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# Activism and Takeovers

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We compare activism and takeovers from the perspective of a blockholder who can provide effort to improve firm value. We show that free-riding behavior by dispersed shareholders has the following implications: First, activism can be more profitable than a hostile takeover even if it is less efficient. Second, activism is most efficient when it brokers, rather than substitutes for, takeovers. Third, such takeover activism earns superior returns. More broadly, our theory implies that activists specialize in governance reforms with limited, temporary ownership being a strength rather than a shortcoming of activism. (*JEL* G34, G23)

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> It is our contention that sizeable profits can be earned by taking large positions in 'undervalued' stocks and then attempting to control the destinies of the companies in question by: a) trying to convince management to liquidate or sell the company to a 'white knight'; b) waging a proxy contest; c) making a tender offer and/or; d) selling back our position to the company.
>
> —Excerpt from the "Icahn Manifesto," 1976

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Building on the premise that dispersed shareholders have little incentive to monitor management, theories of shareholder governance focus on blockholders whose large stakes may lead them to bear the effort of engaging with management. Existing theories offer a wealth of insights on activism and takeovers, the mechanisms through which blockholders can intervene, yet little in the way of a direct comparison in terms of profitability and efficiency. This omission is partly owed to the fact that it is not straightforward to derive a trade-off because free-riding behavior of dispersed shareholders impairs both mechanisms.

When a shareholder is active, others reap part of the benefits without sharing in the costs (Jensen and Meckling 1976). While concentrated ownership reduces such *Jensen-Meckling* (JM) free-riding, the flawed conclusion that the free-rider problem can be avoided by acquiring more shares has been dismantled by Grossman and Hart (1980): dispersed shareholders only sell if the price reflects any anticipated value improvement and so free-ride too. According to Orol (2008, p. 62f), practitioners are aware of such *Grossman-Hart* (GH) free-riding,

> Investors who jump in the stock after the activist has made its case in its original 13D will typically bump up the stock price, making it difficult…[for the activist] to buy additional stock at cheap prices.[1]

as well as of JM free-riding,

> Even if investors buy the stock and stick around for however long it takes for the activist to succeed in its efforts, those shareholders share the benefit of the activism without spending anywhere near the time, money, and energy.

We show in Section 1 that the two manifestations of the free-rider problem equalize the profits from activism and takeovers in (the widely used) model setups with binary effort in which the acquirer or activist can improve firm value by a fixed amount $V$ at some private cost $C$ (or remain passive). The crux is that the blockholder under neither intervention captures the value increase of the (initially) widely held shares. Therefore, existing comparisons between activism and takeovers typically assume that the two interventions *exogenously*

[1] The U.S. Securities and Exchange Commission requires a 13D filing from any investor accumulating more than 5% of any publicly traded security in a public company. The filing discloses the investor's identity and *objective*. The free-rider problem is a key issue in the regulatory debate on the level of the disclosure threshold: "An activist investor that files a 13D . . . would quickly attract many 'free-rider' copycat investors. That, in turn, would lead to short-term spikes in stock prices, making it more difficult for the activist to obtain a sufficiently large stake at affordable prices." (Orol 2008, p. 152). Consistent with GH free-riding, the "spike" in stock prices following a 13D filing is stronger when the investor is an activist and the stated objective more confrontational (Brav et al 2008; Klein 2009).

differ with respect to the value improvement $V$ or the cost $C$ (e.g., Shleifer and Vishny 1986; Maug 1998).

It is arguably true that bidders and activists have different objectives. Buyout firms, for example, tend to stay involved for several years to execute a comprehensive set of changes across many levels of the acquired firm, ranging from product market and operational strategies to asset composition and capital structure. By comparison, activists have shorter campaign horizons and more narrowly focused objectives; in fact, often they aim for changes only in the governance of the firm. In this paper, we endogenize such differences in involvement based on the standard corporate governance paradigm that incentives to provide effort to improve firm value increase with the equity stake.

In our model, there are many possible effort levels, or restructuring objectives if you will. For simplicity, we model effort as a continuous variable, $e \in \mathbb{R}_0^+$, and value improvement $V$ and cost $C$ as differentiable functions of $e$. All restructuring objectives are available independent of how a blockholder gains control of a firm to execute improvements. That is, functions $V$ and $C$ are the same regardless of whether a blockholder succeeds as an activist or as an acquirer. The only ex ante difference between activism and takeovers is how the blockholder obtains control: an activist *works* for control through a costly campaign, whereas an acquirer *buys* control by paying the takeover price. We explore how *this* difference affects the profitability of these intervention modes. To do so cleanly, we abstract from further differences between activists and bidders.[2]

The first key difference to binary effort models is rather obvious: Since a larger ownership stake raises incentives, takeovers go along with higher levels of effort, cost, and value improvements. The more surprising result is that takeovers, despite the higher efficiency, are not always more profitable. Specifically, we show that activist profits and bidder profits react in *opposite* directions to variation in the marginal return to effort. As a result, for a range of parameters, blockholders benefit more from activism than from takeovers.

While a takeover increases the blockholder's incentives to improve value, she does not fully recoup the costs of doing so, since GH free-riders sell their shares only if the takeover price incorporates the anticipated value improvement. Although socially more efficient, the higher effort in a takeover thus exceeds the ex ante privately optimal level for the blockholder. A higher return to effort worsens this unrecompensed effort problem, as it induces more effort, leading to a smaller profit. Intuitively, a takeover strategy is unattractive when the blockholder anticipates a large effort *and* a high takeover price associated with that effort.

[2] In Section F of the Internet Appendix, we discuss possible implications of adding further differences.

Activism does not require a majority stake—the point of campaigns is to succeed without it. The downside of a smaller stake is that effort is constrained by JM free-riding. Activism is unattractive to the blockholder when the gains expected under these limited incentives do not justify the costs of pursuing a campaign. In contrast to the unrecompensed effort problem, this limited effort problem is mitigated by a higher return to effort. Since the low effort level, though socially less efficient, is ex ante optimal for the blockholder, her expected profit from activism increases in the marginal return to effort. Intuitively, activism is an attractive strategy when even small efforts have potentially large impacts on firm value.

The free-rider problem could be overcome by the target board of directors, who have the authority to force a collectively binding merger on all shareholders. Within the context of disciplinary interventions, of course, the premise is that the incumbent board opposes the desired changes. Still, the fact that the board has authority over mergers gives an activist the possibility to campaign for control of the board to negotiate a merger. Our second main result is that such takeover activism can be a more profitable intervention and produce larger efficiency gains than both regular activism and hostile takeovers.

A regular activist avoids GH free-riding by campaigning for control but allows JM free-riding on the value improvement. Conversely, a bidder reduces JM free-riding by buying a majority stake but confronts GH free-riding when doing so. Choosing between these strategies is tantamount to trading off the two manifestations of free-riding. The ingenuity of takeover activism is that it combines the best of both worlds: takeover activists not only avoid GH free-riding while seeking control but—by using the board's authority to sell the entire firm—also eliminate JM free-riding on (the acquirer's) efforts to improve firm value. The logic of the second step in this strategy is to use control to solve the root incentive problem rather than pursue the (ultimate) value improvements directly. This suggests that governance reforms, in particular M&A, should be a popular objective of activist campaigns, as is indeed the case (e.g., Brav et al 2008; Greenwood and Schor 2009; Boyson and Mooradian 2011).

Despite its superiority, takeover activism need not always emerge even if feasible. When a bidder can gain control either by engaging in a merger, given the firm is forced to do so by an activist, or in a hostile tender offer, the activist can *free-ride* on the tender offer instead of running a costly campaign for a merger. Takeover activism prevails only if its expected return surpasses the return the activist could earn by free-riding on a tender offer. Thus, even when takeover activism replaces tender offers, the possibility of (free-rider rents in) the latter has a distributional implication: takeover activism should earn large returns, which is consistent with the data (Greenwood and Schor 2009; Becht et al 2017). When takeover activism prevails, activists, small shareholders, and bidders all fare better than in a tender offer.

For the set of firms that is likely a target of disciplinary intervention, we show that free-riding behavior crucially affects the cost-benefit analysis that drives

which type of intervention a specific target firm is more likely to experience. When investors specialize in different types of interventions, our theory speaks to which subset of them is more inclined to target the firm. Alternatively, for investors who can undertake both takeovers and activist campaigns, like Carl Icahn or Paul Singer, our theory concerns which strategy they select for a given target. We should note that our theory does not relate to all types of M&A, notably, friendly strategic mergers.

To the extent that free-riding affects the choice of intervention mode, the following patterns ought to be present in the data according to our theory: (1) A ranking of interventions based on total takeover gains can be the inverse of one based on intervention profits, within tender offers as well as across tender offers and regular activism; (2) activists specialize in governance reforms, whereas bidders implement substantial operational and strategic changes; (3) takeover activism generates more value and is more profitable than other categories of activism; and (4) institutional changes that facilitate activism not only lead to more campaigns but also decrease hostile bids, while increasing total M&A. We discuss in Section F of the Internet Appendix that these predictions are difficult to obtain (in models) without the dual free-rider problem.

These predictions are derived in a model in which the target firm has only one blockholder, while the remaining shareholder base is formalized as a continuum of shareholders. Nonetheless, our results are robust to introducing more (active or passive) blockholders as long as their cumulative ownership is below 50%, and to modeling dispersed shareholders as a discrete population as long as their number is sufficiently large.[3]

Our model is adapted from that of Burkart et al (1998) with costly effort instead of costly diversion. Our results rely on comparative statics with respect to the return to effort, whose analog in Burkart, Gromb, and Panunzi's model is the cost of diversion. They do not study these comparative statics, and in any case the implications would not be the same (as we explain in Section 2.2).

