma/\alpha} > 0$ and similar to Proposition 10, the bidder and the activist will reach an acquisition agreement in the first round of negotiations in which the takeover premium is $\pi_{\gamma/\alpha}$. Since the expected profit of the bidder in this case is $\tau\left(\Delta - \pi_{\gamma/\alpha}\right)$, the probability of a takeover is $\theta_{\gamma/\alpha}$. Therefore, if the activist wins a proxy fight before the bidder arrives the expected shareholder value is $\theta_{\gamma/\alpha}\pi_{\gamma/\alpha}$ and the activist's expected payoff per share is $\theta_{\gamma/\alpha}\pi_{\gamma/\alpha} + \left(1 - \theta_{\gamma/\alpha}\right)\gamma/\alpha - \kappa/\alpha$.

At the same time, if the incumbent retains control before the bidder arrives then according to Corollary 11, the expected shareholder value is $\theta^*\pi^*$. There are three cases to consider. First, if $\Delta < \min\{b, \delta/\alpha\}$, then $\theta^* = 0$, but the activist never starts a proxy fight since $\theta_{\gamma/\alpha}\pi_{\gamma/\alpha} + \left(1 - \theta_{\gamma/\alpha}\right)\gamma/\alpha - \kappa/\alpha < 0$. Note that this inequality holds since either $\pi_{\gamma/\alpha} = 0$ and $\gamma < \kappa$, or $\pi_{\gamma/\alpha} = s\Delta + (1-s)\gamma/\alpha$ and $\Delta < \delta/\alpha$. Second, if $\delta/\alpha \leq \Delta < b$ then $\theta^*\pi^* = \theta_{\gamma/\alpha}\pi_{\gamma/\alpha}$. Since $\gamma < \kappa$, $\theta_{\gamma/\alpha}\pi_{\gamma/\alpha} + \left(1 - \theta_{\gamma/\alpha}\right)\gamma/\alpha - \kappa/\alpha < \theta_{\gamma/\alpha}\pi_{\gamma/\alpha}$, and the activist never starts a proxy fight. Third, if $\Delta \geq b$ then $\theta^*\pi^* = \theta_b\pi_b$. The activist starts a proxy fight if and only if she is expected to be elected and $\theta_{\gamma/\alpha}\pi_{\gamma/\alpha} + \left(1 - \theta_{\gamma/\alpha}\right)\gamma/\alpha - \kappa/\alpha \geq \theta_b\pi_b$. The latter condition is equivalent to (2.8). Note that in those circumstances shareholders prefer the activist over the incumbent if and only if $\theta_{\gamma/\alpha}\pi_{\gamma/\alpha} > \theta_b\pi_b$. However, if condition (2.8) holds, then $\gamma < \kappa$ implies that $\theta_{\gamma/\alpha}\pi_{\gamma/\alpha} > \theta_b\pi_b$ and therefore shareholders always elect the activist when she starts a proxy fight. This completes the proof.

Finally, we show that if $\Delta \geq b$ and (2.8) holds then $\gamma/\alpha < b$. Suppose on the contrary $\gamma/\alpha \geq b$. Since $\Delta \geq b$ and $\gamma < \kappa$, condition (2.8) requires $\Delta \geq \gamma/\alpha$. Condition (2.8) can be rewritten as

$$\pi_{\gamma/\alpha} - \frac{\theta_b}{\theta_{\gamma/\alpha}}\pi_b \geq \frac{\kappa/\alpha - \left(1 - \theta_{\gamma/\alpha}\right)\gamma/\alpha}{\theta_{\gamma/\alpha}}. \tag{A.148}$$

Recall that in the baseline model (in the proof of Proposition 9) we proved that if $b \leq$

