In for the Long Haul: Activist Hedge Funds and Fire Sale Risk

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Abstract

This paper explores the recent idea that a stock's investors ex ante price the risk that large fire sales by liquidity-shocked blockholders will trigger negative price impacts, referred to as "fire sale risk". Contributing to this idea, this paper argues that fire sale risk should be lower for institutional blockholders who can credibly signal superior long-term liquidity management, and that this beneficial mitigation of risk can generate substantial abnormal returns. Especially considered are block acquisitions by activist hedge funds, who are unique in terms of long lock-up and redemption notice periods. Using a hand-collected dataset, this paper finds comparatively higher abnormal returns of 10-60 basis points following activist hedge fund block acquisitions. A difference-in-differences analysis shows that block ownership by activist hedge funds potentially insulates stocks against a drop in returns of upwards from 3.5% during the three months following a positive shock to fire sale risk. A further analysis extends this result beyond hedge funds to a broader sample of institutional investors.

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1 Introduction

The pros and cons of large blockholding by institutional investors and its potential impact on firm value is an issue that has been well explored in the literature. Typically considered as such if they hold 5% or more of a firm's shares, large blockholders on the one hand have been found to improve corporate governance and signal positive information about an industry or firm (see, e.g., Kacperczyk et al., 2005; Admati and Pfleiderer, 2009). On the other hand, there is evidence that institutional investors as blockholders use myopic price manipulations to improve their own performance reporting (see, e.g., Carhart et al., 2002; Ben-David et al., 2013). The question becomes even more nuanced when blockholders are explicitly shareholder activists – in other words, using their significant ownership position to actively influence the behavior and direction of the firm. In a large survey of shareholder activism, Gillan and Starks (2007) find "no significant abnormal returns around the assumed date of information release" (p. 65) of an acquisition by an activist shareholder. This has been attributed to conflicts of interest, the preference for exit rather than costly monitoring, and regulatory concerns which may reduce the effectiveness of many institutional investors as activists (see, e.g., Parrino et al., 2003; Romano, 1993; Clifford, 2008).

Among the literature on the benefits and costs of institutional ownership and shareholder activism, the literature seems to have found one exceptional success in the form of *hedge funds* as shareholder activists (henceforth: "activist hedge funds"). A large literature has arisen that has found that activist hedge funds generally benefit the firms in which they invest, including generating comparatively large abnormal returns around the announcement date of their block acquisitions (see, e.g., Brav et al., 2008; Clifford, 2008; Greenwood and Schor, 2009; Klein and Zur, 2009). These abnormal returns have been attributed to the market pricing forward the expected benefits of activism to the firm, such as improvements in operation efficiency (see, e.g., Brav et al., 2015).

In this vein, this paper investigates a relatively new and under-explored channel through which institutional blockholding and activist hedge funds may impact the share

prices of the firms in which they invest. Given a large block held by an institutional investor in a stock, the other investors in that stock (henceforth: "co-investors") would face a significantly negative price impact if the institutional investor were forced to liquidate their block due to an idiosyncratic liquidity shocks – such as a redemption shock from their own investors. This exit by the blockholder could in turn trigger the exit of other investors, and further negative price impacts. This risk, which is referred to in this paper as "fire sale risk", should be strategically priced by the co-investors ex ante. Therefore, following a large block acquisition by an institutional investor in a firm, the market for that firm's shares may experience negative abnormal returns due to the increase in fire sale risk. This market reaction is shown empirically by Massa et al. (2016).

However, one issue that has yet to be explored is that different institutional investors have different capacities to withstand idiosyncratic liquidity shocks, thus potentially exposing co-investors to different degrees of fire sale risk. One of the key characteristics that differentiates activist hedge funds is that, unlike most other hedge funds and other types of institutional investors, activist hedge funds have an infrastructure that is specifically tailored towards long-term investments, including long lock-ups and redemption notice periods. Such institutional investors may be able to use their capacity to withstand liquidity shocks to signal credible commitment to an investment, thus mitigating fire sale risk in the eyes of the co-investors. This paper focuses on activist hedge funds because both the literature and industry reports have consistently shown them to be particularly adept at long-term liquidity management (see, e.g., Clifford, 2008; Brav et al., 2008).

This paper explores this idea by asking: is there evidence for different exposure to fire sale risk in terms of differences in abnormal returns following large block acquisitions by different types of institutional investors? Secondly, do the unique characteristics of activist hedge funds as long-term liquidity managers insulate their co-investors from fire sale risk, and is this mitigation of fire sale risk thus an additional driver of comparatively higher abnormal returns around activist hedge fund acquisition announcement dates? And, lastly, does this extend beyond activist hedge funds to a broader sample of institutional

investors? This paper contributions to two strands of literature: that on the effects of block acquisition by institutional investors, and that on the benefits of ownership by activist hedge funds.

In order to address these questions, this paper first compares cumulative abnormal returns (CARs) generated by block acquisitions by two different types of institutional investors: activist hedge funds, and hedge funds that never purse activism as a strategy and likely lack the special long-term liquidity management capabilities of activist hedge funds (henceforth: "non-activist hedge funds"). The strategy of comparing different groups of hedge funds allows the separation of liquidity management abilities, while holding constant other special characteristics of hedge funds, such as looser regulatory requirements and fee-incentivized management.

If the high CARs generated by activist hedge fund acquisitions are only due to real value creation, then higher CARs should only be found when the activist hedge fund signals to the market that they will pursue an activist strategy in that firm. However, if the market also reacts positively to the ability of activist hedge funds to mitigate fire sale risk, then some amount of abnormal returns should be evident regardless of the whether the activist hedge fund intends to pursue an activist strategy. Therefore, a first step is to compare investments by activist hedge funds in which they do not engage in shareholder activism (henceforth: "non-activist" investments), to similarly non-activist investments by non-activist hedge funds. These acquisitions should be largely unrelated to expected benefits from activism, but still depend on funds' abilities to manage long-term liquidity. If the fire sale hypothesis holds, a non-activist block acquisition by an activist hedge fund should generate higher CARs than a non-activist block acquisition by a non-activist hedge fund, despite the similar natures of their investments. Non-activist block acquisitions are identified using a dataset that is hand-collected from filings with the Securities and Exchange Commission (SEC), taking advantage of the fact that an investor must file with the SEC if they acquire a 5% or greater stake in a stock. In order to differentiate between non-activist and activist holdings, this paper further takes

advantage of the fact that investors may file a different form (Schedule 13G) to the SEC if they do not plan to pursue activism with their holdings, as compared to if they do plan to pursue an activist strategy with their holdings (Schedule 13D). Results show that, after five days, the non-activist acquisition by activist hedge funds generates median abnormal returns of between 40 to 60 basis points more than similarly non-activist acquisitions by non-activist hedge funds.

Secondly, in order to specifically test for the presence of fire sale risk, this paper identifies a regulatory event that represents an exogenous shock to fire sale risk. If a regulation is passed that makes it easier for blockholders to quickly and easily sell off large blocks, then this should increase fire sale risk for co-investors, and generate a drop in prices for stocks with large blockholders. However, this drop should be mitigated if the blockholder – such as an activist hedge fund – is able to better manage potential liquidity shocks. Such a regulation came in the form of the Regulation of Alternative Trading Systems (or Reg ATS), which in 1998 established a regulatory framework for off-exchange trading, thus making it easier and cheaper for institutional investors to sell large blocks without the transparency required by traditional exchanges. A difference-in-differences regression of log stock returns in which treatment is defined as block ownership by a non-activist (vs. activist) hedge fund is used to test whether, following a shock to fire sale risk, there is a drop in the log returns of shares in which non-activist hedge funds hold a large block, compared to shares in which activist hedge funds are a large blockholder. The results show that, following an increase in fire sale risk, returns in stocks with blocks held by non-activist hedge funds dropped by 3.5-7.2% more over the course of three months than for those with blocks held by activist investors.

Lastly, to check if the above holds for a broader group of institutional investors than hedge funds, this paper uses the institutional investors classification scheme of Bushee (1998, 2001) to group blockholders into three different groups according to their portfolio turnover and concentration: dedicated (low turnover, high concentration), quasi-indexers (low turnover, low concentration), and transient investments (high turnover, low con-

centration). If the fire sale risk hypothesis holds, then block acquisitions by dedicated investors should generate higher CARs than block acquisitions by the either quasi-indexers or dedicated investors. This is because dedicated investors likely signal to co-investors both their ability and commitment to holding their block in the presence of a potential liquidity shock. The results show that that investors with comparatively low portfolio turnover and higher concentration generate a higher CAR of about 9 to 50 basis points.

The remainder of this paper is organized as follows. Section 2 describes the theoretical and empirical background to the present paper, including the foundations for fire sale risk and the literature on activist hedge funds. Section 3 describes the methodology and data, including the hand-collected dataset on hedge fund acquisitions. Empirical results are presented in Section 4, and finally Section 5 concludes.

2 Background

This paper largely follows the intuition of Massa et al. (2016), who are among the first to introduce the idea of fire sale risk (coined in their papers as the "fragility hypothesis") to the literature on institutional investors. These authors, in order to account for the endogeneity inherent in looking at the relationship between ownership stake in a firm and the share price, aim to identify an exogenous shock to ownership concentration, such that they can subsequently see how the price reacts. They identity this shock as the merger of two asset management firms – BlackRock and BGI – that have overlapping portfolios. According to the fire sale risk hypothesis, the increased ownership concentration should lead to a negative price reaction for stocks that were held by BlackRock pre-merger, for which ownership concentration increases following the merger. This is because co-investors face an even greater risk in the form of a larger block of stocks which may be dumped on the market following a potentially idiosyncratic liquidity shock to the blockholder. The authors use a difference-in-differences analysis to show that indeed, the returns of stocks that saw an increase in ownership concentration decrease by a cumulative amount of 3%

over the course of three months, and that this fall is driven by investors re-balancing their portfolios away from the stocks with a higher exposure to fire sale risk.

The fire sale risk hypothesis can be connected to two strains of literature. First, the idea that investors should strategically consider actions of their fellow investors – including blockholders – in a stock ex ante is at the heart of traditional bank run models such as Diamond and Dybvig (1983), which shows that agents should strategically consider the actions of other agents that may deplete reserves if they choose to run on the bank. The same idea is extended to the institutional investment literature by Chen et al. (2010), who show that investors in mutual funds strategically consider the impact that exits by other investors could have on fund value, and thus the likelihood of their exit increases with the expectations of others' exits. Secondly, authors such as Greenwood and Thesmar (2011) and Ben-David et al. (2016) have shown that the block order flows of institutional investors have a substantial impact on stock prices and volatility. Massa et al. (2016) extend this idea by assuming that the other investors in the firm take are able to strategically price the potential impact of large blockholders ex ante on the exit of other investors, and on the stock price.

Secondly, the logic of fire sale risk can also be related to the market microstructure literature on the relationship between large block trading and information asymmetry. In the presence of large block fire sales, the market may respond negatively in the form of permanent downward price impacts if the market perceives these trades as being more informed (see, e.g., Easley and O'Hara, 1987). At the same time, blocks sales have been shown be an optimal part of both informed and uninformed traders' strategies (see, e.g., Seppi, 1990). Therefore, the extent to which the market adjusts prices downward given the entrance of a large blockholder should depend on the probability that the blockholder is informed, as well as the probability of a sale by the blockholder (i.e., fire sale risk), and other considerations such as the liquidity of the asset and the size of the block.

Based on this intuition and on the findings of Massa et al. (2016), the present paper extends this idea to ask if exposure to fire sale risk varies according to the type of in-

stitutional investor that acquires the block in the stock – particularly on the ability of that institutional investor to effectively manage their exposure to redemption or liquidity shocks. Logically, if the institutional investor can credibly signal their willingness and ability to remain invested in a stock regardless of a potential liquidity shock, this could lower and even eliminate a co-investor's exposure to fire sale risk.

This paper relies on the literature's identification of activist hedge funds as institutional investors that are particularly adept at long-term liquidity management. First, many studies, including Aragon (2007) and Baquero et al. (2005), have shown that hedge funds generally have stricter redemption restrictions than other types of institutional investors. In fact, until the SEC formalized redemption fee requirements in 2005, most mutual funds did not charge redemption fees at all (see, e.g. Chen et al., 2010). Secondly, both the literature and industry reports show that among the cross-section of hedge funds, funds that pursue an activist strategy levy some of the strictest redemption limits on their limited partners. Using TASS data on hedge fund characteristics, Clifford (2008) shows that activist hedge funds have statistically significantly longer lock-up periods and notification periods than their non-activist counterparts. An industry report puts the average lock-up period of activist hedge funds at twice as long as that of non-activist hedge funds (12 months vs. 6 months), and their redemption notification periods at 46 days, versus 41 days for their non-activist counterparts.[1] Brav et al. (2008) further show that activist investors tend to have rather long holding periods, holding their investments for upwards of twenty months (compared to the average investor holding time of about 24 days, as found in, e.g., Feng and Seasholes, 2005).

In addition, this paper is closely related to the literature on hedge fund activism and its impact on firm value. Numerous papers, including Clifford (2008), Brav et al. (2008), Klein and Zur (2009), and Greenwood and Schor (2009) have shown that activist hedge funds are particularly adept at generating abnormal returns around the announcement dates of their acquisitions. Authors such as Brav et al. (2015) attribute these abnor-

[1]See "Preqin Special Report: Activist Hedge Funds", June 2014, available at https://www.preqin.com/docs/reports/Preqin_Special_Report_Activist_Hedge_Funds_June_14.pdf

mal returns to the creation of real value, such as through improvements in production efficiency.

While the literature on market reactions to the disclosure of activist acquisitions is much more developed, there is only limited evidence on market reactions to non-activist blockholders. Clifford (2008) shows that market reactions to acquisitions by activist hedge funds in which they explicitly state their intentions to engage in shareholder activism are more positive than when the activist hedge fund only acquires a non-activist stake. Extending beyond hedge funds to a sample of institutional investor acquisitions on French markets, Gueguen and Ramond (2015) show that, while the market reaction to the announcement of activist intentions is stronger, markets nevertheless react significantly to acquisitions by non-activist blockholders. The present paper extends this result to ask whether the reaction to non-activist investment acquisition is related to the hypothesis of fire sale risk.

Note that the question in the present paper is not whether activism generates positive abnormal returns, but whether the unique structure of activist hedge funds generates abnormal returns. Therefore, this paper also does not dispute the finding that activist hedge funds are skilled investors who have the capability of improving firm value. However, it may be that an additional benefit of activist hedge fund blockholding has heretofore gone unnoticed.

3 Data and Methodology

3.1 Activist and Non-Activist Hedge Fund Block Acquisitions

As a first step, this paper investigates whether non-activist acquisitions by activist hedge funds generate higher cumulative abnormal returns (CARs) than non-activist acquisitions by a control group of non-activist hedge funds, which do not follow shareholder activism as their primary strategy. Thus, the first key task in this study is to differentiate between non-activist and activist block acquisitions. This is done by taking advantage of the fact

that, while all investors who acquire more than a 5% stake in a firm are required to file their block acquisition with the SEC, there are different filing requirements according to whether the investor has the intention to pursue activist activities.[2] One the one hand, if the investor intends to pursue activism, then they must file Schedule 13D; on the other hand, if the investment is made in the "ordinary course of business", then the investor is permitted to file the condensed Schedule 13G. This key difference allows the identifications of *non-activist* investments by *activist* hedge funds. This is key to separating out from market reactions to acquisitions by activist hedge funds the expected benefits of shareholder activism.[3]

Data on block acquisitions is hand-collected from the SEC's EDGAR database. All 13G filings that were filed in the years 1998-2015 are collected.[5] These forms correspond to the acquisitions of blocks in which investors have no intention of engaging in activist activities, and contain information on the investor who is acquiring the block, the target firm (including CUSIP), and the size of the acquisition. Note that Schedule 13G filers are required to file an annual amendment – a Schedule 13G/A – to report any changes to the original filing, including purchases or sales of shares. An additional amendment must be filed it the filer's ownership reaches 10% or more of a firm's total shares outstanding.[6] This allows the investment durations of block holdings to be calculated, for those for which an acquisition and exit date can both be found.

