

Proof of the Ability of Hedge Funds' Activists to Restructure Target Firms

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ABSTRACT: We study the ability of hedge funds to restructure target firms. A purchase of at least 3% of a target firm's stake is subject to a 13D SEC Filing in the US. We use these filings to investigate the impact of such transactions in the period 2009–2020. Our method of choice is the event study approach. We set the event on the date of the transaction and compute cumulative abnormal returns (CARs) within a specified event window. Based on accounting metrics, such as return on equity and return on assets, we study how restructuring impacts target company's capital structure. Based on SEC Section 13G filings, we are further able to distinguish between acquisitions with active and passive aims. We find that firms targeted for active purposes achieve higher abnormal returns and overall higher performance. We further look on the impact of the overall stock-market cycle on abnormal returns. We find that the level of abnormal returns for actively targeted companies remains higher with no regard to the market cycle. Based on these findings, we draw conclusions on the overall impact of hedge fund activism.

KEY WORDS: Hedge funds, Shareholder Activism, Abnormal Returns, Event study, Restructuring

Introduction

In global financial markets hedge funds became one of the most important institutional investors. Growth in the hedge funds industry over the last years

has been substantial. The investment of hedge funds was topping \$1 trillion in 2006. After the 2002 dotcom bust, mutual funds on average lost more than 20% of their value. During the same period, the hedge fund industry showed tremendous growth (Pooley et al. 2006, 61-67). And it has kept on steadily growing to today, amid financial turmoil and increasing regulation.

Originally, hedge funds' main aim was hedging, thus giving these the name. Hedging consists of holding an investment position while reducing the risk exposure by offsetting that investment with an opposite position, providing downside protection (Lhabitant 2004, Madura 2006). However, the original purpose of a hedge fund, hedging, is no longer necessarily a characteristic of it (Thießen and Walther 2006). Today, hedge funds are pursuing a range of sophisticated and dynamic trading strategies. The main aim of such strategies is to produce absolute returns, that are independent of market conditions. The notion of absolute return is particularly relevant for investors during market declines. In such phases, achieving an absolute positive return is considered difficult. The performance of hedge funds is evaluated against a total return benchmark.

One famous strategy of hedge funds is to leverage activist campaigns to earn abnormal stock returns. Hedge fund activism has seen an increasing popularity, even though it was negatively affected by the periods of financial crises 2007–2008 and 2012 – 2013. Data about activist campaigns showed a particularly large decrease in 2008 (The Economists 2009). The year 2010 showed some recovery and the environment for activism became more attractive. In this period, U.S. firms reached nearly USD 1 trillion of cash. Thus, hedge funds' strategy was demanding U.S. firms to buy back shares and pay dividends to shareholders. Hedge fund activism also changed to a less adversarial status during this period. Nowadays it is usual for hedge funds to negotiate with target firms.

By holding concentrated and often illiquid blocks in target companies, hedge funds seek to take over the corporate governance of a target company. Because of a lack of regulatory limits on their portfolio holdings, hedge funds can accumulate concentrated positions in target companies (Fung and Hsieh 2000). Hedge funds are subject of requirements related to owning more than 3% of a stock (Anderson 2006), but they are not facing the same level of regulatory restraints as other institutional investors. This organizational

form and the funds' agreement not to solicit publicity allow hedge funds to circumvent significant regulation and to avoid taxation (Gordon 2005).

How hedge funds actively interfere in the investment and financing policies of target firms can be shown in various examples. It is particularly interesting to study the most famous activist hedge funds, including Elliot Management, Starboard Value and Carl Icahn. Their objectives can include splitting up a company, forcibly paying a special dividend, having a say in M&A activities of the target companies and refurbishment.

The results of such activities are diverse. Companies, investors and regulators should have a complete understanding of the impact that hedge funds can have on financial markets. Implications for asset management and corporate governance are also important to understand. While hedge fund activism is a well-studied topic, there are few studies on the exact impact of such activities on target firms. Very few studies combine insights from target companies' financials, as well as their market performance to assess the impact of activist hedge funds thoroughly. What's more, observing the development of target companies over time, preferably several years after the initial stake is bought yields important insights on the sustainability of activist strategies.

In comparison to other institutional investors, data on hedge fund activism is readily available. A purchase of a stake of at least 3% of target firm's equity with an intention to actively engage in its management is subject to a so-called Section 13D filing with the Stock Exchange Commission (SEC). In this filing, the intentions and the size of purchased equity block need to be disclosed (Brav et al. 2008b). A similar procedure applies to equity blocks bought with an intention of being held passively, i.e. not intervene with company's management. Such purchases are subject to Section 13G filing, also submitted to the SEC.

