

The Impact of Hedge Fund Activism on the Target Firm's CDS and Bond Yield Spreads

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Preliminary draft

Abstract

We document positive abnormal CDS spread growth in the year prior to an activist hedge fund intervention, an additional abnormal increase in CDS spreads at the time of intervention, and no reversion in the subsequent year. Credit spreads of targets of confrontational activism tend to increase more prior to the intervention than those of targets of non-confrontational activism. After the intervention, abnormal CDS growth continues for confrontational interventions but levels off for non-confrontational interventions. Abnormal corporate bond yield spreads tend to be positive in the two-year period around hedge fund interventions. Abnormal yield spreads are particularly high one year after confrontational interventions, partially due to an increase in their non-credit component and perhaps indicating an abnormal reduction in bond liquidity.

JEL Classifications: G14, G24, G30

Keywords: Hedge fund activism; CDS spreads; Corporate bond yield spreads

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Hedge fund activism has emerged as a new form of corporate governance since the early 2000s. The literature generally agrees that hedge fund activism generates shareholder value.¹ Abnormal short-term stock returns around the announcement are positive and significant, with no reversal during the subsequent year. Opponents to hedge fund activism, however, express the concern that shareholders may gain as a result of wealth transfer from other stakeholders rather than value creation.

This paper relates to the small but growing literature that analyzes the effects of hedge fund activism on an important group of other stakeholders, namely creditors. Based on existing studies, the effect of hedge fund activism on existing bondholders is mixed, with no clear positive or negative direction for the average impact. Moreover, the outcome appears to be heterogeneous largely depending on the activists' objectives.

We contribute to the existing literature by decomposing corporate bond yield spreads into the fraction that compensates investors for credit risk (i.e., the credit component) and a residual yield spread (i.e., the non-credit component), and by quantifying the effect of hedge fund activism on each component. We measure the credit component of corporate bond yield spreads using credit default swap (CDS) data. Relative to the level of CDS spreads one year prior to the intervention, we find a positive abnormal growth of the target firm's credit spreads over the next twelve months, an additional abnormal increase in credit spreads at the time of intervention, and no reversion in the subsequent year.

We also show that the abnormal non-credit component of the target firm's corporate bond yield spreads tends to be positive in the two-year period around hedge fund interventions. Interestingly, it is particularly large one year after the intervention, perhaps indicating an abnormal decrease in the liquidity of the target firm's existing debt following the intervention.

We collect data on the stated purpose of the hedge fund's intervention and classify hedge fund activism (HFA) as either confrontational (i.e., when the hedge fund seeks control of the target or is in conflict with the target's management) or non-confrontational. We show that credit spreads, when measured relative to their pre-intervention levels, tend to increase more over the twelve months leading up to the HFA event for targets of confrontational activism than for targets of non-confrontational activism. After the intervention, abnormal CDS growth continues, although at a slower pace, for confrontational HFA events but levels off for non-confrontational events. While an

¹For a comprehensive review of the literature, see Brav, Kim, and Jiang (2015).

abnormal increase in the non-credit component of HFA targets following interventions is observed for both types of activism, it is more pronounced for confrontational than non-confrontational activism.

Our sample includes all public U.S. firms with CDS market coverage during the period from 2001 to 2015. We use Mergent FISD and TRACE corporate bond origination and pricing data and Markit CDS quotes. Information on shareholder activism is collected from Audit Analytics.

The remainder of the paper is structured as follows. Section 1 reviews the literature and Section 2 describes the various data sources used in this study. In Sections 3 and 4, we investigate the impact of hedge fund activism on the credit and non-credit component of corporate bond yield spreads. Section 5 concludes.

1. Literature Review

This paper relates to the literatures of hedge fund activism and its impact on existing creditors, as well as to announcement event studies in CDS and corporate bond markets.

