

**Are Activist Investors Good or Bad For Business?
Evidence from Capital Market Prices, Informed Traders, and Firm Fundamentals**

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Abstract: We provide new evidence on the important and contentious question of whether interventions by activist investors add value to the targeted companies. Our large sample covers two decades and includes companies in which the five-percent-ownership threshold for filing SEC Schedule 13D requires too much capital. We find that short-window returns around the public announcement are significantly positive and do not reverse in the post-intervention period; analyst recommendations are declining prior to the intervention but increase significantly afterward; and short interest declines significantly in the post-intervention period. These favorable reactions are supported by significant improvements in target firms' accounting fundamentals. Finally, ownership by long-term ("dedicated") institutional investors increases after the intervention, and ownership by short-term ("transient") investors decreases. Actions by informed market participants and accounting fundamentals provide consistent evidence that investor activism strengthens the prospects of target firms.

Keywords: SHAREHOLDER ACTIVISM; ACTIVIST INVESTORS; ANALYST RECOMMENDATIONS; SHORT SELLING; FSCORE

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I. Introduction

In recent years, activist investors and the companies they target have attracted considerable attention—in the press, in the business and legal communities, in the political arena, and in academia. The fundamental question is, as a recent *Wall Street Journal* article put it, “Are activist shareholders good or bad for business? (Benoit and Monga 2015)”¹ We investigate this question for a large sample of activist interventions over the period from 1994 to 2014. We examine both short-window reactions to the announcement and returns over the subsequent two years. We also investigate whether target firms’ financial performance improves or declines after the activist intervention. The study’s primary innovation, however, is to investigate how highly informed market participants respond to activist interventions. We consider three parties who invest heavily in information acquisition: short sellers, financial analysts, and institutional investors. Supplementing price reactions with the reactions of potentially more informed market participants is important because critics of activist interventions do not accept market prices as the arbiter of firm value (Lipton 2013a). In fact, critics often allege that the changes demanded by activists increase stock prices at the expense of the long-term financial health of the target firms.

Research on whether investor activism strengthens the prospects of target firms is timely because Congress is considering legislation, The Brokaw Act, which includes restrictions favored by activists’ critics. The threat of legislation has caused activists to set aside their political differences to launch a Washington-based, lobbying group (Benoit 2016). Activists

¹ For the purposes of this study, we define an activist investor, or a shareholder activist, as an individual or business entity that purchases a sizeable stake in a target company in order to effect value-increasing changes (Klein and Zur 2009).

argue that their proposals for change create value for pensioners and other investors and reduce corporate waste. Yet, a *Wall Street Journal* study of the biggest 71 campaigns from 2009 through 2014 found that activist-targeted companies outperformed peers in total shareholder return only about 50% of the time (Benoit 2016). Large-sample empirical studies that explore the value of shareholder activism can help inform regulators as they weigh the costs and benefits of proposed legislation.

Our study uses several types of evidence to assess the value of activism. First, we reexamine results from prior research that show a positive short-window market reaction to the public announcement. Whereas many studies only use investments in which the activist obtains an equity stake greater than five percent (the threshold for filing Schedule 13D with the SEC), our sample includes instances where the ownership position is sizable, yet less than five percent. This occurs most often when target firms are very large and interventions arguably have the greatest economic impact. For example, *Forbes* reported that Carl Icahn owned only about one percent of Apple at the start of his well-publicized intervention, despite having an investment of \$3 billion (Vardi 2014). Consistent with prior research, we find that targets experience positive short-window abnormal returns that are economically and statistically significant, and the returns are much larger when managers are pushed by activists to sell all or part of the company (Greenwood and Schor 2009). We also find that firms targeted for other reasons experience significant positive, albeit more modest, post-announcement returns. This result, which differs from prior studies, is notable because it broadens the set of interventions that increase the value of target companies. The positive returns could result from the actions demanded by the activist, or managers may take actions that differ from the activist demands. For example, Nelson Peltz's Triun Fund Management was unsuccessful in a campaign to break up the beverage and snack

businesses of PepsiCo Inc., but the fund still earned a substantial profit when management responded to “intense pressure” from the activist by improving operating results by cost cutting (Benoit and Esterl 2016).

In addition to market returns, we report on how financial analysts and short sellers respond to activist interventions. Both market participants invest heavily in information acquisition, so their actions may be more informed than the reactions reflected in equity prices. Analysts are generally regarded as the most important information intermediary for equity investors. However, research indicates that short interest provides information that complements, and often exceeds, the information in analyst recommendations (Drake, Rees, and Swanson 2011). Since the decision by an activist to intervene is a choice, recommendations and short interest could change because the market is revaluing companies with characteristics similar to the target firms. In this case, the activist intervention would not be the cause of any changes observed. In investigating the reactions of informed parties, we therefore compare target firm outcomes to those of a propensity-score, matched sample of non-targeted control firms with characteristics similar to the targets.

If, as its critics contend, activism actually *destroys* shareholder value, then target firms with positive abnormal returns in the announcement period would be overvalued. In this case, one might expect short selling to increase and analyst recommendations to be less positive after the intervention. Instead, we find the opposite. Specifically, analyst recommendations for target firms are declining prior to the activist announcement but increase significantly in the two years afterward. Similarly, short selling is steady prior to the activism announcement but then declines significantly during the two-year, post-announcement period. These (within-firm) changes are significantly different from the changes observed in the matched control firms. Financial analysts

and short sellers therefore act as if the positive equity returns that occur around the activist intervention represent real value creation, rather than market overvaluation.

Next, we investigate whether the positive abnormal returns and positive reactions by short sellers and analysts are supported by improvements in the target company's financial position. Prior research has relied heavily on return-on-assets (ROA) and changes in Tobin's Q. ROA is arguably the most important financial-statement performance ratio, but it is only one measure. Critics may be reluctant to accept results based on Tobin's Q because it relies on market values and therefore market efficiency. As an alternative, we use Piotroski's (2000) FSCORE, a composite measure based on financial statement analysis that combines nine financial statement fundamentals. FSCOREs have received considerable acceptance by investors and are available on several websites.² We find that two years prior to the activism announcement, target firms and their matched control counterparts have statistically equivalent FSCORES. The financial health of target firms then deteriorates, and in the year of the activism announcement, target firms have significantly lower FSCORES. Firm performance then improves after the activist intervention, and by the end of the second year, activist targets have substantially higher FSCORES. The improvement is statistically significant compared either to prior years or to control firms.

Because critics often allege that shareholder activism induces short-termism at target firms, our final analysis examines whether an activist intervention affects the composition of a target firm's investor base. The intuition for this test is straightforward: If shareholder activism causes managers to adopt policies that favor short-term performance at the expense of long-term

² Updated FSCORES are reported on grahaminvestor.com, stockrover.com, and aaii.com (American Association of Individual Investors). AAI.com has built the FSCORE into its "AAII Stock Investor Pro" screening software, which is discussed in a Forbes article: http://www.forbes.com/2009/02/23/piotroski-investors-strategy-personal-finance_piotroski.html.

value creation, institutional investors with a long-term investment horizon would be expected to decrease their ownership, while those with a short-term horizon would increase their position. We find the opposite. Using the classification of institutional investors developed by Bushee (1998), we find that ownership by long-term or “dedicated” investors increases following an activist intervention, and ownership by short-term or “transient” institutional investors declines. These ownership changes are especially notable because they occur largely after the price increases around the announcement date.

This study contributes to the literature on shareholder activism by using several types of evidence to investigate the fundamental question of whether activist shareholders are good or bad for business. Critics are reluctant to accept stock market returns as the arbiter of whether activists are good or bad for business, arguing that positive returns could reflect market inefficiency. Our study supplements an analysis of short- and long-term returns with evidence that two highly informed market participants, analysts and short sellers, respond favorably to activist interventions. We also find their favorable responses are supported by substantial improvements in subsequent operating performance using a measure from financial statement analysis, the FSCORE. Finally, we provide evidence on trading by institutional owners. This analysis warrants additional discussion.

Our comparison of ownership changes by long and short horizon institutional investors provides arguably the most direct test of whether activism induces managerial short-termism. Prior literature has examined management decisions that would boost earnings in the short-term, possibly at the expense of long-term earnings—e.g., reducing R&D, reducing capital expenditures, or spinning off a division (e.g., Bebchuk, Brav, and Jiang 2015; Brav, Jiang, and Kim 2015; Brav, Jiang, Ma, and Tian 2016). An inherent challenge in this approach is that the

value, or harm, of these actions depends on the company's pre-intervention optimal level of investment. That is, a reduction in R&D or capital expenditures is only detrimental to firm value if it moves the target firm away from its optimal level of spending. Rather than attempt to model deviations from an optimal level of investment, we take a different approach by examining the reaction of investors with different investment horizons. Bushee (1998) uses investment practices (portfolio turnover, diversification, and momentum trading) to classify institutions as dedicated, quasi-indexer, or transient. This breakdown of institutional ownership has been used in many studies (e.g., Bushee 2001, Matsumoto 2004; Chen, Harford, and Li 2007; Dhaliwal, Li, Tsang, and Yang 2011). After an activist intervention, we find an increase in ownership by long-term or "dedicated" institutional investors and a decrease in transient ownership. These ownership changes are inconsistent with activism encouraging managerial short-termism.

Taken together, this study provides several types of new evidence showing that, on average, shareholder activism is beneficial for the target firms in both the short- and long-term. The remainder of the paper proceeds as follows: We provide background on shareholder activism in section II. Section III presents hypotheses. We discuss explanatory variables, research design, and empirical results in sections IV, V, and VI, respectively. Finally, we summarize our findings and conclude in section VII.

II. Background on Investor Activism

Until the 1980s, the realm of shareholder activism³ was largely dominated by large institutional investors—insurance companies, banks, pension funds and retirement funds—and a relatively small group of corporate raiders (Holderiness and Sheehan 1985; Gillan and Starks

³ Another form of shareholder activism exists in which activists push target firms to adopt policies or practices that promote corporate social responsibility (CSR). In these cases, activists' goals are aimed at increasing the welfare of parties other than shareholders, such as the community, company employees, or wildlife. Given the different goals of CSR activism and shareholder-centric activism and the fact that the proprietary data sources for activism that we use do not include CSR activist events, CSR activism is not the focus of this study.

2007; Brav, Jiang, and Hyunseob 2010). Over the past two decades, however, hedge funds have played an increasingly prominent role as activist investors.⁴

The changes sought by activists can be broadly categorized as relating to the target's operations, capital structure, or corporate governance. Commonly observed operational goals include selling a division of the company, improving the target's operational efficiency, restructuring the business, or even selling the company itself. Interventions related to capital structure often seek to increase the level of debt and/or reduce excess cash through higher dividend payments or stock buybacks. Corporate governance changes may include gaining representation on the board of directors; eliminating various takeover defenses, such as poison pills and board classification; replacing management; or increasing corporate transparency (Gillan and Starks 2007). These classifications are not mutually exclusive.

Critics of shareholder activism contend that activists pressure managers to make decisions that may result in positive short-term stock performance at the expense of long-term enterprise value. One prominent critic of shareholder activism, Martin Lipton, whose law firm specializes in takeover defense, has said that the short-term focus of shareholder activism has “led to the decline of the American economy and greater unemployment” (Lipton 2013b). Presidential hopeful Hillary Clinton has taken aim at “hit-and-run activists whose goal is to force an immediate payout” (Sorkin 2015). Even billionaire investor Warren Buffett has criticized activists whose “short-term objectives have eroded faith in corporations continuing to be the foundation of the American free enterprise system...” (Blood et al. 2009).

⁴ The rise of hedge fund activists is due to several factors: First, while institutions such as mutual funds and pension funds are required to maintain sufficient levels of diversification to comply with regulations and enjoy certain tax benefits, hedge funds are largely free from such constraints. Nor are they subject to mutual funds' more transparent disclosure requirements that make it difficult for mutual funds to buy up large shares in companies without alerting management and, importantly, the market as to their intentions. In this way, hedge funds are able to accumulate large positions in target companies before announcing their campaign (Cheffins and Armour 2012).

Congressional lawmakers recently proposed legislation that would modify the rules covering disclosure of activists' positions. If an activist investor reaches a 5 percent "beneficial ownership" threshold, current rules require the activist to disclose its position by filing a Schedule 13D with the SEC within 10 days. The Brokaw Act would shorten the filing window from 10 to 2 days. The Act would also require activists to disclose significant short positions, and it would broaden the scope of financial instruments that constitute "beneficial ownership" to include any person with a "pecuniary or indirect pecuniary interest," including through derivatives (Mirvis 2016). Shortly after this proposed legislation was announced, a group of prominent activists, including Carl Icahn, Bill Ackman, and Daniel Loeb, formed a lobbying group, the Council for Investor Rights and Corporate Accountability (CIRCA), to give activists their own voice in Washington.

