Hedge fund activism impacts on target firms' performance in pre and post financial crisis.

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Abstract

The study investigates the impacts of hedge fund's activism on target firms' performance, and examines whether activism strategies as well as its effect changes after the financial crisis of 2007-2008. The analysis is based on the U.S. data covering 112 hedge funds, 551 event firms, from 2000 to early 2012. Returns to activism accrue to approximately 5% during the (-10, +5) event window. Activism-related categories that generate significant and positive abnormal returns include general undervaluation, capital structure, and business strategy. Since the financial crisis, capital structure related activism reduces by half, whereas it's more popular for a hedge fund to intervene without pre-specifying a certain purpose. However, there is no evidence that the crisis affects returns to activism. Two years post-activism performance suggests that target firms experience lower sales growth, higher leverage and higher ROA.

1. Introduction

While the hedge fund industry has made tremendous growth in the post-crisis period, merely a few attempts have been made empirically to scale the crisis impacts on hedge fund-owned firms. Since the recent financial crisis might have challenged the traditional way of activism and introduced new paradigm shifts, it would be interesting to investigate whether and how the funds have accordingly shaped their strategic patterns of targeting the firms. This study is among the first ones which examines the recent financial crisis (2007-08) impacts on activist funds' strategic behaviour towards targets and in turn firms' performance in the short-run and in the long-term.[1]

In their seminal study, Berle and Means (1932) pointed out that dispersed shareholders holding negligible ownership stake in largely diffused U.S. corporations most likely would not make any significant difference at the governance level by monitoring. To have an adequate due diligence on firms' management, several mechanisms have been introduced to align the principal-agent interests in order to alleviate the agency problems but relatively less successful to achieve the goals (Baker, Jensen & Murphy, 1988). Of these mechanisms, the inclusion of large stockholder is suggested on behalf of dispersed shareholders (Jensen 1986, Shleifer & Vishny 1986). However, the evolved outcomes through large individual or institutional shareholder monitoring have economically been insignificant (Karpoff, Malatesta & Walking 1996, Black 1998, Caleton, Nelson & Weisbach 1998, Romano 2001). The limited role of such monitoring has been subjected to free riding (Shliefer & Visny 1986, Black 1998, Kahan & Rock 2006, Partnoy & Thomas 2006), high cost (Black 1990, Kahan & Rock 2006), limited investment (Black 1998, Karpoff 2001, Parrino, Sias & Starks 2003), regulatory restrictions (Romano 1993), conflict of interest (Davis & Kim 2005), weak financial incentives (Rock. 1992) among others. [2]

Contrary to these limitations, the recent research suggests that organizational framework and characteristics of hedge funds portray them as an ideal candidate for the activism role (Bratton 2006, Briggs 2006, Kahan & Rock 2006, Partnoy & Thomas 2006, Armour & Cheffins 2009). Hedge funds have an edge over non-hedge funds due to fewer regulations (Ackermann, McEnally & Ravenscraft 1998), relaxed taxations (Jaeger 2002), sophisticated investment strategies including leverage, short selling, derivatives, and concentrated portfolios (Partnory & Thomas 2006, Jaeger 2002, p.133), and performance-based incentives (Ackermann et al. 1999).

The impacts of hedge fund's activism on target firms' performance has rigorously been discussed and studied in recent decades (Klein & Zur 2006, Alon et al. 2008, Greenwood & Schor (2007), and Boyson & Mooradian (2009)). The empirical findings of largely documented literature provide evidence that hedge fund activism produces positive abnormal returns in the short-run and mixed results in the improvement of targets' performance in the long-term.

Extant of literature agrees upon that stock market favourably reacts to the announcement of hedge funds' involvement in targets and in turn rewards it with significantly positive abnormal returns. Recently, Klein and Zur (2006) report 10.3% abnormal returns over the longer event window of (-30, +30) days including announcement date. In another study, Greenwood and Schor (2007) utilizing long-horizon data (1993-2006) report a 3.5% abnormal returns in 15 days event-window. To add more evidence, Brav et al. (2008) document 7 percent abnormal returns in 41 days event window with no reversal in the succeeding year. The announcement related significantly positive returns have signaled the market participants to reconsider traditionally prevailing thinking on activist investing.

[1] According to HFRI report, the assets under management in industry has reached to $ 2.25 trillion in Jan, 2013.
[2] These shortcomings or constraints have widely been discussed in non-hedge fund literature.

In this paper, I hypothesize whether in long-term activism-related activities actually improve the firm operational performance and as a result enhance its value. Related to this hypothesis, the evidence is however mixed and largely dependent on the sample frame and period. Brav et al. (2008) analyze the two years post-activism performance and document that in terms of profitability and payout targets have outperformed the peer group when matched at industry/size/book to market value. Boyson and Mooradian (2009) document that targets' valuation variable, Tobin's Q showed improvement as compared to matching firms over the course of activism. Another equally important finding is that targets significantly reduced the excess cash holdings thus showing the consistency in the widespread idea that hedge funds reduce the agency costs of managerial discretion. In contrast, some studies report that post-activism targets performance does not improve as anticipated. Klein and Zur (2006) find no evidence of improvement in firms' accounting performance, instead, targets experienced decline in earnings per share (EPS), return on assets (ROA), and return on equity (ROE) in the following fiscal year. However, in this case, the firms' excess cash was extracted and paid to the shareholders as dividends. These mixed findings together with significant abnormal returns in the short-run around Schedule 13D filing suggest that the shareholders perceive benefits to reducing agency costs of excess cash and short-term investments.

The sample in this study consists of 112 hedge funds, 551 event firms, over the period of 2000 to early 2012. The characteristics of the sample firms demonstrate that the targets are, on average, small and medium size. In addition, these are the value stocks endorsing the existing literature which documents that small firms are more prone to activism. Moreover, the targets are operationally and financially strong with high cash holdings and paying high dividends however highly leveraged.

The empirical findings of this study are consistent with the prior documented literature on short-run abnormal returns around the announcement window of 13D filings. In the short-run the target firms' cumulative abnormal returns (CARs) around the longest event-windows (-20, +5) exhibit a 5.34% spike in stock returns, in line with other studies documenting buy-and-hold returns (BAHRs) of 3.5% to 11% on event-windows ranging from (-15, +5) to (-25, +25) days. Additionally, the abnormal returns in the short-run are statistically robust to the variation of multiple event-windows. Moreover, the types of activism including general undervaluation, capital structure, and business strategy report significantly positive estimates. The announcement-associated returns accrue more to capital structure activism in which a fund initially intends to reduce the firm's excess cash holdings to mitigate the agency-related issues or repurchases of outstanding stocks and restructuring of the debts. Furthermore, these returns are robust to many settings when time-trend dummies, crisis dummy and firm characteristics are controlled. Following it, the next category pronouncing high abnormal returns is business-related activism. The funds targeting the firms with explicitly stated objectives are more successful in generating the short-run returns as compared to the funds intervening in the targets with less-specific goals. As a result, the funds with less-specific objectives do not appear generating abnormal returns during crisis when crisis dummy is incorporated. Surprisingly, I do not find statistically significant evidence that the recent financial crisis affects returns to activism.

The target firms' accounting and financial performance in the following two years after targeting suggests mixed results and differ from the strand of literature documenting positive impacts in targets' long-term performance. The potential reasons could be that of sample period and composition. In my sample, the firms, contrary to previous studies, are medium sized, reasonably valued, averagely paying out, and operationally better performing in pre-activism period. In post-activism years, the targets' market capitalization, annual sales, and total assets reduced remarkably in the following year, and the profitability when scaled on return on assets (ROA) and return on equity (ROE) fell sharply. Surprisingly, the cash-holdings increased in following year together coupled with increased leveraged.

Though, targets experienced a reduction in capital expenditures and research and development, however, the investment valuation ratio improved meaningfully.

The study contributes to the existing literature potentially on several fronts. First, it addresses the fundamental question of the impact of the hedge fund's activism on the target firms' performance, and attempts to explore whether activism strategies as well as its effect changes after the financial crisis of 2007-2008. Related to funds' activism, there has been growing literature in recent decades including Brav et al. (2008), Becht et al. (2008), Clifford (2008), Klein & Zur (2006, 2009), and Boyson & Mooradian (2009) examining the impact of hedge fund on targets' short-run and long-term performance. However, their studies cover the pre-crisis period. Since the recent financial crisis might have changed the course of activism and introduced new paradigm shifts, it would be interesting to investigate whether and how the funds have accordingly shaped their strategic patterns of targeting the firms.

Second, the hedge fund activism-related literature has mostly analyzed a limited sample comprising small time period. Differentiating on previously examined data, this study encompasses a relatively long period starting from 2000 to early 2012. The large sample frame not only increases the events in the sample but also allows to analyze how the hedge fund strategic patterns have evolved over the activism period.

Third, the empirically documented literature on fund activism has reported mixed findings on targets' performance. Regarding short-run performance, the studies have consistently been reporting abnormal returns around the announcement of filing dates with no reversal in prices; however, results on firm long-term performance vary significantly. This study intends to add more evidence to the existing literature on short-run market returns' performance and long-term accounting and financial performance.

The rest of the paper proceeds in the following way: Section 2 discusses the formation of the sample. In section 3, summary statistics, fund tactics, and the targets' characteristics are discussed. Section 4 discusses the short-run returns around 13D filing in the overall sample in general, post crisis in particular. Section 5 analyzes the long term performance of targets and relates it with prior documented findings. Section 6 concludes the paper.

2. Data Collection and Variable Construction

2.1 Hedge Fund Sample

Primarily, a sample of 200 hedge funds was obtained from Barclayhedge.com (private) hedge fund database upon request with given assets under management (AuM hereafter) and monthly net returns. Of this, only funds functioning in the U.S. were chosen. At next stage, the funds investing in equities under various categories including global macro, global, event driven, market driven among others were shortlisted. I excluded the fund of funds and close-end fund categories[3]. The remaining sample was enriched with additional funds found in hedge fund literature and on related websites. A list of at least 500 funds was assembled. At next phase, I performed a search test in the SEC's EDGAR search file with the first name of funds and other similar names. This process helped in adding more funds to the list. Then each fund was searched in EDGAR file for its past record and collected Schedule 13Ds made by it over the period of 2000-12 (Q1). EDGAR's file or Schedule 13D file does not mention explicitly the identification of the fund, hence, to clarify doubts on fund's identification and position, I

[3] Maier et al. (2011) argue that fund of funds impose share restrictions and do not reveal the liquidity characteristics.

checked each fund's home page and verified it with Factiva and other websites. Funds, which did not file a single 13D or filed merely 1 or 2 Schedule 13Ds over the sample period were not included into the list. As a result, such selection would potentially bias the sample either upwards or downwards. [4]

The process of multiple cross-checking and scrutinization left the sample with 112 U.S. hedge funds. Table 1, panel A represents the distribution of the activist funds over the period of 2000-2012 first quarter. An overview of the sample depicts the increasing trend in the hedge fund industry. Pre-crisis four years from 2002-05, the mean number of hedge funds remain same that is 7; however their target firms increase, in the years 2006-07, the targets reach a maximum, and then there is a subsequent declining trend following the financial crisis, in funds and their target companies. On average, each fund targets 6 firms over the sample period. Some outliers (e.g. Harbinger Capital Partners Master Fund, Carl Ichan C, Jana Partners LLC, and VP Partners LLC, among others) engaged in, on average, more than 20 firms in sample period which demonstrates their wide activist role.