1.1. *The effect of hedge fund activism on creditors*

Brav, Jiang, and Kim (2009) and Brav, Kim, and Jiang (2015) survey the literature on hedge fund activism. They report that evidence in the literature indicates that hedge fund activism is successful in creating value for shareholders of the target companies. The short-term average abnormal returns around the announcement of the intervention of hedge funds are significantly positive across studies, on the order of 5-10%. Post-event long-run returns up to multiple years show no reversion, indicating that the market's initial perception about value creation is justified. The authors find that target firms tend to be low-growth firms but significantly more profitable than comparable firms, in terms of annual sales growth and return on assets. This evidence is important as it sets apart hedge fund activism from earlier institutional activism targeting poorly performing companies.

A common concern is whether the shareholders' gain could be a result of wealth transfer from creditors rather than value creation. Brav, Jiang, and Kim (2009) argue that the expropriation of debt holders is unlikely to be a significant source of shareholder gains. They show that the overall credit worthiness of the targeted firms measured by Z-score improves in years after the intervention compared to the year prior to the event, but that the changes are not statistically significant.

The authors shows that the targets experience improvements in the distance to default from the event year to two years after the event. Moreover, the differences between the post-event years and the year prior to activism are highly significant. Overall, their results suggest that the credit worthiness of debt claims issued by the target companies improves after the intervention of activist hedge funds.

In contrast, Klein and Zur (2009) document that one year after the intervention, target companies increase leverage. Clifford (2008) provides additional evidence that firms targeted by activist hedge funds experience increases in leverage. Moreover, Klein and Zur (2011) find that hedge fund activism significantly reduces bondholders' wealth. In their study, average excess bond return is -3.9% around the initial 13D filing, and is an additional -4.5% over the remaining year. Excess bond returns are related inversely to subsequent changes in cash and assets and directly to changes in total debt. Confrontational campaigns and the acquisition of at least one seat on the target's board elicit more negative bond returns. The authors argue that there is expropriation of wealth from the existing bondholder to the shareholder.

Aslan and Maraachlian (2009) provide additional evidence on the wealth effect of hedge fund activism on debt holders of target firms. They show that the bonds of target firms earn significantly positive abnormal returns around the announcement of activism. However, they find that the target bonds significantly underperform their benchmark from the year after the activism by 3-5% per year. Moreover, the target firms have a higher likelihood of downgrading in their credit ratings compared to their peer firms. This negative wealth effect on bondholders is more pronounced for bonds that have weak covenant protection or investment restrictions. Nonetheless, the authors conclude that combining the positive short-term and negative long-term effects of hedge fund activism on creditors' wealth, the net effect does not appear to be a significant source of gains for shareholders.

Using data on bank loans, Sunder, Sunder, and Wongsunwai (2014) and Li and Xu (2010) find that loan spreads increase following interventions in which hedge fund activists intend to make capital structure changes to the target firm. But both studies also show that hedge fund activism may decrease the cost of debt in cases where activists serve a monitoring function. In that sense, the results on bank loans show that there are changes in the targets loan spreads, but that these changes can be positive or negative.

Jiang, Li, and Wang (2012) analyze a sample of firms in Chapter 11 and find that hedge fund activism balances the power of senior creditors relative to management, and tends to be associated

with better outcomes for junior creditors in terms of higher probability of emergence and better recovery.

In summary, Brav, Kim, and Jiang (2015) acknowledge that the effect of hedge fund intervention on creditors is mixed with a close-to-neutral average impact. As they point out, the heterogeneous outcome appear to depend largely on the objectives of activists. This paper offers additional insights into the impact of hedge fund activism on creditors by disentangling the effect on the credit and the liquidity component of corporate bond yield spreads.

1.2. Credit market event studies

There is a broad literature on credit market event studies. See, for example, Norden and Weber (2004), Blanco, Brennan, and Marsh (2005), Longstaff, Mithal, and Neis (2005), Acharya and Johnson (2007), Buraschi, Trojani, and Vedolin (2007), Cremers, Driessen, Maenhout, and Weinbaum (2008), Hilscher (2008), Norden and Weber (2009), Cao, Yu, and Zhong (2010), Berndt and Ostrovnaya (2014), and the references cited therein. Many of these studies focus on the credit spread changes and bond returns around firm-specific announcements such as rating changes, earnings forecasts, merger and acquisitions, and LBO events.