The increased importance of investor activism in recent years, and the ongoing debate about its merits, has produced a growing stream of academic research that examines the positive and negative effects of activist interventions. Much of this work has focused on whether activists' interventions increase or destroy firm value (e.g., Klein and Zur 2009; Greenwood and Schor 2009; Bebchuk, Brav, and Jiang 2015; Allaire and Dauphin 2015). One of the first large-scale studies to investigate the short-term vs. long-term benefits of activism is by Brav, Jiang, Partnoy, and Thomas (2008). They find that activist targets experience significant positive abnormal returns of approximately 7 percent around the Schedule 13D filing date. Subsequent studies confirm this finding and also provide evidence that improvements associated with activist interventions are not simply the result of activists' stock picking abilities (e.g., Becht, Franks, Mayer, and Rossi 2008; Clifford 2008; Klein and Zur 2009; Solarz 2009; Bebchuk, Brav, and Jiang 2015). For example, Clifford (2008) finds that targets of hedge fund activism enjoy larger

excess returns than do a control group of firms targeted by the same activists for passive investment. Nevertheless, not all stakeholders benefit from activists' interventions. Activist targets experience an average excess bond return of -3.9 percent around the 13D filing date (Klein and Zur 2011). Employees of target firms, including both executives and lower-level workers, bear negative consequences in the form of higher turnover, a reduction in work hours, and stagnant wages (Brav, Jiang, Partnoy, and Thomas 2008; Brav, Jiang, and Kim 2015; Allaire and Dauphin 2015).

Cremers, Litov, and Sepe (2015) argue that the separation of ownership and control of publicly traded corporations, combined with asymmetric information and incomplete contracting, gives rise to an additional agency problem—the shareholders' limited commitment problem. Cremers, Giambona, Sepe, and Wang (2015) provide supporting evidence by finding that target firms improve less in value after an activist hedge fund campaign than ex-ante similarly poorly performing control firms that are not subject to hedge fund activism. Allaire and Dauphin (2015) also provide evidence questioning the value of shareholder activism. They find, for interventions in 2010 and 2011, activist targets perform no better than a control sample of firms matched on similar characteristics in the event year. Greenwood and Schor (2009) find that the positive abnormal returns documented in prior literature around activism events are concentrated among firms that are ultimately acquired; abnormal returns for non-acquired firms in their study are not detectibly different from zero. In summary, extant evidence is insufficient to conclude that interventions by activist investors are good or bad for the target companies

Our study extends research on the value of activists by providing several new types of evidence. We reexamine the short- and long-term market reaction to shareholder activist announcements using a larger, more comprehensive sample than prior studies. We acknowledge,

however, that accurately measuring long-window abnormal returns is extremely difficult (Kothari and Warner 1997; Lyon, Barber, and Tsai 1999; Kothari and Warner 2007). One lawyer and critic of shareholder activism has even opined that “academics’ self-selected stock market statistics are meaningless” in evaluating the effects of shareholder activism (Lipton 2013a). Consequently, to address potential concerns arising from relying exclusively on returns-based tests, we examine three other types of evidence: 1) the reactions to activist campaigns of financial analysts and short sellers, two parties who invest heavily in information acquisition; 2) changes in accounting fundamentals as reflected in the FSCORE, a measure of financial health used in financial statement analysis; and 3) changes in the types of institutions that own target firms’ shares.

III. Hypotheses for Non-Market Reactions to Investor Activism

Analysts and Activist Interventions

The ability of analyst recommendations to predict future returns and other value-relevant events has been widely studied (Givoly and Lakonishok 1980; Womack 1996). Howe, Unlu, and Yan (2009) find that changes in aggregate analyst recommendations predict one-quarter ahead earnings growth and future excess returns at the firm and industry-level. Clarke, Ferris, Jayaraman, and Lee (2006) find that stock recommendations are more pessimistic for firms that subsequently file for bankruptcy. Loh and Mian (2006) show that analysts that make more accurate earnings forecasts also issue more profitable stock recommendations. Klein, Li, and Zhang (2016) find that a subset of analysts use the Freedom of Information Act to request records from the Food and Drug Administration (FDA) and use this nonpublic information to gain value-relevant information. These studies suggest that analysts’ stock recommendations are informative about the companies’ future prospects. Accordingly, to the extent that analysts

perceive an improvement (deterioration) in the prospects of targets after announcements of an activist intervention, we expect the average recommendation to be more favorable (unfavorable) in the post-intervention period. Even if activism is neither beneficial nor detrimental, recommendation levels may actually decline when activist interventions elicit a positive (but unwarranted) market reaction around the announcement date. This expectation forms the basis of our first hypothesis, stated in the null:

H1: Shareholder activism announcements are unrelated to future changes in analyst recommendations.

Short Sellers and Activist Interventions

Studies have found short sellers to be informed traders who, in a variety of settings, are able to anticipate future declines in shareholder value (Boehmer, Jones, and Zhang 2008; Diether, Lee, and Werner 2009; Karpoff and Lou 2010; Christophe, Ferri, and Hsieh 2010; Drake, Myers, Scholz, and Sharp 2015). For firms announcing financial misconduct, Karpoff and Lou (2010) find that abnormal short interest increases in the 19 months before the misconduct is revealed and that pre-announcement short interest is highest when misconduct is severe. Diether, Lee, and Werner (2009) find that short sellers increase their trading following positive returns and that high levels of short selling are followed by negative returns, consistent with short sellers trading on a short-term stock price overreaction. Ben-David, Drake, and Roulstone (2015) show that short interest proxies for overvaluation when acquiring firms use overvalued equity in an acquisition. They find that stock (cash) acquirers have high (low) short interest and that stock (cash) acquirers with the highest (lowest) short interest underperform (outperform) the market in the post-announcement period. In light of these findings, if a positive market reaction to activism announcements causes target companies to be overvalued, we expect short interest to increase in

the post-intervention period. On the other hand, if short sellers view shareholder activism as improving (or having little effect on) the firm's future prospects, we expect short interest to decline (or remain constant) in the post-intervention period. These competing expectations form the basis of our second hypothesis, stated in the null:

H2: Shareholder activism announcements are unrelated to future changes in short interest.

Firm Fundamentals around Activist Interventions

A number of studies examine the effect of investor activism on targets' operating performance. Commonly used measures include return on assets (ROA), return on equity (ROE), and Tobin's Q.⁵ While some studies find increases in, for example, ROA (Brav, Jiang, Partnoy, and Thomas 2008; Boyson and Mooradian 2011), others find no significant change (Klein and Zur 2011; Gantchev, Gredil, and Jotikasthira 2015). Critics have argued that, because changes in these variables can be driven by either a numerator or denominator effect (or both), any improvement along these dimensions may be the result of balance-sheet engineering (e.g., share buybacks that reduce equity or asset divestitures that reduce assets). Thus, firms that underinvest can report better short-term operating performance at the expense of long-term performance. In response to those criticisms, we use a broader measure of firm fundamentals, the FSCORE, than used in prior research. The FSCORE incorporates nine signals of operating performance used in financial statement analysis. We discuss the advantages of the FSCORE over other measures of operating performance in greater detail in section IV. Given the mixed results found in prior literature, we state our hypothesis on the relation between activist interventions and firm fundamentals in the null:

⁵ ROA and Tobin's Q have been criticized as being subject to considerable measurement error (Allaire and Dauphin, 2014; Dybvig and Warachka, 2015). An important study using these two measures is Bebchuk, Brav, and Jiang (2015). The controversy over Tobin's Q helps to motivate our use of the FSCORE.

H3: Activist interventions are unrelated to future changes in firm fundamentals.

Ownership by Short- and Long-Horizon Institutional Investors and Activist Interventions

One avenue through which activism may impact target firm value is through its effect on managerial myopia. Critics contend that activism encourages management to take actions that benefit earnings in the short-term at the expense of long-run enterprise value. Prior studies have investigated this claim by examining the effect of activism on future capital investment, shareholder payouts (which reduce funds available for future investment), R&D spending, and innovation (e.g., Bebchuk, Brav, and Jiang 2015; Brav, Jiang, and Kim 2015; Brav, Jiang, Ma, and Tian 2016). Ex ante, it is unclear whether these actions are beneficial or detrimental to long-term value without knowledge of the target firm's pre-intervention optimal level of investment. For example, Brav, Jiang, Ma, and Tian (2016) find that, despite post-intervention decreases in R&D spending, target firms actually experience an increase in innovation output (measured as patent and citation counts). Similarly, in an analysis of productivity at manufacturing plants owned by activist targets, Brav, Jiang, and Kim (2015) find that, despite a post-intervention decline or stagnation in the number of workers, hours per worker, and the average wage at plants owned by targets, both plant productivity and labor efficiency increase in the wake of an activist intervention. These examples suggest that a decrease in capital expenditure does not necessarily indicate that activist interventions result in an undue focus on short-term performance at the expense of long-term value.

We propose an alternative method of investigating whether activism induces managerial short-termism, namely, by examining how activist interventions influence ownership by investors with different investment horizons. If activism encourages managers to take actions that are primarily short-term oriented, such behavior may attract investors with a short-term

focus. We use the Bushee (2001) classification that categorizes institutional investors as dedicated, transient, and quasi-indexer investors. Bushee (2001) shows that investors with the greatest incentive to prefer near-term earnings over long-run value (i.e., transient investors who hold investments for a short time) do, in fact, exhibit such a preference. Chen, Harford, and Li (2007), provide evidence that dedicated institutions perform the monitoring role of gathering information and attempting to influence managers to avoid bad corporate acquisitions.

Ramalingegowda (2014) shows that dedicated institutional investors trade in advance of an event that signifies a *persistent* (i.e., beyond the institutions' trading horizon) loss in firm value, namely, corporate bankruptcy. In light of these findings, if critics are correct in arguing that activism induces short-termism at target firms at the expense of long-term value, we expect ownership by transient (dedicated) institutional investors to increase (decline) in the post-intervention period. If activism encourages managerial decisions that increase the long-term value of target firms, we expect the opposite reaction from these institutional investors accompanied by an increase in dedicated institutional investors. The uncertainty of these predictions forms the basis for the two-part, null hypothesis below:

H4a: Activist interventions are unrelated to future ownership by transient institutional investors.

H4b: Activist interventions are unrelated to future ownership by dedicated institutional investors.

IV. Sources of Data and Variable Measurement

Activist Data

We use two sources to obtain information about activist events: SharkRepellent.net and ThomsonOne. SharkRepellent is a corporate governance database, produced by Factset, which

offers real-time and historical coverage of companies' takeover defense strategies, as well as research related to investor activism campaigns, proxy proposals, and proxy fights. The information about activist campaigns includes the campaign announcement date, the purpose of the campaign, and the activist's level of ownership at the time of announcement. The website also provides activist profiles that describe the activist's history of activism, including the activist's typical objectives, tactics, and track record of success. The coverage includes activism events from the mid-80s through early 2013. We also obtain activism events from ThomsonOne, whose coverage spans from 2000 through the present. From these two sources, we obtain the date of the activism announcement, whether the activist is prominent,⁶ and the activist's objective.

Previous studies have relied predominantly on hand-collected samples from Schedule 13D filings (e.g., Brav, Jiang, Partnoy, and Thomas 2008; Greenwood and Schor 2009; Bebchuk, Brav, and Jiang 2015). A limitation of 13D filings is that the 5-percent ownership threshold for filing means that activism announcements by investors owning less than five percent of outstanding shares are generally not included in 13D-based samples.⁷ This limitation is not trivial: Of the 3095 activism events in the SharkRepellent sample with information related to the activist's ownership percentage, 551 (about 18 percent) have ownership levels less than 5 percent at the time of announcement. Given that the amount of capital required to reach a 5-percent ownership threshold increases with firm size, 13D-based samples omit many of the most economically important activist interventions.

⁶ We classify an activist as prominent if it is included in SharkRepellent's SharkWatch 50 or ThomsonOne's "Prominent Activist" search option.

⁷ For example, when Carl Icahn sent a letter to Tim Cook on October 24, 2013, urging the Apple CEO to consider a \$150 billion share buyback, Icahn's ownership of 4.7 million shares amounted to less than 1% of Apple's outstanding shares. Similarly, when Nelson Peltz's Trian Fund announced its \$2.5 billion position in General Electric and its campaign to persuade GE management to consider a share repurchase program, the hedge fund became one of the company's top 10 shareholders, despite owning roughly 1% of shares outstanding (Benoit and Mann 2015).

Another important advantage of these two sources of activist events is the relatively large sample size they offer. Because of the time involved in hand collection, sample sizes in prior studies vary significantly but are commonly under 2000 observations. We are able to match firm identifiers to 4870 activist campaigns, covering 2652 unique firms, over the period from 1994 to 2014. This sample allows a relatively comprehensive analysis of the effect of shareholder activism over the past two decades.⁸ Table 1 provides a summary of the sample selection process.

Other Data

We use I/B/E/S's monthly recommendation file to obtain the average monthly recommendation level for a given firm (MEANREC). As originally constructed, the values range from 1 to 5 with lower numbers reflecting more favorable recommendations. We reverse the scale (1 = strong sell ... 5 = strong buy) so that higher values of MEANREC reflect more favorable recommendations. To provide additional insight into MEANREC, we examine three related variables—BUYPCT, HOLDPCT, SELLPCT—which denote the percentage of recommendations for the firm that are buy, hold, or sell, respectively. We also use I/B/E/S to construct a measure of analyst following based on the number of unique analysts that make a quarterly or annual forecast during the fiscal year.