2.2 Target Firms Sample

When a hedge fund acquires 5% or more ownership stake in a publicly listed firm, it is officially required to file 13D Schedule within 10 days of acquiring it to the Securities and Exchange Commission (SEC henceforth) of the U.S. under the 'Securities Exchange Act of 1934' in order to regulate the transaction for certain purposes in the secondary market.[5] The Schedule 13D describes the filer as an activist and entails the information on filer's name, the issuer's name and identity as an asset class, the number of total shares outstanding and their form, payment methods and related costs, the purpose of transaction, filers' portion in total outstanding shares, and other necessary documentation in the course of transaction's proceedings. Among others, the Item 4 of 13D filings discloses explicitly the filers' purpose of the transaction, including whether it considers the target undervalued or intends to involve at managerial and governance level or plans to propose some policy level changes.[6]

A hand-collected set of data based upon different items from Schedule 13Ds is gathered and compiled according to their mentioned purpose of the transaction. The sample initially includes more than 4260 events of 13Ds and amendments (13D/As) over the period of 2000-12 (first quarter) of which it comprises of 760 13Ds events or pairs of the U.S. fund-firm. Some firm-funds pairs are occurring more than once, which after scrutinizing process were limited to 688 firms regardless of their respective industries. These firms were searched into the Thomson Reuters DataStream for their DS Mnemonic Codes (identification codes). The firms having no codes in DataStream were dropped from the list. The following search process shortlists 551 firms, ultimately.

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[4] EDGAR's file based search could bias the sample either towards small firms (big firms) or to big funds (small funds). Funds acquiring small stake (<5%) do not appear in EDGAR's filings but indeed play an active role in targets, as a results, cannot be traced for data. Similarly, the funds which hold 5% or more stake might target small firms and vice-versa. Prior studies on fund activism have heavily shown concerns on this particular issue which cause to reduce the impacts by not including the large funds with stake < 5%. (For details see Brav et al. 2006).

[5] A corporate entity crossing the threshold of 5% ownership stake and does not intend to perform active role is obliged to file 13G within 45 days of holding.

[6] Schedule 13D and other filings can easily be downloaded through EDGAR filings search on www.sec.gov website.

After having a comprehensive list of 551 U.S. based firms, I collected data on their stock prices and accounting figures on their balance sheets, income and cash flow statements, respectively. Stock prices are daily based and start prior to the year 2000 up to 2012 first quarter. For event study approach, I add the stock prices 180 days prior to earliest 13D event. The event or filing day is the transaction date, when the fund marks the regulatory threshold of 5% ownership, which is in most of the cases explicitly mentioned in the 13D Schedule. Alternatively, it is derived from the Item 5, where each large shareholder is enlisted with respective stake in the firm ownership and date of purchase[7]. For a small number of firms in the sample, DataStream does not provide stock prices in pre-event dates, however, it is negligible portion and does not affect overall sample.

Out of 551 firms' sample, a large proportion of firms are reported as either dead or completely buyout, merged, or delisted from DataStream during the course of activism. Given that, the database does not explain any reason for disappearing firms. The accounting figures are taken on an annual basis, however, database again experiences a similar situation of the missing figures on accounting and financial statements. Firms with missing figures account for 20% of the sample. These caveats have widely been discussed by the prior literature on activism. Among others, Greenwood and Schor (2007) reduce their sample size approximately half to the firms available in Compustat but then it makes the sample upward bias to small firms.

During the course of activism, a hedge fund keeps on following up with the target firm and files several amendments known as 13D/As. These amended files reveal the fund's consideration about the target contemporary performance and its strategic plans regarding future policies. In the majority of these cases, the fund demands merely a formal communication for investment purpose, however, sometimes, it recommends an entire change in the course of actions including displacement of CEO, board management, making or preventing new mergers and acquisitions (M&As), corporate and governance matters. In order not to miss any important information, I went through these amended files in particular and gathered all theoretical information on relevant items. In case of a significant change to the previously submitted purpose of the transaction (e.g. If a fund initially purchases the stock for portfolio investment by having no intention of playing an active role at managerial level and later on alters it to participate in corporate activities as an aggressive/hostile investor) then this amended file would be considered as a separate case. However, earlier studies report that these follow up events do not affect the significance of the overall results (see e.g. Greenwood & Schor 2007). In my sample, 3500 amended files (out of 4260) constitute about 80% of the total sample.

3. Summary statistics of activism-based events

3.1 Hedge Fund Intention towards Target

Table 1, panel A shows the distribution of hedge funds used in the sample over the period of 2000-12 first quarter. Interestingly, the number of funds does not vary significantly though relatively a small degree of spike is observed in the closing years of financial crisis.

Panel B depicts the chronological distribution of the events over the sample period. Each event represents a Schedule 13D filing whether it is several times filed by an individual fund or separately filed by different fund. An overview of the figures reveals that there was a steady growth in activist events before the occurrence of the recent financial crisis. The overwhelming majority of the events took place during early 2000 and before financial crisis consistent with events distribution documented by Greenwood & Schor (2007) and Boyson & Mooradian (2009). One reason for the

[7] Item 5 of 13D filing describes the composition of firm ownership. It lists the large shareholders with their holding stake in firm.

dramatic increase in activist events is advanced by Greenwood & Schor (2007) stating that hedge fund might have replaced the role of pension and mutual funds once occupied in 90's and early 2000's. The other factor could be the expansion in the hedge fund industry in post 2000's when investment was comparatively better rewarded by fund-related activism. A notable downfall in the events following the recent financial crisis is credited to the outflow of capital from hedge fund industry and prudent behaviour of the investor.

Panel C delineates the number of firms target by activist funds. For the sample of 760 events 688 firms are targeted by 112 hedge funds.

In the Schedule 13D form, a filer provides detailed information about the transaction. The Item 5 of filing titled as 'interest in the securities of issuer' normally discloses information on beneficiary entity individually as well in a group, date of transaction, number of stocks held by each beneficiary, if applies then share class (type A or B). Item 3 known as 'source and amount of funds or other consideration' of 13D filing describes the information on the amount paid on purchasing the stock and sources of payment.

Panel D summarizes the percentage of the shares held by the fund and the related cost incurring on its purchasing. Out of 760 fund-firm pairs, 733 events have provided details on stocks owned by the fund and explicitly have reported them in Schedule 13D. Mean ownership holding at initial filing is 13% which are in line with Boyson & Mooradian (2009) reported figure. However, quantitatively it is many times larger than theirs indicating that targets, on average, are comparatively bigger. Regarding the fund's transaction costs of purchasing stocks, the information is limited to about 50% firms approximately. The mean cost of the transaction, by marking the threshold of 5% or above, is about 77 million dollars.

Panel E reports the theoretical information collected from the Item 4 known as 'Purpose of Transaction' in 13D form. An activist fund is officially advised to reveal its intended purpose of acquiring a substantial stake in the target. These intentions or stated objectives cover multiple tasks impacting the target company over the due course of activism. To sort out the information, I follow the patterns build by Brav et al. (2008) into seven different categories as general undervaluation or maximization of the shareholder value, capital structure, business strategy, sale of the firm, and governance matters, financial distress or bankruptcy and arbitrage. Consistent with the previous studies, an overwhelming majority of cases in the sample shows that the fund initially acquire the target for value maximizing purpose considering either target is undervalued compared to its peers or has potential to raise its price to demonstrate the true intrinsic value. Aside from active role, a fund, whether it files 13D or 13G, always starts participation in target by engaging with management with a central goal of value maximization.

A considerable majority of the cases indicates that funds view their target current business strategy flawed and operationally inefficient, illustrated by an approximately 16 percent of the transaction purposes. A business strategy might involve restructuring, spinning off some assets, preventing mergers & acquisitions or aligning for the best deal and alike. A well proportion of events demonstrate that funds are concerned over poor corporate governance in target companies. Holding 5% or more meaningful stake in the target firm presumably helps the fund to get representation on board and subsequently to influence the managerial decisions. This assumption is also supported by the prior studies of Brav et al. (2008), Greenwood & Schor (2007), and Boyson & Mooradian (2009). The aggregate of all events classified in panel D exceeding the total events is due to non-mutually exclusive stated goals of the funds during the course of activism.

3.2 Hedge Fund Techniques to Influence the Target

When an activist fund acquires 5% or more ownership in a target company, it explicitly discloses its purpose of transaction in 13D form under Item 4. In this section, I collect and compile the information on funds' techniques by which they intend to impact the target at the initial stage of activism. Table 1, panel F summarizes the techniques that how a hedge fund carries out its agenda while holding a meaningful stake in the target. Following the framework of Brav et al. (2008), I order these tactics according to the course of actions. These tactics are 1): The hedge fund conducts preliminary meetings on a regular basis with the target management to get involved with the ongoing business activities. About half of the cases reveal that funds start active role by negotiation with the management (53.6%). 2): A considerable majority of funds seeks to get board representation (12.25%). 3): A small number of hedge funds plan to withdraw their board nominees (2.24%). 4): The funds intend to prevent the target to make any unfavourable decision regarding shares selling at discount (2.24%). 5): Hedge fund asks the target to change the course of business on proposal of shareholders (8.56%). 6): Funds performing individually, if unsuccessful then seek the collaboration with other institutions or block holders (5.40%). 7): The hedge fund threats, confronts, or compel to restructure the target's prevailing course of business (9.09%). 8): The hedge fund individually or as a group, plans to have a proxy contest against target's merger or acquisition for better negotiation (4.08%). 9): The hedge fund legally sues the company in bankruptcy court (2.24%). 10): Hedge fund completely buys out the firm or merge it with other portfolio company (1.58%).

3.3 Characteristics of target Companies

Exemption from several regulatory restrictions, implying sophisticated investment strategies, and professional expertise present hedge fund an ideal candidate for driving activism-related returns. To do so, what sort of firms are being selected in the fund's portfolio. The activist funds preferably target companies having potential prospects in terms of returns and financial performance. The selection of target is subjected to a fund's intended period of holding stake in target, capital-lockup period, fund and firm operational and financial characteristics. Regarding firm choice, I investigate the fundamental question of interest what kind of firms do hedge funds target for activism?