Recently, Pan, Wang, and Weisbach (2016) show that CDS, loan spreads and bond yield spreads all increase at the time of CEO turnover, and that they decline over the first three years of CEO tenure, regardless of the reason for the turnover. A similar pattern but of smaller magnitude occurs around CFO turnovers.

2. Data

This section describes the data used in the study.

2.1. CDS data

We identify all public U.S. firms with Markit CDS quotes between 2001 and 2015. We only retain firms whose identifiers can be matched unambiguously across Markit, Compustat and CRSP. We focus on U.S.-dollar-denominated CDS contracts on senior-unsecured debt without restructuring and exclude firm-date pairs with missing five-year CDS quotes.² The restriction on CDS contracts for which default is triggered by bankruptcy or a missed payment but not by restructuring events

²Since the Big Bang protocol in April 2009, restructuring events are excluded from the default definition for standard CDS contracts. Prior to that, CDS traded with restructuring and without.

keeps the degree of heterogeneity over the definition of a default event to a minimum, and ensures that there is less recovery-value heterogeneity. Indeed, both bankruptcy or failure to pay normally trigger cross-acceleration covenants that cause debt of equal seniority to convert to immediate obligations that are *pari passu*, that is, of equal legal priority (see, for example, Berndt, Jarrow, and Kang (2007)). The cleaned sample includes 925 firms in ten industry sectors.

The firms' distribution across sectors may be judged from Table 1, which indicates that more than half of the firms are concentrated in the Consumer Goods, Consumer Services, Financials and Industrials sectors. Table 1 also reports the distribution of credit quality, as measured by Standard & Poor's senior-unsecured issuer rating, across all firms and within sectors. While the majority of firms are of medium credit quality, Financials firms tend to have a rating of BBB or above whereas Basic Materials, Energy and Telecommunications Services companies tend to have a rating of BBB or below.

The CDS spreads provided by Markit are composite quotes. They are computed based on quotes obtained by two or more anonymous sources, including investment banks and default swap brokers. The number of contributors ranges from two to 27, with a mean and median composite depth of seven. The left panel of Table 2 reports the number of public U.S. firms with Markit CDS coverage each year. It shows that CDS coverage widened from 150 firms in 2001 to nearly 700 firms in 2007 before contracting to about 500 firms in 2015.

Credit spreads vary across firms and over time. Figure 1 reveals that median spreads are substantially higher during the credit crunch of 2001-02 and 2007-09 than during the years in between.

2.2. Corporate bond data

We use Mergent FISD as the source for corporate bond origination data and Mergent FISD (before July 2002) and TRACE (after July 2002) as the source for bond price data. Bond data is linked to Markit, Compustat and CRSP data via six-digit issuer cusip. Raw TRACE data is cleaned following the three-step approach described in Dick-Nielsen (2009), and details are provided in Table A.1 in the appendix. The total daily trading volume for a given bond is computed across all intra-day transactions for that issue. As in Bessembinder, Kahle, Maxwell, and Xu (2009), daily bond prices are computed as volume-weighted averages across intra-day transactions of \$100,000

Table 1: **Distribution of firms across sectors and by credit quality** Panel A reports reports the distribution of firms across sectors and by median S&P senior unsecured issuer ratings. The data include 925 public U.S. firms and cover the period from 2001 to 2015. Panel B reports the distribution of firms across sectors and S&P senior unsecured issuer ratings for firms with hedge fund activism events, where sectors and ratings are observed at the event time.