We obtain monthly short selling data from Compustat. Prior to 2007, the stock exchanges compile short interest once per month on the settlement date closest to the 15th day of the month. Starting in 2007, short interest is also compiled on the settlement date closest to month-end. To be consistent throughout our sample period, we use only mid-month short interest. We calculate

⁸ In all analyses we use the maximum number of observations with the data needed to calculate variables. The 4870 activist events therefore represent an upper bound on the number of observations for any given analysis. Note that all reported results are qualitatively similar if we use a subsample containing a fixed set of observations over the event window.

the short ratio for a given firm using short interest, SHORTINT, which is the number of shares sold short as of the settlement date, scaled by shares outstanding. Because SHORTINT exhibits a significant time trend, we use a measure of abnormal short interest as our primary measure, ABSHORTINT, calculated as SHORTINT less the average value of SHORTINT across all firms as of the settlement date (Ben-David, Drake, and Roulstone 2015).⁹ Stock market data and shares outstanding are from CRSP, and the Fama-French risk factors used to calculate abnormal returns are from WRDS.¹⁰

We obtain the financial statement items used to calculate FSCORES and other control variables from Compustat. Piotroski (2000) developed the FSCORE as a way to identify underpriced and overpriced high book-to-market (“value”) firms using accounting information. FSCORE uses nine financial signals to capture aspects of corporate performance, changes in leverage and liquidity, and changes in operating efficiency. By including nine signals, FSCORES are representative of the types of information that would be obtained from financial statement analysis. The specific signals are return on assets, change in return on assets, cash flow from operations, accruals, change in leverage, change in liquidity, seasoned equity offering indicator, change in gross margin, and change in sales turnover. Each of the signals are classified as either good or bad and given a score of 1 or 0, respectively. The FSCORE is simply the sum of the nine scores. Appendix B provides a detailed description of how each of the nine components is calculated.

Using FSCORE to measure target company fundamentals has two important advantages. First, it captures several dimensions of a firm’s financial condition, thereby reducing

⁹ All inferences are unchanged if we use SHORTINT as our measure of short selling instead of ABSHORTINT. This is unsurprising, given that, as revealed in Figure 3, the distribution of the two variables over the event window is very similar.

¹⁰ The risk factors are also available at Ken French’s website:
http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html

measurement error associated with any single measure. Second, FSCORE was designed to capture characteristics that are particularly relevant to underperforming value firms, and these are the types of firms most likely to be targeted by an activist (Brav, Jiang, Partnoy, and Thomas 2008). We use target firms' FSCORES to determine whether the positive abnormal returns earned by activists result from superior stock-picking abilities or the activists' intervention. Finding, for example, that target firms have either increasing or relatively high FSCORES prior to the activist taking a stake in the company would suggest that activists are skilled in identifying undervalued firms, since research shows that high FSCORES are positively associated with future returns (Piotroski 2000; Fama and French 2006). On the other hand, if target firms have decreasing or relatively low pre-intervention FSCORES, the subsequent positive returns are unlikely to be due to the firms being undervalued relative to their fundamentals. The positive returns are more likely due to the changes resulting from the activist intervention.

Institutional ownership is available quarterly from Thomson Reuters. We use data available on Bushee's website to classify institutions according to their investment horizon.¹¹ Bushee (1998) classifies institutional investors as transient, dedicated, or quasi-indexers. We are interested in whether an activist intervention triggers changes in the investment horizon of informed owners. We therefore ignore quasi-indexers, who do not trade in response to the disclosure of value-relevant information. We calculate two variables, OWN_DED and OWN_TRAN, as the total number of shares owned by dedicated or transient institutional investors at quarter-end, each scaled by shares outstanding.

¹¹ <http://acct.wharton.upenn.edu/faculty/bushee/IIclass.html>

V. Research Design

Market Reactions to Investor Activism

Our first analysis comprises returns-based tests that are similar to those in prior research. First, we examine target firms' cumulative abnormal returns (CARs) in the [-10, 5] trading-day window around the activism announcement date. We begin 10 days prior to the public announcement to be sure the window includes the market reaction on the date the activist reaches the 5-percent ownership that triggers a Form 13D filing (Lilienfeld-Toal and Schnitzler 2014). The abnormal returns for target firm i on day t in the event window is calculated as the firm's actual return less its expected or "normal" return:

$$AR_{it} = R_{it} - E(R)_{it}$$

We estimate firm i 's expected (normal) return in two steps. First, using data for days [-120, -21] relative to the activist announcement, we regress firm i 's excess returns (above the risk-free rate, $R_{f\tau}$) on three risk factors described in Fama and French (1993):

$$R_{i\tau} - R_{f\tau} = \alpha_i + \beta_{1i}(R_{m\tau} - R_{f\tau}) + \beta_{2i}HML_{\tau} + \beta_{3i}SMB_{\tau} + u_{i\tau}$$

$R_{m\tau} - R_{f\tau}$ is the market excess return on day τ , and HML_{τ} and SMB_{τ} are the book-to-market and size factors on day τ , respectively. Next, we use the coefficients from this regression to calculate firm i 's expected or normal return on day t . This is the return that would be expected to compensate investors for risk.

$$E(R)_{it} = R_{ft} + \hat{\alpha}_i + \hat{\beta}_{1i}(R_{mt} - R_{ft}) + \hat{\beta}_{2i}HML_t + \hat{\beta}_{3i}SMB_t$$

Cumulative abnormal returns for firm i on day t are simply the cumulative sum of firm i 's abnormal returns from [-10, t], where, as noted previously, AR is the actual (raw) return less the expected return, $E(R)_{it}$:

$$CAR_{i,(-10,t)} = \sum_{\gamma=-10}^t AR_{i\gamma}$$

We perform an analogous long-run analysis. Critics of shareholder activism contend that activist interventions may drive a short-term increase in prices at the expense of long-term value. If this is the case, one would expect positive, short-term returns to activist announcements to reverse over the long-term. We estimate loadings of monthly excess returns on monthly Fama-French factors over the [-37, -2] month window, which we use to calculate cumulative abnormal returns over the [-1, 24] month window. In addition to pooled analyses, we conduct subsample analyses based on the different types of activist demands. See Appendix C for descriptions of the various types of activist demands.

Propensity-Score Matching

Given that activism is a choice, it is possible that the characteristics of the companies targeted by activists drive any differences in performance observed after an intervention. For our main tests, we control for potential self-selection bias by comparing activist targets to a propensity-score matched sample of firms with a similar likelihood of an activist intervention. It is important to compare activist targets to firms with similar characteristics because critics argue that activists are simply better at identifying firms that are ripe for a turnaround, irrespective of the activists' engagement with the firm. We run the following logistic regression using variables in year $t-1$ to predict shareholder activism in year t (firm subscripts omitted for clarity):

$$\begin{aligned} ACTIVIST_t = & \beta_0 + \beta_1 LSIZE_{t-1} + \beta_2 BHAR_{t-1} + \beta_3 LEV_{t-1} + \beta_4 DIVYLD_{t-1} \\ & + \beta_5 ROA_{t-1} + \beta_6 GROWTH_{t-1} + \beta_7 ANALYST_{t-1} + \\ & \beta_8 INST_{t-1} + YEARFE + INDUSTRYFE \end{aligned} \quad (1)$$

All of the independent variables above have been shown in prior studies to be determinants of activists' targeting decision. LSIZE represents firm i 's log of the market value of equity at the end of fiscal year $t-1$. Activists are more likely to target smaller firms because establishing a large enough ownership stake to exert influence is easier in smaller firms. BHAR represents the buy-and-hold abnormal return (firm i 's return less the value-weighted market return) over fiscal year $t-1$. Activists tend to target poorly performing firms. LEVERAGE is firm i 's debt, scaled by assets in year $t-1$. Activists often target firms they perceive as under-levered in order to push the company to increase its debt. DIVYLD is firm i 's dividend yield in year $t-1$, calculated as (preferred dividends + common dividends)/(market-value of common stock + book value of preferred stock). DIVYLD is included to capture activists' commonly observed demand to increase shareholder payouts at firms with low payouts. Prior research has found that targets tend to exhibit lower sales growth but higher profitability (ROA). ROA is earnings before interest, taxes, depreciation, and amortization, scaled by beginning-of-year assets (i.e., assets at the end of year $t-2$). Growth is firm i 's sales growth from year $t-2$ to year $t-1$. Kahn and Winton (1998) argue that activists will only intervene in target firms to improve firm performance (1) if they understand the target's industry and (2) if the market understands the target's industry, so that it can quickly ascertain the benefits of the intervention. Thus, activists are more likely to target firms that have a more transparent information environment (proxied by higher analyst following) and more sophisticated shareholders (proxied by higher institutional ownership). ANALYST represents analyst following and is defined as the number of analysts who make either a quarterly or an annual earnings forecast during fiscal year $t-1$. INST denotes average institutional ownership across the four quarters during the fiscal year $t-1$. Both ANALYST and

INST are set to 0 when missing. We also include year fixed effects and Fama-French-17 industry fixed effects to control for macroeconomic drivers of activism.

Analyst Response to Investor Activism

Our main tests cover several years to address the assertion that activism results in short-term improvements at the expense of long-term value.¹² We run the following regressions to examine changes in analyst recommendations for target and control firms over the 49-month window centered on the activism announcement:

$$\begin{aligned}
 MEANREC = & \beta_0 + \beta_1 ACTIVIST + \beta_2 EVTTIME_{-24,0} \\
 & + \beta_3 ACTIVIST * EVTTIME_{-24,0} + YEARFE \\
 & + INDUSTRYFE + \varepsilon
 \end{aligned} \tag{2a}$$

$$\begin{aligned}
 MEANREC = & \beta_0 + \beta_1 ACTIVIST + \beta_2 EVTTIME_{0,24} \\
 & + \beta_3 ACTIVIST * EVTTIME_{0,24} + YEARFE \\
 & + INDUSTRYFE + \varepsilon
 \end{aligned} \tag{2b}$$

Rather than include each month separately, which would require dozens of month indicator variables and their interactions with the ACTIVIST indicator, we use a more parsimonious model that tests the differences in slopes (i.e., trend over time) between activists and controls in the pre-intervention period (Equation 2a) and the post-intervention period (Equation 2b).

EVTTIME is a discrete variable that takes a value from -24 to 0 in Equation 2a and from 0 to 24 in Equation 2b. In both models, the coefficient on EVTTIME (ACTIVIST*EVTTIME) captures the estimated slope for control (target) firms. The tradeoff for greater parsimony is that

EVTTIME assumes a linear change over time, which reduces the likelihood of statistical

¹² For our main tests, the event window covers the two years before and two years after the activist announcement (in addition to the month/year of the announcement). This length balances the tradeoff between having a long event window and the reduction of sample firms that occurs over time. In addition, the two-year post-intervention period satisfies the specific call by activist critics to evaluate the impact of activism, “not just in the short period after announcement of the activist interest, but after a 24-month period.” (Lipton 2013).

significance if changes in recommendation levels are non-linear. Both models include year and industry fixed effects and standard errors clustered at the firm level. The coefficients of interest are β_2 and β_3 . The former represents the slope, or the monthly change in the recommendation level, of control firms and the latter represents the incremental slope for activist targets. Given that the counterfactual is how analysts would have responded absent an activist campaign, the main variable of interest is the coefficient on the interaction term, β_3 .

Short Seller Response to Investor Activism

To investigate whether activism influences short sellers' perceptions about target firms' future prospects, we modify Equations 2a and b to use abnormal short interest as the dependent variable:

$$\begin{aligned}
 ABSHORTINT = & \beta_0 + \beta_1 ACTIVIST + \beta_2 EVTTIME_{-24,0} \\
 & + \beta_3 ACTIVIST * EVTTIME_{-24,0} + YEARFE \\
 & + INDUSTRYFE + \varepsilon
 \end{aligned} \tag{3a}$$

$$\begin{aligned}
 ABSHORTINT = & \beta_0 + \beta_1 ACTIVIST + \beta_2 EVTTIME_{0,24} \\
 & + \beta_3 ACTIVIST * EVTTIME_{0,24} + YEARFE \\
 & + INDUSTRYFE + \varepsilon
 \end{aligned} \tag{3b}$$

As is the case with analyst recommendations, we are primarily interested in the response to activism beyond the level that would be predicted absent an activist campaign, and so the main coefficient of interest is β_3 .

