Hedge Fund Activism and Capital Structure[1]

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Abstract

Using a comprehensive pooled sample of hedge fund activism spanning over two decades (1994-2014) in the U.S., and firms matched on observable characteristics by closest propensity scores, we study whether hedge fund activists influence the capital structures of targeted firms to create value. We find that over-levered firms are more likely to be targeted. We further document that there is a significant positive association between firms' distance away from the target leverage and their likelihood of being targeted by an activist hedge fund when the firm is over-levered. However, when the firm is under-levered, such relation is negative, indicating that activists also value financial flexibility. Moreover, in a difference-in-differences set-up, when compared to a propensity score-matched cohort, we find that the firms reduce the distance from their long-run target capital structure post-hedge fund activist intervention when the firm is over-levered but not when they are under-levered. Our findings are broadly consistent with the dynamic trade-off models of capital structure, where adjustment costs and financial flexibility considerations play a key role and provide empirical evidence on the positive impact of hedge fund activists on their investee firms' capital structures. Such findings are not driven by asset sales, wealth transfer from bondholders to stockholders, enhancing dividends via leverage and are robust to alternative explanations such as mechanical mean reversion of leverage and hedge funds' stock picking skills.

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1. Introduction and Motivation

In one of the most influential papers in the research area of hedge fund activism, Brav, Jiang, Partnoy, and Thomas (2008), the authors find that 18.8% of their sample included hedge fund activists who were targeting firms' capital structures. More recently, there have been other studies that survey the activism literature and corroborate this idea that capital structure is one of the essential firm characteristics that activists look at when targeting firms (e.g., Brav, Jiang and Kim, 2015; Coffee and Palia, 2016; and Denes, Karpoff and McWilliams, 2017).

A natural question to pose is: Why is leverage such a critical firm characteristic attracting shareholder activists? A plausible answer lies in the capital structure theory, where a sub-optimal level of capital structure is perceived by hedge fund activists as an attractive opportunity to enhance value. McCahery, Sautner, and Starks (2016) find that 68% of institutional investors give a score of 4 or 5 out of 5 for the suboptimal capital structure as one of the primary triggers for shareholder engagement.

However, empirical evidence on the *ex-ante* leverage characteristics of firms attracting activists is mixed, at best. Karpoff, Malatesta, and Walkling (1996), Brav et al. (2008) and Klein and Zur (2011) find that the leverage of target firms is relatively high compared to a control group. Boyson and Mooradian (2011) find that the leverage of target firms is relatively low compared to a control group. John and Klein (1995), Strickland, Wiles, and Zenner (1996) and Boyson, Gantchev and Shivdasani (2017) find that the leverage of target firms is the same as compared to a control group. Empirical evidence on the *ex-post* impact on activists' intervention on the leverage of targeted firms is also mixed. While Brav et al. (2008) and Klein and Zur (2011) find that the leverage of target firms increases post-intervention, Boyson and Mooradian (2011) and Clifford (2008) find that there is no statistically significant increase or decrease in leverage post-intervention. Why are researchers finding such diverging empirical evidence?

One plausible explanation, other than the facts that these papers focus on different time periods, activism by different types of activists (hedge fund activists versus other types of institutional shareholder activists such as pension funds, mutual funds, etc.), and different control groups, is that researchers are not looking at the movement toward optimal leverage, but instead focusing on cross-sectional variations in leverage or change in leverage post-intervention. However, note that an increase or decrease in leverage post-activist intervention does not provide any evidence on the movement toward or away from non-optimal capital structures.

Therefore, in this paper, we try to address the following main research questions:

First, when do most hedge fund activist interventions take place? Is it when the target firm is above or below their long-run target leverage? We find that hedge funds intervene when firms' capital structures are away from their long-run estimated targets (both above and below), with nearly 47% firms above their long-run estimated target leverage and nearly 53% firms below. If one believes that firms have optimal target leverage as predicted by theories in both traditional static and more recent dynamic capital structure frameworks, then such results indicate that a non-optimal level of leverage is an attractive feature for hedge fund activists as it provides the activists an opportunity to create value.

Second, is the target company's deviation from the optimal leverage correlated with the likelihood of the firm being targeted by an activist hedge fund, after controlling for other observable firm characteristics, that have been found associated with being targeted in the extant literature. We find that over-levered firms are more likely to be targeted as compared to under-levered firms. We further document that there is a significant positive association between firms' distance away from the target leverage and their likelihood of being targeted by an activist hedge fund when the firm is over-levered. However, when the firm is under-levered, such relation is

negative, indicating that activists also value financial flexibility. Such results are also robust to the use of year, industry, and firm fixed effects that control for unobserved heterogeneities across time, industries, and firms.

Third, do shareholder activists influence capital structures of targeted firms? More specifically, how does leverage subsequently evolve post-intervention? In a difference-in-differences set-up, as compared to a propensity score-matched cohort, we find that post-activism intervention, the distance between the actual leverage and the target leverage reduces for firms that are over-levered, while the distance between the actual leverage and the target leverage increases for firms that are under-levered. This asymmetric behavior indicates that while on the one hand hedge-fund activists try to push their investee firms toward the optimal capital structure to maximize shareholder value, on the other hand, they also value financial flexibility. Such results are robust to using different specifications to estimate long-run target leverage and to the use of book leverage instead of market leverage. Using book leverage segregates the impact of mean reversion by removing an upward drift in market equity value due to hedge fund activist intervention announcements.

Fourth, we test whether there is any correlation between Cumulative Abnormal Returns (CARs) and excess leverage (both positive and negative) of the targeted firms. Answering this question is essential as it can provide evidence on whether hedge fund activism that is partially motivated by the sub-optimal capital structure of target firms generates value for shareholders. We find that there is a significant, positive abnormal jump in stock price on the announcement of hedge fund activism campaigns that target firms with sub-optimal capital structure. Furthermore, the CAR is significantly higher when a firm's leverage is farther away from its estimated target leverage in the case when the firms are over-levered but not when they are under-levered. Such

findings could imply that the markets also perceive debt capacity, which represents a primary source of financial flexibility, as valuable, which is consistent with our multivariate results.

Fifth, we explore the potential channels or mechanisms through which these changes in leverage are made. We start by looking at the changes in different types of debt. Contrary to some prior studies, we do not find any significant changes in the total or the long-term debt, post-intervention for the full sample. However, on splitting the sample into above or below the long-run target leverage at the time of intervention, we find that there is a significant reduction in the short-term debt among the firms that are under-levered, and a significant reduction in the long-term debt post-intervention for over-levered firms. Moreover, we find that post-intervention, there are no significant changes in the long-term debt ratings, debt maturity, debt issuance, and bond returns for the targeted firms as compared to their propensity score matched sample. In other words, we do not find evidence on the wealth transfer story, where the argument is that hedge fund activists do not create wealth but simply transfer wealth from bondholders to stockholders.

The recent developments in the capital structure literature indicate that financing decisions of a firm are jointly determined with its investment and payout decisions. Therefore, we also analyze the changes in investment and payout policies of the firms, post-hedge fund activist intervention in a difference-in-differences set-up, compared to the firms matched by closest propensity scores. We test whether the movement toward optimal capital structure is brought about by cutting long-term investments in research and development and capital expenditures. We do not find any statistically significant reduction in either research and development (R&D) expenses or capital expenditures (CAPEX).[2] Also, we do not find significant changes in sales growth and asset size post-intervention, ruling out the possibility of selling assets to make the changes in the

[2] Brav, Jiang, Ma, and Tian (2018) have recently documented a positive impact of hedge fund activists on corporate innovation.

debt structure. Regarding payout policies, we find that there are no significant changes in dividends post-intervention. However, share repurchases increase significantly, but only for firms that are under levered.

Nonetheless, it can still be argued that hedge fund activists are just good stock pickers, and such changes toward the optimal capital structure would have happened irrespective of their interventions. To address this concern, following Brav, Jiang, Ma, and Tian (2018), we use a legal requirement for hedge funds switching from passive to active ownership, indicated by 13G to 13D switches in SEC filings, as a source of identification. We find that the market response as positive CARs is significantly stronger for 13G to 13D switches, suggesting a causal relationship between hedge fund activist intervention and movement toward long-term target leverage.

The next section discusses the relevant literature and develops the primary hypotheses. Following it, section 3 describes the data and presents summary statistics. Main results are presented in section 4, and finally, section 5 concludes.

2. Related Literature and Main Hypotheses

The two specific areas in corporate finance literature from where we have heavily borrowed in this paper are capital structure and hedge fund activism. There has been substantial theoretical as well as empirical work in both these areas in the extant literature that has improved our understanding of not only how firms choose their capital structures but also of the firm-level characteristics that make any firm an attractive target for hedge fund activists.

To come up with useful capital structure models, various researchers have relaxed the perfect capital market assumptions of the seminal paper by Modigliani and Miller (1958) and have provided static as well as dynamic trade-off models. Although different capital structure models

have their challenges, with very few exceptions such as that of Myers and Majluf's (1984) "pecking order hypothesis" and Baker and Wurgler's (2002) "market timing hypothesis", most capital structure models suggest an existence of an optimal target or leverage that minimizes the cost of capital and thereby, maximizes the firm value (Graham and Leary, 2011). So much so, that almost all graduate level corporate finance textbooks show and teach future managers a typical graph as shown in Appendix I, where the idea is that in the real world when one relaxes certain perfect capital market assumptions of Modigliani and Miller (1958) and introduces frictions such as taxes, bankruptcy costs, agency costs, etc., capital structure can have a significant impact on firm value, and there is an optimal capital structure. Irrespective of whether one believes in static trade-off theories of capital structure or the relatively new dynamic trade-off theories with adjustment costs (e.g., Strebulaev, 2007; Lemmon, Roberts and Zender, 2008), the presumption is that there is a theoretical optimal level of debt that maximizes firm value.

When we turn to the current literature on shareholder activism research, both empirical (Brav et al. 2015; Coffee and Palia, 2016; Denes et al., 2017) and survey-based (McCahery et al., 2016) studies strongly indicate the intent of activists to intervene in the capital structure decisions of their investee companies. Reading through the Item 4, i.e., the section on "Purpose of Transaction" in Schedule 13D filings by hedge funds also indicates that, often hedge fund activists target capital structure (See Appendix II). Therefore, following the discussion above in this and the previous section, the first central hypothesis, i.e., the *value-creation hypothesis,* that we test in this paper is as follows:

H1 (Value-Creation Hypothesis): *All else equal, hedge-fund activists intervene when the target firm's capital structure is in sub-optimal condition, and the firms' distance away from the*

estimated target capital structure is positively associated with the likelihood of hedge fund's intervention.

Pictorially, it can be depicted as shown in the figure in Appendix IIIa. Here the idea is that any sub-optimal level of capital structure is an attractive feature for hedge fund activists as it provides them an opportunity to create value through capital structure restructuring. The further the distance of the actual leverage from the estimated target leverage, the greater is the potential opportunity to create value for the hedge fund activists. The empirical challenge, however, is to determine this optimal leverage. To address this challenge and to determine the long-run target leverage for each treated firm and the matched cohort, we rely on the extant empirical literature in corporate finance (Rajan and Zingales, 1995; Hovakimian, Hovakimian and Tehranian, 2004; Leary and Roberts, 2005; Flannery and Rangan, 2006; Harford, Klasa and Walcott, 2009; Denis and McKeon, 2012, etc.), and run yearly regressions with market leverage as the dependent variable and the various determinants of capital structure borrowed from the extant literature as independent variables. The details have been provided in the section on empirical methodology and main results.

Our second main hypothesis is regarding the movement of leverage toward the optimal capital structure post-hedge fund intervention. Here the line of thinking is that if the firm is away from its optimal long-run leverage, the movement back to its estimated optimal capital structure will happen after activist hedge fund's intervention. Hence, we hypothesize:

H2 (Hedge-Fund Impact Hypothesis): *All else equal, firms reduce the distance from their long-run estimated target leverage post-hedge fund activism (as shown in Appendix IIIb).*

An on-going debate in the shareholder activism literature is whether hedge-fund activism creates value. One view is that hedge fund activists are short-term investors, and hence, their

actions are biased toward short-term gains for shareholders that might be value-destroying in the long-run (Coffee, 2015). An opposing view is that hedge fund activists hold shares of their target firms for more than a year (Brav et al., 2008) or sometimes even more than two years, hence they have long-term value enhancing effects. Empirically testing the second hypothesis, i.e., *the hedge-fund impact hypothesis* would also contribute to this debate in the activism literature.