To examine it, I compute characteristics of the target companies in the year before activism and illustrate them in table 2.

Table 2 exhibits the summary statistics of the characteristics of the targeted companies in the year before activism. All figures are annual and obtained from Thomson Reuters DataStream. I compute the essential list of ratios including proxies for firm size, operating and financial performance, debt capacities, profitability, investment, and valuation. [8]

Starting with the proxies for the size of firm indicated as market value or capitalization (defined as the number of shares times per share price) and annual sales (in mil.), one can simply observe that there is large heterogeneity in summary statistics that is, on average, the selected firm possesses 1227 million dollar market value which is comparatively larger than the sample firms of Brav et al. (2008), Boyson & Mooradian (2009). Although, the sample composition and period differs in this study, yet the figures exhibit them medium large size firms.

[8] For definitions and computational process of ratios, I followed the prior studies including Brav et al. (2008), Greenwood & Schor (2007), Boyson & Mooradian (2009), and Klein & Zur (2006) among others.

Regarding firm's valuation ratios indicated by book to market ratio (book value of equity/market value of equity) and Tobin's q (long-term debt + the market value of equity/ long term debt + the book value of equity) are lower in comparison with Brav et al. (2008) computed ratios revealing that funds are interested in value firms. Evidently, about 60% of funds stated explicitly in Schedule 13D 'Purpose of Transaction' that the targets are undervalued. Hence, theoretically it supports the argument that undervalued firms are more prone to fund's activism.

Regarding firm's operational performance when scaled on sales growth and asset returns, the results are uniquely mixed. The sales growth (measured as annual percentage growth) increased double or in percentage gauge more than 200% before targeting accompanied with a negative return on assets (measured as the ratio of EBITDA divided by lagged total assets). Contrary to Brav et al. (2008), Klein & Zur (2006), the ROA is consistent with the one documented by Boyson & Mooradian (2008), however, with higher magnitude. On average, the targeted firms in my sample are cash-equipped known as cash cows evidenced by higher CF ratio (measured as a percentage of total assets) as compared to previous studies. Targeting cash excessive firms support the widespread idea that the funds target such firms to absorb excessive money through cash dividends and leave the firms with increased debt capacity (Klein & Zur 2006). Overall, the targets included in the sample performed better in terms of operational efficiency in the year before activism.

In terms of debt capacities, the book leverage (defined as debt/(debt + book value of equity)) and the market leverage is 40.66% and 31.71% respectively in comparison with Brav et al. (2008) 34.8% and Boyson & Mooradian (2008) 29.9% and 27.86%. Next variable cash (defined as cash percentage of total assets) is 20.69% which is again higher fewer points from previous studies. The dividend yield (defined as (common dividend + preferred dividend) /(market value of common stock + market value of preferred stock)) is, on average, 60.68% much higher compared to empirical characteristics of examining samples of related studies. [9] Payout ratio (defined as dividend / net income before extraordinary items) is 2.13% lower in fewer points than to other documented figures. In a nutshell, the sample of target firms depicts that funds target highly leveraged and financially depressed firms.

At the next stage, the set of variables assessing the investment aspect of the target firms is analyzed. Capital expenditure (measured as a percentage of total assets) and research and development (RD, measured as percentage of total assets) are 9.40% and 7.20%. To evaluate the extent of these ratios compatibility with prior reported figures (Brav et al. (2008), Klein & Zur (2006)), I infer that the targets fall in the stratum of a relatively lower group of firms spending on research and development.

Summarizing the characteristics of the targeted companies by a set of conventionally defined ratios, I conclude that the funds preferably target small and medium sized, undervalued, operational and financially relatively strong with high cash holdings however highly leveraged, paying high dividend yield, and averaged investment oriented firms when compared with prior reported studies on hedge fund performance.

4. Activism and Stock Returns Performance

To address the principal question of value creation through activism is our primary concern. In this section, I investigate how activist funds strategically target the firm in order to extract the returns and

[9] The quoted dividend yield mean is for 552 target firms, however, only 105 firms have provided the figures for dividend yield in sample which is, on average, 289.52%. Withholding the assumption of approximate computations, the targeted firms paid very high dividend yield in year before activism. For payout ratio, DataStream provides merely 148 firms data, having mean 7.58%.

whether activism actually produces value for the shareholders. Second, how the market perceives and reacts over the course of activism? To satisfy these concerns, I analyze the target firms' performance in short -run and in the long-term. In the short-run, the target firms' performance is assessed by stock returns around the filing or event dates and in the long-term on the accounting and financial measures.

4.1 Announcement Returns for All Target Companies in Short-Run

To examine the short-run impacts of activism on target firms, I utilize the event study approach which is conventional notion in earlier empirical studies (e.g. Brav et al. 2008, Boyson & Mooradian 2007). For this purpose, I construct the estimation windows of 150 days before the event date and limit it 30 days before filing date. An estimation window of 4 months or (-150, -30) 120 days will relatively better display the return fluctuations before anticipating the event effects and attributing it to the activism.

For the sample of 551 target firms, I extract their daily stock prices.[10] Following the methodology laid down by Greenwood and Schor (2007), I estimate loadings of target companies returns on Fama & French (1993) three factor model including High minus Low (HML), Small minus Big (SMB), and market return factor[11]. The process of computing cumulative abnormal returns is based upon the abnormal returns accumulated by above model.

To evaluate the market reaction upon a hedge fund's initial involvement in the firm around the filing date, I construct different size event-windows. Figure 1 plots the mean cumulative abnormal returns for the target companies in pre and post event days. The return pattern reveals insignificant movements in the early days but as soon as the market perceives the fund's presence, the positive and significant response initiates from the market. At crossing a threshold of 5% or more ownership stake, a fund is legally required to file a Schedule 13D in 10 days. Under the assumption of efficient and well-informed markets, the transaction impacts are immediately reflected in prices.[12] Up to what extent market reacts depends upon the intensity or level of activism and on characteristics of a fund and firm. In figure 1, closing to the event date set at 0, there is price run up which keeps on rising and as a result, there is realization of more than 5% CARs for event window of (-20, +5) days.

The spike in stock prices around the filing date in the sample is consistent with previously presented studies. Brav et al. (2008) document a total of 7.2% buy-and-hold returns in excess of buy-and-hold return on the value weighted NYSE/Amex/NASDAQ index over the (-20, +20) days event windows. To assess the early -10 (-20, -10) days effect, I break-up the event windows to (-10, +5) days to capture the close impacts of filing on equity prices. Interestingly, the cumulative abnormal returns do not change substantially.

Table 3 illustrates the various event windows and their subsequent cumulative abnormal returns. The computed returns are BAHR returns at the last day of each window. On closely examining the aggregate returns of each window, it becomes clearer that a large proportion of the returns accrue just prior to the event or announcement date. The run-up hike follows in post-activism earliest days, depicted by (-10, +5) event window. A drastic change in trading volume is observed in (-10, +5) day window producing 5.14% buy-and-hold returns in excess of the market returns showing an immediate

[10] For some target firms, the pre-event or estimation window stock prices were not available which slightly affects the results.

[11] Portfolios formed on size and book to market can easily be downloaded from Fama-French website: http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html

[12] "Efficient market hypothesis" Fama (1970).

outcome of acquiring a substantial stake in the target in the short-run. The price hike does not sustain its momentum in post-event dates and excess event date returns fall by half approximately (e.g (0, +10) window). The downfall in returns indicates that the market has possibly observed all information regarding trade volume and fund-firm characteristics and has reflected them in the prices.

4.2 Types of Activism and Event-Days Abnormal Returns

Related to event-days abnormal returns, I examine how the market responds to various types of activism in short-run.[13] To analyze the cross-sectional variation in expected CARs accruing to different types of activism due to prevailing heterogeneity in market perception, I regress different lengths of event windows against types of activism as described in section 3.1 of summary statistics.

Table 4 reports the regression results after regressing multiple event-windows cumulative abnormal returns against a set of dummies of activism. The estimated coefficients reflect the market reaction to each type of activism explicitly stated in funds' purpose of the transaction. Following the specification of Brav et al. (2008), the dependent variable cumulative abnormal returns (CARs) obtained at different event-windows is regressed against the dummies of General Undervaluation, Capital Structure, Business Strategy, Sale of the target, and Governance. To control for the unobserved heterogeneity in returns over the time, I control for the target firm size (log of market value) and the time trend dummies. [14]Since the model mostly carries dummies, to facilitate the interpretation of the coefficients of dummy variables, I follow the practice of suppressing the intercept of the regressions as is done by Brav et al. (2008) and Boyson & Mooradian (2009).[15] In addition, the nondummy variables including the size of the target (LnMV) and long term debt (Lndebt) are demeaned and expressed in the form of deviation. Resultantly, the coefficients on dummies can be interpreted as the average effect on abnormal returns of one specific group of events with the assumption that the targets possess average characteristics.

In table 4, the coefficients of explanatory variables (dummies) for different event-windows around the announcement dates vary across the objectives initially stated in the 13D filings. In column I, I regress the longest (-20, +5) event window cumulative abnormal returns against the activism dummies, firm size, and the long-term debt. The estimates of all dummies are positive. The fund placing its agenda in initial filing as to change capital structure of the target is generating highest abnormal returns of 12.2% on average which is significantly positive at 5% level. Following it, the funds intend to bring changes to target business strategy likewise restructuring or spinning off are successful in generating on average 9.2% abnormal returns at 5% significance level. The fund putting up no agenda to intervene in the target's ongoing course of business produces a mean return of 2.8% in relatively longer window (-20, +5) , steadily increases to 4.2% in post announcement dates. Since the types of activism are non-mutually exclusive; hence, a fund which states its objective to change capital structure but also intends to target a firm's business strategy can therefore generate an aggregate abnormal return of 21.4% (12.2% + 9.2%). In column II, I regress relatively shorter event window (-10, +5) of abnormal returns on the set of independent variables. The results show persistency in

[13] Table 9 reports the CARs for all types of activism for the longest window of (-20, +5) for each day. The t-statistics are also computed. An overview of the figures depict that most of the returns are accrued closing to filing date in a short window of (-5, +5).

[14] In an unreported regression, to check the robustness of coefficients, I replaced market value with sales, assets, total number of employees. The overall results are unaffected and remain significant.

