Value-Destroying Activism

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Abstract

This paper introduces a dynamic agency model that examines the impact of potential shareholder activism aimed at improving firm governance. While shareholder activism creates value ex-post through reducing the excessive pay or aligning incentives, it destroys value ex-ante by limiting shareholders' ability to leverage future excessive pay or termination as motivation for present-day hard work. The threat of activism distorts the internal governance policies, leading to more front-loaded compensation, higher compensation growth after strong performance, and increased CEO turnover. Following an extremely good or bad performance, the board assumes a more advisory than monitoring role, and the manager is incentivized with higher pay-for-performance sensitivity. Additionally, the paper highlights a possible decline in debt value despite improvements in operational performance after the activist's engagement, shedding light on the credit spread puzzle.

Keywords: Shareholder Activism, CEO Compensation, Board Dynamics, Credit Spread Puzzle, Dynamic Contracting

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I think a very good system in a world with a lot of passive investors is one in which there are at least a few [entrepreneurial investors], prepared to say what they think, prepared to propose a [change] in management, [change] in strategy, [change] in cost structure, capital structure.

Bill Ackman

1   Introduction

In recent years, the market has seen a notable rise in activist involvement and changing governance is one of the primary demands.[1] Given the significant expenses involved in initiating an activist campaign, one might naturally expect that such efforts should resolve agency conflicts between shareholders and managers and yield value for shareholders.[2] However, this also raises questions about the distortions to firm policies ex-ante. How shareholders and managers respond to potential governance changes? Does shareholder activism create value ex-ante? Answering these questions will deepen our understanding of the optimal scope of shareholder rights and help us evaluate relevant policies on shareholder activism.

This paper studies a standard dynamic agency problem where shareholders hire a manager to operate the firm. To address the moral hazard problem in which the manager can take hidden actions that reduces firm cash flow such as diversion, shareholders write a long-term contract to the manager with commitment.[3] The paper introduces the role of

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[1]In 2023, 982 companies globally faced activist campaigns, marking a 4% increase from the previous year and the highest number since 2019. Of these, 438 involved demands for changing governance. Source: Shareholder Activism Annual Review 2024.

[2]For example, Gantchev (2013) structurally estimates that a campaign ending in a proxy fight has average costs of $10.71 million.

[3]Equivalently, the moral hazard can be interpreted as the manager provides hidden efforts to increase cash flow and gets private benefits if he shirks.

the activist (e.g. a hedge fund) who is randomly matched with the firm and can choose whether to improve a firm's governance by recontracting with the manager after acquiring ownership and paying a campaign cost. The model shows that while activism boosts shareholder value ex-post by reducing excessive managerial pay or aligning incentives, it can destroy value ex-ante by undermining the commitment power of long-term contracts and distort pre-existing contract design.

The long-term contract between shareholders and the manager is similar to Piskorski and Westerfield (2016), which specifies: 1) the manager's compensation, 2) the monitoring intensity, and 3) a firing decision, based on the history of firm's cash flow and detected diversion from monitoring. Monitoring allows shareholders to pay a cost and detect diversion with some probability. Firing the manager is costly for both shareholders and the manager as the firm relies on manager's operation to generate cash flow and is liquidated the manager is fired.[4] The paper thus uses the terms firing and liquidation interchangeably. However, the contract studied in this paper is incomplete as it can not specify outcomes after the activist campaign where control is shifted to the activist who is expected to maximize her profit.

Under the threat of the activist campaign, the contract features higher compensation growth after strong performance and lower compensation growth after poor performance. As shareholders apply performance based compensation to prevent the manager from diverting, strong performance leads to a higher managerial compensation, attracting activist intervention aimed at reducing what may seem like excessive pay ex-post. To offset the risk of such recontracting and maintain incentives, the manager demands higher compensation growth. On the other hand, after bad performance where the manager is punished and have a low continuation value, an activist can recontract to increase the manager's pay. This aligns the manager's incentive and has the benefit of reducing the

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[4]The model is robust to allow shareholders to find a new manager after firing the old one, as long as the cost of finding a proper manager is high.

inefficient contract termination risk or the high monitoring cost. However, anticipation of the activist intervention weakens the punishment. Shareholders then implement a lower compensation growth to maintain punishment credibility.

Shareholders opt to pay the manager earlier under the threat of intervention. Similar to the literature on dynamic contracting such as DeMarzo and Sannikov (2006), under the risk-neutral assumption of the manager, the optimal contract features an endogenous payment threshold: the manager receives no pay until the cumulative performance is sufficiently good. This payment threshold trades off the benefit of deferred compensation to reduce the contract termination risk with the cost of the manager's impatience. Two channels contribute to the earlier payment to the manager. First, the contract relationship with the manager becomes less valuable under the threat of activist intervention, which undermines the benefit of maintaining a high deferred compensation. Second, as the manager requires a higher compensation growth, maintaining a large deferred compensation becomes more costly. Therefore, the manager gets paid earlier.

Both monitoring and pay-for-performance sensitivity (PPS) can alleviate the moral hazard problem: if the manager diverts, 1) the firm cash flow is lower thus he gets a lower performance pay, and 2) he has a chance of being fired and suffers from a reputation loss if he is caught from monitoring. The optimal contract efficiently trades off these two ways of providing incentives to the manager and shows interesting dynamics of firms' governance policies.

Utilizing pay-for-performance sensitivity can be costly. A high PPS means that managerial compensation is greatly affected by cash flow shocks, increasing the risk of inefficient liquidations. This is particularly costly when the manager's stake is low. Additionally, under the threat of an activist campaign, a high PPS increases the likelihood of activist intervention as the manager is more likely to experience extremely high or low continuation value.

Monitoring also carries costs and varies in effectiveness depending on the manager's

continuation value: it is less effective when this value is low, as the manager has less to lose. On the other hand, monitoring provides the benefit of reducing the risk of inefficient terminations as shareholders can reduce the use of PPS under a high monitoring intensity. This paper suggests that under the threat of an activist campaign, substituting PPS with monitoring can offer an added benefit of reducing the likelihood of activist intervention.

The paper illustrates that the threat of intervention significantly alters the pattern of performance pay and monitoring. Specifically, when the manager's continuation value is at an intermediate level, shareholders increase monitoring and reduce PPS to decrease the likelihood of activist intervention. Conversely, after very good or bad performances—where the manager's continuation value is extremely high or low, making recontracting by activists more profitable—shareholders reduce monitoring and increase PPS.

In Piskorski and Westerfield (2016), it's noted that firms with high liquidation costs might fully replace PPS with monitoring (a full monitoring policy) when the manager's continuation value is low to avert inefficient liquidation. However, the threat of the activist campaign narrows the value gap between continuing operations and liquidation by reducing equity value, thereby diminishing the advantages of using monitoring to lower PPS. Consequently, liquidation may occur in firms that would otherwise implement a full monitoring policy if not for the threat of activist intervention.

The paper provides extension to study spillover effects of activist campaign on creditors, and demonstrates that debt value could either rise or fall after activist intervention. In the model, default happens when the manager is fired and the firm is liquidated. When the activist intervenes to reduce managerial compensation, which makes the liquidation more likely to happen, it at the same time reduces debt value. On the other hand, when the activist intervenes to increase managerial compensation, which aligns managerial incentives and reduces the liquidation risk, debt value increases. This mixed result could happen even if there is no change of debt level or profitability. The paper thus offers another explanation on the mixed empirical evidence on debt value after activist intervention(Brav et al., 2008;

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Klein and Zur, 2011).

As the activist campaign introduces an extra variation on manager's continuation value, liquidation becomes more likely to happen. The threat of activist campaign that aims at improving governance therefore has a negative impact on debt value. The paper thus sheds lights on credit spread puzzle, and offers an explanation of the 'jump-to-default' risk in reduced-form models: being targeted by an activist. Moreover, as debt financing becomes more costly under potential governance activism, firms respond by opting for lower leverage ratios.

Hence, the paper argues against say-on-pay, which empowers "new principals" to modify executive compensation, particularly when the original long-term contract is already optimized to maximize shareholders' value. Say-on-pay undermines the commitment power of original shareholders. In scenarios where recontracting takes no cost and can happen anytime, long-term contracting becomes unavailable. The paper also indicates that the free rider problem introduced by Grossman and Hart (1980) can be beneficial to shareholders as it reduces the gain of activist and prevents intervention.

The paper also introduces a new perspective on the trade-off associated with Schedule 13D, a form mandated by the U.S. Securities and Exchange Commission (SEC) for reporting acquisitions exceeding 5% of a company's voting class equity shares. If the activist is required to file a 13D within a shorter timeframe, say 5 days instead of the typical 10 days, their overall potential profit diminishes. This reduction in profit weakens the activist's incentive to engage, thereby mitigating the recontract risk renegotiation and ultimately enhancing ex-ante shareholder welfare. However, it also diminishes the incentive for intervention that aims at providing business insights. Regulators need to carefully consider how adjustments to Schedule 13D might impact a firm's policies before an activist becomes involved.

Although the paper focuses on shareholder activism that targets for governance change, the model can also be applied to study the threat of takeover or M&A events that come

with significant changes on firms' executive teams. The recontracting risk can also be considered as the principals have a limited ability to commit, and there are chances they regret and write a new contract with the agent.

Second, the agent in the model can also been employees. The decrease of agent's continuation value after activist campaign can be interpreted as the activist intervene to reduce employee welfare, cut of wage or fire employees; while the increase of agent's continuation value can be considered as vice versa.

Finally, the monitoring can be conducted by board members, who are also expected to provide advisory services as well. The cost of monitoring can therefore be interpreted as the firm gets less advice, which increases the firm cash flow, from the board. The paper then provides implications on the board's role under the threat of activist campaign: the board focuses more on a monitoring role when the manager's continuation value is at intermediate level and advisory role when it is extremely high or low.

