Hedge Fund Activism, Corporate Governance, and Firm Performance

ALON BRAV, WEI JIANG, FRANK PARTNOY, and RANDALL THOMAS*

ABSTRACT

Using a large hand-collected data set from 2001 to 2006, we find that activist hedge funds in the United States propose strategic, operational, and financial remedies and attain success or partial success in two-thirds of the cases. Hedge funds seldom seek control and in most cases are nonconfrontational. The abnormal return around the announcement of activism is approximately 7%, with no reversal during the subsequent year. Target firms experience increases in payout, operating performance, and higher CEO turnover after activism. Our analysis provides important new evidence on the mechanisms and effects of informed shareholder monitoring.

ALTHOUGH HEDGE FUND ACTIVISM IS WIDELY discussed and fundamentally important, it remains poorly understood. Much of the commentary on hedge fund activism is based on supposition or anecdotal evidence. Critics and regulators question whether hedge fund activism benefits shareholders, while numerous commentators claim that hedge fund activists destroy value by distracting managers from long-term projects. However, there is a dearth of large-sample evidence about hedge fund activism, and existing samples are plagued by various biases.

As a result, even the most basic questions about hedge fund activism remain unanswered: Which firms do activists target and how do those targets respond? How does the market react to the announcement of activism? Do activists succeed in implementing their objectives? Are activists short term in focus? How does activism impact firm performance? In this paper, we answer these questions by constructing the most extensive and thoroughly documented set of observations of hedge fund activism to date, extending from the beginning of 2001 through the end of 2006.

We find that hedge funds increasingly engage in a new form of shareholder activism and monitoring that differs fundamentally from previous activist efforts by other institutional investors. Earlier studies show that when institutional investors, particularly mutual funds and pension funds, follow an activist agenda, they do not achieve significant benefits for shareholders (Black (1998), Karpoff (2001), Romano (2001), and Gillan and Starks (2007)). Our results suggest that the opposite is true of hedge funds. Unlike mutual funds and pension funds, hedge funds are able to influence corporate boards and managements due to key differences arising from their different organizational form and the incentives that they face. Hedge funds employ highly incentivized managers who manage large unregulated pools of capital. Because they are not subject to regulation that governs mutual funds and pension funds, they can hold highly concentrated positions in small numbers of companies, and use leverage and derivatives to extend their reach. Hedge fund managers also suffer few conflicts of interest because they are not beholden to the management of the firms whose shares they hold. In sum, hedge funds are better positioned to act as informed monitors than other institutional investors.

Hedge fund activists tend to target companies that are typically "value" firms, with low market value relative to book value, although they are profitable with sound operating cash flows and return on assets. Payout at these companies before intervention is lower than that of matched firms. Target companies also have more takeover defenses and pay their CEOs considerably more than comparable companies. Relatively few targeted companies are large-cap firms, which is not surprising given the comparatively high cost of amassing a meaningful stake in such a target. Targets exhibit significantly higher institutional ownership and trading liquidity. These characteristics make it easier for activists to acquire a significant stake quickly.

Our first piece of evidence regarding the impact of hedge fund activism is based on the market's reaction to intervention announcements. We find that the market reacts favorably to activism, consistent with the view that it creates value. The filing of a Schedule 13D revealing an activist fund's investment in a target firm results in large positive average abnormal returns, in the range of 7% to 8%, during the (−20,+20) announcement window. The increase in both price and abnormal trading volume of target shares begins 1 to 10 days prior to the Schedule 13D's filing. We find that the positive returns at announcement are not reversed over time, as there is no evidence of a negative abnormal drift during the 1-year period subsequent to the announcement. We also document that the positive abnormal returns are only marginally lower for hedge funds

that disclosed substantial ownership positions (through quarterly Form 13F filings) before they filed a Schedule 13D, which is consistent with the view that the abnormal returns are due to new information about activism, not merely that about stock picking. Moreover, target prices decline upon the exit of a hedge fund only after it has been unsuccessful, which indicates that the information reflected in the positive announcement returns conveys the market's expectation for the success of activism.

We next examine the cross-section of these abnormal returns. Activism that targets the sale of the company or changes in business strategy, such as refocusing and spinning-off noncore assets, is associated with the largest positive abnormal partial effects, at 8.54% and 5.95%, respectively (the latter figure is lower than the overall sample average because most events target multiple issues). This evidence suggests that hedge funds are able to create value when they see large allocative inefficiencies. In contrast, we find that the market response to capital structure-related activism—including debt restructuring, recapitalization, dividends, and share repurchases—is positive yet insignificant. We find a similar lack of statistically meaningful reaction for governance-related activism—including attempts to rescind takeover defenses, to oust CEOs, to enhance board independence, and to curtail CEO compensation. Hedge funds with a track record of successful activism generate higher returns, as do hedge funds that initiate activism with hostile tactics.

The positive market reaction is also consistent with ex post evidence of overall improved performance at target firms. On average, from the year before to the year after an announcement, total payout increases by 0.3 to 0.5 percentage points (as a percentage of the market value of equity, relative to an all-sample mean of 2.2 percentage points), and book value leverage increases by 1.3 to 1.4 percentage points (relative to an all-sample mean of 33.5 percentage points). Both changes are consistent with a reduction of agency problems associated with free cash flow and subject managers to increased market discipline. We also find improvement in return on assets and operating profit margins, but this takes longer to manifest. The postevent year sees little change compared to the year prior to intervention. However, EBITDA/Assets (EBITDA/Sales) at target firms increases by 0.9 to 1.5 (4.7 to 5.8) percentage points 2 years after intervention. Analyst expectations also suggest improved prospects at target firms after hedge fund intervention. During the months before Schedule 13D filings, analysts downgrade (future) targets more than they upgrade them, whereas after an intervention is announced, analysts maintain neutral ratings. Given that successful activism often leads to attrition through the sale of the target company, any ex post performance analysis based on surviving firms may underestimate the positive effect of activism.

Hedge fund activists are not short-term in focus, as some critics have claimed. The median holding period for completed deals is about 1 year, calculated as from the date a hedge fund files a Schedule 13D to the date when the fund no longer holds a significant stake in a target company. The calculation substantially understates the actual median holding period, because it necessarily excludes a significant number of events for which no exit information was

available by March 2007. Analysis of portfolio turnover rates of the funds in our sample suggests holding periods of closer to 20 months.

Because shareholders are by no means the only party affected by hedge fund activism, we also ask whether other stakeholders are impacted. In particular, we consider the possibility that the positive stock market reaction to activism might reflect wealth redistribution from creditors and executives. We find that hedge fund activism does not shift value from creditors to shareholders. Indeed, the 174 targets with no long-term debt have slightly *higher* announcement returns than the rest of the sample. On the other hand, we do see evidence that hedge fund activism shifts value away from senior managers. In particular, hedge fund activism is not kind to CEOs of target firms. During the year after the announcement of activism, average CEO pay declines by about $1 million dollars, and the CEO turnover rate increases by almost 10 percentage points, controlling for the normal turnover rates in the same industry, and for firms of similar size and stock valuation.

An important feature of our sample is that we include both hostile and non-hostile interactions between funds and targets. Although some commentators have characterized hedge fund activism as fundamentally hostile to managers, we find that hedge fund activists are openly hostile in less than 30% of cases (hostility includes a threatened or actual proxy contest, takeover, lawsuit, or public campaign that is openly confrontational). More commonly, hedge fund activists cooperate with managers, at least at the initial stages of their intervention, and achieve all or most of their stated goals in about two-thirds of all cases. Managerial opposition to hedge fund activism may stem from its negative impact on CEO pay and turnover even if it ultimately creates value for shareholders.

Our findings have important implications for the policy debate about hedge fund activism. Although some prominent legal commentators, including leading corporate lawyers and European regulators, have called for restrictions on hedge fund activism because of its supposedly short-term orientation, our results suggest that activist hedge funds are not short-term holders. Activists also appear to generate substantial value for target firm shareholders. Indeed, our evidence of the market's positive response to hedge fund activism, and the subsequent success of activists, challenges the premises of proposals requiring increased hedge fund regulation.

For policy makers, our paper shows important distinctions between the role of hedge funds and other private institutional investors such as private equity firms. Despite their frequently aggressive behavior, activist hedge funds do not typically seek control in target companies. The median maximum ownership stake for the entire sample is about 9.1%. Even at the 95th percentile in the full sample, the stake is 31.5%—far short of the level for majority control. Activists rely on cooperation from management or, in its absence, support from fellow shareholders to implement their value-improving agendas. This explains why hedge fund activists tend to target companies with higher institutional holdings and analyst coverage, both of which suggest a more sophisticated shareholder base. It is also common for multiple hedge funds to coordinate by cofiling Schedule 13Ds (about 22% of the sample) or acting in tandem without being

a formal block. Although some regulators have criticized such informal block behavior as anticompetitive, coordination among hedge funds can benefit shareholders overall by facilitating activism at relatively low individual ownership stakes.

The new evidence presented in this paper suggests that activist hedge funds occupy an important middle ground between internal monitoring by large shareholders and external monitoring by corporate raiders. Activist hedge funds are more flexible, incentivized, and independent than internal monitors, and they can generate multiple gains from targeting several companies on similar issues. Conversely, activist hedge funds have advantages over external corporate raiders, because they take smaller stakes, often benefit from cooperation with management, and have support from other shareholders. This hybrid internal–external role puts activist hedge funds in a potentially unique position to reduce the agency costs associated with the separation of ownership and control.

The rest of the paper proceeds as follows. Section I provides the institutional background and a review of the literature on shareholder activism. Section II describes the sample. Section III discusses the characteristics of target companies. Section IV looks at the stock market's reaction to hedge fund activism. Section V analyzes firm performance before and after activism. We present some conclusions in Section VI.

I. Institutional Background and Literature Review

The activist blockholders of the 1980s are the closest ancestors to hedge fund activists. Bethel, Liebeskind, and Opler (1998) compile a sample of blockholders that they classify as activists, financial organizations (including banks, pension funds, money managers, and insurance companies) and strategic investors, such as conglomerates. They find that activist blockholders targeted poorly performing companies, that their activism led to increased asset divestitures and share repurchases, and that their investments were associated with improvements in profitability and shareholder value. Financial and strategic blockholders also targeted underperforming companies, but their targets showed smaller changes in their operations and profitability and the market reaction to these investors' block purchases was insignificant as well.

In response to these successful forms of shareholder activism during the 1980s, firms implemented a variety of takeover defenses, many of which were upheld by courts. These defenses increasingly deterred change-of-control transactions by activists. As hostile transactions seeking control declined, so did the role of control-driven shareholder activists (although such control-driven activism recently has resurfaced, particularly in going-private transactions). Meanwhile, mutual funds and pension funds began to press activist agendas, including corporate governance reform and a range of social and political issues.

For the past 20 years, institutional investors, religious organizations, labor unions, individuals, and other groups have engaged in shareholder activism, but with mixed results. Public pension funds and other activist investors have

engaged in shareholder activism using Rule 14a-8, which permits shareholder proposals on a variety of topics (Karpoff, Malatesta, and Walkling (1996)). Larger public pension funds and mutual funds have tried a variety of other techniques to influence corporate management (Smith (1996), Wahal (1996), Carleton, Nelson, and Weisbach (1998), Del Guercio and Hawkins (1999), and Gillan and Starks (2000)). As several literature surveys have shown, the results of this type of activism by these institutions have been disappointing: They cause only small changes to firms' corporate governance structures and do not measurably affect stock prices or earnings (Black (1998), Karpoff (2001), Romano (2001), Barber (2006), Del Guercio, Wallis, and Woidtke (2006), and Gillan and Starks (2007)). More recently, Becht et al. (2006) gather data on nonpublic and public activism by Hermes U.K., a leading U.K. pension fund. They do not find a positive market reaction to public notification of Hermes's stakes, although there is a significant 3% market reaction to governance outcomes of Hermes's activism.

Institutional investor monitoring generally has been plagued by regulatory and structural barriers, including: collective action issues that lead to free riding on the efforts of others (Black (1990), Kahan and Rock (2006)); conflicts of interest, such as those that mutual funds face when considering activism at future clients (Black (1990)); regulatory constraints, including diversification requirements and insider trading regulations (Black (1990)); political constraints, where managers are constrained by local and state politics from engaging in activism (Romano (1993)); and weak personal financial incentives for fund managers to engage in interventions (Rock (1992)). Due to these limitations, the "Wall Street Rule" often becomes the default form of institutional shareholder activism (Admati and Pfleiderer (2005)).

For example, mutual funds are constrained by tax laws from taking overly concentrated positions in any one company or group of companies. The Securities and Exchange Commission also limits the types of fees that companies regulated by the Investment Company Act of 1940 may charge. Similarly, regulated funds are subject to restrictions on shorting, borrowing, and investing in illiquid securities. There are exemptions from SEC rules, but they generally require either that the fund remain private (by not offering investments to the public and maintaining no more than 100 investors) or that the fund have only "qualified" high net worth investors (the current definition requires that a person own at least $5 million of investments to be qualified). As a result, any investment fund that is broadly sold to the public or that has investors without substantial net worth has restrictions on, or is prohibited from, among other things, holding concentrated positions and charging substantial performance fees.

Hedge funds are different. Although there is no generally agreed-upon definition of a hedge fund—a Securities and Exchange Commission roundtable discussion on hedge funds considered 14 different possible definitions[1]—hedge

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[1] SEC Roundtable on Hedge Funds (May 13, 2003) (comments of David A. Vaughan), available at http://www.sec.gov/spotlight/hedgefunds/hedge-vaughn.htm).

funds are usually identified by four characteristics: (1) they are pooled, privately organized investment vehicles; (2) they are administered by professional investment managers with performance-based compensation and significant investments in the fund; (3) they are not widely available to the public; and (4) they operate outside of securities regulation and registration requirements (Partnoy and Thomas (2006)). More specifically, hedge funds avoid the Investment Company Act of 1940 by having a relatively small number of sophisticated investors.

The typical hedge fund is a partnership entity managed by a general partner; the investors are limited partners who are passive and have little or no say in the hedge fund's business. Hedge fund managers have sharp incentives to generate positive returns because their pay depends primarily on performance. A typical hedge fund charges its investors a fixed annual fee of 2% of its assets plus a 20% performance fee based on the fund's annual return. Although managers of other institutions can be awarded bonus compensation in part based on performance, their incentives tend to be more muted because they capture a much smaller percentage of any returns, and because the Investment Company Act of 1940 limits performance fees.

