Does Intensified Letter-Communication of Hedge Funds Affect Abnormal Returns?

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Abstract

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1 Introduction

The interests of corporate managements are often not in line with the interests of shareholders. If these interests fall apart considerably, shareholders take activism into account (Shin and You, 2017, p. 95). Especially hedge funds have been known for buying shares with the intention of practicing activism and respective shareholder rights (see Gantchev and Jotikasthira, 2018; Goranova and Ryan, 2014).

Hedge funds are known for their ability to bring about change to companies (Goranova and Ryan, 2014). The expected value for the company will be reflected in the stock price immediately after the information concerning the new blockholder becomes public (Fama, 1991; Macey and Netter, 1987; Chattopadhyaya, 2011). Consequently, our research focuses on abnormal returns when companies get affected by activism.

Hedge funds with activism intentions are obligated to state their purpose of the transaction in Item 4 of the beneficial ownership report Schedule 13 D (Macey and Netter, 1987; Boyson and Mooradian, 2011) within ten days with the SEC when they acquire "*more than 5% of any class of securities of a public company*" (Mihov, 2016, p. 235; see in addition Gantchev and Jotikasthira, 2018). The moment when the market officially gets the information about the new shareholder via the release of the initial 13 D filing could be defined as the inception of activism (Klein and Zur, 2009, p. 188; Gantchev, 2013, p. 613; Bebchuk et al., 2015, p. 1090). According to our research hedge funds intensify their communication regarding their activism goals beyond their statements in Item 4 of Schedule 13 D in approximately 11 % of events by attaching an activism-related letter addressed to the CEO and board, respectively. In these letters hedge funds clarify their perception on shortcomings of the company

and outline potential for improvement. Consequently, we examine if stock markets react differently when hedge funds intensify their communication with the corporate management via letters.

Gantchev (2013, p. 629) emphasizes that the seventh section ("*Materials to be filed as exhibits*") of Schedule 13 D "*contains any exhibits that may be filed along with the form such as letters to the management or board*". These exhibits could "*elaborate*" Item 4. Therefore, the seventh section "*is the second most important section*" after Item 4 (Gantchev, 2013, p. 629). Furthermore, Gantchev (2013, p. 629) suggests that "*costs play a major role in the activist's decision-making behavior*". In this context, we assume that the decision to write and attach a letter is tactical. Hedge funds may presume that information transferred to the corporate management via letter is rather perceived than information presented in a mandatory form. In brief, a letter might increase the probability that a hedge fund and a target company's management do not only transmit information, but actually communicate (see Bittner, 1988). Consequently, we examine if activism goals differ when hedge funds intensify their communication via letters and which activism goals increase the likelihood that an activism-related letter is published. Moreover, we investigate if return differences are ascribable to the letter itself. Thereby, we control for the activism content as well as for sector effects. Additionally, we consider how vaguely verbalized the activism announcements are.

The remainder of the paper is structured as follows. Section 2 gives an overview of the related literature. The section outlines the theoretical framework of why there might be return differences if activism content is not only transferred via the mandatory ownership report, but also via a letter to the CEO or board. In addition, Section 2 gives a summary of which hedge fund activism goals are predominant in

preexisting literature. This summary is essential for a common understanding of the conducted analysis. Section 3 outlines our data and methodology. Research on hedge fund activism is commonly combined with hand-collecting the underlying database (e. g. see Krishnan et al., 2016). Accordingly, the procedure of hand-collecting the hedge fund activism database is described. Moreover, Section 3 presents the methodology with respect to calculating (abnormal) stock returns as well as our applied regression designs. Section 4 concentrates on the results and discusses the findings. Potential implications are outlined. Section 5 concludes by briefly summarizing the main results referring to our research question.

2 Related Literature

Research on hedge fund activism got manifold since Brav et al. (2008, p. 1729) stated that the subject is "*poorly understood*" and "*[m]uch of the commentary on hedge fund activism is based on supposition or anecdotal evidence*". Studies explore activism goals as well as the characteristics of the targets (Brav et al., 2008; Klein and Zur, 2009; Greenwood and Schor, 2009). Furthermore, long-term effects on targets are examined (Carrothers, 2017; Brav et al., 2015; Bebchuk et al., 2015; Clifford, 2008) as well as characteristics of hedge funds, such as their reputation (Krishnan et al., 2016) and media-coverage (Ozik and Sadka, 2013). Written communication of hedge fund activists is used by researchers to categorize the different goals or demands (e. g. see Gantchev, 2013; Brav et al. 2009; Mihov, 2016). Intensified letter-communication is exemplarily considered by Klein and Zur (2009) and Brav et al. (2008). We contribute to the existing research by examining intensified letter-communication systematically.

Theoretical Framework

The relationship between a hedge fund as a shareholder and the corporate management of the target company is generally described by principal agent theory (Goranova and Ryan, 2014, p. 1241; Zajac and Westphal, 1995; see additionally Shin and You, 2017, p. 95). This paper examines if intensified communication by principals, i. e. hedge funds, to agents, i. e. corporate managements, affects abnormal stock returns. In this context, the question evokes why abnormal returns should differ when hedge funds intensify their communication via letters. From a theoretical point of view the stakeholder salience theory provides insights why intensifying communication might increase the corporate management's attention. The reactance theory provides insights why corporate managements might initially react negatively to the intensified communication of hedge funds.

The theory of stakeholder salience assumes that the attention of managers "*goes beyond the question of stakeholder identification*" (Mitchell et al., 1997, p. 854) and is considerably influenced by three characteristics. First, the power of a stakeholder to take influence on the company. Second, the stakeholder's legitimacy regarding the relationship to the company. And third, the urgency of the concern based on time sensitivity and importance (Mitchell et al., 1997, see in addition Thijssens et al., 2015). If all three characteristics are in place "*high levels of salience*" will be reached (Gifford, 2010, p. 96).

The power of a hedge fund is likely to be derived from its shareholding in the company. Additionally, former investments of a hedge fund activist might emphasize their assertiveness and likely complement the power of the shareholding with authority (see Pfeffer, 1981). A hedge fund might highlight both in activism-related letters to the corporate management—its shareholding in the company and its

(successful) investment history. Legitimacy does not only derive from the fact that the activist owns at least one-twentieth of the company, but, in this context, involves other contributing factors. Gifford (2010, p. 96) enhances Mitchell et al. (1997) by stating that legitimacy also includes "*the strength and substance*" of a shareholder's statements. Urgency is usually a subjective perception (see Friend, 1982). However, urgency can be seen as the "*extra push […] that really gets CEO attention*" (Agle et al., 1999, p. 520). In addition to time sensitivity a hedge fund's "*intensity of engagement*" could be underlined by "*the persistence, assertiveness and resources applied*" (Gifford, 2010, p. 96). We assume that urgency as the third parameter of attention might be conveyed more clearly when the activist's concerns are addressed directly to corporate management via a letter instead of only outlining them in a mandatory SEC filing. With regards to the stakeholder salience theory intensified communication might increase the attention of a target's corporate management. Having covered the aspect of attention, intensified communication might be more likely to provoke a reaction of the corporate management which leads us to the reactance theory.

The reactance theory is based on Brehm (1966) and describes changes in behavior, when an individual feels constrained or perceives a (possible) loss of freedom (see Kornberg et al., 1970, p. 132). Brehm (1966, p. 9) outlines the change in behavior as follows: "*Generally, then, a person who experiences reactance will be motivated to attempt to regain the lost or threatened freedoms by whatever methods are available and appropriate*." The reaction could be negative even when the "*attempted influence was apparently in their own best interest*" (Brehm, 1989, p. 72). The entrance of a new and significant shareholder with activism intentions, i. e. a shareholder which transmits claims, might be perceived as a (potential) threat of the present degree of

freedom (see Boyson and Pichler, 2018). Shin and You (2017, p. 95) point out that shareholder activism could threaten "*the legitimacy of the CEO's leadership*". Rose (2016, p. 1) references a survey of PricewaterhouseCoopers with the result that shareholders appreciate direct communication with board members whereas "*one-third of company board members say they are opposed to communicating directly with institutional shareholders*". A possible negative perception by a corporate management might be more pronounced when a hedge fund additionally states its claims in an open letter to them. The reactance of the corporate management might be initially substantial. The corporate management might try to regain its "*freedom by avoiding opinion compliance*" (Brehm, 1966, p. 117, see additionally Miller et al., 2013). Applying the ceteris paribus assumption, a negative linkage of transmitting an additional letter to the target company's management and abnormal returns would be the consequence (see additionally Boyson and Pichler, 2018). Naturally, this hypothesis is only tenable if intensified communication is not linked to different activism goals.