Finally, some researchers have found that hedge-fund activists increase shareholder wealth by transferring wealth from bondholders to shareholders (Klein and Zur, 2011). One of the ways such expropriation of wealth from bondholders to shareholders can potentially happen is if the activist hedge-funds force their target firms to increase leverage to pay dividends to the shareholders. Several case studies and anecdotal evidence (Walker, 2016) also point in such a direction. Therefore, the last section of our paper focusses on channels or mechanisms used by hedge fund activists for achieving post-intervention capital structure changes.

3. Data and Summary Statistics

In this section, we present the data and summary statistics. The primary source of data on hedge fund activism in the U.S. is the required Schedule 13D SEC filings, which any investor who crosses a 5% ownership of a publicly traded firm needs to file within the first ten days of crossing the 5% mark.[3] Therefore, we begin by collecting all the electronically filed Schedule13Ds and its amendments (i.e., Schedule 13D/As) from EDGAR (Electronic Data Gathering, Analysis, and

[3] Note that there are several commercially available databases used by hedge fund researchers, however, such databases are created based on the voluntary disclosure of hedge funds and hence are marred by biases such as self-selection and survivorship, amongst others (Agarwal and Naik, 2005; Bui and Ganguly, 2017).

Retrieval system) during the time-period 1994-2014.[4] We start at 1994 since it was the first year when electronic filings with the SEC began and we end at 2014, as we need at least two years post activist intervention to analyze the subsequent changes in leverage.

We focus solely on hedge fund activists and hence closely follow the methodology described in Brav et al. (2008) to identify hedge fund activists. Item 2 on SEC Schedule 13D filings provides information on the identity of the filers. We identify them as hedge funds based on their names and description and also conduct additional internet searches if there is any ambiguity. Item 4 on SEC Schedule 13D provides information on the purpose of the transaction. Following the extant literature, we exclude transactions that involve reorganizations due to financial distress or bankruptcy and merger and acquisition-related risk arbitrage. For the target firms, we utilize SEC's Central Index Key (CIK) to merge them with the firm-level accounting and return data from Compustat and CRSP, respectively. We exclude the cases where the target is a closed-end fund or any other non-corporation.

We append the sample with non-public hedge fund activism campaigns, where the hedge fund does not cross the ownership threshold of 5 percent.[5] Finally, during our sample period of 21 years (1994-2014), we have 3,292 hedge fund activism campaigns by 540 unique hedge fund activists. The distribution of Schedule 13D filings and the number of activist hedge funds engaging in activism by year for our sample has been provided in Figure 1 and Figure 2, respectively.

Insert Figure 1

Insert Figure 2

[4] During the time-period from 1994 to 2014, there were 95,543 Schedule 13Ds and 188,568 Schedule 13D/As filed with the SEC.

[5] Data on non-public hedge fund activism campaigns has been kindly provided by Professor Wei Jiang from Columbia University.

There are two key aspects to note in Figures 1 and 2. First, there has been a rising trend in both the number of activist campaigns and the number of activist hedge funds in the last two decades, indicating that it is indeed a successful investment strategy for many hedge funds. Second, there is a pro-cyclical pattern in hedge fund activism as also pointed out by Brav et al. (2015) and Burkart and Dasgupta (2015). For instance, most recently, there was a dip in both the number of activism events and the count of activist hedge funds right after the 2007-2008 financial crisis. Such a dip is gradually reverting to its pre-crisis level, as seen in Figures 1 and 2.

Moreover, we also collect data on Schedule 13G filings, where the investor has crossed the 5% ownership of voting shares but does not have the intention to influence the strategy of the firm at the time of the filing. From this sample, we then extract a sub-sample of activists who switched from 13G to 13D filings, which we use to differentiate the results on capital structure changes post activism intervention due to hedge funds' active involvement from their stock-picking skills.

Insert Table 1

Table 1 presents univariate comparisons of key observable characteristics of target companies in our sample to firms in CRSP/Compustat universe, providing a sense of the type of companies that activist hedge funds target. The first panel in Table 1 provides the mean, median, and standard deviation of the characteristics of the firms that are targeted by hedge fund activists in our sample. The second panel presents the statistics of the same characteristics for firms that are not targeted but are in the CRSP/Compustat universe. The last panel in Table 1 states the t-statistic for the average differences, and the Wilcoxon signed rank statistic, which is asymptotically normal, for the median differences. As shown in the table, target firms have significantly lower market values and market-to-book ratios, which indicates that activist hedge funds target undervalued companies as there is more potential for value enhancement in such firms. The

targeted firms also have significantly lower profitability (measured by ROA) and lower sales growth, which again provides an opportunity for activist hedge funds for improvement. Also, corroborating the findings of recent studies (Brav et al., 2008; Brav et al., 2015; Coffee and Palia, 2016; and Denes et al., 2017), we find that in our sample, firms that are targeted by the activist hedge funds have significantly higher leverage, lower dividend yield, lower R&D investments and fewer analyst following.

Table 1 further shows that hedge fund activists tend to target companies whose stocks are on an average significantly more liquid as measured by Amihud's illiquidity measure. This supports the findings of a recent paper, Norli, Ostergaard, and Schindele (2015), where the authors document that stock liquidity increases the likelihood of shareholder activism as it reduces the free-rider problems and lowers the costs of activism. Finally, we also find that hedge fund activists, target firms that have significantly higher institutional ownership, which is similar to the findings of some other studies such as Brav et al. (2010). Data on institutional ownership has been obtained from Thomson's 13f filings. And, the data on analyst following comes from IBES.

These differences in firm characteristics between firms being targeted versus not being targeted raise the concern that these two sets of firms are systematically different. Therefore, for all our multivariate analyses, we use a propensity-score matched sample, where we hard match on industry and year and then choose the closest propensity score matched firm (with replacement) based on characteristics such as firm size, market-to-book, return on assets (ROA) which have been found in the literature to be associated with the probability of firms being targeted (Brav et al. 2016). We have 1,784, propensity-score matched firms. We also collected data on bond returns from the FINRA TRACE database and credit rating from Capital IQ database.

4. Main Results

The vast extant literature on capital structure has shown that once we relax the assumptions of Modigliani and Miller's (1958) perfect capital market conditions, the capital structure of firms begins to matter. Whether one believes in the basic static tradeoff models of capital structure or the dynamic models with adjustment costs, most academics, as well as practitioners, agree on a long-run optimal leverage target or band that can maximize a firm's value. Therefore, the sub-optimal capital structure can potentially be attractive to hedge fund activists as it provides them an opportunity to create value.

4.1 Evolution of Leverage

To test it empirically, we pose our first research question: When do most hedge fund activist interventions take place? Is it when the target firm is away (above or below) from their long-run target leverage? To begin with, we track the market leverage, which is calculated as total debt over total debt plus the market value of equity, of the target firms in our sample, seven years pre- and post- hedge fund intervention. The results are depicted in Figure 3.

Insert Figure 3

Figure 3 clearly shows that both the mean and the median leverage increases post-activism for at least a couple of years before it begins to fall again. Although such results corroborate the findings of some of the existing studies such as Brav et al. (2008) and Klein and Zur (2011), it can be misleading because it says nothing about whether the firms are moving toward or away from long-run target leverage.

Hence, next we estimate the proxy for the long-run target leverage using a double-sided Tobit regression model censored at 0 and 1, following the methodology of Harford, Klasa and Walcott (2009) and Denis and McKeon (2012). We use the following empirical specification:

$$ML_{it} = \alpha + \beta_1\{Med\ Ind\ ML\}_{i,t-1} + \beta_2\{M/B\}_{i,t-1} + \beta_3\{FA/TA\}_{i,t-1} + \beta_4\{OI/TA\}_{i,t-1} + \beta_5\{ln(TA)\}_{i,t-1}$$

--- (i)

where, ML_{it} = Market Leverage$_{it}$ = {Long-term debt exceeding maturity of one year + Debt in current liabilities, including the portion of long-term debt due within one year}/{ Long-term debt exceeding maturity of one year + Debt in current liabilities, including the portion of long-term debt due within one year + [Year-end common share price*Year-end number of common shares outstanding]}.

The factors on the right-hand-side are median industry market leverage (Med Ind ML), market-to-book ratio (M/B), asset tangibility (FA/TA), profitability (OI/TA) and size (Ln (TA)). These factors are the five most reliable factors to explain leverage in the empirical capital structure literature (Rajan and Zingales, 1995, Hovakimian, Hovakimian and Tehranian, 2004, Leary and Roberts, 2005, Flannery and Rangan, 2006, Harford, Klasa and Walcott, 2009, Frank and Goyal, 2009, Denis and McKeon, 2012). One can argue that the majority of variation in leverage is driven unobserved time-invariant factors (i.e., firm fixed effects) that generate surprisingly stable capital structures (Lemmon, Roberts and Zender, 2008). However, as pointed out by DeAngelo and Roll (2015), the potential problem with such leverage models with firm fixed effects is that the firm fixed effects models are unable to detect the time-series firm-level leverage variation, but instead compare average leverage of one firm to another, which is not the goal here. Hence, we estimate and track the long-run target leverage using equation (i) and the actual leverage of the targeted firms 7 years prior [-7, -1] and 7 years post [1,7] hedge fund activist's intervention that happens in year 0. We also compute excess leverage every year, where positive excess leverage implies that the leverage is above the long-run target leverage and negative excess leverage implies that it is below the target leverage. We find that nearly half of the activism campaigns (≈ 47%) take place when the target firm is above the long-run estimated leverage and another half (≈ 53%) when the

target company is below the long-run estimated leverage. Such results make sense as sub-optimal capital structure provides attractive value enhancing opportunities to activist hedge funds.

Following this, we ask that do shareholder activists influence capital structures of targeted firms. More specifically, how does leverage subsequently evolve post-intervention? Table 2 presents the mean and median levels of positive and negative excess leverage pre- vs. post- hedge fund activism for the years [-7,7]. While Panel A presents the evolution for market leverage, Panel B depicts the results for book leverage as a robustness check.

Insert Table 2

Interestingly, the point of hedge fund activist intervention (i.e., year t=0) in the Panels A and B is when leverage is farthest from the long-run target leverage, both in the case of firms that are above the target and for firms that are below the estimated target leverage. Another striking result is that leverage of the targeted firms begins moving towards their target leverage immediately after the intervention by the hedge fund activists as shown by the gradual reduction in their excess leverage. Not only this, but the firms also cover most of their path back to their optimal leverage within the first two years, which is also approximately the average holding period of activist hedge funds.[6] Both the Panels in Table 2 also indicate that it takes firms more than 7 years to fully revert to their long-run target leverage, which suggests a slow speed of adjustment and the presence of adjustment costs.

Some researchers (Chang and Dasgupta, 2009) have argued that ratios that are bound between 0 and 1, such as leverage, can mechanically mean revert and there might be an appearance of a target and partial adjustment, even if it does not exist in reality. However, we happen to take

[6] Based on the analysis of portfolio turnover rates of activist hedge funds in their sample, Brav et al. (2008) estimate the hedge fund activists' holding periods close to 20 months.

the view of some other researchers (Lemmon, Roberts and Zender, 2008; Flannery and Rangan, 2006; Hovakimian, 2006; Kayhan and Titman, 2007; Leary and Roberts, 2005; Danis, Rettl and Whited, 2014; DeAngelo and Roll, 2015), who have documented that firms gradually adjust their capital structure in response to various shocks. Their findings suggest that the active management of leverage ratios is at least partially responsible for the mean reversion in leverage ratios. Nevertheless, as a robustness check, we also use book leverage, as presented in Panel B, instead of market leverage.