Investor Activism and Changes in Firm Fundamentals

We measure firm fundamentals annually, so the model for pre- and post-intervention differences in FSCORE uses individual-year indicator variables, instead of a monthly measure of the time trend. To examine pre- and post-intervention differences in fundamentals, we run the

following two regressions (firm subscripts omitted for brevity), including year and industry fixed effects and clustering standard errors by firm:

$$\begin{aligned}
 FSCORE = & \beta_0 + \beta_1 ACTIVIST + \beta_2 YEAR_{t-1} + \beta_3 YEAR_t + \beta_4 ACTIVIST \\
 & * YEAR_{t-1} + \beta_5 ACTIVIST * YEAR_t + YEARFE \\
 & + INDUSTRYFE + \varepsilon
 \end{aligned} \tag{4a}$$

$$\begin{aligned}
 FSCORE = & \beta_0 + \beta_1 ACTIVIST + \beta_2 YEAR_{t+1} + \beta_3 YEAR_{t+2} \\
 & + \beta_4 ACTIVIST * YEAR_{t+1} + \beta_5 ACTIVIST * YEAR_{t+2} \\
 & + YEARFE + INDUSTRYFE + \varepsilon
 \end{aligned} \tag{4b}$$

The first (second) equation examines differences in FSCOREs between targets and controls in the years $t-2$ to t (t to $t+2$), where t is the year of the activist intervention. The YEAR variables are indicator variables that equal one when the observation takes place during the year denoted by the subscript (year t being the year that the activist campaign is announced). In the first (second) equation, the baseline comparison time period is year $t-2$ (t).

Ownership by Short- and Long-Horizon Institutional Investors and Activism

Our analysis of ownership by institutional investors uses a linear time trend variable that is analogous to the recommendation- and short interest-related tests above. The only difference, apart from the dependent variables used (OWN_DED or OWN_TRAN), is that the EVTTIME variable measures a given quarter, instead of month, relative to the activism announcement.

$$\begin{aligned}
 OWN_DED[OWN_TRAN] = & \beta_0 + \beta_1 ACTIVIST + \beta_2 EVTTIME_{-8,0} \\
 & + \beta_3 ACTIVIST * EVTTIME_{-8,0} + YEARFE + INDUSTRYFE + \varepsilon
 \end{aligned} \tag{5a[c]}$$

$$\begin{aligned}
 OWN_DED[OWN_TRAN] = & \beta_0 + \beta_1 ACTIVIST + \beta_2 EVTTIME_{0,8} \\
 & + \beta_3 ACTIVIST * EVTTIME_{0,8} + YEARFE + INDUSTRYFE + \varepsilon
 \end{aligned} \tag{5b[d]}$$

Like our short-interest and recommendation tests above, our primary interest is the coefficient on the interaction term, β_3 , which measures the incremental quarterly change in ownership for activist targets relative to control firms.

VI. Results

Market Reactions to Investor Activism

Figure 1 displays cumulative abnormal returns in the [-10, 5] trading-day window around the activism announcement date.¹³ Consistent with other studies (e.g., Brav, Jiang, Partnoy, and Thomas 2008; Greenwood and Schor 2009), Panel A shows a sizable (about 4.5%) abnormal return in the days surrounding the announcement when using a pooled sample. Dividing the sample into campaigns whose objective is to put the company (or part of it) up for sale and all others, Panel B of Figure 1 reveals that the positive return is much larger (about 17%) for campaigns targeting a sale. This result is similar to that of Greenwood and Schor (2009). An important difference from Greenwood and Schor (2009) is that the abnormal returns for non-sale campaigns displayed in Panel B are also positive (about 3.5%). Table 2, Panel A, reports the statistical significance of the returns displayed in Figure 1. The returns become statistically significant about 7 days prior to announcement day 0. Activists' purchases could be a factor. In addition, information could become available to some traders that an activist is about to announce an ownership position and/or momentum traders may be attracted by a rising stock price. Despite the upward drift, most of the positive returns occur in the five days beginning with the intervention announcement on day 0. The average return for all activist events is 4.63% over the 16-day window, comprised of 16.95% for interventions involving a sale of assets and 3.48%

¹³ When measuring abnormal returns, some studies calculate buy-and-hold abnormal returns (e.g., Brav, Jiang, Partnoy, and Thomas 2008) whereas others calculate cumulative abnormal returns (e.g., Greenwood and Schor 2009). In short windows (e.g., less than one year), differences between the two measures are negligible (Kothari and Warner 1997), and in our setting, all inferences are the same, regardless of the return aggregation method used.

for non-sale events. While the return is much less when the event does not involve a sale of all or part of the company, a return of 3.48% over three weeks is still economically significant. Table 2, Panel B, provides a breakdown by type of non-sale event. The largest return for non-sale events is for interventions involving corporate strategy, at 6.69%, which includes the return of capital by increasing stock buybacks. The returns to interventions related to board composition, corporate governance, or engaging management are similar, ranging from 3 to 4%. Appendix C provides information about the specific types of events included in these categories.

Critics argue that the positive short-window returns to activist interventions are short-term and likely to reverse over a longer period. In Table 3, we present CARs from one month prior to the intervention to 24 months afterward to investigate this possibility. In general, the CARs are positive, increase monotonically, and are highly significant. Averaged across all events, Panel A reports a cumulative CAR of 11.57% from month -1 to month 24. This return is more than double the short-window return reported in Table 2, Panel A. Substantial increases above the short-window returns are also reported for sale and non-sale events. Panel B of Table 3 provides a finer breakdown of the non-sale events. Returns are positive for each type of non-sale event and are above 10% for the categories of board composition, engage management, and corporate strategy. The returns for corporate governance and a catch-all category of “other” activist demands are statistically indistinguishable from zero. In sum, long-window returns provide no evidence of a reversal of the short-window returns.

Although we find statistically significant positive long-window returns, these results must be interpreted with caution. Lyon, Barber, and Tsai (1999) argue that “analysis of long-run abnormal returns is treacherous”, and Kothari and Warner (1997) contend that conclusions drawn from long-window analyses “require extreme caution.” Motivated, in part, by the

empirical shortcomings of returns-based tests, we examine how various market participants who invest heavily in information acquisition and interpretation—short sellers, analysts, dedicated institutional investors, and transient institutional investors—respond to activist interventions.

Propensity-Score Matching

The results from the activism prediction model are presented in Table 4. Panel A shows the characteristics that distinguish activist targets from other firms. Target firms tend to be smaller, have lower recent returns, have more debt, have higher return-on-assets but lower growth, have greater coverage by analysts, and more ownership by institutional investors. Dividend payout is similar to other firms. The area under the ROC curve is 0.8, so the model is much better than random assignment in discriminating between targets and non-targets.

Using the predicted values (i.e., propensity scores) from the above regression, we match, without replacement, each target firm to the non-target firm from the same fiscal year and Fama-French 17 industry that has the closest propensity score (i.e., the “nearest neighbor”). We require that the difference in propensities between a target firm and its match be no larger than 0.006, which is based on the rule-of-thumb of 0.2 times the standard deviation of propensity scores that is suggested by Austin (2011).¹⁴ We include only target firms for which we found suitable matches, although the graphs are nearly identical when we include unmatched target firms. In Panel B of Table 4, we investigate covariate balance and find that the differences between the target and control firms are all statistically insignificant, suggesting that activist and control firms are comparable along these observable determinants of activism.

Analyst Response to Investor Activism

Figure 2, Panel A, displays recommendation levels over a 49-month event window. A notable decline in analyst recommendation levels occurs during the ten months prior to the

¹⁴ The number of suitable matches found is virtually identical if we use a more relaxed caliper of 0.1.

announcement, which is followed by a gradual increase in in the post-intervention period. The statistical significance of these changes is reported in Table 5. In Equation 2a, the coefficient on EVTTIME is negative, suggesting that analyst recommendations for control firms decline in the pre-event period. The estimated coefficient for the interaction term, β_3 , which represents the incremental slope for activist targets, is also negative and statistically significant. Thus, analyst recommendations become increasingly unfavorable in the pre-intervention period for control firms but more so for target firms. The decline in recommendation levels for target firms reverses in the post-intervention period, as indicated by the positive and significant interaction term, β_3 , in Equation 2b. This pattern shows that analysts respond favorably following activist interventions, providing further support that, on average, shareholder activism is beneficial for target firms.

To see whether the buy or sell end of the recommendation distribution is responsible for the change in average recommendation levels, we plot BUYPCT over time in Panel B of Figure 2. The trend over time in BUYPCT is highly similar to the trend for MEANREC reported in Panel A. In untabulated analyses, we examine changes in HOLDPCT and SELLPCT. We find the latter is virtually unchanged over the entire 49-month window, which is consistent with analysts' reluctance to issue sell recommendations. The pre-intervention deterioration in the consensus recommendation relative to control firms is driven by recommendation downgrades from buy to hold, and the post-intervention improvement is driven by upgrades from hold to buy.

Short Seller Response to Investor Activism

The results for our tests of changes in abnormal short interest around activist interventions are displayed in Figure 3, Panel A, with the statistical significance of the time series reported in Table 6. In the pre-intervention period modeled by Equation 3a, we find no evidence in Table 6 of a statistically significant increase or decrease in abnormal short interest

for either activist or control firms. However, in the post-intervention period (Equation 3b), the coefficient on ACTIVIST and the coefficient on the interaction term are both negative and significant, consistent with the post-intervention decline in short interest observed in Panel A. Figure 3 reveals that short interest for activist targets begins its descent in the month of the activist announcement, which is consistent with short sellers responding to the activist intervention itself. We find similar results if we use short interest, rather than abnormal short interest. This is not surprising since the time series patterns in Panels A and B of Figure 3 are very similar. In summary, over at least a two-year period, short sellers behave consistent with the perception that activist targets are better off in the post-announcement period.

Investor Activism and Changes in Firm Fundamentals

In general, target firms experience changes in firm fundamentals that are consistent with their changes in analyst recommendations and short interest. The graph of average FSCOREs for target and control firms is presented in Figure 4, and the results of Equations 4a and 4b are in Table 7. Recall that FSCORE is calculated from annual financial statement data. In calculating the interaction terms, the hold-out year in each regression is the first year in each period, year $t-2$ for the pre-intervention period and year t for the post-intervention period. Negative (positive) coefficients on the year indicator variables therefore indicate declining (improving) fundamentals in the period tested.

Both visual inspection of Figure 4 and the significant negative interaction coefficients in Equation 4a confirm that activist targets experience a greater deterioration in fundamentals than control firms leading up to the intervention. Examining the post-intervention period, the statistically significant positive interaction terms indicate the improvement in FSCORE is greater

for activist targets in both years. Figure 4 indicates that target firms have *higher* FSCOREs in the second year after the intervention compared to control firms.

The pre-intervention deterioration in fundamentals at target firms is opposite to what would be expected if activists were simply superior stock pickers who identify firms with strong, but underpriced, fundamentals. If activists were targeting underpriced value firms, one might expect target firms to have higher—or at least trending upward—FSCOREs relative to control firms in the pre-intervention period. Furthermore, the increase in FSCORE in the post-intervention period suggests that the positive long-term returns following activist interventions reported in Table 3 are supported by improvements in fundamentals at target firms. In sum, evidence is inconsistent with the assertion that shareholder activism has a negative effect on target firms' financial health.

In additional tests, we consider which fundamentals are driving the deterioration in FSCOREs in the pre-intervention period and the improvement in the post-intervention period. Rather than model nine equations that each regress one FSCORE component indicator separately on ACTIVIST, we run a reverse regression (Piotroski and Roulstone 2005; deHaan, Shevlin, and Thornock 2015) that captures the associations between the ACTIVIST indicator and each component underlying the FSCORE, controlling for changes in the other underlying FSCORE components. Specifically, we run the following reverse logistic regressions separately for the [-2, 0] and [0, 2] year windows. Each model includes year and industry fixed effects and standard errors clustered by firm:

$$\begin{aligned}
 ACTIVIST_{PRE} = & \beta_0 + \beta_1 F_{ROA} + F_{CFO} + F_{DROA} + F_{ACCRUAL} + F_{DLEVER} + F_{DLIQUID} & (6a) \\
 & + F_{EQ_OFFER} + F_{DMARGIN} + F_{DTURN} + YEARFE + INDUSTRYFE + \varepsilon
 \end{aligned}$$

$$\begin{aligned}
ACTIVIST_{PST} = & \beta_0 + \beta_1 F_{ROA} + F_{CFO} + F_{DROA} + F_{ACCRUAL} + F_{DLEVER} + F_{DLIQUID} \quad (6b) \\
& + F_{EQ_OFFER} + F_{DMARGIN} + F_{DTURN} + YEARFE + INDUSTRYFE + \varepsilon
\end{aligned}$$

The underlying question is this: “Which firm fundamental characteristics are associated with the likelihood of being an activist target?”

The results in Table 8 reveal some interesting patterns. In the pre-event sample that includes annual observations measured in the three years $t-2$ to t , F_{CFO} and $F_{DLIQUID}$ load positively and F_{DROA} and $F_{DMARGIN}$ load negatively, indicating that firms with positive signals about cash flows and liquidity but negative signals about profitability are more likely to be future activist targets. In the post-intervention period, both F_{CFO} and F_{DROA} load positively, indicating that firms with positive signals about cash flows and profitability are more likely to have been targeted by activists. Interestingly, F_{DLEVER} loads negatively in the post-intervention period, which is consistent with activist targets taking on more debt following activist campaigns (e.g., Brav, Jiang, Partnoy, and Thomas 2008). Leverage notwithstanding, finding that firms with positive changes in ROA and positive operating cash flows are more likely to be activist targets provides further evidence that shareholder activism leaves target firms better off, at least when compared to control firms.