We aim to investigate the impact of hedge fund activism in detail, while differentiating between active and passive block holdings. Our focus is on the period 2009-2019. We are considering all capital market-oriented companies which were targets of hedge funds during the period of interest. In theory activists seem to be able to change the target firm's governance in small steps. But little evidence was found that activism yields significantly increases in share value or operating performance (Karpoff 2001).

The paper proceeds as follows. Section 2 explains the unique organizational structure of hedge funds, that enable them to aggregate large equity holdings of portfolio firms and the key factors their strong activism is based on. In section 3, we examine hedge funds' proposals of substantial changes in the firm's financial policies by increasing target's debt capacity. Section 4 describes the ability of hedge funds to capture value enhancements and diverse governance mechanisms to avoid managerial moral hazard. Section 5 shows the utilized Data Design and Sample Construction. In Section 6 empirical results of target firms are represented. Section 7 concludes this paper with a short summary of findings.

Hedge Funds and their special role as activists

Fundamental differences between hedge funds and institutional investors enable hedge funds to redefine the boundaries of shareholder activism as set by pension funds, mutual funds, and other shareholder groups. Based on their unique structure, hedge funds have the ability to aggregate large equity holdings of portfolio companies, directly engage in activism with the companies' management and affect the strategic direction (Farrell and Lund 2007). In this sense hedge funds are labeled as to be among the world's financial power brokers. Among institutional investors, hedge funds are more aggressively intervening with targeted portfolio firms achieving more tangible results (Ryan and Schneider 2002).

For hedge funds, there is no need to diversify their investments due to legal requirements. This enables them to take large stakes in few firms and to become involved in firm's management (Brav et al. 2008a). Moreover, hedge funds amplify the voting power of their investor position by controlling more votes than just those belonging to their own shares. Empirical studies suggest that hedge funds have been instrumental in developing the process of decoupling ownership of shares from voting rights (Hu and Black 2006, 2011). There is evidence that hedge funds act "in concert", building groups with other hedge funds. To avoid the "group" designation by SEC (Briggs 2007), they act in "wolf packs" with parallel players goading other institutional investors into more aggressive action. Their ability to leverage or borrow

(Partnoy and Thomas 2007) allows hedge funds to take larger positions as compared to their own funds size.

Hedge fund activists may have increased incentives to monitor a firm's management and board (Briggs 2007; Kahan and Rock 2007, Partnoy and Thomas 2006). There is also evidence of hedge funds' influence on other institutional investors. These are jumping onto the "activist bandwagon" of hedge funds and benefit from free-riding on the activism campaigns without any own efforts (Gross 2006; Kahan and Rock 2007).

Activists also invest in distressed or junk debt, utilizing bankruptcy law (Beverini and Cova 2006), to later obtain equity positions. Hedge funds can get purposefully engaged with intention to decrease a target firms' stock value, also giving them a special role as compared to other institutional investors.

Communication tools and public actions are an important feature of hedge funds setting them apart. They use media, open letters and similar tools to put considerable pressure on the management board. This tool is called public targeting. Hedge funds further encourage shareholders to participate in such campaigns. They are also mobilizing each other, described as the Wolf's Pack Strategy, to promote further activists in the background.

In terms of addressing the general principal-agent problem arising from the disentanglement of ownership and control, hedge funds are fulfilling an important role. By taking on the monitoring role (Grossmann and Hart 1980; Shleifer and Vishny 1986), hedge funds deliver value to all shareholders (Grossmann and Hart 1980).

As opposed to other institutional investors, hedge funds can acquire concentrated positions of target company's equity by employing sophisticated trading tactics, including the usage of derivatives. This helps them to conceal their positions (Hu and Black 2007). Thus, hedge funds can acquire blocks while keeping the price effect limited and hide their trades. This helps them to capture more value arising from equity price fluctuations. Trading with derivatives may however create conflicts with other shareholders. For instance, when hedge funds hold positions in competing companies, they put pressure on target firms pushing them into merger & acquisitions. They even may benefit from declining share prices (Christoffersen et al. 2007, Brav and Matthews 2011; Bethel et al. 2009; Hu and Black 2007).

Lastly, for family or state-dominated firms, the interests of hedge funds do not always correspond to those of other minority investors. This leads to a so-called “principal-principal” problem (Dharwadkar 2000; Young et al. 2008). Hedge fund’s oppositional intention regarding the value of a firm’s share may create conflicts with other long-only investors seeking an increase in share price. There is, however, little evidence, that hedge funds’ behavior represents a source of a principal-principal conflict with an overall detrimental effect.

How do Hedge Funds affect target companies?