Using book leverage isolates the effect of mean reversion by abstracting from an upward drift in equity value and a downward drift in market leverage due to announcement effects of hedge fund activism. Also, the event study results documented later in the paper make it even harder to argue that such market reactions are a product of mechanical mean reversion in leverage.

Overall, such results support the various dynamic tradeoff capital structure models that predict that in the presence of significant adjustment costs, rebalancing towards optimal leverage can be slow.

4.2 Likelihood of being targeted by Activism

Next, we formally test whether a firm's excess leverage (both positive and negative) is correlated with the likelihood of the firm being targeted by an activist hedge fund, after controlling for other firm characteristics, which have been found associated with being targeted in the extant literature. To test this empirically, we use three different logistic regression multivariate models with fixed effects (Gormley and Matsa, 2014) as shown in Table 3.

Insert Table 3

The dependent variable in all these models is a dummy variable (0 or 1) that indicates whether there is hedge fund activism targeting the firm. The independent variables on the right-hand-side are lagged by a year and include firm characteristics such as market value, market-to-book, return on assets (ROA), sales growth, market leverage, dividend yield, R&D, number of analysts following the firm, liquidity (proxied by Amihud's illiquidity measure) and institutional ownership. These covariates have been chosen based on the characteristics that have been found to be associated with the likelihood of being targeted by activist hedge funds in the extant literature (Brav et al., 2010, Brav et al., 2015, Coffee and Palia, 2016). All models have firm and year fixed effects.

In model 1, the main variable of interest is a dummy variable indicating whether leverage is above or below the target. The positive and significant coefficient of 0.256 indicates that firms with leverage above the estimated target leverage are more likely to be targeted by hedge fund activists, as compared to firms with below-target leverage. In model 2 and 3, we further separate our sample into two: firms with above-target leverage and firms with below-target leverage. In these two models, the main variable of interest is the distance of a firm's leverage from its target. Here, the distance is simply the modulus of the difference between actual leverage and the estimated long-run leverage using equation (i). Model 2 shows that among the firms with above-target leverage, the likelihood of being targeted by an activist hedge fund is positively and significantly associated with its distance from the target. In other words, the probability of being a target of an activist hedge fund increases for a firm, the farther it is from its long-run estimated leverage, after controlling for other firm-level factors. One plausible interpretation of such a result could be that the more a firm is away from its optimal leverage, the greater is the possibility of value creation from restructuring capital structure for the hedge fund activist and hence, the higher

is the likelihood of an activist intervention. However, Model 3 shows that among the firms with below-target leverage, the likelihood of being targeted by an activist hedge fund is negatively and significantly associated with its distance from the target. In other words, the probability of being a target of an activist hedge fund decreases for a firm, the farther it is from its long-run estimated leverage, after controlling for other firm-level factors. This asymmetric behavior is interesting, and hints towards the preference of activists for financial flexibility for their under-levered targets.

4.3 Change in Leverage Post Activism

In this section, we try to explore how the leverage, more specifically, the distance between the firm's actual and target leverage, evolve post-intervention of hedge fund activism. The analyses are conducted in a difference-in-differences set-up to see the changes in the distance between the firm leverage and its target three years pre- versus three years post-activism intervention, as compared to a propensity score-matched sample, with year and industry fixed effects. Different studies document that hedge fund activists hold shares of their investee companies from one to three years on average. The results are shown in Table 4.

Insert Table 4

The dependent variable is the distance between the actual leverage and the target leverage of a firm. The main variable of interest is the interaction term between Activism Dummy and Post Dummy, which is the difference-in-differences estimator. Model 1 is the sample of over-levered firms pre-intervention with their matched control sample, and Model 2 is the sample of under-levered firms pre-intervention with their matched control sample. As shown in Model 1, post-intervention, there is a significant reduction in the distance between the actual and the target leverage for the over-levered firms, indicating that activists do seem to push the leverage towards

the target to potentially maximize shareholder value. However, in Model 2, for under-levered firms, post-intervention, there is an increase in the distance between the actual and the target leverage, indicating activists seem to value the financial flexibility for this set of firms. Overall, this asymmetric behavior of the activists seems to indicate that even though their goal is believed to be shareholder value maximization, they might apply different strategies to achieve that goal based on specific firm characteristics pre-intervention. Such results also corroborate with the importance of financial flexibility for under-levered firms, as documented in Denis and McKeon (2012).

4.4 Value Implications

4.4.1 Event Study

Does hedge fund activism, motivated by the target's sub-optimal capital structure, create value for shareholders? To answer this question, we start by conducting short-term event studies around the announcement of such activist hedge fund interventions. The results of such event studies also indicate the perception of the market regarding such interventions. We use six different event windows {(0,1), (0,2), (-1, +1), (-1, +2), (-2, +2), (-5, +5)} around the announcement of such activism campaigns. The date of announcement is either the date of the filing of Schedule 13D or the first public announcement of the activism campaign, whichever comes first.

Insert Table 5(a)

Insert Table 5(b)

Insert Table 5(c)

In Table 5(a), we report the cumulative abnormal returns (CARs) around the activism campaign announcement dates for both the set of companies that were above and below their long-

term target leverage. We have computed the abnormal returns as the difference between the actual stock price return and the expected market model (CRSP Value Weighted Index) return over the windows indicated in the first column. Market model has been estimated using 255 days of daily returns ending 46 days before the activism campaign announcement date. We also report both the Patell Z-statistic and the corresponding p-value. As shown in Table 5(a), the stock price of the targeted firms, both that are above and below their target leverage, jumps up significantly on the announcement of hedge fund activism campaigns, with the mean CAR ranging from 2.02% to 4.98%. The magnitude of such significantly positive CARs are along the lines of what has been documented in the prior literature (Brav et al., 2008) on activist hedge funds and indicates that the markets perceive such activism as value-enhancing.

In Tables 5(b) and 5(c), we further divide the firms that are above and below their long-run estimated leverage into terciles depending on their distance from the target leverage and conduct the event studies again. For over-levered firms, we find that although the CARs are positive and significant for all the windows in both highest and lowest tercile, they are significantly higher in most windows, the farther the firm's leverage is away from the optimal leverage. For under-levered firms, the differences in CARs are not significantly different between the highest and lowest terciles. The p-values for the differences in CARs have been reported in the last columns. Such results corroborate the notion that the farther the current leverage is from the estimated long-run optimal leverage, the greater is the value-creating opportunity, as is also perceived by the market's reaction. Furthermore, these results again suggest that financial flexibility becomes important for under-levered firms. The results hold while using other event study estimation methods and benchmarks.

4.4.2 Cross-Sectional Variations of CARs

In the following set of empirical tests, we analyze the cross-sectional variation in value creation, proxied by the market's response, in a multivariate regression setting. The results are reported in Tables 6(a) and 6(b). In Table 6(a), the dependent variables are the cumulative abnormal returns (CARs) in the (-2, +2), (-5, +5) and (-20, +20) windows around the announcement of hedge fund activism. The main independent variable is the modulus of excess leverage, i.e., a distance measure from the estimated long-run target leverage at the time of activism. In all the three models, we also include the lagged covariates such as market value, firm size, market-to-book, market leverage, and operating income, as suggested in the earlier literature. Note that in all the three models, cumulative abnormal returns (CARs) are positively and significantly associated with the distance measure from the estimated long-run target leverage.

Insert Table 6(a)

Insert Table 6(b)

In the next table, i.e., in Table 6(b), we explore whether this cross-sectional variation in value creation is different for firms with positive excess leverage (i.e., the firms whose leverage is above the long-run target leverage) versus the firms with negative excess leverage (i.e., the firms whose leverage is below the long-run target leverage). To test it, we use the same empirical specifications as in the models of Table 6(a), except, the main variable of interest on the right-hand-side now is a dummy variable which is equal to 1 when excess leverage is positive and equal to 0 otherwise. The results show a positive and significant association between positive excess leverage dummy and the cumulative abnormal returns (CARs) in all the three windows of (-2, +2), (-5, +5) and (-20, +20), indicating an asymmetry in market's response to announcements of hedge

fund activism campaigns, depending on the where the target firm stands with respect to its optimal leverage. Such multivariate results are consistent with the event study results in the previous section.

4.5 Potential Channels and Mechanisms

To identify the potential channels and mechanism through which firm leverage changes post-activism intervention, we look at the changes in various types and characteristics of debt. More specifically, we explore the changes in firms' short-term debt, long-term debt, total debt, net debt (change in debt minus change in equity), net debt issuance, debt maturity, internal financing (change in cash and cash equivalent over total assets), and cash holdings. The results are shown in Table 7(a) for over-levered firms, and Table 7(b) for under-levered firms. The dependent variables are various types and characteristics of debt. The main variable of interest is the interaction term between Activism Dummy and Post Dummy, which is the difference-in-differences estimator. As shown in Table 7(a), for the over-levered firm, post-intervention, there seems to be a slight reduction in long-term debt and internal financing. However, as shown in Table 7(b), for the under-levered firm, post-intervention, there is a significant reduction in short-term debt and a significant increase in cash holdings. These can potentially explain the asymmetric behavior observed in earlier analyses showing that post-activism intervention, ex-ante over-levered firms are moving towards their targets while under-levered firms are moving further away from their targets. However, there is no significant change in total debt, net debt, debt issuance, and debt maturity in either sample.

Insert Table 7(a)

Insert Table 7(b)

Furthermore, to verify the potential wealth transfer story, we investigate whether there is any change in bond return and credit ratings of a firm post-intervention. If the expropriation of wealth from bondholders to shareholders is happening with hedge fund intervention, then we should expect a negative impact on bondholders in terms of their returns as well as credit ratings. Based on the results shown in Table 8, there does not appear to be a deterioration in either bond returns or long-term bond ratings post-activism intervention. In other words, hedge fund activists do not create wealth for shareholders by merely transferring value from bondholders.

Insert Table 8

Klein and Zur (2011) find that the size of assets decreases post-activism. Therefore, one can argue that capital structure change post-activism could be the result of asset sales. We explore this possibility in Table 9. The dependent variables are proxies for assets sales. We measure the change in sales growth, the change in asset growth, and the change in asset size to check whether there are assets sales done as a result of hedge fund activism. In all models, there is no significant change in either sales or assets size post-intervention. Therefore, we do not find evidence in support of the asset sales channel.

Insert Table 9

We know from the recent advances in capital structure literature that financing decisions of a firm are jointly determined with its investment opportunities and payout decisions. Therefore, we also analyze the changes in investment and payout policies of the firms, post-hedge fund activist intervention in a difference-in-differences set-up, compared to the firms matched by closest propensity scores. We test whether the movement toward optimal capital structure is brought about by cutting long-term investments in R&D and capital expenditures and/or payout policies.

In Table 10, we look at the changes in investments through a change in CAPX, Capital Investment, R&D expenditures, Cash Acquisitions Expenditures, Trade Credit, Inventory, and Investments. We find that there is no significant change in target firm's investment activity, except there is a slight reduction in change in trade credit, which is the change in the difference between current assets and current liabilities scaled by total assets. In Table 11, we conduct the same analysis exploring the changes in target firms' payout policy. More specifically, we look at the changes in the firm's dividend payment and share repurchases. We do not find any significant changes in dividend payout. However, we do find that there is a significant increase in share repurchase post-activism (Model 3), and that increase is observed among under-levered firms (Model 9), but not among over-levered firms (Model 6).

Insert Table 10

Insert Table 11

4.6 13G to 13D Switch

In this section, we exploit a legal feature of activist hedge funds switching from passive to active ownership that arguably provides a cleaner source of identification. Focusing on such a sample of "13G to 13D switchers" allows us to filter out the treatment effect by identifying the changes in firm value measured by CAR around the announcement of activism campaign subsequent to the switch versus that of firms held by investors with 13D status. Results are shown in Table 12. The dependent variables are CARs with different windows. Models with odd numbers include the full sample, and models with even numbers are tested on 13G to 13D switchers. We find that the positive association between firms being over-levered and the CARs is significantly

stronger for the switchers, statistically and economically, for all windows. Such results indicate that activist intervention does create additional value beyond the mere result of stock picking.