The next step is to identify and separate 13G filings by activist hedge funds and 13G

[2]According to SEC Rule 13D(b), a shareholder activist is defined as an investor who "acquired or holds the securities with a purpose or effect of changing or influencing control of the issuer, or in connection with or as a participant in any transaction having that purpose or effect."

[3]One key assumption is that blockholders have the incentive to file the correct form. This assumption is argued in, for example, Clifford (2008) and Brav et al. (2008), and hinges on both more stringent filing requirements for activist blockholders, and on SEC exacting consequences on misfilers. On the one hand, activist investors have little incentive to file as non-activist investors, as the SEC has been known to pursue investors that fail to disclosure their activist intentions.[4] On the other hand, non-activist investors are argued to have little incentive to file a 13D, due to its stricter disclosure requirements and its much shorter filing deadline (10 days after the date of acquisition, versus 45 days after the end of the calendar year in which the acquisition was made).

[5]The sample only extends back to February 1998, as at this time the SEC significantly expanded its permission to file a Schedule 13G instead of a 13D; see SEC Release No. 34-39538, 17 February 2008, at https://www.sec.gov/rules/final/34-39538.txt

[6]See 17 CFR 240.13d-2.

filings by non-activist hedge funds. Activist hedge funds are identified using an extension of the dataset of Brav et al. (2008), which contains information on activist interventions by activist hedge funds. These authors carefully identify activist hedge funds using a completed sample of Schedule 13D (i.e., activist) filings, using name and "Identity and Background" information, and further filter their sample using web searches and phone calls. They additionally use news searches and Schedule 13Fs to obtain information on acquisitions by activist hedge funds that may fall below the 5% threshold. The dataset covers the period 1994-2011 and contains 2,684 activist intervention events by activist hedge funds.[7] The 601 uniquely-named activist hedge funds[8] identified within this dataset are thus matched to the sample of 13G filings using fund name, in order to obtain the sample of non-activist block acquisitions by activist hedge funds. This leaves a total of 10,719 non-activist block acquisitions by 377 unique activist hedge funds.

Non-activist hedge funds are identified using information from Schedule 13G filings. First, the response to the item "Type of Reporting Person" is used to filter out banks, brokerage companies, insurance companies, employee benefit plans, holding companies, and church plans. Secondly, the response to the item "Citizenship and Background" is used to filter out foreign acquirers (as these institutions are likely subject to different sets of regulations which may affect their liquidity management policies). Third, a web-based search (using Market Watch) is used to rule out filers that are assigned a ticker, as these firms are publicly traded corporation that are likely not hedge funds. Lastly, a web-based search (using Bloomberg Small Business and other sources) is used to confirm that the remaining filers are identified as either a hedge fund or a hedge fund sponsor. Hedge funds that are identified as activist hedge funds from the extended dataset of Brav et al. (2008) are excluded in the control group. This sample should thus represent a sample of non-activist block acquisitions by non-activist hedge funds, which do not follow shareholder

[7]For more details, see Brav et al. (2010). This dataset is also used in Brav et al. (2015) and Bebchuk et al. (2015).

[8]Note that this number may be higher than the number of individual hedge funds in the sample, due to occasional changes in fund name. However, all permutations of a hedge funds' name are kept in matching to the sample of Schedule 13Gs, as hedge funds likely file both their Schedule 13Ds and Schedule 13Gs under the same name in a given time period.

activism as a primary strategy. This leaves a total of 43,821 non-activist block acquisitions by 1,057 unique non-activist hedge funds.

Panel 1 of Table 1 compares key characteristics of the activist and non-activist hedge fund samples described above. Average block acquisition sizes are obtained from the original Schedule 13G filings. Average holding periods are taken as the number of days between a hedge fund's initial filing of a block with Schedule 13G, and the date of the last amendment to that filing showing that the block ownership size has fallen below the 5% threshold; blocks acquisitions for which an exit date cannot be computed are excluded.[9] The remaining characteristics of activist and non-activist hedge funds are obtained by matching the hedge funds by name against a list of Form ADV filings downloaded from the SEC's Investment Adviser Public Disclosure (IAPD) website.[10] Form ADV is a required filing for the registration of an investment advisor with the SEC, and contains basic information on their background, structure, and business. This paper follows Ben-David et al. (2012) and takes advantage of the fact that Form ADV was a required filing for hedge funds following an SEC amendment to the Investment Advisors Act in early 2006, until it was overturned a few months later.[11] Furthermore, some hedge funds have been required to register certain sections of Form ADV with the SEC since early 2012 as part of expanded requirements under the Dodd Frank Act.[12] All-in-all, a total of 115 (30.5% of) activist hedge funds and 610 (57.7% of) of non-activist hedge funds could be matched to a corresponding Form ADV filing. Characteristics obtained from Form ADV filings include variables meant to capture the size of the funds (number of employees and

[9] As pointed out by Brav et al. (2008), this has the tendency to underestimate average investment durations, as long-term ongoing (as of December 2015) investments are excluded. However, the subsample sizes of acquisitions for which both an entry and exit date can be determined are small for both types of hedge funds: 1962 (18% of) activist hedge fund block acquisitions, and 4270 (9.8% of) non-activist hedge fund block acquisitions. Since a higher percentage of non-activist hedge funds are potentially still ongoing, it might be the case that the investment durations of non-activist hedge funds are biased more downwards.

[10] See https://adviserinfo.sec.gov/.

[11] See SEC Release No. IA-2333 at https://www.sec.gov/rules/final/ia-2333.htm and the U.S. Court of Appeals *Goldstein v. Securities and Exchange Commission* at https://www.cadc.uscourts.gov/internet/opinions.nsf/55B03EC6220339A1852574400044E720/$file/04-1434a.pdf.

[12] See SEC Release No. IA-3221, available at https://www.sec.gov/rules/final/2011/ia-3221.pdf.

regulatory assets under management (AUM)[13]), as well as the characteristics of the hedge funds' investors (number of investors and percentage of investors that can be classified as institutional investors[14]). Mean and median fund characteristics are compared using, respectively, a two-sided t-test and a two-sided Wilcoxon rank sum test.

The summary statistics show, importantly, that there is no difference in the mean sizes of block acquisitions by activist and non-activist hedge funds; for both types of investors, the average size of a block acquisition is about 6%. Results from a Wilcoxon test show a difference in median block acquisitions sizes; however, the results show that median block acquisitions are actually larger for non-activist hedge funds. This reduces the likelihood that higher cumulative abnormal returns around the block acquisitions of activist hedge funds would be driven purely by the liquidity effects of higher buying pressure from activist hedge funds. The Wilcoxon test reveals that activist hedge funds have a higher median investment duration than non-activist hedge funds of 102 days; however, this difference is only significant at a 10% level, and a t-test reveals no statistically significant difference in means.[15] There are also few differences between activist and non-activist hedge funds in terms of size. The median number of employees is 17 for activist hedge funds, and 22.5 for non-activist hedge funds, and the mean regulatory AUM for both types of hedge funds is approximately USD 2 billion. Interestingly, where statistically significant differences are strongly evident between these two types of hedge funds is in terms of their clientele. Activist hedge funds have far fewer investors, and furthermore these investors are more

[13]Regulatory AUM, calculated according to a method prescribed by the SEC, is a measure of gross assets.

[14]The definition of institution investors follows Ben-David et al. (2012) and includes banks, mutual and pension funds, other pooled investment vehicles, corporations, government entities, and other miscellaneous institutions.

[15]Note that a shorter average investment duration does not necessarily refute that co-investors in stocks held by activist hedge fund are less exposed to fire sale risk, as fire sale risk speaks less to the duration of investments, and more to the manner in which divestments are made. More likely is the case that non-activist hedge funds do indeed sell blocks of stock, but are better able to manage their sales. For example, activist hedge funds could take advantage of upstairs markets, in which institutional investors often strategically"shop" for block buyers, simultaneously leaking the information that they plan to conduct a large and uninformed sales. Such behavior, which requires knowledge of a sale weeks in advance and would thus stray far from the idea of a fire sale, has been shown to reduce price impacts and lower the market's expectation that the sale is informed (see, e.g., Keim and Madhavan, 1996; Booth et al., 2002; Bessembinder and Venkataraman, 2004).

likely to be institutional investors. This speaks to the specialized investor base of activist hedge funds, who themselves must be ex ante willing and able to commit their capital for longer periods of time due to these hedge funds' stricter redemption policies.[16]

3.2 Cumulative Abnormal Returns around Activist and Non-Activist Hedge Fund Block Acquisition Announcement Dates

The next step is to obtain a daily time series around the filing date of the Schedule 13G, from which CARs may be calculated so as to determine the impact of the acquisition on the market. This is done by using the CUSIPs of the target firms from the Schedule 13G to obtain daily closing prices, closing bid and ask quotes, and trading volumes from the Center for Research in Security Prices (CRSP) daily stock files. Daily prices are used to calculate CARs for a $(-d, d)$-day window around the 13G filing date. This measure is calculated, for stock j for the $(-d, d)$ days around the filing date, as:

$$CAR_{tj} = \sum_{t=-d}^{T=d} r_{tj} - \mathbb{E}\{r_{tj}\} \tag{1}$$

where r_{jt} is the return for stock j on day t, and $\mathbb{E}\{r_{tj}\}$ is return predicted by the market model. The parameters of the market model are estimated over the $(-120, -70)$ days prior to the 13G filing date, and expected returns are estimated from a one-, three-, five-, and seven-factor market model. A one-factor model includes excess market return (MKT), while the three-factor additionally includes small-minus-big (SMB) and high-minus-low (HML) factors (see Fama and French, 1993). The five-factor model includes a "robust-minus-weak" (RMW) profitability factor, and a "conservative-minus-aggressive" (CMA)

[16]Ben-David et al. (2012) find that institutional investors were more likely to redeem their shares in hedge funds during the 2007-2009 financial crisis. This is because institutional investors are usually faster to react to performance news, and may face their own tightening capital constraints during systemic crises. This might put a hedge fund with a higher percentage of institutional investors in their investor base at a greater risk of facing large redemptions. However, for the pursposes of this paper, requests for large redemptions would still be made with more advanced notice and under more restrictions for activist hedge funds. Indeed, taking hedge funds generally as a group of institutional investors with strict redemption policies and high degree of institutional clientele, Ben-David et al. (2012) find that, though hedge funds divested themselves of large amounts of equity holdings during the crisis, the total price pressure that they exerted on the market was minimal.

investment strategy factor (see Fama and French, 2015). Momentum factors (MOM) follow from Carhart (1997).[17] Since the liquidity factors of Pastor and Stambaugh (2003) and Sadka (2006) are only available on a monthly basis, I construct daily liquidity factors according to the following procedure: first, I sort the CRSP universe of stocks daily into deciles based on their liquidity (as measured by the Amihud (2002) measure of liquidity) and calculate the equally-weighted average portfolio return. The daily liquidity factor (LIQ) is thus calculated as the daily difference in portfolio returns between the highest and lowest illiquidity deciles.

Summary statistics for characteristics of firms whose stocks are acquired by non-activist and activist hedge funds are presented in Panel 2 of Table 1; firm characteristics are taken from the closest annual filing prior to the non-activist block acquisition and are obtained from Compustat. These variables include those that are identified by Brav et al. (2008) as important determinants of activist hedge fund's *activist* investments in target companies (i.e., acquisitions in which they engage in shareholder activism). Included are firm characteristics measuring size (market capitalization), the nature of the firm as a "value" firm (market-to-book and q), profitability (sales growth, ROA, cash flows, and annual buy-and-hold return), the firm's capital structure (book leverage, cash, dividend yield, payout ratio, and R&D expenditure), and liquidity (as measured by the annual average of daily Amihud (2002) measures of illiquidity). The statistics show that activist and non-activist investors tend to invest in different types of firms along nearly all dimensions. Activist hedge funds tend to acquire blocks in firms that are smaller, more likely to be "value" firms, less profitable (according to ROA and cash flows), and less liquid. The summary statistics raise a few important points. First, the investment of activist hedge funds into "value" firms raises the possibility that activist hedge funds are better stock-pickers than non-activist hedge funds. This will be further explored in Section 4.1.3. Secondly, the finding that activist hedge funds tend to invest in more illiquid firms highlights the importance of including a liquidity factor into the market model in

[17]These factors are obtained from the website of Kenneth French at http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html.

the analysis of cumulative abnormal returns.

Panel 3 of Table 1 asks whether activist and non-activist hedge funds tend to acquire non-activist blocks within different industries. Industry groups are defined according to the twelve industry classifications of Fama-French, and are matched based on the SIC codes reported on the 13G filings.[18] The results show that these hedge funds tend to invest in the same types of industries. The three largest target industries for both types of hedge funds include Business Equipment (which includes, e.g., computers and software), Healthcare (which includes pharmaceutical firms), and Financials. While activist hedge funds are slightly more likely to invest in Healthcare and less likely to invest in Financials, these deviations are minor. The sum of deviations (i.e., the sum of the absolute value of the differences in percentage points) across industries is only about 13.2%. Therefore, results should for the most part not be driven by systematic differences in non-activist investments in different industries.

3.3 Analyzing a Shock to Fire Sale Risk

In a second step, this analysis specifically tests for whether the mitigation of fire sale risk is responsible for potentially higher CARs generated by activist hedge funds. The methodology is similar to that of Massa et al. (2016), and uses a difference-differences regression analysis to compare (log) returns for stocks with non-activist versus activist block shareholders following an exogenous shock to fire sale risk. The goal is to compare changes in returns of stocks held in blocks by non-activist blockholders, to stocks held in blocks by activist blockholders, following a plausibly exogeneous shock to fire sale risk. If the fire sale risk hypothesis holds, then, following an increase in fire sale risk, log returns should drop considerably more for stocks held by non-activist hedge fund blockholders than for those held by activist hedge funds. This is because, due to their unique structure as long-term liquidity managers, activist hedge funds are able to credibly signal that they are able and willing to remain invested in the firm, mitigating fire sale risk in the eyes of

[18]For the list of industries and conversion from SIC codes, see http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/Data_Library/det_12_ind_port.html.

their co-investors.

This entails an estimation of the following regression equation of log returns y_{igt} for stock i in group g (i.e., held by a non-activist or activist blockholder) on day t:

$$y_{igt} = \beta(NA_g \times EV_t) + \gamma' \mathbf{X}_{igt} + \alpha_t + \alpha_i + \varepsilon_{igt}, \tag{2}$$

in which NA_g is a dummy variable equal one if the stock is held in blocks by a non-activist hedge fund prior to the shock to fire sale risk, and zero if held by an activist hedge fund during this period,[19] and EV_t is a dummy variable equal to one after shock to fire sale risk. The key parameter of interest is the coefficient on the interaction between these two dummy variables, $(NA_{ig} \times EV_t)$, as this should give the sign, magnitude, and significance of the additional impact that the shock had on firms with non-activist hedge fund blockholders, versus stocks with activist hedge fund blockholders. Also included in the regression are time and firm fixed affects, respectively α_t and α_i, and a number of control variables, represented by the vector $\mathbf{X}_{igt}$.[20] An additional specification replaces firm fixed effects with industry effects, to ensure that results are not driven by industry-specific factors.