While the literature on takeovers and investor activism is large (see, e.g., surveys by Burkart and Panunzi [2008] and Edmans and Holderness [2017]), only three papers contain comparisons between the two intervention modes: Shleifer and Vishny (1986), Maug (1998), and Bebchuk and Hart (2001). In all of them, interventions have *exogenous* impacts on firm value, and the focus is on asymmetric information. To our knowledge, we are first to integrate activism and takeovers in a framework where differences are exclusively derived from their modi operandi.

Bebchuk and Hart (2001) further abstract from costs but allow for value-decreasing interventions. They propose that bidders should be permitted to call binding shareholder votes on mergers without board approval, which is

[3] Holderness (2009) documents in a sample of U.S. firms that 96% of firms have at least one blockholder owning more than 5% of the stock. The median combined ownership of all blockholders in a firm is 27% in the entire sample and 12% in the subsample of S&P 500 firms.

not an option in practice. In our framework, takeover activism implements the procedure envisioned by the Bebchuk-Hart proposal except that a costly campaign is necessary to overcome board resistance to the merger.

Corum and Levit (2019) and we offer the first analyses of takeover activism. Our insights are complementary. Corum and Levit explore whether a potential acquirer can run a campaign in the target to push for a merger with her own firm and show that, due to an inherent conflict of interest, such a campaign is less likely to be successful than that of a third-party activist. To isolate this point, their model abstracts from the free-rider problem and restricts direct bids.[4] We show that takeover activism can prevail even if direct bids are allowed because the optimal response to the dual free-rider problem is to first gain control without buying shares and afterward use that control to concentrate ownership. We conversely rely on Corum and Levit's analysis in assuming that the target is sold to a third party (as opposed to the takeover activist herself).

## 1. The "Equivalence" Benchmark

It is useful to preface our model with a binary effort example: A blockholder owns a minority stake $t$ in a firm with an otherwise dispersed ownership structure. She can improve the share value by waging an activist campaign, which is modelled as a binary choice variable $e \in \{0,1\}$: She can either remain passive by choosing zero effort, in which case the share value stays at its current level (normalized to 0), or intervene with a fixed positive effort (normalized to one), in which case the share value increases by $V > 0$. The cost of an intervention, $C > 0$, is understood to include both the costs of obtaining control and the costs of identifying and implementing the (potential) value improvements.

This type of model setup is a workhorse in the literature on active blockholders. Absent frictions other than the JM free-rider problem, the blockholder's profit from an intervention is $tV - C$, whereas the social gain is $V - C$. Consequently, there are parameters for which an intervention is unprofitable even though it is socially efficient. Could a takeover help? Suppose the blockholder submits a tender offer to raise her stake to $\alpha \geq .5$ prior to implementing the value improvement. Her ex ante profit is then $\alpha V - (\alpha - t)P - C$, where $P$ is the per-share takeover price. Since GH free-riders do not tender unless $P$ matches the post-takeover value $V$, this profit reduces to $tV - C$. This is the same as under activism for two reasons: (a) the aggregate gains are identical in both cases due to effort being binary and (b) in neither case does the blockholder capture the gains on the $1 - t$ shares that are (initially) widely held due to the dual free-rider problem.

[4] Their model allows tender offers only with some exogenous probability. Because their analysis abstracts from the free-rider problem, takeover activism would not emerge without this restriction.

Two caveats readily come to mind. First, a bidder ends up owning a majority stake and her incentives to identify potential improvements and execute them are therefore stronger. Thus, the value improvement is likely to be larger in a takeover. Second, as majority ownership confers control, a takeover allows a blockholder to dispense with costly activities that she would otherwise have to engage in as part of a campaign. At first sight, these caveats seem to favor takeovers.

To examine this conjecture, we introduce in the next section a more general setting with three key features: (1) there is more than one positive effort level; (2) the blockholder's capability to improve value is independent of how she obtains control; and (3) value improvement and control acquisition are distinct activities. Differences between takeovers and activism originate only in the latter activity: a bidder gains control by buying a majority stake, whereas an activist engages in other costly actions to gain control in spite of being a minority owner.

## 2. Takeover or Activism

### 2.1 Scope for value improvement

Consider a firm with dispersed share ownership, except for a toehold $t < 1/2$ that is owned by a single investor. Following the takeover literature exploring the free-rider problem, we assume a mass $1-t$ of shares distributed among an infinite number of shareholders whose individual holdings are both equal and indivisible.[5] If the investor gains control, she can create a value improvement $V(e,\theta) \geq 0$, where $e \geq 0$ denotes her restructuring effort and $\theta > 0$ parameterizes the marginal return to effort. This productivity parameter captures firm-specific restructuring potential or investor-specific skill. Restructuring effort comes at a cost $C(e)$.

Since the comparative statics with respect to $\theta$ will be key to our results, we should point out that it is a priori not innocuous whether the productivity parameter appears in the public value function $V$ or in the private cost function $C$ due to the free-rider problem. However, as we show in Section A of the Internet Appendix, the main insights obtain in either case.

Continuity of effort is an abstraction that makes the analysis very tractable. One can extrapolate from our results that the identified trade-offs also emerge in models with discrete effort levels, which can be thought of as different *types* of restructuring objectives requiring varying levels of engagement. Hence, effort differences between bidders and activists in our model can be interpreted as takeovers and activism being associated with different types of (strategic, operational, financial, or governance) objectives and changes.

[5] In models with a finite, discrete shareholder base, the free-rider problem worsens with the number of shareholders. At the limit, as the number of shareholders grows, the equilibrium outcome approaches the Grossman and Hart (1980) result that target shareholders extract all the gains in security benefits on tendered shares (Bagnoli and Lipman 1988; Holmström and Nalebuff 1992).

Suppose the investor had control with an ownership stake $s \geq t$. She would then solve

$$\max_{e \geq 0} sV(e,\theta) - C(e). \tag{1}$$

This is analogous to the problem faced by the owner-manager in Jensen and Meckling (1976), once $1-s$ of the equity has been sold to investors.[6] We assume that $V(.,.)$ and $C(.)$ are twice differentiable functions with the following properties:

**Assumption 1.** $V_e(.,.) > 0$, $V_{ee}(.,.) \leq 0$, $V_{e\theta}(.,.) > 0$, $V_\theta(0,.) = 0$, $C_e(.) > 0$, and $C_{ee}(.) > 0$.

In words, the value improvement is strictly increasing and (weakly) concave in effort. The return to effort strictly increases with the productivity parameter $\theta$. The cost function is strictly increasing and convex. These properties make the investor's payoff concave in restructuring effort.

**Assumption 2.** $C_e(0) = 0$, $\lim_{e \to \infty} C_e(e) = \infty$, and $\lim_{e \to \infty} V_e(e,\theta) = 0$ for all $\theta$.

These conditions ensure that the first-order condition of the restructuring effort problem always has an interior solution.

**Assumption 3.** $tV(0,\theta) \geq C(0)$ for all $\theta$.

This assumption—toehold gains under zero effort exceed restructuring costs—precludes cases in which the investor remains passive even if *granted* control due to some fixed cost. It is trivially satisfied for $C(0) = 0$ and hence relevant only for $C(0) > 0$.

Assumptions 1 to 3 ensure a unique, positive solution for the restructuring effort problem (1). To guarantee that the set of $\theta$ for which tender offers are profitable is nonempty, we further impose the assumption that returns to effort vanish as $\theta \to 0$.

**Assumption 4.** $\lim_{\theta \to 0} V_e(e,\theta) = 0$ for all $e$.

The solution to the restructuring effort problem applies to bidders and activists alike. Denote the optimal restructuring effort by $e(s,\theta)$ and the resultant payoff by $\Delta(s,\theta) \equiv sV(e(s,\theta),\theta) - C(e(s,\theta))$.

[6] We assume a bidder's or activist's restructuring incentives are determined by her equity stake and abstract from compensation as an additional incentive mechanism. In Section B of the Internet Appendix, we discuss that allowing for compensation in a way that is consistent with free-riding behavior does not overturn our results.

**Lemma 1.** For any ownership stake $s \geq t$, $e(s,\theta)$ is unique and strictly positive. Furthermore, $e(s,\theta)$ and $\Delta(s,\theta)$ are strictly increasing in $s$ and $\theta$.

Because of JM free-riding by the other shareholders, the investor's effort only depends on her own stake $s$. It causes the privately optimal effort to increase with $s$, and the first best is attained at $s=1$. Effort and surplus also increase with productivity $\theta$.

By Assumption 3, the owner of the toehold would like to implement value improvements. But she lacks the formal authority to do so since $t<1/2$. We consider two strategies for gaining control. On the one hand, she can *buy* control by acquiring at least $1/2-t$ shares. On the other hand, she can try to gain control without a majority stake through *work*, that is, by running a costly activist campaign.

### 2.2 Disciplinary takeover

Our tender offer model follows Burkart, Gromb, and Panunzi (1998) except that the bidder engages in effort provision instead of diversion. She needs at least half of the voting rights to control the firm. All shares carry the same number of votes. The sequence of events is as follows:

In stage 1, the bidder with a toehold $t_b=t$ makes a first-and-final, restricted tender offer to buy $r_b$ shares at a cash price of $p_b$ per share, conditional on her holding a final stake $s_b$ no less than 50%. Following the literature on control contestability, we assume that the incumbent management is opposed to the restructuring, which necessitates the tender offer, but is unable or unwilling to counterbid.