Goals of Hedge Fund Activism

The activism goals of hedge funds can be categorized into different categories. Exerting activism, hedge funds can demand more than one activism goal per event. Following Brav et al. (2008, p. 1742), Brav et al. (2009, p. 198) and Brav et al. (2015, p. 2731) hedge funds' stated demands can be categorized as follows: (1) undervaluation / general maximization of shareholder value, (2) capital structure, (3) business strategy, (4) sale of target, (5) corporate governance.

Brav et al. (2008) breakdown these five categories into a more detailed list including several subcategories. In order to obtain meaningful results with respect to our

research we rely on the detailed categorization of Brav et al. (2008) and briefly outline our understanding of the categories in the following.

The first category (‘g*eneral undervaluation / maximize shareholder value*’) comprises events where hedge funds state a general undervaluation as well as events where hedge funds proclaim the maximization of shareholder value nonspecific. The second category of stated activism goals (‘*capital structure*’) includes two different subcategories. The first subcategory deals with decreasing excess cash and increasing leverage, dividends and repurchases. It depends on the shareholder whether repurchases or dividends are preferred (Elton and Gruber, 1968). Nonetheless, this activism goal is in line with the concept of Lewis (1994). Lewis declares dividends as a value driver when there are no investment opportunities with returns above capital costs (Lewis, 1994, p. 36; Bausch et al., 2009, p. 18). Additionally, this goal could be seen as a compensation for monitoring (Shleifer and Vishny, 1986). The second subcategory (‘*Equity issuance, restructure debt, recapitalization*’) relates to preventing or reducing equity issuance, restructuring debt and recapitalizing the target company, e. g. in the case of funding gaps. The third category (‘*business strategy*’) regards a target company’s business strategy and is multifarious. Increasing operational efficiency as well as addressing a lack of focus, demanding business restructuring and spin-offs are major factors within this category and, therefore, can be established as adequate subcategories (Brav et al., 2008). Furthermore, hedge funds could speak up for better terms or against the deal when the company is involved as the target or the acquirer in (potential) M&A-activities. Since merger activities cannot always be clearly assigned or can also be considered as a merger between equals, we complement ‘*Merger (against the deal / for better*

terms)' as a (more general) subcategory. The last subcategory is related to growth strategies which should be pursued by the target company.

The fourth category ('*sale of target company*') is covered by Brav et al. (2008, p. 1742) in two different ways. The stated goal could either be a sale of the complete company or the company's main assets to a third party, or the hedge fund's purpose could be to take majority control right up to take the company private (Carrothers, 2017, p. 45). The fifth category ('*governance*') is split into five different subcategories (Brav et al., 2008, p. 1742). Activism could demand to dismantle takeover defenses. For instance, staggered boards can be considered as takeover defenses (Guo et al., 2008; Cremers et al., 2017). The replacement of the CEO or chairman could be demanded as well as board independence and a fair representation of shareholders within the board. Furthermore, the disclosure of more information, possibly connected with potential fraud, could be demanded. The last demand in this category concerns the payment of executives (Brav et al., 2008). A visualization of the described categories and respective subcategories is displayed in Figure 1.

< Insert Figure 1 about here >

3 Data and Methodology

Data Set

Our data set is hand-collected and considers all S&P 1500 composite index companies from January 2010 to December 2016.[1] Focusing on the event when hedge fund activism is announced by the initial Schedule 13 D we identify 284 cases.

[1] Detailed information on the index constituents is obtained from WRDS. Concentrating on companies in a certain index is in line with prior research about activism since Goranova et al. (2017, p. 422) focus on S&P 500 from 2000 to 2005.

The approach is in line with prior research on hedge fund activism (e. g. see Klein and Zur, 2011; Edmans et al., 2013).

Our procedure to compile the data set is highly structured. The procedure is summarized by the following three stages and visualized in Figure 2.

(I) All 13 D filings related to the companies of the S&P 1500 composite index are obtained from the SEC tool EDGAR. Thereby, we ensure that the company is the affected issuer, i. e. the activism target, and not the reporting person. For consistency with the index composition events are only considered when the company is listed in the index at the filing date. The first stage leads to 761 possible events.

(II) A standardized procedure to determine whether a reporting person is a hedge fund does not exist (Klein and Zur, 2011). Therefore, we screen the reporting persons with the publicly accessible private company information and company profile on the website of Bloomberg.[2] The second stage leads to 300 events which can be assigned to hedge funds.

(III) Stock data is available and received for 299 events from 'CRSP Daily Stock' via WRDS. Eight events had to be excluded in respect of the estimation period to calculate abnormal returns ([–110; –10]-trading days). In addition, we exclude two events where no stock data for the filing date exists, and five events where it took more than ten trading days to disclose Schedule 13 D. Consequently, our data set consists of 284 events.

< Insert Figure 2 about here >

[2] More detailed, a reporting person will be classified as a hedge fund if Bloomberg labels the investor as a 'hedge fund', 'hedge fund manager' or 'hedge fund sponsor'. The reporting person will not be classified as a hedge fund if the information 'investment manager' with addition of 'the firm also launches and manages hedge funds' (and versions hereof) is exclusively stated.

In 31 events at least one letter to the board or CEO is attached to Schedule 13 D or printed in the filing itself. This is equivalent to approximately 11 % of all events. Table 1 addresses potential time gaps between the publication of Schedule 13 D and activism-related letters. According to our data the letter's time signature is in more than two-thirds of all events equal to the filing date of Schedule 13 D. In 16 % the difference between these dates numbers one day. In about half of the events with a time gap of one day the delay is caused by the fact that the filing is accepted by the SEC at the evening before the filing date which leads to an economic delay of zero days. Accordingly, over 80 % of the letters date almost at the same date as the SEC publishes them. Regarding information leakages (see Coffee and Palia, 2016) on the targets' side, our descriptive statistics indicate that potential readers of the activism-related letter would not have the letter soon enough before Schedule 13 D is released. Accordingly, activism-related letters of hedge funds intensify their communication and are generally not a message in advance.

< Insert Table 1 about here >

Abnormal Stock Returns

Stock returns are calculated per trading day as log-returns. Simple returns are avoided to evade arithmetical issues accompanied by low returns close to zero (Miskolczi, 2017). Abnormal stock returns are calculated with the four-factor model combining Fama and French (1993) and Carhart (1997). Following Greenwood and Schor (2009, p. 366) we use an estimation period of [–110; –10]-trading days before the disclosure of Schedule 13 D. The coefficients are estimated with the equation

$$r_{i,t}^{ln} - r_t^f = \alpha_i + \beta_{1,i}\left(r_t^M - r_t^f\right) + \beta_{2,i} \times SMB_t + \beta_{3,i} \times HML_t + \beta_{4,i} \times MOM_t + u_i, \quad (1)$$

where $r_{i,t}^{ln}$ is the log-return of the stock of event i on trading day t, r_t^f is the risk-free return, r_t^M is the market return, and SMB_t, HML_t as well as MOM_t are the factors of Fama and French (1993) and Carhart (1997), respectively.[3] The last term of our regression, u_i, represents the error term. The coefficients calculated with Equation (1) are employed in the following equation to estimate expected daily returns around the disclosure of Schedule 13 D:

$$E\left[r_{i,t}^{ln}\right] = r_t^f + \hat{\alpha}_i + \hat{\beta}_{1,i}\left(r_t^M - r_t^f\right) + \hat{\beta}_{2,i} \times SMB_t + \hat{\beta}_{3,i} \times HML_t + \hat{\beta}_{4,i} \times MOM_t, \qquad (2)$$

where $\hat{\alpha}_i$, $\hat{\beta}_{1,i}$, $\hat{\beta}_{2,i}$, $\hat{\beta}_{3,i}$ and $\hat{\beta}_{4,i}$ are the estimated coefficients from Equation (1) for each event i.[4]

The expected daily return $E\left[r_{i,t}^{ln}\right]$ is subtracted from the actual daily return $r_{i,t}^{ln}$ to receive the abnormal log-return AR^{ln} for event i at trading day t (Al-Shattarat and Al-Shattarat, 2017), i. e. $AR_i^{ln}(t) = r_{i,t}^{ln} - E\left[r_{i,t}^{ln}\right]$. Daily abnormal log-returns $AR_i^{ln}(t)$ are added in order to receive the abnormal log-return for a certain time period, also known as cumulative abnormal log-returns (Ingenohl and Kube, 2018; Miskolczi, 2017), i. e. $CAR_i^{ln}(T) = \sum_{t=1}^{T} AR_i^{ln}(t)$. All (cumulative) abnormal returns displayed in this paper or employed in our regressions are converted into simple returns. Therefore, we apply $AR_i(t) = e^{AR_i^{ln}(t)} - 1$, where $AR_i(t)$ stands for the abnormal simple return of event i in time period t and $AR_i^{ln}(t)$ for the log-return (Miskolczi, 2017).