$\gamma/\alpha \leq \Delta$ then $\pi_{\gamma/\alpha} - \pi_b < \kappa/\alpha$. Since $\gamma/\alpha \geq b$, we have $\frac{\theta_b}{\theta_{\gamma/\alpha}} \geq 1$. Since $\kappa \geq \gamma$, we have $\frac{\kappa/\alpha - (1-\theta_{\gamma/\alpha})\gamma/\alpha}{\theta_{\gamma/\alpha}} \geq \kappa/\alpha$. Therefore, $\pi_{\gamma/\alpha} - \pi_b < \kappa/\alpha$ implies that condition (2.8) cannot hold if $\gamma/\alpha \geq b$, yielding a contradiction. As a final remark, note that condition (2.8) is not vacuous; for example, as $b \nearrow \Delta$ and $\kappa \searrow \gamma$, it holds if $\gamma/\alpha \leq \Delta$. □

Proof of Proposition 12. We start by noting that part (iii) follows directly from observation that if $y = 0$ then the synergy is $-\infty$ and a takeover can never take place. Since the share price cannot be smaller than the firm's standalone value of zero, 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. Therefore, the activist does not invest. If $y = 1$ then the game is reduced to the one in the baseline model. We let α^* be the number of shares the activist buys in equilibrium conditional on $y = 1$. The proof has several steps.

First, we prove $\alpha^* \leq \overline{\alpha}$. Suppose on the contrary $\alpha^* > \overline{\alpha}$. Then, on the equilibrium path the market maker observes that the activist bought α^* shares before the price is set, and hence, the market maker sets the price to be $h^*(\alpha^*)$. Indeed, since in any equilibrium $y = 0 \Rightarrow \alpha = 0$ (the previous step), the market maker infers that $y = 1$. However, in this case, the activist's profit is non-positive, yielding a contradiction.

Second, we prove that the price function is given by (2.10). Since the market maker expects the activist to buy no shares if $y = 0$ and $\alpha^* \leq \overline{\alpha}$ shares if $y = 1$, the market maker sets the price at $\mu h^*(\alpha^*)$ if the activist buys $\overline{\alpha}$ shares or less. Indeed, the market maker expects the takeover to take place only if $y = 1$ which happens with probability μ. Conditional on $y = 1$, the expected takeover premium is $h^*(\alpha^*)$. If the activist buys more than $\overline{\alpha}$ shares, which is an off-equilibrium event, then the market maker observes α and sets the price to be $\mu(\alpha) h^*(\alpha)$ where $\mu(\alpha)$ is the off-equilibrium beliefs of the market maker about $y = 1$ given that the activist decided to buy $\alpha > \overline{\alpha}$ shares. We assume $\mu(\alpha) = 1$, which guarantees that such deviation is not profitable (i.e., the market maker assumes $y = 1$) as the activist's profit would be non-positive. This argument proves part (ii).

Third, we prove that if $\min\{b, \delta/\overline{\alpha}\} > \Delta$ or $b = \Delta$ then $\alpha^* = 0$. Based on the first step it cannot be $\alpha^* > \overline{\alpha}$. Suppose on the contrary $\alpha^* > 0$. If $b > \Delta$ then the target is taken over only if $\delta/\alpha^* \leq \Delta$. However, since $\delta/\overline{\alpha} > \Delta$ and $\overline{\alpha} \geq \alpha^*$, it must be $\delta/\alpha^* > \Delta$. Therefore, the target is never acquired and the activist's profit must be non-positive, yielding a contradiction. Similarly, if $b = \Delta$ then according to Corollary 11 the target is never acquired (i.e., $\theta^* = 0$). Since the activist's profit must be non-positive, we get a contradiction.