Controls variables are obtained from the Center for Research in Security Prices (CRSP) daily stock files, and include market capitalization, $MCAP_{igt}$), volatility (as measured by the 30-day standard deviation of returns, VOL_{igt}), and liquidity (as measured by the Amihud (2002) measure of illiquidity, LIQ_{igt}). Also included are the lags of the latter two variables to account for potential non-synchronicity and autocorrelation. Due to a relatively short time window (maximum 90 days before and after the shock to fire sale risk) used in this analysis and the low sampling frequency of most firm accounting variables (i.e., most variables have a maximum frequency at the quarterly level), only variables with at

[19] This practice of choosing a pre-shock value of institutional ownership and holding it constant during the regression is similar to in Massa et al. (2016), and is done because, first, this is likely the information that is available to the market at the time of the shock, and it avoids the endogeneity inherent in likely shifts in stock ownership directly resulting from the shock. See Massa et al. (2016) for a deeper discussion.

[20] Note that the event dummy EV_t and the treatment dummy NA_g drop from the specification in equation (2) due to multicollinearity with the firm and time fixed effects.

least a daily sampling frequency are used as controls. Other firm characteristics with a low variation over time, such as profitably and capital structure ratios, should be accounted for by the firm fixed effects. However, as an additional robustness test, propensity score (PS) matching is used based on firm characteristics, without replacement (see, e.g., Cameron and Trivedi, 2005). The firm characteristics using for matching include the Fama French 12 Industry Classification, as well as the variables that, as described in Section 3.2, are identified by Brav et al. (2008) as important determinants of hedge fund investments in target companies that are not included as controls: market-to-book, q, sales growth, ROA, cash flows, annual buy-and-hold return, book leverage, cash, dividend yield, payout ratio, and R&D expenditure.

As an exogenous shock to fire sale risk, this paper identifies the introduction of the Regulation of Alternative Trading Systems (Reg ATS), a set of SEC rules introduced in December 1998 and effective in April 1999 that eased institutional investors' ability to trade large blocks outside of traditional exchanges.[21] By introducing an infrastructure for non-exchange trading facilities, the regulation fueled the growth of these venues, which include "darks pools" and other hidden equity markets. As point out by Zhu (2014) and Shorter and Miller (2014), early dark trading facilities were often used by large block institutional traders to avoid immediate price impact; however, such trades were rather difficult prior to the regulation due to nebulous and often steep legal requirements.[22] Mostly importantly, not only did Reg ATS set in stone the legality of ATS, but also specified once and for all that order display requirements do not apply to ATS. Therefore, following its implementation, institutional investors were able to trade large blocks without immediately revealing the order flow to the market.[23] This conceivably increased the availability of relatively cheaper block trading to institutional investors, increasing

[21]See SEC Release No. 34-39884, https://www.sec.gov/rules/proposed/34-39884.pdf

[22]Prior to Reg ATS, non-exchange trading venues operated under "no-action relief" letters granted by the SEC, which were granted on a applicant-by-applicant basis and subject to SEC's discretion. This had previously limited the growth of ATS (see, e.g., Greene, 2014, , p. 14-149).

[23]Note that the market would eventually become aware of the change in position by the institutional investor. This would be revealed in required filings to the SEC, either through the quarterly Schedule 13F or amendments to Schedule 13D or Schedule 13G (see 17 CFR 240.13d-2).

the risk to co-investors of not only large, but non-transparent fire sales. Therefore, the assumption is that the implementation of Reg ATS led to an increase in fire sale risk.[24] This analysis considers the change in (log) returns surrounding the regulation's announcement on 22 December 1998.[25] To account for the potential that hedge funds may adjust their ownership in anticipation of or as a reaction to the regulation, the percentage block ownership by the two groups of hedge funds are taken from 13G filings from the first quarter of 1998 and held constant thereafter. Due to the smaller time scope of the analysis, the sample size is reduced to 130 stocks held by 28 unique activist hedge funds, and 934 stocks held by 96 unique non-activist hedge funds.

3.4 Institutional Holdings and Classifications

A final step in the paper is to test whether the higher CARs generated by institutional investors that can credibly signal superior long-term liquidity management extend beyond hedge funds, to other types of institutional investors. Data on institutional holdings is obtained from Thomson Reuter's Institutional (13F) database. Schedule 13F is a form that institutional managers with discretion over $100 million or more are required to file with the SEC on a quarterly basis.[26] Included in the database is information on the acquiring firm, the target firm (including CUSIP), the size of the acquisition, and the change in position since the previous filing. In addition, institutional investors are classified according to the classification scheme of Bushee (1998, 2001), which separates

[24] An alternative hypothesis may be that, by increasing the ability of institutional investors to trade blocks off-exchange, Reg ATS actually *decreased* fire sale risk by limiting the initial price impact of block trades on the market. However, firstly, whether or not a block trade takes place on or off-exchange does not change its likelihood of being an informed trade, and thus the market may still react strongly to a large sale once revealed in SEC filings. Secondly, under the assumption that the only difference between the treated and untreated variables is their exposure to fire sale risk through block ownership by difference types of hedge funds, the result of statistically significant coefficient on the interaction of the treatment variable with the event dummy will imply the Reg ATS had an effect on fire sale risk. Ultimately, the direction of the effect of Reg ATS on fire sale risk will be implied by the direction of this coefficient.

[25] An unreported analysis considers the change in prices surrounding the implementation of Reg ATS on 21 April 1999, and shows no significant results. This is likely because the market already incorporated the relevant information implied by the regulation prior to its implementation.

[26] In addition, only positions greater than or equal to 10,000 shares or $200,000 fair market value must be reported. See https://www.sec.gov/about/forms/form13f.pdf.

13F filers into different groups according to their portfolio turnover and concentration.[27] The scheme classifies institutional investors into three groups, as: (1) dedicated investors, whose portfolios exhibit (relatively) lower turnover and (relatively) higher concentration; (2) quasi-indexing investors, whose portfolios exhibit low turnover and low concentration (i.e., a buy-and-hold strategy); and (3) transient investors, whose portfolios exhibit high turnover and low concentration.

This analysis uses the entire sample of Bushee (1998, 2001) institutional investors and their classifications, which covers 13F-filers for the years 1981-2013. In order to ensure that the classification type of the institutional investor is easily recognizable to the market, institutional investors with less than seven observations or that switch classification category from year-to-year are discarded.[28] The remaining firms should represent large institutional investors that have had a continued investment presence (and thus easy for the market to identify as dedicated, quasi-indexing, or transient). This leaves a total of 760 institutional investors: 22 dedicated, 506 quasi-indexing, and 232 transient.

Next, the complete 13F filings for 1981-2013 for each institutional investor in the above sample are obtained. Collected are, for each security in each respective quarterly filing, the firm name and CUSIP, the number of shares held, and the change in the number of shares held since prior reporting. In order to isolate large, significant increases in holdings (i.e., portfolio changes that would be more likely to incite a price reaction from the market), the analysis is limited to those stocks that experienced an increase in holdings by the institution investor of at least 50%, and whose ending position is 3% or higher. This results in the following sample: 1,627 filings by dedicated investors; 17,901 filings held by quasi-indexing investors, and 20,848 filings by transient investors.

[27] Data on classification types is obtained from http://acct.wharton.upenn.edu/faculty/bushee/IIclass.html.

[28] An unreported analysis specifies that the sample is firms with less than five observation, and results are similar.

4 Empirical Results

4.1 Non-Activist Blockholding by Activist and Non-Activist Hedge Funds

The section describes results comparing the cumulative abnormal returns (CARs) during the $(-d, d)$ days surrounding the announcement of a non-activist block acquisition by an activist hedge fund, and the CARs surrounding the announced non-activist block acquisition of a control group of non-activist hedge funds. Activist and non-activist hedge funds are defined as in Section 3.1, and in this analysis the acquisition announcement dates are considered to be the date on which the Schedule 13G was filed. Three different event day specifications are considered: the $(-1, 1)$ days surrounding the 13G filing (i.e., the day before, day of, and day after the filing), as well as the $(-2, 2)$ and $(-5, 5)$ days surrounding the filing, to account for a slower adjustment time of the market to the information contained in the filing. Furthermore, CARs are calculated as in equation (1) as the difference between actual returns and expected returns from four different market models: the one-, three-, five-, and seven-factor market models, as described in Section 3.2.

Table 2 compares mean and median CARs surrounding non-activist block acquisitions by these two groups of institutional investors ("Activist") and ("Non-Activist") across the different market models. Panel A compares CARs using a $(-1, 1)$-day window; this represents the short-term reaction of the market to the information contained in the 13G. From the table, it is clear that the non-activist block acquisitions by activist hedge funds generates higher mean and median CARs in all cases, and that these differences are statistically significant in all cases at a 1% level (from a two-sided t-test for means, and a two-sided Wilcoxon rank sum test for medians). The differences in means are on the order of about 40 basis points. The difference in medians is also significant and equal to about 10-20 basis points. Note that results do not vary much according to the the different market model specifications.

As for the longer-term windows, the results continue to show that, even after several

days, the non-activist block acquisition by an activist hedge fund continue to generate higher CARs. These CARs increase as the time window increases, showing a slower adjustment time of the market to the new information contained in the filing. Results for the $(-5, 5)$-day window show that, after a 5-day period, acquisitions by activist hedge funds generate a higher median CAR of 40-60 basis points.

Given the results that activist hedge funds generate higher CARs even for their non-activist block acquisitions, one question that arises is to what extent these results represent an additional driver of the positive market reactions surrounding *activist* acquisitions (i.e., those acquisitions that are accompanied by the filing of a Schedule 13D) of activist hedge funds as found in other papers. In order to answer this question, an analysis similarly to the one in Clifford (2008) is performed. Table 3 performs a similar analysis as before, except now compares the activist acquisitions of activist hedge funds, to the non-activist acquisitions by the same group of activist hedge funds.

Consistent with the literature, the results show very large, positive cumulative abnormal returns around the announcement dates of activist acquisitions by activist hedge funds. The median abnormal returns range from around 2% at the $(-1, 1)$-day window, to about 4% at the $(-5, 5)$-day window; the magnitude of these results are comparable to the results from Brav et al. (2008), who find a median buy-and-hold return of 5.6% during the $(-20, 20)$-day window surrounding an activist acquisition announcement date. Importantly, confirming the results of rClifford (2008), the results also show that the CARs around activist acquisitions by activist hedge funds are statistically significantly higher than those surrounding their non-activist acquisitions. The magnitudes of these differences are similar to those found in Clifford (2008), who finds that, using a $(-2, 2)$-day event window specification, median CARs generated by activist acquisitions are 1.16% higher than those generated by non-activist acquisitions. If market reactions to activist acquisitions are taken as the combined market reactions to both expected benefits to shareholder activism and the mitigation of fire sale risk, while market reactions to non-activist acquisitions only capture fire sale risk effects, comparing the CARs around activist

and non-activist acquisitions allows for a decomposition between these effects. Using the results from the $(-5, 5)$-day window shows that about 33% of the average CAR (and 19% of the median CAR) around activist acquisitions by activist hedge funds are potentially due to their mitigation of fire sale risk.

The finding that the market reacts very positively to activist acquisitions by activist hedge funds emphasizes, as has been found in the literature on hedge fund activism, that the market places a great deal of value on the abilities of activism hedge funds to generate real value in the firms in which they engage in shareholder activism, through improvements in operational efficiency and the correction of agency problems. It also raises the possibility that the market's reaction to non-activist acquisition simply captures the market's expectation that the activist hedge fund may eventually switch to becoming a shareholder activism in their non-activist acquisitions. This will be explored further in Section 4.1.4.

4.1.1 Robustness: Excluding Overlapping Blocks

One concern is that the two different types of hedge funds may acquire blocks within the same firm, which makes trying to untangle the impacts of these acquisitions difficult. Therefore, as robustness, this analysis focuses on block acquisitions in firms that are uniquely acquired by one or the other investor type. For example, a firm in which an activist hedge fund acquires a non-activist block, but a non-activist hedge fund never acquired a block within the sample time period, is included in the sample.[29] This leaves a total of 357 activist hedge funds with 6,200 non-activist block acquisitions, and 941 non-activist hedge funds with 29,257 non-activist block acquisitions. These results are represented in Table 4.

Looking at the differences in median CARs between the activist and non-activist hedge fund block acquisitions, once again the results confirm that non-activist acquisitions by

[29]Note that this also implicitly also assumes that all other investor types not included in this analysis (mutual funds, pension funds, etc., as well as activist acquirers) find the investments of both activist and non-activist hedge funds equally attractive, i.e., the effects of other, non-hedge funds is comparable across the two groups of non-activist investments and thus can be ignored.

activist hedge funds generate higher CARs than similarly non-activist acquisitions by the control group of non-activist hedge funds. These differences are once again statistically significant, although slightly lower in magnitude than the results from the full sample: after five days, the non-activist block acquisition of a stock by an activist hedge fund can generate a median CAR that is about 30-50 basis points more than that of non-activist hedge funds.

4.1.2 Robustness: Excluding Prior 13F Filings

Another assumption is that the filing date of a Schedule 13G represents the announcement date of the block acquisitions. This is potentially confounded by the rather long filing requirements of the form; namely, a Schedule 13G must be filed within 45 days of the end of the calendar year in which the acquisition was made. This leaves substantial room for the information to be revealed to the market, particularly if the investor is also required to file a quarterly Schedule 13F with the SEC. Given the size of the investor, the actual date of the acquisition, and the investor's reporting dates, there are up to five dates on which the information on the acquisition might have been revealed to the market. Therefore, as a robustness check, this analysis will exclude firms for which a 13F previously announces a significant ownership stake (conservatively defined as 3% or greater) in that firm. Data on institutional holdings is obtained from Thomson Reuter's Institutional (13F) database. This leaves a total of 351 activist hedge funds with 5,502 non-activist block acquisitions, and 864 non-activist hedge funds with 21,510 non-activist block acquisitions. This sample should be mostly composed of stocks acquired by hedge funds small enough such that they do not need to file a 13F, or those that were acquired during the period of time between the most recent 13F filing and the filing of the 13G.[30]

[30]Note that, while Schedule 13G filings can be made at either the hedge fund sponsor or at the individual fund level, and Schedule 13F filings are aggregated at the hedge fund sponsor level, the practice of matching 13G and 13F filers by name likely misses 13G filings that are done at the individual fund level. These acquisitions will thus fail to be excluded in this analysis. However, the inclusion of acquisition announcements for which that information may have already been released to the market simply adds more noise to the analysis, which should rather work against finding significant results, rather than bias results towards significance.

Results are reported in Table 5 and again confirm that the non-activist block acquisitions by activist hedge funds generates statistically significantly higher mean and median CARs in all cases, at least at a 5% level. Note also that the CARs for activist hedge funds are slightly higher in this subsample than in the full sample from Table 2. This is likely because the noise that may have been added by the filing of 13G forms that contained no new information has been removed in this smaller sample. The results for this sample show a mean differences in median CARs of 50 to more than 60 basis points for the $(-5, 5)$-day window.

All in all, the results using the full sample and the subsamples support the idea that the non-activist block acquisition by an activist hedge funds generates higher abnormal returns than a similarly non-activist acquisition by a non-activist hedge fund. However, as of yet the analysis has not specifically shown that these higher CARs are due to the mitigation of fire sale risk by the long-term liquidity management capabilities of activist hedge funds and not due to, say, better stock-picking abilities of activist hedge funds. This will be further explored in the next section.

4.1.3 Alternative: Stock-Picking Abilities

One possible alternative explanation for the above result is that activist hedge funds are simply better stock-pickers than non-activist hedge funds. This would imply that higher cumulative abnormal returns are due to the revelation to the market that the fund has identified a stock whose price they except to rise, and not due to their mitigation of fire sale risk. This is particularly plausible given the evidence in Table 1 that activist hedge funds tend to target more value firms than non-activist hedge funds. Brav et al. (2008) perform a number of tests to show that abnormal returns around activist hedge fund acquisitions of activist blocks are not primarily driven by superior stock-picking abilities of activist hedge funds. However, it could still be the case that activist hedge funds employ better stock-picking abilities on their *non-activist* investments.