Insert Table 12

5. Conclusion

Using a comprehensive sample of 3,292 hedge fund activism campaigns by 540 unique hedge fund activists during the time-period 1994 to 2014, and propensity score-matched sample, we find that activist hedge funds are significantly more likely to target firms that have sub-optimal capital structures. We further find that over-levered firms are more likely to be targeted and when a firm is over-levered, there is a significant positive relation between a firm's distance away from the long-run estimated target capital structure and their likelihood of being targeted by an activist hedge fund. Such a relation is negative when the firm is under-levered. Furthermore, we find that post-activism intervention, the distance between actual and target leverage reduces for over-levered firms, but increases for under-levered firms. These indicate that activist hedge funds also value financial flexibility or cushion, perhaps to meet the unexpected needs of investments.

We also provide evidence that such findings are not driven by asset sales, wealth transfer from bondholders to shareholders, the mechanical mean reversion of leverage or activist hedge fund's stock-picking skills. Such results contribute to the ongoing debate in the academic and policy circles on the valuation and real impacts of activist hedge funds and try to resolve the ambiguity on the ex-ante leverage characteristics and the ex-post impact on activists' intervention on the leverage of targeted firms. While analyzing the change in investment and payout policies post-activism, we find that there is no significant change in investment and dividend payments. However, there is a significant increase in share repurchase for under-levered firms, post-intervention.

Finally, we exploit a legal feature of activist hedge funds switching from passive to active ownership (13G to 13D switches) to address the endogeneity concerns to some degree. We find that the market response as positive price reaction is significantly stronger for 13G to 13D switchers, indicating a causal relation between hedge fund activists' intervention and a firm's movement towards estimated long-term target leverage.

References

Agarwal, V. and Naik, N.Y., 2005. Hedge funds. *Foundations and Trends® in Finance*, *1*(2), pp.103-169.

Amihud, Y., 2002. Illiquidity and stock returns: cross-section and time-series effects. *Journal of financial markets, 5*(1), pp.31-56.

Aslan, H. and Kumar, P., 2016. The product market effects of hedge fund activism. *Journal of Financial Economics, 119*(1), pp.226-248.

Baker, M. and Wurgler, J., 2002. Market timing and capital structure. *The Journal of Finance*, *57*(1), pp.1-32.

Bebchuk, L.A., Brav, A. and Jiang, W., 2015. The long-term effects of hedge fund activism (No. w21227). National Bureau of Economic Research.

Boyson, N.M., Gantchev, N. and Shivdasani, A., 2017. Activism mergers. *Journal of Financial Economics*, *126*(1), pp.54-73.

Boyson, N.M. and Mooradian, R.M., 2011. Corporate governance and hedge fund activism. Review of Derivatives Research, 14(2), pp.169-204.

Brav, A., Jiang, W. and Kim, H., 2010. Hedge fund activism: A review. *Foundations and Trends® in Finance*, *4*(3), pp.185-246.

Brav, A., Jiang, W. and Kim, H., 2015. Recent advances in research on hedge fund activism: Value creation and identification. Annual Review of Financial Economics, 7, pp.579-595.

Brav, A., Jiang, W., Partnoy, F. and Thomas, R., 2008. Hedge fund activism, corporate governance, and firm performance. *The Journal of Finance*, *63*(4), pp.1729-1775.

Brav, A., Jiang, W., Ma, S. and Tian, X., 2018. How does hedge fund activism reshape corporate innovation?. *Journal of Financial Economics*, *130*(2), pp.237-264.

Bui, T. and Ganguly, A., 2017. Issues in Hedge Fund Research. *Hedge Funds, Oxford University Press.*

Burkart, M. and Dasgupta, A., 2015. Activist funds, leverage, and procyclicality. *London School of Economics and Political Science, Working Paper*

Chang, X. and Dasgupta, S., 2009. Target behavior and financing: how conclusive is the evidence?. The Journal of Finance, 64(4), pp.1767-1796.

Clifford, C.P., 2008. Value creation or destruction? Hedge funds as shareholder activists. *Journal of Corporate Finance*, *14*(4), pp.323-336.

Coffee, J.C., 2015. Hedge Fund Activism: What do we know and not know? Bratton, WW, McCahery, JA. Institutional Investor Activism: Hedge Funds and Private Equity, Economics and Regulation, Oxford University Press, pp.694-706.

Coffee Jr, J.C. and Palia, D., 2016. The wolf at the door: The impact of hedge fund activism on corporate governance. Annals of Corporate Governance, 1(1), pp.1-94.

Danis, A., Rettl, D.A. and Whited, T.M., 2014. Refinancing, profitability, and capital structure. Journal of Financial Economics, 114(3), pp.424-443.

Dasgupta, A. and Piacentino, G., 2015. The Wall Street walk when blockholders compete for flows. The Journal of Finance, 70(6), pp.2853-2896.

DeAngelo, H. and Roll, R., 2015. How stable are corporate capital structures? *The Journal of Finance*, *70*(1), pp.373-418.

Denes, M.R., Karpoff, J.M. and McWilliams, V.B., 2017. Thirty years of shareholder activism: A survey of empirical research. *Journal of Corporate Finance*, *44*, pp.405-424.

Denis, D.J. and McKeon, S.B., 2012. Debt financing and financial flexibility evidence from proactive leverage increases. The Review of Financial Studies, 25(6), pp.1897-1929.

Flannery, M.J. and Rangan, K.P., 2006. Partial adjustment toward target capital structures. Journal of financial economics, 79(3), pp.469-506.

Frank, M. Z., & Goyal, V. K., 2009. Capital structure decisions: which factors are reliably important? *Financial Management*, *38*(1), 1-37.

Gormley, T.A. and Matsa, D.A., 2014. Common errors: How to (and not to) control for unobserved heterogeneity. *The Review of Financial Studies, 27*(2), pp.617-661.

Graham, J.R. and Leary, M.T., 2011. A review of empirical capital structure research and directions for the future. *Annu. Rev. Financ. Econ.*, *3*(1), pp.309-345.

Graham, J.R. and Scott, B., Smart, and William L. Megginson, 2010. Corporate Finance: Linking Theory to What Companies Do, 3, *South-Western College Pub.*

Harford, J., Klasa, S. and Walcott, N., 2009. Do firms have leverage targets? Evidence from acquisitions. Journal of Financial Economics, 93(1), pp.1-14.

Hovakimian, A., 2006. Are observed capital structures determined by equity market timing?. Journal of Financial and Quantitative analysis, 41(1), pp.221-243.

Hovakimian, A., Hovakimian, G. and Tehranian, H., 2004. Determinants of target capital structure: The case of dual debt and equity issues. Journal of financial economics, 71(3), pp.517-540.

John, K., & Klein, A., 1995. Shareholder proposals and corporate governance, *NYU Working Paper.*

Karpoff, J.M., Malatesta, P.H. and Walkling, R.A., 1996. Corporate governance and shareholder initiatives: Empirical evidence. Journal of Financial Economics, 42(3), pp.365-395.

Kayhan, A. and Titman, S., 2007. Firms' histories and their capital structures. Journal of financial Economics, 83(1), pp.1-32.

Klein, A. and Zur, E., 2011. The impact of hedge fund activism on the target firm's existing bondholders. *The Review of Financial Studies, 24*(5), pp.1735-1771.

Leary, M.T. and Roberts, M.R., 2005. Do firms rebalance their capital structures? The journal of finance, 60(6), pp.2575-2619.

Lemmon, M.L., Roberts, M.R. and Zender, J.F., 2008. Back to the beginning: persistence and the cross-section of corporate capital structure. *The Journal of Finance*, *63*(4), pp.1575-1608.

McCahery, J.A., Sautner, Z. and Starks, L.T., 2016. Behind the scenes: The corporate governance preferences of institutional investors. *The Journal of Finance*, *71*(6), pp.2905-2932.

Modigliani, F. and Miller, M.H., 1958. The cost of capital, corporation finance and the theory of investment. *The American Economic Review*, *48*(3), pp.261-297.

Myers, S.C. and Majluf, N.S., 1984. Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics*, *13*(2), pp.187-221.

Norli, Ø., Ostergaard, C. and Schindele, I., 2015. Liquidity and shareholder activism. *The Review of Financial Studies*, *28*(2), pp.486-520.

Rajan, R.G. and Zingales, L., 1995. What do we know about capital structure? Some evidence from international data. The Journal of Finance, 50(5), pp.1421-1460.

Strebulaev, I.A., 2007. Do tests of capital structure theory mean what they say? *The Journal of Finance*, *62*(4), pp.1747-1787.

Strickland, D., Wiles, K.W. and Zenner, M., 1996. A requiem for the USA Is small shareholder monitoring effective?. Journal of Financial Economics, 40(2), pp.319-338.

Walker, O., 2016. Barbarians in the Boardroom: Activist Investors and the battle for control of the world's most powerful companies. Pearson UK.

Figure 1 Number of Schedule 13D Filings from 1994-2014

The x-axis indicates the years covered in the study, and the y-axis presents the number of activism events as per Schedule 13D filings in the sample period. The bars plot the number of Schedule 13D filings for each year from 1994-2014.

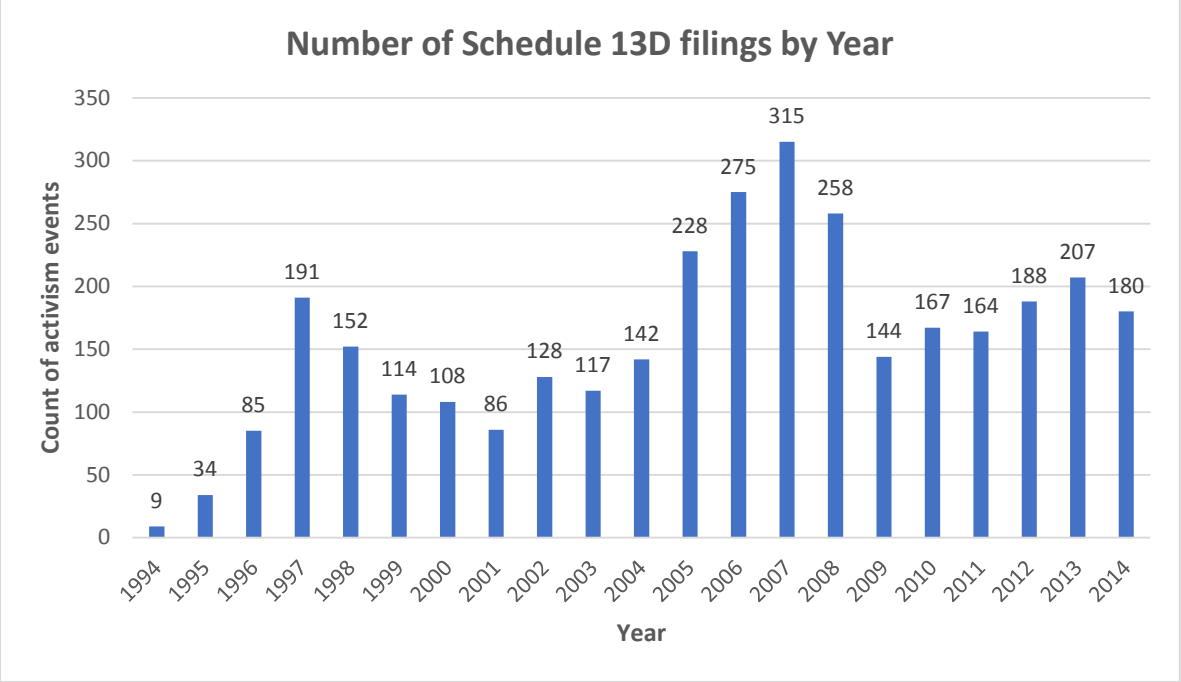


Figure 2 Number of Hedge Funds from 1994-2014

The x-axis indicates the years covered in the study, and the y-axis presents the number of hedge funds involved in the activism events during the sample period. The bars plot the number of hedge funds engaged in activism for each year from 1994-2014.