A. Governance

Managers often misuse firm-level governance arrangements as a protection against the outside influence by shareholders. This can lead to the development of staggered boards, which help managers to secure their position long-term. This behaviour can have a negative impact on firm’s value. (Aggrawal et al. 2009, Gompers et al. 2003). Hedge funds commit themselves to ensure that important decisions have to be approved by other shareholders. Hedge funds therefore facilitate the outside interference in major corporate decisions. This suggest, that a positive impact on firm value can be achieved by forcing managers to agree and follow firm-level corporate governance to support the outside influence of shareholders. Hedge funds therefore often represent an effective form of control over potential managerial self-interest (Schneider and Ryan 2011). In their function as intermediaries, they are unaffected by the conflict of interest, market-value transparency, and rigid regulatory environment that restrain other institutional investors. Directly affecting the Governance is therefore one of the popular instruments of activists.

One example of strong activism can be seen in 2005, when TCI and Atticus attacked the German security exchange Deutsche Börse. These Hedge funds blamed the management of Deutsche Börse, arguing that the management’ efforts to create shareholder value was insufficient. As a result, important changes to corporate governance, the financing and investment policies happened. Over the long run, however, the performance deteriorated and the share price suffered substantial losses in consequence of the subprime

crisis. This raises the question whether hedge funds activities really lead to substantially higher market evaluations.

Despite these effects, owners with large stakes can create additional agency problems from point of view of minority shareholders. Blockholders may obtain private benefits of control in the context of their controlling position. An external corporate governance mechanism like the market of corporate control helps mitigating managerial moral hazard. Low share prices as consequence of a lack in value creation present the probability of a hostile takeover. A hostile takeover puts pressure on the board of managers and could trigger changes in the senior management as well as a significant restructuring of the firm.

B. Disciplining managers

The board of directors as part of the corporate governance mechanism acts as a delegated monitor on behalf of shareholders, to ensure that managers act in the best interest of shareholders. Supervising the senior management, the board of directors have legal rights in most of corporate governance systems. Using their legal rights, the board of directors takes responsibility in hiring and firing senior managers, as well as changes in executive compensation arrangements. Moreover, key decisions made by the board can have a strong impact on the firms' value, like financing decisions, merger & acquisitions and large-scale investments projects (Tirole 2010).

Hedge fund managers seem to achieve their goals by posing a credible threat of engaging the target in a costly proxy solicitation contest. Empirical evidence was found, that such proxy fights are an effective weapon of shareholders to facilitate the removal of board members for poorly-performing companies (Bebchuk 2005a; Bebchuk 2005b; Briggs 2006; Kahan and Rock 2007).

C. Financial restructuring measures: dividends and cash

The paramount goal of the activism of hedge funds is to increase shareholder value in a short period of time. Hedge funds target firms with lower return on assets, lower market-to-book ratios and less diversification in comparison

to a population sample of Fortune 500 U.S. with no activism activity (Bethel et al. 1998). These target companies are then subjected to restructuring of the financial and strategic policies and redirections of investments by selling of less-productive assets. Additionally, hedge funds can demand a raise of dividends, pay out of special dividends and shares buy-backs. Thus, hedge fund activism is typically associated with higher debt loads. Hedge funds are actively using target firms' cash positions to create short term value.

Financial restructuring measures of hedge funds activism should lead to higher accounting returns, earnings-per-share, as well as operating cash flows in the period after the documented 13D/13G Filings. At the same time, assets are being reduced, as managers are incentivized to shed less productive businesses from their balance sheets.

An additional measure of hedge funds' financial restructuring strategies is the utilization of free cash flows. Managers have incentives to grow their firm beyond its optimal size due to corporate governance malfunctions by not utilizing free cash flow (Jensen 1986). Firm's value can therefore be raised by a more efficient free cash flow utilization, as directed by hedge funds.

D. Financial restructuring measure: leverage ratios

Activist hedge funds force target firms to make large payouts to shareholders. They extract cash from the target firm through increases in the target's debt capacity and higher dividends. Raising additional debt capital increases the financial risk of the target firm. A target firm should have access to debt capital markets at attractive conditions to implement restructuring measures based on debt capital. In this case, higher leverage can increase firm value. According to Modigliani and Miller (1958, 1961) financial restructuring measures and financial policies do not have an impact on a firms' value in context of perfect capital markets. Considering capital markets in real world, market imperfections such as agency problems, taxes and information asymmetries can optimize firms' capital structure. Thus, market imperfections create a balance between benefits and the costs of debt financing and can have a function to minimize the firms' cost of capital.

Reduction of free cash flows, higher dividend payments and an increasing of the leverage ratio thereby also reduces agency problems, as the

risk of waste cash flow on value-destroying investments with negative NPV gets reduced. Empirical evidence for the U.S. capital market exists, that hedge fund activism reduces agency problems and generate value for target firms.