Hedge fund managers can take much larger relative positions than other institutions because they are not required by law to maintain diversified portfolios. Unlike mutual funds, hedge funds may hold large percentage stakes in individual companies and may require that investors agree to "lock-up" their funds for a period of 2 years or longer. In contrast, mutual funds are generally required by law to hold diversified portfolios, and to sell securities within one day to satisfy investor redemptions. Moreover, because hedge funds do not fall under the Investment Company Act regulation, they are permitted to trade on margin and to engage in derivatives trading, strategies that are not available to other institutions such as mutual and pension funds. As a result, hedge funds have greater flexibility in trading than other institutions.

Unlike many institutional investors, such as pension funds, hedge funds generally are not subject to heightened fiduciary standards, such as those embodied in ERISA. The majority of hedge fund investors tend to be wealthy individuals and large institutions, and hedge funds typically raise capital through private offerings that are not subject to extensive disclosure requirements or other regulations. Although hedge fund managers are bound by the antifraud provisions of United States securities laws, they are not otherwise subject to more extensive regulation, such as "prudent man" investing standards.

Finally, hedge fund managers typically suffer fewer conflicts of interest than managers at other institutions. For example, unlike mutual funds that are affiliated with large financial institutions, hedge funds do not sell products to the firms whose shares they hold. Unlike pension funds, hedge funds are not subject to extensive state or local influence, or political control.

Hedge fund managers have powerful and independent incentives to generate positive returns. Although many private equity or venture capital funds also have these characteristics, those funds are distinguished from hedge funds

because of their focus on particular private capital markets. Private equity investors typically target private firms or going private transactions, and acquire larger percentage ownership stakes than hedge fund activists. Venture capital investors typically target private firms exclusively, with a view to selling the company, merging, or going public, and therefore they invest at much earlier stages than both private equity and activist hedge funds. Nevertheless, the lines among these investors are not always crisp and thus there is some substantive overlap, particularly between some private equity firms and activist hedge funds. Moreover, hedge funds (and private equity firms) frequently pursue multiple strategies, and some of the hedge funds in our sample are not exclusively activist in nature.

There have been a few attempts at studying hedge fund activism based on limited samples. Bradley et al. (2007) collect a comprehensive sample of hedge fund activism aimed at opening discounted closed-end funds and analyze its impact on closed-end fund governance and discount dynamics. A few recent papers study hedge fund activism in the United States. Generally, these papers do not provide a complete explanation of the role of hedge fund activism due to the size and selection of their samples. For example, Bratton (2006) and Kahan and Rock (2006) assemble useful anecdotal evidence of hedge fund activism, but cover only a small percentage of the events in our sample and do not examine returns, performance, or cross-sectional variation in any detail.

Two recent papers study U.S. hedge fund activism. Klein and Zur (2006) use a sample of 194 Schedule 13D filings by hedge fund activists from 2003 to 2005, although they omit activism below the 5% threshold and most of the nonconfrontational hedge fund activism, where hedge fund managers work collaboratively with portfolio firm management. Clifford (2007) collects a sample of 1,902 firm-fund observations over the period 1998 to 2005, but only examines stock price reaction and changes in operating performance without analyzing the pattern of targeting, company response, and outcome of the interventions. Both papers find that hedge fund activism generates significantly higher abnormal stock returns than a control sample of passive block holders, indicating the value of intervention.

II. Data and Overview

A. The Activism Sample

There is no central database of activist hedge funds. We therefore construct an independent sample based mostly on Schedule 13D filings, the mandatory federal securities law filings under Section 13(d) of the 1934 Exchange Act that investors must file with the SEC within 10 days of acquiring more than 5% of any class of securities of a publicly traded company if they have an interest in influencing the management of the company. Congress intended that the filing of a Schedule 13D would notify the market that the filer might seek to

force changes or seek control at target companies.[2] In particular, Item 4 of Schedule 13D requires the filer to declare its reasons for acquiring the shares, particularly if the intention is to engage in merger and acquisition activity, seek a sale of any material amount of the issuer's assets, pursue a change in its capitalization or dividend policy, or propose other types of corporate changes.

Our data collection comprises a three-step procedure. As a first step, we purchase a list of all Schedule 13D filers during the period 2001 to 2006 from LiveEdgar, a for-profit organization that offers access to SEC filings in a user-friendly format. There are a total of 11,602 such filers. Based on the names and descriptions of the filer type listed in Item 2 ("Identity and Background") of the Schedule 13D, we are able to manually filter out the following filer types: banks, brokerage companies, regular corporations, foreign institutions, individuals, insurance companies, pension funds, trusts, and other miscellaneous categories. The remaining filers are hedge funds, private equity/venture capital funds, and some nonfund investment advisors, categories that are often difficult to distinguish. We search the internet for the websites of these filers and news articles describing them. In most cases, we are able to classify these remaining entities into hedge funds and nonhedge funds using web-based information. For the remaining cases, we call the filers using the phone numbers listed on their schedule 13D filings and ask for their self-classification. From this set we further exclude filers that made only one Schedule 13D filing during the whole 2001 to 2006 sample period *and* whose disclosures in Item 4 of the Schedule 13D filing indicated no explicit purpose (see more details about this in Section II. C.1). This preliminary step leads to a list including 311 hedge funds.

In our second step, we gathered all of the Schedule 13D filings and their amendments made by the 311 hedge funds on the SEC's EDGAR filing system. Filers are required to disclose their number of shares and percentage share ownership, plus all of their purchases and sales within the previous 60 days. Exchange traded derivatives must be disclosed, but equity swaps and other OTC derivatives generally do not have to be fully disclosed (Hu and Black (2006)). After the initial Schedule 13D filing, the fund is required to "promptly" file an amendment to its Schedule13D (Schedule 13D/A) if there is any "material" change in its position. Thus, the Schedule 13D filings provide information about the filing date, ownership and its changes, cost of purchase, and the stated purpose of the filing (from Item 4 "Purpose of Transaction"). Based on

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[2] In contrast, passive institutional investors that acquire more than 5%, but less than 10%, of the company's stock and do not intend to seek to influence control at the target company, but are merely investing in the ordinary course of business, file a Schedule 13G within 45 days of the end of the calendar year in which they cross this ownership threshold. Those passive investors accumulating more than 10% of the stock must file within 10 days after the end of the first month in which they exceed 10%. Alternatively, any person that would be otherwise obligated to file a Schedule 13D may file a Schedule 13G if they do not intend to attempt to change control of the issuer and do not hold more than 20% of the issuer's stock. If they elect this option, then they must file within 10 days of crossing the 5% threshold. Typically, the filing of a Schedule 13G does not foreshadow an activist event. However, if an institutional investor changes its initial passive purpose and decides to become active, it would need to file a Schedule 13D to announce this shift to the market.

the information from Item 4, we further exclude events where: (1) the primary purpose of the filer is to be involved in the bankruptcy reorganization or the financing of a distressed firm; (2) the primary purpose of the filer is to engage in a merger and acquisition-related risk arbitrage where the filer takes a long position in the target stock (and possibly short positions in the acquirer's stock) before a pending acquisition deal in order to exploit any price convergence when the takeover goes through; and (3) the target is a closed-end fund or other non-regular corporation. We exclude (1) and (2) since the motive and consequence of risk arbitrage and distress financing are quite different from those of shareholder activism. We apply Filter (3) since the primary interest of this study is hedge fund activism in regular corporations (see Bradley et al. (2007) for an exclusive study on shareholder activism in closed-end funds). After imposing these additional screens the number of hedge funds is reduced to 236, with a total number of 1,032 events. Although mutual funds are not technically hedge funds because they are required to register under the Investment Company Act of 1940, we make one exception, Franklin Mutual Advisers, because it behaves like the other activist funds in our sample.

In the third and final step, we conduct extensive news searches in Factiva using the hedge fund and target company names as key words. From the news articles, we gather information that is not available on the 13Ds, such as the hedge fund's motive, the target's response, and the development and resolution of the events. When necessary, we retrieve additional SEC filings, such as Schedule 14As to obtain additional information.[3]

Given the amount of capital required to acquire a 5% stake in a large-cap company, the Schedule 13D-based search could bias the sample toward smaller targets. At very large firms, some hedge funds have engaged in activism with less than a 5% stake in the target company. A notable example is Carl Icahn's investment in Time Warner, where Icahn was a 2.6% shareholder of Time Warner when he launched activism against the firm in 2005. To incorporate activism events that were not accompanied by Schedule 13D filings, we collect information about such events through news searches (as in the "third step" described above) for our sample hedge funds, plus a general search using various combinations of "hedge fund" and "activism" as key words.

We further check the completeness of the news search using the Thomson Financial Form 13F database. Specifically, for those funds in our sample for which we can find their Form 13F filings, we retrieve all companies whose shares were held by our sample hedge funds during the 2001 to 2005 period, and conduct individual targeted news searches if (i) the company's market value was more than $1 billion, and (ii) the ownership by the hedge fund was greater than 2%.[4] This process generates 27 events that were not accompanied by Schedule

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[3] At various stages during this process, we have also shown our list of hedge funds to participants in the hedge fund industry and obtained comments and suggestions for additions or deletions.

[4] This restriction was necessary to make the search tractable. Given that the data selection issue of activism ownership below 5% is likely to be more serious among the top quintile sized firms, we restrict the search to firms that have market capitalization above $1 billion (about the median market capitalization of NYSE firms covered by CRSP at the beginning of our sample).

13D filings because they involved ownership levels in the target that were below the 5% threshold. Not surprisingly, target companies involved in these events tend to be larger and more mature (lower growth and higher cash flows). Though our sample might not be exhaustive of all potential hedge fund activist events without Schedule 13D filings during our sample period, we believe it includes all the important events because any events we miss must also have failed to catch the attention of the media and therefore are less likely to be economically meaningful.

With the addition of these events our final sample consists of 236 activist hedge funds and 1,059 hedge fund-target pairs for the period 2001 to 2006, involving 882 unique target companies (97% of them have matched permanent numbers in CRSP, 82% of which have complete data for return analyses). The target companies span 183 (62) three-digit (two-digit) SIC code industries. The number of funds and events increases almost monotonically during this time period, from 39 (97) funds (events) in 2001 to 126 (252) funds (events) in 2006. By compiling our own database, we avoid some problems associated with survivorship bias, reporting selection bias, and backfill, which are prevalent among other hedge fund databases.[5]

B. Two Examples of Activist Events

To give the reader a flavor of the boundaries of the activism that we focus on in this paper, we provide a description of two such cases. The first event illustrates a nonconfrontational approach that management subsequently embraced and executed. The second event illustrates an initially hostile approach that management ultimately accommodated. Our sample includes these two categories as well as activist events that remained hostile throughout.

B.1. MLF Investments and Alloy, Inc.

On November 19, 2003, MLF Investments LLC filed a Schedule 13D indicating that it owned 5.8% of Alloy, Inc., a direct marketing and retail company. MLF Investments had purchased those shares at an average cost of approximately $5.17 per share. In the Schedule 13D, MLF Investments and its affiliates (the "Reporting Persons") stated that:

> The Reporting Persons support management's restructuring efforts to the extent they are focused on maximizing shareholder value. In that regard, the Reporting Persons believe that a spin-off of the Company's "merchandise business" into a separate publicly traded entity should enable the businesses to focus on their core competencies and perform better. In our experience this increased focus should lead to an increase in the valuation

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[5] Indeed, we find that publicly available databases, such as TASS and CISDM, contain less than half of the activist hedge funds in our sample.

of each of the two businesses. The Reporting Persons plan to talk to man-
agement and the Board of Directors of the Company regarding its plan to
maximize shareholder value and assist them if wanted or needed.

During the $(-20,+20)$ event window surrounding the announcement of the
Schedule 13D filing date, Alloy's share price increased in value by approxi-
mately 11%.

As stated in the Schedule 13D, representatives of MLF Investments initiated
discussions with management and the board. After 1 year, Alloy appointed
Matthew Feshbach, the founder and managing partner of MLF Investments, to
its board. After several additional months of discussions, on May 31, 2005, Alloy
announced plans to spin off its merchandise business, and its shares closed on a
split-adjusted basis at $8.39. MLF Investments continued to increase its stake
in Alloy subsequent to its initial Schedule 13D filing. By September 7, 2005,
MLF Investments owned 16.1% of the company. The fund executed a smooth
exit from its investment in March 2007.

B.2. Pirate Capital and James River Coal

On November 17, 2005, Pirate Capital filed a Schedule 13D file with the SEC
indicating a 7.9% stake in James River Coal Co. Pirate purchased its stake at
an average price of about $33.45. On February 10, 2006, Pirate Capital sent a
letter to the target stating that:

We have become increasingly concerned that James River's valuation is
being discounted relative to its peers—a discrepancy we attribute to man-
agement's failure to articulate to the investment community a cohesive
operational and financial strategy, together with its demonstrated inabil-
ity to meet earnings consensus... We attribute these missteps to CEO
Peter Socha's lack of operating experience within the coal industry and
to the Company's lack of a CFO...We are now convinced that the Com-
pany's senior management team is simply not up to the task of achieving
such goals. As a result, we demand that (i) the Board immediately retain
an investment banking firm to pursue strategic alternatives, including
the potential sale of the Company and (ii) immediately redeem the share-
holder rights plan effective no later than March 15, 2006.

On March 10, 2006, management announced that they had hired Morgan
Stanley to "look at alternatives and potential bidders." James River Coal's stock
price rose more than 10% to $39.77 on that day. From late April to July, Pirate
demanded that its representatives be placed on James River's board and that
the company's board of directors repeal several antitakeover by-laws. On Au-
gust 22, 2006, Pirate and James River Coal announced that they entered into a
settlement agreement whereby three representatives from Pirate were elected
to James River Coal's board, and in turn, Pirate dropped the proposals it had
submitted to shareholders for the upcoming annual shareholder meeting. The
stock price was essentially flat on that day.

C. Summary of Events

C.1. Hedge Funds' Stated Objectives

Table I Panel A summarizes the stated objectives that the activist funds provide when they announce activism in their target firms as well as the associated success (and partial success) rates. The motives behind hedge fund activism can be classified into five major categories, each containing multiple subcategories. The objectives, except the first, are not mutually exclusive as one activist event can target multiple issues. An event is classified as successful if the hedge fund achieves its main stated goal, or as a partial success if the hedge fund and the company reach some settlement through negotiation that partially meets the fund's original goal.