In stage 2, the target shareholders noncooperatively decide whether to tender their shares. Being atomistic, each perceives herself as nonpivotal for the tender offer outcome.

In stage 3, the takeover fails if less than $1/2-t$ shares are tendered. Otherwise, the bidder pays the offered price and gains control with a post-takeover stake of $s_b=t_b+r_b$. Once in control, she chooses her restructuring effort $e_b$. Whether the effort is exerted before or after the takeover is not important for our results, as we discuss later.

The game is solved backward. If in control at stage 3, the bidder solves the restructuring effort problem (1) with $s=s_b$. Let $V^*(s_b,\theta)$ and $C^*(s_b,\theta)$ denote the post-takeover firm value and restructuring cost under the optimal effort when the bidder's take is $s_b$, that is, as indirect functions of $s_b$ given optimal effort. By Lemma 1, due to JM free-riding, total surplus $V^*(s_b,\theta)-C^*(s_b,\theta)$ would be maximized if the bidder acquired all outstanding shares, that is, if $r_b=1-t_b$ so that $s_b=1$.

At stage 2, there is GH free-riding. Each target shareholder tenders her shares only if the price at least matches the expected post-takeover share value, that is, if $p_b \geq V^*(s_b^c,\theta)$, where $s_b^c$ is her conjecture about the bidder's post-takeover stake. We assume that this (weak) inequality is not only necessary but also

sufficient for tendering. Under this assumption, every shareholder tenders in a successful bid and the bidder buys $r_b$ shares with certainty.[7] Given rational expectations, the free-rider condition is therefore $p_b \geq V^*(t_b+r_b,\theta)$. As the right-hand side increases with $r_b$, the supply of tendered shares is upward-sloping. The intuition is that buying more shares incentivizes the bidder to generate more value, which in turn induces shareholders to hold out unless the bid price $p_b$ increases equally much.

Writing the stage-2 and stage-3 equilibrium strategies as constraints, the bidder's optimization problem at stage 1 is

$$\underset{r_b,p_b}{\text{maximize}} \quad s_b V(e_b,\theta)-C(e_b)-r_b p_b \tag{2}$$

$$s.t. \quad p_b \geq V(e_b,\theta_b) \tag{3}$$

$$r_b \geq 1/2-t_b \tag{4}$$

$$s_b V_e(e_b,\theta)=C_e(e_b) \tag{5}$$

$$s_b=t_b+r_b. \tag{6}$$

Constraints (3) to (6) are, respectively, the free-rider condition (stage 2), the majority requirement for control, the post-takeover incentive constraint (stage 3), and the bidder's post-takeover equity stake.

The next result describes the equilibrium structure of a successful takeover. It is the costly effort analog of lemma 3 in Burkart, Gromb, and Panunzi's (1998) model with costly diversion.

**Lemma 2 (Burkart, Gromb, and Panunzi 1998).** In a successful takeover, the bidder acquires $r_b^*=1/2-t_b$ shares at a per-share price equal to the post-takeover share value $p_b^*=V^*(1/2,\theta)$.

According to Lemma 1, by improving bidder incentives, every tendered share increases the post-takeover share value by some measure $dV$ and the bidder's costs by some measure $dC$. Because GH free-riders extract $dV$ through a corresponding price increase $dp_b$, the bidder is left with just the cost increase $dC$. Hence, while value creation becomes more efficient from a social perspective, the effort is too high from the bidder's (ex ante) perspective. We label this consequence of GH free-riding the *unrecompensed effort problem*. Because of it, the bidder buys no more shares than needed for control, that is, to reach $s_b=1/2$. She consequently generates a value of $V^*(1/2,\theta)$, which the bid price matches due to the free-rider condition.[8]

[7] If bids are unrestricted, a successful equilibrium bid features $r_b$ (randomly selected) shareholders tendering such that $p_b=V^*(t_b+r_b,\theta)$. Hence, allowing for restricted bids does not alter the equilibrium outcome, but spares us the assumption that shareholders somehow coordinate on tendering precisely $r_b$ shares.

[8] The final stake being $1/2$ is unimportant for our comparative statics results, which would be *more* pronounced if the bidder bought more or all shares, for example, because of going private, tax considerations, or bidding competition.

The insight that the bidder does not profit from acquiring shares *per se* implies that the takeover is essentially but a *costly* method of acquiring *control*. We now study how this "cost" depends on the productivity parameter $\theta$. This comparative statics result has no parallel in Burkart, Gromb, and Panunzi (1998).

**Proposition 1.** In the tender offer game:

(i) For any given $\theta$, there exists a toehold threshold $\bar{t}_b > 0$ such that a takeover is unprofitable for all $t_b < \bar{t}_b$.

(ii) Bidder profits are positive at the limit $\theta \to 0$. There exists a toehold threshold $\bar{\bar{t}}_b > 0$ such that bidder profits strictly decrease in $\theta$ for all $t_b < \bar{\bar{t}}_b$.

These results are driven by constraints (3) to (5) in the bidder's stage-1 optimization: GH free-riders demand a price that incorporates the entire value improvement but excludes private costs (3). Still, the bidder must buy enough shares to reach a majority stake (4). At the same time, she cannot commit to provide *less* effort than the majority stake induces, and JM free-riders do not share in the costs (5). In consequence, she weighs gains on only her *toehold* $t_b < 1/2$ against costs that are commensurate with a *majority stake* $s_b = 1/2$. Indeed, substituting the binding free-rider condition from Lemma 2 into the bidder's profit function yields

$$t_b V(e(1/2,\theta),\theta) - C(e(1/2,\theta)). \tag{7}$$

The terms represent, respectively, the bidder's toehold gains and costs under the majority stake. If $t_b$ is too small, the former fall short of the latter. In this case the unrecompensed effort problem makes a bid unprofitable (part *i* of the proposition).

Regarding the impact of $\theta$, note that (7) reduces to $-C^*(e(1/2,\theta))$ for $t_b = 0$. Without a source of private gains, such as the toehold, the bidder only incurs costs (Grossman and Hart 1980). With endogenous value creation, the cost $C^*(e(1/2,\theta))$ increases in the productivity parameter $\theta$, as a higher $\theta$ induces a larger effort. That is, more valuable takeovers are costlier. For $t_b > 0$, the toehold gains $t_b V(e(1/2,\theta),\theta)$, which increase in $\theta$, provide a countervailing effect. But for small $t_b$, the cost effect dominates such that bidder payoffs decrease in $\theta$ (part *ii* of the proposition).[9]

From a practical, less abstract perspective, more valuable takeovers being "costlier" manifests itself to a blockholder through the effects captured by

[9] The envelope theorem does not apply when taking the total differential of (7) because the indirect derivative with respect to effort is $t_b V_e(e(1/2,\theta),\theta) - C_e^*(e(1/2,\theta))$. This is not zero because the optimal effort satisfies the first-order condition for (1) under the *majority stake*: $1/2 V_e(e(1/2,\theta),\theta) - C_e(e(1/2,\theta)) = 0$. Rather, it is negative given $t_b < 1/2$, reflecting the unrecompensed effort problem.

constraints (3) and (5). A takeover for which a bidder would be motivated to invest a *large effort* as per (5) is one for which target shareholders would require a *high takeover premium* as per (3) because of the expected large value improvement. That is, bidders perceive high $\theta$, or severe unrecompensed effort problems, in the form of large efforts *plus* high takeover premiums.

The unrecompensed effort problem does not depend on the timing of effort. It arises also if all effort occurs before the bid as long as effort is unobserved: In anticipation of a takeover, a bidder has incentives to exert effort $e(s_b, \theta)$ in accordance with her expected majority stake $s_b \geq 1/2$. Rational shareholders infer this and therefore hold on to their shares for any price $p_b$ below $V^*(s_b, \theta)$, thereby creating the unrecompensed effort problem. To avoid this, the bidder would have to commit to effort $e(t_b, \theta)$ in accordance with her toehold instead, but is unable to do so given effort is unobservable. This implies that in an extended model with effort(s) incurred dynamically around the takeover, the bidder exerts unrecompensed effort at *all* points in time. Only in two cases does the unrecompensed effort problem vanish, neither of which pertains to timing: (a) when effort is binary such that ex ante and ex post optimality do not diverge for nonzero effort and (b) when effort is observable such that the bidder can commit to her ex ante optimal effort level. (Debating governance mechanisms when effort is observable is, of course, somewhat incongruous.)

Last, note that a higher return to effort benefits a controlling shareholder (Lemma 1). The analog in Burkart, Gromb, and Panunzi (1998) is that a lower cost of diversion benefits a controlling shareholder. But unlike in our effort model, this also benefits *bidders* at the target shareholders' expense. The key difference is that diversion reduces share value to the bidder's benefit, while effort raises share value at a cost to the bidder. Our results thus apply only to governance contexts in which free-riding frustrates valuable effort (rather than enables self-dealing) by large or controlling shareholders.