The idea of “Empire building” is, that Managers try to reduce the risk of their own position by increasing the size and diversification of the company. (Jensen 1986, Fama 1980). Mature firms with steady cash flows and stable operating performance should utilize higher leverage ratios and hold smaller cash reserves in line with more aggressive financial policies. This suggests, that higher leverage can increase firm value due to reduced agency problems and tax benefits of debt financing.

The increase of leverage ratio is, however, a double-edged sword: Higher leverage might possibly reduce firm value by increasing the expected costs of financial distress. Costs of financial distress include legal and administrative fees, that occur during financial distress. (Titman 1984, Barclay and Smith, 2005). Furthermore, a higher leverage ratio can reduce the operating performance of a target firm, as it reduces the commitment of suppliers and customers and also human capital.

There also is a risk of asset substitution by increasing the debt capital, which in consequence leads to an increase in the cost of debt capital. Debt overhang problems may cause a situation of underinvestment at high levels of leverage. Growth in a firm depends on the ability to make investments in financial and human capital. During a period of financial distress, shareholders are not willing to provide additional funding for new investment of a firm when the firm exhibits too high leverage ratios. From this perspective, a more conservative financial policy should be preferred (Myers 2000; Zingales 2000).

Empirical evidence of hedge fund activism’s effect on target companies

Having summarized the theoretical background on hedge fund activism, we now want to turn to empirics to see how to measure the impact, which indicators are appropriate to measure it, as well as key existing results from the literature on this topic. Empirical studies for the period 1994-2005

(Boyson and Mooradian 2007), relying on a unique dataset of hedge funds and their behaviour as agents of corporate change, found strong evidence that hedge funds activists can improve both: short-term stock performance and long-term operating performance of their targets. Most dramatic changes in targets' performance was achieved by aggressive hedge funds activism, as measured by substantial governance and free cash flow changes. According to these results, the long-lasting changes in corporate governance, operating performance and cash of the target firm benefit both, shareholders and hedge funds alike. By practicing aggressive activism, hedge funds achieved an annual performance of 7-11% higher than non-activist hedge funds and hedge funds pursuing less aggressive activism.

In a more recent study (Brav et al. 2009) found that hedge fund activism mitigates agency problems of free cash flows. More evidence on activists' impact was found in samples of 404 U.S. hedge fund activism events for a period of two years, 2003-2005. The study documents higher abnormal stock returns around the initial 13D filing date for profitable and healthy target firms, as compared to a sample of control firms (Klein and Zur 2009). Further, for the period 2004–2005, a larger study consisting of 888 U.S. hedge fund activism events found positive valuation effects after a hedge fund activist event (Brav et al. 2008b). The results seem to be driven by changes in operating strategies. An interesting base case to compare hedge funds activist activities is the filing of the SEC 13G schedule. This schedule is to be filed whenever an equity acquisition of at least 5% is being done with the aim of passively holding the equity block. These filings allow to compare active and passive strategies of hedge funds (Clifford 2008). Such comparison studies also find that there is a premium to be earned for activism, but it also requires longer lock-up periods and is partly offset by increased efforts as compared to the passive holding.

While all mentioned studies commonly find a positive effect of an activist event on the target company, they mostly date back to over a decade ago. They also, for the most part, fall short of considering both, the effect of an activism effect on the stock market valuation, but also on the financial health of a target company. They also rarely consider long-term effects, such

as the development of the company over years after the initial acquisition of a block by a hedge fund activist. We want to address all of these concerns and conduct a study on the effect of hedge fund activism, relying on the most recent data, spanning the period 2009-2019.

Empirical study: setup, data and results

We first explain the setup of our study, the retrieval of data and descriptive statistics. The aim of descriptive statistics is to understand which target companies are mostly targeted by activists, who these activists are and why they target the companies. We then turn to an event study to see the impact of activism. Lastly, we perform an analysis of both, financial data and returns of targeted companies to understand the long-term impact of activism.

A. Data and descriptive statistics

In our empirical study, we rely on various data sources to conduct the analysis. Firstly, we use the SEC database of filings (Edgar 2019) to retrieve all Section 13D and 13G filings for our period of interest. These filings are structured by acquiring company's identification and time. Upon an initial purchase of at least 3% equity share in a public company, the acquirer submits the corresponding filing with the SEC. Whenever there is a change to the initial filing, the acquirer files a Section 13D/A or 13G/A (Amendment), stating the changes as compared to the initial filing. For our purposes, we consider both, the initial filing and the amendments, whenever the amendments are significant enough to warrant additional consideration. This can happen when the equity block is either sold off completely or substantially increased by at least 3%. From each filing, we extract the ownership percentage of the acquirer, the name and ticker of the partly acquired public company, the date of the acquisition and the date of the filing. The filings are further filtered to remove duplicates and small amendment filings (below 3%). Since 13D and 13G filings have to be submitted by any entity buying a share in the target company, we also filter all filings for those made by hedge funds known to engage in activism.