Ownership by Short- and Long-Horizon Institutional Investors and Activism

Changes in ownership by dedicated and transient institutional investors are illustrated in Figure 5 and tested in Table 9. Figure 5, Panel A, shows that ownership by dedicated investors, OWN_DED , is relatively flat for target and control firms in the pre-intervention period, and this is confirmed by the insignificant coefficients in Table 9, Equation 5a. The main effect, $ACTIVIST$, becomes significant and positive in the post-intervention period, indicating that the overall *level* in OWN_DED is significantly higher for activist targets compared to control firms.

However, the interaction term modeling the incremental *slope* or change in OWN_DED over time remains insignificant. Untabulated analysis reveals that non-linearity—specifically, a decline in OWN_DED starting in quarter 5—may be driving the insignificance because, when regressed using observations from quarters 0 through 4 only, the interaction term is significantly positive. Figure 5, Panel B, shows the opposite pattern when examining ownership by transient institutional investors, OWN_TRAN. Transient ownership peaks in quarter 0 (perhaps as a result of increased trading by momentum traders trying to profit from the positive price reaction to the activist announcement) and then declines (more rapidly than that of control firms) in the following quarters. In summary, we find some evidence that dedicated ownership increases and transient ownership declines following activist interventions. To the extent that dedicated and transient investors have different preferences for short- and long-term performance, these results are inconsistent with activism inducing short-termism at target firms.

The finding regarding dedicated ownership has implications for the broader question of whether activism is good or bad for business. Studies prior to Ramalingegowda (2014) find little evidence that dedicated investors anticipate and trade in advance of significant corporate events, such earnings restatements or a break in a string of consecutive earnings increases (e.g., Hribar, Jenkins, and Wang 2009; Ke and Petroni 2004). Ramalingegowda (2014) finds that long-term investors *do* trade in advance of bankruptcies, and one possible explanation for this finding is that dedicated investors may only trade ahead of events that result in large, *persistent* changes in firm value. If true, then the increase in dedicated ownership that we document is consistent with activism leading to a persistent increase in target firm value. Furthermore, the increase in dedicated ownership we document is important because prior research provides evidence that ownership by dedicated investors leads to various favorable outcomes. Bushee and Noe (2000)

show that dedicated ownership contributes to lower future stock return volatility. In an M&A setting, Chen, Harford, and Li (2007) find that ownership by long-term investors is positively related to post-merger performance and to the likelihood of withdrawal of a bad bid. Demiralp, D’Mello, Schlingemann, and Subramaniam (2011) show that dedicated ownership is positively associated with returns around the announcement of seasoned equity offerings and that post-issue returns are positively associated with contemporaneous changes in dedicated ownership. These studies suggest that the post-intervention prospects of target firms may improve, at least in part, because dedicated investors monitor and encourage managers to make value-enhancing decisions.

Robustness Checks

We perform two additional tests to investigate the robustness of these findings. In untabulated analyses, we restrict the sample to only those firms that are observed over the entire window used in each test. Although such a restriction may induce survival bias by eliminating certain types of firms from the sample (e.g., firms that merge or are acquired, young firms, firms that are delisted for performance reasons, and firms that are targeted later than 2012 that do not have 2 years of post-intervention data), it is a useful exercise to investigate the extent to which the observed pattern, especially over long windows, is due to changes in sample composition across the event window. Despite a significant decrease in sample size, we find qualitatively similar results.

In our second robustness test, we investigate whether the changes in recommendations, short selling, and institutional ownership are concentrated among interventions pushing for a sale of the company. Given the large returns, it is possible that short sellers and analysts respond more strongly to these types of interventions, either because sale firms are more likely to be

overvalued in wake of the significant share price increase or because they are more likely to result in further price increases should the proposed sale be completed. We find, however, that inferences are virtually identical if sale targets are omitted from the sample.

VII. Conclusion

In this study, we examine several types of evidence to gain insight into the value of shareholder activism for targeted firms. To our knowledge, our study is the first to examine how parties who invest especially heavy in information acquisition and interpretation respond to activist interventions. We consider analysts, short sellers, and institutional investors. We find that short selling activity declines and analyst recommendations become more positive in the post intervention period, evidence that is consistent with activism strengthening the future prospects of target firms. We also find that short sellers' and analysts' actions are supported by a general improvement in target firms' financial statement fundamentals. Nevertheless, we acknowledge that this analysis is a joint test of the benefits of activism and the accuracy of short sellers' and analysts' perceptions of the target firms' future prospects. This caveat may be particularly relevant for analyst recommendations since several studies document an upward bias to analyst recommendations (Conrad, Cornell, Landsman, and Rountree 2006; Dugar and Nathan 1995; Lin and McNichols 1998). Finding an improvement in target firms' financial statement fundamentals, however, indicates that analysts' increased optimism is not unfounded. Further, if activist announcements do induce an upward bias in analyst recommendations, such bias may reveal itself in the form of a downward correction over the two-year post-intervention window. We find no such reversal. Finally, we inform the question of whether activism induces a short-term focus at target firms by examining how ownership by dedicated and transient institutional investors changes in the wake of an activist intervention. Contrary to allegations of short-

termism, we find that ownership by long-term institutional investors increases in the quarters following an activist intervention, whereas ownership by short-term institutional investors declines. As the activist landscape continues to evolve, these results should be of interest to boards and managers as they engage with activist shareholders who push for change, and to regulators who are considering actions that may reduce incentives for activists to intervene at poorly performing companies.



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APPENDIX A
Variable Definitions

Primary Dependent Variables	
ABSHORTINT	Monthly abnormal short interest from Compustat, computed as SHORTINT (raw short interest, scaled by shares outstanding) less the mean level of SHORTINT for all firms as of the settlement date.
FSCORE	See Appendix B
MEANREC	Average monthly recommendation level ranging from 1 to 5, where 1 = strong sell, 2 = sell, 3 = hold, 4 = buy, and 5 = strong buy
OWN_DED	The number of shares owned by dedicated institutional investors at calendar quarter-end, scaled by shares outstanding
OWN_TRAN	The number of shares owned by transient institutional investors at calendar quarter-end, scaled by shares outstanding
Independent Variables	
ACTIVIST	An indicator equal to 1 for observations representing firms targeted by an activist investor and equal to 0 for control firms
ANALYST	A count of the number of analysts who made either an annual or a quarterly forecast for the firm during the fiscal year
BHAR	12-month buy-and-hold abnormal return in excess of the value-weighted market return, measured over the fiscal year
BUYPCT	Monthly number of buy recommendations, divided by total recommendations and multiplied by 100
DIVYLD	The sum of common and preferred dividends, divided by the sum of the market value of common stock plus the book value of preferred stock
EVTTIME	A discrete variable ranging from -24 to 24, denoting the month of observation relative to the activism announcement
GROWTH	Current year sales divided by lagged sales, less one
HOLDPCT	Monthly number of hold recommendations, divided by total recommendations and multiplied by 100
INST	Average institutional ownership over the four quarters during the fiscal year
LEV	Long-term debt-to-assets ratio at the end of the fiscal year
LSIZE	Natural log of market value of equity for the company at the end of the fiscal year
ROA	EBITDA divided by lagged assets
SALE	An indicator equal to 1 for activist campaigns that seek to sell the company or a part of it; 0 otherwise
SELLPCT	Monthly number of sell recommendations, divided by total recommendations and multiplied by 100
YEAR	An indicator equal to 1 for the fiscal year indicated by the subscript, relative to year of the activism announcement (t)

APPENDIX B
Construction of FSCORE Components

	Variable	Calculation with Compustat names	$F_{VAR_i} = 1$ if...
Profitability	ROA_t	$\frac{IB_t}{AT_{t-1}}$	$ROA_t > 0$
	CFO_t	$\frac{OANCF_t}{AT_{t-1}}$	$CFO_t > 0$
	ΔROA_t	$\frac{IB_t}{AT_{t-1}} - \frac{IB_{t-1}}{AT_{t-2}}$	$\Delta ROA_t > 0$
	$ACCRUAL_t$	$\frac{IB_t - OANCF_t}{AT_{t-1}}$	$ACCRUAL_t < 0$
Capital Structure	$\Delta LEVER_t$	$\frac{DLC_t + DLTT_t}{\left[\frac{AT_t + AT_{t-1}}{2}\right]} - \frac{DLC_{t-1} + DLTT_{t-1}}{\left[\frac{AT_{t-1} + AT_{t-2}}{2}\right]}$	$\Delta LEVER_t < 0$
	$\Delta LIQUID_t$	$\frac{ACT_t}{LCT_t} - \frac{ACT_{t-1}}{LCT_{t-1}}$	$\Delta LIQUID > 0$
	EQ_OFFER_t	= 1 if $SCSTKC_t > PRSTKCC_t$ or DISTCD=658X in CRSP's DSEALL during year t	$EQ_OFFER_t = 0$
Operating Efficiency	$\Delta MARGIN_t$	$\frac{SALE_t - COGS_t}{SALE_t} - \frac{SALE_{t-1} - COGS_{t-1}}{SALE_{t-1}}$	$\Delta MARGIN_t > 0$
	$\Delta TURN_t$	$\frac{SALE_t}{AT_{t-1}} - \frac{SALE_{t-1}}{AT_{t-2}}$	$\Delta TURN_t > 0$
$FSCORE = \sum_{i=1}^9 F_{VAR_i}$			
<p>Compustat Variable Descriptions ACT: Current Assets – Total, AT: Assets – Total, $COGS$: Cost of Goods Sold, DLC: Debt in Current Liabilities – Total, $DLTT$: Long-Term Debt – Total, IB: Income before Extraordinary Items, LCT: Current Liabilities – Total, $OANCF$: Operating Activities Net Cash Flow, $PRSTKCC$: Purchase of Common Stock (Cash Flow), $SALE$: Sales/Turnover (Net), $SCSTKC$: Sale of Common Stock (Cash Flow)</p>			

See Piotroski (2000) for a detailed motivation of each component.

APPENDIX C
Classification of Activism Events

Initial Demand	Description
Sale	The activist’s goal is for management to put the company, or a part of the company, up for sale. Activist campaigns in this category include events in which the proposed buyer, if identified, may either be a third party or the activist itself.
Engage management	The activist announces its intention to communicate with management to discuss ways to “enhance shareholder value” but does not include any specific plans or proposals in its announcement.
Board composition	The activist seeks to change the board composition in some way, for example, by withholding its vote for certain directors, by requesting that one or more of the existing directors step down, and/or by demanding that its own nominee(s) be elected to the board.
Corporate governance	The activist pushes for changes that are related to corporate governance but are not related to board composition. Examples include demands for increased transparency, the resignation of one or more managers, the elimination of a poison pill, and/or the declassification of the board.
Corporate strategy	This type of activism includes campaigns aimed at changing some aspect of the company’s strategy, for example, by spinning off a division, opposing a proposed sale, adopting a more tax-efficient capital structure, or focusing on a narrower range of products.
Other	This category includes activist interventions that do not fall into the categories above, for example, supporting a dissident group in a proxy fight, supporting management in a proxy fight, proposing liquidation or reorganization, or voting for third-party stockholder proposal.

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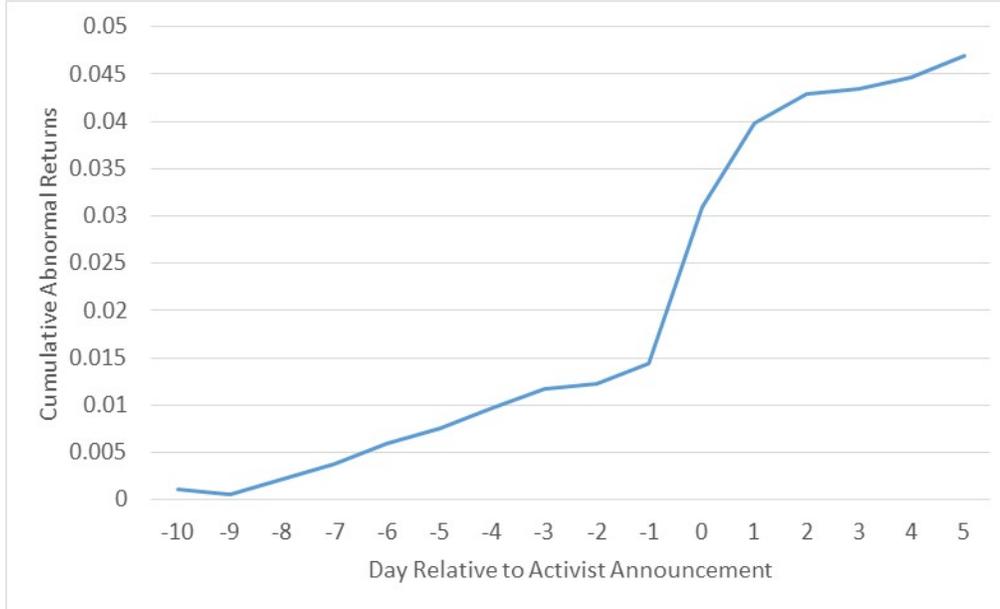
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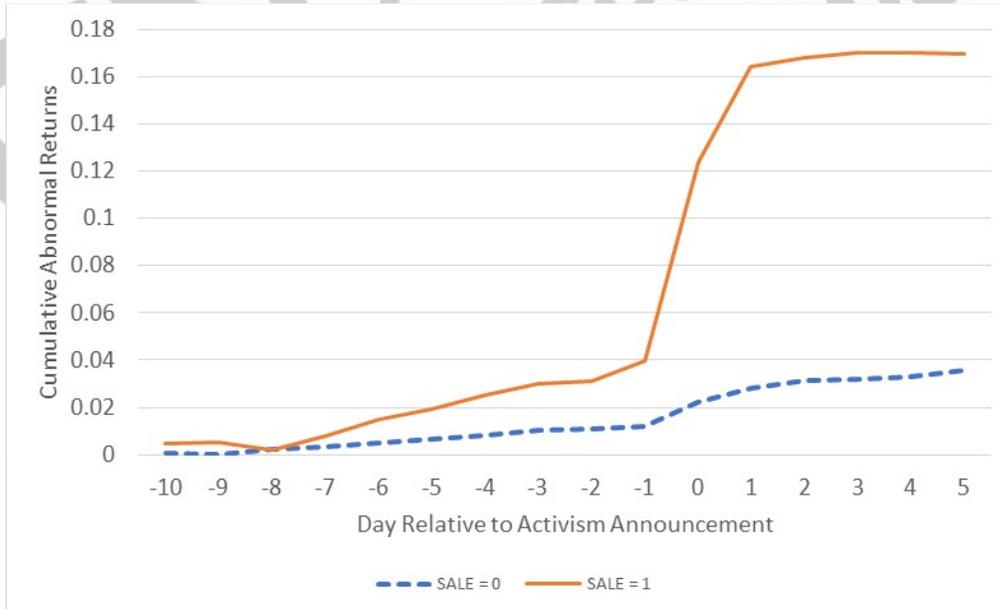
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FIGURE 1