The first objective includes events in which the hedge fund believes that the company is undervalued and/or that the fund can help the manager maximize shareholder value. No further activism to achieve specific goals (beyond communicating with the management) has been launched before the end of 2006. This category represents 48.3% of the full sample. All events in this objective involve only communication with the management without more aggressive tactics.

In the second category, we include activism targeting firms' payout policy and capital structure. In the first subgroup of this category, the hedge fund proposes changes geared toward the reduction of excess cash, increase in firm leverage, or higher payouts to shareholders using either dividends or stock repurchases. The second subgroup involves suggested equity issuance, such as stopping or reducing seasoned equity offerings by the target companies or proposed debt restructuring.

In the third set of events, we include activism targeting business strategy. There are five subgroups that fall within this group. The first subgroup consists of general operational efficiency, cost cutting, and tax efficiency-enhancing proposals. The second subgroup comprises proposals to spin off some divisions or refocus the business strategy, in cases in which the hedge fund believes that the target lacks business focus or exhibits excess diversification. Third, hedge funds may attempt to play an activist role in a pending merger or acquisition, generally by asking for a better price when the firm is the target of the acquisition or by trying to stop the pending acquisition.[6] Finally, hedge funds may make proposals for the target company to better pursue its growth strategy.

The fourth category of activist events involves activism urging the sale of the target. In this category, hedge funds attempt to force a sale of the target company, either to a third party (in the majority of the cases) or to take over the company themselves. Partial success in this group means that the firm remains independent but agrees to undergo major changes. Last, in the fifth

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[6] Note that this is different from risk arbitrage where a fund takes a long position in the target company of a pending acquisition deal and perhaps a countervailing short position in the acquirer in order to exploit the price convergence if the deal goes through. Such cases are excluded from our sample.

Table I

Summary of Events by Hedge Funds' Stated Goals

The sample includes 1,059 events. Panel A reports the summary of the events sorted by hedge funds' stated objective. Columns 1 and 2 report the number of events, and the percentage among all events, of each category. Columns 3 and 4 list the rate of success (including partial success) and number of hostile events within each category. Columns 5 to 8 break down each category into hostile and nonhostile events and record the success and partial success rate within each subcategory. Percentages sum up to more than 100% since one event can have multiple objectives. (However, the first category and the other four categories are mutually exclusive.) An event is classified as successful if the hedge fund achieves its main stated goal and a partial success if the hedge fund and the company reach some settlement through negotiation that partially meets the fund's original goal. Panel B provides information on the tactics undertaken by hedge funds, including a breakdown into five categories and the percent of events in each category relative to the full sample. Since activist events can fall within more than one category the percentages in categories 2 through 7 sum to more than 51.7% (the remaining 48.3% fall into the first category).

Panel A: Summary of Hedge Funds' Stated Objectives:

Objective Categories:	All Events				Hostile Events			Nonhostile Events	
	Num. of Events (1)	% of Sample (2)	% Success (3)	% Partial Success (4)	Num. of Hostile Events (5)	% Success (6)	% Partial Success (7)	% Success (8)	% Partial Success (9)
1. General undervaluation/maximize shareholder value	511	48.30%	–	–	–	–	–	–	–
2. Capital Structure									
– Excess cash, under-leverage, dividends/repurchases	134	12.7%	32.0%	32.0%	65	23.1%	47.7%	41.3%	15.9%
– Equity issuance, restructure debt, recapitalization	65	6.1%	37.3%	35.6%	38	18.4%	50.0%	71.4%	9.5%
3. Business Strategy									
– Operational efficiency	131	12.4%	35.6%	27.6%	63	35.2%	37.0%	36.4%	12.1%
– Lack of focus, business restructuring and spinning off	96	9.1%	27.8%	38.9%	62	17.7%	51.6%	50.0%	10.7%
– M&A: as target (against the deal/for better terms)	79	7.5%	36.7%	19.0%	42	33.3%	21.4%	40.5%	16.2%
– M&A: as acquirer (against the deal/for better terms)	25	2.4%	20.0%	52.0%	22	18.2%	59.1%	33.3%	0.0%
– Pursue growth strategies	12	1.1%	44.4%	–	0	–	–	22.2%	22.2%
4. Sale of Target Company									
– Sell company or main assets to a third party	148	14.0%	37.0%	26.7%	93	30.1%	34.4%	49.1%	13.2%
– Take control/buyout company and/or take it private	44	4.2%	43.2%	25.0%	34	38.2%	32.3%	60.0%	0.0%
5. Governance									
– Rescind takeover defenses	60	5.7%	21.7%	43.3%	43	18.6%	53.5%	29.4%	17.6%
– Oust CEO, chairman	59	5.6%	39.7%	29.3%	59	39.7%	29.3%	–	–
– Board independence and fair representation	159	15.0%	34.4%	35.7%	114	31.6%	40.4%	41.9%	23.3%
– More information disclosure/potential fraud	58	5.5%	42.1%	26.3%	42	38.1%	33.3%	53.8%	6.7%
– Excess executive compensation/pay for performance	50	4.7%	20.4%	44.9%	38	18.4%	50.0%	27.3%	27.3%
Sum of categories (2) through (5):	548	51.7%	40.6%	25.8%	286	29.5%	38.6%	53.7%	10.7%

Panel B: Summary of Hedge Funds' Tactics:

Tactic Categories:	% of All Events
1. The hedge fund intends to communicate with the board/management on a regular basis with the goal of enhancing shareholder value	48.3%
2. The hedge fund seeks board representation without a proxy contest or confrontation with the existing management/board	11.6%
3. The hedge fund makes formal shareholder proposals, or publicly criticizes the company and demands change	32.0%
4. The hedge fund threatens to wage a proxy fight in order to gain board representation, or to sue the company for breach of fiduciary duty, etc.	7.6%
5. The hedge fund launches a proxy contest in order to replace the board	13.2%
6. The hedge fund sues the company	5.4%
7. The hedge fund intends to take control of the company, for example, with a takeover bid	4.2%

set of events we include activism targeting firm governance. There are multiple subgroups, including efforts to: rescind takeover defenses (most often to declassify the boards or to revoke poison pills); to oust the CEO or chairman; to challenge board independence and fair representation; to demand more information disclosure and question potential fraud; and to challenge the level or pay-for-performance sensitivity of executive compensation.

The success rate of activism across the objectives varies widely. Aggregated across both hostile and nonhostile events, hedge funds achieve success in 40.6% of the cases, which we define as achieving their main stated goals. In 25.8% of the cases we observe a partial success, where hedge funds gain major concessions from their targets. In 21.4% of the cases the fund fails its mission or withdraws from the target. The remaining 7.4% of the cases in our sample are those that are still ongoing toward the end of the sample collection (March 2007), or for which we cannot find any mention of their outcome in any news service or securities law filing.[7] Given that hedge funds achieve success, or partial success, in nearly two-thirds of the cases, despite the targets' strong tendency to resist, this success rate is impressive and comparable to that reported by Ikenberry and Lakonishok (1993) on outcomes of proxy contests for corporate control from 1968 to 1988. One reason for their high success rate might be that institutional shareholder services (ISS), a third party voting advisory service that caters to institutional investors, recommended a vote in favor of hedge funds in 23 of the 32 media-reported cases.

Panel A provides additional details about specific subcategories and illustrates the considerable heterogeneity in success rates. For example, hedge funds succeed in attaining their goal of removing a CEO 39.7% of the time. We find that all such events are hostile and that in 29.3% of these events hedge funds achieve partial success, that is, the CEO stays on but agrees to adopt policies along the lines proposed by the fund. In comparison, hedge funds succeed in rescinding takeover defenses only 21.7% of the time, albeit with partial success in another 43.3% of events. The last row of Table I Panel A summarizes events in categories two through five in which a goal is explicitly stated. Hostile events are associated with lower success rates but higher partial success rates, indicating that a negotiated compromise is a more likely outcome for events with open confrontation. Overall, the total success rates (including partial success) between the hostile and nonhostile samples are not significantly different (68.1 vs. 64.4%).

Obviously, tactics represent endogenous decisions by the hedge funds, so that this evidence is best interpreted as an equilibrium outcome reflecting that hostile tactics are most likely adopted when the perceived resistance from the target management is higher. On the other hand, given that hostile tactics (such as proxy contests) are more costly to the hedge fund compared to less aggressive ones (such as a shareholder proposal), the lack of difference in success

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[7] In computing success and partial success rates we include the 7.4% of the ongoing events in the denominator. Hence, our estimates of success are conservative as we are effectively maintaining that "ongoing" implies "less likely to succeed."

rate in equilibrium implies that hedge funds should only resort to aggressive approaches when the potential benefits from activism are also higher. Finally, the likelihood of success is slightly negatively correlated with target size, and positively correlated with hedge funds' ownership stake. The full sample correlation coefficients are –0.03 and 0.10, respectively.

C.2. Hedge Fund Tactics and Target Responses

Panel B of Table I provides a breakdown of the hedge fund tactics for events in our sample, from the least to the most aggressive. Such information is often available in Item 4 ("Purpose of Transaction") of the initial Schedule 13D, but this source is not complete and so we supplement it using news searches. The first tactic category includes events in which the hedge fund states that it intends to communicate with the board/management on a regular basis with the goal of enhancing shareholder value. Almost all filings in this group do not reveal (to the public) any specific agenda by the hedge fund. Such cases comprise 48.3% of the sample. The second category includes events in which the hedge fund seeks board representation without a proxy contest or confrontation with the existing management/board. The third tactic group includes cases in which the hedge fund makes formal shareholder proposals, or publicly criticizes the company and demands change. Next, category four includes events in which the hedge fund threatens to wage a proxy fight in order to gain board representation, or to sue the company for breach of fiduciary duty, etc. The fifth category is assigned to events in which the hedge fund launches a proxy contest in order to replace the board. The remaining two tactic groups include events in which the hedge fund sues the company and the hedge fund intends to take control of the company, for example, with a takeover bid. Since activist events can fall within more than one of these tactic categories, the percentages in the second through seventh categories sum to more than 51.7% (the remaining 48.3% fall in the first group). For example, if a fund launches a proxy contest to replace the board, and files suit against it as well, we would place the event within both the fifth and sixth tactic categories.

The subcategory of "hostile" activist events involves events in the fourth through seventh tactic categories, or those that fall in the third category but include a stated hostile intention (such as to oust the CEO). By this criterion, there are a total of 295 such hostile cases (27.9% of the total sample). We determine whether an event is hostile or not based on information that is made public while the activism is ongoing through its resolution. In later analysis, we further distinguish events that began as hostile and those that switched to hostile tactics in the course of the event. Such conditioning is necessary for matching stock returns to the information available at the time that activism became public information.

In addition to the tactics described above, we note that hedge funds frequently work together. In approximately 22.1% of the events, multiple hedge funds that are not directly affiliated report as one group in their Schedule 13D filing. This

does not include cases where multiple funds follow one another in investing in targeted companies, seeming to form a so-called "wolf pack," which might act together to force the target to address demands, but which does not require filing a Schedule 13D because the actions do not rise to the level of "group" activity under securities laws. Nor does it include other hedge funds or investors that "cascade" into the target firm's stock after the lead hedge fund's Schedule 13D filing to free ride on the lead hedge fund's intervention effort. Compared to single-fund filing cases, multiple-fund filing groups tend to take higher stakes in the target (13.7% vs. 11.9%) and are more likely to employ hostile tactics (41.9% vs. 23.9%). The latter difference is statistically significant at the 5% level.

The large heterogeneity in fund tactics raises the question as to how target companies respond to this rich set of options and the resulting equilibrium outcomes. Given that events in the first tactic category described above ("communication" between the hedge funds and the target company management) do not provide public and explicit agendas, it is difficult to classify target company responses and outcomes. In the remaining 548 events hedge funds state some explicit agenda, such as demanding higher payouts or more scrutiny on executive compensation. We track the evolution of these events using information from both news search and subsequent securities law filings (such as Schedule 13D/A and Schedule 14A).[8] Over the course of the hedge fund's intervention, target companies choose to accommodate the activists 29.7% of the time, and to negotiate 29.1% of the time, and to fight/resist 41.3% of the time. While there is no striking relation between hedge funds' stated objectives and target response, the "fight" response is more likely as they face a hostile tactic (the correlation is 0.35).

C.3. Hedge Funds' Investment in Target Companies

How large are hedge fund investments in their target companies? We report the size of the activists' stakes in their target firms, both in dollar value (at cost), and as a percentage of outstanding shares of the target in Panel A of Table II. Information in the columns denoted "Initial" comes from the associated Schedule 13D filing. For the non-Schedule 13D events, the information is collected from the news media or Form 13Fs. The columns labeled "Max. Ownership" report the maximum stake that the funds accumulated in the targets, which is retrieved from the subsequent amendments to the 13D filings, or Schedule 13D/A. We record the highest holdings by the filing party in the target. The last four columns in Panel A present this information for the subsample of hostile events.

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[8] After the initial Schedule 13D filing, the fund is required to file promptly an amended Schedule 13D/A if there is material change in the position or other items (changes of more than 1% are deemed "material"). Schedule 14A contains all of the information that is required to be filed in an issuer's proxy statement that will be mailed to its shareholders prior to the company's annual shareholders' meeting.

Table II

Hedge Funds' Capital Commitment and Investment Horizon

Panel A provides the size of the hedge funds' stakes both in terms of dollar values (at cost), and as a percentage of the outstanding shares of the target companies. We report the 5th, 25th, 50th (median), 75th, and 95th percentiles of the sample. The "Initial" columns report the stakes that hedge funds take at their initial Schedule 13D filings. The "Max." columns report the maximum reported stakes that the funds accumulated in the targets as revealed from subsequent Schedule 13D/A filings. Panel B gives the breakdown of various forms of hedge fund exit. Reported in the last row are the percentages of events that have no information about exit by the end of March 2007. Finally, Panel C lists the length of holding period (in number of days) at different percentiles of the sample for the subsample that has exit information. In each panel, the statistics for the full sample and the subsample of hostile events are reported separately.