Related literature

The paper is generally related to the literature on external governance. Theoretical works on this literature focus on the impact of outside investors on firm governance and value. Shleifer and Vishny (1986) show a large minority shareholder provides a partial solution to the Grossman-Hart free-rider problem and provide implications on takeover premium and market value. Faure-Grimaud and Gromb (2004) show public trading results in the formation of a stock price that is informative about the large shareholder's activity, increasing the latter's incentives to engage in value-increasing activities. Giroud and Mueller (2010) show reducing the threat of a hostile takeover weakens corporate governance and increases the opportunity for managerial slack. Kim and Lu (2011) show CEO ownership and external governance are substitutes for mitigating agency problems when ownership is low due to entrenchment effect. Corum and Levit (2019) study the role of activist investors in the market for corporate control and propose that activist investors have an inherent advantage relative to bidders in pressuring entrenched incumbents to sell.

Brav et al. (2022) show that parallel engagement by noncontrolling blockholders may arise as it induces competition over future investor capital. Burkart and Lee (2022) compare the efficiency and profitability comparison between takeover (Grossman-Hart free-riding) and activism (Jensen-Meckling free-riding), and show 1) activism can be more profitable than a hostile takeover even if it is less efficient; 2) activism is most efficient when it brokers, rather than substitutes for, takeovers.

This literature also focuses on how 'voice' and 'exit' can mitigate the agency conflict between shareholders and managers. Admati and Pfleiderer (2009) show that threat of exit often reduces agency costs, but additional private information need not enhance the effectiveness of the mechanism. Edmans (2009) shows blockholders' trading on private information can cause prices to reflect fundamental value and thus encouraging managers to invest for long-run growth rather than short-term profits. Dasgupta and Piacentino (2015) show when blockholders are money managers who compete for investor capital, the threat of exit can lose credibility, weakening its governance role. Levit (2019) shows the option to exit facilitates communication if and only if the proposal is risky relative to the status quo or voice is ineffective.

The paper is closely related to the literature on the negative impact of outside investors. Shleifer and Summers (1987) show the high premiums in hostile takeovers come from breaking firms' implicit contracts with its stakeholders: cutting wages, firing employees, etc, which should not be considered as high social value creating, as most of the premium may come from a wealth redistribution effect at the cost of firms' stakeholders. Stein (1988) shows the takeover pressure can be damaging because it leads managers to sacrifice long-term interests in order to boost current profits. Burkart et al. (1997) show tight control by shareholders constitute ex-ante an expropriation threat that reduces managerial initiative and noncontractible investments. Shareholder monitoring, and hence ownership concentration, may conflict with performance-based incentive schemes. This paper focuses on firm's monitoring and incentive pay distortion caused by the threat of activist campaign,

and also discusses the debt financing decision response.

Empirical works on this literature study what types of companies attract shareholder engagement, who are likely to engage, how do they engage, what are the financial, accounting, and real consequences, and how firms and other stakeholders react on these events (Karpoff et al., 1996; Del Guercio and Hawkins, 1999; Gillan and Starks, 2000; Davis and Kim, 2007; Chen et al., 2007; Brav et al., 2008; Del Guercio et al., 2008; Becht et al., 2009; Greenwood and Schor, 2009; Klein and Zur, 2009; Ertimur et al., 2011; Klein and Zur, 2011; Agrawal, 2012; Sunder et al., 2014; Brav et al., 2015; Bebchuk et al., 2015; Dimson et al., 2015; McCahery et al., 2016; Bebchuk et al., 2020; Dahiya et al., 2020; Gantchev et al., 2020).

Due to empirical difficulty, few paper studies the ex-ante effect of activism. Fos (2017) shows that prior to proxy contests, targets experience poor stock performance, decreases in investments, increases in cash reserves and payouts to shareholders, and increases in management's entrenchment. Gantchev et al. (2019) show nontargeted peers with higher threat perception are more likely to increase leverage and payout, decrease capital expenditures and cash, and improve return on assets and asset turnover. As a result, their valuations improve, and their probability of being targeted declines. Zhu (2021) find that the threat of activist, increases in shareholder distribution, decreases in CEO pay and investments and increases in operating performance. This paper provides empirical implications on firms' internal governance and financing policies change in anticipation of the future intervention.

The paper also contributes to the literature on the debate surrounding labor protection and say-on-pay, which enables shareholders (the new principal) to adjust managerial compensation. Works such as Cai and Walkling (2011), Armstrong et al. (2013), Alissa (2015), Larcker et al. (2015), and Correa and Lel (2016) have shown a positive response to say-on-pay, particularly for firms with excessive CEO pay. In contrast, this paper focuses on the ex-ante effects of say-on-pay and reveals that while it may create value

by reducing excessive pay ex-post, it simultaneously destroys value ex-ante by eliminating the benefits of long-term contracting. Original shareholders encounter challenges in using future excessive pay or the threat of termination as tools to address agency problems, resulting in the distortion of compensation contracts from their optimal form.

There are mixed evidence on how corporate bond value reacts to shareholder activism. Brav et al. (2008) find no long-term debt have slightly higher announcement. Klein and Zur (2011), on the other hand, find negative abnormal bond returns both surrounding the initial Schedule 13D filing and one year after. Sunder et al. (2014) find bank loan spreads increase when shareholder activism relies on the market for corporate control or financial restructuring, but decrease when activists address managerial entrenchment. Dahiya et al. (2020) show target firms pay higher spreads on post-activism loans and are more likely to post collateral on post-activism loan. This paper shows the credit spread can either increase or decrease after activism, depending on the level of operation performance improved from the activist and change of the managerial continuation value.

What's more, the paper contributes to the literature on the credit spread puzzle, which refers to the phenomenon where the spreads between yields on corporate bonds, especially for short-maturity, investment-grade bonds, and yields on risk-free securities, are larger than what standard diffusion-based structural models of default, as proposed by Merton (1974) and Black and Cox (1976), would predict. Researchers such as Duffie and Lando (2001) and Benzoni et al. (2023) have emphasized the role of incomplete information and provided economic justifications for "jump to default" in reduced-form models. Cremers et al. (2007) show shareholder control (proxied by large institutional blockholders) is associated with higher yields if the firm is exposed to takeovers and event risk covenants reduce the credit risk associated with strong shareholder governance. Chava et al. (2009) show firms with low takeover defense pay a 25% higher spread on their bank loans due to lenders' concerns about the substantial increase in financial risk after the takeover. Carlson and Lazrak (2010) theoretically and empirically demonstrated that credit

spreads are positively related to the cash-to-stock ratio of CEO compensation. This paper builds a dynamic agency model where default is caused by the termination of managerial contract. It shows there could be a wealth transfer effect in the activism event which reduces the manager's excessive pay: the reduced manager's continuation value increases the probability of contract termination, thus the default risk. The paper offers both cross-sectional and time-series predictions regarding credit spreads: firms more likely to be targeted for governance reasons experience higher credit spreads, and credit spreads are elevated when firms start to pay their manager with lower compensation.

The paper also contributes to the literature on commitment, as explored in studies such as Ai and Li (2015), Ai et al. (2016), Admati et al. (2018), DeMarzo and He (2021), and Benzoni et al. (2022), among others. In this context, the original shareholder, acting as the old principal, possesses the ability to commit until an activist acquires ownership and assumes the role of the new principal. The potential for activism undermines the commitment power of the original shareholder and distorts the optimal contract. Therefore, the paper underscores the significance of commitment in corporate governance.

The paper is different from the literature of relational contract (Baker et al., 2002; Levin, 2003; Malenko and Malenko, 2015). Relational contract has the feature of time-consistency, while the main argument of this paper focuses on the time-inconsistency of the long-term contract with commitment: The original shareholders commit to maximize ex-ante value, while outside shareholders can intervene and break the original commitment to maximize ex-post value at anytime when they are matched with the firm and can make a profit.

Finally, this paper contributes to the literature on dynamic contracting by studying an incomplete friction that the principal and agent can not contract on the activism event. This literature, to name just a few, (DeMarzo and Sannikov, 2006; Admati and Pfleiderer, 2009; Sannikov, 2008; He, 2009; DeMarzo et al., 2012; He, 2012; Zhu, 2013; Ai and Li, 2015; Piskorski and Westerfield, 2016; Malenko, 2019; Wong, 2019; Back et al., 2022),

study long-term complete contract with full commitment. This paper introduces the role of activist, who can be seen as a new principal with the authority to modify existing long-term contracts. The paper demonstrates that the threat of activist intervention undermines value ex-ante and distorts the existing contract structure, leading to more front-loaded payments, higher compensation growth rates after strong performance, and shifted monitoring and PPS patterns.

The paper is organized as follows. Section 2 introduces the model setup. Section 3 solves the optimal contract before and after activism. Section 4 analyzes the implications of optimal contract. Section 5 introduces the role of debt and shows the spillover effect of activism on creditors. Section 6 discusses other interpretations of the model. Section 7 concludes.

2   Model

This section introduces the baseline dynamic agency model where original shareholders offer a long-term contract with commitment to the manager. Throughout the paper, I refer the (existing) shareholders (they) as the old principal, the compensation contract they offer to the manager (he) as the existing contract, and the activist (she) as the new principal. The activist, who is randomly matched with the firm, has the capacity to acquire a fraction of the firm's ownership and modify the existing contract. The activist may or may not bring business insights that improve the firm's profitability. It's important to note that when the original shareholders propose the existing contract, they have already accounted for threat of future activist campaign. In cases where the paper does not specify the old or new principal, it encompasses both parties.