Panel A: Short-Window Cumulative Abnormal Returns for All Activist Announcements



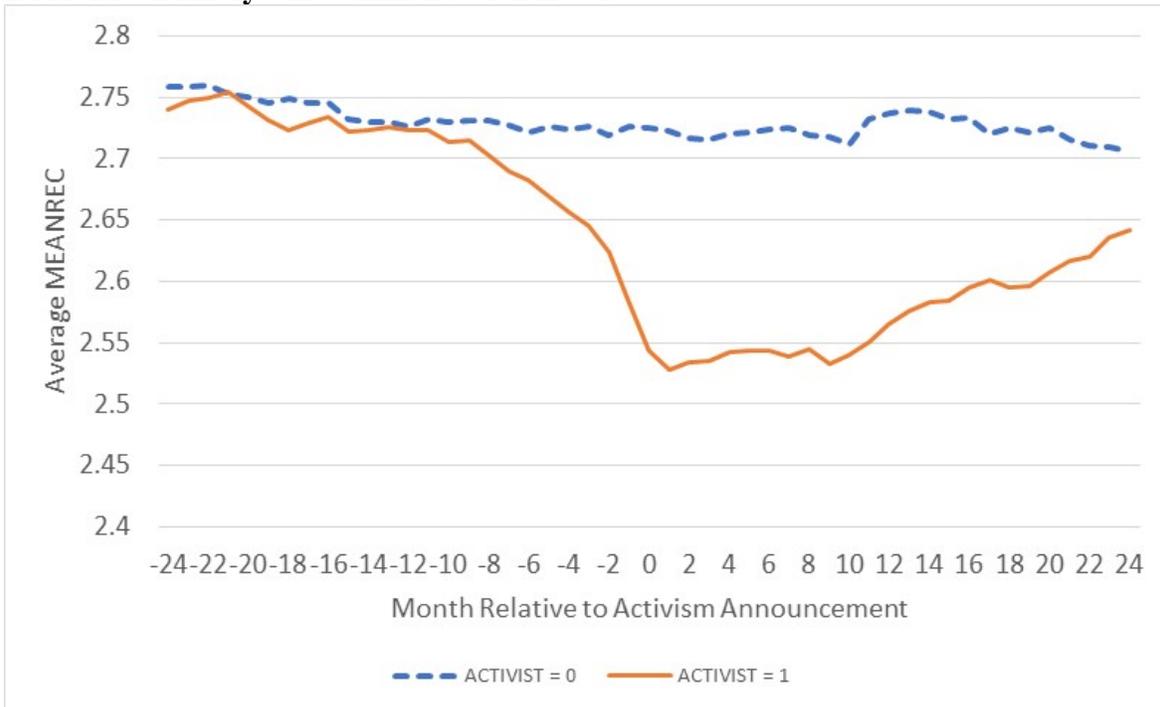
Panel B: Short-Window Cumulative Abnormal Returns for Sale vs. Non-Sale Activist Announcements



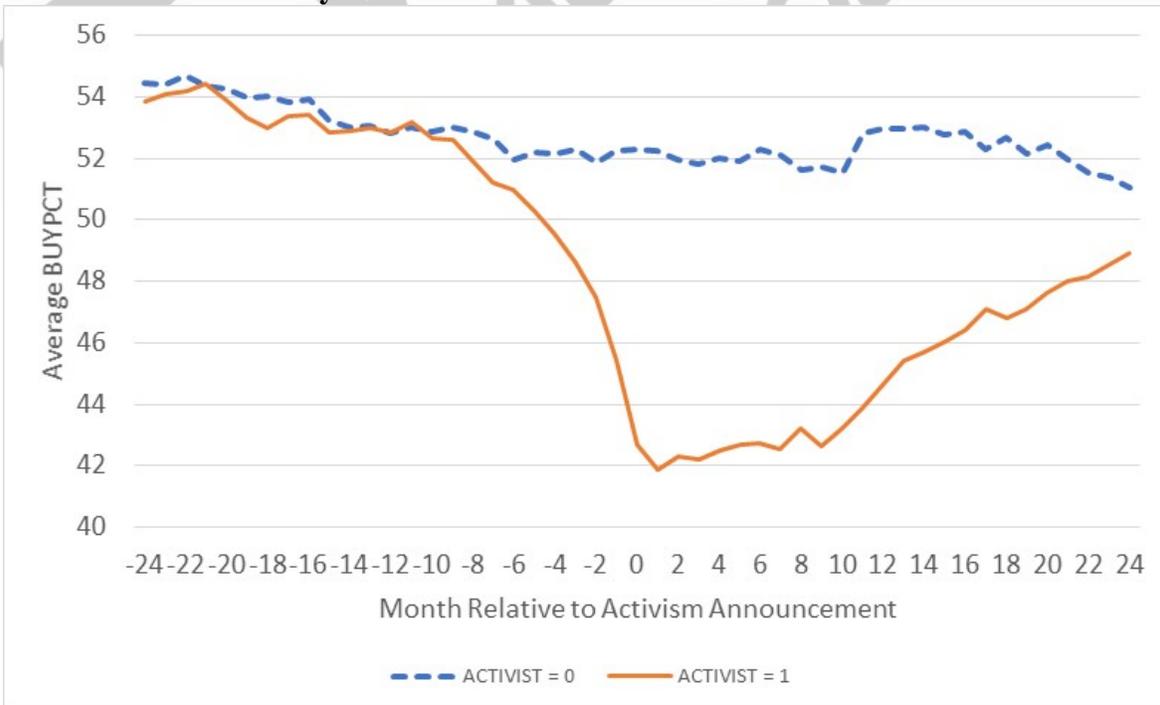
The figures plot cumulative abnormal returns for the [-10, 5] trading-day window around activism announcements for the pooled sample of all activist announcements. Panel B separates the returns into instances in which activists demand sale of all or a portion of the firms and all other instances. Abnormal returns for firm i on each day t in the [-10, 5] day event period are calculated as firm i 's total returns on day t less its expected return on day t . Expected returns are calculated using the Fama and French (1993) 3-factor model. Specifically, daily excess returns for firm i are regressed on the daily market excess return, a book-to-market factor (HML) and a size factor (SMB) for days [-120, -21] in the preannouncement period. Parameter estimates from this regression are multiplied by day t 's risk factors to create expected or normal return.

FIGURE 2

Panel A: Mean Analyst Recommendation Levels



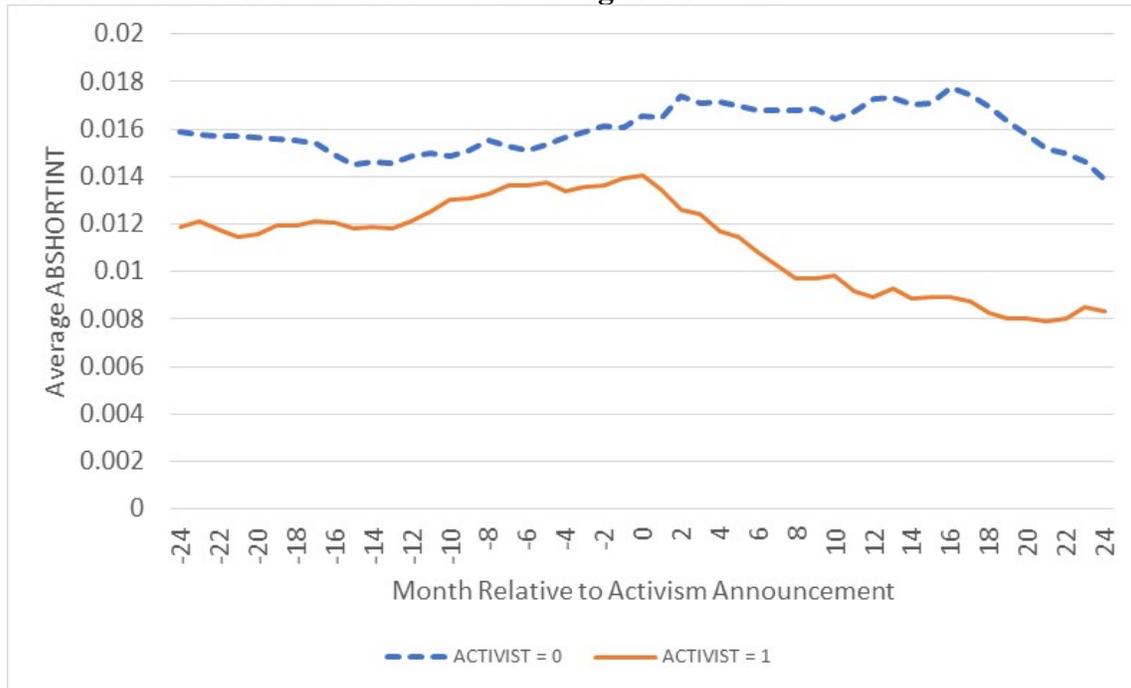
Panel B: Prevalence of Buy Recommendations



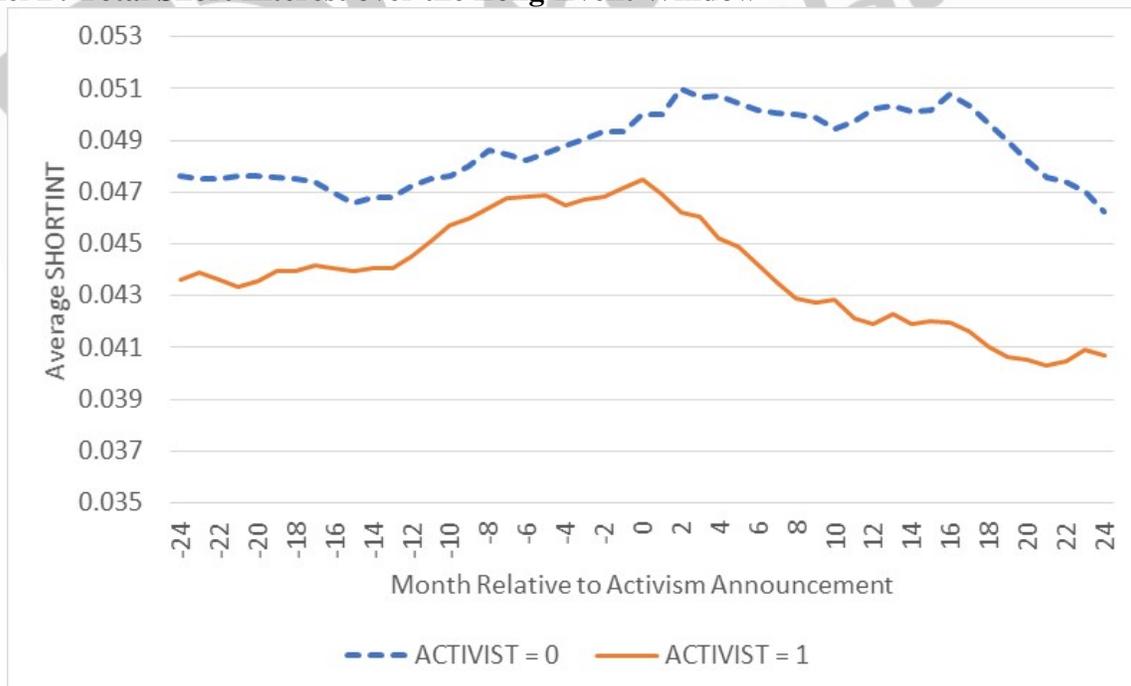
Panel A plots average monthly recommendation levels for activist targets and control firms on a scale of 1 to 5 with higher numbers more favorable. Panel B reports buy recommendations as a percentage of total recommendations.