[15] Brav et al. (2008) argue for suppressing the intercepts because of full span of dummies in model. In unreported results, when intercept is incorporated into the model, many activism dummies report insignificantly negative estimates.

significance level with reduced magnitude in estimates. In column III, and IV, when post event days are extended, as a result the coefficient for capital structure becomes insignificant. Summarizing it, the market responds overwhelmingly to the anticipated changes to target capital structure and business related activities by funds and reflects it in stock prices. The funds engaging with targets' management on a regular basis and not intervening in the firm's course of business do generate abnormal returns over a long post-announcement period.

The results are in line with the previously reported studies on activism-related impacts on returns. Brav et al. (2008) findings suggest that the funds stating their goal of selling the targets generated highest significantly positive abnormal returns of 8.54% followed by the group of funds stating their objective to engage with management without any intervention with an abnormal return of 6.29%. Boyson & Mooradian (2009) with relatively longer panel document that the funds putting up their intended agenda as to intervene in target's governance are highly rewarded in price appreciation by market with a significant CARs of 38.5%. The remaining activism-motives other than governance though generate positive abnormal returns but are not distinguishable from zero. [16]

The variations in findings are attributed to the differently composed datasets and applied methodologies. The sample in this study covers comparatively a longer span which might cause to alter the results for considered types of activism. In addition, previous studies are done on pre financial crisis data, another factor to be accounted for.

4.3 Financial Crisis Impacts on Hedge Fund Activism and Target Firms Performance

4.3.1 *Abnormal returns around the announcement days in post financial crisis*

The study essentially takes into account the crisis impacts on hedge fund activism and its subsequent effects on target performance. An equally important question arises whether the recent financial crisis affects the target firms' performance. To examine it, I divide the data into two sub-groups i.e. pre financial crisis starting from 2000 to until July 2007, and post financial crisis beginning from July 2007 and ending at first quarter of 2012 (final observation of 13D filing).[17] I measure the crisis by means of dummy variable which equals one in the crisis period starting in July 2007 and ends at the first quarter of 2012; 0 otherwise. In sample, one third observations fall in the post financial crisis period. Prior studies taking recent financial crisis into account have been using the applied definition (see for detail e.g. Maier et al. (2011), Ben-David et al. (2011)).

To examine the crisis impact, I incorporate the crisis dummy into the model. In addition, I also control for the size of the firm (log of market value) which is demeaned and presented in a deviation form. The panel regressions with dependent variable as cumulative abnormal returns (CARs) on several event windows against dummies of activism, crisis dummy, and size of the firm. The constant term is suppressed in this set of regressions as explained earlier.

[16] Klein & Zur (2006) report their buy-and-hold returns for activism's types but in a slightly different way which are significantly positive.

[17] The crisis in sub-prime sector which started in ealry 2007 subsequently trickled down to the financial institutions including banks, holding companies, investment banks, and brokerage houses in the mid of 2007. An agreed concensus among academician defines the crisis period from July 2007 till December 2008. Maier et al. (2011) advance another potential reason for crisis definition stating that "at the end of June 2007, hedge funds of the investment bank Bear Stearns, which invested in the sub-prime mortgage market, were among the first to struggle". (see for details 'Bear Stearns says battered hedge funds are worth little', New York Times, July 18, 2007).

Table 5 illustrates the regression results after controlling for the crisis effect. In comparison with table 4 results, no significant difference appears. Interestingly, crisis dummy is insignificantly positive when regressed across multiple event-windows.[18] However, it impacted the estimates of other activism dummies, though slightly. The positivity holds closer to event date but related magnitudes become smaller and negative in post event dates. The column 1 of table 5 shows that the General Undervaluation coefficient is no more significant, whereas it is significant at the 10% level without crisis dummy in previous table. The fund stating a goal to maximize the value of the target without any pre-specified intervention is perceived positively by the market regardless of crisis period. The columns II, III, and IV of table 5 indicate that funds targeting firms without any pre-plan agenda are rewarded positively even in post event-days. This result is consistent with the idea that fund's initial involvement in the target is favourably rewarded by the market. The activists stating their agenda to reform their target capital structure mostly experience the abnormal returns which are robust to the crisis. However, the columns III and IV in table 5 results reveal that these returns merely accrue to prior days of 13D filing announcement. The activist hedge funds intending to target the firms' course of business including restructuring or prevention of mergers and acquisitions do not seem to be affected by the crisis and generate approximately similar abnormal returns. The fund carrying motive of selling its target partially or completely is on average produces a CARs of 4.8% in the short-run, significantly different than zero at a level of 5%. However, the abnormal returns realize in post-event days. This result can be interpreted for the weakly performing firms during the crisis i.e. either sell them to potential buyer or buyout them. The abnormal returns associated with governance-related activism including CEO replacement or turnover, executive compensation, and board representation do not appear significant in the short-run around the initial filings when the crisis is incorporated into the model. Summarizing the results, when I control for the crisis effect, the estimates for activism dummies are approximately unaffected.

4.3.2 Abnormal returns and interaction terms with crisis and firm characteristics

In this section, I further examine whether different types of activism explain differences in CARs after controlling for crisis effect and certain characteristics of the targets presented in table 2[19]. Re-regressing the multiple event-windows against activism dummies, the size of the firm, and a set of control variables explaining the firm financial characteristics. I control for the time-trend dummies and suppress the intercept terms as explained earlier to facilitate the interpretation for dummies coefficients.

Table 6 reports the regression results. Extending the model presented in table 5, I include the interaction terms of crisis with types of activism to examine which strategy works out more effectively in the crisis. To do this, I created dummies of crisis with each type of activism. Table 6 exhibits the results. All columns I to IV of table 6 show strong relations. In column I, all activism dummies coefficients are significant except for target sale. The significance of the estimates holds over the entire event-windows. The interaction terms which are product of crisis dummy and types of activism appear in weak relation and statistically are not distinguishable from zero. In an unreported result, when I control for targets' characteristics with interaction terms of crisis, only the coefficient of business strategy shows positive significance accompanying with payout ratio.

Columns I to IV of table 7 presents the regression results when a set of important firm characteristics including valuation, operational performance , profitability, leverage, and dividend yield are regressed

[18] In an unreported regression, when CARs of multiple event-windows are regressed separately for crisis dummy, the coefficients were insignificantly negatively.

[19] These characteristics of the targets are measured in the year before activism.

against CARs of multiple event-windows.[20] The estimates on characteristics in aggregate are insignificant except for research and development implying that market reacts to the firms being targeted for increasing capital expenses.

To summarize the crisis impacts on hedge funds' strategic behaviour towards its targets, I conclude that after controlling for the recent financial crisis effect, there is no significant change in funds's strategic way of targeting the firm. Moreover, the short-run abnormal returns around the announcement of Schedule 13D filings remain significantly unaffected. Overall the discussion of market response to the fund's activism reflects the consistency in perception that market favourably rewards the fund's involvement in the firm. On average, a 5% run-up is noticed in short-run following the 13D filing indicating that activism has a positive impact on the firm's value.

5. Hedge Fund Activism and Long Term Performance of Targets

Following the track of prior documented studies on long-term target performance (including Klein & Zur (2006), Greenwood & Schor (2007), Brav et al. (2008), Boyson & Mooradian (2009)) I extend the analyses and hypothesize whether hedge funds actually improve the targets' performance in the long term.

The sample covers the period from 2000 to 2012. In order to compare and to evaluate the post activism performance I collect the accounting and financial data for the year before activism and in the years after activism.[21] For the events taking place in 2011 and onward, DataStream is unable to provide data for the next two fiscal years. Hence, in such case, sample drops initially 130 firms. In addition, many firms in the sample in the following years of activism are either delisted, acquired, merged or simply do not supply data causing the sample to reduce to 337 firms for first year and 276 (approximately half sample) firms for the second year after activism respectively.[22] Firms dropping for post-activism analysis has been discussed by Greenwood & Schor (2009).

Table 8 reports the changes in the characteristics presented in table 2 in following two years after activism. Column I & II report the differences in means of target firms' characteristics in pre and post first and second year of activism respectively. In a similar way, the differences in medians are computed in columns III and IV. On average, the targets experience significant losses in operating efficiency depicted in drastic reduction in sales growth, however; it not only recovers back but promises considerable growth (i.e. 112%) in second year evidenced by 1% significant level. The variable CF (cash flow, measured as percentage of total assets) for the surviving firms significantly reduces in both following years when compared with the year before activism. The reduced level in operational cash flow possibly increases the probability of being insolvent. Both means of measure (mean and median) report significantly negative figures. The leverage ratios or debt capacities when measured by BL (book leverage as debt/(debt + book value of equity)) and ML (market leverage, as debt/ (debt + market value of equity)) produce significant positive results in the fiscal year after activism. The BL experiences an increase of 15.20% whereas ML increases by 2.67% on average. Both measures are significant at 5% and 1% level respectively. The increased leverage of the targets together coupled with reduction in cash flows making the firms vulnerable to insolvency.

[20] In an unreported regression, when crisis dummy is not included into the model, the coefficient for capital expenditure becomes significantly positive.

[21] Pre-activism year is the lag year when initial Schedule 13D is filed and post-activism year is defined as the fiscal year following the 13D filing.

[22] These caveats have widely been discussed by prior activism-related literature (see for detail Greenwood & Schor (2007), Boyson & Mooradian (2009)).

The hedge funds are characterized as to reduce the excess cash holdings to mitigate the agency issues related to the additional cash in firms. The firms in the sample are cash-rich making them prone to be targeted. Two year post-activism long-term changes show that the targets cash holdings (% of total assets) substantially increases when scaled on differences in means. In the following year of activism, it increases by 1.52 percentage points and in the next year by .65 percentage points, dropping by half. The differences in means of excess cash-holdings are statistically significant for both years. These findings are in contrast with the prior documented results of Klein & Zur (2006) and Boyson & Mooradian (2009) reporting that in post-activism year targets experienced decreases in cash holdings as compared to the peers in matching sample. [23] This phenomenon of increased cash-holdings could possibly be explained by other key figures of payout ratio and dividend yield.

The payout ratio (total dividend / net income before extraordinary items) in the first year of activism reduces by 7.72% supporting the evidence of the presence of large cash-holdings in the targets (i.e. 1.52% in first year of activism). In the second year of activism, increases in payout ratio by 6.21% , through insignificant, provides enough reasoning of the reduction in cash-holdings by 0.67 percentage points (1.52% - .65%). These findings differ with Boyson & Mooradian (2009) and Klein & Zur (2006). The differences in results could be subjected to the unique sample frame and methodologies.