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[3] Data on r_t^f, r_t^M, SMB_t, HML_t and MOM_t is received from the Kenneth R. French data library (http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/).

[4] Our description of the procedure to calculate abnormal returns is in line with Greenwood and Schor (2009, p. 366).

Regression Design

We use Ordinary Least Squares (OLS) regressions to assess how abnormal returns are affected when a letter is attached to Schedule 13 D. Our regression is designed as follows

$$AR_i(t) = \beta_0 + \beta_1 \times Letter_i + \beta_2 \times w_i^{MW} + \beta_3 \times TWN_i + \sum_{k=4}^{K} \beta_k \times Cat_{i,k} + \sum_{j=K+1}^{J} \beta_j \times SIC_{i,j} + u_i. \quad (3)$$

$AR_i(t)$ is the abnormal return on trading day t of the stock of event i. $Letter$ denotes a dummy variable which is one if at least one letter to the CEO or board is attached to Schedule 13 D and zero otherwise. The variable w_i^{MW} contains the results of a textual analysis on the content in Item 4 of Schedule 13 D as well as the activism-related letters using the thesaurus 'modal weak' of Loughran and McDonald (2011). This variable controls for how vaguely the purpose of the transaction and the activism-related letters are written. For this purpose, we separate the content between Item 4 and the heading of Item 5 of Schedule 13 D as well as, if attached, the letter-content into separate documents per event. Following Picault and Renault (2017, p. 139) this content is preprocessed for our textual analysis. In detail, characters are transformed into lower case letters (Feinerer, 2018b). Numbers and punctuations are removed (Feinerer, 2018b) as well as English stop words from Feinerer (2018a). A stemming process is exerted (Feinerer, 2018a). Additionally, we apply the described process on the thesaurus and remove multiples in the thesaurus caused by the stemming process. At last, the weighting scheme displayed in Equation (4) is applied to determine w_i^{MW} for each document. The weighting scheme takes the repeated use of individual words into account. Thus, individual words

occurring several times do not have a linear impact (Chisholm and Kolda, 1999; Loughran and McDonald, 2011).

$$w_i^{MW}(k) = \sum_{k=1}^{K} g(k) \text{ with } g(k) = 1 + \ln\left(f_{k,i}\right) \text{ if } f_{k,i} > 0 \text{ and } g(k) = 0 \text{ if } f_{k,i} = 0, \quad (4)$$

whereby $w_i^{MW}(k)$ is the modal weak weighted value calculated for the activism event i. The term frequency of the thesaurus word k in the text of event i is represented by $f_{k,i}$.

Interactive effects between the existence of a letter and w_i^{MW} were considered in a pre-test. The interactive variable was taken into consideration to check if vague communication is especially relevant when hedge funds intensify their communication with CEOs or boards. In our final OLS regression model the interactive variable is not considered due to multicollinearity issues (VIF above 10; see Hair, Jr. et al., 2014, p. 200; Oehler et al., 2018, p. 38). TWN represents the total word length of the given information after removing numbers, punctuations and stop words. Activism-related letters lead to a variety of text lengths per event. TWN ensures a differentiation between the impact of the textual quantity and the intensity of communication. Lawrence (2013) shows for annual reports that financially-literate individuals, high frequency trading and speculative individual investors—in brief, individuals "*who might be expected to actually read the annual reports*" (Loughran and McDonald, 2017, p. 241) or more general financial reports—are not influenced by text quantity and readability. Regarding the finding of Lawrence (2013) we do not expect that the textual length has an impact on abnormal returns. Furthermore, 15 dummy variables are included in order to account for the various activism goals ($Cat_{i,k}$; additionally see Figure 1 and Table 3). The activism goals are mainly based on the detailed categories of Brav et al. (2008, p. 1742) with the exception that we

add a further subcategory for mergers (see Figure 1). To classify the respective events we manually read the information in Item 4 of Schedule 13 D as well as the letters to the CEOs and boards. An event is assigned to a category if the hedge fund clearly states the activism goal. Announcements regarding possibilities in the future are not considered as actual goals. The divisions of the Standard Industrial Classification (SIC) are integrated as further dummy variables to control for industry effects. The most common SIC division is omitted to avoid multicollinearity (Greene, 2012).

Beyond the OLS regression we employ a binomial logit regression to examine the impact of the stated activism goals $Cat_{i,k}$ on the likelihood that an activism-related letter is added to Schedule 13 D. In our model the binary variable $Letter_i$ denotes the dependent variable, the dummy variables for the activism goals are the independent variables. We fix industry effects in a second binomial logit regression by including the dummy variables for the SIC divisions as independent variables.[5]

4 Results and Discussion

Our research question is addressed in the following subsections. Initially, the content of activism-related letters will be analyzed. Additionally, we analyze which activism goals increase the likelihood that hedge funds add an activism-related letter to the mandatory ownership report. Afterwards, we analyze how abnormal returns are affected when a letter is attached to Schedule 13 D.

[5] Our procedure is referring to Edmans et al. (2013, p. 1462) who examine the „*effect of liquidity on the likelihood of a 13D filing (versus a 13G filing) by hedge funds*“. In addition, see the procedure of Boyson and Mooradian (2011, p. 183) who apply a “*logistic regression to predict hedge fund activism*”.

Communicated Content on Activism Goals

Hedge fund activism pursues different goals referring to the target company (Brav et al., 2015). Our research indicates that significant content-related differences are observable when an activism-related letter is published via the SEC in addition to Schedule 13 D. The detailed results are presented in Table 3. The main results are addressed in the following. Furthermore, we examine which activism goals increase the likelihood that an activism-related letter is attached to Schedule 13 D by employing the binomial logit regression outlined in Section 3 (see Table 4). Information on the number of stated activism goals is provided in Table 2 for all events as well as differentiated according to events with and without the attachment of an additional letter.

One of the highest content-related differences concerns the first category "*general undervaluation/maximize shareholder value*" of Brav et al. (2008). This category—especially covering undervaluation—is addressed in over 80 % of letter-related events. Considering the full data set, this category is addressed in approximately 45 % of all events. The high frequency of the category is in line with prior findings that hedge funds are investing in undervalued companies (Greenwood and Schor, 2009). The conducted binomial logit regression indicates that this category is not increasing the likelihood of a letter attached to Schedule 13 D. We assume that on a standalone basis profiting from undervaluation could be attained without extended communication, especially straightforward via Schedule 13 G (see Edmans et al., 2013).

Hedge funds address the goal of higher dividends and repurchases in more than a third of their letters. This goal is in line with the result that "*[h]edge funds appear to*

address agency costs" (Klein and Zur, 2009, p. 225) and the potential of dividends to diminish agency costs (Achleitner et al., 2010, p. 810; see in addition La Porta et al., 2000). Concerning all events, this goal is only addressed in about 9 %. A similar result is reported by Brav et al. (2008, p. 1742). At first glance, it might be surprising that this goal is not increasing the likelihood that a letter is attached. However, considering Klein and Zur (2009, p. 226) who state that "*[i]n the fiscal year after the initial 13D filing, hedge fund targets, on average, double their dividends*", this pursued goal alone might need no expanded communication.

The highest content-related difference between events with and without letters concerns the activism goal of increasing operational efficiency. Whereas operational efficiency is stated in about 11 % of all events—similar results are reported by Brav et al. (2008, p. 1742)—operational efficiency is addressed in almost 60 % of events where there is an attached letter. Our results indicate that the likelihood of hedge funds attaching an activism-related letter is increased when operational issues are addressed. Accordingly, one might state that communication with the CEO or board is intensified particularly when operational performance seems to be insufficient.

The activism goal to take influence on a company's focus and business structure, especially related to spin-offs, amounts to less than 10 % in our data set which is comparable to Brav et al. (2008). However, when concentrating on letter-related events this goal is far more often on the agenda, occurring in approximately 42 %. Nevertheless, the likelihood that a letter is attached is hardly increased by this goal. Selling main assets or even selling the complete company is addressed in a third of the letters; reducing takeover defenses, like staggered boards (Guo et al., 2008), in approximately 10 %. In line with this, Greenwood and Schor (2009, p. 374) state "*that activism measurably increases the likelihood that an undervalued target is ultimately*

taken over". Boyson et al. (2017, p. 71) note that "*[a]ctivism targets experience a significantly higher likelihood of receiving takeover bids relative to firms in which the same activist hedge funds own passive stakes*". The binomial logit regression reveals further results by indicating that the likelihood that a letter is attached increases when hedge funds express concerns of a M&A deal where the activism affected company is the target.