Fourth, we prove that $h^*(\alpha)$ is non-decreasing in α. Indeed, if $b \leq \Delta$ then $h^*(\alpha) = \theta_b \pi_b \geq 0$, which is independent of α. If $b > \Delta$ then

$$h^*(\alpha) = \theta_{\gamma/\alpha}\pi_{\gamma/\alpha} = \begin{cases} v(\alpha) & \text{if } \delta/\Delta \leq \alpha \\ 0 & \text{else,} \end{cases} \tag{A.149}$$

where $v(\alpha) = \tau F(\tau(1-s)(\Delta - \gamma/\alpha))[s\Delta + (1-s)\gamma/\alpha]$. Note that if $\delta/\Delta < \alpha$, then

$$\begin{aligned} v'(\alpha) &= \tau f(\tau(1-s)(\Delta - \gamma/\alpha))[s\Delta + (1-s)\gamma/\alpha]\tau(1-s)\gamma/\alpha^2 \\ &\quad -\tau F(\tau(1-s)(\Delta - \gamma/\alpha))(1-s)\gamma/\alpha^2. \end{aligned} \tag{A.150}$$

Hereafter, we assume either $\gamma = 0$ or s is sufficiently close to one, which guarantees $v'(\alpha) \geq 0$ and that $\theta_{\gamma/\alpha}\pi_{\gamma/\alpha}$ is non-decreasing in α.

Fifth, we prove that if $\delta/\overline{\alpha} \leq \Delta < b$ or $b < \Delta$ then $\alpha^* = \overline{\alpha}$. Based on the first step it cannot be $\alpha^* > \overline{\alpha}$. Suppose on the contrary $\alpha^* < \overline{\alpha}$. Based on part (ii), the share price must be $\mu h^*(\alpha^*)$ in this equilibrium, and the activist's profit when she buys α^* shares is $\alpha^*(h^*(\alpha^*) - \mu h^*(\alpha^*))$. We argue that the activist has a profitable deviation to buying $\overline{\alpha}$ shares. First note that

$$\alpha^*(h^*(\alpha^*) - \mu h^*(\alpha^*)) \leq \alpha^*(h^*(\overline{\alpha}) - \mu h^*(\alpha^*)), \tag{A.151}$$

which follows from $h^*(\alpha)$ being non-decreasing in α. Second, note that

$$\alpha^* \left(h^*(\overline{\alpha}) - \mu h^*(\alpha^*)\right) < \overline{\alpha} \left(h^*(\overline{\alpha}) - \mu h^*(\alpha^*)\right). \tag{A.152}$$

Indeed, since $\delta/\overline{\alpha} \leq \Delta < b$ or $b < \Delta$, it must be $h^*(\overline{\alpha}) > 0$. Since $\alpha^* < \overline{\alpha}$ and $h^*(\alpha)$ is non-decreasing in α, it must be $h^*(\overline{\alpha}) \geq h^*(\alpha^*)$. Combined, it must be $h^*(\overline{\alpha}) - \mu h^*(\alpha^*) > 0$. Therefore, this deviation is profitable, yielding a contradiction.

Sixth, we prove that an equilibrium exists. Based on previous steps, if an equilibrium exists then α^* is given by (2.9). We show that no profitable deviation exists for the activist. If the activist buys $\alpha > \overline{\alpha}$ shares then the share price is $h^*(\alpha)$ and the activist's profit is non-positive. If $y = 0$, $\min\{b, \delta/\overline{\alpha}\} > \Delta$, or $b = \Delta$, then the probability of a takeover is zero if the activist buys less than $\overline{\alpha}$ shares. Since the share price cannot be less than the target's standalone value, the activist's profit will be necessarily non-positive if she buys $\alpha \in (0, \overline{\alpha}]$ shares. Therefore, it is optimal to buy no shares, as the equilibrium prescribes. Suppose $y = 1$, and $\delta/\overline{\alpha} \leq \Delta < b$ or $b < \Delta$. Consider a deviation to $\alpha < \overline{\alpha}$. Note that if the activist buys $\overline{\alpha}$ shares than her profit is $\overline{\alpha}\left(h(\overline{\alpha}) - \mu h(\overline{\alpha})\right) > 0$. It is strictly positive since $\delta/\overline{\alpha} \leq \Delta < b$ or $b < \Delta$ implies $h(\overline{\alpha}) > 0$. Therefore, for any $\alpha < \overline{\alpha}$,

$$\begin{aligned} \overline{\alpha}\left(h(\overline{\alpha}) - \mu h(\overline{\alpha})\right) &> \alpha\left(h(\overline{\alpha}) - \mu h(\overline{\alpha})\right) \\ &\geq \alpha\left(h(\alpha) - \mu h(\overline{\alpha})\right). \end{aligned} \tag{A.153}$$