On the side of investment, the capital expenditures (% of total assets), and research and development (% of assets) reduce drastically in the years following activism. The mean change in capital expenditures has significantly fallen from 4.39% to 5.13% in two years of post-activism. On the other hand, the research and development reduces from 0.13% to 2.24% in two years respectively. The reduction in mean differences is statistically significant at conventional levels. The changes to R&D and capital expenditures in post-activism suggest the poor and sub-optimal allocation of resources towards targets' future investment horizons. Moreover, reduction in R&D expenses will leave the target firms less competitive with their peers. These findings are in contrast with the documented results of Klein & Zur (2006) and Boyson & Mooradian (2009) reporting that targets experienced increases in R&D and capital expenditures compared to the matching sample firms.

From the profitability perspective, I examine whether hedge fund-owned firms perform better than peer firms or at least improve in terms of profitability in ex post-activism. To assess the targets' profitability, I use the measures return on assets (ROA), and return on equity (ROE). The firms experience a sharp reduction in ROA and ROE a negative of 5.64% and 23.04% respectively in the post-activism year. However, these differences are not distinguishable from zero. In the second year of activism, a dramatic improvement of positive 2.47% in ROA, and 14 points in ROE is observed, though insignificant. It appears that funds' applied strategies work with a lag period. The results differ with Brav et al. (2008) reporting a change in ROA of 0.23 to 0.25 in the years following activism. Their findings indicate that improvement in firm's profitability is associated with the fund's redirection of resources in more efficient uses. However, the findings of this study are in line with the one documented by Klein & Zur (2006).

Summarizing the accounting and financial performance of targets, I conclude that there is no substantial evidence that hedge funds facilitate the poorly-performing firms in enhancing their long-term value. Rather, I find evidence that targets profitability (ROA, ROE), market value, assets, and sales declined. In addition, cash accumulations in targets increased, payout ratio and spending on firms' operational activities including capital expenditures, and research and development reduced

[23] Boyson & Mooradian (2009) consider that differences in characteristics in post-activism period may be attributed to sample time period and composition. If this holds, then sample under-study which takes into account the crisis impacts highly expect to produce the results contrary to previously documented findings.

considerably. Overall, the results do not fit into the existing literature describing the fund-activism as a measure to improve the poorly-performing firms.

6. Conclusion

This study examines the hedge fund activism with a largely hand-collected unique dataset consisting of 112 activist hedge funds targeting 551 firms over the period of 2000 to early 2012. The study encompasses the U.S. market. An activist hedge fund is defined as when a fund crosses a regulatory threshold of 5% or more stock in a company for activism purpose and files a Schedule 13D Form with the U.S. Securities and Exchange Commission.

The study investigates the fundamental question of whether the recent financial crisis has affected the hedge fund activism. Since the recent financial crisis, the critics have questioned the effectiveness of hedge fund monitoring in target firms. Moreover, the financial crisis might have changed the typical approach of activism and introduced new paradigm shifts, making it interesting to investigate whether and how firms have accordingly shaped their strategic patterns of impacting the target companies.

The study essentially examines the funds' objectives, targeting tactics and the evolving outcomes. It investigates the emerging trends in strategic ways of impacting target firms in pre and post financial crisis. Our pre-crisis period marks June 2007 and post-crisis starts from July 2007 and onward.

Unlike previous studies, the funds in this study target relatively medium size firms based on average market capitalization. The targets pre-activism one year performance indicates that they are undervalued, financially strong, holding excess cash, highly leveraged, and operationally better performing.

The findings of the study suggest that in the short-run market reacts favourably to the hedge fund activism around the announcement of 13D filings. The longest event-window (-20, +5) days generates CARs about 5.34% which is consistent with the prior documented literature. Most of the CARs accrue to the funds targeting the firms with the intended goal of reforming the capital structure followed by business-related activism. Surprisingly, the crisis impact is found statistically insignificant.

The long term performance of the targets indicates mixed results differing from the strand of literature documenting positive impacts on targets' long-term performance. In post-activism two years, the targets' market capitalization, annual sales, and total assets reduced remarkably in the following year, and the profitability when scaled on return on assets (ROA) and return on equity (ROE) declined significantly. These findings are consistent with Klein & Zur (2006) reporting that funds do not improve the accounting performance of their targets. Rather, EPS, ROA, and ROE declined in the year following the activism. Surprisingly, the cash-holdings increased in the following year together coupled with increased leveraged. Though, targets experienced a reduction in capital expenditures and research and development, however, the investment valuation ratio improved meaningfully. Overall, hedge funds do not succeed in improving the long-term performance of their target companies.

Appendix

Important Variables and their Definitions

Market Value (MV)	Firm's stock price times number of shares outstanding
Sales	Sales represent a firm's annual sales
Tobin's Q	Long term debt + the market value of equity/ long term debt + the book value of equity
Book/Market	Firm's book value of equity/market value of equity.
Growth in Sales	Annual percentage growth in sales.
Returns on Assets (ROA)	Ratio of EBITDA divided by lagged total assets.
Cash Flows	Percentage of assets.
Book Leverage (BL)	Debt/(debt + book value of equity),
Market Leverage (ML)	Debt/ (debt + market value of equity),
Cash	Percentage of assets and defined as (cash + cash equivalents)/assets,
Dividend Yield (DY)	(common dividend + preferred dividend)/(market value of common stock + market value of preferred stock)
Payout	Total dividend / net income before extraordinary items,
Capital Expenditures	Percentage of assets
Research & Development (R&D)	Percentage of assets
Return on Equity (ROE)	Net income divided by total equity.

Some Important Studies:

Hedge Fund Activism, Corporate Governance, and Firm Performance
Alon Brav, Wei Jiang, Frank Partnoy,Randall Thomas (2008)

Data	2001-06
Short-run performance	Market returns around 13D filings
Longest event-window	41 days
Buy-and-hold returns	7.00%
Long-term performance	One years accounting and financial performance
Variables	Changes in profitability, discretionary spendings, cash, debt capacities in first post-activism year
Dummies	General undervaluation, capital structure, business strategy, sale of the target, governance.

Findings
The abnormal return around the announcement of activism is 7%.
Two years post-activism performance of activism result in an increase of payout, CEO discipline, and an improvement in operating performance.

Hedge Fund Activism
April Klein, Emanuel Zur (2006)

Data	2003-2005
Short-run performance	Market returns around 13D filings
Longest event-window	61 days
Buy-and-hold returns	10.30%
Long-term performance	One year accounting and financial performance
Variables	Changes in profitability, discretionary spendings, cash, debt capacities in first post-activism year
Dummies	General undervaluation, capital structure, business strategy, sale of the target, governance.

Findings
The abnormal return around the announcement of activism is 10.30%.
One year post-activism performance of targets in an increase of payout, reduction in excess cash, CEO replacement, reduction in earnings per share, return on assets, and return on equity.

Corporate Governance and Hedge fund Activism
Nicole M. Boyson, Robert M. Mooradian (2011)

Data	1994-2005
Short-run performance	Market returns around 13D filings
Longest event-window	51 days
Buy-and-hold returns	9-11 %
Long-term performance	One year accounting and financial performance
Variables	Changes in profitability, discretionary spendings, cash, debt capacities in first post-activism year
Dummies	General undervaluation, capital structure, business strategy, sale of the target, governance.

Findings
One year post-activism performance of activism results in firm-value enhancement, reduction in cash-holdings, profitability increases.

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Figure: 1 Cumulative Abnormal Returns for all targets around the filing / event date over the event-window of (-20, +5) days - For entire period (2000-12Q1)

The figure plots the mean cumulative abnormal returns (CARs) or buy-and-hold returns (BAHRs) for the sample firms around event/filing date over the event window of (-20, +5) days. The 0 indicates the filing/event date. An event-date is a day when a fund files 13D to the U.S. SEC after crossing a regulatory threshold of 5% or more in a target within 10 days.

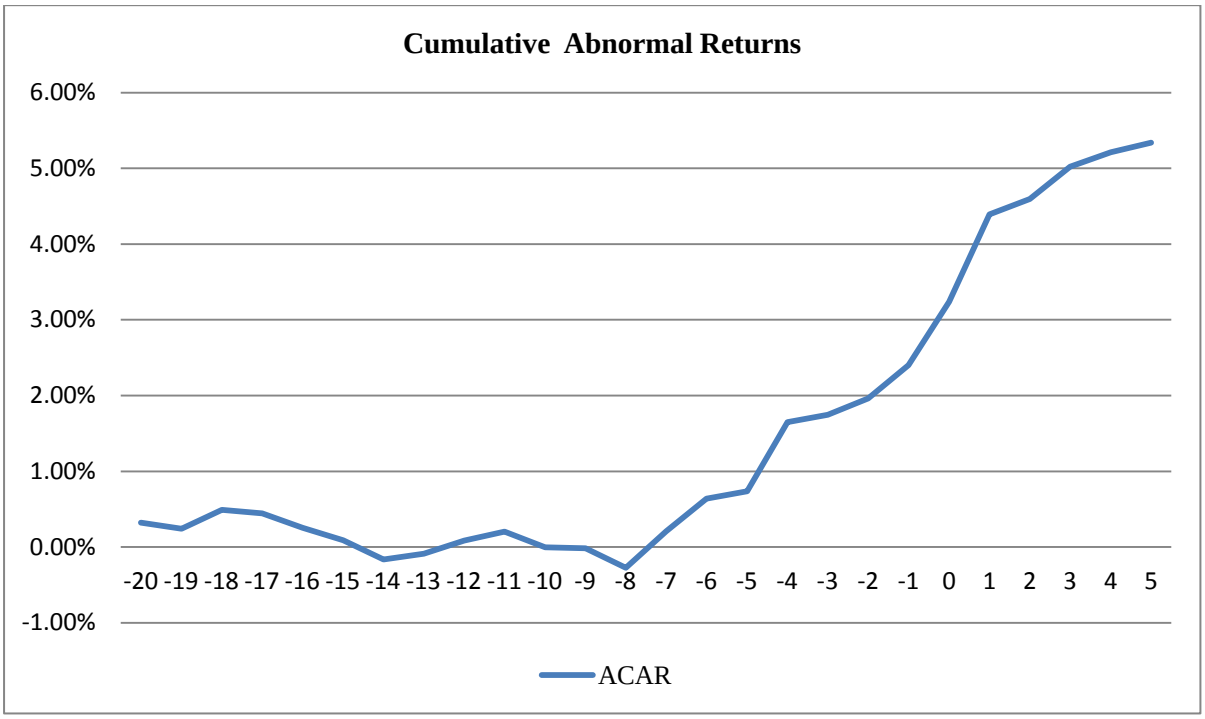

Figure: 2 Cumulative Abnormal Returns for all targets around the filing / event date over the event-window of (-20, +5) days - pre-crisis period (2000-July 07)