Replacing the CEO or the chairman is generally not often a goal of hedge fund activism (Klein and Zur, 2009, p. 212; Brav et al., 2008, p. 1742; and see Table 3). However, when it comes to letter-related activism events replacing is addressed quite more often. Analogously, the likelihood that a letter is added is increased significantly when ousting the CEO or chairman is demanded. We assume that sophisticated arguments in combination with extended communication is required to convince other shareholders of the plan. The costs of ousting a CEO could be a lot higher than letting her continue, especially when the next CEO does not meet expectations either (Hemsley and Morais, 2017). In one letter a hedge fund reminds the board that shareholders are *"the true owners of the Company*."[6] In accordance with such a perception, board independence and particularly fair representation is addressed in over 50 % of the letter-related activism events.

< Insert Table 2 about here >

< Insert Table 3 about here >

< Insert Table 4 about here >

[6] The hedge fund Baker Street Capital Management, LLC wrote the cited letter to the board of directors of Swift Energy Company on October 16, 2014. The complete sentence is "*We believe that there is very broad shareholder support for our ideas, and hope that the Board fully understands our determination to see value delivered to shareholders, who are the true owners of the Company.*"

Abnormal Returns

Hedge fund investments with activism intentions earn significantly higher CAR and holding period returns than hedge fund investments without activism intentions (Clifford, 2008). Our analysis of abnormal returns in this subsection will reveal if the additional effort of intensified communication has an impact on CAR.

First, our research confirms earlier results that hedge fund activism leads to CAR of approximately 6 % within 21 trading days around the publication of Schedule 13 D (Carrothers, 2017; Brav et al., 2008). Beyond that, we add new insights to existing research by means of a differentiated consideration of events where hedge funds intensify their communication by sending (additional) information about their activism intentions directly to the board or CEO via letter(s) and events where no letter is added.

Table 5 presents average CAR for (I) all events, (II) events with additional letter(s), and (III) events without additional letter(s). Statistical differences between the average CAR of (II) and (III) are tested with the Mann-Whitney-Wilcoxon test. We measure significantly higher abnormal returns when a letter is published additionally on the publication date as well as up to eleven trading days around the event, i. e. [–5; +5]-trading days. For instance, on the publication day itself, mean abnormal returns are two percentage points higher when a letter is attached. The highest difference is measured [–3; +3]-trading days around the event where average CAR are almost 4.5 percentage points higher.

Critics could proclaim that stock markets officially get informed about hedge fund activism in t_0. Consequently, only investors who are invested before the official publication of Schedule 13 D would completely profit from the CAR reported above.

Therefore, we provide information on CAR differences on the publication day up to ten trading days afterwards. Our results indicate once more that events with at least one letter receive significantly higher abnormal returns than events where no letter is attached. The largest significant difference is measured for CAR [0; +3]. Events without any letter exhibit mean CAR of 2.34 %, whereas events with at least one letter exhibit CAR amounting to 4.46 % during this time period.

< Insert Figure 3 about here >

< Insert Figure 4 about here >

< Insert Table 5 about here >

We employ an OLS regression described by Equation (3) to investigate if intensified communication can explain the observed higher abnormal returns. In respect of our numerous control variables, we test for multicollinearity and find no indications for this issue. Information on the SIC divisions of the target companies is provided in Table 6. Our OLS regression initially focuses on abnormal returns on the publication day of Schedule 13 D. The regression results are presented in Table 7. Our step-wise regression procedure indicates that the existence of a letter is positively linked to abnormal returns in t_0. However, the variable $Letter$ is only able to significantly explain the distribution of abnormal returns in t_0 when the control variables for the different activism objectives are not included in the OLS regression.

< Insert Table 6 about here >

< Insert Table 7 about here >

Since significant reactions of stock markets are not exclusively concentrated on the publication day we extend our examination. Analogously to the results about CAR

(see Table 5) we apply the OLS regression on CAR up to seven trading days after the publication of Schedule 13 D. Including all variables—i. e. the $Letter$ dummy variable, w^{MW} which contains information on how vaguely the information is expressed, the dummy variables for the activism categories as well as the SIC divisions—leads to slightly different results. Regardless of the considered time span after the publication of Schedule 13 D, the letter itself has no explanatory power for the distribution of CAR. The regression coefficient is positive in each model and varies between 1.20 and 2.68. The at least at the 5 %-level significant variables which deal with the activism content have a relatively stable explanatory power when the time span is expanded up to seven trading days after the event. Vaguely verbalized activism announcements lead to significant lower abnormal returns. Addressing excess executive compensation and pay for performance, respectively, exhibits a negative and highly significant linkage with CAR.

< Insert Table 8 about here >

All in all, the major finding of our OLS regression analysis seems to be interesting. While a letter can be a signal for higher abnormal returns after the release of Schedule 13 D the letter itself does not seem to be the explanation for it. Referring the theoretical background in Section 2, we cannot find evidence of a negative linkage between letter-intensified communication and abnormal returns which might be derived from Brehm's (1966) reactance theory. Stock markets seem not to expect that intensified communication leads to hostile resistance of the corporate management which would be linked with negative stock market reactions (Boyson and Pichler, 2018).

Lastly, we take potential information leakages into account (see Coffee and Palia, 2016; Clifford, 2008, p. 328) and conduct the OLS regression on abnormal returns

within “*standard windows*” (Krishnan et al., 2016, p. 299) surrounding the disclosure of Schedule 13 D. Letter-intensified communication is significantly linked to CAR [–2; +2]- and [–3; +3]-trading days around the event. However, considering [–1; +1]- as well as [–4; +4]-trading days the linkage is hardly existent. Regarding CAR [–10; +10]-trading days around the event there is no respective linkage observable. Hence, one cannot argue that intensified communication impacts abnormal returns caused by information leakages. The significant results could also be caused by a reverse linkage. The existing potential may actuate a hedge fund to intensify communication.

< Insert Table 9 about here >

Implications of the results might be relevant for high frequency trading. Even if activism-related letters are not the reason for higher abnormal returns, high frequency trading might use the existence of an attached letter as a quick and easy observable signal on which to trade. Our results indicate that the implication can be considered regardless of whether access to (insider) information prior to the official release of Schedule 13 D is available.

5 Conclusion

According to our U. S. data set which comprises the years 2010–2016 hedge funds attach an activism-related letter to the beneficial ownership report Schedule 13 D in approximately 11 % of all events. Our research examines how abnormal returns are affected when hedge funds intensify their communication regarding their activism goals via letter(s) at the time Schedule 13 D is published.

Concentrating on the content-related aspects our results indicate that major differences exists between events with and without letter(s). Hedge funds address more activism goals per event when they attach a letter. Particularly the goal of increasing operational efficiency is strongly represented within the group of activism events where a letter is attached. Beyond that, a binomial logit regression analysis is applied to investigate which activism goals increase the likelihood of intensified communication of hedge funds. The evaluation indicates that in the event of activism objectives concerning the business strategy, and ousting the CEO or chairman particularly increase the likelihood of a letter attachment. Intensified communication is more likely when tactically necessary.

Examining abnormal returns our results indicate that targets experience significantly higher abnormal returns when hedge funds intensify their communication via letter(s). For instance, seven trading days around the publication of Schedule 13 D, events where a letter is attached exhibit mean CAR of 7.92 % which exceeds the mean CAR of events where the communication is not intensified by approximately 4.5 percentage points.

This research study also investigates if the additional communication channel of a letter is the reason for the higher abnormal returns. An OLS regression analysis is applied to control for the impact of different activism goals, the vagueness of the expressed information as well as industry effects. Our evaluation reveals that the additional communication channel of a letter has no explanatory power for the distribution of abnormal returns. Regarding our theoretical framework presented in Section 2 the results indicate that using the direct communication of a letter to corporate management does not lead to value-decreasing reactance. Our further

results indicate that stock markets care about activism goals as well as how vaguely the information is stated by the respective hedge fund activist.