Panel A: Capital Commitment (in 2006 Constant Dollars)								
	All Events				Hostile Events			
	Invested Capital ($ Million)		% Ownership		Invested Capital ($ Million)		% Ownership	
Percentile	Initial	Max.	Initial	Max.	Initial	Max.	Initial	Max.
5%	0.69	1	5.00%	5.00%	1.5	1.9	3.50%	3.60%
25%	3.5	4.6	5.40%	6.50%	4.5	6.8	5.60%	6.90%
50%	11.9	15.8	6.30%	9.10%	14.7	20.45	6.60%	9.50%
75%	40.3	54.6	8.80%	13.20%	44.2	68.8	8.80%	13.00%
95%	186.8	272.5	23.10%	31.50%	321	363.8	19.80%	29.50%

Panel B: Breakdown of Exit			
Categories	Hostile	Nonhostile	All Events
Sold shares on the open market	26.1%	39.3%	35.5%
Target company sold	16.2%	6.9%	9.5%
Target company merged into another	9.9%	3.8%	5.5%
Liquidated	1.8%	0.7%	1.0%
Shares sold back to target company	1.8%	0.5%	0.9%
Still holding/no Information	44.1%	48.4%	47.6%

Panel C: Length of Holding Period (Days) for Completed Spells			
Percentile	Hostile (Initial)	Nonhostile (Initial)	All Events
5%	32	45	43
25%	126	171	169
50%	319	375	369
75%	610	672	647
95%	1,550	1,679	1,649

The median initial (maximum) percentage stake that a hedge fund takes in the target is 6.3% (9.1%), and the median dollar stake, at cost, is $11.9 ($15.8) million in 2006-constant dollars. We note that the hostile cases exhibit greater capital commitments in the target firm by the hedge fund at the higher percentiles of the sample. For example, at the 95th percentile, an initial stake

in a hostile event requires nearly twice as much capital as an intervention in the full sample.

An important pattern emerging from Table II is that hedge fund activism does not generally involve control blocks of stock. The interquartile of hedge funds' initial stakes is from 5.4% to 8.8%, and the 75th percentile of the maximum ownership falls below 15%. Even at the 95th percentile of the sample, hedge funds hold 31.5% in the target companies, considerably lower than the majority requirement. It therefore appears that the activist hedge funds are generally not interested in taking control of the company. Rather, they hope to facilitate value-enhancing changes in the target company as minority shareholders without taking control of the target firm's board of directors. For example, there are 140 proxy contests in our sample, in most of which (including the James River Coal example in Section II.B.2 above) hedge funds seek to elect a short slate of directors rather than seeking majority control of the board. Moreover, the funds seek to accomplish their objectives by coordinating with, and obtaining support from, other shareholders, especially on issues that require a shareholder vote. These features distinguish the activist hedge funds from the corporate raiders in the 1980s who sought to obtain total control to internalize all the benefits from their intervention.

The stock holdings reported are taken from the Schedule 13D or from information in news reports. As Hu and Black (2006) note, certain types of derivative investments (e.g., OTC derivatives and short positions) might not need full public disclosure. In approximately 16.1% of the cases in our sample, hedge funds report derivative positions in the target companies, with the most common types being option/warrants, convertible debt, and convertible preferred. They are mostly securities with embedded option features issued by the target companies, and not derivatives representing countervailing positions that offset the economic interests from the long positions (Martin and Partnoy (2005)). We believe, however, that this information is likely to be incomplete given that disclosure of the latter is not mandatory. As a sensitivity check for potential countervailing positions that hedge funds might take, we match our sample firms to the monthly short interest data from the NYSE and NASDAQ for the period 2001 to 2005. We find virtually no change in the short interest (as a proportion of the outstanding shares) of the target companies in our sample around the Schedule 13D filing time—the median short interest ratio remains at about 1.0% to 1.2% during the 13-month period centered on the filing month.

Finally, activist hedge funds' investment horizons have been an issue of contention. Critics accuse activist funds of aiming for short-term gains at the expense of long-term shareholder value (Kahan and Rock (2006)). We use multiple sources to determine the "exit date" when the hedge fund significantly reduces its investment in the target company. First, we retrieve from the Thomson Financial database Form 13F data for the first quarter-end when the hedge fund's holding in the target company drops below 1% or $1 million. When such information is not available, we use the hedge fund's last Schedule 13D/A filing date to determine when its ownership in the target firm drops below the

5% disclosure threshold.[9] Finally, we supplement this information with a news search for other forms of exits (such as a liquidation of the company). These combined data sources allow us to form estimates of the hedge fund's investment duration after the filing of their initial Schedule 13D. However, our sample period is from 2001 to 2006 so that many recent events are still unresolved as of the close of data collection in March 2007. As a result, we are unable to find the exit information for about 47.6% of the cases in the full sample.

Table II, Panel B lists the breakdown of various forms of hedge fund exit, indicating that selling in the open market is the predominant form, accounting for two-thirds of all completed cases. If we focus on the subsample of the completed events where the fund is reported to have significantly reduced its ownership level, Table II Panel C shows that the median duration from the first Schedule 13D filing to "exit" is 369 days. The 25th and 75th percentile figures for the full sample are 169 days and 647 days. Furthermore, events that are initiated with hostility exhibit somewhat shorter investment horizons than the nonhostile ones (319 days vs. 375 days at the median).[10]

Needless to say, focusing on the events in which hedge funds have exited grossly underestimates the unconditional duration of hedge funds' investment in the target companies. To try to get a better handle on this value, we offer two estimates for the all-sample investment horizon. First, we conduct a regression of completed investment duration on a set of variables including dummies for the five stated objectives (as defined in Table I), lagged market cap, book-to-market, and ROA of the target companies, and a dummy variable for whether the events were initiated with hostility. We then apply the estimated coefficients to the ongoing cases (and cases without exit information) to calculate predicted durations. Incorporating the imputed duration values for the ongoing cases, the full sample median duration becomes 556 days, and the 25th (75th) percentile value is 317 (981). For our second estimate, we use the Form 13F holdings data from Thomson Financial to impute the turnover rate of an institutional investor's overall portfolio from quarterly changes. Our sample hedge funds' median annualized equity long position turnover rate is 55%, implying an average holding period of 22 months. Overall, the data indicate that the hedge funds' investment horizon is not as short as suggested by critics of hedge fund activism.

III. Characteristics of Target Companies

What type of companies do activist hedge funds target? The first three columns of Table III report summary statistics of the target firms'

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[9] If the hedge fund's stake falls below 5% after the first Schedule 13D filing, the last Schedule 13D/A would reveal the date, remaining stake, and sometimes sale prices of the transactions that free the hedge fund from future reporting obligations associated with the 5% or more investment.

[10] Since we are trying to assess the correlation between investment horizon and initial conditions, "Hostile (Initial)" is defined as hostile tactics employed by hedge funds at the initial launching of activism. For events that start as nonconfrontational but later switch to hostility the duration is longer because of the hedge funds' tendency to persist in their goals.

Table III
Characteristics of Target Companies

This table reports the characteristics of target companies and comparisons with a set of matched companies. The first three columns report the mean, median, and standard deviation of the characteristics for the target companies. Columns 4 through 6 report the average difference between the sample firms and the industry/size/book-to-market matched firms, the t-statistic for the average difference, and the Wilcoxon signed rank statistic, which is asymptotically normal, for the median difference. Size matching is dropped for the MV comparison, and book-to-market matching is dropped for BM and q analysis. The last five columns list the proportion of target firms that fall into each of the quintile groups formed by the CRSP/Compustat universe. All variables are retrieved from the year prior to the event year. MV is market capitalization in millions of dollars; q is defined as (book value of debt + market value of equity)/(book value of debt + book value of equity); BM is the market-to-book ratio defined as (book value of equity/market value of equity); $GROWTH$ is the growth rate of sales over the previous year; ROA is return on assets, defined as EBITDA/assets (lag); CF is cash flow, defined as (net income + depreciation and amortization)/assets (lag); $STKRET$ is the buy-and-hold return during the 12 months before the announced activism; LEV is the book leverage ratio defined as debt/(debt + book value of equity); $CASH$ is defined as (cash + cash equivalents)/assets; $DIVYLD$ is dividend yield, defined as (common dividend + preferred dividends)/(market value of common stocks + book value of preferred); $PAYOUT$ is the payout ratio, defined as the total dividend payments divided by net income before extraordinary items; RND is R&D scaled by lagged assets; HHI is the Herfindahl-Hirschman index of sales in different business segments as reported by Compustat; $GINDEX$ is the Gompers, Ishii, and Metric (2003) governance index, where high index values represent lower shareholder rights or higher management entrenchment; $INST$ is the proportion of shares held by institutions; and $ANALYST$ is the number of analysts covering the company from I/B/E/S. The characteristic $AMIHUD$ is the Amihud (2002) illiquidity measure, defined as the yearly average (using daily data) of $1000\sqrt{|\text{Return}|/\text{Dollar Trading Volume}}$.

Firm Characteristic	Summary Statistics			Difference with Matched Firms			CRSP/COMPUSTAT Quintile Breakpoints				
	Mean (1)	Median (2)	SD (3)	Avg. Diff. (4)	t-stat of Diff. (5)	Wilcoxon (6)	% in Q1 (7)	% in Q2 (8)	% in Q3 (9)	% in Q4 (10)	% in Q5 (11)
MV	726.56	160.07	1669.17	−63.54	−1.52	−2.05	0.214	0.253	0.239	0.18	0.114
BM	0.773	0.615	0.914	0.081	4.28	3.93	0.133	0.143	0.169	0.195	0.36
q	1.544	1.238	1.007	−0.397	−9.17	−13.19	0.307	0.203	0.209	0.176	0.106
GROWTH	0.084	0.041	0.357	−0.057	−4.44	−7.72	0.299	0.234	0.194	0.117	0.156
ROA	0.054	0.085	0.201	0.02	3.12	4.18	0.212	0.178	0.217	0.185	0.208
CF	0.022	0.047	0.18	0.018	2.86	3.23	0.231	0.191	0.214	0.195	0.169
STKRET	0.195	−0.01	1.2	−0.073	−3.11	−5.15	0.295	0.16	0.169	0.141	0.234
LEV	0.348	0.327	0.297	0.028	2.91	1.7	0.196	0.197	0.197	0.207	0.203
CASH	0.177	0.088	0.214	−0.026	−3.61	−4.86	0.207	0.178	0.225	0.208	0.183
DIVYLD	0.007	0	0.016	−0.001	−2.13	−5.48	–	0.754	–	0.129	0.118
PAYOUT	0.296	0	0.995	−0.035	−1.81	−4.15	–	0.720	–	0.161	0.119
RND	0.079	0.029	0.114	−0.01	−2.21	−4.51	0.262	0.21	0.157	0.19	0.181
HHI	0.8	1	0.251	−0.034	−3.64	−1.93	0.212	0.214	–	0.594	–
GINDEX	9.005	9	2.702	0.353	2.27	2.33	0.176	0.251	0.142	0.21	0.22
ANALYST	4.387	2	5.959	0.547	3.01	0.99	0.123	0.156	0.226	0.175	0.32
INST	0.447	0.447	0.274	0.083	9.57	8.82	0.086	0.158	0.409	0.184	0.162
AMIHUD	0.466	0.193	0.699	−0.075	−3.99	−7.65	0.091	0.139	0.434	0.183	0.153

characteristics in the year before they are targeted. We utilize these data to examine how the target companies compare to their peers using two different approaches. First, we compare the characteristics of the target firms with a set of industry/size/book-to-market matched firms. These comparisons are reported in the next three columns of Table III. When we describe target firms by size (market capitalization), the size matching criterion is dropped and when we describe target firms by book-to-market and q, the book-to-market matching is dropped. A comparison of targets with only industry-matched firms yields qualitatively similar results.

Second, in Table IV, we present probit regressions to identify the partial effects of all covariates. The matched firms for each target company are assigned from the same year, same industry, based on three-digit SIC, and same 10×10 size and book-to-market sorted portfolios. If the narrow criteria yield no match, we relax the industry group to two-digit SIC, and the size/book-to-market to 5×5 sorted portfolios. The average difference between a sample firm i and matched firms is calculated as follows:

Table IV
Probit Analysis of Targeting

This table reports the effects of covariates on the probability of being targeted by activist hedge funds. The dependent variable is a dummy variable equal to one if there is hedge fund activism targeting the company during the following year (that is, all covariates are lagged by 1 year). All independent variables are as defined in Table III. In the first column we exclude the variable *GINDEX*, while in column 2 we include it, to reflect the significant loss of observations due to the *GINDEX* data availability. In each column we report probit coefficients, their t-statistics, and the marginal probability change induced by a one-standard deviation change in the values of the covariates from their respective sample averages. * and ** indicate statistical significance at the 10% and 5% levels.

Dependent Variable: Dummy (of Being Targeted)	(1)			(2)		
	Coefficient	t-statistic	Marg. Prob.	Coefficient	t-statistic	Marg. Prob.
MV	−0.08**	−7.35	−0.80%	−0.14**	−7.04	−1.01%
q	−0.07**	−4.77	−0.49%	−0.09**	−3.01	−0.56%
GROWTH	−0.14**	−3.1	−0.23%	−0.1	−1.16	−0.14%
ROA	0.44**	4.3	0.39%	0.33	1.35	0.19%
LEV	−0.02	−0.42	−0.03%	0.06	0.64	0.07%
DIVYLD	−5.26**	−4.57	−0.38%	−4.89**	−2.69	−0.34%
RND	−0.15	−0.77	−0.07%	−0.55	−1.12	−0.18%
HHI	−0.22**	−3.61	−0.23%	−0.08	−0.84	−0.09%
ANALYST	0.12**	6.12	0.59%	0.05	1.51	0.24%
INST	0.07**	3.65	0.12%	0.32**	3.34	0.44%
GINDEX	–	–	–	0.02**	2.59	0.28%
CNST	−1.42**	−18.59	–	−1.26**	−7.04	–
No. of obs. and Pseudo-R^2	39,085	2.68%		14,758	4.39%	
Percent targeted	1.78%			1.83%		

$$Dif_i = X_i - \frac{1}{m} \sum_{j=1}^{m} X_j,$$

where X is defined as a characteristic variable and firms $j = 1, \ldots, m$ are from the match group. We report in column 4 of Table III $\frac{1}{n} \sum_{i=1}^{n} Dif_i$, where $i = 1, \ldots, n$ is index for our sample target firms. To assess the statistical significance of the differences, column 5 presents the t-statistics associated with the difference statistics, and column 6 provides the Wilcoxon signed rank statistic, which is asymptotically normal, for the difference in medians. Given that the distributions of many of the variables display fat tails and skewness, the Wilcoxon statistic, which is less influenced by extreme observations, serves as a robustness check.

Finally, the last five columns of Table III list the proportion of the target firms that fall into each of the quintile groups formed by the CRSP/Compustat firms. This sorting is unconditional and is meant to offer an overview of where the target firms populate in the universe of U.S. public firms.