### 2.3 Regular activism

Now suppose the toehold owner seeks the influence for carrying out the value improvement through activism instead of a tender offer. Activists use diverse tactics, such as informal communications with management, media campaigns, shareholder proposals, and proxy contests. Instead of picking one tactic for our analysis, we employ a reduced-form model that, as we show in Section C of the Internet Appendix, is consistent with various micro-foundations (based on, e.g., Brav et al 2017; Maug and Rydqvist 2009; Brav and Matthews 2011; Gantchev 2013). We will later clarify which properties of our reduced-form specification are crucial for the results.

An activist campaign succeeds with probability $q(a, \psi, s)$ and imposes private cost $K(a)$ on the activist, where $a \geq 0$ is her campaign effort and $\psi \geq 0$ is campaigning efficacy, which may depend on activist skill and institutional

factors.[10] In addition, it is plausible that $q$ depends on the activist's stake $s$. The activist's own voting power raises the chance that she succeeds, and lowers the number of other shareholders she must mobilize to succeed. This does not necessarily require an actual vote, as the threat of an escalation or proxy fight can cause management to agree to the activist's demands (e.g., Gantchev 2013; Fos 2017).

To ensure a well-behaved optimization problem with a nonempty set of $\psi$ for which the activist makes a profit, we impose in analogy to Assumptions 1 and 2:

**Assumption 5.** $q_a(.,.,.)>0$, $q_{aa}(.,.,.)\leq 0$, $q_\psi(.,.,.)>0$, $q_{a\psi}(.,.,.)>0$, $q_s(.,.,.)\geq 0$, $K_a(.)>0$, and $K_{aa}(.)>0$.

**Assumption 6.** $K_a(0)=0$, $q(0,.,.)=0$, and $\lim_{\psi\to\infty} q_a(.,.,.)=\infty$.

The activism game unfolds as follows: Owning an initial stake $t_a=t$, the activist decides in stage 1 whether to launch a campaign, and if so, chooses campaign effort $a$. If the campaign succeeds, she chooses restructuring effort $e_a$ in stage 2 to improve firm value. Otherwise, no restructuring takes place.

We proceed again by backward induction. If a campaign succeeds, the activist solves the stage-2 restructuring effort problem (1) with $s=t_a$. Excluding campaign costs, she thus earns $\Delta(t_a,\theta)$ when the campaign succeeds. In stage 1, if the activist launches a campaign, she solves

$$\begin{aligned} \underset{a}{\text{maximize}} \quad & q(a,\psi,t_a)\Delta(t_a,\theta)-K(a) \\ s.t. \quad & q(a,\psi,t_a)\leq 1 \end{aligned} \tag{8}$$

Assumptions 5 and 6 guarantee that a solution exists and is unique.

**Lemma 3.** If the activist launches a campaign, she exerts a uniquely optimal campaign effort $a^*$ and succeeds with probability $q(a^*,\psi,t_a)$. If successful, she improves firm value to $V^*(t_a,\theta)$.

A comparison with Lemma 2 shows that a takeover would always be socially more efficient than activism. In addition to incurring deadweight campaign costs $K(a^*)$, a successful activist creates less value, $V^*(t_a,\theta)<V^*(1/2,\theta)$, because the takeover results in a larger ownership stake, $1/2>t_a$. This is consistent with the notion that bidders, or controlling owners, are willing to immerse themselves

[10] Considerable costs as well as failures of campaigns are well documented. For a sample of 1,492 campaigns from 2000 to 2007, Gantchev (2013) puts the average cost at $10.5 million, about one-third of the average gross return of a campaign. Of 611 campaigns with well-specified objectives, Brav, Jiang, and Kim (2010) find that 52.4% were at least partly successful, leaving 47.6% to be failed campaigns.

into bringing about substantial changes in the long run, while activists may only find it worthwhile to pursue quick fixes. As the choice of intervention mode is endogenous, the reverse statement holds too: for small intended changes, activism is chosen, while plans for more substantial changes call for a takeover.

This means that the advantage of activism cannot lie in improving firm value *per se*, since this is more effectively done through a takeover. Instead, any advantage must lie in its alternative approach to the free-rider problem—or else, it is dominated by a takeover. In parallel to our takeover analysis, we focus on the effects of the productivity parameter $\theta$ and toehold size $t_a$.

**Proposition 2.** In the activism game:

(i) For any given $\theta$, the success probability $q$ goes to zero as $t_a \to 0$. For $K(0) > 0$, there exists a toehold threshold $\bar{t}_a > 0$ such that a campaign is unprofitable for all $t_a < \bar{t}_a$.

(ii) Activist expected profits strictly increase in $\theta$ for all $t_a > 0$.

Like bidders, activists need a large enough toehold to make a profit, as the value improvement on the other shares accrues to JM free-riders. A smaller toehold reduces the payoff $\Delta(t_a, \theta)$, which in turn depresses incentives to invest in a campaign, lowering campaign effort $a^*$ and success probability $q(a^*, \psi, t_a)$. The resultant gains may be too small to recoup the fixed costs of a campaign if $K(0) > 0$ (part *i* of the proposition). We refer to this as the *limited effort problem*.

While socially less efficient, the activist's effort levels are privately ex ante optimal: restructuring and campaign efforts are chosen under the initial stake $t_a$. Accordingly, her expected payoff under (8) strictly increases in the productivity parameter $\theta$ as per the envelope theorem and Lemma 1 (part *ii* of the proposition). In other words, a higher return to effort increases the activist's payoff *because* her effort is optimally limited. At the same time, given that her effort will be optimally limited, the most attractive campaign targets are those for which even little effort has a large impact on value. The contrast between the second parts of Propositions 1 and 2 is our central result, which we restate separately:

**Proposition 3.** A higher productivity parameter $\theta$ always increases activist profits, while it decreases bidder profits for small toeholds ($t_b < \bar{\bar{t}}_b$). As a result, although a takeover is more efficient, activism is more profitable when the toehold and campaign costs are small and the productivity parameter is large.

Bidders and activists differ in our model only in that the former buy control and the latter work for it. The reason their intervention modes are preferable

for different parameter values is *that they face different forms of free-riding*. Working for control faces JM free-riding, which creates a limited effort problem where low returns to effort lead to small profits. Buying control faces GH free-riding, which generates an unrecompensed effort problem where high returns to effort lead to small profits. Activism and takeovers are thus profitable at opposite ends of the range of $\theta$, despite both of them being subject to free-riding.

But as mentioned, takeovers are more efficient. While unrecompensed effort involves a transfer of rents from bidder to target shareholders, campaign costs and foregone value creation are deadweight losses. Social and private optimality diverge because the free-riding behavior converts social benefits of takeovers (better incentives) into private losses (unrecompensed effort) and, by the same token, social costs of activism (campaign cost) into private gains (avoiding unrecompensed effort).

The empirical implications of Proposition 3 are distinctive: if one isolates variation in (a measure of) $\theta$, bidder profits should be smaller in tender offers that increase target values more. By contrast, activist profits should be larger in campaigns that increase target values more. In addition, campaigns can be more profitable than hostile takeovers even when the associated effects on target value exhibit the opposite ranking. Indeed, Proposition 3 does *not* generally associate activism with larger value improvements (see Figure 1). While takeovers emerge for lower $\theta$, the more concentrated ownership creates stronger incentives to improve value. Comparing takeovers and activism, prima facie evidence for our theory would be that intervention profit is not positively, but inversely, related to aggregate or target gains. (This excludes takeover activism, which we analyze in Section 3.) This pattern is difficult to generate in a model without free-riding, as we explain in Section F of the Internet Appendix.

Hardly any restriction we impose through Assumptions 5 and 6 on our reduced-form technology $q(a,\psi,s)$ and $K(a)$ is critical. The assumptions serve to ensure unique, possibly interior solutions for campaign effort. But even in settings with discrete, corner, or multiple solutions for campaign effort, activist profits increase in $\theta$. Restructuring efforts being chosen after campaign efforts is not crucial either. Proposition 3 holds even if $a$ and $e_a$ are set simultaneously or in reverse order. In conjunction with the analogous discussion for takeovers (end of Section 2.2), this implies that the timing of effort is irrelevant; the identified differences between buying control and campaigning for control hold regardless of when efforts are incurred relative to the control change.

Only the assumption that neither $q$ nor $K$ *directly* depend on $\theta$ is not innocuous. Relaxing it can strengthen or weaken our results. If more valuable campaigns succeed more easily ($\frac{\partial q}{\partial \theta} > 0$), our central result is reinforced. The converse—it is more difficult for such campaigns to succeed—could (but need not) overturn the result, depending on the magnitude of this countervailing

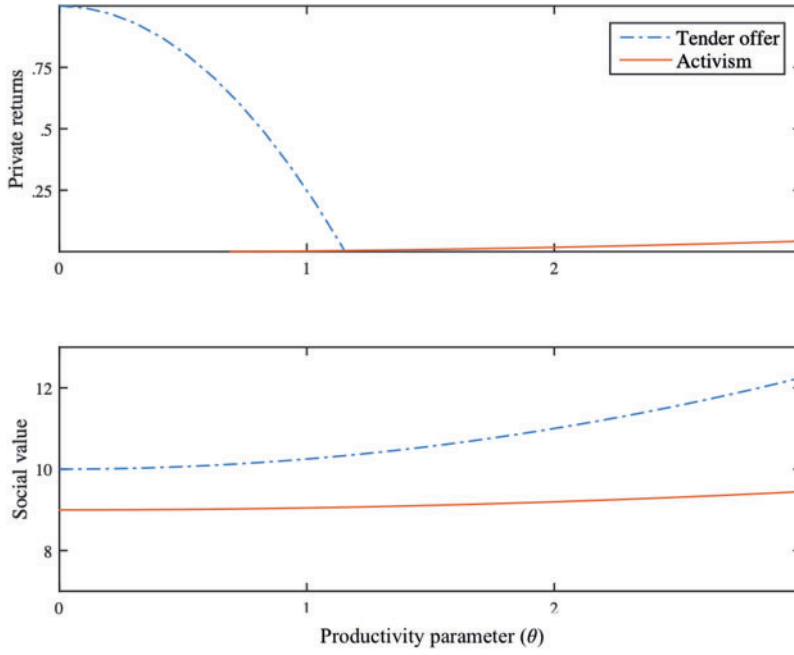


**Figure 1**
Comparing activism and takeovers. Bidder profits decrease, while activist profits increase in the productivity parameter $\theta$; above some point, activism is more profitable (top). From a social perspective, takeovers are always more efficient (bottom). This graph assumes $V(e,\theta) \equiv \theta e + 10$, $C(e) \equiv \frac{e^2}{2}$, $q(a,t_a) \equiv 20t_a a$, $K(a) \equiv \frac{a^2}{4} + .94$, and $t_a = t_b = .1$.

effect. Though this would mean that shareholders are *less* supportive of campaigns they gain *more* from.