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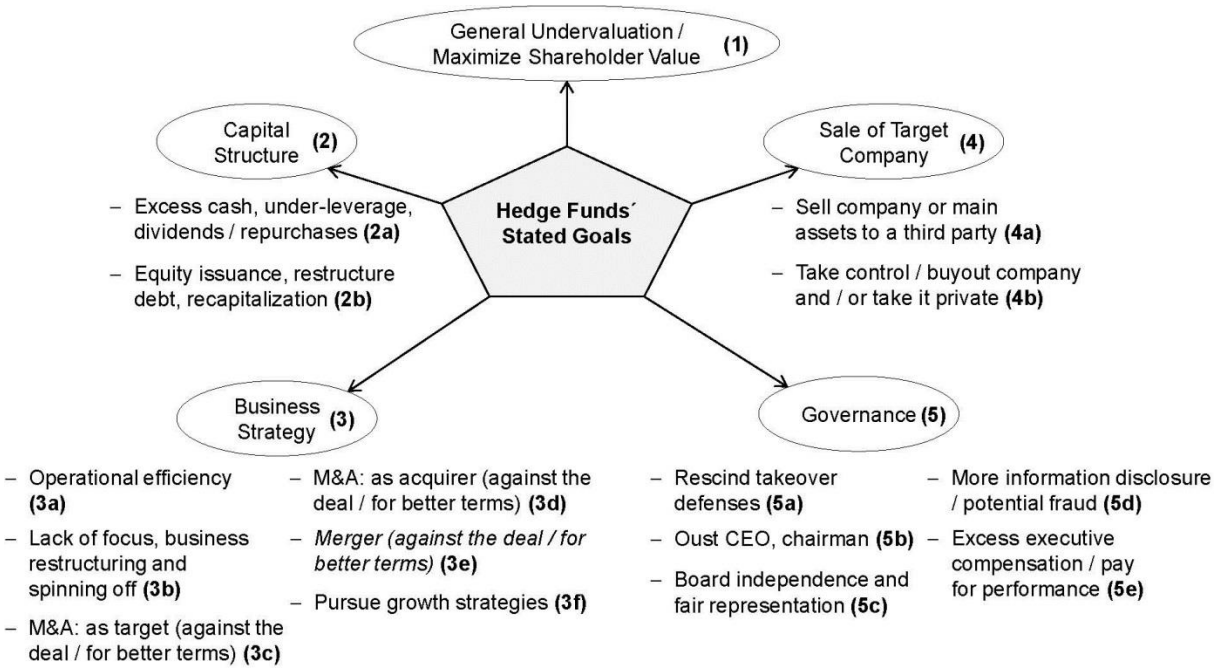
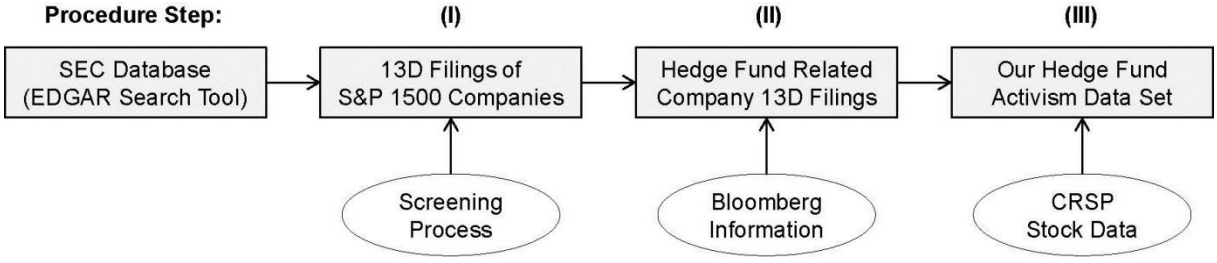
Figure 1. Objective Categories of Hedge Funds' Stated Goals Mainly Referring to Brav et al. (2008, p. 1742).



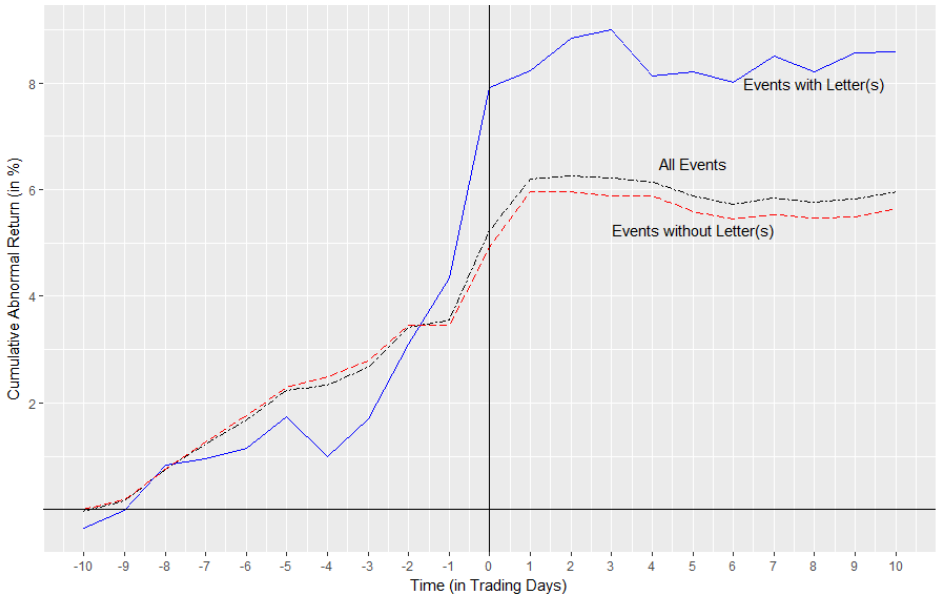
Note: This figure visualizes "*objective categories*" of "*hedge funds' stated goals*" according to Brav et al. (2008, p. 1742). The five categories split up into several subcategories for a more specific categorization. Since merger activities cannot always be clearly assigned or can also be considered as a merger between equals, we add the subcategory 'Merger (against the deal / for better terms)' (bullet 3e, printed in italics) to the main-category (3) 'Business Strategy'.

Figure 2. Procedure to Hand-Collect a Hedge Fund Activism Database.



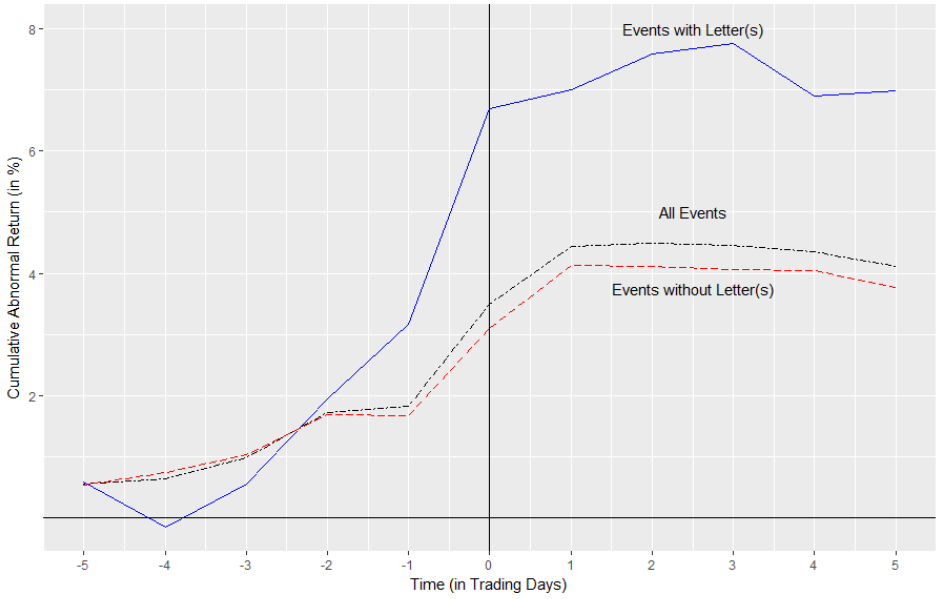
Note: This figure visualizes our procedure to hand-collect a database on U. S. hedge fund activism. We consider approximately 90 % of the U. S. market capitalization due to the selection of the S&P 1500 index in Step 1 (see S&P Dow Jones Indices LLC, 2017). Step 2 is essential since no official scheme exists to classify investors as hedge funds (Klein and Zur, 2009, p. 195). Regarding the second step, we concentrate on publicly available information from Bloomberg to ensure that most market participants would agree with our classification.

Figure 3. Average CAR [–10; +10]-Trading Days around 13 D Filing Date.



Note: This figure shows the average CAR derived from the four-factor model for (I) all events in the data set, (II) events with additional letter(s), and (III) events without additional letter(s). Within a window of 21 trading days around the publication of Schedule 13 D events with at least one letter attached experience an average CAR of 8.57 % whereas events without a letter experience 5.64 % (see in addition Table 5).

Figure 4. Average CAR [–5; +5]-Trading Days around 13 D Filing Date.



Note: This figure shows the average CAR derived from the four-factor model for (I) all events in the data set, (II) events with additional letter(s), and (III) events without additional letter(s). Within a window of eleven trading days around the publication of Schedule 13 D events with at least one letter attached experience an average CAR of 6.98 % whereas events without a letter experience 3.76 % (see in addition Table 5).