If it is indeed the case that activist hedge funds are significantly better stock-pickers

than non-activist hedge funds, then activist hedge funds should earn higher alphas on the non-activist portions of their portfolios than their non-activist peers. In order to explore this possibility, using quarterly 13F filing data for the time period 1998-2015, hypothetical returns are constructed for the non-activist portions of the portfolios of activist hedge funds, as well as the portfolios of non-activist hedge funds, for each fund for which 13F data is available. As in Grinblatt and Titman (1989), for each fund, portfolios weights (rebalanced monthly) are multiplied by the excess returns (returns above the 1-month T-Bill) on the securities in that fund's portfolio and summed to achieve a time series of portfolio returns. This produces 122 time series of portfolios returns for activist hedge funds, and 487 time series of portfolio returns for non-activist hedge funds. Furthermore, returns are calculated on both a daily and monthly basis. Next, individual fund (daily and monthly) portfolio alphas are estimated by regressing portfolio returns according to the one-, three-, five-, and seven-factor model specifications described in Section 3.2.[31] Lastly, aggregate activist and non-activist portfolio excess returns are calculated as the equally-weighted average of portfolio excess returns for all funds within each group, and aggregate portfolio alphas are similarly obtained.

Panels 1 and 2 of Table 6 present summary statistics for the portfolio alphas constructed on an individual basis for each fund, and compares mean and median portfolio alphas for activist and non-activist hedge funds, calculated on a daily and monthly basis. The results show that, first, none of the specifications produce a statistically significant difference in mean or median portfolio alphas between activist and non-activist hedge funds. Interestingly, mean portfolio alphas are negative in all specifications for both funds, with median alphas very close to zero. Secondly, there are also few differences between the number of portfolio alphas that are significant, or that are both significant and positive, for activist and non-activist hedge funds. Therefore, from this analysis it does not appear that non-activist hedge funds are more likely to produce higher portfolio alphas on the non-activist portions of their portfolios than non-activist hedge funds.

[31]Monthly liquidity factors are obtained from the website of Lubos Pastor at http://faculty.chicagobooth.edu/lubos.pastor/research/.

Panel 3 of Table 6 presents results from regressing aggregated daily portfolio excess returns of activist and non-activist hedge funds on the various portfolio risk factors.[32] The results show that both portfolios again produce negative alphas, which are highly statistically significance. However, these alphas are similar in magnitude, with the activist hedge fund portfolio producing a slightly more negative alpha. This further affirms that activist hedge funds are not more likely to produce higher alphas. Interestingly, most of the other factor coefficients are also similar in magnitude. For example, both portfolios have a beta (defined as the coefficient on excess market return, MKT) of about 0.7 to 0.8, implying similar levels of market risk. One exception is the significant and negative coefficient of aggregate portfolio excess returns of activist hedge funds on the "robust-minus-weak" profitability factor (RMW). This is perhaps not surprising, considering that, from Panel 2 of Table 1, activist hedge funds were more likely to invest in low profitability firms.

Secondly, as pointed out by Brav et al. (2008), if activist hedge funds are indeed better stock pickers than non-activist hedge funds, then activist hedge funds should exit their investments after the stock price has adjusted to reflect the true fundamental value. Therefore, we might expect to see their exit serve as a signal to the market that the optimal time to sell has arrived, resulting in a lower cumulative abnormal return following the fund's exit announcement date as other investors follow the activist hedge fund and exit their positions. Table 7 shows results from an analysis comparing cumulative abnormal returns (CARs) calculated over the $(-d, d)$ days surrounding the *exit announcement dates* of activist and non-activist hedge funds from non-activist block positions, calculated similarly to those surrounding acquisition announcement dates. As in Section 3.1, exit announcement dates are determined as the date of the last Schedule 13G/A filing showing that the block size has fallen below the 5% threshold. The results show that, for a majority of specifications, the results show no statistically significant differences between the CARs surrounding the exit announcement dates of these two different types

[32]Results using monthly aggregated portfolio excess returns are similar.

of hedge funds. For the results that do show statically significant differences, there is no consistency as to the direction: while using a 7-factor and a $(-2, 2$-day window shows that activist hedge fund exits generate a lower CAR, the 1- and 3-factor model at the $(-5, 5)$ day window actually shows a higher CAR around activist hedge fund exit dates. Interestingly, the finding that CARs are not significantly lower around the exit announcement dates of non-activist hedge funds, who are more likely to need to sell in blocks on a short-term notice, emphasizes the idea that fire sale risk has already been priced ex ante, at the time of the blockholder's acquisition.

4.1.4 Alternative: Future Pricing of Activism

Another alternative explanation is that activist hedge funds are merely using 13G filings to gain a "foothold" in firms for which they eventually would like to target for activism. In this way, a positive market reaction to a 13G filing by an activist hedge funds may still be associated with the expected benefits of activism, multiplied by the probability that the activist hedge fund will switch from a 13G to a 13D filing. This explanation is plausible as investors occasionally do switch from a 13G to a 13D: about 899 (8%) of 13G filings by activist hedge funds are eventually switched to a 13D, as well as 746 (2%) of 13G filings by non-activist hedge funds. The median time between the initial filing and the day of the switch is 338 days for activist investors, and 415 days for non-activist investors.

However, there are several reasons to believe that activist investors would rather "sit on" a 13D rather than switch to it if they suspect from their initial acquisition that the opportunity to engage in activism will arise. First, there is a mandatory 10-day "cooling-off" period after the switch from a 13G to a 13D, during which the investor is barred from buying or selling shares or pursing activist activities.[33] This could represent a significant opportunity cost, as an event that would trigger a switch from a 13G to a 13D may run its course within these days. Secondly, eyeballing a subsample of responses to the item

[33]See SEC Release No. 34-39538, available at https://www.sec.gov/rules/final/34-39538.txt.

"Purpose of Transaction" on Schedule 13Ds from activist hedge funds shows that nearly two-thirds of filers fail to state a specific activist plan, with many even specifically stating that the holding is not with the purpose of influencing or changing the firm, but retain the future right to engage in communication or negotiations with firm management. This large number of 13Ds that are filed without a current plan of activism, but that retain the future option to develop it as such, supports the idea that a shock to a 13G target firm that would generate an opportunity for activism would come as a surprise to both the activist hedge fund itself and the market.

In order to further explore the possibility that activist hedge funds use 13G filings to gain a "foothold" in targets for activism, I first examine whether there are any statistically significant differences between the characteristics of firms whose blocks are initially acquired by an activist hedge fund along with a Schedule 13G, and who are eventually switched to a Schedule 13D ("switch subsample"), to firms whose blocks are acquired by an activist hedge fund along with a Schedule 13G and who are never switched to an activist investment ("non-switch subsample"). From Brav et al. (2008), activist hedge funds target a specific subset of firms for shareholder activism: namely, smaller "value" firms that have on average a high profit potential, but that may experience free cash flow agency problems. Therefore, if the activist hedge fund initially acquired the switch subsample with the expectation of eventual opportunities for activism, we might expect it to have different firm characteristics than the non-switch sample. Panel 1 of Table 8 reports summary statistics and differences in means and medians (along with statistical significance) of firm characteristics for these two groups in the year prior to their acquisition, and the results show few differences in mean and median firm characteristics between these two groups. There is some evidence that the switch subsample are smaller, have lower q, and lower R&D expenditures. However, there is no consistent evidence that these firms are on average more likely to be "value firms", are more profitable, or have a higher likelihood of cash flow problems. This supports the idea that activist investors do not know at the time of initial acquisition that an opportunity for activism may arise.

Instead, we should see that decision of an activist hedge fund to switch to from a 13G a 13D is driven by unexpected changes within the target firm itself. Panel 2 of Table 8 compares firm characteristics of the switch subsample in the year prior to the initial acquisition (i.e., an activist hedge fund's acquisition accompanied by the 13G filing), to the same subsample of firms in the year prior to their switch (i.e., the filing of a 13D by the same activist hedge fund for that firm). Indeed, the results show substantial differences in firm characteristics in terms of both means and medians, confirming that changes within the firm likely trigger the activist hedge fund's decision to become activist. The results show that, at the time of a switch to a 13D, firms have experience a drop in market value, and a drop in all measures of profitability (sale growth, ROA, cash flows, and annual buy-and-hold returns). However, these firms are still "value" firms, as they experience an increase in market-to-book and drop in q. Interestingly, changes in cash flow agency problems do not seem to trigger an activist hedge fund to switch to a 13D, as the variables capturing capital structure are (with the exception of divided yield) mostly insignificant.

Panel 3 of Table 8 compares firm characteristics of the switch subsample in the year prior to the switch to a 13D, to the characteristics of firms that are initially targeted by activist hedge funds for shareholder activism (i.e., firms whose initial acquisitions are accompanied by a Schedule 13D) in the year prior to their acquisition. We should see mainly similarities between these two groups of firms, as they both represent firms that are targeted for activism. The results are largely in line with those above. There are little to no differences between these two groups of firms in terms of size or value, and only half of the variables capturing profitability show statistically significant differences. Where we do see significant differences are in terms of the capital structure variables. This confirms that activist hedge funds typically do not switch from a 13G to a 13D to correct problems in capital structure; instead, it seems that a drop in profitability drives activist hedge funds to turn a non-activist blockholding into an activist one.

Of course, the possibility remains that the market simply prices the ability of activist hedge fund to intervene when the firm begins to underperform; the finding that activist

hedge funds do indeed tend to switch to a 13D when profitability drops is evidence to this effect. In order to control for this possibility, the next analysis takes advantage of the information provided by the subsample of activist hedge funds that switch their filing types. Note that, as long as the size of the block acquisition does not significantly change, the announcement of a switch from a Schedule 13G to a Schedule 13D should contain no new information except for the intention of the hedge fund to become activist in that form. Therefore, any market reaction to this announcement in the form of cumulative abnormal returns should be due to the expectation of future benefits to shareholder activism. Therefore, the average cumulative abnormal return around the announcement of a switch from a 13G to a 13D, ($\overline{CAR^{Switch}}$, is taken as a proxy for the expected benefits of shareholder activism. Using this proxy, *adjusted* cumulative abnormal returns are calculated for non-activist acquisitions by activist hedge funds as the difference between the event-window CAR, less this proxy for the expected benefits of shareholder activism, times the probability of a switch. Specifically, it is calculated as:

$$CAR_{tj}^{Adj} = CAR_{tj} - P(Switch) \cdot (\overline{CAR^{Switch}}), \tag{3}$$

where cumulative abnormal returns CAR_{tj} are calculated as in equation (1), and the probability of switching, $P(Switch)$, is taken as the observed rate of switching in the sample, 8.3%.

Results comparing the adjusted CARs for non-activist acquisition announcements by activist hedge funds and the CARs for non-activist acquisition announcements for non-activist hedge funds are presented in Table 9. The results show that, even when the CARs of activist hedge funds have been adjusted for the expected benefits of activism, they remain in most specifications statistically significantly higher than those of non-activist hedge funds. This is especially the case for the longer event window specifications. The magnitudes of these differences have dropped, but still remain economically significant: From the results using a $(-5, 5)$-day window, non-activist acquisitions by activist hedge funds generate cumulative abnormal returns that are 30-40 basis points higher than those

generated by non-activist acquisitions of non-activist hedge funds, even after adjusting for the expected future benefits to shareholder activism.

4.2 Testing for Fire Sale Risk

This section present results from a difference-in-differences regression of stock (log) returns, in which the key parameter of interest in the coefficient on the interaction term between an event dummy equal to one following an exogenous shock to fire sale risk, and a treatment dummy variable that is equal to one if the stock is held by non-activist hedge fund blockholders, and zero if the firm is held by an activist hedge fund, as in equation (2). This gives us the additional impact that having a substantial block held by a non-activist hedge fund has on a firm's stock price, as compared to having a block held by an activist hedge fund, following an increase in fire sale risk. The increase in fire sale risk is identified as the introduction of Reg ATS, which made block trading cheaper and easier for institutional investors. If the fire sale hypothesis holds, then log returns should decrease more for stocks held by non-activist hedge funds, whose co-investors face an even larger risk that a liquidity shock could trigger a large fire sale, as compared to activist hedge funds whose co-investors likely did not price fire sale risk as strongly in the first place due to these hedge funds' ability to manage their liquidity. Therefore, we should see a negative coefficient on the interaction between the event dummy and the treatment variable.

Results from the regression using the full sample of stocks are presented in Panel 1 of Table 10. Results are presented for both a $(-60, 60)$-day window around the implementation date of Reg ATS, and a $(-90, 90)$-day window as well. Columns 1 and 5 shows results from a regression excluding controls and time fixed effects, Columns 2 and 6 shows results including time fixed effects, Columns 3 and 7 includes both time fixed effects and controls, and finally Columns 4 and 8 includes time fixed effects, controls, and industry instead of firm fixed effects. Consistent with the fire sale risk hypothesis, the results show a significantly negative coefficient on the interaction term $EV_t \times NA_g$ in all specifications,

though statistical significance is stronger for the $(-60, 60)$-day window. Furthermore, the magnitude and significance of the coefficient does not vary much depending on whether the regression includes controls, time fixed effects, firm fixed effects, or industry fixed effects.

In terms of economic significance, the value of the coefficient in Columns 7-8 corresponds to a drop in returns of about 3.5%-7.2% for stocks with non-activist hedge fund blockholders over the 90-day period following the announcement of Reg ATS. This is somewhat higher than the magnitude of the effect captured by Massa et al. (2016), who show a cumulative decrease in returns of up to 3% during the three months following the BlackRock-BGI merger. This could be due to several reasons. First, as shown by Massa et al. (2016), results are much stronger when they consider a subsample of illiquid and small-cap stocks. As acquiring a large block in a firm is typically easier in relatively small-cap stocks from the perspective of an individual firm, my sample likely includes more illiquid and small-cap stocks than the broader market sample Massa et al. (2016); this may explain the differences in magnitude. Secondly, it could be that investors who find themselves facing a higher exposure fire sale risk in the post-Reg NMS regime exhibit a kind of "flight to quality" into stocks with a lower exposure fire sale risk. This could correspond to both a selling pressure in stocks held by non-activist hedge funds, and a buying pressure in stocks held by activist hedge funds, effectively doubling the relative drop in returns in stocks held by non-activist hedge funds.

Panel 2 of Table 10 shows results from the difference-in-differences analysis that first matches stocks held by activist and non-activist hedge fund blockholders using propensity score matching. At the $(-60, 60)$-day window, the coefficients on the interaction term $EV_t \times NA_g$ remains statistically significant and of a comparable magnitude to the results in Panel 1 using the full sample of firms. While the sign and magnitude of the results at the $(-90, 90)$-day window remain about the same, the coefficients on the interaction term are no longer statistically significant, implying that the market may fully price the new information contained in the announcement of Reg ATS within a shorter time period.

Overall, these results show that, following an increase in fire sale risk, block ownership by a non-activist hedge fund has a significantly negative impact on log returns as compared to block ownership by an activist hedge fund. This supports the fire sale risk hypothesis, as co-investors in stocks with block ownership by non-activist hedge funds face an even higher risk of fire sales by non-activist blockholders, as compared to ownership by a group that is effectively able to minimize or eliminate fire sale risk for their co-investors.

4.2.1 Robustness: Placebo Tests

As a robustness check, several placebo tests are also performed. Eight placebo event dates are randomly selected within the years 1997-1999; these represent "fictitious" event dates that represent a shock to fire sale risk. In randomly selecting the placebo event dates, the 90-day window around the announcement and implementation dates of Reg ATS are excluded in order to limit the extent to which the placebo tests may pick up the effects of the regulation. These event dates are used to define the event dummy EV_t as in (2); therefore, the coefficient on the interaction term, $EV_t \times NA_g$, where NA_g is a dummy variable equal to one if the stock is held by a non-activist blockholder, represents the additional impact that the fictitious event had on stocks with non-activist blockholders, as compared to stocks with activist blockholders. Lastly, separate difference-in-differences regressions are run for each placebo event date, for a $(-60, 60)$-day window surrounding the placebo event date, including controls, and firm and time fixed effects.