Propositions 1 and 2 consider each type of intervention in isolation and Proposition 3 compares outcomes. For parameters under which either intervention is profitable, a blockholder may choose between them. This does not overturn the comparative statics underlying Proposition 3. A bidder's outside option does not affect her offer, which is pinned down by the free-rider condition and the majority requirement. Campaigns do become less profitable because the option of resorting to a bid after a failed campaign reduces campaign efforts. But this effect decreases in $\theta$ as the value of that outside option (i.e., the profit from a tender offer) shrinks.

In an earlier version of this paper, we study a model extension in which activists can make post-disclosure share purchases to increase their stake (Burkart and Lee 2019, section 4). The benefit of such purchases is that it becomes easier to succeed with the campaign, which we refer to as *buying influence*. We stress two insights. First, the unrecompensed effort problem endogenously limits how many shares activists purchase. Second, campaigns

(takeovers) stay optimal for high (low) values of the productivity parameter $\theta$, and the optimal activist stake decreases in $\theta$.

## 3. Takeover Activism

According to the previous section, the advantage of activism lies not in restructuring *per se*, which is better done through takeovers, but its alternative approach to gaining control of the target. This raises an interesting question: what if, instead of restructuring the firm herself, a successful activist uses that control to initiate a merger that concentrates ownership in the hands of a third party? We refer to such campaigns as takeover activism.

To study this strategy, we modify the activism game of Section 2.3 as follows: In stage 1, owning $t_a > 0$ shares, the activist can launch a campaign and choose a campaign effort $a$ to seize control of (or convince) the board to negotiate a merger.[11]

If the campaign succeeds, she negotiates in stage 2 on behalf of all target shareholders a merger with a bidder who already has $t_b \geq 0$ shares. For simplicity, we assume that the activist has all the bargaining power and makes a first-and-final offer to the bidder. (We consider alternative bargaining power allocations in Section D of the Internet Appendix.) The offer specifies a fraction $r_m$ of shares to be sold to the bidder and the price $p_m$ to be paid per share.

In stage 3, if the bidder declines the offer, the game ends. Otherwise, she gains control and chooses her restructuring effort $e_b$. If $r_m < 1 - t_b$, the merger is prorated among target shareholders. The prorated merger can be a restricted cash or cash-equity deal in which target shareholders get cash plus $1 - t_b - r_m$ shares in the post-merger firm.

In a merger, the board *forces* target shareholders to sell shares at the negotiated price even if they individually prefer to retain them. It has been argued before, in the context of freeze-out mergers, that this in principle resolves the free-rider problem (Yarrow 1985; Amihud, Kahan, and Sundaram 2004). However, it is common for shareholders to legally challenge the merger terms, and Müller and Panunzi (2004) show that such legal risk, even if small, fully restores the free-rider problem.[12] For robustness reasons, we hence include legal risk in our analysis, like Müller and Panunzi, as a potential price revision:

[11] Boyson, Gantchev, and Shivdasani (2017) and Jiang, Li, and Mei (2018) also describe a strategy referred to as deal jumping in which activists engage already announced merger plans to push for another or better deal. If no rival bidder is involved, this strategy can be mapped onto our model of regular activism with improved merger terms being the desired value improvement. If the activist supports a rival bidder, our comparison of takeover activism and tender offers in the subsequent section may help to explain why deal jumping can be preferable to contesting a friendly merger with just a tender offer.

[12] Virtually all major M&A deals in the United States attract shareholder litigation. In 2013, lawsuits were filed against 97.5% of transactions with a value greater than $100 million (Cain and Solomon 2014). Müller and Panunzi (2004) show that such legal risk renders freeze-out mergers ineffective against the free-rider problem. We replicate this insight in Section E of the Internet Appendix. In our setting with endogenous value creation, bidders are, in fact, harmed by having the option to freeze out minority shareholders.

with probability $\epsilon$, the merger price is ex post adjusted to the full post-merger share value due to a successful challenge.

### 3.1 Brokering a merger

Proceeding backward, consider stage 3. If a merger is realized, the bidder chooses her restructuring effort $e_b$ owning $s_b = t_b + r_m$ shares. As we show in the proof of Lemma 4, this effort problem can be written as (1) except that $s_b$ is replaced with $\hat{s}_b \equiv t_b + (1-\epsilon) r_m$ due to the legal risk $\epsilon$. Thus, by Lemma 1, the bidder's optimal effort $e(\hat{s}_b, \theta)$ increases in what we call her "effective" stake $\hat{s}_b$, which in turn decreases in $\epsilon$. Intuitively, shareholders can free-ride with probability $\epsilon$ via a price revision, which reduces the bidder's effort incentives.

In stage 2, if a campaign succeeded, the activist proposes merger terms $(r_m, p_m)$ that benefit target shareholders most. The optimal terms maximize gains from trade and must respect the bidder's participation constraint (or else the offer is rejected). Thus, no effort is unrecompensed and, since the surplus increases in the bidder's stake, she is offered $r_m = 1 - t_b$ shares and ends up owning the whole firm, that is, $s_b = 1$.

**Lemma 4.** If the campaign of a takeover activist is successful, she negotiates a merger with a bidder who acquires the whole firm and improves its value to $V^*(1-\epsilon(1-t_b), \theta)$.

Given our bargaining power assumption, the activist offers terms such that the bidder's takeover gains only cover her effort cost. So the target shareholders' collective payoff, denoted by $R^*$, equals the merger surplus. With the bidder buying $1-t_b$ shares, the per-share price is hence $\frac{R^*}{1-t_b}$. As $t_a$ of the shares come from the activist, the latter's merger payoff is $t_a \frac{R^*}{1-t_b}$.

The activist maximizes $q(a, \psi, t_a) t_a \frac{R^*}{1-t_b} - K(a)$ subject to $q(a, \psi, t_a) \leq 1$ when choosing campaign effort $a$ in stage 1. The only difference to her stage-1 problem under regular activism (Section 2.3) is that the payoff from a successful campaign is $t_a \frac{R^*}{1-t_b}$ instead of $\Delta(t_a, \theta)$.

The activist's source of gains is still her toehold, but the increase in share value is generated by a bidder in a merger rather than by herself. As the bidder buys the whole firm in a merger, $t_a \frac{R^*}{1-t_b} > \Delta(t_a, \theta)$ when legal risk $\epsilon$ is sufficiently small. In fact, for $\epsilon \to 0$, $R^*$ converges to the first-best restructuring surplus $\Delta(1, \theta)$.[13] Whenever $t_a \frac{R^*}{1-t_b} > \Delta(t_a, \theta)$, takeover activism is more profitable and induces more effort than regular activism. Paired with Proposition 3, this means that takeover activism can simultaneously outperform regular activism and tender offers.

[13] In practice, under the baseline review standard for mergers (*business judgement rule*), the risk is arguably small. A stricter review is triggered if a merger involves controlling shareholders (*entire fairness doctrine*) or is initiated by management (*Revlon duties*). This does not apply to firms put in play by activists (*Lyondell Chemical Co. v. Ryan*).

**Proposition 4.** For low legal risk,

(i) takeover activism is more profitable, succeeds with higher probability, and leads to larger value improvements if successful than regular activism, for any $t_a > 0$ and $t_b \geq 0$.

(ii) takeover activism with $t_a + t_b = t$ is more profitable than tender offers with $t_b = t$ when the toehold $t$ and campaign costs are small and the productivity parameter $\theta$ is large.

The dual free-rider problem is fundamental to this result. In the control stage, takeover activists avoid GH free-riding by campaigning on minority stakes, keeping this advantage relative to bidders. Contrary to regular activists, they then get rid of JM free-riding in the restructuring stage by inviting a bidder to buy the whole firm in a merger. In this sense, takeover activism combines the best of both worlds. To emphasize the importance of the dual free-rider problem in another way, note that (1) without JM free-riding, perfectly coordinated shareholder actions make ownership concentration unnecessary, while (2) without GH free-riding, tender offers dominate takeover activism, as they save on campaign costs.[14]

It is instructive to rephrase the comparisons to takeovers and regular activism in practical terms. A takeover simultaneously transfers control and concentrates ownership. A takeover activist first seeks control without a commensurate increase in ownership in order to concentrate ownership afterward. Having a path to control with *limited* ownership is a source of efficiency.[15] The comparison to regular activism shows that an activist's most effective line of attack is not to implement the desired strategic or operational changes but to address the underlying incentive problem. In our model, this amounts to concentrating ownership in the hands of a bidder who, with near first-best incentives after the merger, implements the ultimate value improvements. When aimed at correcting incentives for future managers, activists' engagements may not need an extended horizon. On the contrary, *temporary* ownership may be socially efficient.