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2.1 The Agency Problem

The firm has asset in place that can generates cash flow with mean μ_t and volatility σ under the manager's management:

$$d\hat{Y}_t = (\underbrace{\mu}_{\text{expected output}} - \underbrace{s_t}_{\text{diversion}, \geq 0})dt + \sigma dZ_t \tag{1}$$

Here $Z = \{Z_t, \mathcal{F}; 0 \leq t < \infty\}$ is a standard Brownian motion. μ_t denotes the expected cash flow during a small time interval dt. Before the activist steps in, $\mu_t = \mu_o > 0$ is a constant.

Similar to DeMarzo and Sannikov (2006), DeMarzo et al. (2012) etc., there is a moral hazard problem that only manager observes his private action s_t. When the manager takes s_t, he gains private benefits at the rate $\lambda s_t dt$, where $0 \leq \lambda \leq 1$ measures the severity of the agency problem and captures the minimum level of of incentives required to motivate the manager. s_t can be considered as the cash flow that the manager diverts for his private benefit and λ thus denotes the marginal benefit of diversion. As the marginal benefit of diversion is constant, this is equivalent of a setting with binary effort where the manager can either shirk $(s_t = \bar{s})$ or work $s_t = 0$.

The manager is risk-neutral with discount rate $\gamma > 0$, and is not allowed to have hidden savings. He has limited liability and thus will not accept a negative wage. If the the manager is fired due to bad performance, the manager leaves the firm and exercises his outside option with total value $W_R \geq 0$ (new employment). As the paper assumes the manager is essential to firm's operation, the firm is liquidated after contract termination. The paper thus uses the terms firing and liquidation interchangeably. The existing shareholders/activist receives $L \geq 0$ in total when liquidation happens, which reflects the value of asset in place.

Both the shareholders and the activist are risk-neutral. They have the same discount rate $r > 0$ and are more patient than the manager $(r < \gamma)$. This rules out the situation

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that they will postpone the manager's compensation indefinitely. Assume $L < \frac{\mu}{r}$ such that the principal does not want to liquidate the firm immediately.

Similar to Piskorski and Westerfield (2016), the principal can have access to a monitoring technology. The principal can choose to pay a cost of θm_t, where m_t is the monitoring intensity and θ measures the cost of monitoring. Under monitoring intensity m_t, if the manager diverts s_t, the principal gains a Poisson process N^m that hits with intensity:

$$m_t s_t \tag{2}$$

Let $\{\mathcal{F}_{m,t}; 0 \leq t < \infty\}$ denote the augmented filtration generated by the Poisson event of monitoring.

The monitoring can be conducted by the board. As the board is also assumed an advisory role, focusing too much on monitoring can prevent the board from providing valuable advice which increases the firm profitability. θ then can be considered as a measure of the value of board's advice.

Once detected from diverting from the monitoring technology, the manager is fired and suffers from a reputation loss that gives him an outside option $W_F < W_R$.

2.2 The Activist

Over time, an activist is matched to the firm with exogenous Poisson intensity $0 \leq a < \infty$. This reflects the fact that activists have limited attention and can only focus on a limited number of firms within a certain timeframe. In addition, it is difficult to predict outside investors' behavior.[5] Let $\{\mathcal{F}_{a,t}; 0 \leq t < \infty\}$ denote the augmented filtration generated by the Poisson event of activist campaign. Upon being matched with the firm, the activist has the option to acquire $0 < \alpha \leq 1$ fraction of the firm and incur a cost of $K \geq 0$ to propose

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[5]Using 83,000 firm-year observation (1981–2004), the regression model in Cremers et al. (2009) contains firm specific characteristics capturing growth, capital structure and ownership structure to predict the takeover takeover event only has approximately 3% explanatory power.

a change in the firm's governance, specifically, replacing the existing managerial contract with a new one.[6] The activist can achieve this by, for example, launching a proxy fight. For the sake of simplicity, it is assumed that there is no further activism after the activist engages with the firm. If the activist chooses not to engage at the present moment, the matching is terminated, and a new activist could be matched with the firm at some future time.

As the paper primarily focuses on the impact of the threat of activism, it simplifies the analysis by abstracting from potential free-rider problems, as discussed in works such as Grossman and Hart (1980), Shleifer and Vishny (1986), Yu (2024), etc. In modeling the acquisition price, the paper takes a reduced-form approach similar to Gryglewicz et al. (2023), wherein the acquiring price is represented as a weighted average of the post-activism stock price and the stock price as if there is no activist given the same managerial continuation value.

In addition to propose change to the firm's governance, activists may also come with business insights that enhances the firm's operational performance. For example, activists can bring insights in improving the efficiency of business strategies or optimizing capital allocation, leading to an increase in the drift of cash to $\mu_n \geq \mu_o$.[7] The paper assumes that if the activist intends to initiate operation activism, it must also involve changing the governance to formally gain the control of the firm.

2.3 Formulating the Optimal Contracting Problem

At time $t = 0$, shareholders can offer a long-term contract $\Phi = \{C_t, m_t, \tau^L, \tau^F\}$ based on the history of cash flow $\{\hat{Y}_t, 0 \leq t < \infty\}$ and detected diversion diversion N^m with commitment to the manager. The contract specifies the cumulative compensation to

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[6]The paper assumes the α is given exogenously. I can introduce the trade-off of, for example, activist's risk-aversion vs lower cost of engagement with a higher ownership to get an interior solution of α, but this is not the focus on the paper.

[7]This assumption is not essential in results related to the threat of activist campaign that aims at changing governance.

the manager C_t, the monitoring intensity m_t, and a firing decision τ^L due to the bad performance or detected diversion from monitoring τ^F. Denote τ^A as the time that an activist is matched with the firm and chooses to intervene and recontract. The contract is incomplete in that shareholders and the manager can not contract on what would happen in the activist campaign, while all people can expect that the activist will offer a contract that maximizes her own profit.

When an activist is matched with the firm and decides to acquire and engage in the firm's governance, they offer a new contract $\Phi^a = \{C_t^a, m_t^a, \tau^{L,a}, \tau^{F,a}\}$ to replace the old one. Here the C^a is the cumulative payment to the manager, $\tau^{L,a}$ and $\tau^{F,a}$ are the corresponding firing time after the activist campaign.

After the activist steps in and offers the new contract Φ^a, manager chooses an action process $\{s_t \in [0, \bar{s}] : \tau^A \le t < \tau^a\}$ to solve:

$$
W(\Phi^a) = \max_{\{s_t \ge 0 : \tau^A \le t < \tau\}} \mathbb{E}^M \Bigg[\int_{\tau^A}^{\tau^a} e^{-\gamma(t-\tau^A)} \Big(\underbrace{\lambda s_t}_{\text{diversion}} dt + \underbrace{dC_t^a}_{\text{compensation}} \Big)
$$
$$
+ \underbrace{\mathbb{1}_{\tau=\tau^L} e^{-\gamma(\tau-\tau^A)} W_R}_{\text{fired}} + \underbrace{\mathbb{1}_{\tau=\tau^F} e^{-\gamma(\tau-\tau^A)} W_F}_{\text{detected shirking}} \Bigg]
\tag{3}
$$

Where $\mathbb{E}^m(.)$ denotes the expectation operator under the probability measure that is induced by manager's diversion process. The manager's objective function includes the present discounted value from future compensation, the potential private benefit from diversion, and his outside option. $\tau^a = \tau^{L,a} \wedge \tau^{F,a}$ is the time that the manager is fired.

The paper focuses on cases that are optimal to implement no diversion $s_t = 0$ for all t and provides sufficient condition in the Appendix. A contract is called *incentive compatible (IC)* if it implements the efficient action.

Given an initial payoff of W_{τ^A} for the manager, the activist designs the contract that

maximizes the equity value $E^a(W_{\tau^A})$:

$$E^a(W_{\tau^A}) = \max_{\Phi^a} \mathbb{E}\bigg[\int_{\tau^A}^{\tau^a} e^{-r(\tau-\tau^A)} \underbrace{\left(d\hat{Y}_t - dC_t^a - \theta m_t^a dt\right)}_{\text{net cash flow}} + \underbrace{(\mathbb{1}_{\tau^a=\tau^{L,a}} + \mathbb{1}_{\tau^a=\tau^{F,a}})e^{-r(\tau-\tau^A)}L}_{\text{liquidation}}\bigg]$$

$$\text{s.t. } \Phi \text{ is } \textit{incentive compatible} \text{ and } W(\Phi) = W_0$$

$$(4)$$

Here $\mathbb{E}(.)$ denotes the measure induced by $s_t = 0$ for all $t \geq 0$. The net cash flow includes the cash flow generated by the firm minus the compensation minus the monitoring cost.

Assume the activist has full bargaining power over the manager, such that the activist chooses $W_{\tau^A} = W^* \equiv \text{argmax}_W E^a(W)$ subject to $W \geq W_R$ to maximize the equity value after activism.

When the activist decides to intervene, she acquires at the unit trading price $E^T(W_{\tau_-^A})$. Here $W_{\tau_-^A}$ is the manager's continuation value under the existing contract if the activist does not intervene at this moment. As mentioned earlier, to sidestep the free rider problem, the acquiring price is defined in a reduced form as a weighted average of the post-activism stock price and the stock price without activism given the same managerial continuation value:[8]

$$E^T(W_{\tau_-^A}) = z \times \underbrace{E^n(W_{\tau_-^A})}_{\text{equity price without activism}} + (1-z) \times \underbrace{E^a(W_{\tau^A}^*)}_{\text{equity price after activism}} \tag{5}$$

Here the parameter z serves as a proxy of activist's profit in acquiring the firm. When $z = 0$, the hold out problem arises, and the activist gains nothing from acquiring the firm and therefore will never engage when $K > 0$. The equity value $E^n(W)$ can be solved by replacing μ_n with μ_o in the solution of $E^a(W)$.