FIGURE 3

Panel A: Abnormal Short Interest over the Long-Event Window

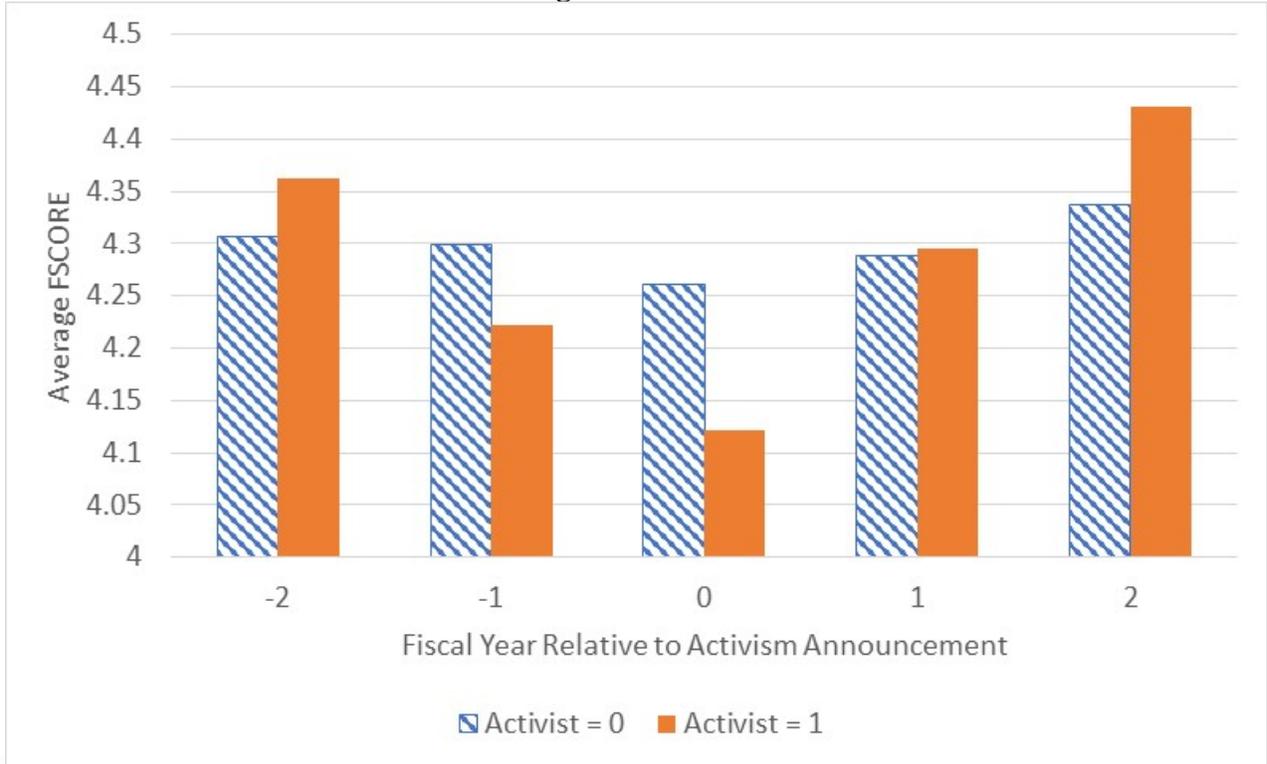


Panel B: Total Short Interest over the Long-Event Window



The figures plot the short interest ratio, calculated as short interest scaled by shares outstanding (SHORTINT). Panel A reports abnormal short interest (ABSHORTINT), calculated for firm i on day t as SHORTINT less the mean level of SHORTINT for all other firms in the Compustat universe on day t . Panel B reports raw short interest levels.

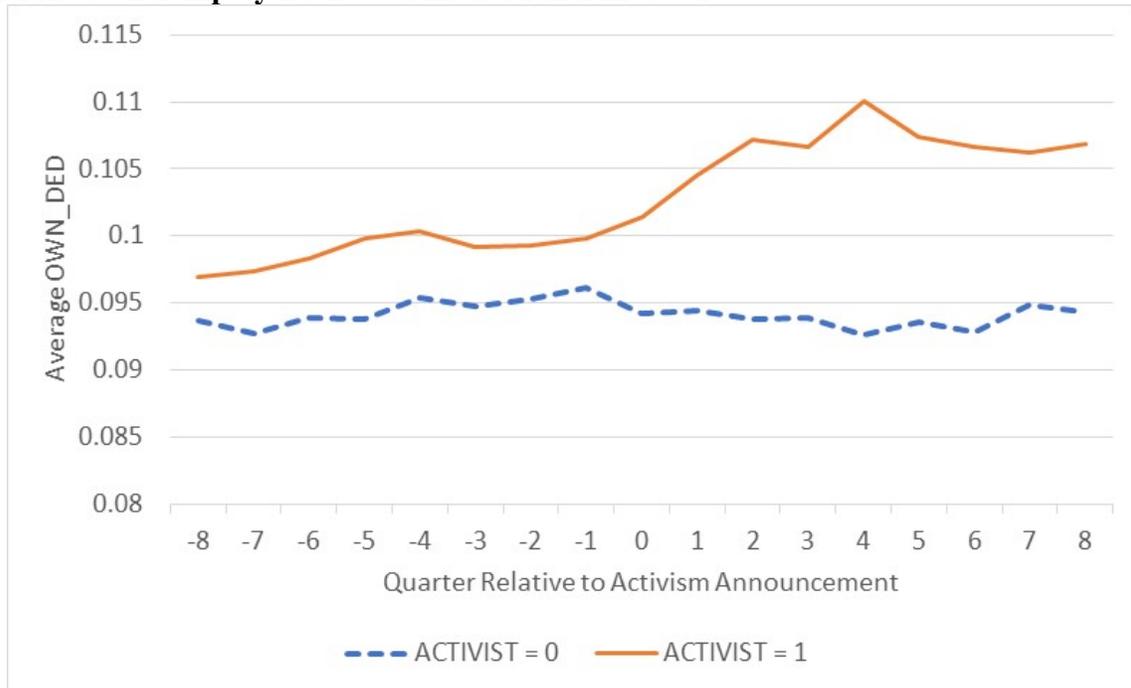
FIGURE 4
Changes in FSCORE



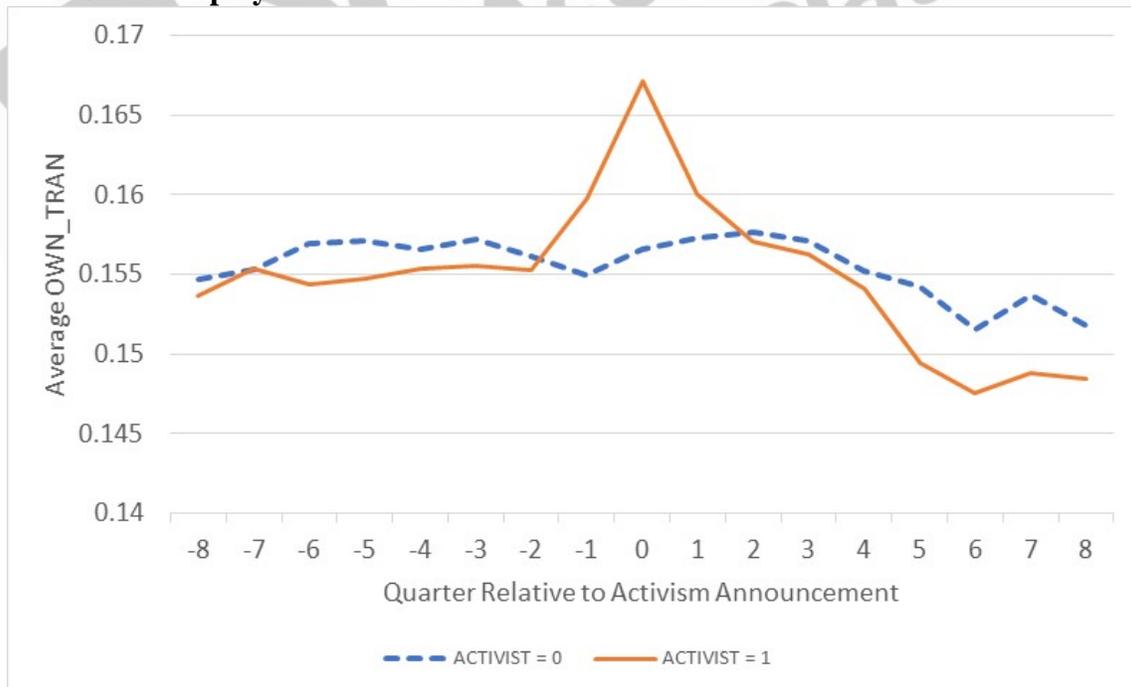
This figure plots annual FSCOREs for target and control firms for the five fiscal years centered on the year of the activism announcement. Calculated annually, FSCOREs are constructed as the sum of 9 binary signals related to firm fundamentals and, hence, range from 0 to 9. See Appendix B for a detailed description of the construction of each signal.

FIGURE 5

Panel A: Ownership by Dedicated Institutional Investors



Panel B: Ownership by Transient Institutional Investors



The figures plot quarterly share ownership, scaled by shares outstanding, by dedicated institutional investors (OWN_DED) and transient institutional investors (OWN_TRAN). Institutional investor classifications were developed in Bushee (1998) and can be found at Bushee's website: <http://acct.wharton.upenn.edu/faculty/bushee/IIclass.html>.

TABLE 1
Sample Selection

Sample Criteria	Shark Repellant 1984 - 2013	ThomsonOne 2000 – 2014	Activist Events
All Activism Events	5116	2285	7401
Less: Events for firms with no PERMNO	(1462)	(529)	(1991)
Less: Overlapping Events			(539)
Maximum available			4871

This table presents the sample selection breakdown and the maximum number of activism events available for analysis.



**American
Accounting
Association**

TABLE 2
Short-Window Returns around Activism Announcements

Panel A: All Events with Dichotomy into Sales vs. Non-Sales Events

Day	All events		Sale		Non-Sale	
	CAR (%)	t-stat	CAR (%)	t-stat	CAR (%)	t-stat
-10	0.13	1.15	0.48	2.11	0.10	0.81
-9	0.05	0.56	0.54	1.92	0.01	0.06
-8	0.22	1.79	0.22	0.57	0.22	1.70
-7	0.37	2.66	0.78	1.67	0.33	2.27
-6	0.57	3.75	1.52	2.66	0.48	3.06
-5	0.69	3.23	1.94	3.25	0.58	2.54
-4	0.94	5.27	2.50	3.85	0.79	4.29
-3	1.12	5.11	2.98	4.54	0.95	4.09
-2	1.14	3.50	3.08	4.54	0.96	2.74
-1	1.28	2.45	3.99	5.67	1.03	1.81
0	2.99	7.94	12.39	12.63	2.12	5.31
1	3.87	9.55	16.43	15.58	2.70	6.31
2	4.20	11.21	16.79	15.86	3.03	7.71
3	4.25	10.61	16.98	15.89	3.07	7.26
4	4.38	10.70	16.99	15.85	3.20	7.42
5	4.63	13.02	16.95	15.83	3.48	9.39

This panel presents cumulative abnormal returns (CARs) for target firms over the [-10, 5] day window around the activist announcement. CARs are shown for all activist announcements, those demanding a sale of the company (SALE=1), and all other, non-sale events (SALE=0).

See Appendix C for descriptions of the various types of activist demands.

Panel B: Breakdown by Type of Non-Sale Event

Day	Board Composition		Engage Management		Corporate Strategy		Corporate Governance		Other	
	CAR (%)	t-stat	CAR (%)	t-stat	CAR (%)	t-stat	CAR (%)	t-stat	CAR (%)	t-stat
-10	0.23	0.82	0.02	0.19	0.15	0.52	-0.31	-1.72	-0.13	-1.05
-9	0.06	0.40	0.00	-0.02	0.19	0.55	-0.14	-0.58	-0.22	-1.37
-8	0.18	0.99	0.19	0.90	1.16	2.47	0.01	0.04	-0.14	-0.63
-7	0.23	1.18	0.37	1.51	1.40	2.75	0.11	0.33	-0.39	-1.49
-6	0.32	1.43	0.51	1.91	1.61	3.27	0.40	1.06	-0.17	-0.54
-5	0.23	0.50	0.66	2.37	2.05	3.90	0.59	1.33	0.04	0.12
-4	0.41	1.47	0.88	3.07	2.28	4.26	0.76	1.70	0.05	0.13
-3	0.47	1.11	1.07	3.36	2.87	4.85	0.92	2.00	0.10	0.25
-2	0.36	0.46	1.10	3.18	3.14	4.59	1.22	2.40	0.13	0.33
-1	0.00	0.00	1.45	4.06	4.17	5.62	1.45	2.58	0.23	0.50
0	1.54	1.70	2.42	6.53	5.55	6.91	2.54	3.99	0.41	0.87
1	2.13	2.19	3.19	8.34	6.13	7.83	3.14	4.79	0.25	0.48
2	2.67	3.07	3.45	8.69	6.39	8.35	3.46	5.00	0.54	1.06
3	2.79	2.94	3.43	8.41	6.53	8.26	3.65	4.93	0.78	1.50
4	3.00	3.10	3.51	8.39	6.72	8.50	3.74	4.92	1.01	1.90
5	3.38	4.31	3.92	9.35	6.69	8.04	3.74	4.72	0.91	1.70

This panel presents cumulative abnormal returns (CARs) for target firms over the [-10, 5] day window around the activist announcement. CARs for various activist demands are shown for all non-sale activist announcements (SALE=0). Thus, Panel B is an expanded, more granular analysis of the rightmost subsample analyzed in Panel A.