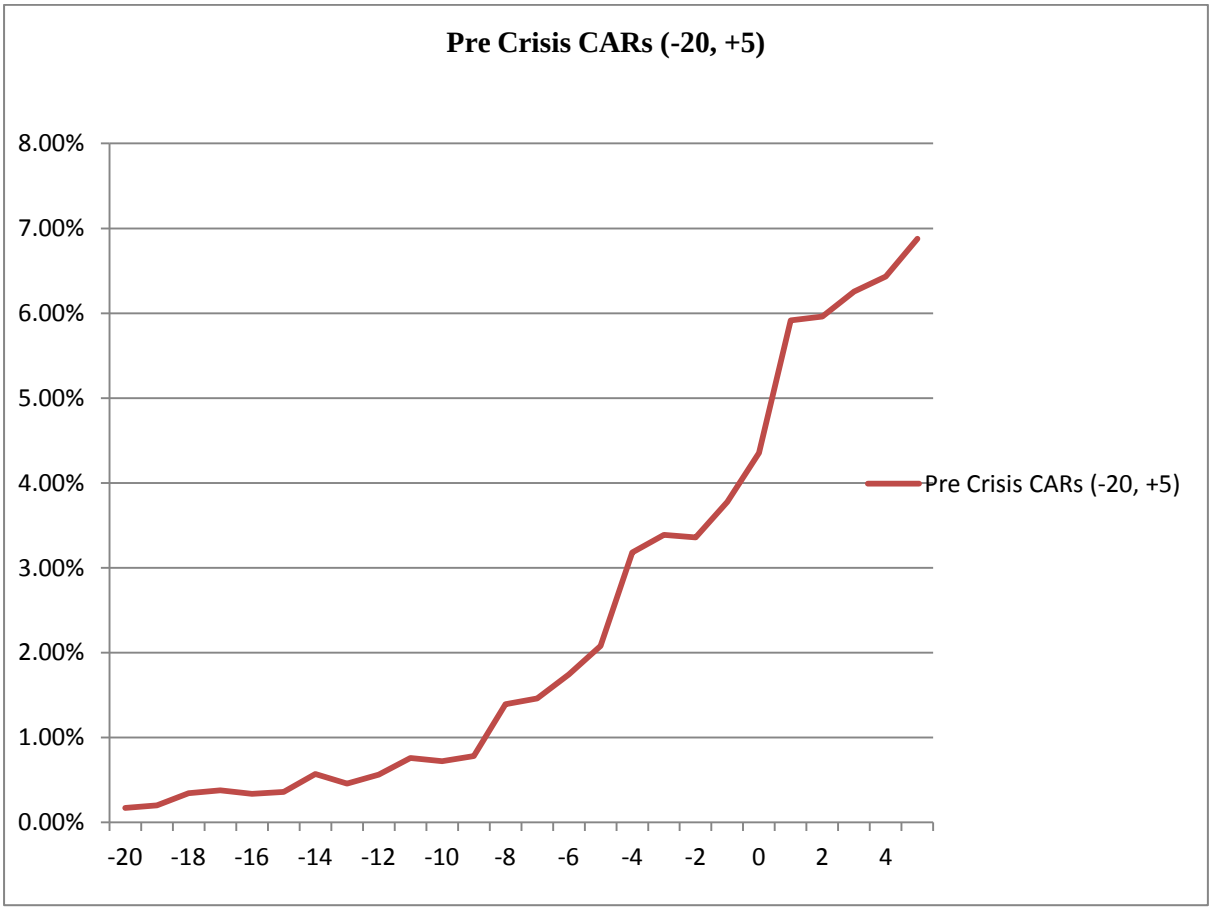

Figure: 3 Cumulative Abnormal Returns for all targets around the filing / event date over the event-window of (-20, +5) days - post-crisis period (Aug 2007- 12)

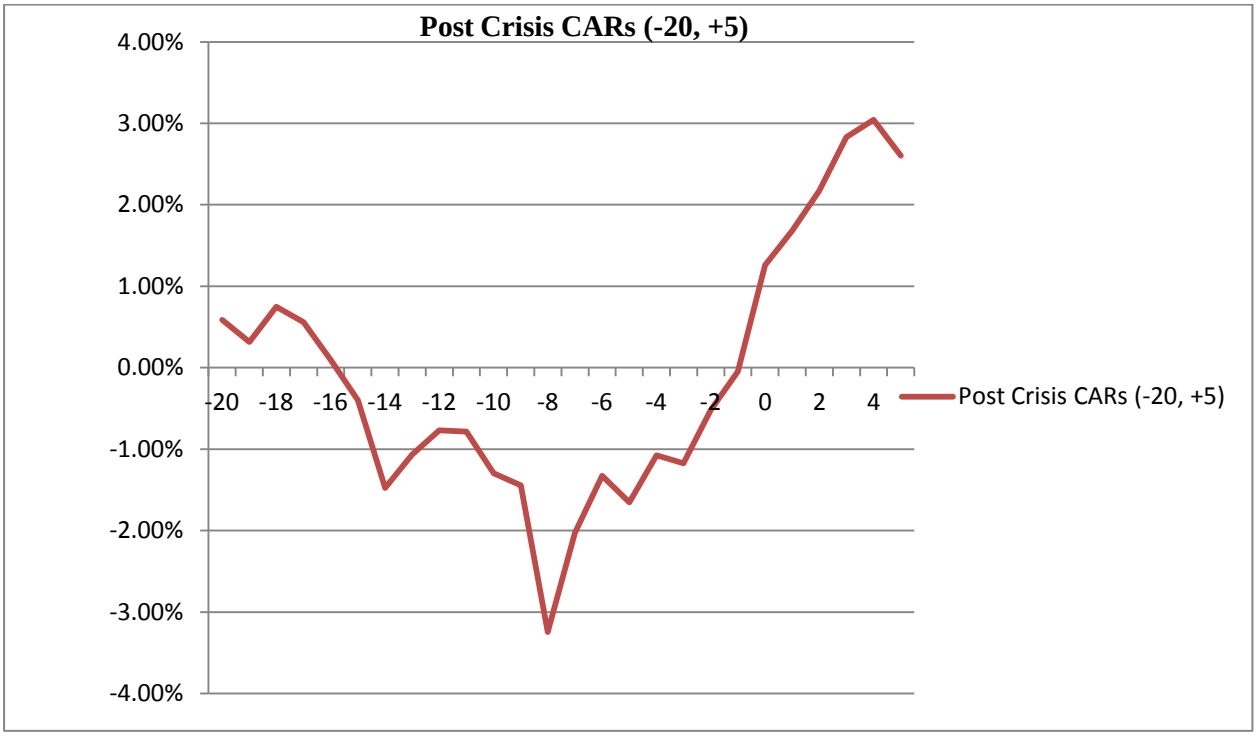

Table 1: Summary statistics of activism based events

The table represents the distribution of the activist hedge funds over the period of 2000-2012 (first quarter).

Panel A: Chronological Distribution of Funds

Years	Number of Funds	Percentage of sample
2000	10	8.93%
2001	4	3.57%
2002	7	6.25%
2003	6	5.36%
2004	7	6.25%
2005	7	6.25%
2006	14	12.50%
2007	11	9.82%
2008	10	8.93%
2009	9	8.04%
2010	18	16.07%
2011	6	5.36%
2012	2	1.79%
Total	**112**	**100.00%**

Panel B: Chronological Distribution of Sample

Years	Number of events (13D)	Percentage of sample
1999	1	0.14%
2000	33	4.59%
2001	45	6.26%
2002	42	5.84%
2003	46	6.40%
2004	50	6.95%
2005	83	11.54%
2006	91	12.66%
2007	103	14.33%
2008	74	10.29%
2009	32	4.45%
2010	63	8.76%
2011	43	5.98%
2012	13	1.81%
Total	**719**	100.00%

Table 1: Summary statistics of activism based events (continued)

Panel C: Summary Statistics of Activism-Based Events

Number of hedge funds and their target firms	
Total fund/firm pairs	760
Individual fund/target firm pair	760
Number of individual targets	688
Number of individual funds	127
Number of hedge fund management companies	86
Number of firms targeted once	398
Number of firms targeted twice	114
Number of firms targeted thrice	27
Number of firms targeted four times	12
Number of activist hedge funds with 1 target	18
Number of activist hedge funds with 2 targets	13
Number of activist hedge funds with 3 targets	11
Number of activist hedge funds with 4 targets	15
Number of activist hedge funds with 5 targets	11
Number of activist hedge funds with 6 targets	13
Number of activist hedge funds with 7 targets	15
Number of activist hedge funds with more than 8 targets	16

Panel D: Percentage of Ownership held by fund/firm pair and respective dollar value

	Mean: Initial Filing	Median	St. Deviation	Min	Max	Obs.
Shares held by the fund (mil.)	46.1	2.600329	626	147	12200	733
Total outstanding shares by the target	410	28	7930	363	210000	717
Percentage of ownership held by fund	13.13%	7.75%	15.87%	5.71 %	100.00 %	717
Cost(incl./excl.commission)($mil)	77.7	16.1	222	7794.2	2310	433

Table 1: Summary statistics of activism based events (continued)

Panel E: Classification of Purpose of Transaction

The sample contains 760 events (each event is based on separate Schedule 13D file), comprising of 688 firms owned by 112 hedge funds fully or partially for activism purpose. Following the procedure of Brav et al. (2008), I classify the events into seven different categories named as General undervaluation, Capital structure, Business strategy, Sale of Target Company, Governance, Bankruptcy, and Arbitrage. All events are non-mutually exclusive. The accumulation of events under several categories exceeds more than 760 because of multiple stated goals in each event.