The first inequality follows from $h(\overline{\alpha}) - \mu h(\overline{\alpha}) > 0$ and $\alpha < \overline{\alpha}$, and the second inequality follows from $h^*(\alpha)$ being non-decreasing in α. Therefore, such a deviation is always sub-optimal. □

Proof of Corollary 12. If $b \leq \Delta$ then $\theta^{**} = \mu\tau F\left(\tau(1-s)(\Delta - b)\right)$, which is decreasing in

b, invariant to κ, and equal to zero when $b = \Delta$. If $b > \Delta$ then

$$\theta^{**} = \begin{cases} \mu\tau F\left(\tau\left(1-s\right)\left(\Delta - \gamma/\overline{\alpha}\right)\right) & \text{if } \delta/\overline{\alpha} \leq \Delta \\ 0 & \text{else} \end{cases} \tag{A.154}$$

Note that $\delta/\overline{\alpha} \leq \Delta$ is more likely to hold for small κ. Also note that if $\delta/\overline{\alpha} \leq \Delta$, then $\mu\tau F\left(\tau\left(1-s\right)\left(\Delta - \gamma/\overline{\alpha}\right)\right) > 0$. The two claims follow from these observations. □

A2.2. Limited veto power

Assuming that bidders can never bypass the target board and go straight to shareholders by making a tender offer is not necessary for our main results. Our arguments only require that corporate boards can partially resist a takeover. To illustrate this point, we extend the baseline model as follows. We assume that if no acquisition agreement is reached at the second round of negotiations then with probability $\lambda \in [0,1]$ the target remains independent and whoever controls the target board can consume his private benefits. With probability $1-\lambda$ the bidder can make a tender offer. In this case, whoever controls the target cannot consume his private benefits. Whether a tender offer is possible is revealed at the beginning of the second round of negotiations. For simplicity, we focus on conditional offers for all target shares. The possibility of making a tender offer affects the analysis of the baseline model only if the bidder can at least partly overcome the free-riding problem of Grossman and Hart (1980). That is, the bidder must make some profit, otherwise, the option of making a tender offer is never exercised. Therefore, we assume that the bidder can consume a fraction $1-\phi \in (0,1)$ of Δ as private benefit.[5] We prove the following result.

Proposition 21. *Suppose the first round of negotiations has failed. Then:*

(*i*) *The bidder never runs a proxy fight.*

[5]The free-rider problems in takeovers effectively gives target shareholders a bargaining power. If $b \leq \Delta$ then the target board might have incentives to leverage this a bargaining power by allowing a tender offer. For simplicity, we assume this possibility away. This assumption would not change qualitatively the main result since the credibility of the activist arises only when $\Delta < b$.

(*ii*) *The activist runs a proxy fight if and only if*

$$\pi_{\gamma/\alpha} - \pi_b \geq (\kappa/\alpha)/\lambda. \tag{A.155}$$

where $\pi_{\gamma/\alpha}$ *and* π_b *are given by (2.2). If the activist runs a proxy fight, she wins the control of the target board and then reaches an acquisition agreement with an expected takeover premium of* $(1-\lambda)\phi\Delta + \lambda\pi_{\gamma/\alpha}$.

(*iii*) *If the activist does not run a proxy fight then the incumbent retains control and the target remains independent if and only if a tender offer is not feasible and* $b > \Delta$.