The results from the difference-in-differences analyses using the eight placebo dates are presented in Table 11. Comparing the results across the different dates, there does not appear to be any consistencies in the sign or magnitude of the coefficient on the interaction term. Additionally, all the analyses show an insignificant coefficient. This highlights the significance of the difference-in-differences analysis using Reg ATS as a shock to fire sale risk.

4.2.2 Robustness: FINRA Rule 4552

For additional robustness, this analysis considers an additional event that potentially represents a shock to fire sale risk: the introduction of FINRA Rule 4552, a rule enacted by the Financial Industry Regulatory Authority, Inc. (FINRA) in an effort to increase market transparency. Approved by the SEC on 17 January 2014[34] and implemented on 12 May 2014[35], the Rule requires each Alternative Trading System (ATS) to submit a weekly report of trading volumes to FINRA, who publicly publish the information[36]. The volumes are weekly aggregates, and as such trading volume cannot be attributed to individual blockholders. However, trading volumes are attributed to a specific ATS by a unique Market Participant Identifier (MPID), and market participants therefore receive more transparent and up-to-date information on trading activities within alternative trading systems. This rule thus represents a partial reversal of Reg ATS, subjecting ATS to a much higher level of transparency than previously required. This event should thus represent a decrease in fire sale risk.

If FINRA Rule 4552 is a partial reversal of Reg ATS, then we would expect to see a partial reversal of the results from the difference-in-differences analysis above using the introduction of Reg ATS as a shock to fire sale risk. Namely, if fire sale risk decreases following this rule, we would expect to see an increase in returns following its introduction for stocks that are exposed to fire sale risk, when compared to stocks that are not as exposed to this risk. Therefore, from the regression in (2), where EV_t is defined as an event dummy equal to one after the introduction of FINRA Rule 4552, we would expect a positive coefficient on the interaction term $NA_g \times EV_t$, where NA_g is a dummy variable equal to one if the stock is held by a non-activist blockholder. This is because stocks held by non-activist blockholders are relatively more exposed to fire sale risk; therefore, the decrease in fire sale risk should effect these stocks in the form of positive returns, while

[34]See SEC Release No. 34-71341, 17 January 2014, available at https://www.sec.gov/rules/sro/finra/2014/34-71341.pdf.

[35]See FINRA Regulatory Notice 14-07, February 2014, available at http://finra.complinet.com/net_file_store/new_rulebooks/f/i/FINRANotice_14_07.pdf.

[36]See https://ats.finra.org/.

having little to no impact on stocks held by activist blockholders that have little to no exposure to fire sale risk.

Results from a difference-in-differences analysis in which EV_t is defined as an event dummy equal to one after the approval of FINRA Rule 4552 on 17 January 2014,[37] are presented in Table 12. Again, results are presented for both a $(-60, 60)$ day window around the approval date of FINRA Rule 4552, and a $(-90, 90)$ day window as well. The results clearly show a positive coefficient on the interaction term across most specifications for both time windows. This results is robust to the inclusion of time and firm fixed effects, as well as the addition of control variables. However, the coefficients for both time windows lose significance once the specification includes industry fixed effects. Thus, though from Table 1 activist and non-activist hedge funds seem to invest in similar industries, it cannot be ruled out that the results in Table 12 are due to industry-specific effects of FINRA Rule 4552. The magnitudes of the coefficients are largely in line with the magnitudes of the coefficients in the above analysis of Reg ATS, and are even larger for the $(-90, 90)$-day window. This may be because, as has been shown, for example, by Füss et al. (2015), investors' relative evaluations of risk have changed in the post-crisis era.

4.3 Institutional Holdings and Classifications

This section describes the results comparing CARs surrounding announcements of acquisitions by a broader group of institutional investors using the classification scheme of Bushee (1998, 2001). According to the fire sale hypothesis, the market should respond more negatively to the 13F filings by transient investors, who have shown a history of high portfolio turnover, or a quasi-indexer with low portfolio concentration, than dedicated investors, whose historical turnover is low and portfolio concentration is high. The logic is that, if investors are able to price the risk of large block sales ex ante, then the acquisition or increase in holdings by a transient investor and quasi-indexer, where the expectation of divestment is higher, should lead to a significantly lower cumulative abnormal return

[37] In an unreported analysis, a difference-in-differences regression is also performed using the implementation date of FINRA Rule 4552, and results are similar in magnitude and significance.

(CAR), as compared to a dedicated investor. Note that this analysis is much broader than the analysis from Section 4.1, as from the dataset we can only observe the ex post characteristics of their portfolios, and not their ex ante ability to commit to an investment in the block despite a liquidity shock.

Panel A of Table 13 show the results for the $(-1, 1)$-day event window around a 13F filing, for the three different institutional investor classifications: dedicated, quasi-indexing, and transient. Consistent with the hypothesis, the results show that, in most cases, dedicated investors generate higher CAR than either quasi-indexers or transient. In fact, according to a five- and seven-factor model, dedicated investors seem to be the only investor classification group that generates positive mean and median abnormal returns. The difference in CARs generated by dedicated investors above that generated by quasi-indexers and transient firms ranges from about 9 to 50 basis points, which is comparable to the results from Section 4.1. Interestingly, there does not appear to be a statistically significant difference between CARs generated by quasi-indexers and transient investors. This supports the idea that fellow investors in the firm perceive a higher risk of block liquidation by institutions that showcase high portfolio turnover (in the case of transient investors), or have highly dispersed portfolios and low commitment to any one particular block (in the case of quasi-indexers). This risk is subsequently priced in the form of a negative impact on returns.

Panels B and C of Table 13 show the mean and median CARs calculated using longer time windows, respectively over the $(-2, 2)$ and $(-5, 5)$ days around the date of the 13F filing. It does not appear as though there are many statistically significant differences in CARs at these event windows. One exception is that we consistently see statistically significant (at least at a 10% level) differences between median CARs from dedicated investors and quasi-indexers. This may imply that market especially value the quality of high ownership concentration, as this is the dimension along which these two investor groups differ. Block acquisitions by dedicated investors appear to generate median CARs that are about 110-180 basis points more than that of a quasi-indexer over the $(-5, 5)$-day

window. In general, the drop in significance at the longer time windows shows that the information contained in 13F filings are likely priced very quickly by the market. This is likely because 13F filings are reported in a timely manner by several news outlets (such as Dow Jones Newswires), and because investors that are required to file the 13F are typically larger with a higher analyst following.

All-in-all, these results show that co-investors tend to price block acquisition of shares by quasi-indexing and transient investors more negatively than block acquisitions by dedicated firms. That is, dedicated investors are seen as better able and willing to withstand liquidity shocks and avoid potentially fire sales of the block, and this co-investors do not need to ex-ante price such potentially fire sales as negatively.

5 Conclusion

This paper explores a recent and relatively unexplored idea that investors in a stock in which there is a large blockholder will ex ante price the risk that large fire sales by the liquidity-shocked blockholder will trigger large, negative price impacts in that stock, referred to as "fire sale risk". This paper contributes to the literature by exploring whether different types of blockholders expose investors to different degrees of fire sale risk. In particular, blockholders with the reputation of being credible long-term liquidity managers – such as activist hedge funds – should expose their co-investors to little or no fire sale risk. This may additionally drive the finding in many studies that activist hedge funds generate substantial abnormal returns around the announcement dates of their block acquisitions.

Using a dataset of hedge fund block acquisitions hand-collected from SEC filings, non-activist acquisitions of hedge funds are identified as block acquisitions that are accompanied by the filing of a Schedule 13G, a form required for investorsthat acquire a 5% or greater stake in a firm and do not plan to engage in shareholder activism, during a sample period of 1998-2015. Subsequently, the cumulative abnormal returns (CARs) surrounding the announcement dates of *non-activist* blocks (i.e., the filing of a 13G)

by *activist* hedge funds are compared to CARs surrounding the announcement dates of similarly non-activist acquisitions by non-activist hedge funds. The analysis shows that acquisition by an activist hedge fund generates a higher CAR of about 10-60 basis points, compared to acquisition by a non-activist hedge fund. Since the analysis only considers non-activist acquisitions, this shows that there are benefits to ownership by an activist hedge fund that extend beyond the forward pricing of expected benefits to activism.

A regression analysis directly relates this result to the idea of fire sale risk by examining the differences in log returns of stocks in which non-activist and activist hedge funds are large blockholders, surrounding an exogenous shock to fire sale risk. This shock is identified as the introduction of the Regulation of Alternative Trading Systems (Reg ATS), which made block trading cheaper and easier for institutional investors. Indeed, the analysis shows that, following an increase in fire sale risk, log prices of stocks held in blocks by non-activist hedge funds decrease by 3.5-7.2%, when compared to stocks held in blocks by activist hedge funds, over a 60-day period.

A final analysis shows that these results extend beyond hedge funds to a broader group of institutional investors defined according to their portfolio turnover and concentration, and that investors with comparatively low portfolio turnover and higher concentration generate a higher CAR of about 9 to 40 basis points. These results support the idea that investors strategically take into account the potential negative price impact of a fire sale by a large blockholder ex ante. Furthermore, the results support the idea that different types of institutional investors expose other investors in the same stocks to different levels of fire sale risk.

A Summary Statistics

Table 1: Descriptive Statistics: Characteristics of Activist and Non-Activist Hedge Funds and their Target Firms

Panel 1: Characteristics of Hedge Funds

	(A) Activist Hedge Fund Sample			(B) Non-Activist Hedge Fund Sample				
	Mean	**Median**	**Std. Dev.**	**Mean**	**Median**	**Std. Dev.**	**Diff Mean**	**Diff Median**
Block Acquisition Size	0.070	0.060	0.031	0.070	0.061	0.036	0.000	-0.001^{***}
Investment Durations	680.82	481.00	585.47	686.77	378.50	649.64	-5.94	102.5^{*}
Number of Employees	65.43	22.50	184.66	146.09	17.00	1319.36	-80.65	5.50
Regulatory AUM	8430.042	2207.90	23018.83	18828.71	1901.18	139423.88	-10398.67^{*}	306.72
Number of Investors	65.55	5.00	246.98	5741.36	75.00	71548.74	-5675.81^{*}	-70.00^{***}
% Institutional Investors	74.65%	97.50%	37.34%	63.75%	63.50%	37.96%	$10.90\%^{***}$	34.00^{***}

Panel 2: Characteristics of Target Firms

	(A) Activist Hedge Fund Sample			(B) Non-Activist Hedge Fund Sample				
	Mean	**Median**	**Std. Dev.**	**Mean**	**Median**	**Std. Dev.**	**Diff Mean**	**Diff Median**
Market Cap	598.950	236.575	832.485	1989.297	625.321	3231.545	-1390.347^{***}	-388.746^{***}
Market-to-Book	0.633	0.532	0.492	0.585	0.495	0.404	0.048^{***}	0.037^{***}
q	2.159	1.500	1.698	2.244	1.607	1.656	-0.085^{***}	-0.107^{***}
Growth	0.169	0.079	0.383	0.143	0.078	0.287	0.026^{***}	0.001
ROA	0.005	0.068	0.252	0.092	0.107	0.156	-0.087^{***}	-0.039^{***}
Cash Flow	-0.029	0.036	0.242	0.047	0.071	0.152	-0.076^{***}	-0.035^{***}
Buy-and-Hold Return	0.142	-0.024	0.716	0.098	0.040	0.460	0.044^{***}	-0.064^{***}
Book Leverage	0.312	0.231	0.314	0.321	0.291	0.283	-0.009^{**}	-0.060^{***}
Cash	0.164	0.095	0.180	0.136	0.081	0.147	0.028^{***}	0.014^{***}
Dividend Yield	0.006	0.000	0.014	0.012	0.000	0.019	-0.006^{***}	-0.000^{***}
Payout Ratio	0.234	0.000	0.646	0.448	0.032	0.788	-0.214^{***}	-0.032^{***}
R&D	0.145	0.071	0.187	0.093	0.037	0.127	0.052^{***}	0.034^{***}
Liquidity	0.455	0.020	1.112	0.075	0.004	0.196	0.380^{***}	0.016^{***}

Panel 3: Industry Groups of Target Firms

	(A) Activist Hedge Fund Sample	(B) Non-Activist Hedge Fund Sample	(C) Difference
Consumer Non-Durables	3.94%	4.53%	-0.58%
Consumer Durables	2.19%	2.36%	-0.17%
Manufacturing	6.60%	8.85%	-2.26%
Energy	3.65%	3.92%	-0.27%
Chemicals	1.64%	1.87%	-0.24%
Business Equipment	17.63%	17.16%	0.47%
Telecommunications	3.60%	3.20%	0.40%
Utilities	0.97%	2.41%	-1.44%
Wholesale/Retail Shops	9.09%	9.76%	-0.67%
Healthcare	16.50%	11.95%	4.55%
Financial	16.80%	18.07%	-1.27%
Other	17.40%	15.92%	1.47%

Panel 1 shows summary statistics (including mean, median, standard deviation ("Std. Dev.")) for characteristics of activist (Panel 1.A) and non-activist (Panel 1.B) hedge funds, as well as the differences in mean and median variables and their statistical significance (according to, resp, a two-sided t-test and a Wilcoxon rank sum test). The symbols *, **, and *** represent statistical significance at the 10%, 5%, and 1% level. Block acquisition sizes are taken from the funds' 13G filings; investment duration is calculated as the number of days between the initial 13G filing, and the final 13G/A filing (when available) showing that the block size has fallen below the 5% threshold. The remaining fund characteristics are taken from funds' Form ADF filings, when available. This includes the number of employees, regulatory Assets under Management (AUM, a measure of gross asets), the number of investors in the fund, and the percentage of investors that are classified as institutional investors. Panel 2 compares summary statistics for firm characteristics of stocks held in non-activist blocks by activist (Panel 2.A) and non-activist (Panel 2.B) hedge funds. All firm characteristics data are taken from the closest annual filing prior to the hedge fund's acquisition of that firm's stock. Variables are defined as in Brav et al. (2008) and include market capitalization (in $millions), market-to-book ratio (book value of equity/market value of equity), q ((book value of debt + market value of equity)/(book value of debt + book value of equity)), sales growth, returns-on-assets (ROA, defined as EBITDA/lagged assets), cash flows ((net income + depreciation and amortization)/lagged assets), annual buy-and-hold return, book leverage ratio (debt/(debt + book value of equity)), cash holdings (cash/assets), dividend yield ((common + preferred dividends)/(market value of common + book value of preferred stock)), payout ratio (total dividends/net income), R&D expenditures scaled by lagged assets, and liquidity (defined as the average daily Amihud ratio, defined as $1000 * \sqrt{|\text{Return}|/\text{Dollar Trading Volume}}$. Panel 3 shows the percentage of target firms of activist (Panel 3.A) and non-activist (Panel 3.B) hedge funds that fall within the 12 industry classifications of Fama-French.