In discussing the statistics, we say that the difference between the target and its peers is significant if both the t-statistic and the Wilcoxon statistic indicate a two-tail significance of at least 10%, and at least one of the two statistics is significant at less than the 5% level. The summary statistics on market value (MV) indicate that the target firms are underrepresented in the top size quintile, but are otherwise roughly evenly distributed among the other four size quintiles. This is consistent with the idea that hedge funds are less likely to target larger firms because the fund would need to invest a large amount of capital in order to amass a meaningful stake. Acquiring a sizeable stake in a top size-quintile firm might introduce an inordinate amount of idiosyncratic portfolio risk even for an activist hedge fund. In order to test this hypothesis, we collect fund size information from WRDS CISDM hedge fund database, news articles, and hedge fund web sites. We are able to assemble these data for about 52% of our sample. The median size of the hedge funds in our sample is \$793 million, and the 25th and 75th percentile values are \$278 and \$4,446 million. The top quintile CRSP target firms have an average (median) market value of \$15.2 (\$5.7) billion in 2005. Hence, a 5% stake in the average (median) top quintile target firm implies an investment of \$760 (\$285) million dollars, a considerable amount relative to the size of the typical sample funds.

The significant difference between target and matching firms' valuation variables, book-to-market (BM, defined as (book value of equity/market value of equity)), and q (defined as (book value of debt + market value of equity)/(book value of debt + book value of equity)) indicates that the activist hedge funds are "value investors." Unconditionally, about one-third of the target firms appear in the top (bottom) quintile sorted by BM (q). In fact, in about two-thirds of our cases, the hedge fund explicitly states that it believes the target is undervalued. To the extent that activist hedge funds seek to profit from the improvement of the target companies' operations and strategies, it is also

important that target companies' stock prices have yet to reflect the potential for improvement.

In terms of operational performance, measured by sales growth (*Growth*) and return on assets (*ROA*, defined as the ratio of EBITDA to lagged assets), target firms tend to be low growth firms, but are significantly more profitable. Profitability is higher when measured both in terms of return on assets, which is 2.0 percentage points higher than for the matched peers, and cash flows generated (*CF*, defined as (net income + depreciation and amortization), scaled by lagged assets, which is 1.8 percentage points higher than for the peers. The stock performance of the target firms also lags considerably behind the market. This evidence is important as it sets apart hedge fund activism from earlier institutional activism targeting poorly performing companies (Gillan and Starks (2007)).

The next set of variables relate to targets' capital structure. Target firms have slightly higher leverage: The average book value debt-to-capital ratio (*LEV*) is about 2.8 percentage points higher than that of the matching firms. The cash-to-asset ratio (*CASH*) is lower than that of the peers. Target firms' dividend payout is significantly lower relative to its peers, measured by both the dividend yield (*DIVYLD*, defined as (common dividend)/(market value of common stocks)) and payout ratio (*PAYOUT*, defined as the total dividend payments divided by net income before extraordinary items). Using total payout yield (defined as the ratio of the sum of dividend and share repurchase to the market value of common stocks) delivers qualitatively similar results.

On the investment side, target firms spend significantly less than their peers on research and development, scaled by lagged assets (*RND*). Target firms also have slightly lower Herfindahl–Hirschman indices (*HHI;* measured as the HHI index of sales in different business segments as reported by Compustat). This indicates that they are more diversified.

Next, we turn to governance characteristics. Measured by the Gompers, Ishii, and Metric (GIM, 2003) governance index (*GINDEX*), target firms tend to have slightly more takeover defenses. The *GINDEX* tracks 24 takeover defenses that firms could adopt, as well as the laws of the state in which the targets are incorporated. Our target firms have on average 0.4 more defenses than comparable firms. Furthermore, a greater percentage of targeted firms have a large number of such defenses: In the GIM data set that covers approximately 2,000 firms in 2004, 8.8% of the firms have 13 or more takeover defenses, whereas in our sample of target firms, the same measure shows that 14.9% of target firms exhibit this level of defenses.

Targets also have significantly higher institutional ownership and analyst coverage: an average of 44.7% institutional ownership (8.3 percentage points higher than for comparable firms) and an average of 4.4 analysts covering each firm (0.5 more than peer firms). Both institutional ownership and analyst coverage are indications of the sophistication of shareholder clientele. This is an important factor for activist hedge funds because they often rely on the understanding and support of fellow shareholders to implement the changes, given their minority stakes in the target firms (see Table II). Since the latter

two variables could also proxy for trading liquidity, we use a direct measure of trading liquidity, namely, the Amihud (2002) illiquidity measure. It is defined as the yearly average of $1000\sqrt{|\text{Return}|/(\text{DollarTradingVolume})}$, using daily data.[11] We find that target companies exhibit higher trading liquidity than otherwise comparable firms. Higher liquidity makes it easier for the activists to accumulate a stake within a short period of time. However, given that large-cap companies are underrepresented, target firms are no more liquid relative to the universe of firms. In fact, target firms concentrate in the third quintile sorted by liquidity.

While Table III compares target firms with their peers along single dimensions, Table IV reports results from probit multivariate regressions to assess the marginal effect of each covariate. The unconditional probability for a firm being targeted by an activist hedge fund is 1.8% during our sample period. Since the *GINDEX* (retrieved from the WRDS IRRC database) is only available for about one-third of firms on Compustat, the regressions with *GINDEX* are reported separately. Further, the subsample of firms that have *GINDEX* information is overrepresented by large firms and firms with higher institutional ownership, and the results should therefore be interpreted accordingly. In an untabulated sensitivity check, we replace q with B/M, *ROA*, and *CF*, *LEV* with *CASH*, and *DIVYIELD* with *PAYOUT* and find qualitatively similar results.

The results in Table IV are consistent with those in Table III. In particular, they confirm the two patterns emerging from the previous analysis in this section. First, activist hedge funds resemble value investors. A one-standard deviation decrease in q is associated with a 0.49 percentage point increase in the probability of being targeted, other things equal. Relative to the unconditional probability of being targeted of 1.8%, the marginal probabilities are substantial. This suggests that activist hedge funds are seeking to identify undervalued companies where the potential for improvement is high. The hedge funds' stated goals, as reflected in their Schedule 13D filings, are consistent with this conclusion. Indeed, even the names of the activist hedge funds suggest that the funds and their investors believe they are value investors. A large fraction of the hedge fund names in our sample include words or phrases that connote value investing, such as "value," "contrarian," and "distressed."

Second, the potential problems that hedge funds identify at targeted firms are more often issues that are generalizable to all firms, such as changes in governance and payout policies, rather than issues that are specific to one or a small number of target firms, such as slipping sales of a particular product. Targeted firms do not seem to suffer from serious operational difficulties. They are actually profitable and enjoy handsome cash flows, as indicated by the significant coefficient on *ROA* in the full sample regressions (and in untabulated results, a significant coefficient on *CF*). The potential problems that these companies face are likely related to the agency problem of free cash flows, such

as relatively low dividend yield and diversifying investments (as indicated by *HHI*) that might not be in the best interest of shareholders. Governance issues, including rescinding takeover defenses, ousting CEOs, promoting board independence, and curtailing executive compensation, are also commonly cited as reasons for activism.

These targeting patterns seem sensible given that many of the hedge funds in our sample are not experts in the specific business of their target firms. Focusing on issues that are generalizable to other potential target firms helps hedge funds lower the marginal cost of launching activism at a new company (Black (1990)). A second reason to avoid targeting an idiosyncratic firm issue is offered by Kahn and Winton (1998). They predict that investors are more likely to intervene in well-understood firms or industries so that the market can rapidly appreciate the effects of an intervention. Hedge funds should avoid "opaque" and complicated businesses, such as those with high levels of R&D to avoid delays in the resolution in the market price of the intervention's impact. Our data offer some support to this hypothesis. As indicated in Table III, hedge funds tend to avoid high tech firms (as proxied by *RND*, the ratio of R&D to assets) among the universe of public firms. We do not wish to overinterpret this relation because the effect is not significant in Table IV when we control for the full set covariates. We note, however, that book-to-market ratio, growth, cash flows, and HHI of business segments are also indirect proxies for the target firms' high technology intensity, and they are all statistically significant in predicting activist targeting. The combined evidence is therefore consistent with the predictions in Black (1990) and Kahn and Winton (1998).

IV. Stock Returns and Hedge Fund Activism

The fundamental question for hedge fund activism is whether it achieves its stated goal of creating value for shareholders. In our first attempt to address this question, we examine stock market returns, both short-term announcement event-day returns and long-run returns. This analysis addresses the question of how the market perceives the effect of hedge fund activism on shareholder value and whether long-run measures are consistent with the market's perception.

A. *Event-Day Returns and Trading Around the Filing of Schedule 13Ds*

We adopt both short and long event windows around the filing of a Schedule 13D. Figure 1 plots the average buy-and-hold return, in excess of the buy-and-hold return on the value weighted NYSE/Amex/NASDAQ index from CRSP, from 20 days prior to the Schedule 13D filing date to 20 days afterward. There is a run-up of about 3.2% between 10 days to 1 day prior to filing. The filing day and the following day see a jump of about 2.0%. Afterward the abnormal return keeps trending up to a total of 7.2% in 20 days. In the full sample, 62% of the events see positive abnormal returns in the (–20, 20) window: the 25th, 50th, and 75th percentile values are –5.3%, 4.6%, and 17.3%, respectively.
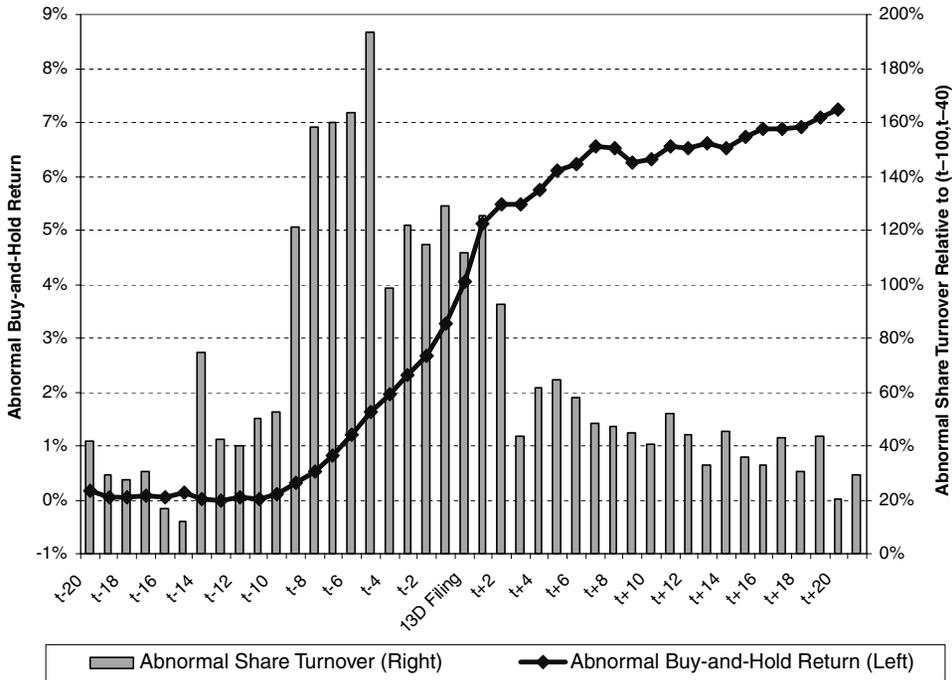
Figure 1. Buy-and-hold abnormal return around the filing of Schedule 13Ds. The solid line (left axis) plots the average buy-and-hold return around the Schedule 13D filing, in excess of the buy-and-hold return of the value-weight market, from 20 days prior the Schedule 13D file date to 20 days afterward. The bars (right axis) plot the increase (in percentage points) in the share trading turnover during the same time window compared to the average turnover rate during the preceding (–100, –40) event window.

Some hedge funds file a Schedule 13D after publicly announcing their activist intent (at a lower ownership stake), while other hedge funds launch aggressive activism only after they have filed a Schedule 13D. In such cases, the Schedule 13D filing date might not be an accurate proxy for the event date when activism becomes first publicly known. As a sensitivity check, we focus on a subsample of 246 events for which the time of the Schedule 13D filing coincides with the first public announcement of activism in which a hedge fund describes a new and explicit agenda in the Schedule 13D beyond a general statement of maximizing shareholder value on the filing. The average buy-and-hold return of this sample (not plotted) displays a very similar pattern to that of Figure 1, although the magnitude is higher. The average (median) abnormal return during the (–20, 20) window is 8.4% (5.6%).

Figure 1 also includes the average abnormal share turnover over the event window. We measure "normal" turnover over the (–100, –40) window preceding the Schedule 13D filing date. The spike in abnormal trading volume, defined as the percentage increase in the share turnover rate, does not occur on the event day but rather during the 10-day period before the filing. This pattern is consistent with the fact that investors are required to file Schedule 13D no

later than 10 days after the transaction that causes them to go over the 5% level of stockholdings in the target firm so that the filing fund can engage in additional buying prior to the public announcement of their activism. There are, however, two alternative explanations for the abnormal share turnover in the days preceding the filing date. The first is "wolf pack" investing, in which several hedge funds, which do not formally coordinate, buy into the target firm;[12] and the other is "tipping," where the filing hedge fund reveals its intention to a small number of investors before the public filing in exchange for reciprocation of other favors. Given the informal and secretive nature of such communication, our data do not allow for a formal testing of these two explanations.[13]

We emphasize that market reactions are *not* an unbiased estimate of expected benefits from successful activism. If prices were to adjust fully to the ex post effect of successful hedge fund activism, hedge funds, in the absence of reputation concerns and trading liquidity constraints, would have no incentive to continue with costly intervention. Rather, market prices adjust to a level reflecting the expected benefit of intervention adjusted for the equilibrium probability that the hedge fund continues with its activism and succeeds. Hence, the market reaction necessarily underestimates the value of ex post successful activism (e.g., Bond, Goldstein, and Prescott (2007)). Moreover, the raw correlation between ex post success and announcement returns turns out to be low—it is 0.04. This low predictability of success, from the perspective of outside market participants, is consistent with the theoretical models of Maug (1998) and Cornelli and Li (2002) and the empirical evidence in Bradley et al. (2007). In such models, there cannot be an equilibrium with both the outside market participants predicting the outcome (due to intervention) and the activist carrying out the action as expected.