Similar to the baseline model, the bidder never runs a proxy fight because of the conflict of interests with the target shareholders. The activist runs a proxy fight if and only if the condition $\pi_{\gamma/\alpha} - \pi_b \geq (\kappa/\alpha)/\lambda$ holds. Intuitively, if λ is low then the bidder has an alternative mean by which he can overcome the resistance of the board, and therefore, the activist has fewer incentives to run a proxy fight in order to facilitate the takeover. In other words, 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 the incumbent through a proxy fight. Ceteris paribus, 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.S. in the 1980s or the U.K.

Proof of Proposition 21 . Suppose the second round of negotiations failed. If the bidder cannot make a tender offer, the target remains independent. If the bidder can make a tender offer, because of the free-rider problem, shareholders tender their shares if and only if the offer is higher than $\phi\Delta$ (shareholders are not playing weakly dominated strategies and they cannot free-ride on the private benefit component of Δ, which is $(1-\phi)\Delta$). Therefore, the bidder makes a tender offer of $\phi\Delta$ per share, target shareholders tender their shares, and the bidder takes over the target.

Consider the second round of negotiations. All parties involved rationally expect that if the second round fails, the above dynamic would unfold. Therefore, if the bidder cannot make a tender offer, the outcome of the negotiations in this stage is identical to the baseline model. Suppose that the bidder can make a tender offer. Since the bidder can buy the firm with a tender offer $\phi\Delta$ if the second round of negotiations fails, the highest premium the bidder would be willing to pay is $\phi\Delta$. Similarly, the incumbent will not agree to sell the firm for a premium lower than $\phi\Delta$. Therefore, the bidder and the incumbent will reach an agreement in the second round with a premium of $\phi\Delta$. This concludes part (iii) of the proposition. The negotiations between the bidder and the activist in the second round (if the latter controls the board) are the same as above, where b is replaced by γ/α.

Next, suppose the bidder controls the target board. When tender offer is possible he cannot consume his private benefits unless he takes over the firm, and hence he will offer $\phi\Delta$ to the shareholders, since this is the lowest price that the shareholders accept. However, if tender offer is not possible, then he will consume his private benefits (including extracting firm value of η) and offer shareholders the lowest price that is acceptable to them, which is $-\eta$.[6] For all of these reasons, in the second round of negotiations, the expected target shareholder value in Lemma 5 can be rewritten as $(1-\lambda)\,\phi\Delta + \lambda\pi_b$ under the incumbent's control, as $(1-\lambda)\,\phi\Delta + \lambda\pi_{\gamma/\alpha}$ under the activist's control, and as $(1-\lambda)\,\phi\Delta + \lambda\,(-\eta)$ under the bidder's control. These observations imply that the bidder can never win a proxy fight, which proves part (i). Moreover, they imply that the activist will run a proxy fight if and only if

$$(1-\lambda)\,\phi\Delta + \lambda\pi_{\gamma/\alpha} - (1-\lambda)\,\phi\Delta + \lambda\pi_b \geq \kappa/\alpha \Leftrightarrow \pi_{\gamma/\alpha} - \pi_b \geq (\kappa/\alpha)\,/\lambda, \tag{A.156}$$

which concludes part (ii). □

[6] The bidder has no incentives to make a tender offer to shareholders due to the free-rider problem. Knowing this, shareholders will agree to any price higher than $-\eta$ if the bidder is already controlling their board. Alternatively, if the bidder could completely freeze out target shareholders and solve the free-rider problem, shareholders cannot expect any positive premium once the bidder takes control of their board.