B Empirical Results

Table 2: Cumulative Abnormal Returns around Non-Activist Acquisition Announcement Dates for Activist and Non-Activist Hedge Funds

(A) Event Window $(-1, 1)$ CARs

	(A.1) 1-Factor Model				(A.2) 3-Factor Model				(A.3) 5-Factor Model				(A.4) 7-Factor Model		
	Act.	**Non-Act.**	**Diff**		**Act.**	**Non-Act.**	**Diff**		**Act.**	**Non-Act.**	**Diff**		**Act.**	**Non-Act.**	**Diff**
Mean	60.2	21.5	38.7***	**Mean**	65.0	24.4	40.6***	**Mean**	64.6	21.9	42.6***	**Mean**	64.8	21.7	43.6***
Med.	17.4	−0.4	17.8***	**Med.**	13.4	2.8	10.7***	**Med.**	13.9	3.2	10.7***	**Med.**	23.5	2.6	20.81***
#Obs.	9299	35575													

(B) Event Window $(-2, 2)$ CARs

	(B.1) 1-Factor Model				(B.2) 3-Factor Model				(B.3) 5-Factor Model				(B.4) 7-Factor Model		
	Act.	**Non-Act.**	**Diff**		**Act.**	**Non-Act.**	**Diff**		**Act.**	**Non-Act.**	**Diff**		**Act.**	**Non-Act.**	**Diff**
Mean	90.6	25.7	64.9***	**Mean**	90.7	33.0	57.6***	**Mean**	91.9	30.8	61.1***	**Mean**	90.0	29.9	60.1***
Med.	30.5	−0.0	30.5***	**Med.**	27.5	5.3	22.2***	**Med.**	27.7	7.3	20.4***	**Med.**	28.6	6.0	22.6***
#Obs.	9299	35575													

(C) Event Window $(-5, 5)$ CARs

	(C.1) 1-Factor Model				(C.2) 3-Factor Model				(C.3) 5-Factor Model				(C.4) 7-Factor Model		
	Act.	**Non-Act.**	**Diff**		**Act.**	**Non-Act.**	**Diff**		**Act.**	**Non-Act.**	**Diff**		**Act.**	**Non-Act.**	**Diff**
Mean	159.0	74.4	84.6***	**Mean**	158.3	74.7	83.6***	**Mean**	149.4	67.2	82.2***	**Mean**	149.5	65.4	84.1***
Med.	74.4	15.6	58.8***	**Med.**	64.8	17.1	47.7***	**Med.**	78.7	23.0	55.7***	**Med.**	68.8	24.2	44.6***
#Obs.	9299	35575													

This table shows mean and median cumulative abnormal returns (CARs) for the $(-d, d)$ days around the filings of Form 13G, which signals a non-activist investment held in the "ordinary course of business" by activist hedge funds ("Act."), and non-activist hedge funds ("Non-Act."). Also reported are the differences between the mean and median CARs for these two groups and their statistical significance. Significance is calculated using the standard right-tailed t-test (for means) and right-tailed Wilcoxon rank sum test (for medians). The symbols *, **, and *** represent statistical significance at the 10%, 5%, and 1% level, respectively. CARs are calculated according to a 1-Factor, 3-Factor, 5-Factor model, and 7-Factor model. Parameters are estimated over the (-120,-70) days prior to the 13F filings. CARs are winsorized at 1%. The event window is defined as either the $(-1, 1)$ days (i.e., the day before and the day of the event) around the 13G filings (Panel A), the $(-2, 2)$ days around the filing (Panel B), or the $(-5, 5)$ days around the filing (Panel C).

Table 3: Cumulative Abnormal Returns around Activist and Non-Activist Acquisition Announcement Dates for Activist Hedge Funds

(A) Event Window $(-1, 1)$ CARs

	(A.1) 1-Factor Model			(A.2) 3-Factor Model			(A.3) 5-Factor Model			(A.4) 7-Factor Model		
	Act.-Act.	**Act.**	**Diff**	**Act.-Act.**	**Act.**	**Diff**	**Act.-Act.**	**Act.**	**Diff**	**Act.-Act.**	**Act.**	**Diff**
Mean	210.6	60.2	150.5*** **Mean**	226.5	65.0	161.5*** **Mean**	227.3	64.6	162.8*** **Mean**	227.0	64.8	162.1***
Med.	158.2	17.4	140.9*** **Med.**	163.0	13.4	149.6*** **Med.**	168.8	13.9	154.9*** **Med.**	171.1	23.5	147.6***
#Obs.	2652	9299										

(B) Event Window $(-2, 2)$ CARs

	(B.1) 1-Factor Model			(B.2) 3-Factor Model			(B.3) 5-Factor Model			(B.4) 7-Factor Model		
	Act.-Act.	**Act.**	**Diff**	**Act.-Act.**	**Act.**	**Diff**	**Act.-Act.**	**Act.**	**Diff**	**Act.-Act.**	**Act.**	**Diff**
Mean	282.6	90.6	192.1*** **Mean**	297.2	90.7	206.5*** **Mean**	298.1	91.9	206.2*** **Mean**	290.3	90.0	200.2***
Med.	208.5	30.5	178.0*** **Med.**	214.6	27.5	187.1*** **Med.**	207.9	27.7	180.2*** **Med.**	215.3	28.6	186.7***
#Obs.	2652	9299										

(C) Event Window $(-5, 5)$ CARs

	(C.1) 1-Factor Model			(C.2) 3-Factor Model			(C.3) 5-Factor Model			(C.4) 7-Factor Model		
	Act.-Act.	**Act.**	**Diff**	**Act.-Act.**	**Act.**	**Diff**	**Act.-Act.**	**Act.**	**Diff**	**Act.-Act.**	**Act.**	**Diff**
Mean	466.5	159.0	307.5*** **Mean**	479.0	158.3	320.7*** **Mean**	467.4	149.4	318.0*** **Mean**	466.6	149.5	317.1***
Med.	392.6	74.4	318.2*** **Med.**	376.8	64.8	312.0*** **Med.**	387.5	78.7	308.8*** **Med.**	372.7	68.8	303.9***
#Obs.	2652	9299										

This table shows mean and median cumulative abnormal returns (CARs) for the $(-d, d)$ days around the filings of Form 13G, which signals a non-activist investment held in the "ordinary course of business" by activist hedge funds ("Act."), and non-activist hedge funds ("Non-Act."). Also reported are the differences between the mean and median CARs for these two groups and their statistical significance. Significance is calculated using the standard right-tailed t-test (for means) and right-tailed Wilcoxon rank sum test (for medians). The symbols *, **, and *** represent statistical significance at the 10%, 5%, and 1% level, respectively. CARs are calculated according to a 1-Factor, 3-Factor, 5-Factor model, and 7-Factor model. Parameters are estimated over the (-120,-70) days prior to the 13F filings. CARs are winsorized at 1%. The event window is defined as either the $(-1, 1)$ days (i.e., the day before and the day of the event) around the 13G filings (Panel A), the $(-2, 2)$ days around the filing (Panel B), or the $(-5, 5)$ days around the filing (Panel C).

Table 4: Robustness: Cumulative Abnormal Returns around Non-Activist Acquisition Announcement Dates, Excluding Overlapping Blocks

(A) Event Window $(-1, 1)$ CARs

	(A.1) 1-Factor Model				(A.2) 3-Factor Model				(A.3) 5-Factor Model				(A.4) 7-Factor Model		
	Act.	**Non-Act.**	**Diff**		**Act.**	**Non-Act.**	**Diff**		**Act.**	**Non-Act.**	**Diff**		**Act.**	**Non-Act.**	**Diff**
Mean	50.5	20.3	30.2***	**Mean**	55.5	22.7	32.8***	**Mean**	57.7	20.7	37.0***	**Mean**	60.6	20.8	39.8***
Med.	15.0	−1.4	16.4**	**Med.**	13.1	1.8	11.4*	**Med.**	13.2	2.7	10.5*	**Med.**	22.1	2.2	19.9***
#Obs.	6200	29257													

(B) Event Window $(-2, 2)$ CARs

	(B.1) 1-Factor Model				(B.2) 3-Factor Model				(B.3) 5-Factor Model				(B.4) 7-Factor Model		
	Act.	**Non-Act.**	**Diff**		**Act.**	**Non-Act.**	**Diff**		**Act.**	**Non-Act.**	**Diff**		**Act.**	**Non-Act.**	**Diff**
Mean	82.2	23.9	58.4***	**Mean**	85.0	30.5	54.4***	**Mean**	87.7	29.3	58.4***	**Mean**	87.8	29.3	58.5***
Med.	27.5	−1.2	28.7***	**Med.**	32.1	4.0	28.0***	**Med.**	33.6	6.0	27.6***	**Med.**	40.5	5.5	35.0***
#Obs.	6200	29257													

(C) Event Window $(-5, 5)$ CARs

	(C.1) 1-Factor Model				(C.2) 3-Factor Model				(C.3) 5-Factor Model				(C.4) 7-Factor Model		
	Act.	**Non-Act.**	**Diff**		**Act.**	**Non-Act.**	**Diff**		**Act.**	**Non-Act.**	**Diff**		**Act.**	**Non-Act.**	**Diff**
Mean	143.7	73.7	70.1***	**Mean**	146.8	73.3	73.5***	**Mean**	138.6	67.7	70.9***	**Mean**	143.9	65.7	78.2***
Med.	59.8	15.8	44.0**	**Med.**	65.7	17.2	48.4***	**Med.**	71.5	22.9	48.6**	**Med.**	61.3	24.2	37.1**
#Obs.	6200	29257													

This table shows mean and median cumulative abnormal returns (CARs) for the $(-d, d)$ days around the filings of Form 13G, which signals a non-activist investment held in the "ordinary course of business" by activist hedge funds ("Act."), and non-activist hedge funds ("Non-Act."). Also reported are the differences between the mean and median CARs for these two groups and their statistical significance. Significance is calculated using the standard right-tailed t-test (for means) and right-tailed Wilcoxon rank sum test (for medians). The symbols *, **, and *** represent statistical significance at the 10%, 5%, and 1% level, respectively. CARs are calculated according to a 1-Factor, 3-Factor, 5-Factor model, and 7-Factor model. Parameters are estimated over the (-120,-70) days prior to the 13F filings. CARs are winsorized at 1%. The event window is defined as either the $(-1, 1)$ days (i.e., the day before and the day of the event) around the 13G filings (Panel A), the $(-2, 2)$ days around the filing (Panel B), or the $(-5, 5)$ days around the filing (Panel C).

Table 5: Robustness: Cumulative Abnormal Returns around Non-Activist Acquisition Announcement Dates, Excluding Investors with Prior 13F Filings

(A) Event Window $(-1, 1)$ CARs

	(A.1) 1-Factor Model				(A.2) 3-Factor Model				(A.3) 5-Factor Model				(A.4) 7-Factor Model		
	Act.	**Non-Act.**	**Diff**		**Act.**	**Non-Act.**	**Diff**		**Act.**	**Non-Act.**	**Diff**		**Act.**	**Non-Act.**	**Diff**
Mean	55.6	20.9	34.8***	**Mean**	58.0	24.9	33.2***	**Mean**	60.8	22.2	38.5***	**Mean**	63.7	23.3	40.4***
Med.	19.3	−2.2	21.5***	**Med.**	18.0	1.9	16.1**	**Med.**	15.1	2.7	12.4**	**Med.**	24.6	3.0	21.6***
#Obs.	5502	21510													

(B) Event Window $(-2, 2)$ CARs

	(B.1) 1-Factor Model				(B.2) 3-Factor Model				(B.3) 5-Factor Model				(B.4) 7-Factor Model		
	Act.	**Non-Act.**	**Diff**		**Act.**	**Non-Act.**	**Diff**		**Act.**	**Non-Act.**	**Diff**		**Act.**	**Non-Act.**	**Diff**
Mean	90.5	23.6	67.0***	**Mean**	93.1	34.0	59.0***	**Mean**	96.0	30.0	65.9***	**Mean**	97.4	31.4	66***
Med.	32.1	−4.6	36.7***	**Med.**	36.3	4.4	31.9***	**Med.**	34.1	5.7	28.4***	**Med.**	39.7	9.2	30.5***
#Obs.	5502	21510													

(C) Event Window $(-5, 5)$ CARs

	(C.1) 1-Factor Model				(C.2) 3-Factor Model				(C.3) 5-Factor Model				(C.4) 7-Factor Model		
	Act.	**Non-Act.**	**Diff**		**Act.**	**Non-Act.**	**Diff**		**Act.**	**Non-Act.**	**Diff**		**Act.**	**Non-Act.**	**Diff**
Mean	155.5	71.3	84.1***	**Mean**	159.8	73.5	86.3***	**Mean**	155.5	67.6	87.9***	**Mean**	162.5	64.8	97.7***
Med.n	71.4	12.9	58.5***	**Med.**	78.2	15.4	62.8***	**Med.**	83.3	20.4	62.9***	**Med.**	76.9	23.8	53.1***
#Obs.	5502	21510													

This table shows mean and median cumulative abnormal returns (CARs) for the $(-d, d)$ days around the filings of Form 13G, which signals a non-activist investment held in the "ordinary course of business" by activist hedge funds ("Act."), and non-activist hedge funds ("Non-Act."). Also reported are the differences between the mean and median CARs for these two groups and their statistical significance. Significance is calculated using the standard right-tailed t-test (for means) and right-tailed Wilcoxon rank sum test (for medians). The symbols *, **, and *** represent statistical significance at the 10%, 5%, and 1% level, respectively. CARs are calculated according to a 1-Factor, 3-Factor, 5-Factor model, and 7-Factor model. Parameters are estimated over the (-120,-70) days prior to the 13F filings. CARs are winsorized at 1%. The event window is defined as either the $(-1, 1)$ days (i.e., the day before and the day of the event) around the 13G filings (Panel A), the $(-2, 2)$ days around the filing (Panel B), or the $(-5, 5)$ days around the filing (Panel C).

Table 6: Portfolio Alphas of Activist and Non-Activist Hedge Funds

Panel 1: Daily Returns

	Mean	Median	Std. Dev	% Sig.	% Sig. & Pos.	Diff Mean	Diff Median
(A) *Activist Hedge Funds*							
1-Factor	-1.90%	0.00%	5.00%	28.90%	14.00%		
3-Factor	-1.90%	0.00%	5.10%	28.10%	14.00%		
5-Factor	-1.90%	0.00%	5.00%	29.80%	14.90%		
7-Factor	-1.90%	0.00%	4.90%	26.40%	12.40%		
(B) *Non-Activist Hedge Funds*							
1-Factor	-1.20%	0.00%	3.40%	22.80%	10.30%	-0.70%	0.00%
3-Factor	-1.10%	0.00%	3.30%	23.20%	10.90%	-0.80%	0.00%
5-Factor	-1.20%	0.00%	3.50%	23.80%	11.30%	-0.70%	0.00%
7-Factor	-1.20%	0.00%	3.50%	23.20%	11.30%	-0.70%	0.00%

Panel 2: Monthly Returns

	Mean	Median	Std. Dev	% Sig.	% Sig. & Pos.	Diff Mean	Diff Median
(A) *Activist Hedge Funds*							
1-Factor	-1.30%	-0.30%	3.60%	15.70%	4.10%		
3-Factor	-1.80%	-0.60%	4.40%	18.20%	5.00%		
5-Factor	-1.70%	-0.40%	4.80%	18.20%	5.80%		
7-Factor	-1.60%	-0.50%	4.00%	16.50%	5.00%		
(B) *Non-Activist Hedge Funds*							
1-Factor	-1.40%	-0.20%	4.40%	13.20%	3.10%	0.10%	-0.10%
3-Factor	-1.30%	-0.20%	4.80%	12.10%	2.70%	-0.50%	-0.40%
5-Factor	-1.30%	-0.10%	4.60%	12.10%	2.90%	-0.40%	-0.30%
7-Factor	-1.50%	-0.20%	4.80%	14.60%	4.40%	-0.10%	-0.30%