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[8]This is similar to Gryglewicz et al. (2023), who model the gains of the activist by allowing the activist to purchase a certain amount of equity under the price of passive ownership.

During the acquiring stage, the net profit of the activist from trading is:

$$P(W_{\tau_-^A}) = \alpha \left(E^a(W_{\tau^A}) - E^T(W_{\tau_-^A}) \right) - K$$

$$= \alpha z \left(E^a(W_{\tau^A}) - E^n(W_{\tau_-^A}) \right) - K$$

(6)

The activist will choose to intervene if the net profit is non-negative: $P(W_{\tau_-^A}) \geq 0$.

Assume the activist buys equally from all original shareholders. The equity value E^M after the activist makes the decision to step in and right before the activist acquires is then:

$$E^m(W_{\tau_-^A}) = \underbrace{(1-\alpha)E^a(W_{\tau^A})}_{\text{value after activism}} + \underbrace{\alpha E^T(W_{\tau_-^A})}_{\text{value from trading}}$$

(7)

$$= (1-\alpha z)E^a(W_{\tau^A}) + \alpha z E^f(W_{\tau_-^A})$$

Which is the sum of the value of unsold equity and the value of sold equity.

Given the original contract Φ and the anticipated new contract Φ^a after activism, the manager chooses an action process $\{s_t \in [0, \bar{s}] : 0 \leq t < \tau\}$ to solve:

$$W(\Phi) = \max_{\{s_t \geq 0 : 0 \leq t < \tau\}} \mathbb{E}^M \left[\int_0^\tau e^{-\gamma t} \left(\underbrace{\lambda s_t}_{\text{diversion}} \, dt + \underbrace{dC_t}_{\text{compensation}} \right) \right.$$

$$\left. + \underbrace{\mathbb{1}_{\tau=\tau^L} e^{-\gamma\tau} W_R}_{\text{fired}} + \underbrace{\mathbb{1}_{\tau=\tau^F} e^{-\gamma\tau} W_F}_{\text{detected shirking}} + \underbrace{\mathbb{1}_{\tau=\tau^A} e^{-\gamma\tau} W_{\tau^A}}_{\text{activism}} \right]$$

(8)

Given an initial payoff of W_0 of the manager, the original shareholders designs the contract that maximizes the equity value before activism $E^b(W_0)$:

$$E(W_0) = \max_{\Phi} \mathbb{E} \left[\int_0^\tau e^{-rt} \underbrace{\left(d\hat{Y}_t - dC_t - \theta m_t dt \right)}_{\text{net cash flow}} + \underbrace{(\mathbb{1}_{\tau=\tau^L} + \mathbb{1}_{\tau=\tau^F}) e^{-r\tau} L}_{\text{liquidation}} + \underbrace{\mathbb{1}_{\tau=\tau^A} e^{-r\tau} E_{\tau_-^A}^m}_{\text{activism}} \right]$$

$$\text{s.t.} \, \Phi \text{ is } incentive\ compatible \text{ and } W(\Phi) = W_0$$

(9)

3 Model solution

3.1 Optimal Contracting after Activism

After activism, the solution is standard as the dynamic contracting literature. Given the incentive compatible contract Φ^a and the history up to time $t > \tau^A$, the discounted expected value of the manager's future compensation is given by:

$$W_t(\Phi^a) \equiv \mathbb{E}_t\left[\int_t^{\tau^a} e^{-\gamma(s-t)} dC_s^a\right] \tag{10}$$

Following literature, I call W_t the manager's continuation value as of date t. The manager's incremental compensation at t is composed of a cash payment dC_t^a and a change in the value of his promised future payments, captured by dW_t. To compensate for the manager's time preference, this incremental compensation must equal $\gamma W_t dt$ on average. Thus,

$$\mathbb{E}_t(dW_t + dC_t^a) = \gamma W_t dt \tag{11}$$

To provide incentive to let the manager choose $s_t = 0$, this incremental compensation must depend on the cash flow. One can check using Martingale Representation Theorem, we can express the dynamics of manager's continuation value as follows:

$$dW_t + dC_t = \underbrace{\gamma W_{t^-} dt}_{\text{expected growth}} + \underbrace{\beta_t \sigma dZ_t}_{\text{pay for performance}} \tag{12}$$

Here β_t represents the pay-for-performance sensitivity. The incentive compatibility requires:

$$\underbrace{\beta_t}_{\text{PPS}} \geq \underbrace{\lambda}_{\text{diversion benefit}} - \underbrace{m_t}_{\text{monitoring}} \underbrace{(W_{t^-} - W_F)}_{\text{punishment}} \tag{13}$$

Intuitively, if the manager chooses $s_t > 0$, his immediate gain is λs_t. However, he suffers a loss of a lower performance pay that worth $\beta_t s_t$, and has a chance of being caught from monitoring $W_{t^-} - W_F$ with probability $m_t s_t$, which exceeds the gain. Therefore, the manager would choose $s_t = 0$ for all time t. The paper later will show the equity value after activism is concave. Therefore, the activist would choose the minimum incentive that satisfy the incentive compatibility $\beta_t = \lambda - m_t(W_{t^-} - W_F)$ all the time. Although the principals are risk-neutral, they are endogenously risk-averse. Providing the manager with more exposure to firm's performance increases the probability of termination which is costly as threat ex-post is inefficient.

As the principal can always make a lump sum cash payment to the manager, we have the slope of equity value after activism $E^{a,'}(W) \geq -1$. This implies the total firm value $E^a(W) + W$ is weakly increasing with W. The intuition is that a higher continuation value of the manager decreases the liquidation risk, as it is more unlikely that the manager is punished by a negative shock and will choose to exercise the outside option and leave the firm. The benefit of lower liquidation risk by increasing the continuation value declines as the probability of liquidation becomes small, suggesting the equity value is concave.

As there is benefit of deferring the manager's compensation, the optimal contract will set the cash compensation dC^a to be zero when W is small, to speed up the increase of continuation value W_t. However, as the manager is more impatient than the principal, there is a cost of deferring the manager's compensation. This trade-off thus implies a threshold $\bar{W}^a$ such that it is optimal to pay the manager if $W > \bar{W}^a$, and defer compensation otherwise. We then have:

$$dC_t^a = \max\{W_t - \bar{W}^a, 0\} \tag{14}$$

$$E^{a,'}(\bar{W}^a) = -1 \tag{15}$$

Where $E^{a,'}(.)$ denotes the first order derivative of the equity value after activist campaign

$E^a(.)$.

We then have the HJB equation for the equity value $E^a(W)$:

$$rE^a(W) = \max_{m \geq 0, \beta \geq \lambda - m(W - W_F)} \mu_n - \theta m + E^{a,'}(W)\gamma W + \frac{E^{a,''}(W)}{2}\beta^2\sigma^2 \qquad (16)$$

When $E^{a,''}(W_t) < -\frac{\theta\lambda}{\sigma^2(W_t - W_F)}$, we have

$$\begin{cases} \beta(W_t) & = -\frac{\theta\lambda}{(W_t - W_F)\sigma^2 E^{a,''}(W_t)} \\ m_t(W_t) & = (\lambda - \beta(W_t))/(W_t - W_F) = \frac{\lambda}{W_t - W_F} + \frac{\theta\lambda}{(W_t - W_F)^2\sigma^2 E^{a,''}(W_t)} \end{cases} \qquad (17)$$

Otherwise $m_t(W_t) = 0$ and $\beta_t(W_t) = \lambda$. The principal can choose full monitoring scheme that $m_t(W_t) = m^* = \frac{\lambda}{W_t - W_F}$, such that PPS is completely eliminated $\beta_t(W_t) = 0$. This happens when $E^{a,''} = -\infty$.

When there is no singularity, the HJB equation can be solved with the following boundary conditions:

$$E^a(W_R) = L \qquad (18)$$

$$E^{a,'}(\bar{W}^a) = -1 \qquad (19)$$

$$E^{a,''}(\bar{W}^a) = 0 \qquad (20)$$

The first boundary condition (18) shows the equity value equals the liquidation value when manager leaves the firm. The second boundary condition (19) denotes smooth pasting value for the endogenous payment threshold. The third boundary condition (20) is the super contact condition that ensures the optimality of the contract.

When there is singularity and full monitoring policy is adopted, we solve the restricted

HJB equation with $\epsilon > 0$ is small:

$$rE_\epsilon^a(W) = \max \begin{cases} \mu_n - \frac{\theta\lambda}{W-W_F} + \gamma W E_\epsilon^{a,'}(W), \\[2ex] \max_{\beta_\epsilon \in [\epsilon,\lambda]} \mu_n - \frac{\theta\lambda}{W_t-W_F} + \gamma W E_\epsilon^{a,'} + \frac{1}{2}\beta_\epsilon^2 \sigma^2 E_\epsilon^{a,''}(W) \end{cases} \tag{21}$$

Where $\beta_{\epsilon,t} = \epsilon$ iff $E^{a,''}(W_t) < -\frac{\theta\lambda}{\sigma^2(W_t-W_F)\epsilon}$. $\beta_\epsilon > 0$ except at $W_t = W_R$ under the optimal contract.