No.	Category	Stated Objective	Number of Events	Percentage of Total
1	CAT1	General statement of undervaluation/ maximize shareholder value	601	79.3%
2	CAT2	Capital Structure	51	6.7%
3	CAT3	Business Strategy	119	15.7%
4	CAT4	Sale of Target Company	41	5.4%
5	CAT5	Governance	85	11.2%
6	CAT6	Bankruptcy/ Financial distress	10	1.3%
7	CAT7	Arbitrage	2	0.3%

Table 1: Summary statistics of activism based events (continued)

Panel F: Fund techniques to influence the target

No	Tactics	Number of Events	Percentage of Events
1	Meeting with the management on preliminary basis in order to get involve with business activities / negotiation	407	53,62%
2	Seeking board seat for better representation of shareholders interest and to maximize the value through large stake	93	12,25%
3	No more board representation / withdrawal of board seat	17	2,24%
4	Negotiation over limiting poison pills	7	0,92%
5	Shareholder proposal for business structure changes	65	8,56%
6	Negotiation with the larger shareholders in order to change managerial or corporate policy changes	41	5,40%
7	compel to restructure/working with other shareholders	69	9,09%
8	Solicitation/ proxy contest for board replacement or other managerial changes / preventing from acquiring or merging	31	4,08%
9	Legal Suing /sues in the bankruptcy court to fulfill the legal requirements	17	2,24%
10	Acquiring of the total firm/ complete buyout / merging with other firm	12	1,58%
	Total	**759**	

Table 2: Characteristics of the target firms in year before activism

The table reports the characteristics of target firms for the year before activism. The entire set of data is derived from Thomson Reuters DataStream. The sample consists of 551 target companies and 112 hedge funds over the period of 2000 to 2012 first quarter. Market value is a firm's stock price times number of shares outstanding and is measured in dollars. Sales represent a firm's annual sales in dollars. Tobin's Q is defined as (long term debt + the market value of equity/ long term debt + the book value of equity). Book to market ratio is a firm's book value of equity/market value of equity. Growth in sales is annual percentage growth in sales. Cash flows are measured as a percentage of assets. Book leverage is defined as debt/(debt + book value of equity), market leverage is defined as debt/ (debt + market value of equity), cash as a percentage of assets is defined (cash + cash equivalents)/assets, new equity as a percentage of assets is defined as the amount of new equity of new equity issued during the year/lagged assets, dividend yield is defined as (common dividend + preferred dividend)/(market value of common stock + market value of preferred stock), payout is defined as total dividend / net income before extraordinary items, capital expenses are measured as a percentage of assets, research and development is measured as a percentage of assets, and return on equity is measured as the ratio of net income divide by total equity.

Firm Characteristics	**Mean**	**Median**	**SD**
MV ($ mil.)	1226.981	231.631	3407.828
Sales ($ mil.)	1436.8867	2910.2500	4901.4470
Tobin's Q	1.7070	1.4710	11.3893
Book/Market	-17.9198	0.5061	554.9847
Sales Growth	203.70%	4.37%	22.2112
Return on Asset (ROA)	-1.78%	3.84%	0.7478
Cash Flows (% Assets)	4.50%	4.50%	0.2475
Book Leverage (BL)	40.66%	36.46%	1.2116
Market Leverage (ML)	31.71%	21.36%	0.3125
Cash (% Assets)	20.69%	11.09%	0.2392
Dividend Yield	60.68%	0.00%	2.0248
Payout	2.13%	0.00%	3.1926
Capital Expenditures (% Assets)	9.40%	3.24%	0.6416
Research & Development (% Assets)	7.20%	0.00%	0.1716
Return on Equity (ROE)	6.28%	3.50%	5.4488
Assets ($ mil.)	1881.999	383.84	4396.611

Table 3: Cumulative abnormal returns around the filing date for the target firms in multiple event windows

Event Window in Days	Cumulative Abnormal Returns
(-20, 0 , +5)	5.34%
(-10, 0 , +5)	5.14%
(-10, 0 , +10)	5.43%
(0 , +10)	2.80%
(0,+15)	2.80%

Table 4: Announcement returns around the event days and types of activism

This table reports the OLS regression results of short-term Cumulative Abnormal Returns (at different event-windows) as dependent variable against the classified categories of activism. All regressions control for the firm size, which is measured as logarithm of market value/capitalization or alternatively logarithm of firm annual sales, and deviated from mean. The activism categories are general undervaluation, capital structure, business strategy, sale of the target firm, and corporate governance. All categories are non-mutually exclusive. The categories are dummies i.e. General Undervaluation is set to 1 if fund simply states in its transaction purpose for value maximization without any confrontation or future strategic plan, 0 otherwise; Capital Structure is equal to 1, if fund targets the company with clear stated goal of changing in capital structure in its purpose of transaction, 0 otherwise; Business Strategy is set is to 1, if fund explicitly states it objective as to make changes in target's business direction, 0 otherwise; Sale of Target is set to 1, if fund mentions its goal to sell partially or fully its target, 0 otherwise; Corporate Governance is equal to 1, if fund describes its objective to involve in its target governance matters, 0 otherwise. The cumulative abnormal returns are regressed into four separate models with event. In an unreported table, the firm size market capitalization is replaced with annual sales. The cumulative abnormal returns are regressed into four separate models with various event windows of (-20,+5), (-10,+10), (-10,+5), and (0, +15). The t-statistics are adjusted for heteroskedasticity. *, **, and *** indicate 10%, 5%, and 1% level of significance.

	Dependent Variable							
	Cumulative Abnormal Returns on Different Event-Windows							
	CAR(-20,+5)		CAR(-10,+5)		CAR(-10,+10)		CAR(0,+15)	
Independent Variables	Coef.	Std. Error	Coef.	Std. Error	Coef.	Std. Error	Coef.	Std. Error
Ln(MV)	-0.026***	0.008	-0.017***	0.006	-0.017**	0.007	-0.010*	0.005
Ln(Ltdebt)	0.004	0.003	0.003	0.002	0.002	0.002	-0.002	0.002
General Undervaluation	0.028*	0.015	0.039***	0.011	0.042***	0.012	0.019*	0.010
Capital Structure	0.122**	0.050	0.095**	0.047	0.077	0.050	-0.028	0.065
Business Strategy	0.092**	0.038	0.075**	0.034	0.079**	0.039	0.033	0.028
Sale of target	0.044	0.035	0.015	0.025	0.031	0.027	0.046**	0.019
Governance	0.019	0.048	0.011	0.028	0.008	0.041	0.004	0.049
Observations	474		474		474		474	
R2	0.090		0.108		0.082		0.027	
Adjusted R2	0.076		0.094		0.068		0.013	

Table 5: Announcement returns around the event days and types of activism during and post crisis period

The table reports the OLS regression results of short-run cumulative abnormal returns (at different event-windows) as dependent variable against the classified categories of activism. All regressions control for the firm size, which is measured as logarithm of market value/capitalization or alternatively logarithm of firm annual sales, and deviated from mean. The activism categories are general undervaluation, capital structure, business strategy, sale of the target firm, and corporate governance. All categories are non-mutually exclusive. The types of activism are dummy variables taking value 0 or 1 i.e. General Undervaluation is set to 1 if fund simply states its objective in its transaction purpose to value maximize without any confrontation or future strategic plan, 0 otherwise; Capital Structure is equal to 1, if fund targets the company with clear stated goal of changing in capital structure in its purpose of transaction, 0 otherwise; Business Strategy is set to 1, if fund explicitly describes it objective as to make changes in target's business direction, 0 otherwise; Sale of Target is set to 1, if fund mentions its goal to sell partially or fully its target, 0 otherwise; Corporate Governance is equal to 1, if fund describes its objective to involve in its target governance matters, 0 otherwise. Following the specification of Maier et al. (2011), the crisis dummy is set to 1 if the observation falls in the period from July 2007 to first quarter of 2012. The cumulative abnormal returns are regressed into four separate models with multiple event windows of (-20,+5), (-10,+10), (-10,+5), and (0, +15). The standard errors are adjusted for heteroskedasticity. *, **, and *** indicate 10%, 5%, and 1% level of statistical significance.

Dependent Variable								
	Cumulative Abnormal Returns on Different Event-Windows							
	CAR(-20,+5)		CAR(-10,+5)		CAR(-10,+10)		CAR(0,+15)	
Independent Variables	Coef.	Std. Error	Coef.	Std. Error	Coef.	Std. Error	Coef.	Std. Error
Ln(MV)	-0.026***	0.008	-0.017***	0.006	-0.017**	0.007	-0.011**	0.005
Ln(Ltdebt)	0.004	0.003	0.003	0.002	0.002	0.002	-0.002	0.002
General Undervaluation	0.026	0.019	0.036**	0.015	0.041***	0.016	0.023*	0.013
Capital Structure	0.122**	0.049	0.094**	0.047	0.077	0.050	-0.027	0.065
Business Strategy	0.092**	0.037	0.074**	0.033	0.079**	0.039	0.033	0.029
Sale of target	0.043	0.036	0.014	0.026	0.030	0.028	0.048**	0.019
Governance	0.017	0.047	0.009	0.028	0.008	0.041	0.006	0.048
Crisis	0.006	0.027	0.009	0.022	0.003	0.025	-0.010	0.021
Observations	474		474		474		474	
R2	0.090		0.090		0.082		0.028	
Adjusted R2	0.074		0.074		0.066		0.011	

Table 6: Announcement returns around the event days and types of activism during and post crisis period

The table reports the OLS regression results of short-run CARs (at different event-windows) as dependent variable against the well-defined categories of activism. All regressions control of the firm size, which is measured as the logarithm of market value/capitalization or alternatively logarithm of firm annual sales, and deviated from the mean. All categories are non-mutually exclusive. The types of activism are dummy variables taking value 0 or 1 i.e. General Undervaluation is set to 1 if fund simply states its objective in its transaction purpose to value maximize without any confrontation or future strategic plan, 0 otherwise; Capital Structure is equal to 1, if fund targets the company with clear stated goal of changing in capital structure in its purpose of transaction, 0 otherwise; Business Strategy is set to 1, if fund explicitly describes it objective as to make changes in target's business direction, 0 otherwise; Sale of Target is set to 1, if fund mentions its goal to sell partially or fully its target, 0 otherwise; Corporate Governance is equal to 1, if fund describes its objective to involve in its target governance matters, 0 otherwise. Following the specification of Maier et al. (2011), the crisis dummy is set to 1 if the observation falls in the period from July 2007 to first quarter of 2012. The cumulative abnormal returns are regressed into four separate models with multiple event windows of (-20,+5), (-10,+10), (-10,+5), and (0, +15). The standard errors are adjusted for heteroskedasticity. *, **, and *** indicate 10%, 5%, and 1% level of statistical significance.