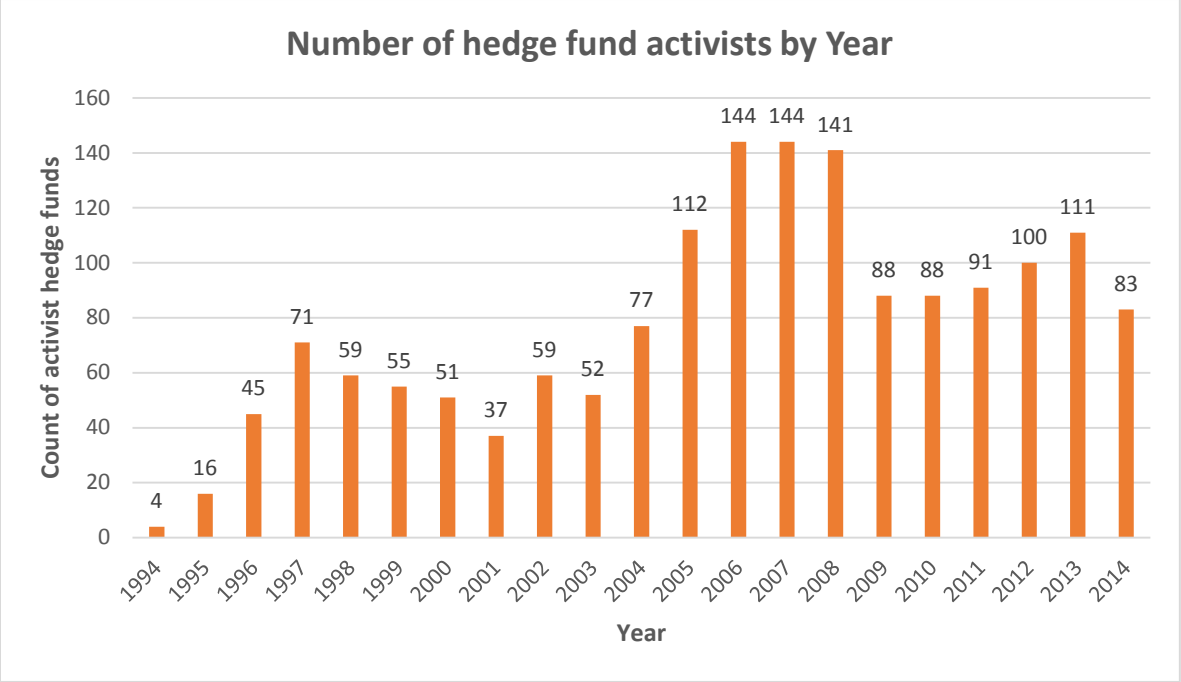


Figure 3 Market Leverage Pre- and Post-Activism Intervention

The x-axis indicates the number of years before or after activism, whether t = 0 represents the year of activism. The y-axis indicates the market leverage of a firm. The blue (orange) solid line plot the average (median) market leverage over the span of fourteen years around activism intervention (seven years before activism and seven years after activism).

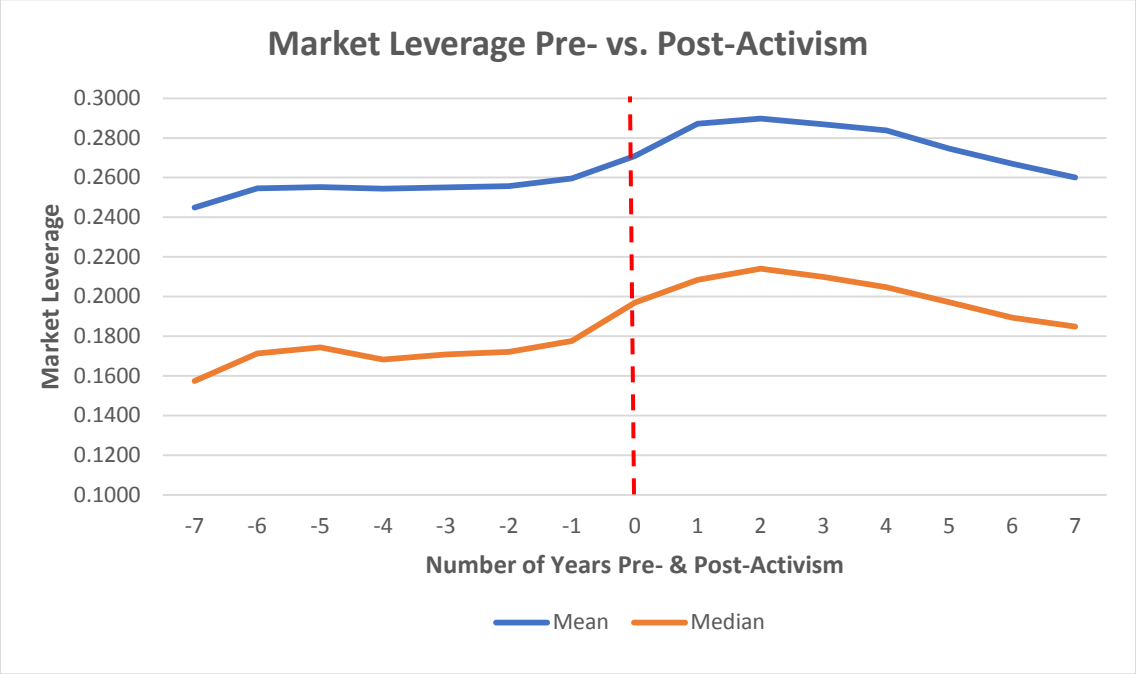


Table 1 Summary Statistics

The table presents the various characteristics of targeted firms as compared to non-targeted firms in CRSP-Compustat universe. Columns 1-3 report the mean, median, and standard deviation of the targeted firms' characteristics. Columns 4-6 report the mean, median, and standard deviation of the non-targeted firms' characteristics. Columns 7-8 report the t-statistics for the average difference and Wilcoxon signed rank statistics for the median difference. Market Value is the market capitalization. Market-to-Book ratio is defined as (total assets – book equity – deferred tax + market value of equity + liquidation value of preferred stock)/total assets. Return on Assets (ROA) is EBITDA/assets (lag). Sales Growth is the growth rate of sales over the prior year. Market Leverage is (debt)/(debt + market value of equity). Dividend Yield is common dividend/market value of equity. R&D is R&D expenses scaled by lagged assets. No. of Analyst Following is the number of analysts covering the company from IBES. Amihud Illiquidity is the Amihud (2002) illiquidity measure. Institutional Ownership is the proportion of shares held by institutions.

Firm Characteristics	Firms Targeted			Firms Not Targeted			Differences	
	Mean	Median	SD	Mean	Median	SD	t-statistics	Wilcoxon
Market Value	1489.730	278.117	4940.074	4524.600	457.598	19346.150	5.473	8.788
Market-to-Book	1.691	1.359	1.170	2.166	1.572	2.172	7.352	9.865
Return on Assets (ROA)	23.241	5.342	70.346	61.733	8.540	241.584	5.431	8.475
Sales Growth	0.207	0.026	2.709	0.378	0.097	16.976	0.340	14.163
Market Leverage	0.221	0.145	0.240	0.192	0.121	0.215	-4.545	-2.152
Dividend Yield	0.009	0.000	0.041	0.010	0.000	0.049	0.786	7.486
R&D	4.373	0.224	13.590	9.800	0.307	47.854	3.871	1.475
No. of Analyst Following	7.859	5.000	7.845	9.072	6.000	8.669	4.843	5.033
Amihud Illiquidity	0.256	0.118	0.387	0.277	0.112	0.528	1.629	-1.136
Institutional Ownership	0.617	0.644	0.271	0.505	0.509	0.452	-8.603	-13.454

Table 2 Excess Leverage Pre- and Post-Activism Intervention

The first column indicates the number of years before or after activism, whether t = 0 represents the year of activism. Panel A reports the market leverage, while Panel B reports the book leverage. Firms above target are those with positive excess leverage, and firms below target are those with negative excess leverage. Excess leverage is the difference between market/book leverage and estimated target leverage.

Year	Panel A: Excess Market Leverage				Panel B: Excess Book Leverage			
	Firms above Target		Firms below Target		Firms above Target		Firms below Target	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median
t = -7	0.113	0.071	-0.038	-0.058	0.110	0.064	-0.039	-0.059
t = -6	0.123	0.083	-0.038	-0.058	0.121	0.077	-0.040	-0.060
t = -5	0.122	0.079	-0.040	-0.065	0.132	0.077	-0.044	-0.061
t = -4	0.127	0.083	-0.049	-0.072	0.135	0.074	-0.053	-0.063
t = -3	0.135	0.093	-0.057	-0.070	0.141	0.089	-0.062	-0.065
t = -2	0.153	0.113	-0.062	-0.076	0.157	0.106	-0.068	-0.070
t = -1	0.176	0.136	-0.071	-0.079	0.200	0.124	-0.076	-0.075
t = 0	0.243	0.196	-0.112	-0.092	0.221	0.154	-0.103	-0.085
t = +1	0.205	0.165	-0.075	-0.084	0.207	0.139	-0.079	-0.081
t = +2	0.181	0.144	-0.058	-0.075	0.197	0.136	-0.067	-0.074
t = +3	0.173	0.107	-0.056	-0.075	0.195	0.128	-0.053	-0.065
t = +4	0.152	0.107	-0.049	-0.066	0.194	0.106	-0.041	-0.065
t = +5	0.132	0.081	-0.027	-0.068	0.177	0.100	-0.025	-0.059
t = +6	0.116	0.056	-0.022	-0.064	0.154	0.074	-0.014	-0.051
t = +7	0.096	0.049	-0.022	-0.073	0.121	0.065	-0.018	-0.063

Table 3 Likelihood of Firms being targeted by Activism

The dependent variable in all these logit models is a dummy variable (0 or 1) that indicates whether there is hedge fund activist targeting the firm. The main independent variables of interest are a Dummy, indicating whether actual leverage is above or below the target (Model 1), and the Distance from Target defined as the absolute value of the differences between actual leverage and estimated target leverage (Model 2 and 3). Model 1 includes the full sample, and Model 2 and 3 represent firms with actual leverage above or below target, respectively. All control variables are lagged by a year. Standard errors are in parentheses (* p<0.10, ** p<0.05, *** p<0.010). All regressions include the year and firm fixed effects.

	DV: Activism Dummy		
	(1)	(2)	(3)
	Full Sample	Leverage > Target	Leverage < Target
Dummy (leverage > target)	0.256**		
	(0.115)		
Distance from Target		1.292**	-3.042***
		(0.614)	(1.078)
Lag_ln(MV)	-0.132	0.403**	-0.320**
	(0.107)	(0.187)	(0.159)
Lag_Market-to-Book	-0.463***	-0.371***	-0.569***
	(0.077)	(0.124)	(0.119)
Lag_ROA	-0.000	-0.003*	0.001
	(0.001)	(0.002)	(0.002)
Lag_Sales Growth	-0.017	-0.039	0.021
	(0.031)	(0.109)	(0.042)
Lag_Market Leverage	-0.720*	0.260	-0.667
	(0.425)	(0.738)	(0.811)
Lag_Dividend Yield	-1.066	-0.971	-0.376
	(1.646)	(2.770)	(2.571)
Lag_R&D	0.026***	0.023	0.033**
	(0.010)	(0.016)	(0.016)
Lag_No. of Analyst Following	0.022*	0.057***	0.009
	(0.012)	(0.022)	(0.018)
Lag_Amihud Illiquidity	-0.028	-0.023	-0.093
	(0.031)	(0.046)	(0.079)
Lag_Institutional Ownership	0.562	0.245	0.661
	(0.346)	(0.290)	(0.510)
Year Fixed Effect	Y	Y	Y
Firm Fixed Effect	Y	Y	Y
N	7916	2213	3919
pseudo R-sq	0.111	0.127	0.143

Table 4 Change in Leverage Post-Activism

The dependent variable in both these OLS models is the distance between a firm's actual and target leverage. The analyses are conducted in a difference-in-differences set-up, as compared to a propensity score matched sample. The main variable of interest is the interaction term between Activism Dummy and Post Dummy, which is the difference-in-differences estimator. Model 1 is the sample of over-levered firms pre-intervention, and Model 2 is the sample of under-levered firms pre-intervention. All control variables are lagged by a year. Standard errors are in parentheses (* p<0.10, ** p<0.05, *** p<0.010). All regressions include the year and industry fixed effects.