3.2 Optimal Contracting before Activism

Before activism, matching with the activist could happen any time, where if they engage, the manager would receive a new contract with a different continuation value. Therefore, original shareholders need to offset this re-contracting risk. One can check that with Martingale Representation Theorem, we can express the dynamics of the manager's continuation value as:

$$dW_t + dC_t = \underbrace{\gamma W_{t\text{-}} dt}_{\text{expected growth}} + \underbrace{\beta_t \sigma dZ_t}_{\text{pay for performance}} - \underbrace{\mathbb{1}_a(W^* - W_{t-})(dN_t - adt)}_{\text{activism resets contract and activism premium}} \tag{22}$$

Where the indicator $\mathbb{1}_a$ denotes that the activist choose to intervene when matched with the firm, and W^* denotes the manager's continuation value under the new contract provided by the activist.

Comparing with the manager's continuation value dynamics (12), there is an extra jump term $\mathbb{1}_a(W^* - W)(dN_t - adt)$. It is itself a martingale and has zero drift, which guarantees the manager's continuation payoff grows at his discount rate in expectation. W^* is the manager's continuation value under the new contract as previously mentioned.

To prevent the scenario where original shareholders excessively benefit from activism and potentially "invite" the activist to engage by intentionally damaging the firm, I make

two key assumptions. First, I assume that the improvement in operations $(\mu_n - \mu_o)$ should not be overly significant. Second, I require that the proxy of engagement profit to the activist αz, or the engagement cost K should not be trivially small for the activist.

In cases where the activist benefits from campaign and the engagement cost is not negligible, three distinct scenarios may arise. Specifically, the activist will engage when the manager's continuation value falls within the range $W_R \leq W < W_1$ or $W > W_2$, with $W_2 > W_1 > W_R$, where there is significant profit in offering a new managerial contract. Conversely, the activist will choose not to engage when W falls within the range $W_1 \leq W \leq W_2$.

Currently, my focus is directed towards a scenario where the operational improvement $(\mu_n - \mu_o)$ is considerable, and the engagement cost K is sufficiently low to ensure that $\mathbb{1}_a = 1$ holds true for all W.

Similar to the previous section, the equity value before activism exhibits concavity, leading the original shareholders to offer a minimum incentive of $\beta_t = \lambda$. Additionally, there is an endogenous payment threshold $\bar{W}$, such that $dU_t = \max\{W_t - \bar{W}, 0\}$.

Under the parameter set the activist always engage when matched with the firm, the equity value before activism can be achieved by solving the following HJB equation:

$$
\begin{aligned}
rE^b(W) = \max_{m \geq 0, \beta \geq \lambda - m(W - W_F)} & \mu_o + E^{b,'}(W)\left(\gamma W - a(W^* - W)\right) + \frac{E^{b,''}(W)}{2}\lambda^2\sigma^2 \\
& + a\left(E^m(W) - E^b(W)\right)
\end{aligned}
\tag{23}
$$

With similar boundary conditions as equity value after activism when there is no singularity:

$$
E^b(W_R) = L
\tag{24}
$$

$$
E^{b,'}(\bar{W}^a) = -1
\tag{25}
$$

$$
E^{b,''}(\bar{W}^a) = 0
\tag{26}
$$

When the HJB equation has singularity, we solve a similar restricted problem for $\epsilon < 0$ is small:

$$
rE_\epsilon^b(W) = \max \begin{cases} \mu_o + a\Big(E_W^m - E_\epsilon^b(W)\Big) - \frac{\theta\lambda}{W-W_F} + \gamma W E_\epsilon^{b,'}(W), \\[2ex] \max_{\beta_\epsilon \in [\epsilon,\lambda]} \mu_o - \frac{\theta\lambda}{W_t-W_F} + E_\epsilon^{b,'}\Big(\gamma W - a(W^* - W)\Big) + \frac{1}{2}\beta_\epsilon^2\sigma^2 E_\epsilon^{b,''}(W) \end{cases}
$$
(27)

In the situation where the activist only engages in regions of $W_R \leq W < W_1$ and $W > W_2$, the equity value will also have three regions. In the connection of the regions, we have value matching as boundary conditions.

4   Model Analysis

4.1   Optimal Contract without the Activist

I start by discussing the characteristics of the equity value, which is a function as the manager's continuation value, in the absence of activist intervention. Figure (1) shows that equity value follows an inverse U curve. Initially, it rises with the manager's continuation value when the latter is low. This phenomenon occurs due to a higher manager's continuation value reducing the liquidation risk. This "incentive alignment effect" creates value by allowing the firm to generate cash flow for a longer time (making the 'pie' larger). However, as the manager's continuation value increases further, the equity value begins to decline. In this scenario, where termination risk is already low, the diminishing returns from the "incentive alignment effect" contribute less to value creation while shareholders need to pay more to the manager: "the wealth transfer effect" (giving the manager a larger fraction of the 'pie').

Additionally, it's notable that the equity value exhibits concavity, indicative of shareholders' "endogenous risk aversion," despite their being inherently risk-neutral. By granting the manager greater exposure to the firm's performance, the dynamics of the

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manager's continuation value become more volatile, thereby elevating the liquidation risk. Consequently, shareholders opt for minimal incentives that effectively deter shirking while minimizing exposure to undue risk.

In this particular example, we also see that equity value at W_R is higher than the liquidation value L. This is because in this numerical example, the liquidation cost is so high that shareholders would choose to adopt a full monitoring policy when the manager's continuation value is low, such that the manager will never be fired and liquidation does not happen.

While figure (1) aims to elucidate why the activist stands to gain from acquiring the firm and modifying the current managerial contract, it's essential for readers to recognize that this depiction does not represent the optimal contract in the presence of an actual activist. The consideration of the threat of activist intervention by shareholders inevitably distorts the design of the current contract. Thus, the dynamics depicted here are illustrative of a simplified scenario and do not fully capture the complexities introduced by the prospect of activist intervention.

All discussions presented in this subsection are grounded in the assumption that original shareholders do not anticipate future activism when crafting the contract.

I focus on the intervention that the activist does not improve the operational performance: $\mu_n = \mu_o$.

Figure (1) illustrates two scenarios demonstrating how those interventions generate value ex-post.

First, the activist campaign creates value ex-post by reducing the probability of inefficient liquidation. Suppose at time τ_1, the activist is matched with the firm and observes the manager's continuation value from existing compensation contract is W_1, which is lower then W^* that maximizes the equity value. Assume the activist offers a take-it-or-leave-it offer to the shareholders: buy α fraction of firm's equity at the price $E(W_1)$, after which she gains control of the firm, and then offers the manager a new
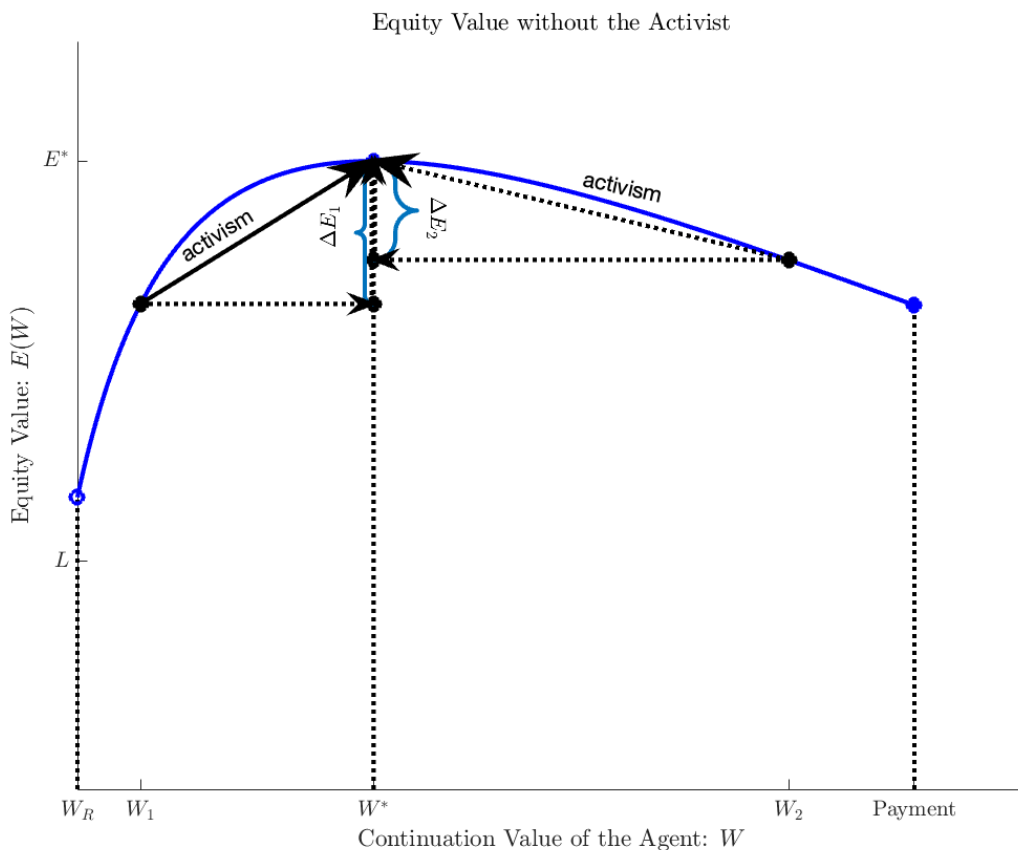
Figure 1: This figure shows the equity value when there is not an activist. The parameters are: $\mu = 0.5$, $L = 14$, $W_R = 1$, $W_F = 0$, $\sigma = 1$, $r = 0.01$, $\gamma = 0.05$, $\lambda = 1$, $\theta = 1$.

contract Φ^a, which is exactly the same form as the existing one, but offers a higher continuation value. This action generates value ex-post, as all stakeholders benefit from a reduced liquidation risk. The profit of the activist is then the difference of the equity value $\Delta E_1^G = E(W^*) - E(W_1^G)$ times α fraction of equity that the activist buys minus the intervention cost.