Panel 3: Daily Portfolio Regressions

	Intercept	MKT	SMB	HML	RMW	CMA	MOM	LIQ
(A) *Activist Hedge Funds*								
1-Factor	-0.013	0.858						
	(-26.35)	(22.11)						
3-Factor	-0.013	0.840	0.512	0.036				
	(-26.35)	(-26.35)	(-26.35)	(-26.35)				
5-Factor	-0.013	0.734	0.385	0.195	-0.560	-0.274		
	(-26.3)	(16.71)	(4.59)	(2.22)	(-4.81)	(-2.04)		
7-Factor	-0.013	0.725	0.396	0.149	-0.543	-0.241	-0.065	-0.052
	(-25.7)	(16.15)	(4.71)	(1.56)	(-4.63)	(-1.75)	(-1.17)	(-1.77)
(B) *Non-Activist Hedge Funds*								
1-Factor	-0.010	0.779						
	(-44.17)	(45.28)						
3-Factor	-0.010	0.766	0.477	0.114				
	(-45.44)	(45.18)	(13.92)	(3.54)				
5-Factor	-0.010	0.757	0.465	0.125	-0.051	-0.014		
	(-45.31)	(39.48)	(12.70)	(3.26)	(-1.01)	(-0.23)		
7-Factor	-0.010	0.752	0.471	0.097	-0.041	0.007	-0.039	-0.023
	(-44.40)	(38.34)	(12.83)	(2.32)	(-0.81)	(0.11)	(-1.63)	(-1.77)

This table compares the portfolio performance of activist and non-activist hedge funds. Hypothetical daily and monthly portfolio returns are constructed using quarterly 13F filing data according to the procedure in Grinblatt and Titman (1989). Panel 1 compares summary statistics for daily portfolio alphas, defined as the intercept from a regression of daily portfolio returns on a 1-Factor, 3-Factor, 5-Factor, and 7-Factor market model, for the non-activist portfolio holdings of activist and non-activist hedge funds. Panel 2 compares summary statistics for monthly portfolio alphas that are similary constructure. Reported are the mean, median, and standard deviation ("Std. Dev.") of portfolio alphas, the differences in means and medians between the two groups, and their statistical significance according to a t-test and Wilcoxon rank sum test, where *, **, and *** represent statistical significance at 10%, 5%, and 1%. Panel 3 regresses aggregate daily portfolio returns (constructed as an equally-weighted average of all funds' portfolio returns) for the two groups on various market factors: excess market return (MKT), small-minus-big (SMB), high-minus-low (HML), "robust-minus-weak" (RMW) profitability factor, "conservative-minus-aggressive" (CMA) investment strategy factor, momentum factor (MOM), and liquidity factor (LIQ). The daily liquidity factor (LIQ) is thus calculated as the daily difference in market returns between the highest and lowest illiquidity deciles. Reported are the coefficients from the regression, with t-statistics in parenthesis.

Table 7: Robustness: Cumulative Abnormal Returns around Activist Non-Activist Hedge Fund Exit Dates

(A) Event Window $(-1, 1)$ CARs

	(A.1) 1-Factor Model			(A.2) 3-Factor Model			(A.3) 5-Factor Model			(A.4) 7-Factor Model		
	Act.	**Non-Act.**	**Diff**	**Act.**	**Non-Act.**	**Diff**	**Act.**	**Non-Act.**	**Diff**	**Act.**	**Non-Act.**	**Diff**
Mean	18.20	26.76	-8.56	23.01	20.14	2.86	10.98	18.06	-7.08	7.79	21.07	−13.27
Med.	-9.33	0.41	-9.74	-4.99	-3.46	-1.53	-3.54	-5.32	1.78	-8.78	−4.59	−4.19
#Obs.	7089	21448										

(B) Event Window $(-2, 2)$ CARs

	(B.1) 1-Factor Model			(B.2) 3-Factor Model			(B.3) 5-Factor Model			(B.4) 7-Factor Model		
	Act.	**Non-Act.**	**Diff**	**Act.**	**Non-Act.**	**Diff**	**Act.**	**Non-Act.**	**Diff**	**Act.**	**Non-Act.**	**Diff**
Mean	51.60	48.75	2.85	47.57	39.66	7.91	27.44	35.18	-7.74	19.42	34.77	−15.35
Med.	14.19	14.20	0.00	12.75	2.06	10.70	-0.49	1.25	-1.75	−13.21	5.38	−18.59*
#Obs.	7089	21448										

(C) Event Window $(-5, 5)$ CARs

	(C.1) 1-Factor Model			(C.2) 3-Factor Model			(C.3) 5-Factor Model			(C.4) 7-Factor Model		
	Act.	**Non-Act.**	**Diff**	**Act.**	**Non-Act.**	**Diff**	**Act.**	**Non-Act.**	**Diff**	**Act.**	**Non-Act.**	**Diff**
Mean	145.43	104.60	40.83**	141.99	99.53	42.47**	110.64	90.79	19.85	93.55	83.68	9.88
Med.	66.02	26.61	39.41	44.86	22.30	22.55	35.40	21.32	14.08	32.08	17.17	14.91
#Obs.	7089	21448										

This table shows mean and median cumulative abnormal returns (CARs) for the $(-d, d)$ days around the filings of a Form 13G/A showing the final sale of of a non-activist investment held in the "ordinary course of business" by activist hedge funds ("Act."), and non-activist hedge funds ("Non-Act."). Also reported are the differences between the mean and median CARs for these two groups and their statistical significance. Significance is calculated using the standard right-tailed t-test (for means) and right-tailed Wilcoxon rank sum test (for medians). The symbols *, **, and *** represent statistical significance at the 10%, 5%, and 1% level, respectively. CARs are calculated according to a 1-Factor, 3-Factor, and 5-Factor model. Parameters are estimated over the (-120,-70) days prior to the 13F filings. CARs are winsorized at 1%. The event window is defined as either the $(-1, 0)$ days (i.e., the day before and the day of the event) around the 13G filings (Panel A), the $(-2, 2)$ days around the filing (Panel B), or the $(-5, 5)$ days around the filing (Panel C).

Table 8: Characteristics of Switches from 13G to 13D

Panel 1: Switch and Non-Switch Subsamples at 13G Filing Dates

	(A) Switch Subsample at 13G			(B) Non-Switch Subsample at 13G				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Mean	Median	Std. Dev	Mean	Median	Std. Dev	Diff Mean	Diff Median
Market Cap	523.407	193.490	739.911	590.745	236.429	820.191	−67.338***	−42.939***
Market-to-Book	0.687	0.567	0.557	0.630	0.531	0.488	0.057**	0.036
q	2.031	1.395	1.618	2.160	1.503	1.692	−0.129*	−0.108**
Growth	0.200	0.093	0.427	0.163	0.078	0.374	0.037*	0.015
ROA	0.037	0.069	0.199	0.005	0.068	0.252	0.032***	0.001
Cash Flow	-0.005	0.036	0.208	-0.028	0.036	0.240	0.023**	0.000
Buy-and-Hold Return	0.180	-0.017	0.860	0.143	-0.023	0.710	0.037	0.006
Book Leverage	0.321	0.234	0.318	0.310	0.228	0.314	0.011	0.006
Cash	0.155	0.092	0.168	0.164	0.095	0.179	−0.009	−0.003
Dividend Yield	0.009	0.000	0.020	0.006	0.000	0.013	0.003***	0.000*
Payout Ratio	0.245	0.000	0.655	0.234	0.000	0.646	0.011	0.000
R&D	0.109	0.052	0.135	0.144	0.071	0.185	−0.035***	−0.019***

Panel 2: Switch Subsample at 13G and 13D Filing Dates

	(A) Switch Subsample at 13D			(B) Switch Subsample at 13G				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Mean	Median	Std. Dev	Mean	Median	Std. Dev	Diff Mean	Diff Median
Market Cap	442.604	140.700	711.062	523.407	193.490	739.911	−80.803*	−52.790***
Market-to-Book	0.702	0.607	0.540	0.687	0.567	0.557	0.015	0.040*
q	1.714	1.302	1.077	2.031	1.395	1.618	−0.317***	−0.093**
Growth	0.088	0.033	0.294	0.200	0.093	0.427	−0.112***	−0.060***
ROA	0.011	0.049	0.193	0.037	0.069	0.199	−0.026**	−0.020***
Cash Flow	-0.021	0.025	0.190	-0.005	0.036	0.208	−0.016	−0.011**
Buy-and-Hold Return	-0.026	-0.097	0.509	0.180	-0.017	0.860	−0.206***	−0.080***
Book Leverage	0.313	0.233	0.330	0.321	0.234	0.318	−0.008	−0.001
Cash	0.150	0.097	0.154	0.155	0.092	0.168	−0.005	0.005
Dividend Yield	0.005	0.000	0.011	0.009	0.000	0.020	−0.004***	0.000***
Payout Ratio	0.198	0.000	0.578	0.245	0.000	0.655	−0.047	0.000
R&D	0.123	0.055	0.158	0.109	0.052	0.135	0.014	0.003

Panel 3: Switch Subsample and Activist Investments at 13D Filing Dates

	(A) Activist Investments at 13D			(B) Switch Subsample at 13D				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Mean	Median	Std. Dev	Mean	Median	Std. Dev	Diff Mean	Diff Median
Market Cap	501.553	141.28	804.42	442.604	140.7	711.062	58.949*	0.580
Market-to-Book	0.734	0.615	0.562	0.702	0.607	0.54	0.032	0.008
q	1.763	1.343	1.16	1.714	1.302	1.077	0.049	0.041
Growth	0.094	0.048	0.286	0.088	0.033	0.294	0.006	0.015
ROA	0.051	0.073	0.16	0.011	0.049	0.193	0.040***	0.024***
Cash Flow	0.008	0.041	0.169	-0.021	0.025	0.19	0.029***	0.016***
Buy-and-Hold Return	0.003	-0.076	0.514	-0.026	-0.097	0.509	0.029	0.021
Book Leverage	0.326	0.271	0.306	0.313	0.233	0.33	0.013	0.038
Cash	0.132	0.073	0.146	0.15	0.097	0.154	−0.018**	−0.024***
Dividend Yield	0.008	0	0.015	0.005	0	0.011	0.003***	0.000***
Payout Ratio	0.284	0	0.685	0.198	0	0.578	0.086***	0.000**
R&D	0.091	0.045	0.114	0.123	0.055	0.158	−0.032***	−0.010*

This table compares summary statistics (including mean, median, and standard deviation ("Std. Dev.")) for characteristics of firms whose stocks are held in blocks by various subsamples of activist hedge funds. Panel 1 compares firms whose stocks were initially acquired through a 13G but whose purpose of transaction was eventually switched to a 13D ("Switch Sample"), to those held by activist hedge funds who never switched from a 13G to a 13D ("Non-Switch Sample"). Panel 2 compares firm characteristics of the "Switch Sample" at the time of the original 13G filing, to the same firms' characteristics around the switch from a 13G to a 13D. Finally, Panel 3 compares firm characteristics of the "Switch Sample" around the switch from a 13G to a 13D, to characteristics of firms whose initial acquisitions were accompanied by a 13D ("Activist Investments"). Reported are the differences in means and medians between the two groups, and their statistical significance according to a t-test and Wilcoxon rank sum test, where *, **, and *** represent statistical significance at 10%, 5%, and 1%. Firm characteristics are taken from the closest annual filing prior to the hedge fund's acquisition of that firm's stock. Variables include market capitalization (in $millions), market-to-book ratio (book value of equity/market value of equity), q ((book value of debt + market value of equity)/(book value of debt + book value of equity)), sales growth, returns-on-assets (ROA, defined as EBITDA/lagged assets), cash flows ((net income + depreciation and amortization)/lagged assets), annual buy-and-hold return, book leverage ratio (debt/(debt + book value of equity)), cash holdings (cash/assets), dividend yield ((common + preferred dividends)/(market value of common + book value of preferred stock)), payout ratio (total dividends/net income), and R&D expenditures scaled by lagged assets.

Table 9: Adjusted Cumulative Abnormal Returns around Activist and Non-Activist Acquisition Announcement Dates for Activist Hedge Funds

(A) Event Window $(-1, 1)$ CARs

	(A.1) 1-Factor Model				(A.2) 3-Factor Model				(A.3) 5-Factor Model				(A.4) 7-Factor Model		
	Adj.-Act.	**Non-Act.**	**Diff**		**Adj.-Act.**	**Non-Act.**	**Diff**		**Adj.-Act.**	**Non-Act.**	**Diff**		**Adj.-Act.**	**Non-Act.**	**Diff**
Mean	46.21	21.48	24.73***	**Mean**	49.45	24.44	25.01***	**Mean**	50.00	21.93	28.07***	**Mean**	49.70	21.27	28.43***
Med.	3.42	-0.36	3.77	**Med.**	-2.14	2.76	-4.90	**Med.**	-0.66	3.24	-3.91	**Med.**	8.34	2.66	5.68
#Obs.	9299	35575													

(B) Event Window $(-2, 2)$ CARs

	(B.1) 1-Factor Model				(B.2) 3-Factor Model				(B.3) 5-Factor Model				(B.4) 7-Factor Model		
	Adj.-Act.	**Non-Act.**	**Diff**		**Adj.-Act.**	**Non-Act.**	**Diff**		**Adj.-Act.**	**Non-Act.**	**Diff**		**Adj.-Act.**	**Non-Act.**	**Diff**
Mean	77.95	25.65	52.30***	**Mean**	75.30	33.05	42.25***	**Mean**	78.06	30.76	47.30***	**Mean**	76.77	29.91	46.86***
Med.	17.89	-0.03	17.92***	**Med.**	12.13	5.34	6.79**	**Med.**	13.87	7.29	6.58***	**Med.**	15.32	5.99	9.33**
#Obs.	9299	35575													

(C) Event Window $(-5, 5)$ CARs

	(C.1) 1-Factor Model				(C.2) 3-Factor Model				(C.3) 5-Factor Model				(C.4) 7-Factor Model		
	Adj.-Act.	**Non-Act.**	**Diff**		**Adj.-Act.**	**Non-Act.**	**Diff**		**Adj.-Act.**	**Non-Act.**	**Diff**		**Adj.-Act.**	**Non-Act.**	**Diff**
Mean	143.42	74.38	69.04***	**Mean**	138.74	74.66	64.08***	**Mean**	133.40	67.17	66.22***	**Mean**	135.30	65.37	69.93***
Med.	58.85	15.58	43.27***	**Med.**	45.21	17.09	28.12***	**Med.**	62.69	22.96	39.72***	**Med.**	54.61	24.19	30.42**
#Obs.	9299	35575													

This table shows mean and median cumulative abnormal returns (CARs) for the $(-d, d)$ days around the filings of Form 13G, which signals a non-activist investment held in the "ordinary course of business" by activist hedge funds ("Act."), and non-activist hedge funds ("Non-Act."). Also reported are the differences between the mean and median CARs for these two groups and their statistical significance. Significance is calculated using the standard right-tailed t-test (for means) and right-tailed Wilcoxon rank sum test (for medians). The symbols *, **, and *** represent statistical significance at the 10%, 5%, and 1% level, respectively. CARs are calculated according to a 1-Factor, 3-Factor, 5-Factor model, and 7-Factor model. Parameters are estimated over the (-120,-70) days prior to the 13F filings. CARs are winsorized at 1%. The event window is defined as either the $(-1, 1)$ days (i.e., the day before and the day of the event) around the 13G filings (Panel A), the $(-2, 2)$ days around the filing (Panel B), or the $(-5, 5)$ days around the filing (Panel C).