Table 1. Time Gaps between Date of Letter and Publication Day of Schedule 13 D.

Time Gap in Days	Percentage of Filings	Cumulated Percentage
0	67.74 %	67.74 %
1	16.13 %	83.87 %
2	0.00 %	83.87 %
3	0.00 %	83.87 %
4	3.23 %	87.10 %
5	0.00 %	87.10 %
6	0.00 %	87.10 %
7	0.00 %	87.10 %
More than one week	12.90 %	100.00 %

Note: This table provides information on time gaps between the date of the first letter and the publication day of Schedule 13 D, which is also the date capital markets receive the letter attached to Schedule 13 D via SEC database. The results show, for instance, that over two-thirds of the letters are dated on the SEC publication date. We provide information about the time crossed between the two dates with regards to potential information leakages before the publication of a 13 D filing.[7]

Table 2. Descriptive Statistics on the Total Number of Objective Categories Addressed by Hedge Fund Activism per Event.

	(I) All Events	(II) Events with Letter(s)	(III) Events without Letter(s)
Min	0.00	1.00	0.00
1st Quartile	0.00	3.00	0.00
Median	1.00	4.00	0.00
Mean	1.25	4.29	0.88
3rd Quartile	2.00	5.00	1.00
Max	9.00	9.00	6.00

Note: This table presents descriptive statistics on the total number of activism goals addressed by hedge fund activism per event. For instance, considering all events, maximal 9 of 16 objective categories (see Figure 1) have been addressed in a single event.

[7] In one case of our data set two letters are attached to Schedule 13 D. With regards to the purpose to reveal potential information leakages, the length of time between the first letter and the filing date is considered in the table.

Table 3. Stated Goals of Activism Depending on the Use of the Communication Channel.

Objective Category of Activism Goals[8]	(I) All Events	(II) Events with Letter(s)	(III) Events without Letter(s)	(II) – (III)
General undervaluation / maximize shareholder value (1)	45.77 %	80.65 %	41.50 %	39.14 % ***
Excess cash, under-leverage, dividends / repurchases (2a)	9.15 %	35.48 %	5.93 %	29.56 % ***
Equity issuance, restructure debt, recapitalization (2b)	2.46 %	16.13 %	0.79 %	15.34 % ***
Operational efficiency (3a)	10.92 %	58.06 %	5.14 %	52.93 % ***
Lack of focus, business restructuring and spinning off (3b)	8.80 %	41.94 %	4.74 %	37.19 % ***
M&A: as target (against the deal / for better terms) (3c)	2.11 %	9.68 %	1.19 %	8.49 % ***
M&A: as acquirer (against the deal / for better terms) (3d)	0.00 %	0.00 %	0.00 %	0.00 %
Merger (against the deal / for better terms) (3e)	1.06 %	3.23 %	0.79 %	2.44 %
Pursue growth strategies (3f)	4.23 %	25.81 %	1.58 %	24.23 % ***
Sell company or main assets to a third party (4a)	6.34 %	35.48 %	2.77 %	32.72 % ***
Take control / buyout company and / or take it private (4b)	1.06 %	3.23 %	0.79 %	2.44 %
Rescind takeover defenses (5a)	2.46 %	9.68 %	1.58 %	8.10 % ***
Oust CEO, chairman (5b)	3.87 %	25.81 %	1.19 %	24.62 % ***
Board independence and fair representation (5c)	17.61 %	51.61 %	13.44 %	38.17 % ***
More information disclosure / potential fraud (5d)	3.17 %	16.13 %	1.58 %	14.55 % ***
Excess executive compensation / pay for performance (5e)	5.99 %	16.13 %	4.74 %	11.39 % **

Note: This table provides descriptive statistics about the objective categories hedge fund activism events are related to for (I) the full data set, (II) all events with at least one letter attached, (III) events without a letter attached. For instance, activism is related to excess cash, under-leverage and/or dividends and repurchases in 9.15 % of all events and in 35.48 % of events with letter(s). In addition, the last column provides the difference between (II) and (III) as well as the results of the Mann-Whitney-Wilcoxon test if (II) is significantly different from (III). The symbols ***, ** and * denote statistical significance levels at the one, five and ten percent level, respectively. The detailed categories of activism goals are based on Brav et al. (2008, p. 1742) and can be captioned by (2) capital structure, (3) business strategy, (4) sale of target company, and (5) governance (see Figure 1).

[8] The objective categories of activism goals are mainly based on Brav et al. (2008, p. 1742). Since M&A-activities cannot always be clearly assigned or can also considered as a merger between equals we add the category 'Merger (against the deal / for better terms)' (see Figure 1).

Table 4. The Effect of Activism Goals[8] on the Likelihood that an Activism-related Letter is Attached to Schedule 13 D.

Dependent Variable: $Letter$	(I)	(II)
Intercept	–4.51 ***	–5.67 ***
	(0.68)	(1.08)
General undervaluation / maximize shareholder value (1)	–1.14	–1.61
	(0.94)	(1.06)
Excess cash, under-leverage, dividends / repurchases (2a)	0.49	1.60
	(0.94)	(1.12)
Equity issuance, restructure debt, recapitalization (2b)	2.18	3.92 **
	(1.38)	(1.75)
Operational efficiency (3a)	4.10 ***	5.07 ***
	(1.06)	(1.32)
Lack of focus, business restructuring and spinning off (3b)	1.54 *	1.48
	(0.92)	(1.02)
M&A: as target (against the deal / for better terms) (3c)	4.27 ***	3.89 ***
	(1.20)	(1.29)
Merger (against the deal / for better terms) (3e)	2.97 *	3.33 *
	(1.67)	(1.88)
Pursue growth strategies (3f)	0.23	–0.16
	(1.07)	(1.21)
Sell company or main assets to a third party (4a)	2.33 **	2.24 *
	(1.02)	(1.14)
Take control / buyout company and / or take it private (4b)	4.14 ***	3.74 **
	(1.42)	(1.50)
Rescind takeover defenses (5a)	0.92	2.10
	(1.47)	(1.81)
Oust CEO, chairman (5b)	2.80 **	2.76 **
	(1.20)	(1.39)
Board independence and fair representation (5c)	1.75 **	1.68 *
	(0.80)	(0.90)
More information disclosure / potential fraud (5d)	0.94	0.44
	(1.09)	(1.19)
Excess executive compensation / pay for performance (5e)	–3.12 **	–3.99 **
	(1.36)	(1.76)
SIC Division Dummies	no	yes
McFadden's pseudo R^2	0.60	0.64
AIC	110.42	118.88
N	284	284

Note: This table provides regression coefficients and in parentheses the standard errors of binomial logit regression analysis described in Section 3. The symbols ***, ** and * denote statistical significance levels at the one, five and ten percent level. Checking Variance Inflation Factors no indication for multicollinearity exists (VIF < 5). The dependent variable $Letter$ is a dummy variable which turns one when at least one letter is published in addition to Schedule 13 D, and zero otherwise. The variables for the activism goals are mainly based on Brav et al. (2008) (see Figure 1 and Table 3). Dummy variables for the SIC divisions are included in model (II) to fix industry effects.

Table 5. Average CAR around 13 D Filing Date.

	(I) All Events	(II) Events with Letter(s)	(III) Events without Letter(s)	(II) – (III)
Average AR [0]	1.63 % ***	3.42 % ***	1.41 % ***	1.98 % ***
Average CAR [−1; +1]	2.68 % ***	4.97 % ***	2.40 % ***	2.50 % ***
Average CAR [−2; +2]	3.48 % ***	7.02 % ***	3.05 % ***	3.85 % ***
Average CAR [−3; +3]	3.79 % ***	7.92 % ***	3.29 % ***	4.48 % ***
Average CAR [−4; +4]	3.99 % ***	6.34 % ***	3.71 % ***	2.54 % **
Average CAR [−5; +5]	4.11 % ***	6.98 % ***	3.76 % ***	3.10 % *
Average CAR [−6; +6]	4.42 % ***	6.99 % ***	4.11 % ***	2.76 %
Average CAR [−7; +7]	5.03 % ***	7.56 % ***	4.72 % ***	2.71 %
Average CAR [−8; +8]	5.58 % ***	8.33 % ***	5.25 % ***	2.93 %
Average CAR [−9; +9]	5.85 % ***	8.99 % ***	5.47 % ***	3.33 %
Average CAR [−10; +10]	5.96 % ***	8.57 % ***	5.64 % ***	2.77 %
Average CAR [0; +1]	2.56 % ***	3.72 % ***	2.42 % ***	1.27 % **
Average CAR [0; +2]	2.60 % ***	4.30 % ***	2.39 % ***	1.86 % **
Average CAR [0; +3]	2.57 % ***	4.46 % ***	2.34 % ***	2.07 % ***
Average CAR [0; +4]	2.47 % ***	3.64 % ***	2.33 % ***	1.27 % **
Average CAR [0; +5]	2.23 % ***	3.70 % ***	2.05 % ***	1.62 % **
Average CAR [0; +6]	2.32 % ***	3.51 % ***	2.18 % ***	1.30 % **
Average CAR [0; +7]	2.38 % ***	3.93 % ***	2.19 % ***	1.70 % **
Average CAR [0; +8]	2.31 % ***	3.64 % ***	2.15 % ***	1.46 % *
Average CAR [0; +9]	2.35 % ***	3.98 % ***	2.16 % ***	1.79 % *
Average CAR [0; +10]	2.49 % ***	4.00 % ***	2.31 % ***	1.65 % *