Second, the activist campaign creates value ex-post by reducing excessive pay: when the activist is matched with the firm and observes the manager's continuation value from his compensation contract is W_2, which is higher then W^* that maximizes the equity value, she can acquire and engage by offering a new contract with the same form but promises the manager a lower continuation value $W^* < W_2$. This action benefits shareholders ex-post

due to the 'transfer of wealth effect': they profit from reducing the manager's excessive pay.

On the contrary, if the manager anticipates that when his continuation value is low, there is a probability that an activist can intervene and offer a new contract with a higher continuation value; or when his continuation value is high, there is a probability that an activist can intervene and offer a new contract with a lower continuation value, his incentive to work hard today diminishes. Additionally, the manager's compensation growth is lower than his discount rate in the right region (strong past performance) and higher in the left region (poor past performance).

Consequently, the original contract must be adjusted to provide appropriate incentives and ensure that the manager's compensation growth equals his discount rate, while considering the risk of activism or re-contracting.

4.2   Optimal Contract with the Activist

Figure (2) illustrates the equity value before activism under various. The green solid line, corresponding to $a = 0.037$, depicts a targeting intensity indicating that, on average, the firm is expected to attract activist's attention every $\frac{1}{0.037}$ years. On the other hand, the blue dotted line, denoted by $a = 0$, shows the benchmark that there is no threat of activist intervention. Since $\mu_n = \mu_o$, this figure specifically examines activism that intends to change governance.

Upon the comparison of the two curves, it becomes evident that the threat of activist campaign leads to value destruction ex-ante. For any given manager's continuation value, the equity value under zero targeting intensity weakly outperforms that under $a = 0.037$, which indicates that it destroys value ex-ante. The intuition is that the threat of the activist campaign that aims at changing governance undermines shareholders' commitment capability. As managers realize that their efforts will not be adequately rewarded or their shirking behavior will go unpunished in the future, their incentive to work diligently

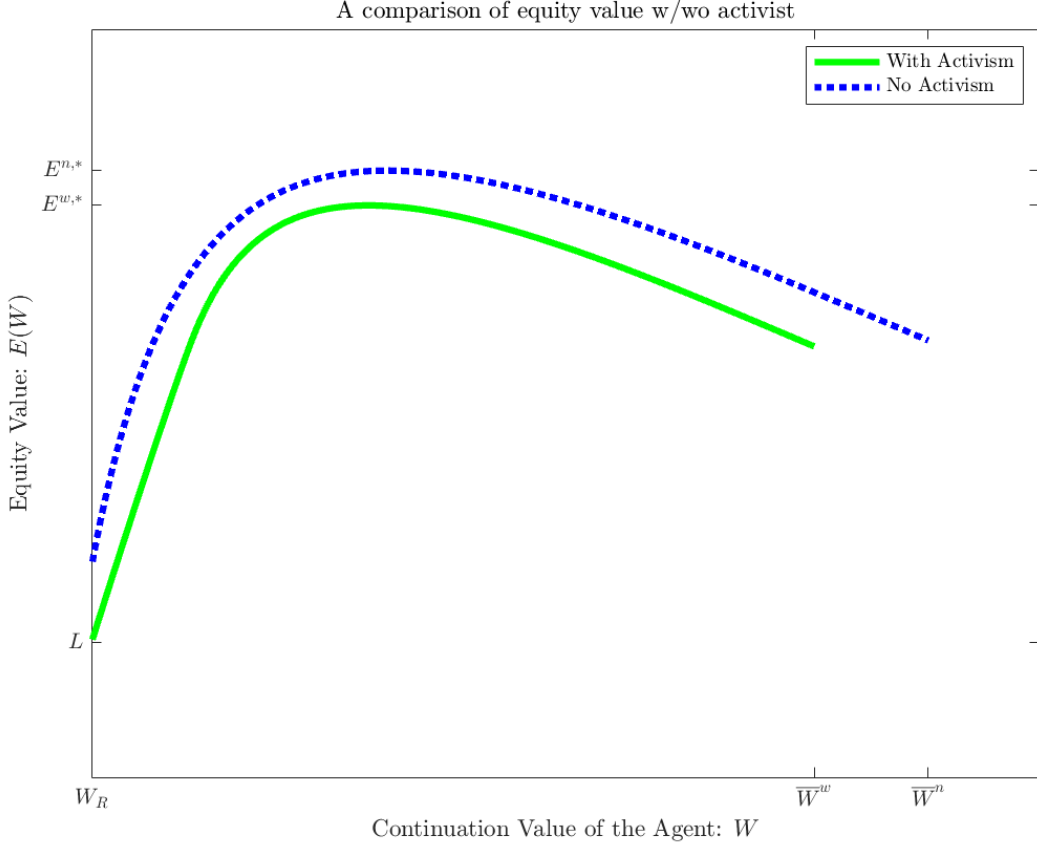27

A comparison of equity value w/wo activist

Figure 2: This figure shows the equity value before activism when there is a potential activist under different matching intensity. The parameters are: The parameters are: $\mu = 0.5$, $L = 14$, $W_R = 1$, $W_F = 0$, $\sigma = 1$, $r = 0.01$, $\gamma = 0.05$, $\lambda = 1$, $\theta = 1$, $a = 0.037$, $K = 0$.

diminishes. Consequently, shareholders must offer stronger incentives and deviate from the optimal contract in which they could otherwise maintain full commitment.

For instance, firms facing a likelyhood of being targeting must compensate their managers earlier even when no activism happened yet after sufficient good performance. As depicted in Figure (2), the endogenous payment threshold $\bar{W}^{a,*} < \bar{W}^*$. What's more, the dynamics of the manager's continuation value (22) indicates that the compensation growth is higher when the activism is more likely to happen. Similar to the literature on dynamic contracting such as DeMarzo and Sannikov (2006), under the risk-neutral assumption of the manager, the optimal contract features an endogenous payment threshold: the

manager receives no pay until the cumulative performance is sufficiently good. This payment threshold trades off the benefit of deferred compensation to reduce the contract termination risk with the cost of the manager's impatience. Two channels contribute to the earlier payment to the manager. First, the contract relationship with the manager becomes less valuable under the threat of activist intervention, which undermines the benefit of maintaining a high deferred compensation. Second, as the manager requires a higher compensation growth, maintaining a large deferred compensation becomes more costly. Therefore, the manager gets paid earlier.

Under the threat of the activist campaign, the contract features higher compensation growth after strong performance and lower compensation growth after poor performance. As shareholders apply performance based compensation to prevent the manager from diverting, strong performance leads to a higher managerial compensation, attracting activist intervention aimed at reducing what may seem like excessive pay ex-post. To offset the risk of such recontracting and maintain incentives, the manager demands higher compensation growth. On the other hand, after bad performance where the manager is punished and have a low continuation value, an activist can recontract to increase the manager's pay. This aligns the manager's incentive and has the benefit of reducing the inefficient contract termination risk or the high monitoring cost. However, anticipation of the activist intervention weakens the punishment. Shareholders then implement a lower compensation growth to maintain punishment credibility.

Moreover, activism injects additional volatility into the manager's continuation value, consequently heightening the contract termination risk. By comparing (12) and (22), it becomes evident that re-contracting introduces a jump risk term. As previously demonstrated, equity value exhibits concavity concerning the manager's continuation value, thus original shareholders would benefit ex-ante from no activism if the activism fails to improve operational performance and remains purely governance-oriented. To counteract the re-contracting risk, original shareholders must also offer higher compensation growth

after strong performance and lower compensation growth after poor performance.

4.3 Internal governance change in response to the threat of activist campaign

Figure(3) shows the distortion of the existing contract design under the threat of activist campaign. The dotted blue line shows the benchmark where there is no threat of activist campaign, while the green solid line plots the policy distortion under a targeting intensity of 0.037.

Both monitoring and pay-for-performance sensitivity (PPS) can alleviate the moral hazard problem: if the manager diverts, 1) the firm cash flow is lower thus he gets a lower performance pay, and 2) he has a chance of being fired and suffers from a reputation loss if he is caught from monitoring. The optimal contract efficiently trades off these two ways of providing incentives to the manager and shows interesting dynamics of firms' governance policies.

Utilizing pay-for-performance sensitivity can be costly. A high PPS means that managerial compensation is greatly affected by cash flow shocks, increasing the risk of inefficient liquidations. This is particularly costly when the manager's stake is low. Additionally, under the threat of an activist campaign, a high PPS increases the likelihood of activist intervention as the manager is more likely to experience extremely high or low continuation value.

Monitoring also carries costs and varies in effectiveness depending on the manager's continuation value: it is less effective when this value is low, as the manager has less to lose. On the other hand, monitoring provides the benefit of reducing the risk of inefficient terminations as shareholders can reduce the use of PPS under a high monitoring intensity. This paper suggests that under the threat of an activist campaign, substituting PPS with monitoring can offer an added benefit of reducing the likelihood of activist intervention.