Table 10: Log Returns in Stocks Held by Activist and Non-Activist Blockholders around Reg ATS

Panel 1: Difference-in-Differences Regression

	(A) 60-Day Window				(B) 90-Day Window			
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
$EV_t \times NA_g$	-0.0020***	-0.0021***	-0.0021***	-0.00091***	-0.00082*	-0.00083*	-0.00081*	-0.00039**
	(-3.85)	(-3.93)	(-3.62)	(-3.21)	(-1.95)	(-2.08)	(-1.90)	(-2.11)
EV_t	0.00052				0.0026***			
	(0.74)				(5.29)			
LIQ_t			-0.00024	-0.00024			0.000074	0.000026
			(-1.07)	(-1.02)			(0.43)	(0.17)
LIQ_{t-1}			-0.00025	-0.00026			-0.00030**	-0.00035**
			(-0.99)	(-1.00)			(-2.31)	(-2.30)
VOL_t			0.0073	0.021			0.0040	-0.0070
			(0.15)	(0.49)			(0.56)	(-1.26)
VOL_{t-1}			-0.0046	-0.021			0.0053	0.0061
			(-0.093)	(-0.49)			(0.99)	(1.06)
$MCAP_t$			0.0023	0.000031**			0.0017**	0.000039**
			(1.72)	(2.26)			(2.31)	(2.46)
Constant	0.00035	-0.0052**	-0.0064***	0.00037	-0.0019***	-0.015***	-0.018***	-0.015***
	(1.52)	(-2.39)	(-4.87)	(0.23)	(-18.6)	(-8.03)	(-6.99)	(-7.95)
Controls	NO	NO	YES	YES	NO	NO	YES	YES
Firm FE	YES	YES	YES	NO	YES	YES	YES	NO
Industry FE	NO	NO	NO	YES	NO	NO	NO	YES
Time Effects	NO	YES	YES	YES	NO	YES	YES	YES
(Within) R^2	0.0002	0.046	0.046	0.046	0.0003	0.057	0.057	0.057
Observations	69,308	69,308	69,276	69,175	103,615	103,615	103,582	103,582

Panel 2: Difference-in-Differences Regression with Propensity Score Matching

	(A) 60-Day Window				(B) 90-Day Window			
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
$EV_t \times NA_g$	-0.0021**	-0.0020***	-0.0027***	-0.0027***	-0.0011	-0.0011	-0.0012	-0.00075
	(-3.56)	(-4.14)	(-7.74)	(-7.74)	(-1.83)	(-1.82)	(-1.83)	(-1.16)
EV_t	0.00051				0.0025**			
	(0.53)				(3.56)			
LIQ_t			-0.00033	-0.00033			-0.000064	-0.000087
			(-0.90)	(-0.90)			(-0.17)	(-0.23)
LIQ_{t-1}			-0.00027	-0.00027			-0.00022	-0.00024
			(-0.96)	(-0.96)			(-0.90)	(-0.95)
VOL_t			-0.15*	-0.15*			-0.0054	-0.0088
			(-1.96)	(-1.96)			(-0.26)	(-0.40)
VOL_{t-1}			0.15*	0.15*			0.0087	0.0095
			(1.95)	(1.95)			(0.41)	(0.46)
$MCAP_t$			0.031***	0.031***			0.025***	0.0013*
			(8.92)	(8.92)			(8.29)	(1.86)
Constant	0.00011	-0.012**	-0.018	-0.018	-0.0020***	-0.020***	-0.028**	-0.026***
	(0.24)	(-2.66)	(-1.68)	(-1.68)	(-5.80)	(-3.88)	(-3.27)	(-3.97)
Controls	NO	NO	YES	YES	NO	NO	YES	YES
Firm FE	YES	YES	YES	NO	YES	YES	YES	NO
Industry FE	NO	NO	NO	YES	NO	NO	NO	YES
Time Effects	NO	YES	YES	YES	NO	YES	YES	YES
(Within) R^2	0.0002	0.049	0.051	0.051	0.0003	0.062	0.064	0.062
Observations	10,947	10,947	10,947	10,947	16,418	16,418	16,417	16,417

This table shows results from a panel regression given in equation (2). In the above regression, the dependent variable is log returns for stock i in group g on day t. Included is an event dummy EV_t equal to zero before the announcement date of Regulation of Alternative Trading Systems (Reg ATS) on 22 December 1998, and equal to one on this date and afterwards. The regressor of interest is the interaction between the event dummy and a dummy variable NA_g equal to one if the stock was acquired by a non-activist hedge fund blockholder in the Q1 prior to the Reg ATS announcement date, and zero if it was acquired by an activist hedge fund blockholder. Also included are a number of control variables, including: liquidity (as measures by the Amihud (2002) measure of illiquidity, $AMIHUD_{igt}$), volatility (as measured by the 30-day standard deviation of returns, VOL_{igt}), the lags of these variables, as well as size (as measure by market capitalization, $MCAP_{itg}$). Panel 1 shows results using the full sample of stocks. Panel 1.A shows results for an estimation over the $(-60, 60)$ days surrounding implementation; Panel 1.B shows results for an estimation over the $(-90, 90)$ days surrounding implementation. Panel 2 shows results using a subsample of stocks that are matched using propensity score matching according to Fama French 12 Industry Classification, market-to-book, q, sales growth, ROA, cash flows, annual buy-and-hold return, book leverage, cash, dividend yield, payout ratio, and R&D expenditure. Similarly, Panel 2.A shows results for an estimation over the $(-60, 60)$ days surrounding implementation; Panel 2.B shows results for an estimation over the $(-90, 90)$ days surrounding implementation. Robust t-statistics are in parenthesis, and *, **, and *** represent statistical significance at 10%, 5%, and 1% level.

Table 11: Placebo Tests: Log Returns in Stocks Held by Activist and Non-Activist Blockholders

	(1) Jun. 19, 1997	(2) Sep. 23, 1997	(3) Feb. 17, 1998	(4) May 4, 1998	(5) Jun. 29, 1998	(6) Sep. 15, 1999	(7) Nov. 9, 1999	(8) Nov. 22, 1999
$EV_t \times NA_g$	-0.00041	-0.000057	-0.00096	-0.00091	0.00055	0.00056	-0.0012	-0.0011
	(-0.70)	(-0.084)	(-1.40)	(-1.49)	(0.75)	(0.61)	(-1.06)	(-0.87)
LIQ_t	-0.000014	-0.000037***	-0.000044***	-0.000034**	0.000037	-0.000038**	-0.000015	-0.000023
	(-1.59)	(-2.93)	(-3.83)	(-2.48)	(1.60)	(-2.05)	(-0.73)	(-1.13)
LIQ_{t-1}	-0.000019***	-8.2e-06	-6.7e-06	-8.2e-06	-0.000030*	-0.000011	-0.000014	-0.000015
	(-3.15)	(-0.86)	(-0.43)	(-1.13)	(-1.83)	(-1.37)	(-1.44)	(-1.51)
VOL_t	0.0026	0.00066	0.012	0.042	0.043	-0.076	0.056	0.070
	(0.28)	(0.059)	(1.11)	(1.41)	(1.52)	(-0.77)	(0.41)	(0.51)
VOL_{t-1}	-0.00042	0.0087	-0.011	-0.038	-0.043	0.074	-0.069	-0.082
	(-0.045)	(0.73)	(-1.02)	(-1.27)	(-1.48)	(0.76)	(-0.52)	(-0.63)
$MCAP_t$	0.0015	0.0036	0.0043***	0.0061***	0.0037**	0.0035**	0.0033***	0.0033***
	(1.34)	(1.52)	(2.63)	(3.11)	(2.44)	(2.45)	(3.68)	(3.80)
Constant	0.00014	0.0028	-0.011***	0.00036	-0.0010	0.00033	0.00046	-0.00040
	(0.085)	(1.31)	(-4.66)	(0.18)	(-0.52)	(0.099)	(0.085)	(-0.076)
Controls	YES	YES	YES	YES	YES	YES	YES	YES
Firm FE	YES	YES	YES	YES	YES	YES	YES	YES
Industry FE	NO	NO	NO	NO	NO	NO	NO	NO
Time Effects	YES	YES	YES	YES	YES	YES	YES	YES
(Within) R^2	0.022	0.055	0.033	0.030	0.075	0.017	0.017	0.017
Observations	69,537	72,837	77,444	77,106	75,515	62,199	61,066	60,796

This table shows results from placebo tests in which eight placebo event dates are selected within the years 1997-1999; these represent "fictitious" event dates that represent a shock to fire sale risk. These event dates are used to define the event dummy EV_t as in (2), which equal to zero before the placebo event date, and equal to one on this date and afterwards. The regressor of interest is the interaction between the event dummy and a dummy variable NA_g equal to one if the stock was acquired by a non-activist hedge fund blockholder in the Q1 prior to the Reg ATS announcement date, and zero if it was acquired by an activist hedge fund blockholder. Also included are a number of control variables, including: liquidity (as measures by the Amihud (2002) measure of illiquidity, $AMIHUD_{igt}$), volatility (as measured by the 30-day standard deviation of returns, VOL_{igt}), the lags of these variables, as well as size (as measure by market capitalization, $MCAP_{itg}$). Panel 1 shows results using the full sample of stocks. The results are estimated over the $(-60, 60)$ days surrounding the placebo event date, and all specifications include both time and firm fixed effects. Robust t-statistics are in parenthesis, and *, **, and *** represent statistical significance at 10%, 5%, and 1% level.

Table 12: Log Returns in Stocks Held by Activist and Non-Activist Blockholders around FINRA Rule 4552

	(A) 60-Day Window				(B) 90-Day Window			
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
$EV_t \times NA_g$	0.0028***	0.0028**	0.0028**	0.00079	0.0026**	0.0026**	0.0025**	0.00016
	(2.61)	(2.53)	(2.53)	(1.59)	(2.36)	(2.32)	(2.25)	(0.77)
EV_t	-0.0036***				-0.0036***			
	(-3.39)				(-3.34)			
LIQ_t			0.00080**	0.000078			-0.00018	-0.00037**
			(2.08)	(0.23)			(-0.82)	(-2.08)
LIQ_{t-1}			0.000011	-8.2e-06			-0.000010	-9.1e-06
			(0.72)	(-0.56)			(-0.65)	(-0.59)
VOL_t			0.035**	0.0013			0.014	0.00088
			(2.04)	(0.23)			(1.24)	(0.17)
VOL_{t-1}			0.00052	0.0019			0.0012	0.00079
			(0.100)	(0.38)			(0.22)	(0.15)
$MCAP_t$			0.0011***	5.4e-07			0.00029***	6.6e-06***
			(5.26)	(0.22)			(3.73)	(4.63)
Constant	0.0010***	0.0012**	-0.0076***	0.00053	0.0011***	0.0012**	-0.0013	0.0011**
	(7.00)	(2.30)	(-4.83)	(0.82)	(5.85)	(2.36)	(-1.54)	(1.97)
Controls	NO	NO	YES	YES	NO	NO	YES	YES
Firm FE	YES	YES	YES	NO	YES	YES	YES	NO
Industry FE	NO	NO	NO	YES	NO	NO	NO	YES
Time Effects	NO	YES	YES	YES	NO	YES	YES	YES
(Within) R^2	0.001	0.126	0.127	0.126	0.0002	0.114	0.114	0.113
Observations	58,653	58,653	58,650	58,650	244,868	244,868	244,865	244,865

This table shows results from a panel regression given in equation (2). In the above regression, the dependent variable is log returns for stock i in group g on day t. Included is an event dummy EV_t equal to zero before the approval date of FINRA Rule 4552 on 17 January 2014, and equal to one on this date and afterwards. The regressor of interest is the interaction between the event dummy and a dummy variable NA_g equal to one if the stock was acquired by a non-activist hedge fund blockholder in the Q1 prior to the Reg ATS announcement date, and zero if it was acquired by an activist hedge fund blockholder. Also included are a number of control variables, including: liquidity (as measures by the Amihud (2002) measure of illiquidity, $AMIHUD_{igt}$), volatility (as measured by the 30-day standard deviation of returns, VOL_{igt}), the lags of these variables, as well as size (as measure by market capitalization, $MCAP_{itg}$). Panel A shows results for an estimation over the $(-60, 60)$ days surrounding implementation; Panel B shows results for an estimation over the $(-90, 90)$ days surrounding implementation. Robust t-statistics are in parenthesis, and *, **, and *** represent statistical significance at 10%, 5%, and 1% level.

Table 13: Cumulative Abnormal Returns Around Form 13F Filing Dates for Different Institutional Investor Types

(A) Event Window $(-1, 1)$ CARs

		Dedicated	Quasi-Index	Transient	Difference (Dedicated – Quasi-Index)	Difference (Dedicated – Transient)	Difference (Quasi-Index – Transient)
(A1) 1-Fact. Model	Mean	-32.53	-59.85	-51.60	27.32*	19.06*	-8.25
	Median	-20.60	-35.54	-29.58	14.94	8.99	-5.95
(A2) 3-Fact. Model	Mean	0.59	-37.00	-28.49	37.59*	29.08*	-8.51
	Median	-2.09	-20.03	-17.36	17.93*	15.27	-2.66
(A3) 5-Fact. Model	Mean	15.79	-38.03	-25.60	53.82**	41.40**	-12.42
	Median	4.21	-24.00	-17.50	28.22**	21.71*	-6.50
(A4) 7-Fact. Model	Mean	7.68	-28.72	-19.07	36.40**	26.75*	-9.64
	Median	11.67	-20.52	-13.21	32.18*	24.87	-7.31

(B) Event Window $(-2, 2)$ CARs

		Dedicated	Quasi-Index	Transient	Difference (Dedicated – Quasi-Index)	Difference (Dedicated – Transient)	Difference (Quasi-Index – Transient)
(B1) 1-Fact. Model	Mean	-49.23	-69.55	-26.92	20.32	-22.31	-42.63
	Median	13.02	-39.29	-28.51	52.31*	41.53	-10.78
(B2) 3-Fact. Model	Mean	-24.42	-48.54	-19.25	24.12	-5.17	-29.29
	Median	33.27	-32.70	-23.61	65.96*	56.87	-9.09
(B3) 5-Fact. Model	Mean	-3.64	-47.02	-16.66	43.38	13.02	-30.36
	Median	40.50	-32.02	-22.14	72.53***	62.64*	-9.89
(B4) 7-Fact. Model	Mean	14.23	-36.09	3.47	50.32*	10.76	-39.56
	Median	31.88	-32.34	-10.19	64.22**	42.07	-22.15

(B) Event Window $(-5, 5)$ CARs

		Dedicated	Quasi-Index	Transient	Difference (Dedicated – Quasi-Index)	Difference (Dedicated – Transient)	Difference (Quasi-Index – Transient)
(C1) 1-Fact. Model	Mean	-19.02	-97.11	-33.48	78.09	14.46	-63.63
	Median	44.24	-65.53	-31.09	109.77***	75.33*	-34.44
(C2) 3-Fact. Model	Mean	-20.91	-74.93	-14.25	54.02	-6.66	-60.68
	Median	60.82	-52.55	-17.18	113.37***	78.00*	-35.37
(C3) 5-Fact. Model	Mean	6.34	-73.25	-5.23	79.59	11.57	-68.02
	Median	130.70	-57.63	-15.91	188.32**	146.61	-41.71
(C4) 7-Fact. Model	Mean	48.77	-64.26	10.01	113.03	38.77	-74.26
	Median	86.41	-47.51	-16.40	133.93**	102.81*	-31.12

This table shows mean and median cumulative abnormal returns (CARs) for the $(-d, d)$ days around the filings of Form 13F by three different types of institutional investors, classified as in Bushee (1998, 2001): dedicated investors, quasi-indexers, and transient investors. Also reported are the differences between the three groups and their statistical significance. Significance is calculated using the standard right-tailed t-test (for means) and right-tailed Wilcoxon rank sum test (for medians). The symbols *, **, and *** represent statistical significance at the 10%, 5%, and 1% level, respectively. CARs are calculated according to a 1-Factor, 3-Factor, 5-Factor, and 7-Factor model. Parameters are estimated over the (-120,-70) days prior to the 13F filings. CARs are winsorized at 1%. The event window is defined as either the $(-1, 1)$ days around the 13F filings (Panel A), the $(-2, 2)$ days around the filing (Panel B), or the $(-5, 5)$ days around the filing (Panel C).

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