	DV: Distance between Actual and Target Leverage	
	(1)	(2)
	Leverage > Target	Leverage < Target
Activism	0.047***	-0.003
	(0.017)	(0.005)
Post-Activism	0.018***	-0.000
	(0.006)	(0.002)
Activism x Post	-0.043**	0.013**
	(0.022)	(0.006)
Lag_Industry Leverage	-0.084**	0.369***
	(0.043)	(0.024)
Lag_Operating Income	-0.105***	-0.041***
	(0.026)	(0.007)
Lag_Market-to-Book	-0.011***	-0.004***
	(0.003)	(0.001)
Lag_Profitability	0.021	-0.009
	(0.028)	(0.012)
Lag_Size	0.006**	-0.005***
	(0.003)	(0.001)
Constant	0.260**	0.207***
	(0.127)	(0.061)
Year Fixed Effects	Y	Y
Industry Fixed Effects	Y	Y
N	5254	6871
adj. R-sq	0.119	0.395

Table 5 Event Study around the announcement of activism

The tables report the cumulative abnormal returns (CARs) around the activism campaign announcement dates. CAR is defined as the difference between the actual stock price return and the expected market model (CRSP Value Weighted Index) return over the windows indicated in the first column. Market model has been estimated using 255 days of daily returns ending 46 days before the activism campaign announcement date. We also report both the Patell Z-statistic and the corresponding p-values.

(a) Firms with actual leverage above vs. below target leverage

	> Target Leverage			< Target Leverage		
Windows	**Mean CAR**	**Patell Z**	**p-value**	**Mean CAR**	**Patell Z**	**p-value**
(0, 1)	2.30%	16.601	<.0001	2.02%	17.704	<.0001
(0, 2)	2.63%	15.214	<.0001	2.45%	16.404	<.0001
(-1, 1)	2.58%	15.533	<.0001	2.45%	16.695	<.0001
(-1, 2)	2.91%	14.889	<.0001	2.88%	16.146	<.0001
(-2, 2)	3.09%	14.126	<.0001	3.05%	15.141	<.0001
(-5, +5)	4.98%	14.813	<.0001	4.42%	14.229	<.0001

(b) Firms with leverage above target: distance – highest vs. lowest terciles

	Distance above Target (Highest Tercile)			Distance Above Target (Lowest Tercile)			Difference
Windows	**Mean CAR**	**Patell Z**	**p-value**	**Mean CAR**	**Patell Z**	**p-value**	**p-value**
(0, 1)	3.46%	10.746	<.0001	1.46%	7.350	<.0001	0.0157 **
(0, 2)	4.17%	10.783	<.0001	1.83%	6.790	<.0001	0.0136 **
(-1, 1)	3.60%	9.611	<.0001	1.97%	8.038	<.0001	0.0571 *
(-1, 2)	4.30%	10.062	<.0001	2.33%	7.644	<.0001	0.0422 **
(-2, 2)	4.49%	9.289	<.0001	2.84%	8.107	<.0001	0.1218
(-5, +5)	6.94%	9.296	<.0001	4.25%	8.508	<.0001	0.0842 *

(c) Firms with leverage below target: distance – highest vs. lowest terciles

	Distance below Target (Highest Tercile)			Distance below Target (Lowest Tercile)			Difference
Windows	**Mean CAR**	**Patell Z**	**p-value**	**Mean CAR**	**Patell Z**	**p-value**	**p-value**
(0, 1)	1.53%	8.021	<.0001	2.23%	10.406	<.0001	0.1596
(0, 2)	2.29%	8.540	<.0001	2.68%	9.011	<.0001	0.4899
(-1, 1)	2.08%	7.426	<.0001	2.54%	9.549	<.0001	0.4397
(-1, 2)	2.84%	8.156	<.0001	2.99%	8.715	<.0001	0.8073
(-2, 2)	3.37%	7.953	<.0001	2.86%	7.407	<.0001	0.5077
(-5, +5)	5.47%	7.984	<.0001	3.60%	6.497	<.0001	0.0912 *

Table 6(a) Cross-sectional Variations in CARs around activism announcement

The dependent variables are the cumulative abnormal returns (CARs) in the (-2, +2), (-5, +5) and (-20, +20) windows around the announcement of hedge fund activism. The main independent variable is the modulus of excess leverage, i.e., a distance measure from the estimated long-run target leverage at the time of activism. In all the three models, we also include the covariates such as market value, firm size, market-to-book, market leverage, and operating income, as suggested in the earlier literature. All models include the year, and industry fixed effect, with robust standard errors reported in parentheses (* p<0.10, ** p<0.05, *** p<0.010).

	DV: CAR around activism announcement		
	(1)	(2)	(3)
	(-2, 2)	(-5, +5)	(-20, +20)
Distance from Target	0.051**	0.100***	0.143**
	(0.025)	(0.038)	(0.066)
ln(MV)	-0.000	-0.004	0.017
	(0.006)	(0.007)	(0.012)
Size	0.002	0.005	-0.024*
	(0.006)	(0.008)	(0.014)
Market-to-Book	0.001	0.002	-0.015**
	(0.002)	(0.002)	(0.006)
Market Leverage	-0.006	-0.013	-0.027
	(0.021)	(0.028)	(0.049)
Operating Income	0.003	0.027	0.038
	(0.019)	(0.025)	(0.040)
Intercept	0.029	0.033	0.125*
	(0.036)	(0.047)	(0.074)
Year Fixed Effect	Y	Y	Y
Industry Fixed Effect	Y	Y	Y
N	1652	1652	1657
adj. R-sq	0.011	0.020	0.032

Table 6(b) Cross-sectional Variations in CARs around activism announcement

The dependent variables are the cumulative abnormal returns (CARs) in the (-2, +2), (-5, +5) and (-20, +20) windows around the announcement of hedge fund activism. The main independent variable is a Dummy indicating whether the actual leverage is above or below the estimated target leverage. In all the three models, we also include the covariates such as market value, firm size, market-to-book, market leverage, and operating income, as suggested in the earlier literature. All models include the year, and industry fixed effect, with robust standard errors reported in parentheses (* p<0.10, ** p<0.05, *** p<0.010).

	DV: CAR around activism announcement		
	(1)	(2)	(3)
	(-2, 2)	(-5, +5)	(-20, +20)
Dummy (Leverage > Target)	0.012*	0.020**	0.049***
	(0.006)	(0.009)	(0.017)
ln(MV)	0.002	-0.002	0.013
	(0.006)	(0.007)	(0.013)
Size	-0.001	0.002	-0.020
	(0.006)	(0.008)	(0.014)
Market-to-Book	0.000	0.001	-0.004
	(0.001)	(0.001)	(0.005)
Market Leverage	0.004	-0.006	-0.054
	(0.023)	(0.031)	(0.055)
Operating Income	-0.012	0.018	0.037
	(0.020)	(0.025)	(0.040)
Intercept	0.042	0.045	0.119*
	(0.034)	(0.044)	(0.068)
Year Fixed Effect	Y	Y	Y
Industry Fixed Effect	Y	Y	Y
N	1766	1766	1771
adj. R-sq	0.004	0.008	0.022

Table 7(a) Changes in various debts and debt characteristics post Activism – ex-ante over-levered firms

The dependent variable in all these OLS models is various debt types and characteristics. The analyses are conducted in a difference-in-differences set-up, as compared to a propensity score matched sample. The main variable of interest is the interaction term between Activism Dummy and Post Dummy, which is the difference-in-differences estimator. All control variables are lagged by a year. Standard errors are in parentheses (* p<0.10, ** p<0.05, *** p<0.010). All regressions include the year and firm fixed effects.

	(1) chg_STdebt above target	(2) chg_LTdebt above target	(3) chg_total_debt above target	(4) chg_net_debt above target	(5) net_debt_iss above target	(6) debt_maturity above target	(7) int_financing above target	(8) cash above target
Activism	0.008	0.002	-0.024	-0.036	-0.024	-0.038*	0.005	0.010
	(0.013)	(0.013)	(0.049)	(0.030)	(0.049)	(0.020)	(0.010)	(0.007)
Post-Activism	-0.001	-0.011**	-0.053***	-0.015	-0.053***	-0.013	-0.000	0.003
	(0.005)	(0.005)	(0.019)	(0.012)	(0.019)	(0.008)	(0.004)	(0.003)
Activism x Post	-0.007	-0.029*	-0.020	0.003	-0.020	0.047*	-0.036***	-0.015
	(0.016)	(0.017)	(0.065)	(0.040)	(0.065)	(0.026)	(0.014)	(0.010)
Lag_Industry Leverage	-0.032	-0.128***	-0.076	-0.208***	-0.076	-0.150***	0.019	-0.011
	(0.033)	(0.031)	(0.118)	(0.073)	(0.118)	(0.048)	(0.025)	(0.018)
Lag_Operating Income	0.062**	0.060**	-0.183*	0.368***	-0.183*	0.037	0.100***	-0.007
	(0.025)	(0.025)	(0.095)	(0.063)	(0.095)	(0.041)	(0.020)	(0.014)
Lag_Market-to-Book	0.003*	0.002	0.015**	-0.016***	0.015**	-0.005	0.006***	0.005***
	(0.001)	(0.002)	(0.006)	(0.004)	(0.006)	(0.003)	(0.001)	(0.001)
Lag_Profitability	0.052*	0.063**	-0.580***	0.130*	-0.580***	0.021	0.169***	-0.110***
	(0.028)	(0.029)	(0.108)	(0.069)	(0.108)	(0.044)	(0.023)	(0.016)
Lag_Size	-0.016***	-0.047***	-0.394***	-0.112***	-0.394***	0.025***	-0.028***	-0.026***
	(0.005)	(0.005)	(0.018)	(0.012)	(0.018)	(0.008)	(0.004)	(0.003)
Constant	0.076	0.285***	2.419***	0.720***	2.419***	0.575***	0.045	0.264***
	(0.049)	(0.072)	(0.260)	(0.170)	(0.260)	(0.106)	(0.055)	(0.039)
Year Fixed Effects	Y	Y	Y	Y	Y	Y	Y	Y
Firm Fixed Effects	Y	Y	Y	Y	Y	Y	Y	Y
N	2174	4973	5254	4752	5254	5170	5250	5254
adj. R-sq	0.055	0.159	0.316	0.618	0.316	0.612	0.146	0.810

Table 7(b) Changes in various debts and debt characteristics post Activism – ex-ante under-levered firms

The dependent variable in all these OLS models is various debt types and characteristics. The analyses are conducted in a difference-in-differences set-up, as compared to a propensity score matched sample. The main variable of interest is the interaction term between Activism Dummy and Post Dummy, which is the difference-in-differences estimator. All control variables are lagged by a year. Standard errors are in parentheses (* p<0.10, ** p<0.05, *** p<0.010). All regressions include the year and firm fixed effects.