<i>Panel A: Across all firms and dates</i>										
Sector	AAA	AA	A	BBB	BB	B	CCC -CC	D/ SD	NR	All
Basic Materials	0	0	8	30	14	10	0	0	0	62
Consumer Goods	0	3	25	49	30	25	2	0	0	134
Consumer Services	0	2	15	44	49	29	7	0	2	148
Energy	1	1	9	33	32	11	2	0	1	90
Financials	2	5	51	67	8	8	1	0	3	145
Healthcare	1	7	18	23	11	10	0	0	3	73
Industrials	1	3	22	41	29	13	2	0	2	113
Technology	1	2	14	16	22	9	0	0	7	71
Telecommunications Services	0	0	4	7	6	11	1	0	1	30
Utilities	0	1	9	40	4	4	0	1	0	59
Other	0	0	0	0	0	0	0	0	0	0
All	6	24	175	350	205	130	15	1	19	925

<i>Panel B: Across HFA events</i>										
Sector	AAA	AA	A	BBB	BB	B	CCC -CC	D/ SD	NR	All
Basic Materials	0	0	1	8	6	3	0	0	0	18
Consumer Goods	0	0	2	12	11	8	0	0	0	33
Consumer Services	0	0	2	12	21	26	7	0	1	69
Energy	0	0	1	4	11	1	0	0	0	17
Financials	0	0	2	14	3	3	0	0	3	25
Healthcare	0	0	5	6	4	3	0	0	5	23
Industrials	0	0	3	18	10	3	3	0	1	38
Technology	0	0	2	7	5	4	0	0	7	25
Telecommunications Services	0	0	3	1	2	4	0	0	0	10
Utilities	0	0	0	1	1	6	0	2	0	10
Other	0	0	0	0	1	0	0	0	0	1
Total	0	0	21	83	75	61	10	2	17	269

or more, after eliminating price quotes below \$25 or above \$150.³

Bond yields are computed for the subset of bonds that are denominated in U.S. dollars, are not in default and not Canadian, have a fixed coupon rate and a Mergent FISD bond type of corporate debt (CDEB) or corporate medium term note (CMTN), are non-putable and non-exchangeable and have no sinking fund provisions. Bonds may have early redemption features, but only in the form of make-whole provisions.

The first column in the right panel of Table 2 shows that for the majority of the firms with

³Note that the volume data in TRACE is capped at \$1 million per transaction for high-yield bonds and \$5 million for investment-grade bonds, and that as a result volume-weighted bond prices are biased towards prices for smaller transactions.

Table 2: **Number of public U.S. firms with CDS coverage and CDS and bond price coverage** Column 1 of the table reports the number of public U.S. firms with Markit CDS coverage each year. Columns 2 and 3 report the number of hedge fund target firms and interventions with CDS coverage each year. Columns 4 through 6 display similar statistics for firms with CDS and bond price data.

Year	CDS data firms	CDS & HFA firms	events	CDS + bond firms	CDS + bond & HFA firms	events
2001	150	0	0	124	0	0
2002	354	2	2	256	0	0
2003	456	4	4	269	1	1
2004	574	10	11	373	1	1
2005	638	28	33	435	8	11
2006	673	28	30	459	7	7
2007	687	27	31	472	8	9
2008	653	31	36	436	10	11
2009	634	8	8	461	4	0
2010	612	14	16	462	4	5
2011	595	18	19	470	6	7
2012	571	16	20	463	8	12
2013	539	20	25	441	12	14
2014	536	15	16	435	10	11
2015	509	16	18	412	10	10
Total	925	188	269	722	76	99



Figure 1: **Median CDS spreads** The figure shows the daily times series of median 5-year CDS spreads. The data include 925 firms and cover the period from 2001 to 2015. Only days for which CDS quotes are available for 30 or more firms are shown.

CDS coverage, cleaned bond price data are available, at least sporadically. The second and third columns reveal however that the number of hedge fund interventions for which both CDS and bond price data are available at the time of the intervention is substantially lower than when bond price data are not required.

2.3. *Hedge fund activism*

Section 13(d) of the 1934 Securities Exchange Act requires investors who are beneficial owners of over 5% of any class of publicly traded securities of a company, and who have an intention to influence corporate control, to disclose their ownership and intent within ten days of crossing the 5% threshold.⁴ The Schedule 13D filing provides information about the identity of the filer, filing date, ownership and its changes, cost of purchase, and the purpose of the investment (in Item 4 Purpose of Transaction).