All the following computations are done using the R statistical software. Given the preprocessing, we first consider the breakdown of all filings by active/passive groups, as shown in Table 1. We observe that for our period of consideration, the % amount of active filings has largely remained constant with an increase in the year 2019. Compared to the amount of filings as found in the literature, one can see a slightly increasing trend.

Table 1. Overview of number of active and passive blocks by year, as submitted to the SEC by hedge fund activist / passivist investors. "Block" refers to an equity purchase of at least 3%. "Active" refers to equity bought with the purpose of actively engaging with the company, "passive" refers to passively holding the equity block.

Year	All Blocks	Passive Blocks	Active Blocks	% Active
2009	1110	963	147	13.24%
2010	1170	979	191	16.32%
2011	1278	1112	166	12.99%
2012	1081	956	125	11.56%
2013	1428	1241	187	13.10%
2014	1589	1363	226	14.22%
2015	1555	1335	220	14.15%
2016	1293	1068	225	17.40%
2017	1335	1117	218	16.33%
2018	1432	1239	193	13.48%
2019	854	671	183	21.43%

Source: SEC Sec. 13D/13G filings, automatically retrieved from the SEC EDGAR data portal API (<https://www.sec.gov/edgar/searchedgar/companysearch.html>), own calculations

For our next step, we want to consider the distribution of the ownership percentage over the filings. As can be seen from the summary statistics, the median active filing is around 7.50%, while the median passive filing is around 6.10% over the whole period of interest. This similarity further supports our research design of comparing the active and the passive filings to each other. The 3rd quartile for active filings is considerably higher than the quartile of the passive ones. This observation shows us that hedge funds engaging in activism tend to acquire a considerable amount of equity of the target firm.

The minimum and maximum are always at 0% and 100% respectively, as many times, a sell-off of an equity block is filed with the SEC.

Table 2. Distribution of ownership percentage by Sec. 13D/13G Filings, including amendments to the filings (as indicated by “/A”)

Filing	Min.	1 st Quartile	Median	3 rd Quartile	Max
Sec. 13D	0	5.60%	7.50%	11.80%	100%
Sec. 13D/A	0	5.80%	8.80%	16.60%	100%
Sec. 13G	0	5.30%	6.10%	7.95%	100%
Sec. 13G/A	0	2.52%	5.74%	8.53%	100%

Source: SEC Sec. 13D/13G filings, automatically retrieved from the SEC EDGAR data portal API (<https://www.sec.gov/edgar/searchedgar/companysearch.html>), own calculations

As mentioned before, not only activist hedge funds can submit Section 13D filings to the SEC. We therefore also want to investigate which hedge funds are the most active ones in terms of activism. The top 10 list of filings by frequency clearly shows that well-known activist hedge funds are represented in our dataset.

Table 3. Distribution of filing frequency, showing top 10 of the filing hedge funds, Section 13D filing

Company	Frequency of filings
STARBOARD VALUE LP	310
RAGING CAPITAL MANAGEMENT, LLC	179
ELLIOTT MANAGEMENT CORP	114
JANA PARTNERS LLC	108
CORVEX MANAGEMENT LP	100
MARCATO CAPITAL MANAGEMENT LP	78
THIRD POINT LLC	70
NORTHERN RIGHT CAPITAL MANAGEMENT, L.P.	66
AWM INVESTMENT COMPANY, INC.	64
SARISSA CAPITAL MANAGEMENT LP	43

Source: SEC Sec. 13D/13G filings, automatically retrieved from the SEC EDGAR data portal API (<https://www.sec.gov/edgar/searchedgar/companysearch.html>), own calculations

We now turn to profiling the classical target of hedge fund activists. We want to profile these by industry and by their properties, as represented by well-known accounting KPIs. To be able to compare target companies to their peer groups, we assign to each firm an industry, as defined by Fama-French 30 industries classification. This classification maps each SIC code of a company to the corresponding industry. The overview of top 5 industries by FF30 code is shown in Table 4.

Table 4. Distribution of FF-30 industries of all section 13D/13G filings in the period 2009-2019.

Industry	All Blocks	Passive Blocks	Active Blocks	% Active
Healthcare	2142	1950	192	8.9%
Banking	1843	1569	274	14.8%
Personal/Business Services	1327	1102	225	16.9%
Business equipment	858	724	134	15.6%
Retail	430	374	56	13.0%

Source: SEC Sec. 13D/13G filings, automatically retrieved from the SEC EDGAR data portal API (<https://www.sec.gov/edgar/searchedgar/companysearch.html>), own calculations

As can be seen, the main focus is on Healthcare and Banking. The percentages of active filings largely correspond to the overall percentage of active filings as shown in Table 1.