See Appendix C for descriptions of the various types of activist demands.

TABLE 3
Long-Window Returns to Activism

Panel A: All Events with Dichotomy into Sales vs. Non-Sales Events

Month	All events		Sale		Not Sale	
	CAR (%)	t-stat	CAR (%)	t-stat	CAR (%)	t-stat
-1	0.94	3.41	1.11	1.23	0.93	3.19
0	5.52	13.93	17.83	11.69	4.35	10.75
1	6.01	13.14	18.34	11.05	4.83	10.26
2	6.30	11.62	17.54	9.36	5.23	9.28
3	6.80	10.02	18.43	9.48	5.69	7.93
6	6.83	8.43	18.44	7.50	5.72	6.70
9	7.03	7.65	19.33	6.90	5.86	6.05
12	7.38	7.12	19.56	6.24	6.22	5.69
15	8.52	7.60	21.05	6.05	7.33	6.20
18	9.53	7.89	22.30	6.22	8.32	6.51
21	10.90	8.43	23.00	6.10	9.75	7.13
24	11.57	8.57	22.67	5.59	10.51	7.37

This panel presents cumulative abnormal returns (CARs) for target firms over the [-1, 24] month window, where month 0 is the month of the activist announcement. CARs are shown for all activist announcements, those demanding a sale of the company (SALE=1), and all other, non-sale events (SALE=0).

See Appendix C for descriptions of the various types of activist demands.

Panel B: Breakdown by Type of Non-Sale Event

Month	Board Composition		Engage Management		Corporate Strategy		Corporate Governance		Other	
	CAR (%)	t-stat	CAR (%)	t-stat	CAR (%)	t-stat	CAR (%)	t-stat	CAR (%)	t-stat
-1	0.42	0.91	1.36	2.91	1.56	1.85	-0.31	-0.51	0.22	0.33
0	3.60	5.65	5.64	8.66	7.00	5.52	2.40	2.72	0.80	0.94
1	4.28	5.62	5.62	7.53	7.58	5.34	2.85	2.75	1.69	1.67
2	5.03	5.47	5.78	6.69	6.79	4.07	2.70	2.06	2.54	2.14
3	6.15	4.55	5.95	6.10	8.39	4.71	3.10	2.11	1.65	1.30
6	6.26	4.08	6.78	5.48	7.53	3.75	2.76	1.52	0.91	0.55
9	6.64	3.84	7.25	5.07	5.71	2.49	1.19	0.56	1.91	1.01
12	7.73	4.01	7.75	4.72	6.13	2.47	0.27	0.11	1.14	0.54
15	10.48	5.12	9.16	5.10	5.50	2.05	1.11	0.43	0.69	0.29
18	12.28	5.59	9.54	4.89	6.53	2.15	1.65	0.59	0.68	0.25
21	13.26	5.66	11.63	5.52	10.57	3.22	1.59	0.52	1.46	0.50
24	14.39	5.88	12.67	5.80	10.70	3.10	1.51	0.46	1.17	0.38

This panel presents cumulative abnormal returns (CARs) for target firms over the [-1, 24] month window, where month 0 is the month of the activist announcement. CARs for various activist demands are shown for all non-sale activist announcements (SALE=0). Thus, Panel B is an expanded, more granular analysis of the rightmost subsample analyzed in Panel A. See Appendix C for descriptions of the various types of activist demands.

TABLE 4
Likelihood of Being Targeted By an Activist Investor

Panel A: Propensity Score Estimation

DV = ACTIVIST	Coefficient (Standard Error)
LSIZE _{t-1}	-0.173*** (0.0179)
BHAR _{t-1}	-0.191*** (0.0410)
LEV _{t-1}	0.104** (0.0462)
DIVYLD _{t-1}	-0.662 (0.794)
ROA _{t-1}	0.275*** (0.0987)
GROWTH _{t-1}	-0.156*** (0.0465)
ANALYST _{t-1}	0.0117*** (0.00432)
INST _{t-1}	1.242*** (0.0862)
Year Fixed Effects	YES
Industry Fixed Effects (Fama-French 17)	YES
N	117,930
Pseudo R-squared	0.13
Area under the ROC Curve	0.80

This table presents the results of estimating Equation (1), the likelihood of being targeted by an activist investor.

*, **, and *** indicate statistical significance at the 0.10, 0.05, and 0.01 levels, respectively. p-values are two-tailed and are calculated based on standard errors that are clustered at the firm-level.

Appendix A provides variable definitions.

Panel B: Covariate Balance for Target and Control Firms

Variable	Subsample Means		p > t
	ACTIVIST	CONTROL	
LSIZE	5.844	5.840	0.935
BHAR	-0.040	-0.041	0.984
LEV	0.555	0.553	0.84
DIVYLD	0.012	0.012	0.834
ROA	0.073	0.073	0.988
GROWTH	0.117	0.116	0.935
ANALYST	8.269	8.164	0.648
INST	0.527	0.527	0.972
Number of Matched Activist Target-Years	3,283		

This table presents descriptive statistics related to the covariates used to predict the likelihood of being targeted by an activist investor. All continuous variables are winsorized at the 1% and 99% levels.

Appendix A provides variable definitions.



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TABLE 5
Pre- and Post-Intervention Changes in Mean Analyst Recommendations

Variables	Model	(2a)	(2b)
		Pre-intervention	Post-intervention
ACTIVIST		-0.0943*** (0.0227)	-0.203*** (0.0236)
EVTTIME		-0.00157* (0.000827)	-5.97e-05 (0.000962)
ACTIVIST*EVTTIME		-0.00481*** (0.00122)	0.00439*** (0.00144)
CONSTANT		2.642*** (0.204)	3.487*** (0.166)
N		127,554	92,734
Adjusted R-squared		0.028	0.034
Year Fixed Effects		YES	YES
Industry Fixed Effects		YES	YES
Cluster by firm		YES	YES
Event Window (Months)		[-24, 0]	[0, 24]

This table presents the results of estimating Equations 2a and b. Equation and column (2a) estimates the change in analyst recommendations in the pre-intervention period, whereas Equation and column (2b) estimates the change in the post-intervention period.

*, **, and *** indicate statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

P-values are two-tailed and are calculated based on robust standard errors.

Appendix A provides the variable definitions.

TABLE 6
Pre- and Post-Intervention Changes in Abnormal Short Interest

Variables	Model (3a) Pre-intervention	(3b) Post-intervention
ACTIVIST	-0.00155 (0.00207)	-0.00437** (0.00218)
EVTTIME	4.41e-05 (4.79e-05)	-3.81e-05 (6.31e-05)
ACTIVIST*EVTTIME	9.67e-05 (7.83e-05)	-0.000191** (9.28e-05)
CONSTANT	0.00387 (0.0126)	-0.00163 (0.0117)
N	172,438	135,256
Adjusted R-squared	0.04	0.062
Year Fixed Effects	YES	YES
Industry Fixed Effects	YES	YES
Cluster by firm	YES	YES
Event Window (Months)	[-24, 0]	[0, 24]

This panel presents the results of estimating Equations 3a and b. Equation and column (3a) estimates the change in abnormal short interest in the pre-intervention period, whereas Equation and column (3b) estimates the change in the post-intervention period.

*, **, and *** indicate statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

P-values are two-tailed and are calculated based on robust standard errors.

Appendix A provides the variable definitions.

TABLE 7
Changes in Firm Fundamentals (FSCORES)
for Years around Activism Announcements

Variables	Model	(4a)	(4b)
		Pre-intervention	Post-intervention
ACTIVIST		0.0545 (0.0402)	-0.139*** (0.0450)
YEAR _{t-1}		0.0124 (0.0368)	
YEAR _t		0.0132 (0.0415)	
ACTIVIST*YEAR _{t-1}		-0.132** (0.0522)	
ACTIVIST*YEAR _t		-0.194*** (0.0582)	
YEAR _{t+1}			0.0353 (0.0461)
YEAR _{t+2}			0.0475 (0.0500)
ACTIVIST*YEAR _{t+1}			0.146** (0.0627)
ACTIVIST*YEAR _{t+2}			0.233*** (0.0701)
CONSTANT		3.609*** (0.465)	4.057*** (0.665)
N		14,012	9,596
Adjusted R-squared		0.038	0.040
Year Fixed Effects		YES	YES
Industry Fixed Effects		YES	YES
Cluster by firm		YES	YES
Event Window (Years)		[-2, 0]	[0, 2]

This table presents the results of estimating Equations 4a and b. Equation and column (4a) estimates the change in firm fundamentals (FSCORE) in the pre-intervention period, whereas equation and column (4b) estimates the change in the post-intervention period. The hold-out year in each regression is the first year in each period, year $t-2$ for the pre-intervention period and year t for the post-intervention period. Negative (positive) coefficients on the year indicator variables therefore indicate declining (improving) fundamentals in the period tested.

*, **, and *** indicate statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

P-values are two-tailed and are calculated based on robust standard errors.

Appendix A provides the variable definitions.

TABLE 8
The Association between FSCORE Components and Firm Type

Variables	Model	(6a) Activist vs. Matched Firm	(6b) Activist vs. Matched Firm
F _{ROA}		-0.521 (0.368)	-0.605 (0.480)
F _{CFO}		0.232*** (0.0672)	0.234*** (0.0821)
F _{DROA}		-0.0665* (0.0380)	0.119** (0.0473)
F _{ACCRUAL}		-0.265 (0.367)	-0.133 (0.481)
F _{DLEVER}		-0.0532 (0.0426)	-0.0858* (0.0500)
F _{DLIQUID}		0.104*** (0.0323)	0.0600 (0.0401)
F _{EQ OFFER}		-0.105 (0.320)	-0.533 (0.365)
F _{DMARGIN}		-0.0878** (0.0386)	-0.0385 (0.0449)
F _{DTURN}		0.0206 (0.0381)	-0.00114 (0.0477)
CONSTANT		0.253 -0.521	0.401 -0.605
N		14,012	9,596
Adjusted R-squared		0.0036	0.0076
Area under the ROC Curve		0.54	0.56
Year Fixed Effects		YES	YES
Industry Fixed Effects		YES	YES
Cluster by firm		YES	YES
Event Window (Years)		[-2, 0]	[0, 2]

This table presents the results of estimating Equations 5a and b, which models the likelihood of being either an activist target or a control firm as a function of underlying firm fundamentals.

*, **, and *** indicate statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

P-values are two-tailed and are calculated based on robust standard errors that are clustered at the firm level.

Appendix B provides the variable definitions.

TABLE 9
Pre- and Post-Intervention Ownership by Dedicated and Transient Institutional Investors

Variables	OWN_DED Pre-intervention (5a)	OWN_DED Post-intervention (5b)	OWN_TRAN Pre-intervention (5c)	OWN_TRAN Post-intervention (5d)
ACTIVIST	0.00541 (0.00388)	0.0100** (0.00427)	0.00483 (0.00390)	0.00599 (0.00422)
EVTTIME	0.000301 (0.000294)	-5.29e-05 (0.000418)	0.000135 (0.000281)	-0.00112*** (0.000433)
ACTIVIST*EVTTIME	0.000171 (0.000443)	0.000623 (0.000636)	0.00107** (0.000454)	-0.00169*** (0.000641)
CONSTANT	0.0615 (0.0460)	0.0638* (0.0380)	-0.0181 (0.0117)	-0.00222 (0.0143)
N	43,194	27,360	59,704	39,732
Adjusted R-squared	0.021	0.010	0.079	0.074
Year Fixed Effects	YES	YES	YES	YES
Industry Fixed Effects	YES	YES	YES	YES
Cluster by firm	YES	YES	YES	YES
Event Window (Quarters)	[-8, 0]	[0, 8]	[-8, 0]	[0, 8]

This panel presents the results of estimating Equations 5a through d. Equations 5a and c estimate, respectively, the change in ownership by dedicated and transient institutional investors in the pre-intervention period, whereas Equations 5b and d estimate the change in ownership in the post-intervention period.

*, **, and *** indicate statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

P-values are two-tailed and are calculated based on robust standard errors.

Appendix A provides the variable definitions.