B. Cross-Sectional Variation of Abnormal Returns

Equally important as the average abnormal return is its cross-sectional variation because it reflects the heterogeneity in market perceptions regarding the

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[12] There are open and controversial legal questions about what actions rise to the level of "group" activity under the securities laws. Hedge funds argue that they are not required to file Schedule 13Ds if they are merely follow-on investors who take positions after they learn that another hedge fund has acquired a 5% share of a target. Relying on legal advice that this argument is correct, hedge funds frequently acquire significant stakes in targets within hours of learning that the initial fund has taken a position. Indeed, the fact that the hedge funds delay investing—even for a short time—is some evidence that they are not acting together with the initial fund. A counter argument is that hedge fund networks are sufficiently close that they satisfy the legal definition of a group, even if the funds do not simultaneously acquire securities. Many defense-side attorneys have argued that the definition of a "group" should include such funds. As of this time, the legal issue is unresolved, but we note that hedge funds commonly are confident enough that they will not be classified as a group that they are willing to purchase significant stakes immediately after another fund files a Schedule 13D.

[13] The hedge fund managers that we have spoken with deny that they engage in tipping, pointing out that to do so would drive up their costs of accumulating their stake prior to announcing their activism.

Table V
Relation between Abnormal Return and Type of Activism

The dependent variable is the abnormal return during the $(-20,+20)$-day window around the Schedule 13D filing (or announced activism for events with lower than a 5% stake) date. There are five categories, not mutually exclusive, as defined in Panel B of Table I. All regressions control for the size of the target firm, $\ln(MV)$, the log of market capitalization. Long-term debt, *LTDebt*, is the ratio of long-term debt to the sum of debt and market value of equity. *Pre-13F* is a dummy variable equal to one if the hedge fund had revealed significant ownership (more than 1% or $1 million) based on its previous Form 13F filing. *Avg Pre-Returns* is the average abnormal return from prior events belonging to the same hedge fund (first timers are coded as zero, the neutral value). All nondummy variables are expressed as the deviation from the sample average values. Intercepts are suppressed in columns because of the full span of the dummy variables. The analysis in column 1 is conducted on the full sample. Columns 2 and 3 offer the partition of subsamples of events that are hostile/nonhostile at initiation. All t-statistics adjust for heteroskedasticity. * and ** indicate statistical significance at the 10% and 5% levels.

Dependent Variables: Announcement Window Abnormal Returns	(1) Full Sample		(2) Hostile (Initial)		(3) Nonhostile (Initial)	
	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic
ln(MV)	−1.27%**	−2.39	0.60%	0.5	−1.38%**	−2.09
LTDebt	−2.73%	−0.72	2.70%	0.37	−4.88%	−1.01
Pre-13F	−3.27%**	−2.1	−2.69%	−0.69	−4.43%**	−2.23
Avg prereturns	0.08%	1.36	0.04%	0.28	0.09%	1.34
General	6.28%**	3.7	–	–	6.21%**	3.96
CapStructure	1.47%	0.78	1.23%	0.34	2.54%	1.17
BusStrategy	5.95%**	3.08	3.34%	1.17	8.11%**	3.49
Sale	8.54%**	4.1	10.70%**	3.43	8.33%**	3.15
Gov	1.73%	0.92	4.95%*	1.73	−0.02%	−0.01
Hostile	3.76%*	1.81	–	–	–	–
No. of obs. and R^2	724	0.032	140	0.072	584	0.029

expected value generated by activism. Table V reports the results from regressions exploring the cross-sectional variation in market response to shareholder activism. The dependent variable is the abnormal return in the (–20, 20) window around the filing of the Schedule 13D. We include as regressors dummy variables for the five broad stated objectives classified in Section C.2, *MV* (the logarithm of market capitalization), *LTDebt* (the ratio of long-term debt to the sum of debt and market value of equity), *Pre-13F* (a dummy variable equal to one if the hedge fund revealed a significant stake, defined as more than 1% or $1 million, in the target company in its Form 13F filings before the Schedule 13D filing), and *AvgPre-Returns* (the average (–20,20) window abnormal return for all the previous events led by the same hedge fund). We provide the motivation for the construction and interpretation of these variables when we discuss the results in Sections IV.B through IV.D.

In order to facilitate the interpretation of the coefficients on the dummy variables, all nondummy covariates are expressed as the deviation from the mean, and the intercept of the regression is suppressed (because of the full

span of the dummy variables). As a result, all the coefficients on the stated-objective dummy variables can be interpreted as the average partial effect on abnormal returns of one particular group of events, assuming that the target firms are of average characteristics.

Column 1 shows how event-window abnormal returns vary with the stated goals of the hedge funds and other covariates in the full sample, while columns 2 and 3 provide estimates for the same relation separately for hostile and nonhostile subsamples, where hostility is measured at the time of the initial filing of Schedule 13D (or the first announcement of activism for events without Schedule 13D filings) to reflect the information available to market participants in the announcement window. Turning first to column 1, we find that activism aimed at the sale of the target generates the highest abnormal return, with an average abnormal return of 8.54% ($t = 4.10$). Business strategy-related activism also generates a significant abnormal return of 5.95% ($t = 3.08$). An announcement of a hedge fund's intention to intervene without revealing any specific goals generates an average return of 6.28% ($t = 3.70$). On the other hand, though activism targeting capital structure and governance issues also generates small positive average returns (1.47% and 1.73%), these estimates are not statistically distinguishable from zero. The latter estimates are consistent with the weak return effects documented by prior literature concerning traditional governance-oriented activism (with the exception of Bizjak and Marquette (1998), who document some value improvement from shareholder resolutions to rescind poison pills). The weak returns associated with traditional institutional activism reflect those institutions' relatively small investments in targeted firms (unlike hedge funds), and the fact that those institutions seek changes that do not seem to be important to firm value.

We further note that the hedge funds' stated objectives are not mutually exclusive (except the "General" category). For example, if a hedge fund targets business strategy issues but also posts a governance agenda, the total return is expected to be 7.68% (=5.95% + 1.73%).

Finally, to examine the importance of a hedge fund's track record to market reactions, we use the average announcement returns from the hedge fund's previous events as a proxy for the fund's historical success. The coefficient is positive but economically small: A one-percentage point increase in return track record is associated with a 0.08 percentage point increase in the current announcement return, but the statistical significance does not reach conventional levels.

Columns 2 to 3 of Table V separate events by whether hedge funds initiate activism with hostile tactics (see definition in Section II.C.2). Given that the market's reaction is based on the information available to it at the time of the event, it is important to classify events based on their nature at initiation. Among all events that turn out to be hostile, about three-quarters begin with full-blown hostility, and the rest become hostile after the targeted firms' management resists or ignores the hedge funds' friendly proposals. The two columns taken together indicate that the market seems to believe that hostile tactics are more effective in dealing with firm sales and governance issues,

but not as effective for business strategy and capital structure issues. However, these differences are not statistically significant due to the large standard errors.

C. Returns to Hedge Funds Investment

The positive average abnormal returns at the announcement of activism indicate that activism is potentially a profitable investment strategy for the hedge funds. To provide a more comprehensive description of the returns accruing to hedge funds, we compute the deal holding-period returns, that is, the buy-and-hold stock return between the month prior to the Schedule 13D filing date and the exit date, using a combination of information from Form 13F and Schedule 13D filings, as defined in Section II.C.3, or December 31, 2006 if there is no information about the exit by that time. The summary statistics are reported in Panel A of Table VI.

The average (median) raw deal holding-period return is 42.0% (18.1%). On an annualized basis, the same figure becomes 33.0% (14.9%). The average remains significantly positive (at less than the 1% level) after market and size adjustments. The sample annualized average return is 14.3% higher than the value-weighted portfolio returns of stocks in the same size decile. However, the median deal holding-period return is no different from the size-adjusted benchmark. While it is apparent that the positive average returns are attributed to the right tail of the distribution, they are not driven by a few extreme outliers. The sample mean statistics remain qualitatively the same if we winsorize data at the 1% extremes. To summarize, while the typical deal does not earn abnormal returns, the upper 25% of the deals offer much more upside than the corresponding downside of the lower quartile.

D. Alternative Hypotheses

The large average abnormal stock return around the Schedule 13D filing date is consistent with the view that the market anticipates that hedge funds' activism will result in actual value improvement. However, it is possible that the reactions that we document are explained by alternative causes, which we now explore in detail.

D.1. Market Overreaction and Temporary Price Impact

One potential explanation for the high abnormal return is a temporary price impact caused by buying pressure from the filing hedge fund or other hedge funds. As shown by Figure 1, the run up in price around the announcement window is accompanied by abnormally high trading volume as well. If the price impact is purely temporary and reflects a trading friction rather than information about prospective value changes, we should observe negative abnormal

Table VI

Long-Term Abnormal Returns Analysis

The table reports statistics on short- and long-term abnormal returns associated with hedge fund activism. Panel A reports the average raw and annualized deal holding-period returns for the hedge funds in the first two columns. Buy-and-hold returns are computed beginning in the month prior to the announced activism through the month in which the funds exit. Exit is defined as the first quarter-end when the Form 13F filing indicates that the holding falls below 1% or $1 million, or the last Schedule 13D/A filing date indicating that the ownership drops below 5% if there is no Form 13F information. If no exit information is available, we assume that the holding lasts till December 2006, the end of our sample. The last two columns report the annualized holding-period return in excess of the market and size-matched decile portfolio returns. Panels B and C report regression estimates and t-statistics from equal- and value-weighted calendar-time portfolio regressions. "Window" indicates the buying time relative to the event (hedge fund activism targeting) and the holding period in months. "Alpha" is the estimate of the regression intercept from the factor models. "Beta(-1)" and "Beta" are the factor loading on the lagged and concurrent market excess return (the Fama and French RMRF). "SMB," "HML," and "MOM" are the estimates of factor loading on the Fama-French size and book-to-market factors, and the Carhart momentum factor. "$R2$" is the R^2 from the regressions. * and ** indicate statistical significance at the 10% and 5% levels.

Panel A: Hedge Fund Deal Holding-Period Return

	Deal Period Raw Return	Annualized Raw Return	Annualized Market Adjusted	Annualized Size Adjusted
1%	−0.938	−0.933	−1.017	−1.233
5%	−0.609	−0.607	−0.708	−0.855
25%	−0.068	−0.062	−0.197	−0.250
50%	0.181	0.149	0.042	0.003
75%	0.602	0.411	0.283	0.249
95%	2.372	1.753	1.532	1.459
99%	4.674	4.659	4.393	4.390
Mean	0.420**	0.330**	0.206**	0.143**
Std. Dev.	0.979	1.025	1.004	1.013
P-val (Mean = 0)	0.00%	0.00%	0.00%	0.01%

(continued)

Table VI—*Continued*

Panel B: Equal-Weighted Four-Factor Model

Window (Months)	Alpha		Beta(−1)		Beta		SMB		HML		MOM		R2
	Estimate	t-statistic	Estimate	t-statistic	Estimate	t-statistic	Estimate	t-statistic	Estimate	t-statistic	Estimate	t-statistic	
(−12,−10)	−1.023	−1.82	0.123	1.04	0.976**	6.81	0.663**	4.4	0.421**	2.41	−0.278**	−3.14	0.578
(−9,−7)	0.283	0.54	0.078	0.67	0.671**	4.94	0.913**	6.69	0.17	1.01	−0.493**	−5.88	0.657
(−6,−4)	−0.513	−1.02	0.252	2.27	0.805**	6.22	0.851**	6.15	0.322*	1.91	−0.243**	−2.84	0.648
(−3,−1)	−0.664	−1.3	−0.057	−0.5	0.57**	4.44	0.906**	5.2	0.333*	1.88	−0.164*	−1.79	0.516
Event	5.095**	6.72	0.371**	2	0.401*	1.9	0.644**	2.45	0.205	0.72	−0.274*	−1.77	0.302
(1,3)	1.093**	2.01	0.157	1.23	0.339**	2.26	0.611**	3.26	0.400*	1.74	−0.609**	−4.85	0.54
(4,6)	0.237	0.52	0.195*	1.71	0.727**	5.24	0.989**	5.99	0.428**	2.34	−0.092	−0.84	0.651
(7,9)	−0.093	−0.19	0.118	0.77	0.902**	5.45	0.655**	3.41	0.387	1.48	−0.163	−1.1	0.599
(10,12)	1.124	1.84	0.008	0.04	0.776**	3.65	0.602**	2.41	0.009	0.03	−0.019	−0.1	0.395

Panel C: Value-Weighted Four-Factor Model

Window (Months)	Alpha		Beta(−1)		Beta		SMB		HML		MOM		R2
	Estimate	t-statistic	Estimate	t-statistic	Estimate	t-statistic	Estimate	t-statistic	Estimate	t-statistic	Estimate	t-statistic	
(−12,−10)	−2.377**	−3.18	−0.06	−0.38	1.18**	6.17	0.413**	2.06	0.723**	3.1	−0.177	−1.5	0.383
(−9,−7)	−0.261	−0.42	0.161	1.17	1.025**	6.46	0.482**	3.03	0.145	0.74	−0.193**	−1.97	0.54
(−6,−4)	−2.122**	−3.34	0.054	0.39	1.032**	6.34	0.834**	4.79	1.054**	4.98	0.025	0.23	0.46
(−3,−1)	−1.663**	−2.33	0.159	0.99	0.731**	4.07	0.235	0.96	0.486*	1.96	−0.301**	−2.35	0.323
Event	1.616	1.18	0.820**	2.44	0.663*	1.74	0.678	1.43	0.112	0.22	−0.021	−0.07	0.173
(1,3)	0.141	0.28	0.211*	1.78	0.522**	3.75	0.450**	2.6	0.604**	2.84	−0.419**	−3.61	0.508
(4,6)	−0.683	−1.24	0.033	0.24	1.005**	6.04	0.959**	4.84	0.99**	4.52	−0.268**	−2.05	0.625
(7,9)	−0.005	−0.01	0.089	0.6	0.742**	4.57	0.587**	3.12	1.03**	4.03	−0.692**	−4.74	0.685
(10,12)	−0.041	−0.08	−0.132	−0.82	0.985**	5.5	0.778**	3.69	0.666**	2.181	−0.165	−1.05	0.61

returns shortly after the event. This turns out not to be the case. Figure 1 shows no reversal after 20 days (when the abnormal turnover declines to close to zero), and the pattern persists if we extend the window for another 20 days.