To investigate the impact of activism on company's financial situation and performance over time, we also rely on a selection of financial and fundamental data of target companies. For all public target companies, this data is provided by EOD Historical, Sharadar and Gurufocus. Where necessary, especially for small companies, we directly look up the required fundamentals data from companies' yearly reports. Similarly to what is common in the literature studying hedge fund activism, our variables of interest are henceforth Return on Assets (ROA), Return on Equity (ROE), M/B ratio, Leverage, Cash, Market cap. We also look at the market adjusted

return (adjusted to the corresponding FF-30 industry level) one year prior to the acquisition of a block by an activist hedge fund. All results are summarised in Table 5.

Table 5. Financial and fundamental data of target firms depending on block type. All values are industry-adjusted according to the FF-30 industry specification. Hypothesis tests are performed to see whether there is a significant difference between the targeted companies and their peers from the same industry.

Metric		Active (13D)	Passive (13G)	Difference 13D/G
ROA	Median	-2.46%	-1.15%***	-1.31%***
	N	1229	8303	
ROE	Median	-4.92%	-3.33%***	-1.59%***
	N	1229	8291	
M/B	Median	-0.3	-0.13**	-0.17
	N	1150	7719	
Leverage	Median	-2.22%	-3.95%***	1.73%**
	N	1225	8309	
Cash	Median	0.73%*	1.21%***	-0.48%**
	N	1213	8246	
Market cap (MM)	Median	-163.51***	-68.16***	-95.34***
	N	1169	7812	
Market adj. return, (-13,-1) months	Median	-23.55%***	-17.73%***	-5.82%**
	N	1186	4309	

* = 10% significance level, ** = 5% significance level, *** = 1% significance level, all hypothesis tests are performed as t-tests on the means of the target companies vs. public companies from the same industry.

Source: SEC Sec. 13D/13G filings, automatically retrieved from the SEC EDGAR data portal API (<https://www.sec.gov/edgar/searchedgar/companysearch.html>), own calculations

In line with the literature, we see that mostly smaller companies are targeted by activists. These targets are mostly underperforming the peer group in the same industry with the median return one year prior to the acquisition of a block holding being roughly 24% below the industry average. We can also

see clear and significant differences between target companies of activists vs. those of passive investors. In particular, passive investors target companies with higher ROA and ROE, significantly higher (almost double) the market cap and significantly higher market-adjusted return. At the same time, the leverage of the passively targeted companies is lower. These findings indicate that activists mostly target small, slightly underperforming companies within each industrial sector. While the differences of active and passive targets are all highly significant in the hypothesis tests, we observe that the active targets are mostly not too different from industry medians.

B. Excess returns arising from active and passive filings: An event study

In this section, we want to leverage the classical event study methodology to investigate how the fact of filing a Section 13D/13G is causing the markets to react. To that end, we build on classical event study approach as originally introduced by (Fama et al. 1969). Since cross-sectional correlation cannot be ruled out, we also apply the correction as introduced in (Kolari and Pynnönen 2010). We set the event to be the filing date of a Sec. 13D/13G filing. The cumulative abnormal returns are computed as:

$$CAR_{i,t} = \sum_{t \text{ in } (-2,+2)} R_{i,t} - E[R_{i,t}] \quad (1)$$

and corrected for serial correlation. To get expected returns, we take the CRSP value-weighted index and apply the CAPM model to compute expected return as indicated by the 1-factor-model. The estimation window to compute the parameters of the 1-factor model is set to 150 days prior to the submission of every individual 13D/13G filing. This is in line with literature standards, where 1-factor-models are typically chosen to compute the expected returns. Further, we perform hypothesis tests to compare the mean cumulative abnormal returns to the mean return of the industry peer group on the same day. This helps to establish whether the returns triggered by the filing are significantly different to those which would regularly occur on the same day. We set the event window to $(-2,2)$, which is in line with event studies investigating abnormal returns around public announcements. For robustness, we also check the returns for longer event windows $(-5,5)$ and asymmetric windows $(0,5)$. Since these results are not deviating substantially

from the classical (-2,2)-window configuration, they are skipped here for conciseness. One could argue that re-filings, i.e. changes to the size of an equity block do not cause the same effect as the initial filings. To check this assumption, we also perform an event study based on new filings only. Lastly, we also check how, in some rare cases, the change of the filing status from passive to active is affecting the abnormal returns. All our results are summarized in the Table 6.

Table 6. Event study: Excess returns around the date of the filing of an active / passive block. The data is pooled over the whole period (2009-2019). Events are filtered by all events, new events only (without re-filing) and change of status events (from passive to active). Day 0 is the initial date of the filing, -2 and 2 represent two business days around this date. p-values for means are obtained from t-tests. Tests of the medians are obtained using the Wilcoxon Signed Rank Test.