	(1) chg_STdebt below target	(2) chg_LTdebt below target	(3) chg_total_debt below target	(4) chg_net_debt below target	(5) net_debt_iss below target	(6) debt_maturity below target	(7) int_financing below target	(8) cash below target
Activism	0.002	-0.016**	-0.012	-0.001	-0.012	-0.028	0.005	-0.021**
	(0.005)	(0.006)	(0.009)	(0.027)	(0.009)	(0.029)	(0.014)	(0.010)
Post-Activism	-0.005***	0.001	-0.002	0.016	-0.002	0.016	0.002	-0.003
	(0.002)	(0.002)	(0.003)	(0.010)	(0.003)	(0.011)	(0.005)	(0.004)
Activism x Post	-0.018***	0.000	-0.005	-0.001	-0.005	0.026	-0.015	0.027**
	(0.007)	(0.009)	(0.012)	(0.038)	(0.012)	(0.043)	(0.019)	(0.014)
Lag_Industry Leverage	-0.013	-0.064***	-0.044*	-0.090	-0.044*	0.121*	-0.011	0.013
	(0.015)	(0.017)	(0.024)	(0.074)	(0.024)	(0.069)	(0.036)	(0.026)
Lag_Operating Income	0.027***	0.014**	0.054***	0.759***	0.054***	0.072**	-0.067***	0.015
	(0.007)	(0.007)	(0.010)	(0.031)	(0.010)	(0.032)	(0.015)	(0.011)
Lag_Market-to-Book	0.003***	0.003**	0.006***	-0.091***	0.006***	-0.011*	0.018***	0.009***
	(0.001)	(0.001)	(0.002)	(0.006)	(0.002)	(0.006)	(0.003)	(0.002)
Lag_Profitability	-0.005	-0.022	-0.070***	-0.593***	-0.070***	0.053	0.352***	-0.244***
	(0.013)	(0.015)	(0.021)	(0.065)	(0.021)	(0.065)	(0.032)	(0.023)
Lag_Size	-0.008***	-0.020***	-0.029***	0.098***	-0.029***	0.013	-0.053***	-0.036***
	(0.002)	(0.003)	(0.004)	(0.012)	(0.004)	(0.012)	(0.005)	(0.004)
Constant	0.014	0.110***	0.120***	-0.212	0.120***	0.746***	0.121*	0.468***
	(0.027)	(0.032)	(0.045)	(0.135)	(0.045)	(0.145)	(0.069)	(0.050)
Year Fixed Effects	Y	Y	Y	Y	Y	Y	Y	Y
Firm Fixed Effects	Y	Y	Y	Y	Y	Y	Y	Y
N	3734	6495	6871	6282	6871	4870	6863	6871
adj. R-sq	0.174	0.278	0.332	0.522	0.332	0.531	0.048	0.816

Table 8 Changes in Bond Return and Credit Ratings

The dependent variable in these OLS models is Bond Return (Model 1) and Credit Rating for Long-Term Bond (Model 2). The analyses are conducted in a difference-in-differences set-up, as compared to a propensity score matched sample. The main variable of interest is the interaction term between Activism Dummy and Post Dummy, which is the difference-in-differences estimator. All control variables are lagged by a year. Standard errors are in parentheses (* p<0.10, ** p<0.05, *** p<0.010). All regressions include the year and firm fixed effects.

	(1) Bond Return	(2) Credit Rating (LT Bond)
Activism	0.002	0.312
	(0.002)	(0.424)
Post-Activism	0.001	0.195
	(0.001)	(0.172)
Activism x Post	-0.003	-0.748
	(0.003)	(0.511)
Lag_Industry Leverage	0.035***	1.742
	(0.005)	(1.120)
Lag_Operating Income	-0.000	6.377***
	(0.004)	(1.741)
Lag_Market-to-Book	-0.000	0.939***
	(0.001)	(0.269)
Lag_Profitability	0.022***	2.453**
	(0.006)	(1.205)
Lag_Size	0.004***	0.934***
	(0.001)	(0.216)
Constant	-0.037***	1.642
	(0.014)	(2.075)
Year Fixed Effects	Y	Y
Firm Fixed Effects	Y	Y
N	5550	566
adj. R-sq	0.283	0.849

Table 9 Asset Sales Channel

The dependent variable in these OLS models are measures for asset sales (change in sales growth, change in asset growth, and change in asset size). The analyses are conducted in a difference-in-differences set-up, as compared to a propensity score matched sample. The main variable of interest is the interaction term between Activism Dummy and Post Dummy, which is the difference-in-differences estimator. Model 1-3 analyze the full sample. Model 4-6 analyze firms that are over-levered ex-ante. Model 7-9 analyze firms that are under-levered ex-ante. All control variables are lagged by a year. Standard errors are in parentheses (* p<0.10, ** p<0.05, *** p<0.010). All regressions include the year and firm fixed effects.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	chg_sale_growth	chg_ln_at_growth	ln_at	chg_sale_growth	chg_ln_at_growth	ln_at	chg_sale_growth	chg_ln_at_growth	ln_at
		Full Sample			Leverage > Target			Leverage < Target	
Activism	2.728	0.908	-0.027	-2.498	-0.970	-0.024	5.565	-1.937	-0.023
	(9.293)	(5.954)	(0.017)	(5.467)	(14.085)	(0.027)	(17.173)	(3.788)	(0.021)
Post-Activism	6.838**	-1.756	-0.024***	5.701***	-4.700	-0.043***	8.331	-1.069	-0.012
	(3.398)	(2.175)	(0.006)	(2.144)	(5.532)	(0.011)	(6.323)	(1.392)	(0.008)
Activism x Post	-3.278	-3.044	-0.042*	5.132	-4.956	-0.039	-10.209	1.717	-0.038
	(12.679)	(8.099)	(0.024)	(7.261)	(18.650)	(0.036)	(23.890)	(5.250)	(0.030)
Lag_Industry Leverage	34.431	-12.296	-0.275***	2.714	-0.728	-0.249***	60.454	-14.544	-0.159***
	(22.570)	(14.485)	(0.042)	(13.145)	(33.960)	(0.065)	(45.096)	(9.963)	(0.056)
Lag_Operating Income	2.278	-6.097	0.109***	1.301	-22.948	0.468***	2.006	-1.338	-0.009
	(13.461)	(7.557)	(0.022)	(10.836)	(27.414)	(0.053)	(22.311)	(4.193)	(0.023)
Lag_Market-to-Book	0.104	0.090	0.057***	0.224	0.478	0.040***	0.096	0.245	0.093***
	(1.288)	(0.794)	(0.002)	(0.771)	(1.915)	(0.004)	(3.456)	(0.719)	(0.004)
Lag_Profitability	8.285	-13.120	0.160***	12.518	-26.166	0.045	-0.852	5.254	0.230***
	(21.367)	(13.056)	(0.038)	(12.865)	(31.526)	(0.060)	(41.805)	(8.928)	(0.050)
Lag_Size	-2.620	0.336	0.746***	-3.114	2.072	0.682***	-3.401	0.946	0.758***
	(3.432)	(2.158)	(0.006)	(2.076)	(5.253)	(0.010)	(7.027)	(1.522)	(0.009)
Constant	-3.607	-3.527	1.179***	10.404	-12.937	1.727***	10.175	-5.154	0.868***
	(29.554)	(18.723)	(0.088)	(17.703)	(44.922)	(0.144)	(58.218)	(12.767)	(0.108)
Year Fixed Effects	Y	Y	Y	Y	Y	Y	Y	Y	Y
Firm Fixed Effects	Y	Y	Y	Y	Y	Y	Y	Y	Y
N	11891	12076	12125	5180	5232	5254	6711	6844	6871
adj. R-sq	0.001	0.005	0.980	-0.088	-0.143	0.979	-0.014	0.114	0.984

Table 10 Change in Investments

The dependent variable in these OLS models are measures for change in investments. The analyses are conducted in a difference-in-differences set-up, as compared to a propensity score matched sample. The main variable of interest is the interaction term between Activism Dummy and Post Dummy, which is the difference-in-differences estimator. All control variables are lagged by a year. Standard errors are in parentheses (* p<0.10, ** p<0.05, *** p<0.010). All regressions include the year and firm fixed effects.

	(1) capx	(2) capx_at	(3) capx_lag_at	(4) cap_invt	(5) rd_at	(6) rd_sale	(7) rd_size	(8) aqc_at	(9) aqc_lag_at	(10) chg_trade_credit	(11) chg_invt	(13) invest2
Activism	9.789	0.002	0.001	-0.042	-0.008**	-0.499	0.205	-0.008*	-0.009	0.011	-0.002	4.225
	(13.399)	(0.003)	(0.009)	(0.268)	(0.003)	(2.647)	(1.660)	(0.004)	(0.011)	(0.012)	(0.004)	(72.295)
Post-Activism	-4.528	-0.005***	-0.010***	-0.076	0.002	0.233	0.622	-0.002	-0.004	-0.002	-0.003**	32.714
	(4.914)	(0.001)	(0.003)	(0.098)	(0.001)	(0.968)	(0.607)	(0.002)	(0.004)	(0.004)	(0.001)	(27.267)
Activism x Post	8.296	-0.001	-0.001	-0.128	-0.003	0.745	-1.728	-0.003	-0.010	-0.028*	-0.008	-17.824
	(18.266)	(0.004)	(0.012)	(0.364)	(0.005)	(3.604)	(2.260)	(0.006)	(0.016)	(0.016)	(0.005)	(97.853)
Lag_Industry Leverage	-96.646***	-0.056***	-0.084***	0.333	-0.007	4.061	0.011	-0.035***	-0.070**	-0.007	-0.034***	-74.136
	(32.658)	(0.007)	(0.021)	(0.651)	(0.008)	(6.438)	(4.037)	(0.011)	(0.028)	(0.030)	(0.008)	(191.699)
Lag_Operating Income	-1.011	0.020***	0.023**	-0.284	-0.055***	-9.105***	-3.595*	0.034***	0.069***	0.023	0.031***	16.626
	(16.803)	(0.004)	(0.011)	(0.336)	(0.004)	(3.317)	(2.080)	(0.006)	(0.014)	(0.015)	(0.004)	(83.014)
Lag_Market-to-Book	5.115***	0.002***	0.010***	0.125***	-0.000	0.340	-0.130	0.002***	0.007***	0.018***	0.002***	7.073
	(1.774)	(0.000)	(0.001)	(0.035)	(0.000)	(0.350)	(0.219)	(0.001)	(0.002)	(0.002)	(0.000)	(9.030)
Lag_Profitability	-22.395	-0.046***	-0.167***	-8.991***	0.012	-0.400	1.782	-0.014	-0.013	0.396***	0.002	-306.264*
	(29.266)	(0.006)	(0.019)	(0.590)	(0.007)	(5.753)	(3.607)	(0.010)	(0.025)	(0.026)	(0.008)	(172.574)
Lag_Size	49.052***	-0.006***	-0.060***	-1.007***	-0.002	2.269**	1.644***	-0.014***	-0.058***	-0.068***	-0.013***	64.381**
	(4.854)	(0.001)	(0.003)	(0.097)	(0.001)	(0.954)	(0.598)	(0.002)	(0.004)	(0.004)	(0.001)	(27.019)
Constant	-170.570**	0.119***	0.440***	7.944***	0.057***	-9.612	-5.110	0.077***	0.282***	0.179***	0.065***	-65.672
	(68.317)	(0.014)	(0.044)	(1.361)	(0.017)	(13.487)	(8.457)	(0.024)	(0.063)	(0.061)	(0.018)	(463.582)
Year Fixed Effects	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Firm Fixed Effects	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
N	12063	12063	12063	12021	12125	12125	12125	11717	11717	11819	11987	8752
adj. R-sq	0.896	0.643	0.345	0.100	0.783	0.072	0.495	0.140	0.132	0.107	0.092	0.673

Table 11 Change in Payout Policies

The dependent variable in these OLS models are measures for payout policies (dividend and share repurchase). The analyses are conducted in a difference-in-differences set-up, as compared to a propensity score matched sample. The main variable of interest is the interaction term between Activism Dummy and Post Dummy, which is the difference-in-differences estimator. Model 1-3 analyze the full sample. Model 4-6 analyze firms that are over-levered ex-ante. Model 7-9 analyze firms that are under-levered ex-ante. All control variables are lagged by a year. Standard errors are in parentheses (* p<0.10, ** p<0.05, *** p<0.010). All regressions include the year and firm fixed effects.