The paper illustrates that the threat of intervention significantly alters the pattern of performance pay and monitoring. Specifically, when the manager's continuation value is at an intermediate level, shareholders increase monitoring and reduce PPS to decrease the likelihood of activist intervention. Conversely, after very good or bad performances—where the manager's continuation value is extremely high or low, making recontracting by activists more profitable—shareholders reduce monitoring and increase PPS.
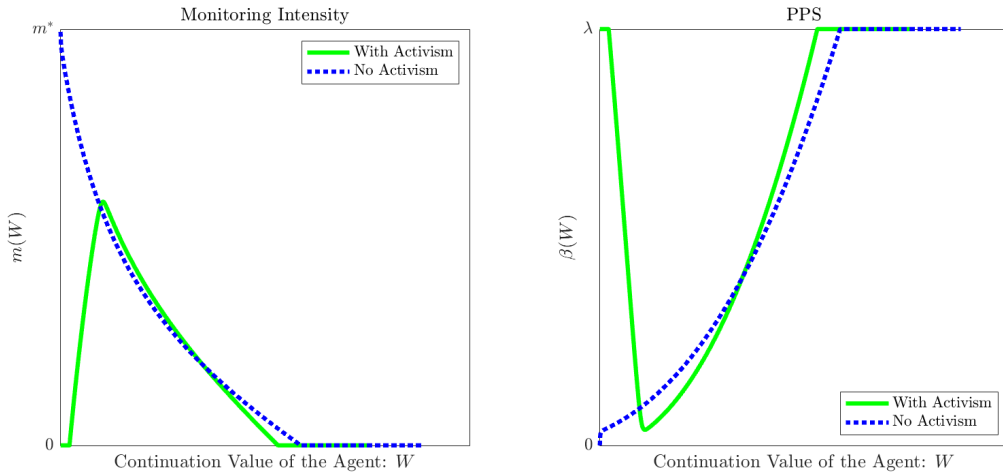

Figure 3: This figure shows the internal governance (monitoring & PPS) before activism when there is a potential activist under different matching intensity. The parameters are: $\mu = 0.5$, $L = 14$, $W_R = 1$, $W_F = 0$, $\sigma = 1$, $r = 0.01$, $\gamma = 0.05$, $\lambda = 1$, $\theta = 1$, $a = 0.037$, $K = 0$.

5 Contract with the Activist When the Firm Has Existing Debt

This section expands the model to incorporate existing debt held by the firm. Recognizing that re-contracting has spillover effects on other stakeholders such as creditors and distorts the contract ex-ante, the paper evaluates both the direct impact and the impact caused by the threat of activist campaign.

5.1 Contract with the Activist When the Firm Has Existing Debt: Model

The debt in this model pays a constant coupon d over time, which is similar to He (2011). For simplicity, the paper assumes that the coupon is sufficiently small such that neither the old nor the new principal would default unless the manager left the firm. In this scenario, as the manager is crucial for the firm's operation, if he were to depart, the firm would cease generating cash flow, leaving shareholders with nothing. Consequently, shareholders declare bankruptcy simultaneously with the manager's departure. The model should remain robust even if shareholders were to hire a new manager with an unknown ability to manage the firm after the old manager's departure, as there is still a possibility that shareholders might hire a manager who is not well-suited for the firm, leading them to opt for bankruptcy.

Upon default, creditors receive $L_D = \theta^D \theta^B L$. Here $0 \le \theta^D \le 1$ denotes the fraction of the liquidation value that belongs to creditors, and $0 \le 1 - \theta^B < 1$ denotes the bankruptcy cost.

The equity value $E^a(W)$ and $E^b(W)$ can be solved in a similar way with μ be replaced by $\mu - C$, and (18) and (24) be replaced by:

$$E^a(W_R) = (1 - \theta^D)\theta^B L \tag{28}$$

$$E^b(W_R) = (1 - \theta^D)\theta^B L \tag{29}$$

to reflect that the part of the ownership of the asset in place is transferred to creditors when the manager is fired and the firm announces bankruptcy.

Assume the creditors do not have any bargaining power. Therefore, when when the activist steps in and engages, she offers a contract that maximizes the equity value (let's still

denote the manager's continuation value that maximizes equity value in the new contract as W^*).

The debt value under the contract Φ before activist intervenes then would be:

$$D(\Phi_0) = \mathbb{E}\left[\int_0^\tau e^{-rt}\underbrace{ddt}_{\text{coupon}} + \underbrace{(\mathbb{1}_{\tau=\tau^L} + \mathbb{1}_{\tau=\tau^F})e^{-r\tau}L_D}_{\text{bankruptcy}} + \underbrace{\mathbb{1}_{\tau=\tau^A}e^{-r\tau}D^m(W^*)}_{\text{activism}}\right] \quad (30)$$

Where $D^m(.)$ denotes the debt value after the activist intervenes.

5.2 Contract with the Activist When the Firm Has Existing Debt: Analysis

Figure (4) and Figure (5) depict the debt and equity values before and after activism. The green line represents the security prices after activism, while the blue line represents the security prices before activism. In this numerical example, the activist introduces operational improvements with $\mu_n = 1$, exceeding the original level of $\mu_o = 0.5$, and incurs a positive engagement cost of $K = 0.5$.

The blue arrows in these figures illustrate the impact of "operation activism." With higher expected cash flow post-activism, the value of both equity and debt increases compared to before activism, causing the curves of the security values to shift upward.

The pink arrows in these figures indicate the impact of "governance activism." In Figure (4), the activist intervenes when the manager's continuation value is low, or the termination risk is high. The activist enhances equity value by offering a new contract that increases the manager's continuation value from W_1^G to W^* through two channels: 1) the risk of inefficient termination when the manager's continuation value is low is reduced, thereby increasing the equity value due to the "incentive alignment effect" mentioned earlier (intensive margin); 2) the enhancing operational performance further amplifies the benefits of the "incentive alignment effect" (extensive margin).

In Figure (5), the activist intervenes when the manager's continuation value is high,
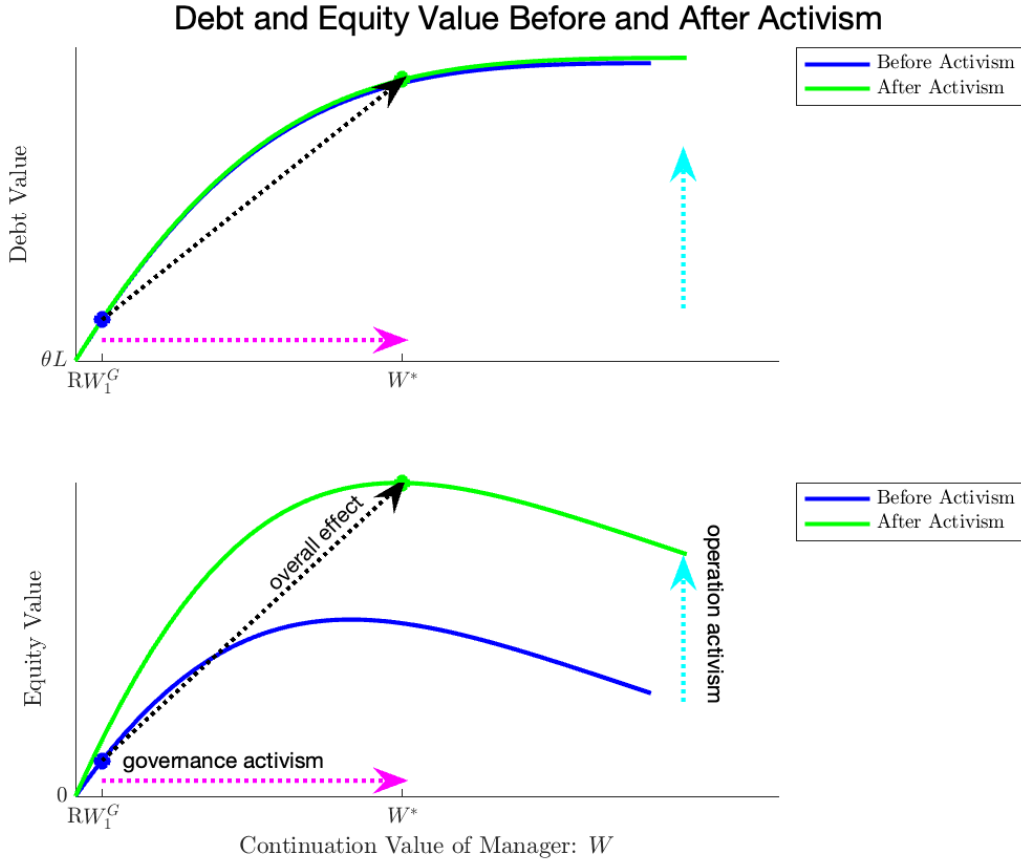
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Figure 4: This figure shows the debt and equity value before and after the activism. Debt value increases after activism. The parameters are: $\mu_o = 0.5$, $\mu_n = 1$, $L = 17$, $W_R = 1$, $W_F = 0$, $\sigma = 1$, $r = 0.01$, $\gamma = 0.05$, $\lambda = 1$, $\theta = 1$, $a = 0.037$, $K = 0.5$.

or the termination risk is low. In this scenario, two factors come into play, but they exert opposite effects. Firstly, when the manager's continuation value is already high, indicating a low termination risk, the activist benefits from offering a contract with a lower manager continuation value, thereby reducing excessive pay (intensive margin). However, the improved operational performance suggests that the activist may also benefit from offering a higher continuation value (extensive margin). In this example, the first effect dominates the second, resulting in a reduction in the manager's continuation value through governance activism.