	Mean	Median	% positive	N
A: Event window (-2,+2), CARs estimated using market returns				
Active (13D)	0.15%	0.93%**	0.56%	1358
Passive (13G)	-1.07%***	0%***	0.5%	7870
Difference	0.93%***	0.92%***		
B: Event window (-2,+2), omitting re-filings (i.e. a company has been acquired before)				
Active (13D)	-0.2%	0.94%	0.56%	1329
Passive (13G)	-2.37%***	-0.57%***	0.46%	4754
Difference	2.17%***	1.51%***		
C: Change of filing status from passive (13G) to active (13D)				
Change	1.6%	0.27%	0.52%	376

* = 5% significance level, ** = 1% significance level, *** = 0.1% significance level

Source: SEC Sec. 13D/13G filings, automatically retrieved from the SEC EDGAR data portal API (<https://www.sec.gov/edgar/searchedgar/companysearch.html>), own calculations.

We observe that filings of activists cause a positive abnormal return of around 1% (median) within the event window. Passive filings, on the other hand, are causing the markets to react the opposite way, causing a negative return of -1.07%. Both are significant compared to industry level. This effect does not change for active filings when considering panel B (omitting re-filings).

For passive filings, the negative effect on abnormal returns becomes even higher, indicating that re-filings do not cause the same negative effect as initial 13G filings. Lastly, for the change of the filing status, we do not observe any significant deviation. This could be due to the small observed number of such filing status changes. All in all, we clearly see that in terms of cumulative abnormal returns around the filing date, the difference between active and passive filings is positive and significant.

C. Long-term impact of active and passive acquisitions: Financial and fundamental view

We now turn to an investigation of the long-term impact of acquisitions on target companies' financial health and fundamental parameters. To that end, we consider the period up to 3 years after the acquisition (thus leaving out filings from our dataset which do not date back sufficiently long). The variables of interest are once again Financials/Fundamentals, including ROA, EBITDA, Assets, Cash, Leverage and Dividend yield. As mentioned in the theory section, hedge fund activists are often taking measures to restructure the target company's capital structure, increase dividend payouts and decrease cash. These theoretical assumptions are to be proven empirically here.

Table 7. Change in financial and fundamental metrics as a function of the year after the initial filing of 13D/13G with the SEC. The industry-adjustments are the difference to the corresponding FF30 metric. All significance test are based on Wilcox Signed Rank testing.

Metric	Passive/ Active	Stats	Year 1	Year 2	Year 3
ROA	13D	Median	-27.92%***	-0.06%*	-0.15%
		N	932	929	804
	13G	Median	-26.09%	-0.21%	-0.25%
		N	6911	6841	6054
	Difference		-1.83%	0.15%**	0.1%
EBITDA	13D	Median	6.29%***	2.70%	2.64%***
		N	913	870	746
	13G	Median	7.63%	2.18%***	2.40%***
		N	6706	6318	5615
	Difference		-1.34%**	0.52%	0.24%

Assets	13D	Median	4.45%***	2.92%***	5.11%***
		N	935	930	805
	13G	Median	4.11%***	0.28%***	0.32%***
		N	6924	6839	6057
	Difference		0.34%***	2.64%	4.79%**
Cash	13D	Median	-9.20%**	0.02%	0.00%
		N	911	912	791
	13G	Median	-13.98%**	0.00%	0.00%
		N	911	912	791
	Difference		4.78%	0.02%	0.00%
Leverage	13D	Median	-5.16%*	-0.01%	-0.01%
		N	932	926	802
	13G	Median	-6.99%**	-0.08%	0.01%
		N	6909	6828	6046
	Difference		1.83%	0.07%	-0.02%
Dividend yield	13D	Median	-4.06%	0.00%***	0.00%***
		N	448	460	393
	13G	Median	0.00%***	0.00%***	0.00%***
		N	3049	3137	2885
	Difference		-4.06%	0.00%	0.00%

Source: SEC Sec. 13D/13G filings, automatically retrieved from the SEC EDGAR data portal API (<https://www.sec.gov/edgar/searchedgar/companysearch.html>), own calculations, * = 5% significance level, ** = 1% significance level, *** = 0.1% significance level

As can be seen from Table 7, we can indeed prove empirically that 13D events cause company's cash position. This change happens in Year 1 after the acquisition. In the following years, it becomes negligible. Assets tend to increase for all years after the acquisition. The impact on EBITDA is positive in all three years, with the biggest impact in year 1. Surprisingly (and contrary to the literature), the leverage is not increasing. The dividend yield is not significantly different to the industry average. Compared to 13G filings, we can clearly see that the main differences in the years after the acquisition are in EBITDA, Assets and Cash positions.