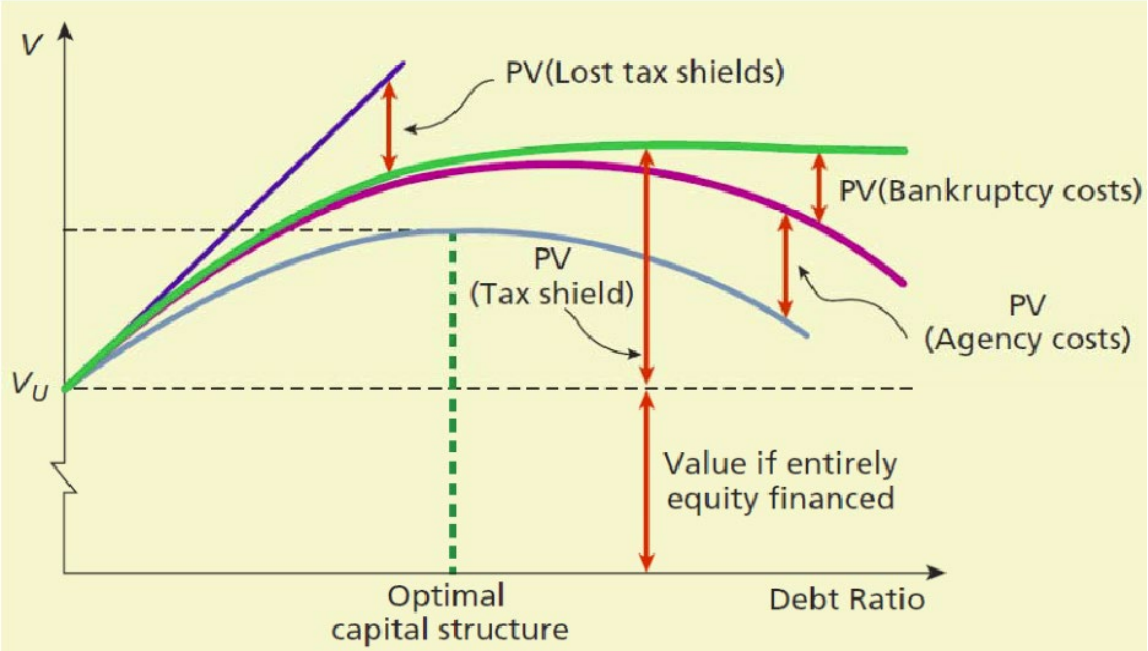
	(1) div ALL	(2) common_div ALL	(3) share_repur ALL	(4) div above target	(5) common_div above target	(6) share_repur above target	(7) div below target	(8) common_div below target	(9) share_repur below target
Activism	-0.001	-0.001	-0.004	0.003	0.003	-0.003	-0.005	-0.004	-0.003
	(0.003)	(0.003)	(0.004)	(0.005)	(0.004)	(0.004)	(0.005)	(0.005)	(0.008)
Post-Activism	0.000	0.000	0.002	0.001	0.001	0.000	0.001	0.001	0.002
	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)
Activism x Post	-0.000	-0.000	0.027***	-0.003	-0.003	0.007	0.000	0.000	0.052***
	(0.005)	(0.004)	(0.006)	(0.006)	(0.006)	(0.005)	(0.007)	(0.007)	(0.011)
Lag_Industry Leverage	-0.005	-0.006	-0.004	-0.010	-0.012	0.001	-0.003	-0.005	-0.010
	(0.008)	(0.008)	(0.011)	(0.011)	(0.011)	(0.009)	(0.014)	(0.013)	(0.021)
Lag_Operating Income	0.012***	0.013***	0.013**	0.012	0.010	0.025***	0.006	0.008	0.003
	(0.004)	(0.004)	(0.006)	(0.009)	(0.009)	(0.008)	(0.006)	(0.005)	(0.009)
Lag_Market-to-Book	0.000	0.000	0.000	-0.000	-0.000	0.001**	0.001	0.001	0.001
	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)
Lag_Profitability	-0.012	-0.014*	-0.036***	0.005	0.000	-0.019**	-0.032***	-0.032***	-0.047**
	(0.007)	(0.007)	(0.010)	(0.010)	(0.010)	(0.009)	(0.012)	(0.011)	(0.018)
Lag_Size	0.000	0.000	0.008***	0.001	0.001	0.003**	0.002	0.002	0.016***
	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)
Constant	0.007	0.010	-0.010	0.004	0.006	-0.009	0.006	0.010	-0.033
	(0.017)	(0.016)	(0.022)	(0.024)	(0.024)	(0.021)	(0.026)	(0.024)	(0.038)
Year Fixed Effects	Y	Y	Y	Y	Y	Y	Y	Y	Y
Firm Fixed Effects	Y	Y	Y	Y	Y	Y	Y	Y	Y
N	12024	12092	11204	5210	5239	4851	6814	6853	6353
adj. R-sq	0.123	0.140	0.160	0.127	0.131	0.438	0.134	0.171	0.081

Table 12 13G to 13D Switch

The dependent variables are the cumulative abnormal returns (CARs) in the (0, 1), (0, 2), (-1, +1), (-1, +2), (-2, +2), and (-5, +5) windows around the announcement of hedge fund activism. The main independent variable is a Dummy indicating whether the actual leverage is above or below the estimated target leverage. In all the models, we also include the covariates such as market value, firm size, market-to-book, market leverage and operating income as suggested in the earlier literature. Models with odd numbers include the full sample. Models with even numbers are conducted on sub-sample where activists switched from 13G filings to 13D filings. All models include the year, and industry fixed effect, with robust standard errors reported in parentheses (* p<0.10, ** p<0.05, *** p<0.010).

	DV: CAR around activism announcement											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Full Sample (0, 1)	13G-13D (0, 1)	Full Sample (0, 2)	13G-13D (0, 2)	Full Sample (-1, 1)	13G-13D (-1, 1)	Full Sample (-1, 2)	13G-13D (-1, 2)	Full Sample (-2, 2)	13G-13D (-2, 2)	Full Sample (-5, +5)	13G-13D (-5, +5)
Dummy (Leverage > Target)	0.004	0.025*	0.006	0.036*	0.007	0.041**	0.009*	0.052**	0.012*	0.061**	0.020**	0.068**
	(0.005)	(0.013)	(0.005)	(0.018)	(0.005)	(0.017)	(0.006)	(0.021)	(0.006)	(0.024)	(0.009)	(0.031)
ln(MV)	-0.002	0.000	-0.003	-0.015	-0.001	0.000	-0.002	-0.015	0.002	0.009	-0.002	0.001
	(0.005)	(0.009)	(0.006)	(0.016)	(0.005)	(0.011)	(0.006)	(0.018)	(0.006)	(0.019)	(0.007)	(0.021)
Size	0.002	0.002	0.003	0.014	0.002	0.000	0.003	0.012	-0.001	-0.007	0.002	-0.006
	(0.005)	(0.009)	(0.006)	(0.015)	(0.005)	(0.011)	(0.006)	(0.017)	(0.006)	(0.018)	(0.008)	(0.021)
Market-to-Book	0.001	-0.003	0.000	0.001	0.001	-0.008	0.000	-0.005	0.000	-0.012	0.001	-0.015
	(0.001)	(0.005)	(0.001)	(0.006)	(0.001)	(0.006)	(0.001)	(0.007)	(0.001)	(0.009)	(0.001)	(0.011)
Market Leverage	0.009	-0.053	0.003	-0.120*	0.002	-0.062	-0.005	-0.129*	0.004	-0.060	-0.006	-0.108
	(0.017)	(0.038)	(0.020)	(0.067)	(0.018)	(0.049)	(0.021)	(0.073)	(0.023)	(0.081)	(0.031)	(0.097)
Operating Income	-0.009	-0.026	-0.002	-0.017	-0.017	-0.044	-0.010	-0.035	-0.012	-0.120**	0.018	-0.062
	(0.012)	(0.027)	(0.018)	(0.035)	(0.014)	(0.030)	(0.018)	(0.039)	(0.020)	(0.054)	(0.025)	(0.086)
Intercept	0.049*	0.115	0.044	0.319	0.037	0.099	0.033	0.303	0.042	0.255	0.045	0.346
	(0.029)	(0.079)	(0.033)	(0.194)	(0.028)	(0.118)	(0.030)	(0.229)	(0.034)	(0.182)	(0.044)	(0.218)
Year Fixed Effect	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Industry Fixed Effect	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
N	1766	316	1766	316	1766	316	1766	316	1766	316	1766	316
adj. R-sq	0.014	0.004	0.008	0.004	0.004	0.009	0.000	0.007	0.004	0.012	0.008	0.022

Appendix I



Source: Graham, Smart, and Megginson (MBA Level Corporate Finance Textbook)

Appendix II An Example of Item 4 from a Schedule 13D Filing

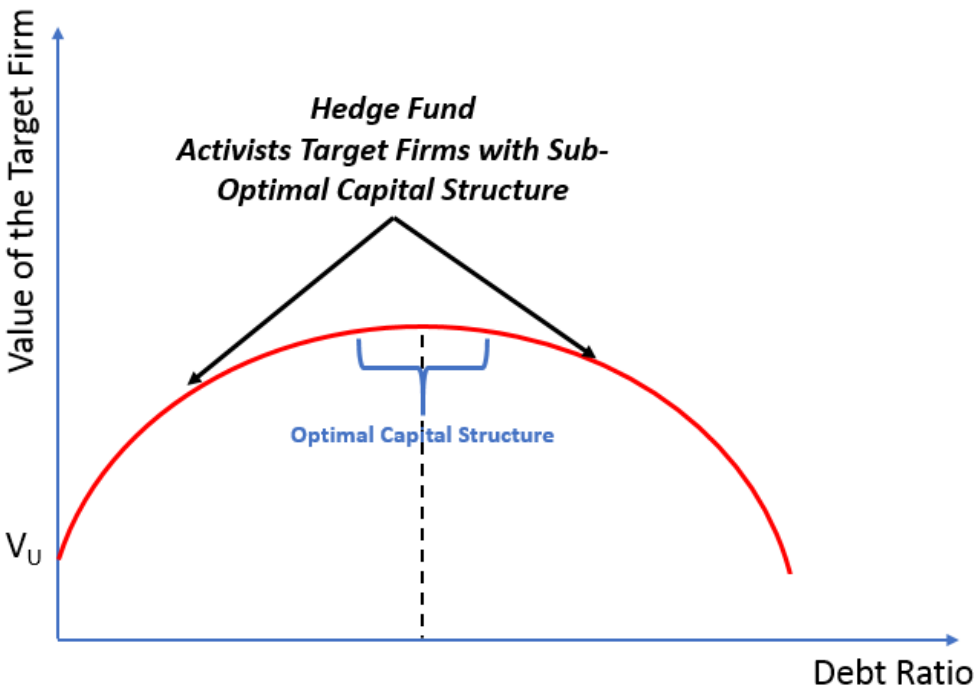
Item 4. Purpose of Transaction.

The Reporting Person acquired the securities described in this Schedule 13D for investment purposes, and he intends to review his investments in the Issuer on a continuing basis. Any actions the Reporting Person might undertake may be made at any time and from time to time without prior notice and will be dependent upon the Reporting Person's review of numerous factors, including, but not limited to: an ongoing evaluation of the Issuer's business, financial condition, operations and prospects; price levels of the Issuer's securities; general market, industry and economic conditions; the relative attractiveness of alternative business and investment opportunities; and other future developments.

Depending upon overall market conditions, other investment opportunities available to the Reporting Person, and the availability of the Issuer's securities at prices that would make the purchase or sale of the Issuer's securities desirable, the Reporting Person may acquire additional securities of the Issuer, or retain or sell all or a portion of the securities then held, in the open market or in privately negotiated transactions.

The Reporting Person and his representatives may, from time to time, engage in discussions with members of management and the board of directors of the Issuer (the "Board"), other current or prospective shareholders, industry analysts, existing or potential strategic partners, investment and financing professionals and other third parties regarding a variety of matters related to the Issuer, which may include, among other things, the Issuer's business, management, capital structure and allocation, corporate governance, Board composition and strategic alternatives. Except as set forth above, the Reporting Person has no present plans or proposals which relate to or would result in any of the transactions required to be described in Item 4 of Schedule 13D.

Appendix IIIa



Appendix IIIb