Note: This table provides descriptive statistics about average four factor abnormal returns on the publication day of Schedule 13 D for (I) all events in the data set, (II) events with additional letter(s), and (III) events without additional letter(s). Furthermore, the average CAR around the publication of Schedule 13 D are reported for various time frames. Thereby, the specifications in brackets denote the time frames in trading days around the events. For (I), (II) and (III) we report results of the one-sample, two-sided Wilcoxon test, if results are significantly different from zero. In addition, the last column provides the difference between (II) and (III) as well as the results of the Mann-Whitney-Wilcoxon test if (II) is significantly different from (III). In all columns the symbols ***, ** and * denote statistical significance levels at the one, five and ten percent level, respectively.

Table 6. Standard Industry Classification Divisions of the Target Companies.

Division	(I) All Events	(II) Events with Letter(s)	(III) Events without Letter(s)
A: Agriculture, Forestry, and Fishing	0 (0.00 %)	0 (0.00 %)	0 (0.00 %)
B: Mining	14 (4.93 %)	3 (9.68 %)	11 (4.35 %)
C: Construction	1 (0.35 %)	0 (0.00 %)	1 (0.40 %)
D: Manufacturing	122 (42.96 %)	10 (32.26 %)	112 (44.27 %)
E: Transportation, Communications, Electric, Gas, and Sanitary Services	17 (5.99 %)	1 (3.23 %)	16 (6.32 %)
F: Wholesale Trade	5 (1.76 %)	0 (0.00 %)	5 (1.98 %)
G: Retail Trade	34 (11.97 %)	5 (16.13 %)	29 (11.46 %)
H: Finance, Insurance, and Real Estate	23 (8.10 %)	3 (9.68 %)	20 (7.91 %)
I: Services	66 (23.24 %)	9 (29.03 %)	57 (22.53 %)
J: Public Administration	0 (0.00 %)	0 (0.00 %)	0 (0.00 %)
Nonclassifiable	2 (0.70 %)	0 (0.00 %)	2 (0.79 %)
	N = 284	N = 31	N = 253

Note: The table provides information about the SIC divisions the target companies are related to in absolute numbers as well as the proportions in brackets. The information is provided for (I) all events in the data set, (II) events with additional letter(s), and (III) events without additional letter(s). For instance, 3 of 31 (9.68 %) events with letter(s) refer to division B.

Table 7. OLS Regressions of Letter Attachment on Abnormal Returns.

	(I)	(II)	(III)	(IV)	(V)	(VI)
Intercept	1.49 ***	2.79 ***	1.36 ***	2.65 ***	0.76 **	1.62 **
	(5.58)	(4.43)	(3.58)	(3.81)	(2.22)	(2.04)
$Letter$	2.00 **	2.32 **	1.72 **	1.91 *	0.73	0.83
	(2.47)	(2.22)	(2.17)	(1.86)	(0.62)	(0.66)
w^{MW}		–0.38 **		–0.37 **		–0.24
		(–2.21)		(–2.20)		(–1.33)
TWN		0.00		0.00		0.00
		(0.86)		(1.03)		(0.16)
General undervaluation / maximize shareholder value (1)					1.16 **	0.84
					(2.04)	(1.45)
Excess cash, under-leverage, dividends / repurchases (2a)					–0.04	0.16
					(–0.04)	(0.15)
Equity issuance, restructure debt, recapitalization (2b)					–2.90	–3.42 *
					(–1.61)	(–1.91)
Operational efficiency (3a)					2.22 *	2.13 *
					(1.93)	(1.86)
Lack of focus, business restructuring and spinning off (3b)					–0.25	0.00
					(–0.23)	(0.00)
M&A: as target (against the deal / for better terms) (3c)					0.07	–0.59
					(0.04)	(–0.33)
Merger (against the deal / for better terms) (3e)					–0.58	0.57
					(–0.23)	(0.22)
Pursue growth strategies (3f)					–1.07	–0.72
					(–0.71)	(–0.48)
Sell company or main assets to a third party (4a)					0.03	0.31
					(0.03)	(0.25)
Take control / buyout company and / or take it private (4b)					2.43	1.72
					(0.99)	(0.70)
Rescind takeover defenses (5a)					1.49	1.89
					(0.73)	(0.93)
Oust CEO, chairman (5b)					–1.01	–0.58
					(–0.64)	(–0.37)
Board independence and fair representation (5c)					1.74 **	1.61 **
					(2.22)	(2.11)
More information disclosure / potential fraud (5d)					0.34	0.60
					(0.21)	(0.34)
Excess executive compensation / pay for performance (5e)					–1.73	–2.28 *
					(–1.34)	(–1.77)
SIC Division Dummies	no	no	yes	yes	no	yes
Multiple R^2	0.02	0.04	0.10	0.12	0.11	0.19
Adjusted R^2	0.02	0.03	0.07	0.08	0.05	0.11
N	284	284	284	284	284	284

Note: This table provides regression coefficients of linear regression analysis employing Equation (3). Abnormal returns on the filing day of Schedule 13 D (t_0) are denoted as simple returns. The dependent variable $Letter$ is a dummy variable which turns one when at least one letter is published in addition to Schedule 13 D, and zero otherwise. The variable w^{MW} comprises the value calculated via textual analysis for Item 4 of Schedule 13 D (purpose of transaction) and the content of the letters attached to Schedule 13 D. The control variables for the activism goals are mainly based on Brav et al. (2008) (see Figure 1). Dummy variables for the SIC divisions are included to fix industry effects. The symbols ***, ** and * denote statistical significance levels at the one, five and ten percent level. According to Variance Inflation Factors, no indication for multicollinearity exists (VIF < 5).

Table 8. OLS Regressions of Letter Attachment on CAR Following the Publication of Schedule 13 D.