A2.3. The role of a majority stake

Following the discussion in Section 2.2.3.2 in the main text, in this appendix we show that the ability of a bidder to increase the standalone value of the target (as a substitute to a takeover) reduces its conflict of interests with target shareholders, compared to bidders who need to own majority of the target to realize synergies. For this purpose, consider a variant of the baseline model where there is no activist (or alternatively, there is no bidder and the activist has the capacity to create value and make a takeover bid herself). The bidder owns $\alpha > 0$ shares of the target (a toehold) prior to making a bid. The bidder has a proposal to increase the target value by Δ. The proposal can be successfully implemented either by the incumbent or by the bidder. If the proposal is implemented, the incumbent loses his private benefits of control. The key assumption is that the proposal can be implemented even if the target remains independent after the failure of the second round of negotiations.

Proposition 22. *Suppose the first round of negotiations has failed and the bidder can increase the standalone value of the target. The bidder runs a proxy fight if and only if*

$$\frac{\kappa/\alpha}{1-\alpha} \leq \frac{\Delta}{1-\alpha} < b, \tag{A.157}$$

and whenever the bidder runs a proxy fight, she wins.

Proof. If the second round of negotiations succeeded and the target is acquired by the bidder, then the bidder implements his proposal if it has not been implemented yet. Therefore, the post takeover target value is Δ. 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 bidder controls the target board then he implements the proposal if it has not been implemented yet, and the target value is Δ. Second, if the incumbent board retains control then he implements the proposal if and only if $b \leq \Delta$, and hence, the target value is $\mathbf{1}_{\{b \leq \Delta\}}\Delta$.

Consider the second round of negotiations. There are two cases. First, suppose that either

the bidder controls the target board or the incumbent retains control and $b \leq \Delta$. The bidder's proposal is implemented whether or not the bid fails. For this reason, the bidder will not offer more than Δ per share. Moreover, target shareholders will not accept offers lower than Δ, since they can always reject the bid and obtain a value of Δ once the proposal is implemented. Therefore, whether or not target is acquired, the bidder's payoff is $\alpha\Delta$ and the shareholder value is Δ. Second, suppose the incumbent board retains control and $b > \Delta$. If the negotiations fail, the proposal will not be implemented and the bidder's payoff would be zero. If the bidder acquires the firm, his payoff is $\Delta - (1-\alpha)\,\pi$, where π is the offer made to target shareholders. Therefore, the bidder is willing to offer up to $\frac{\Delta}{1-\alpha}$ per share. The incumbent board and the bidder will reach an agreement if and only if $b \leq \frac{\Delta}{1-\alpha}$. If $\frac{\Delta}{1-\alpha} < b$ then the takeover fails and the shareholder value is zero. If $\Delta < b \leq \frac{\Delta}{1-\alpha}$ then the incumbent and the bidder reach an agreement in which $\pi \geq b > \Delta$. Therefore, target shareholders approve any agreement reached by the bidder and the incumbent, and the target is acquired by the bidder. In this case, the expected shareholder value is $s\frac{\Delta}{1-\alpha} + (1-s)\,b$.

Consider the proxy fight stage. There are three cases to consider. First, if $b \leq \Delta$ then the bidder's payoff is $\alpha\Delta$ whether or not she gets the control of the board. Therefore, he has no reason to run and incur the cost of a proxy fight. Second, if $\Delta < b \leq \frac{\Delta}{1-\alpha}$ then the bidder always loses the proxy fight if he decides to start one. The reason is that shareholders know that if they elect the bidder they will get Δ whereas if they reelect the incumbent, the bidder will take over the target and pay shareholders on average $s\frac{\Delta}{1-\alpha} + (1-s)\,b$, which is strictly higher. Anticipating his defeat, the bidder never runs a proxy fight in this region. Third, if $\frac{\Delta}{1-\alpha} < b$ then the shareholder value is Δ if the bidder gets the control of the board, and zero otherwise. Therefore, shareholders always elect the bidder if she runs a proxy fight. The bidder's payoff is $\alpha\Delta - \kappa$ if he runs a proxy fight, and zero otherwise. Therefore the bidder runs a proxy fight only if $\kappa/\alpha \leq \Delta$. Combining this condition with $b > \frac{\Delta}{1-\alpha}$ yields (A.157). □

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