	Dependent Variable							
	Cumulative Abnormal Returns on Different Event-Windows							
	CAR(-20,+5)		CAR(-10,+5)		CAR(-10,+10)		CAR(0,+15)	
Independent Variables	Coef.	Std. Error	Coef.	Std. Error	Coef.	Std. Error	Coef.	Std. Error
Ln(MV)	-0.026***	0.009	-0.017***	0.006	-0.017**	0.007	-0.011*	0.006
Ln(Ltdebt)	0.004	0.003	0.002	0.002	0.002	0.002	-0.002	0.002
General Undervaluation	0.035*	0.020	0.045***	0.015	0.048***	0.016	0.022*	0.013
Capital Structure	0.093*	0.051	0.044	0.042	0.029	0.048	-0.100	0.078
Business Strategy	0.096***	0.035	0.069***	0.026	0.080**	0.038	0.051	0.037
Sale of target	0.024	0.036	0.001	0.027	0.026	0.030	0.054**	0.026
Governance	0.062*	0.038	0.059**	0.027	0.068**	0.031	0.111*	0.057
Crisis	0.159	0.114	0.089	0.098	0.110	0.101	0.056	0.052
Crisis*Gen.Underval.	-0.163	0.116	-0.097	0.097	-0.115	0.102	-0.053	0.055
Crisis*Cap. Struc.	0.003	0.159	0.141	0.136	0.100	0.143	0.196	0.124
Crisis*Bus. Stra.	-0.042	0.086	0.016	0.080	-0.012	0.091	-0.051	0.059
Crisis*Sale of target	-0.021	0.133	0.012	0.101	-0.036	0.109	-0.039	0.055
Crisis*Governance	-0.134	0.114	-0.130*	0.072	-0.160	0.102	-0.248**	0.106
Observations	474		474		474		474	
R2	0.104		0.135		0.103		0.078	
Adjusted R2	0.078		0.110		0.077		0.052	

Table 7: Announcement returns around the event days and types of activism during and post crisis period

The table reports the OLS regression results of short-run CARs (at different event-windows) as dependent variable against the well-defined characteristics of target firms (see for details table 2). All regressions control for the firm size, which is measured as logarithm of market value/capitalization or alternatively logarithm of firm annual sales, and deviated from mean. The cumulative abnormal returns are regressed into four separate models with multiple event windows of (-20,+5), (-10,+10), (-10,+5), and (0, +15). The standard errors are adjusted for heteroskedasticity. *, **, and *** indicate 10%, 5%, and 1% level of statistical significance.

	CAR(-20,+5)		*CAR(-10,+5)*		*CAR(-10,+10)*		*CAR(0,+15)*	
	Coef.	*se*	*Coef.*	*se*	*Coef.*	*se*	*Coef.*	*se*
Ln(MV)	-0.021**	0.009	-0.010*	0.006	-0.011	0.007	-0.004	0.004
Ln(Ltdebt)	0.006**	0.003	0.005**	0.002	0.005**	0.002	0.002	0.002
BM	-0.000**	0	-0.000**	0	-0.000*	0	0	0
Sales Growth	0.004*	0.002	0.002	0.002	0.003	0.002	0.001	0.002
ROA	0.095	0.074	0.039	0.055	0.028	0.06	-0.017	0.065
BL	0.006	0.009	0.007	0.005	-0.001	0.007	-0.005	0.005
DY	0.005	0.005	0.005**	0.002	0.007**	0.003	0.003	0.003
RD	0.199**	0.098	0.278***	0.059	0.308***	0.061	0.205***	0.053
Observations	405		405		405		405	
R2	0.055		0.084		0.11		0.068	
Adjusted R2	0.036		0.065		0.092		0.049	

Table 8: Changes in the characteristics of target companies in post activism years and comparison with the year before activism

The table reports the performance of target companies in 2 years after activism. The change in means and medians (in ex post activism) of targets' characteristics is computed in excess of the year before activism. A Wilcoxon signed rank test of differences between changes in pre-activism means and post-activism means of target firms is performed. The associated p-vales for test are reported. The entire set of data is derived from Thomson Reuters DataStream. The sample consists of 551 target companies and 112 hedge funds over the period of 2000 to 2012 first quarter. Market value is a firm's stock price times number of shares outstanding and is measured in dollars. Sales variable represents a firm's sales in dollars. Tobin's Q is defined as (long term debt + the market value of equity/ long term debt + the book value of equity). Book to market ratio is a firm's book value of equity/market value of equity. Growth in sales is annual percentage growth in sales. Cash flows are measured as a percentage of assets. The annual stock return is measured at the end of the calendar year and is measured as ratio of earnings before interest & taxes (EBIT) divide by lag of total assets. Book leverage is defined as debt/(debt + book value of equity), market leverage is defined as debt/ (debt + market value of equity), cash as a percentage of assets is defined (cash + cash equivalents)/assets, new equity as a percentage of assets is defined as the amount of new equity of new equity issued during the year/lagged assets, dividend yield is defined as (common dividend + preferred dividend)/(market value of common stock + market value of preferred stock), payout is defined as total dividend / net income before extraordinary items, capital expenses are measured as a percentage of assets, research and development is measured as a percentage of assets, and return on equity is measured as the ratio of net income divided by total equity. ***, **, * indicate level of significance at 1%, 5%, and at 10% respectively.

Firm Characteristics	ΔMean (year 1)	ΔMean(year2)	p-value (year 1)	p-value (year 2)	ΔMedian (year1)	ΔMedian(year2)
MV ($ mil.)	-188,46298	-82,05798	0.0689*	0.2783	-1,555	24,634
Sales ($ mil.)	-89,2247	-12,0287	0.1379	0.3118	-2582,521	-2543,615
Q	0.3139	3.76	0.3660	0.1939	-0.083	-0.16
BM	9.1373	11.64	0.1836	0.6224	0.00	0.09
Sales Growth	-13.06%	112.27%	0.0000***	0.0000***	-3.67%	-4.39%
ROA	-5.64%	2.47%	0.3412	0.2969	-0.97%	0.16%
CF	-4.45%	-0.01%	0.0045***	0.0340**	-1.31%	-1.17%
BL	15,20%	135.96%	0.0356**	0.2179	1.57%	-0.67%
ML	2,67%	0.46%	0.0884*	0.3056	6.30%	4.16%
Cash	1.52%	0.65%	0.0057***	0.0075***	-0.48%	-1.64%
DY	37.91%	-15.92%	0.5813	0.0295**	0.00%	0.00%
Payout	-7.72%	6.21%	0.9638	0.0971*	0.00%	0.00%
CapEx	-4.39%	-5.13%	0.0000***	0.0000***	-1.07%	-0.72%
RD	-0.13%	-2.24%	0.0248**	0.0711*	0.00%	0.00%
ROE	-23.04%	-9.12%	0.4933	0.2533	-0.02%	-0.47%
Assets ($ mil.)	-52,908	-123,889	0.8816	0.3274	18.426	55,967

Table 9: Announcement returns attributed to activism categories

This table reports the daily Cumulative Abnormal Returns (CARs) for (-20, +5) event-window, attained from different segments of activism for the 551 firms targeted by 112 hedge funds over 2000-12. The abnormal returns computation is carried out by estimating factor loadings on HML, SMB, and the market excess return using 120 days (-150, -30) of returns prior to the first filing of the Schedule 13D. Filing or event day is defined when a fund files Schedule 13D. Filing/event dates are collected from 13D files. The activism classifications are categorized into 5 separate segments. General Undervaluation reflects the objective of a fund when it states its goal to communicate or engage with the management for sake of value enhancement; Capital Structure is the explicitly mentioned objective of fund to make changes or reforms to capital structure of the target; Business Strategy is a stated goal when a fund wants to make changes to target's business activity including M&A's or concern with firm's operational performance; Sale of Target, when a fund states it purpose of transaction to sell target partially or fully; Governance links to the corporate issues of management including replacement of CEO, incentives, or board seats etc. The activism categories are non-mutually exclusive implying that a fund may engage into multiple activities.

	All Events		Gen. Undervaluation		Cap. Structure		Busi. Strategy		Target Sale		Governance	
Time in Days	CAR (Avg)	t-stat	CAR (Avg)	t-stat	CAR (Avg)	t-stat	CAR (Avg)	t-stat	CAR (Avg)	t-stat	CAR (Avg)	t-stat
N	551		427		57		97		38		65	
% of Events			77%		10%		18%		7%		12%	
-20	0.003	0.059	0.003	0.057	0.008	0.111	0.002	0.091	0.005	0.238	-0.009	-0.086
-19	0.002	0.034	0.002	0.036	0.012	0.118	0.002	0.027	0.007	0.225	-0.012	-0.109
-18	0.005	0.056	0.004	0.049	0.018	0.197	-0.003	-0.022	0.012	0.337	-0.019	-0.170
-17	0.004	0.043	0.002	0.016	0.013	0.111	0.009	0.071	0.012	0.261	-0.019	-0.133
-16	0.003	0.024	0.000	-0.001	0.010	0.082	0.008	0.066	0.017	0.302	-0.008	-0.054
-15	0.001	0.006	-0.003	-0.021	-0.013	-0.067	0.009	0.073	0.018	0.280	-0.024	-0.145
-14	-0.002	-0.011	-0.007	-0.044	0.000	0.001	0.010	0.068	0.018	0.265	-0.076	-0.437
-13	-0.001	-0.006	-0.007	-0.045	0.007	0.036	0.016	0.120	0.026	0.288	-0.264	-1.426
-12	0.001	0.005	-0.006	-0.039	0.005	0.023	0.021	0.133	0.031	0.311	-0.277	-1.376
-11	0.002	0.013	-0.009	-0.052	0.030	0.149	0.024	0.156	0.032	0.307	-0.326	-1.533
-10	0.000	0.000	-0.012	-0.064	0.021	0.090	0.027	0.157	0.023	0.199	-0.275	-1.238
-9	0.000	-0.001	-0.015	-0.073	0.027	0.115	0.041	0.229	0.021	0.166	-0.291	-1.311
-8	-0.003	-0.011	-0.019	-0.070	0.032	0.125	0.044	0.226	0.034	0.251	-0.317	-1.325
-7	0.002	0.009	-0.015	-0.064	0.039	0.142	0.056	0.260	0.048	0.326	-0.267	-1.080
-6	0.006	0.028	-0.012	-0.049	0.052	0.199	0.063	0.292	0.044	0.303	-0.275	-1.045
-5	0.007	0.030	-0.012	-0.048	0.063	0.240	0.070	0.300	0.047	0.321	-0.348	-1.212
-4	0.017	0.065	-0.006	-0.022	0.084	0.302	0.088	0.327	0.047	0.315	-0.361	-1.258
-3	0.017	0.063	-0.007	-0.025	0.094	0.319	0.101	0.321	0.051	0.329	-0.359	-1.267
-2	0.020	0.065	-0.001	-0.002	0.103	0.340	0.102	0.338	0.057	0.379	-0.353	-0.929
-1	0.024	0.079	0.005	0.017	0.118	0.384	0.107	0.377	0.056	0.338	-0.344	-0.872
Filing Day	0.032	0.105	0.012	0.040	0.140	0.472	0.113	0.416	0.079	0.486	-0.375	-0.880
1	0.044	0.144	0.017	0.056	0.163	0.537	0.127	0.453	0.085	0.477	-0.365	-1.044
2	0.046	0.149	0.019	0.061	0.166	0.539	0.129	0.458	0.086	0.486	-0.333	-0.944
3	0.050	0.162	0.024	0.075	0.158	0.514	0.131	0.455	0.091	0.517	-0.349	-0.939
4	0.052	0.167	0.026	0.083	0.166	0.551	0.134	0.476	0.091	0.485	-0.297	-0.734
5	0.053	0.166	0.028	0.084	0.175	0.579	0.140	0.497	0.094	0.487	-0.290	-0.727