We conduct a more formal long-term return analysis using calendar-time portfolio regressions around the Schedule 13D filing date. For example, we form a (–3, –1) portfolio by buying all firms that will be targeted by a hedge fund in 3 months' time, and the firms are held for 3 months before selling. Similarly, we form a (1, 3) portfolio by buying all firms that were targeted by hedge funds 1 month earlier, and these firms are held for 3 months before selling. For each such portfolio we estimate a regression of the portfolio excess returns on the Fama–French RMRF, SMB, and HML factors and the momentum factor, MOM.[14] We then focus on the regression intercept, alpha, as evidence for possible mean reversion in prices. Clearly, all portfolios in the preevent windows do not represent a tradable strategy. They are presented for an ex post analysis of the stock return patterns of the companies in the pretargeting period. The results are reported in Panels B and C of Table VI using four-factor models with equal and value-weighting of firms' returns.

The factor loadings in both Panels B and C indicate that targeted companies comove with small value firms, evidence that is consistent with the results presented in Section III and Table IV. Targeted firms have a slightly subpar preevent stock performance. However, the negative alphas are only significant in the value-weighting specification, implying that it takes larger stock return underperformance for large-cap firms to be targeted. The event (Schedule 13D filing or the first announcement of activism for non-13D events) month and the 3 months afterward see quite robust positive abnormal returns. With equal weighting, the event month and (1, 3) window alpha is 5.10% ($t = 6.72$) and 1.09% ($t = 2.01$). The same numbers for value weights are much lower (1.62% and 0.14%) and are not significant; presumably, the larger firms in the sample do not receive as favorable a response from the market as the smaller targets. Abnormal returns are higher using the CAPM model (not tabulated), consistent with the size and value premium.

Most importantly, the alphas are positive and revert to close to zero during the 9 months after the 13D filings in both models. This evidence clearly refutes the market overreaction hypothesis for up to a year postevent.

D.2. Stock Picking versus Value Improvement

It is possible that hedge fund activists simply identify undervalued companies, but do not add to firms' fundamental value. According to this hypothesis, the positive market reaction is due to the announcement of new information that a hedge fund has identified an undervalued company, not to the announcement that a hedge fund has committed to intervene to add value to the company. Given the strong evidence in Tables III and IV that hedge funds target

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[14] We obtain these factor returns and monthly risk-free rates from Ken French's web site at Dartmouth College.

"value" firms (i.e., firms with high book-to-market, or low q), and the tendency of event-firm portfolios to load positively on the HML factor (Table VI), it is plausible that obtaining the value return is indeed part of the activist hedge funds' strategy.

However, we believe that the market response to activist hedge funds' targeting goes beyond the information effect of stock picking. We present several tests that all support this conclusion. First, we find that when hedge funds launch activism with hostile tactics, the abnormal return is on average 3.9% higher than nonhostile targeting (significant at the 5% level). Hostile deals, by definition, are resisted by the managers, and therefore the changes would be unlikely to happen were it not for hedge funds' persistence. In Section IV.A, we argue that upon announcement of activism market prices adjust to a level reflecting the benefit of successful intervention adjusted for the equilibrium probability that the hedge fund continues with activism and succeeds. Accordingly, the hedge fund will only intervene when the probability-adjusted benefit is greater than the cost of intervention. Since in our sample hostility is not associated with higher probability of success (including partial success) in equilibrium (the correlation is close to zero, 0.02), and it is reasonable to believe that hostile deals involve higher costs of intervention (such as the costs of a proxy solicitation), the expected benefit when a hedge fund successfully carries out a hostile deal should be higher than a nonhostile one. As a result, the more favorable market response indicates that the perceived value improvement comes from imposed changes, rather than a mere discovery of undervaluation due to mispricing.

Second, we examine the abnormal announcement returns of the subsample of events in which the hedge fund had revealed a significant ownership position (more than 1% or $1 million) in a Form 13F filing before its Schedule 13D filing. To make sure that this block ownership information was known to the market, we require the portfolio date of the Form 13F filing to be at least 60 days before the Schedule 13D filing, taking into account the allowed 45-day delay between the quarter-end Form 13F filing. This subsample of 312 events is interesting because the new information in the subsequent 13D filing is not just about stock picking, but about intervention. In Table V, the coefficient on the dummy variable, *Pre-13F*, indicating a revealed significant ownership by the same hedge fund in the most recent Form 13F, is indeed negative at -3.27 percentage points (t-statistic = -2.10). What is important is that this subsample of events still shows significant announcement window returns (3.96%, t-statistic = 3.01) even though there is little additional information regarding stock picking revealed in the Schedule 13D filing.[15] Needless to say, the significant ownership revealed through earlier Form 13F filings might also invite speculation about hedge fund intervention down the road, and therefore reduce the "surprise" of the later Schedule 13D filing. If this is the case, then the

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[15] We obtain qualitatively similar results using a 4% ownership level as the threshold for the construction of the *Pre-13F* variable. To the extent that a 4% stake is not materially different from the 5% 13D threshold in terms of economic interest, the additional information in a 13D filing should be about unexpected intervention rather than stock picking.
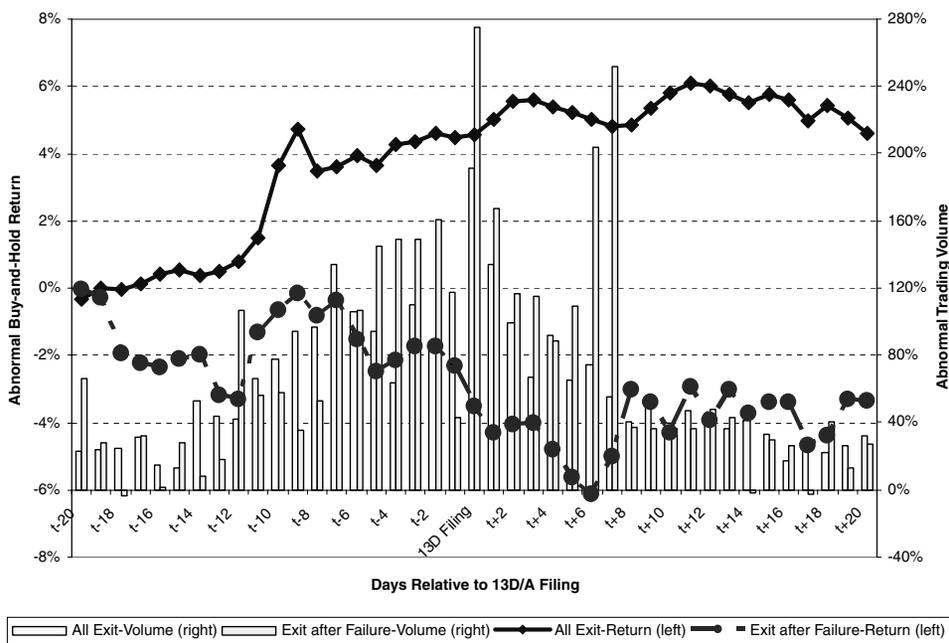
Figure 2. Buy-and-hold abnormal return and turnover around hedge fund exits. The lines (left axis) plot the average buy-and-hold return around the Schedule 13D/A file date indicating a reduction of the hedge fund's position to below 5%, in excess of the buy-and-hold return on the value-weight market, from 20 days prior the Schedule 13D/A file date to 20 days afterward. The two lines represent the full sample, and the subsample of hedge fund exits from unsuccessful activism. The bars (right axis) plot the share trading turnover (in percentage points) during the same time window compared to the average turnover rate during the preceding (–100, –40) event window.

coefficient on *Pre-13F* should be less negative in the subsample of hostile events where there is stronger new information about intervention. This is indeed the case. Columns 2 and 3 of Table V indicate that the coefficient on *Pre-13F* is much more negative in the subsample of nonhostile events. In fact, the coefficient in the hostile subsample is statistically insignificant.

Third, we find that the abnormal returns displayed upon hedge funds' exit show different patterns depending on whether their stated agenda has been adequately carried out. Figure 2 plots the average abnormal buy-and-hold return around the last Schedule 13D/A file date (indicating divestment by the hedge fund to below the 5% ownership level), which we use as a proxy for the time of exit. We plot two event-time series. The full sample series indicates positive returns leading up to the filing date, and roughly flat afterward. Trading volume tends to spike during the 10-day window leading up to the filing. This pattern indicates that hedge funds tend to exit after positive stock returns, and their exit overall does not have a positive or negative impact on the stock price. On the other hand, if a hedge fund fails or withdraws from ongoing activism (because the prospect of success is poor) and exits, the market response is generally quite

negative. The average (–20, 20) window abnormal return is about –4%, about eight percentage points lower than the full sample average (the difference is significant at the 5% level). These patterns are inconsistent with a simple stock picking story because that hypothesis does not predict these varying abnormal return patterns.

Fourth, if activist hedge funds were merely picking stocks, they should sell immediately after the market price reflects their finding that a company's shares were undervalued. A "pure" stock picker would capture this incremental value and then employ its capital in other undervalued stock trades. A quick exit should not reveal negative information to the market either, if stock picking is considered to be the sole motive. However, activist hedge funds do not sell immediately after they file a Schedule 13D. On the contrary, these funds continue to hold their positions for relatively long periods of time (See Table II, Panel C). Moreover, we find that in 94% of the cases in which the hedge fund had prescribed an explicit agenda, they exit only after a resolution of their stated agenda. This pattern is consistent with the view that the positive abnormal return at the time of the hedge funds' Schedule 13D filing reflects the market expectation of hedge fund intervention, and it would be difficult for any hedge fund to exit at a high price without taking action. Given that the hedge fund needs to file an amendment to its Schedule 13D reflecting any material change in its position, including a reduction of its position to below 5%, "promptly" after the change (some law firms recommend filing within one business day), it would have very little time to sell its block before making a public statement. Moreover, the typical target firm's stock has a turnover rate of about 0.4% a day and targeted firms tend to be mid- and small-cap stocks, making a quick private exit very difficult to execute. As a consequence, hedge funds can only cash out a large portion of their position at a price that no longer reflects the potential of value improvement if they exit before carrying out the stated agenda.

We conclude this subsection by noting that it is possible that activist hedge funds are merely stock pickers, but use long holding periods to sustain an (unwarranted) reputation for activism. Alternatively, it is possible that activist hedge funds are merely stock pickers, but believe (incorrectly) that they are activists and can add additional value after the filing of a Schedule 13D. We cannot rule out these possibilities, although we believe that a more plausible interpretation is that only a small portion of the positive abnormal return might be due to stock picking.

D.3. Value Expropriation from Other Stakeholders

Shareholders are by no means the only party potentially affected by hedge fund activism. If other stakeholders are impacted, then some of the positive stock market reaction to activism might reflect wealth redistribution from other stakeholders. We consider two key stakeholders for our analysis: creditors and executives. We focus on these two groups mostly due to data availability and testability. We find no evidence that activist hedge funds redistribute wealth

from creditors to shareholders, but we do find evidence of redistribution from managers to shareholders.

If shareholders of the target company gain at the expense of the creditors, then the gain should be higher in companies with higher levels of leverage, especially long-term debt. Short-term debt will be renewed to reflect the new conditions within a year, and hence should not decline significantly in value. Long-term creditors, in the absence of renegotiation before the contracting term ends, would therefore bear the cost of potential expropriation by shareholders. Given that we are interested in the effect of such expropriation on the market value of equity, the relevant leverage ratio should be based on market value (rather than book value). In Table V, the corresponding covariate, *LTDebt*, is the ratio of long-term debt to the market value of capital (proxied by the sum of all debt and the market value of equity). The coefficient is far from significant statistically, and its economic magnitude is small as well. Every percentage point increase in long-term leverage is associated with a 0.03 percentage point decrease in announcement return (t-statistic = -0.72).

In fact, the cleanest test of whether the gains to shareholders come at the expense of creditors is based on the subsample of 174 targets without any long-term debt. Obviously, shareholders cannot expropriate gains from long-term creditors if there are no such creditors. These firms actually see somewhat *higher* announcement window returns (9.46%) than those that have some long-term debt (7.21%, the difference is not statistically significant). Overall, it is unlikely that the expropriation of bondholders is a meaningful source of shareholder gain in the wake of announced activism.[16]

To examine the effect of hedge fund activism on target firm executives, we retrieve information on several measures of compensation from the Compustat Executive Compensation database. The results are reported in Table VII Panel A. It shows the average differences of the listed variables between the targeted companies and their matched companies (from the same year, same two-digit SIC industry, and same Fama–French 5 × 5 size and book-to-market sorted portfolios), and the associated t-statistics. In the first column of Panel A, the variable is total CEO compensation including option grants ("TDC1" by ExecuComp), which is an ex ante measure of total CEO compensation. In the event year, the CEO compensation in the target companies is on average $914,000 higher ($t = 2.06$) than the equivalent measure of CEO compensation at peer companies in the same industry that are of similar size and stock valuation. We note that the compensation award levels are fixed in the year prior to the year in which they are paid. One year after hedge fund intervention, CEO pay at targeted firms is not distinguishable from peer levels. A related pattern is reflected in the increase in pay-for-performance sensitivity, measured as the percentage of CEO actual pay (including option exercise) that comes from equity-based incentives, shown in the third column of Panel A: Targeted firms experience significant increases in pay-for-performance during the event year and the year afterward.

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[16] Cremers, Nair, and Wei (2007) show that the relation between shareholder control and bondholder interest is ambiguous and depends on takeover vulnerability.

Table VII

Target Firm Performance before and after Hedge Fund Activism

Panels A, B, and C report various statistics of target company performance in excess of a matched sample in years before and after being targeted by activist hedge funds. In the columns marked "Year-by-Year Peer Match," a matching group for each target company is formed from other companies in the same industry/size/book-to-market group in each year. In the columns marked "$t-2$ Performance Match," a matching group consists of firms that have very close performance by the measure under consideration (the ratio being between 0.9 and 1.1) in year $t-2$, plus a best possible match along the industry and size dimensions. Difference is then taken between the target company and the average of the matching firms and then averaged over all target companies ("Diff w/ Match"). Also reported are the associated t-statistics. "CEO Contracted Pay" is the total CEO contracted pay including options valued at granting ("TDC1" from ExecuComp). "CEO Pay-for-Performance" is the percentage of CEO take-home pay (including option exercise) that comes from equity-based incentives. "%CEO Turnover" is the rate of CEO turnover. "Total Payout Yield" represents the sum of dividend and share repurchases scaled by the market value of equity. "Leverage" is the ratio of debt to the sum of debt and book value of equity. * and ** indicate statistical significance at the 10% and 5% levels.