D. Active / passive investments and their correlation to Fama-French 5 market factors

Lastly, we want to investigate how a portfolio consisting of active / passive targets is correlated to the Fama and French 5 market factors (Fama and

French 1993). The factors considered here are MKT, SMB, HML, RMW and CMA. These are defined as follows:

- MKT: Market risk factor
- SMB: “Small Minus Big” is the average return on the nine small stock portfolios minus the average return on the nine big stock portfolios
- HML “High Minus Low” is the average return on the two value portfolios minus the average return on the two growth portfolios,
- RMW “Robust Minus Weak” is the average return on the two robust operating profitability portfolios minus the average return on the two weak operating profitability portfolios
- CMA “Conservative Minus Aggressive” is the average return on the two conservative investment portfolios minus the average return on the two aggressive investment portfolios,

Table 8. Factors behind a portfolio of active/passive target companies, tracked over a period of 1 to 2 years after the acquisitions. All factors are in line with (Fama and French 1993) definition. R^2 is reported to reflect how well the portfolio is represented by the factors. All hypothesis tests are t-tests of the coefficients. “LASP” stands for long active, short passive, i.e. a portfolio of all target companies of activists being bought and those of passivists being short-sold.

Portfolio	T	Alpha	MKT	SMB	HML	RMW	CMA	R^2
13D	(0,12)	-0.01***	0.86***	7.70***	-0.17	-0.35*	0.13	72.7%
	(0,24)	-0.01***	0.86***	0.73***	-0.15	-0.27	0.13	73.7%
	(0,36)	-0.01***	0.86***	0.75***	-0.14	-0.22	0.11	74.7%
13G	(0,12)	-0.01***	1.05***	0.77***	0.14	-0.60***	-0.19	89.2%
	(0,24)	-0.01***	1.07***	0.76***	0.14	-0.53***	-0.15	90.0%
	(0,36)	-0.01***	1.07***	0.77***	0.16*	-0.48***	-0.16	90.4%
LASP	(0,12)	0.01***	-0.82***	-0.59***	-0.13	0.48***	0.19	87.8%
	(0,24)	0.01***	-0.83***	-0.58***	-0.13	0.44***	0.16	88.8%
	(0,36)	0.01***	-0.83***	-0.59***	-0.14*	0.41***	0.16	89.3%

Source: SEC Sec. 13D/13G filings, automatically retrieved from the SEC EDGAR data portal API (<https://www.sec.gov/edgar/searchedgar/companysearch.html>), own calculations, * = 5% significance level, ** = 1% significance level, *** = 0.1% significance level

We observe that, in line with our previous observations, the active portfolio is highly correlated with the SMB factor (strongest and highest coefficient), additionally indicating that activists mainly target small companies. It is also highly correlated with the overall market. Interestingly, the alpha factor is not positive, at least not averaged over the whole 2009-2019 period. For the 13G portfolio, we see an overall similar picture, although the impact of the SMB factor is clearly lower. We also see that the RMW factor is correlated negatively, indicating that weak companies are targets of such filings. Lastly, insignificant coefficients of HML and CMA indicate that these factors are not considered by hedge funds when looking for suitable acquisitions. All R^2 are very high throughout, indicating that all portfolios are well reflected by the market factors. When comparing an active and a passive portfolio directly, we see a clear and significant overperformance, indicated by an alpha of 0.01. This means that on average, actively targeted companies overperform both, the industry standard and the passively targeted companies. This is also in line with classical results from the literature. All estimations are fairly stable over the years. Given the different market phases throughout this period, we observe that these patterns hold independently of the current market cycle.

Conclusions

This paper represents an overview of the current understanding of hedge fund activism and empirical results about their impact. Our empirical study contributes to the literature by considering the most recent filings of Section 13D and 13G. We can confirm the impact of hedge fund activists on target companies, especially in terms of EBITDA, Cash and ROA. We can also confirm that these companies tend to outperform the market as represented by an appropriate index. Interestingly, the classical result of increasing leverage cannot be confirmed empirically. Our event study shows that there is a clear positive short-term impact of such acquisitions. Our Fama French 5 factor analysis gives further insights into the preferences of hedge funds when selecting their targets.

While our study concentrated on US targets only, hedge fund activism is a relevant and interesting topic world-wide. It is subject to ongoing research

to investigate how hedge fund activism is affecting public companies globally. A more in-depth analysis of firm-level data can also help to shed additional light on the different activism strategies, as well as typical measures that hedge funds are taking within the firm. Lastly, an analysis of soft factors such as Governance can help to assess the impact of activists where it's not directly measurable by financial or fundamental data.

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