The black arrows in the figures show the overall effect of activism on security prices.
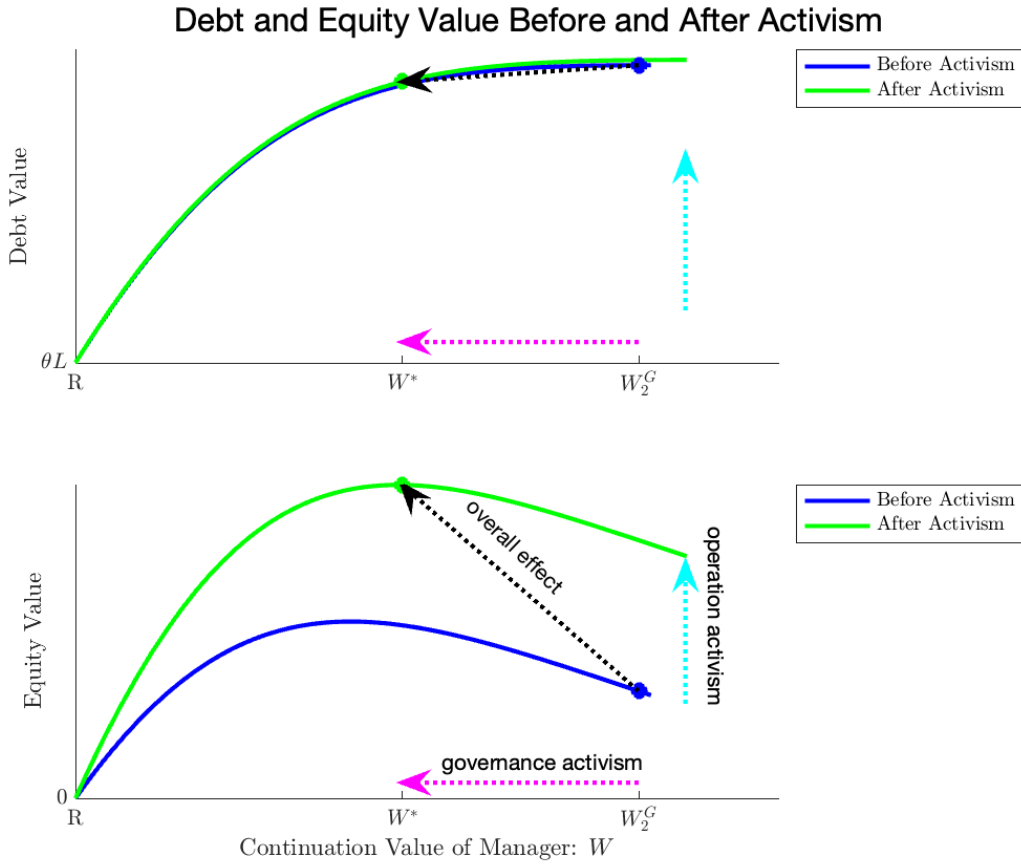
Figure 5: This figure shows the debt and equity value before and after the activism. Debt value drops after activism. The parameters are: $\mu_o = 0.5$, $\mu_n = 1$, $L = 17$, $W_R = 1$, $W_F = 0$, $\sigma = 1$, $r = 0.01$, $\gamma = 0.05$, $\lambda = 1$, $\theta = 1$, $a = 0.037$, $K = 0.5$.

Creditors benefit from activism when the manager's continuation value is low for two main reasons. Firstly, the termination risk is lower because the new contract offers the manager a higher continuation value, providing the manager with more incentive to remain with the firm. This effect, known as the "re-contracting effect," reduces the likelihood of default, benefiting creditors. Secondly, activism often brings valuable business insights that improve operational performance. As the firm is expected to generate more cash flow, default becomes costlier for shareholders. Consequently, they prefer to offer a contract that provides more financial slack, indicated by a larger $\bar{W}$. This effect, referred to as the "operation improvement effect," further benefits creditors by reducing default risk.

On the other hand, creditors may suffer from activism when the manager's continuation value is high. While the "operation improvement effect" makes the debt safer by enhancing operational performance, the "re-contracting effect" leads to a decline in the value of debt. While shareholders benefit from reducing excessive managerial pay, the contract termination risk increases. When the manager receives less compensation by staying in the firm, they are more likely to leave after poor performance. Consequently, activism events occurring when the manager is already receiving excessive pay result in a "wealth transfer" effect from creditors to shareholders.

The paper thus offers an explanation on mixed empirical evidence on how activism influences debt value, Brav et al. (2008), Klein and Zur (2011).

5.3 Credit Spread

The credit spread is defined as:

$$\text{Credit Spread} = \frac{C}{D} - r \tag{31}$$

To focus on the effect of governance activism on debt value, figure (6) compares the credit spread of a firm that has no activist and a firm with $a = 0.5$ before activism.

From the figure, it's evident that for a firm facing potential governance activism, the credit spread is higher when the likelihood of being targeted with pure governance activism increases. Intuitively, since debt value is a concave function of the manager's continuation value, governance activism introduces additional variation, thereby reducing debt value and increasing the firm's debt financing cost. The paper thus offers an explanation of "jump-to-default" risk in the reduced-form credit spread models.
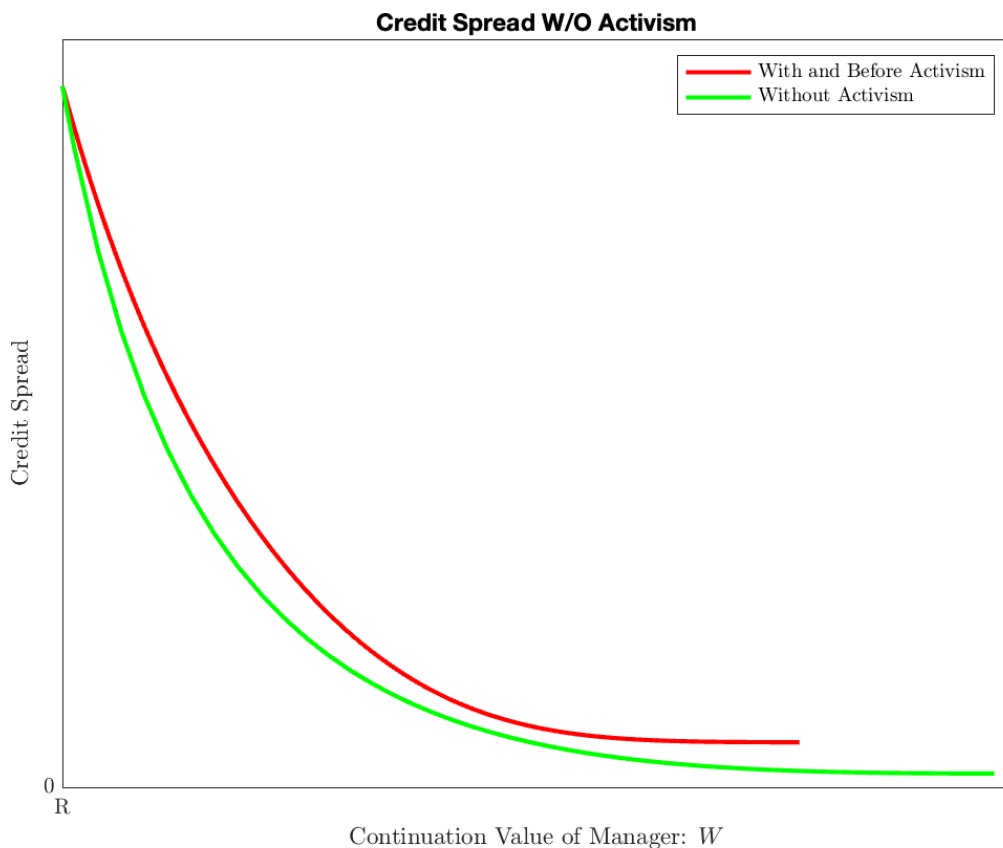
Credit Spread W/O Activism

Figure 6: This figure shows the debt and equity value before and after the activism. Debt value increases after activism. The parameters are: $\mu_o = \mu_n = 10$, $L = 25$, $R = 0$, $\sigma = 5$, $r = 0.1$, $\gamma = 0.15$, $\lambda = 1$, $K = 0.0$, $\alpha = 0.05$, $Z = 1$, $C = 5$, $\theta = 0.8$.

5.4 Other interpretations of the model

Although the paper focuses on shareholder activism that targets for governance change, the model can also be applied to study the threat of takeover or M&A events that come with significant changes on firms' executive teams. The recontracting risk can also be considered as the principals have a limited ability to commit, and there are chances they regret and write a new contract with the agent.

Second, the agent in the model can also been employees. The decrease of agent's continuation value after activist campaign can be interpreted as the activist intervene to reduce employee welfare, cut of wage or fire employees; while the increase of agent's

continuation value can be considered as vice versa.

Finally, the monitoring can be conducted by board members, who are also expected to provide advisory services as well. The cost of monitoring can therefore be interpreted as the firm gets less advice, which increases the firm cash flow, from the board. The paper then provides implications on the board's role under the threat of activist campaign: the board focuses more on a monitoring role when the manager's continuation value is at intermediate level and advisory role when it is extremely high or low.

6   Conclusion

The paper presents a dynamic agency model featuring an outside investor (the activist) that matches with the firm randomly and is capable of acquiring ownership and modifying existing long-term managerial contracts. The paper focuses on how the threat of activist campaign would impact the existing contract design and destroys shareholder value ex-ante, while it intends to create value ex-post.

The paper shows although activist intervention creates value ex-post by reducing excessive managerial pay or inefficient liquidation risk, it destroys value ex-ante by undermining the commitment power of shareholders. Anticipating potential interference, managers may lose incentive to work hard, leading to distorted contractual terms characterized by front-loaded payments, accelerated compensation growth after strong performance, and heightened CEO turnover risk. Consequently, the paper cautions against say-on-pay initiatives, which empower shareholders to adjust executive compensation, when original contracts are already optimized for shareholder value.

Furthermore, the paper explores governance activism's spillover effect on stakeholders like creditors. Activism may lead to a debt value change in both directions, depending on how the activist is going to change the managerial compensation and their potential to enhance operational performance. Creditors demand higher yields if activism is anticipated

to yield no operational improvements. The paper thus also shed lights on credit spread puzzle and offers an explanation of "jump-to-default" risk in reduced-form credit spread models: being targeted by an activist. As debt financing costs rise, firms adjust by reducing leverage.

Overall, the paper calls for caution on regulation policies related to the scope of shareholder rights, such as say-on-pay and Schedule 13D.

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