Panel A: Executive Compensation and Turnover (Year-by-Year Peer Match Only)

	CEO Contracted Pay ($1,000)		CEO Pay-for-Performance (%)		% CEO Turnover	
	Diff w/ Match	t-statistic	Diff w/ Match	t-statistic	Diff w/ Match	t-statistic
$t-2$	−445	−1.33	−7.10%**	−3.33	1.55%	0.62
$t-1$	18	0.05	0.29%	0.12	2.52%	1.03
Event	914**	2.06	5.70%**	2.56	5.82%*	1.88
$t+1$	−296	−0.73	6.14%**	2.02	12.42%**	2.85
$(t+1)-(t-1)$	−315	−0.6	5.85%*	1.94	9.90%**	2.34
$(t+1)-(t)$	−1,210**	−2.16	0.45%	0.14	6.60%	1.16

Panel B: Operational Performance

| | EBITDA/Assets | | | | EBITDA/Sales | | | |
| | Year-by-Year Peer Match | | (t−2) Performance Match | | Year-by-Year Peer Match | | (t−2) Performance Match | |
	Diff w/ Match	t-statistic	Diff w/ Match	t-statistic	Diff w/ Match	t-statistic	Diff w/ Match	t-statistic
t−2	1.99%**	3.56	0.01%	–	4.41%	1.26	−0.02%	–
t−1	1.16%**	2.17	0.12%	0.3	2.86%	0.81	−1.54%	−0.99
Event	0.01%	0.02	−0.49%	−0.95	2.79%	0.88	−3.03%*	−1.77
t+1	0.97%	1.48	0.29%	0.42	5.35%*	1.84	−2.31%	−1.08
t+2	2.67%**	2.79	1.04%	1.1	8.67%**	3.63	3.15%	1.05
(t+1)−(t−1)	−0.19%	−0.35	0.17%	0.44	2.49%	1.41	−0.77%	−0.23
(t+2)−(t−1)	1.51%*	1.94	0.92%	1.4	5.81%**	4.17	4.69%**	2.67

Panel C: Payout and Capital Structure

| | Total Payout Yield | | | | Leverage | | | |
| | Year-by-Year Peer Match | | (t−2) Performance Match | | Year-by-Year Peer Match | | (t−2) Performance Match | |
	Diff w/ Match	t-statistic	Diff w/ Match	t-statistic	Diff w/ Match	t-statistic	Diff w/ Match	t-statistic
t−2	0.02%	0.14	0.01%	–	3.96%**	3.69	0.24%**	5.96
t−1	−0.07%	−0.6	−0.15%	−1.37	3.15%**	3.11	−0.91%	−1.48
Event	0.27%*	1.85	0.04%	0.28	3.28%**	3.05	0.18%	0.23
t+1	0.38%*	1.88	0.13%	0.63	3.87%**	2.95	0.29%	0.28
t+2	0.16%	0.72	0.19%	0.8	4.45%**	2.69	0.49%	0.31
(t+1)−(t−1)	0.46%**	2.28	0.28%	1.36	0.72%	0.99	1.20%	1.59
(t+2)−(t−1)	0.23%	1.07	0.34%	1.58	1.30%**	2.7	1.40%	1.19

Accompanying the change in the level and composition of CEO pay is an increase in the CEO turnover rate. We classify an event as a CEO turnover if the name of the CEO of a company is different from that in the prior year. Using the entire ExecuComp database, the CEO turnover rate for the 2001 to 2006 time period is 12.6%. Our sample companies have a slightly higher CEO turnover rate than their peer companies during the year before targeting, although the difference is not statistically significant. One year after targeting, however, the turnover rate at the targeted companies is 12.4 percentage points higher than that of their matched peers ($t = 2.85$). This change in the turnover rate from the pre-event year is significant at the 5% level. We note that the estimates used here understate CEO turnover since they do not include CEO departures as a result of liquidation or sale of the company.

The combined effects of activism on CEO pay and turnover suggest that we should examine whether the CEO pay cut is a result of replacing the old CEO with a lower-paid new one, or a cut in the pay of the incumbent. We find that conditional on the subsample of surviving CEOs, the top executive's pay at sample firms was $436,000 higher than that of their peers on average, but was cut to $709,000 below their peer level a year afterward. Comparing those numbers with the full sample, it seems that CEO turnover is positively associated with preactivism compensation levels, but (ex post) surviving CEOs received about the same level of pay cut on average.

Overall, hedge funds seem to have been successful in curtailing executive compensation, enhancing pay-for-performance, and ousting CEOs. The direct impact of these actions on shareholder gains can be considerable. Panel A of Table VII shows that relative to the matched sample, CEO pay is lower by about $1 million annually after activism. If all of the top executives combined are paid $5 million less for 5 years postintervention due to activism, and this value goes to shareholders (assuming away tax issues, etc.), then the present value of such an income stream is on the order of magnitude of $20 million (using a 10% discount rate), which is a significant portion of the market capitalization of a typical targeted company (the average market capitalization of our sample firms is $706 million). We also note that the change in CEO compensation and turnover is further evidence supporting the "intervention" against the "stock picking" hypothesis since it is highly improbable that such changes would occur absent intervention.

We have so far identified several potential explanations concerning the stock market reaction to hedge fund activism. The evidence in this section is consistent with the idea that the revision in equity prices around the filing of the Schedule 13Ds reflects the positive effect of activism on firm value. We now turn to a direct test and ask whether hedge fund activism affects target firms' ex post operating performance.

V. Ex Post Performance Analysis

Following the literature, we use ROA (return on assets, defined as EBITDA/ lagged assets) and operating profit margins (defined as EBITDA/sales) as

measures of operating profitability. These two measures are largely unaffected by nonoperational factors such as leverage and taxes. Panel B of Table VII reports target firms' average performance in excess of that of their matched sample from 2 years before the activism to 2 years later. All variables discussed in this section are retrieved from Compustat and updated to 2006.

We adopt two criteria to form a matched sample. With the first we match, year-by-year, along the industry/size/book-to-market dimensions as in Table III. With the second matching procedure, we adopt the beginning-of-period performance matching as proposed by Barber and Lyon (1996). More specifically, a matched group for each target firm consists of firms from the same two-digit SIC industry (relaxed to one digit if there is no match) whose operating performance measure falls between 90% and 110% of that of the target in year $(t-2)$. Target firms' performance in excess of the first type of benchmark indicates how these firms fare relative to their peers at each point in time. The second type of benchmark serves to show how target firms go along a potentially different path of operational improvement from nontarget firms that had almost identical initial performance.

Panel B shows that targeted companies, overall, have higher ROA and operating profit margin (OPM) than their industry/size/book-to-market matched peers. Their performance experiences a dip during the event year, and roughly recovers to the pre-event level 1 year after the event. The recovery continues into a significant improvement in year $(t+2)$. ROA (OPM) is about 0.9 to 1.5 (4.7 to 5.8) percentage points higher than the pre-event levels, where the OPM change is significant at the 5% level. Both matching approaches yield a similar time-series pattern up to a level shift since the $(t-2)$ performance matching, by construction, starts with near-zero excess performance.

In comparison, the change in payout policies occurs sooner after the hedge fund's intervention. Given that activist hedge funds often demand both increased dividends and share repurchases, a total payout measure is suitable for our analysis. We define the total payout yield as (dividend + share repurchase)/(lagged market value of equity). The ratio represents the return from all payouts that an equity investor obtains from shares purchased at the market price. Panel C of Table VII shows that payout increases during the year of intervention and peaks in the year afterward. Year $(t-2)$ sees some reversion, but remains above benchmark levels. Compared to the level in the pre-event year, target firms' average total payout yield increases by 0.3 to 0.5 percentage points in the postevent year, and the change is significant at the 5% level using the year-by-year peer match.[17] Moreover, if we count activism that results in a target's liquidation, sale, or privatization, as a complete payout to existing shareholders, then the postactivism payout ratio is much higher than the conventional payout measures indicate.

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[17] Hedge funds may also have contributed to dividend increases during the event year. We matched the 128 event-year dividend increases to the CRSP dividend declaration dates and found that in 15.5% of the cases, all dividends paid during the year are declared after the activism announcement date; in 56.9% of the events, part of the dividends paid are declared after activism *and* the postevent dividend shows an increase over the same quarter last year.

Panel C traces out the change in leverage. There is some evidence of relevering after the event, but the magnitude is relatively small. In 2 years, the leverage ratio (by book values) increases on average by 1.3 to 1.4 percentage points compared to the level during the year before the event, out of an average leverage ratio of 34.8% for target companies (before the event). Furthermore, the correlation between dividend increase and leverage increase is weak (0.04). The moderate increase in leverage and its weak correlation with dividends are consistent with the analysis in Section III.D.3 showing that expropriation of creditors is unlikely to be a significant source of shareholder gain.

Needless to say, ex post performance analysis can only be performed on firms that remain in the sample in postevent years and hence the challenge is to address the potentially nonrandom attrition of target firms. If we define attrition as the state where a target firm, previously covered by Compustat, ceases to be so in the year after the event, then our sample attrition rate (for the 2001 to 2005 subsample where attrition could be identified with Compustat data updated to 2006) is 18.2%. Moreover, the attrition rate is considerably higher among hostile events, especially for events where the hedge fund seeks the sale of the firm (31.0%). If attrition to a large extent represents a successful outcome of hedge fund activism because it facilitates efficient reallocation of capital, the resulting absence of the firm from the ex post performance analysis can potentially induce a negative bias to inferences about firm performance.

The sample of surviving firms can help to test whether, indeed, activist hedge funds help create shareholder value through efficient reallocation of capital. We calculate the correlation between the target firms' industry-adjusted assets change and their industry-adjusted ROA change in each of the 2 years after intervention (not tabulated). Specifically, for each target firm, we compute the percentage change in assets after activism: $(\text{Assets}(t+1)-\text{Assets}(t-1))/\text{Assets}(t-1)$ and $(\text{Assets}(t+2)-\text{Assets}(t-1))/\text{Assets}(t-1)$. We adjust these changes with the three-digit SIC industry level assets change during the same time period. We find that the correlation with the industry-adjusted ROA change is 0.23 for the period from event year $(t-1)$ to $(t+1)$, and 0.25 over the period from event year $(t-1)$ to $(t+2)$. This evidence indicates that hedge fund activism is associated with a significant reallocation of capital to more efficient uses. Similarly, the selective sale of target firms could be an even stronger form of capital reallocation. Moreover, hedge fund activism's direct effects on capital reallocation at target firms are supplemented by its indirect "disciplinary" impact on other firms that are perceived as potential targets.

Finally, we look at analysts' forecasts as an additional sensitivity check. If activism improves firm performance, this effect should be reflected in forward-looking measures such as analyst forecasts. We retrieve analyst stock forecasts data from the I/B/E/S and calculate, month by month, the proportion of all forecasts on the target firms that are upgrades (or downgrades) relative to the previous forecasts issued by the same analysts. During the 12 months before activism is announced, we find that there were more stock downgrades than upgrades among the (future) targets. In particular, downgrades outnumber

upgrades by 54% to 22% during the 3 months leading to the event (where the remainder represents recommendations that maintain the previous level). During the event month and the 2 subsequent months, we see a significant decrease (increase) in downgrades (upgrades), and the overall analyst sentiment reverts to neutral thereafter (at 35% each). Therefore, analysts perceive improved prospects for the target firms subsequent to the hedge fund intervention. If one believes that stock analysts have at least as much information as hedge funds about the firms' prospects *without* hedge fund intervention, then the change in analyst sentiment represents analysts' updating their views about sample firms' prospects due to hedge fund intervention.

To summarize, we find that hedge fund activism is associated with an almost immediate increase in payout, heightened CEO discipline, and an improvement in analyst sentiment. On the other hand, the improvement in operating performance takes longer to manifest. In a recent paper, Cronqvist and Fahlenbrach (2007) show that there is large heterogeneity across different blockholders in their effect on corporate decisions along similar dimensions, but the average effect is small and insignificant (see also Bhagat, Black, and Blair (2004)). Our study identifies one small group of blockholders—activist hedge funds—that are effective at influencing corporate policies.

VI. Conclusion

This paper is the first to examine hedge fund activism using a large-scale sample over the time period 2001 through 2006. We document the heterogeneity in hedge fund objectives and tactics and show how these factors relate to target firm responses. The positive market reaction to hedge fund intervention that we find is consistent with the improved post-intervention target performance, the effect of the interventions on CEO pay/turnover, and changes in payout policy. Importantly, we show that the extent of hostility matters to market reaction and outcomes, while the level of hostility among hedge fund activists is not as high as some have claimed.

Our findings are consistent with the view that informed shareholder monitoring can reduce agency costs at targeted firms. Hedge fund activists are a particularly nimble kind of shareholder, use a wide variety of tactics to pursue their objectives, and are largely successful even though they hold relatively small stakes. Sometimes hedge fund activists benefit from friendly interactions with management (and in this way resemble large blockholders), but other times they are openly confrontational with target boards when they perceive them as entrenched. Unlike traditional institutional investors, hedge fund managers have very strong personal financial incentives to increase the value of their portfolio firms, and do not face the regulatory or political barriers that limit the effectiveness of these other investors.

Although there is large cross-sectional variation, hedge fund activism generates value on average, not because activists are good stock pickers, but because they credibly commit upfront to intervene in target firms on behalf of shareholders, and then follow through on their commitments. Thus, hedge fund activism

can be viewed as a new middle ground between internal monitoring by large shareholders and external monitoring by corporate raiders. The benefit from hedge fund activism goes beyond the improved performance and stock prices at the actual target companies. The presence of these hedge funds and their potential for intervention exert a disciplinary pressure on the management of public firms to make shareholder value a priority.

Finally, the abnormal positive returns to hedge fund activism appear to be consistent with the early arbitrage profits that hedge funds previously captured using other strategies. During our 6-year sample period, hedge fund activism became increasingly common, and, not surprisingly, the return to activism, measured as the average abnormal return at the filing of Schedule 13D, dropped monotonically from 15.9% in 2001 to 3.4% in 2006. If activism is viewed as another form of arbitrage, then it is likely that the abnormal returns associated with hedge fund activism will decline or even disappear as more funds chase after fewer attractive targets, and as the market incorporates the potential for investor intervention and improvement into security prices. Both effects suggest that decreasing returns to activists do not necessarily imply reduced benefits for shareholders from activism. Hedge fund activism might remain a staple of corporate governance, but at a lower equilibrium level of profitability.

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