Proposition 4 has implications for the type of firms activists should target. Broadly interpreted, it implies that *governance* changes, notably M&A, should be the most preferred objective of activists. This appears to be the case

[14] The identified advantage of takeover activism over tender offers does not require bidder-activist pairs to hold larger combined toeholds than single bidders, nor does it involve a buy-low-sell-high trading strategy. This differs from the analysis of merger arbitrage in Cornelli and Li (2002) where arbitrageurs buy in low at the expense of noise traders, creating blocks that relax the GH free-rider problem. Their paper and our paper investigate different real-world strategies: arbitrageurs trade to help existing offers succeed, whereas takeover activists campaign to initiate or amend mergers. The advantage is also robust to freeze-out mergers, which successful bidders can use to force out remaining minority shareholders (see footnote 12).

[15] This is related to the result in Burkart and Lee (2015) that decoupling voting rights (control) from cash flow rights (ownership) can be efficient because dispersed shareholders do not value holding on to control rights, which confines the free-rider problem to cash flow rights.

(Brav et al 2008; Greenwood and Schor 2009; Boyson and Mooradian 2011). Even if the sale of the company is not explicitly stated as an objective in the 13-D filing, activists tend to target firms that could be attractive to acquirers. The survey by Brav et al (2010, esp. section 5) concludes that characteristics of activist targets indicate agency problems and in particular free cash flow problems (Jensen 1986), which are typical markers of buyout targets too. Greenwood and Schor (2009) find that quite a few of the firms that activists target over general corporate governance issues are eventually taken over.

Relatedly, Proposition 4 has implications for the skill set of activists. In our model, takeover activists do not need to expend resources ($C$) on specific actions to improve value ($V$), other than the governance change. According to the survey by Brav, Jiang, and Kim (2010), activists focus on "issues that are generalizable to all firms," notably governance issues, and are generally "not experts in the specific business of the firms they invest in" (210). This makes their skill transferable (Black 1990) and easily communicable (Kahn and Winton 1998). Proposition 4 adds the argument that it may simply be more efficient to leave the ultimate value improvements to other parties—who then invest in and deploy specific expertise—once incentives have been appropriately (re)aligned.[16]

Finally, the prediction that takeover activism generates higher target and activist returns, since the governance change leads to more efficient incentives and hence ultimately larger value improvements, is consistent with the return patterns documented by Greenwood and Schor (2009) and Becht et al (2017). (In the next subsection, we identify a *selection* effect that reinforces this pattern.) The image of activism that emerges from these arguments and its empirical relevance are succinctly summarized by Greenwood and Schor (363):

> Our evidence is consistent with many hedge funds' characterizations of their activism. The activist Robert Chapman, for example, seeks out companies that are "digestible" in the sense that they are easy to market to bidders as potential takeover targets…there is no significant correlation between accounting-based measures of operational change and subsequent returns—the most "successful" targets of activism are those that leave the public markets…soon after the activist becomes involved. Thus, there is a significant selection bias, in that the firms with the largest returns tend to drop out of the sample by way of takeover.

[16] This begs the question of why the takeover activist does not use a merger to concentrate ownership in her own hands. Corum and Levit (2019) show that, in light of the apparent conflict of interest in negotiating the merger price, such a campaign would be unlikely to succeed.

When taking into account the extensive evidence that buyouts *do* lead to significant strategic, operational, and financial improvements,[17] the evidence around activism and takeovers seems quite consistent with the implications of our analysis.

### 3.2 Profits, bidder-activist alliances, and M&A activity

So far, we have analyzed tender offers, regular activism, and takeover activism each in isolation and compared outcomes. We now consider cases in which all three intervention modes are simultaneously feasible. Specifically, still assuming a bidder-activist pair, if a brokered merger does not materialize, the bidder can make a tender offer and such an offer would be profitable.

Tender offer terms are pinned down by the free-rider condition (i.e., post-takeover share value) and therefore independent of the bidder's outside option. To succeed, a tender offer must be priced such that dispersed shareholders tender, as acquiring only the activist's minority stake is insufficient for gaining control. Moreover, when a tender offer is feasible, any attempt to buy out the activist in a separate block trade for less than the free-rider price fails. The activist would reject such trades in view of the higher price the bidder will pay in the alternative tender offer.

Let $t_a v_a^f > 0$ denote the activist's payoff from selling her shares in a tender offer. For (potential) activists, this outside option is always more attractive than a regular campaign: A takeover creates more value, from which a target shareholder benefits through the bid price (thanks to the free-rider condition) without incurring any campaign effort.

**Lemma 5.** Free-riding on a tender offer dominates regular activism.

Takeover activism may still arise, albeit with less intensity. On the one hand, target shareholders earn less from a merger, as the negotiation must leave the bidder with at least her tender offer profit. On the other hand, their payoff from a campaign failure increases with the tender offer as a fallback. The takeover activist's campaign effort problem is $\max_a q(a,\psi,t_a)R_a^* + (1 - q(a,\psi,t_a))t_a v_a^f - K(a)$ and her marginal return to effort is $\frac{\partial q}{\partial a}(R_a^* - t_a v_a^f)$. Both a reduced merger payoff $R_a^*$ and the tender offer payoff $t_a v_a^f$ weaken incentives. This makes any given campaign less profitable. However, a selection effect is also at work: campaigns fail to emerge unless the activist's expected profit exceeds her outside option $t_a v_a^f$.[18]

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[17] There is by now a large but still growing empirical literature documenting large buyout returns and that private equity firms create value *inter alia* by improving managerial practices, total factor productivity, innovation, technological change, human capital, growth, and product and pricing strategies (see, e.g., Chevalier 1995; Boucly, Sraer, and Thesmar 2011; Guo, Hotchkiss, and Song 2011; Lerner, Sorensen, and Stromberg 2011; Edgerton 2012; Davis et al 2014; Harris et al 2014; Bloom, Sadun, and Van Reenen 2015; Agrawal and Tambe 2016; Bernstein and Sheen 2016; Fracassi, Previtero, and Sheen 2019).

[18] This condition concerns the activist's ex ante profit, including her tender offer payoff after a failed campaign, but it implies that the same lower bound holds for her profit from a successful campaign.

**Proposition 5.** Free-riding on a tender offer need not dominate takeover activism, but the presence of this option entails that campaigns are only undertaken if expected profits exceed $t_a v_a^f > 0$.

This implies that activists earn excess returns in brokered mergers even higher than the excess returns target shareholders would have earned from a tender offer. Given the latter returns can be very high, this selection effect may contribute to the fact that takeover activism outperforms other types of campaigns in the data (Greenwood and Schor 2009; Becht et al 2017).

A brokered merger obviates the need for a tender offer. The bidder has no interest in preempting this possibility. Indeed, when selected, takeover activism Pareto dominates the other interventions: passive shareholders incur none of the activist's costs but share the benefits, while the bidder accepts no less than her tender offer profit in the merger negotiation.

**Corollary 1.** Takeover activism benefits both activists and bidders.

In other words, activists can benefit from selling targets rather than improving them directly, and bidders benefit from making merger bids rather than tender offers. This resonates with commentary that activist funds and buyout firms benefit from each other (Orol 2008, p. 8):

> They are codependent enablers…The [private equity] companies encourage the hedge fund guys to put companies in play and the activists take positions in companies and pressure for auctions enabling private equity firms to get a hold of divisions or entire companies they might otherwise not have been able to.

Indeed, there are publicized cases in which potential acquirers employed activists as "Trojan horses," who went as far as to finance the activists' stakes in targets through "toehold deals" (Gandel 2015). We discuss this and other aspects of bidder-activist interactions in Section D of the Internet Appendix. The prediction that takeover activism can be profitable when tender offers are not or may replace them—or put differently, that activists and bidders may find alliances necessary or beneficial—is reflected in the following result on the link between the M&A market and activism.

**Corollary 2.** An increase in campaigning efficacy $\psi$ spurs total M&A activity but reduces tender offers.

This prediction is consistent with broad trends: investor activism has been surging since the 1990s (Sharara and Hoke-Witherspoon 1993; Bradley et al 2010; Fos 2017), and this growth has coincided with a rise in total M&A but a decline in hostile bids (Betton, Eckbo, and Thorburn 2008, figure 9). It has

been argued that the surge resulted from regulatory changes that made it easier for shareholders to communicate and coordinate efforts (Bradley et al 2010; Fos 2017). Antitakeover mechanisms can be an alternative explanation for the substitution effect but cannot account for the rise in total M&A, nor the fact that takeover activists do more than simply remove takeover defenses.

A tacit premise of Corollary 2 is that certain changes ($\psi$) facilitate coordination in activism, but not in tender offers. One possible reason is that coordination in activism relates to *communication*: others must be persuaded to back a campaign, but once convinced, they find it individually rational to do so (cf, the micro-foundations in Section C of the Internet Appendix). By contrast, the coordination problem in tender offers concerns *commitment*: individually, no shareholder tenders for less than the expected post-takeover share value. Such differences in the nature of the coordination problem matter for the relative importance of these intervention modes as information technology and regulation evolve.