Dependent Variable:	CAR[0;+1]	CAR[0;+2]	CAR[0;+3]	CAR[0;+4]	CAR[0;+5]	CAR[0;+6]	CAR[0;+7]
Intercept	3.28 ***	3.59 ***	3.52 ***	3.40 ***	3.27 ***	4.41 ***	3.48 **
	(3.68)	(3.25)	(3.02)	(2.95)	(2.73)	(3.36)	(2.58)
$Letter$	1.20	2.08	2.68	2.35	1.67	2.15	2.38
	(0.84)	(1.19)	(1.45)	(1.29)	(0.88)	(1.03)	(1.08)
w^{MW}	–0.51 **	–0.56 **	–0.53 **	–0.63 **	–0.75 ***	–1.07 ***	–0.96 ***
	(–2.58)	(–2.28)	(–2.04)	(–2.43)	(–2.82)	(–3.63)	(–3.18)
TWN	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	(0.16)	(0.54)	(0.41)	(0.78)	(1.35)	(1.56)	(1.50)
General undervaluation / maximize shareholder value (1)	2.17 ***	1.82 **	2.16 **	2.64 ***	2.97 ***	2.84 ***	3.70 ***
	(3.33)	(2.26)	(2.55)	(3.15)	(3.40)	(2.97)	(3.73)
Excess cash, under-leverage, dividends / repurchases (2a)	–0.34	–0.60	0.11	–0.26	–0.18	0.10	–0.53
	(–0.29)	(–0.41)	(0.07)	(–0.17)	(–0.11)	(0.06)	(–0.30)
Equity issuance, restructure debt, recapitalization (2b)	–5.95 ***	–5.76 **	–6.45 **	–7.94 ***	–5.11 *	–6.08 **	–7.39 **
	(–2.95)	(–2.32)	(–2.46)	(–3.06)	(–1.89)	(–2.06)	(–2.43)
Operational efficiency (3a)	0.99	1.02	0.04	–0.69	–1.47	–1.82	–1.93
	(0.77)	(0.64)	(0.03)	(–0.42)	(–0.85)	(–0.97)	(–0.99)
Lack of focus, business restructuring and spinning off (3b)	–0.54	–0.50	–1.29	–1.46	–1.50	–1.46	–1.28
	(–0.45)	(–0.34)	(–0.83)	(–0.95)	(–0.94)	(–0.84)	(–0.71)
M&A: as target (against the deal / for better terms) (3c)	–1.10	–1.45	–1.80	–2.01	–1.60	–2.23	–3.45
	(–0.55)	(–0.58)	(–0.68)	(–0.77)	(–0.59)	(–0.75)	(–1.04)
Merger (against the deal / for better terms) (3e)	1.64	0.75	3.58	2.26	–0.24	–2.56	–3.24
	(0.57)	(0.21)	(0.95)	(0.61)	(–0.06)	(–0.60)	(–0.74)
Pursue growth strategies (3f)	–0.26	–1.62	–0.32	0.59	1.25	0.67	1.06
	(–0.16)	(–0.77)	(–0.14)	(0.27)	(0.55)	(0.27)	(0.42)
Sell company or main assets to a third party (4a)	–0.52	–0.94	–0.15	–0.49	–0.25	–1.34	–2.29
	(–0.38)	(–0.56)	(–0.09)	(–0.28)	(–0.14)	(–0.67)	(–1.10)
Take control / buyout company and / or take it private (4b)	1.60	1.97	1.35	0.28	–0.68	–0.85	–0.85
	(0.58)	(0.58)	(0.38)	(0.08)	(–0.18)	(–0.21)	(–0.20)
Rescind takeover defenses (5a)	3.51	5.40 *	3.67	4.33	2.64	5.86 *	6.00 *
	(1.54)	(1.92)	(1.24)	(1.47)	(0.86)	(1.75)	(1.74)
Oust CEO, chairman (5b)	2.67	2.89	2.37	1.75	2.24	1.23	1.49
	(1.54)	(1.34)	(1. 05)	(0.78)	(0.96)	(0.48)	(0.57)
Board independence and fair representation (5c)	0.94	1.17	0.96	0.99	1.21	1.45	1.71
	(1.10)	(1.10)	(0.86)	(0.89)	(1.05)	(1.15)	(1.31)
More information disclosure / potential fraud (5d)	2.04	0.34	0.26	0.76	1.34	2.75	2.51
	(1.04)	(0.14)	(0.10)	(0.30)	(0.51)	(0.96)	(0.85)
Excess executive compensation / pay for performance (5e)	–3.04 **	–3.84 **	–3.55 *	–4.21 **	–5.03 **	–4.24 **	–4.47 **
	(–2.09)	(–2.14)	(–1.88)	(–2.25)	(–2.58)	(–1.99)	(–2.03)
SIC Division Dummies	yes	yes	yes	yes	yes	yes	yes
Multiple R^2	0.26	0.19	0.19	0.22	0.20	0.22	0.25
Adjusted R^2	0.18	0.11	0.11	0.14	0.12	0.14	0.18
N	284	283	283	283	283	281	278

Note: This table extends the results of Table 7 and provides regression coefficients of linear regression analysis employing Equation (3). The dependent variable contains the CAR, denoted as simple returns, on the filing day of Schedule 13 D (t_0) up to seven trading days afterwards. The independent variable $Letter$ is a dummy variable which turns one when at least one letter is published in addition to Schedule 13 D, and zero otherwise. The variable w^{MW} comprises the value calculated via textual analysis for Item 4 of Schedule 13 D (purpose of transaction) and the content of the letters attached to Schedule 13 D. The variables of the activism goals are mainly based on Brav et al. (2008) (see Figure 1). Dummy variables for the SIC divisions are included to fix industry effects. The symbols ***, ** and * denote statistical significance levels at the one, five and ten percent level. According to Variance Inflation Factors, no indication for multicollinearity exists (VIF < 5).

Table 9. OLS Regressions of Letter Attachment on CAR Considering the Possibility of Information Leakages.

Dependent Variable:	CAR[–1;+1]	CAR[–2;+2]	CAR[–3;+3]	CAR[–4;+4]	CAR[–10;+10]
Intercept	2.51 **	2.89 *	2.29	2.04	3.21
	(2.31)	(1.70)	(1.28)	(1.08)	(1.12)
$Letter$	2.92 *	5.63 **	5.75 **	5.08 *	2.38
	(1.69)	(2.09)	(2.04)	(1.69)	(0.51)
w^{MW}	–0.39	– 0.42	–0.17	–0.32	–0.10
	(–1.63)	(–1.10)	(–0.44)	–0.77	(–0.16)
TWN	0.00	0.00	0.00	0.00	0.00
	(0.07)	(0.41)	(0.31)	(0.95)	(0.51)
General undervaluation / maximize shareholder value (1)	3.65 ***	4.68 ***	5.21 ***	6.22 ***	6.32 ***
	(4.60)	(3.78)	(4.01)	(4.51)	(3.01)
Excess cash, under-leverage, dividends / repurchases (2a)	–1.42	–2.42	–1.60	–2.84	–3.22
	(–0.98)	(–1.07)	(–0.68)	(–1.13)	(–0.85)
Equity issuance, restructure debt, recapitalization (2b)	–2.44	–2.79	–5.52	–5.49	–8.98
	(–0.99)	(–0.73)	(–1.38)	(–1.29)	(–1.40)
Operational efficiency (3a)	–3.14 **	–3.87	–2.91	–6.45 **	–3.96
	(–2.01)	(–1.59)	(–1.14)	(–2.37)	(–0.96)
Lack of focus, business restructuring and spinning off (3b)	0.71	–0.52	–2.06	–1.41	1.09
	(0.49)	(–0.23)	(–0.87)	(–0.56)	(0.29)
M&A: as target (against the deal / for better terms) (3c)	–2.74	–4.68	–6.13	–6.40	1.54
	(–1.11)	(–1.22)	(–1.52)	(–1.50)	(0.22)
Merger (against the deal / for better terms) (3e)	–1.24	–2.24	2.46	–2.25	–6.25
	(–0.35)	(–0.41)	(0.43)	(–0.37)	(–0.67)
Pursue growth strategies (3f)	0.88	0.12	0.64	2.87	0.42
	(0.43)	(0.04)	(0.19)	(0.80)	(0.08)
Sell company or main assets to a third party (4a)	–0.25	–0.93	–0.23	–0.63	–3.36
	(–0.15)	(–0.36)	(–0.08)	(–0.22)	(–0.76)
Take control / buyout company and / or take it private (4b)	1.66	–0.14	5.52	5.07	7.12
	(0.49)	(–0.03)	(1.01)	(0.87)	(0.81)
Rescind takeover defenses (5a)	2.39	6.25	4.15	7.61	15.08 **
	(0.86)	(1.44)	(0.91)	(1.58)	(2.07)
Oust CEO, chairman (5b)	1.74	0.02	–0.69	–5.47	–3.58
	(0.82)	(0.01)	(–0.20)	(–1.49)	(–0.64)
Board independence and fair representation (5c)	1.33	0.39	–0.14	–0.24	0.50
	(1.27)	(0.24)	(–0.08)	(–0.13)	(0.18)
More information disclosure / potential fraud (5d)	2.98	0.36	2.61	3.78	6.92
	(1.25)	(0.10)	(0.67)	(0.91)	(1.11)
Excess executive compensation / pay for performance (5e)	–1.49	–0.90	–1.42	–1.50	–1.86
	(–0.84)	(–0.32)	(–0.49)	(–0.49)	(–0.40)
SIC Division Dummies	yes	yes	yes	yes	yes
Multiple R^2	0.22	0.16	0.17	0.18	0.12
Adjusted R^2	0.14	0.07	0.09	0.10	0.03
N	284	283	283	283	277

Note: This table extends the results of Table 7 and provides regression coefficients of linear regression analysis employing Equation (3). The dependent variable contains the CAR, denoted as simple returns, regarding trading days surrounding the filing day of Schedule 13 D (t_0). The independent variable $Letter$ is a dummy variable which turns one when at least one letter is published in addition to Schedule 13 D, and zero otherwise. The variable w^{MW} comprises the value calculated via textual analysis for Item 4 of Schedule 13 D (purpose of transaction) and the content of the letters attached to Schedule 13 D. The variables of the activism goals are mainly based on Brav et al. (2008) (see Figure 1). Dummy variables for the SIC divisions are included to fix industry effects. The symbols ***, ** and * denote statistical significance levels at the one, five and ten percent level. According to Variance Inflation Factors, no indication for multicollinearity exists (VIF < 5).