## 4. Concluding Remarks

Comparative corporate governance theory studies how alternative mechanisms fare against the same frictions on a level playing field. We compare ownership-based intervention mechanisms—takeovers and activism—in the context of widely held firms. Considering a firm in which some form of hostile intervention is necessary for value-improving changes, we examine which type of intervention is more profitable or more efficient.

We study differences that originate in the fact that the interventions confront different forms of free-riding by dispersed shareholders. These differences have distinct implications for the returns to takeovers and activism and offer a rationale for why takeover activism can outperform both tender offers and regular activism. Further, they have implications for how institutional changes affect the coevolution of these governance mechanisms, which has seen significant shifts as of late (Solomon 2013; Fujita and Barreto 2017).

Existing discussions of what makes activist hedge funds special usually focus on what may make them successful governance actors *despite* their limited ownership and temporary involvement, especially in comparison with other institutional investors (Kahan and Rock 2007; Brav et al 2008). At the same time, much of the criticism levelled against them is based on concerns that their limited stakes and horizon entail a lack of alignment (relative to the influence they seek) and a proclivity for short-termism. Our theory compares activism with takeovers. This resonates with the historical fact that the predecessors of hedge fund activists were raiders and blockholders who put targets in play during the 1980s takeover wave (Orol 2008; Carlisle 2014). More importantly, this perspective suggests that limited and temporary ownership is the very trait that allows activism to be effective as a governance mechanism.

There are three gaps in our analysis. First, we study a post-disclosure choice between different intervention strategies conditional on a toehold, but we do not endogenize the acquisition of the toehold in anonymous, predisclosure markets. This latter problem—in which there is scope for profitable cut-and-run strategies—has been comprehensively studied by Back et al. (2018). We leave an analysis of how predisclosure and post-disclosure decisions interact to future work. Second, we do not explicitly model the underlying managerial agency problem and therefore abstract from managerial responses to the threat of intervention. This is common in the literature on activism and on takeovers (with Scharfstein [1988] and Fos and Kahn [2019] being notable exceptions). While endogenizing the managerial agency problem goes beyond the scope of this paper, our results predict when activism or a takeover poses the relevant or greater threat, which in turn should affect optimal managerial responses. Last, our model focuses only on active shareholder strategies, that is, voice. A complete framework of shareholder governance should further compare exit strategies (Edmans 2009; Admati and Pfleiderer 2009) with voice strategies in light of the effects analyzed in this paper.

## Appendix. Proofs

**Proof of Lemma 1**

Assumption 1 implies $sV_{ee}(e)-C_{ee}(e)<0$ for all $e$, that is, strict concavity of the objective function, and Assumption 2 implies $sV_e(0)-C_e(0)=sV_e(0)>0$ and $\lim_{e\to\infty} sV_e(e)-C_e(e)=-\infty$. Hence, the first-order condition $sV_e(e,\theta)=C_e(e)$ has a unique, strictly positive solution, and identifies the global maximum provided that the associated investor payoff is positive. This last condition holds because $\Delta(s,\theta)\geq sV(0,\theta)-C(0)>tV(0,\theta)-C(0)\geq 0$, where the last weak inequality applies Assumption 3. By the implicit function theorem, $\frac{\partial e(s,\theta)}{\partial s}=-\frac{V_e(e,\phi)}{sV_{ee}(e,\phi)-C_{ee}(e)}>0$ and $\frac{\partial e(s,\theta)}{\partial \phi}=-\frac{V_{e\theta}(e,\phi)}{sV_{ee}(e,\phi)-C_{ee}(e)}>0$. Furthermore, $\frac{\partial \Delta(s,\theta)}{\partial s}=[sV_e(e,\phi)-C_e(e)]\frac{de}{ds}+V(s,\theta)>0$ and $\frac{\partial \Delta(s,\theta)}{\partial \theta}=[sV_e(e,\phi)-C_e(e)]\frac{de}{d\theta}+sV_\theta(s,\theta)>0$ by the envelope theorem. ■

**Proof of Lemma 2**

For admissible $e_b$ and $r_b$, the objective function decreases in $p_b$. Hence, $p_b$ is optimally set to its lower bound in (3): $p_b=V(e_b,\theta)$. Substituting this into the objective function and differentiating with respect to $s_b$ yields $[t_bV_e(e_b,\theta)-C_e(e_b)]\frac{\partial e_b}{\partial s_b}$. If this derivative is negative for all $s_b>t_b$, $s_b$ is optimally set to its lower bound given by (4). This is indeed the case: While $\frac{\partial e_b}{\partial s_b}>0$ by Lemma 1, it follows from (5) that $t_bV_e(e_b,\theta)-C_e(e_b)<0$ since $t_b<s_b$. By constraint (3), the bid price is therefore $p_b=V^*(1/2,\theta)$. ■

**Proof of Proposition 1**

Using Lemma 2 and the binding free-rider condition, the bidder's profit can be written as $\Pi_b^*(t_b,\theta)=t_bV^*(1/2,\theta)-C^*(1/2,\theta)$. Part (i) follows from $\partial\Pi_b^*/\partial t_b>0$, $\Pi_b^*(0,\theta)=-C^*(1/2,\theta)<0$, and $\Pi_b^*(1/2,\theta)=\Delta(1/2,\theta)>0$ by Lemma 1. Next, since $V^*(1/2,\theta)\equiv V(e_b^*,\theta)$ and $C^*(1/2,\theta)\equiv C(e_b^*,\theta)$ depend also indirectly on $\theta$ via $e_b^*$ (i.e., the incentive constraint (5)), $\frac{d\Pi_b^*}{d\theta}=t_bV_\theta(e_b^*,\theta)+\left[t_bV_e(e_b^*,\theta)-C_e(e_b^*,\theta)\right]\frac{de_b^*}{d\theta}$. This is strictly negative if $t_bV_\theta(e_b^*,\theta)<-[t_bV_e(e_b^*,\theta)-C_e(e_b^*,\theta)]\frac{de_b^*}{d\theta}$. As $t\to 0$, the left-hand side goes to 0, while the right-hand side goes to $C_e(e_b^*,\theta)\frac{de_b^*}{d\theta}>0$. Combined with $\lim_{\theta\to 0}\Pi_b^*(t,\theta)=tV(0,0)-C(0)\geq 0$ (Assumption 3), this implies part (ii). ■

**Proof of Lemma 3**

Given $q_a(.,.,.)>0$ (Assumption 5), there exists a unique campaign effort level $\overline{a}>0$ such that $q(\overline{a},\psi,t_a)=1$. Because $a\geq 0$ and any effort beyond $\overline{a}$ is suboptimal, we can write program (8) as $\max_{a\in[0,\overline{a}]} q(a,\psi,t_a)\Delta(t_a,\theta)-K(a)$. The domain is compact and the objective function is continuous, so a solution exists. The first-order derivative with respect to $a$ is $q_a(a,\psi,t_a)\Delta(t_a,\theta)-K_a(a)$. This is strictly positive at $a=0$ because $q_a(.,.,.)>0$ (Assumption 5) and $K_a(0)=0$ (Assumption 6). Hence, the solution is strictly positive (if a campaign is launched). The second-order derivative with respect to $a$ is $q_{aa}(a,\psi,t_a)\Delta(t_a,\theta)-K_{aa}(a)$. This is strictly negative for all $a$ because $q_{aa}(.,.,.)\leq 0$ and $K_{aa}(.)>0$ (Assumption 5). Hence, the solution identifies a unique global maximum. Last, if successful, the activist solves the restructuring effort problem in stage 2 owning a stake $t_a$ and hence generates the value improvement of $V^*(t_a,\theta)$. ■

**Proof of Proposition 2**

Under Assumptions 5 and 6, the optimal campaign effort is given by the first-order condition $q_a(a^+,\psi,t_a)\Delta(t_a,\theta)=K_a(a^+)$ if $q(a^+)<1$, or else, by the boundary condition $q(\overline{a})=1$. Hence, $a^*=\min\{a^+,\overline{a}\}$. The activist's expected profit from a campaign is $q(a^*,\psi,t_a)\Delta(t_a,\theta)-K(a^*)$. Now, as $t_a\to 0$, $\Delta(t_a,\theta)\to -C(0)$, and hence $a^*\to 0$. Thus, $\lim_{t_a\to 0} q(a^*,\psi,t_a)=0$ and $\lim_{t_a\to 0}\Pi_a^*(t_a,\theta)=-K(0)$. This proves part (i). Next note that $\partial\Delta/\partial\theta=t_a V_\theta(e_a^*,\theta)>0$ by the envelope theorem applied to the restructuring effort problem at stage 2. If $a^*=\overline{a}$, this directly implies part (ii) because $q(a^*,\psi,t_a)$ and $K(a^*)$ remain fixed. If $a^*=a^+$, note that $\partial\Pi_a^*/\partial\Delta=q(a^*,\psi,t_a)>0$ by the envelope theorem applied to the campaign effort problem at stage 1. Together with the fact that $\theta$ affects $\Pi_a^*(t_a,\theta)$ only through $\Delta(t_a,\theta)$, this implies part (ii). ■

**Proof of Proposition 3**

First, takeovers are more efficient: Since the objective function in the restructuring effort problem (1) is strictly concave, $V(e,\theta)-C(e,\theta)$ increases in $e$ for all $e\leq e(1,\theta)$. The social surplus is $V^*(1/2,\theta)-C^*(1/2,\theta)$ in a takeover and $q(a,\psi,t_a)\left[V^*(t_a,\theta)-C^*(t_a,\theta)\right]-K(a)$ in a campaign. Note that $V^*(t_a,\theta)-C^*(t_a,\theta)<V^*(1/2,\theta)-C^*(1/2,\theta)$, since $e(t_a,\theta)<e(1/2,\theta)<e(1,\theta)$. Furthermore, $q(a,\psi,t_a)\leq 1$ and $K(a)\geq 0$. Second, as the example in Figure 1 shows, activism can nevertheless be more profitable. This requires that campaign costs and toeholds are sufficiently small but $\theta$ sufficiently large. Consider the following limits: for $t_a,t_b\to 1/2$, tender offers are always more profitable than activism because the unrecompensed effort problem vanishes. For $t_a,t_b\leq\overline{t}_b$, as $\theta\to\infty$, tender offers become unprofitable but activist profits increase and reach a positive level provided that campaign costs $K(a)$ are sufficiently small. For more concise conditions we would need to resort to specific functional forms. ■

**Proof of Lemma 4**

If a merger occurs, the bidder owns $s_b=t_b+r_m$ shares afterward and sets her restructuring effort $e_b$ to maximize $s_b V(e_b,\theta)-C(e_b)-\epsilon r_m[V(e_b,\theta)-p_m]^+$ where the last term reflects the price revision risk. The objective function simplifies to $\hat{s}_b V(e_b,\theta)-C(e_b)+\epsilon r_m p_m$ with $\hat{s}_b\equiv t_b+(1-\epsilon)r_m$. Since $\epsilon r_m p_m$ is independent of $e_b$, we can apply Lemma 1. The bidder generates the post-merger value $V^*(\hat{s}_b,\theta)$ at cost $C^*\left(\hat{s}_b,\theta\right)$. At the time of the merger, the bidder's expected payoff is $\Delta(\hat{s}_b,\theta)-(1-\epsilon)r_m p_m$.

In stage 2, if a campaign succeeded, the activist negotiates a merger $(r_m,p_m)$ to maximize target shareholders' expected payoff $R(r_m,p_m,s_b,\epsilon)\equiv r_m\left[(1-\epsilon)p_m+\epsilon V^*(\hat{s}_b,\theta)\right]+(1-r_m-t_b)V^*(\hat{s}_b,\theta)$ subject to the bidder's participation constraint $s_b V^*(\hat{s}_b,\theta)-C^*(\hat{s}_b,\theta)-r_m\left[(1-\epsilon)p_m+\epsilon V^*(\hat{s}_b,\theta)\right]\geq 0$. Decomposing $s_b V^*(\hat{s}_b,\theta)$ into $\hat{s}_b V^*(\hat{s}_b,\theta)+\left(s_b-\hat{s}_b\right)V^*(\hat{s}_b,\theta)$ and using the fact that $s_b-\hat{s}_b=\epsilon r_m$, the constraint simplifies to $\Delta(\hat{s}_b,\theta)-(1-\epsilon)r_m p_m\geq 0$.

Since $\partial R/\partial p_m>0$, the activist optimally increases $p_m$ until the bidder's participation constraint $\Delta(\hat{s}_b,\theta)\geq(1-\epsilon)r_m p_m$ binds. Thus, $r_m p_m=\frac{\Delta(\hat{s}_b,\theta)}{1-\epsilon}$, which allows us to rewrite target shareholders' expected merger payoff as $\Delta(\hat{s}_b,\theta)+\epsilon r_m V^*(\hat{s}_b,\theta)$. Since both $\Delta(\hat{s}_b,\theta)$ and $V^*(\hat{s}_b,\theta)$ strictly

increase in $\hat{s}_b$, which in turn strictly increases in $r_m$, it is optimal to set $r_m = 1 - t_b$. This completes the proof of the lemma.

For completeness, we further derive the equilibrium of the stage-1 subgame. Under the optimal merger, $\hat{s}_b^* = 1 - \epsilon(1 - t_b)$ and $\Delta(\hat{s}_b^*, \theta) = \hat{s}_b^* V(e_b(\hat{s}_b^*, \theta), \theta) - C(e_b(\hat{s}_b^*, \theta))$. Thus, target shareholders' equilibrium payoff is $R^*(t_b, \epsilon, \theta) \equiv V(e_b(\hat{s}_b^*, \theta), \theta) - C(e_b(\hat{s}_b^*, \theta))$ and, on a per-share basis, $\frac{R^*(t_b, \epsilon, \theta)}{1 - t_b}$. The activist's merger payoff is $R_a^*(t_a, t_b, \epsilon, \theta) \equiv t_a \frac{R^*(t_b, \epsilon, \theta)}{1 - t_b}$. In stage 1, the activist sets campaign effort $a$ to maximize $q(a, \psi, t_a) R_a^*(t_a, t_b, \epsilon, \theta) - K(a)$ subject to $q(a, \psi, t_a) \leq 1$. This is isomorphic to the activist's stage-1 problem under regular activism in Section 2.3, except that $R_a^*(t_a, t_b, \epsilon, \theta)$ replaces $\Delta(t_a, \theta)$ in the objective function. As in Lemma 3, Assumptions 5 and 6 ensure a unique solution. ■

**Proof of Proposition 4**

Consider $\epsilon \to 0$. Then, for part (i), the optimal restructuring effort is higher under takeover activism than under regular activism: $\lim_{\epsilon \to 0} e_b(\hat{s}_b^*, \theta) = e_b(1, \theta) > e_a(t_a, \theta)$. So, the value improvement after a successful campaign is larger in takeover activism. Also, a takeover activist benefits more from a successful campaign (gross of campaign costs): $\lim_{\epsilon \to 0} R_a^* = t_a \frac{\Delta(1, \theta)}{1 - t_b} = \frac{1}{1 - t_b} t_a [V(1, \theta) - C(1, \theta)] > t_a [V(t_a, \theta) - C(t_a, \theta)] > t_a V(t_a, \theta) - C(t_a, \theta) = \Delta(t_a, \theta)$. This leads to a greater campaign effort and also an ex ante more profitable campaign. To see this, consider the generic campaign problem $\max_a q(a, \psi, t_a) X - K(a)$. It is easy to show that larger $X$ increase optimal effort $a^*$ (for interior solutions) and the expected profit under the optimal effort (by the envelope theorem). For part (ii), it suffices to combine this result with Proposition 3, namely, that regular activism is more profitable than tender offers when the campaign costs are low and the productivity parameter is high. ■

**Proof of Lemma 5**

In a prorated tender offer with $r_b \geq 1/2 - t_b$, a potential activist sells $t_a \gamma$ shares, where $\gamma^{-1} \equiv \frac{1 - t_b}{r_b}$ measures how oversubscribed the offer is. In such a sale, she earns $t_a v_a^f$, where $v_a^f \equiv \gamma p_b + (1 - \gamma) V^*(s_b, \theta)$. Given $s_b \geq 1/2$ and the free-rider condition $p_b \geq V^*(s_b, \theta)$, $v_a^f$ is weakly larger than $V^*(1/2, \theta)$. Her expected profit from regular activism, $t_a q(a^*) V^*(t_a, \theta) - q(a^*) C^*(t_a, \theta) - K(a^*)$, is strictly smaller than $V^*(1/2, \theta)$, since $V^*(t_a, \theta) < V^*(1/2, \theta)$ given that $t_a < 1/2$. ■

**Proof of Proposition 5 and Corollary 1**

It follows from the text that a campaign does not emerge unless the activist's expected profit exceeds $t_a v_a^f$. What remains to be shown is that this is indeed possible. To this end, we focus on a specific level of legal risk, $\hat{\epsilon} = \frac{1}{2(1 - t_b)}$, at which the bidder's effective post-merger stake $\hat{s}_b^*$ equals $1/2$ and hence the value generated in a brokered merger is the same as in a tender offer. In this case, takeover activism in the absence of campaign costs is strictly more profitable than selling in a tender offer whenever $\epsilon < \hat{\epsilon}$; this implies that takeover activism remains more profitable even for positive, but sufficiently small, campaign costs.

Suppose campaigns are costless. The activist initiates a merger and holds the bidder to her outside option: the tender offer profit $\Pi_b^{to}$. Target shareholders' payoff equals total surplus minus the bidder's payoff. This is $\Delta(\hat{s}_b^*, \theta) - \Pi_b^{to}$ in a brokered merger and $\Delta(1/2, \theta) - \Pi_b^{to}$ in a tender offer. For $\epsilon = \hat{\epsilon}$, $\hat{s}_b^* = 1/2$ so that the total surplus and all payoffs are the same across the two interventions. For $\epsilon < \hat{\epsilon}$, $\hat{s}_b^* > 1/2$ and $\Delta(\hat{s}_b^*, \theta) > \Delta(1/2, \theta)$. Takeover activism (absent campaign costs) is then strictly more profitable than selling in a tender offer. Target shareholders are also better off when $\Delta(\hat{s}_b^*, \theta) > \Delta(1/2, \theta)$. Finally, as the bidder always receives at least her tender offer profit in the merger negotiation, she also fares (weakly) better. Hence, whenever takeover activism is more profitable than free-riding on a tender offer, it is Pareto improving. ■

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