We obtain all 13D filings between 2001 and 2015 from AuditAnalytics, and identify hedge fund filers based on their names.⁵ Table 2 shows that there are 269 filings for 188 target firms in our sample. We observe a concentration of hedge fund activity in 2005 to 2008. Hedge fund activism slowed down in 2009 following the Great Recession but has rebounded since. Table 1 reveals that the distribution of median credit ratings for hedge fund target firms is biased towards lower ratings when compared to the whole sample. It is important to point out however that there are medium-credit-quality target firms as well as speculative-grade target firms, even though the study of Klein and Zur (2011) focuses on the latter.

Audit Analytics classifies the matter disclosed in Item 4 “Purpose of Transaction” in the 13D filings and their amendments into six categories: agreements, concerns, control, discussion, dispute and support. Control issues include causing a change in management, intent to acquire control of the company, intent to change or nominate the board of directors, intent to control the board of directors, or intent to maintain control. Disputes include allegations that management is misleading, disagreements with management actions or strategy, disputes with management, and litigation. We refer to interventions that involve control issues or disputes as confrontational interventions, and all other interventions as non-confrontational interventions.

Table 3 reports the distribution of the transaction purpose across hedge fund interventions. A

⁴Large passive investors who have purchased shares in the ordinary course of business and do not intend to influence control over the target company can file Schedule 13G instead which requires less information and allows a longer delay in disclosure.

⁵We thank Alon Brav for access to his hedge fund activist dataset.

given purpose label is assigned if Audit Analytics identifies that purpose in the initial 13D filing or in an amendment filed within a year of the 13D filing. Note that interventions can have more than one purpose.

Table 3: **Purpose of hedge fund intervention** The table reports the distribution of the transaction purpose across hedge fund interventions. A given purpose label is assigned if Audit Analytics identifies that purpose in the initial 13D filing or in an amendment filed within a year of the 13D filing. Interventions can have more than one purpose.

Year	Agreement	Concern	Control	Discussion	Dispute	Support
2001	0	0	0	0	0	0
2002	1	1	1	2	0	0
2003	0	1	0	0	1	0
2004	2	2	1	3	0	0
2005	6	11	10	12	4	1
2006	5	9	7	11	3	1
2007	3	5	2	13	3	2
2008	10	6	5	23	3	1
2009	2	1	1	3	0	1
2010	8	0	4	11	0	0
2011	4	3	4	13	2	0
2012	7	4	4	8	6	0
2013	10	8	9	14	5	0
2014	9	5	3	11	2	0
2015	7	4	3	7	0	0
Total	74	60	54	131	29	6

2.4. Firm-specific data

Firm-specific balance-sheet data and rating information are obtained from Compustat and CRSP, and summarized in Table 4. The first column reports summary statistics across all firms with CDS coverage and dates between 2001 and 2015. Since we condition on CDS market activity which is more prevalent among larger firms, the median firm in our sample is larger, both in terms of market capitalization and total assets, than in existing studies where this condition is not imposed. Firm size characteristics for our sample are consistent with those reported in CDS market studies such as Bai and Wu (2012), after restricting our sample period to match those studies. The same is true for long-term debt to asset and short-term debt to asset ratios, as well as for median credit ratings and CDS spreads (see Berndt (2015)). Return on assets (ROA), operating margin and market-to-book ratios are somewhat lower in our sample compared to those reported in Klein and Zur (2011), perhaps because the Great Recession and its aftermath is included in our study. Median dividend per share and trailing 12-month equity returns are in line with those reported in Brav, Jiang, Partnoy, and Thomas (2008).

Table 4: **Firm characteristics** The table reports median firm characteristics. Column one includes all 925 public U.S. firms with CDS coverage and covers the period from 2001 to 2015. Columns two through four include the 269 hedge fund activism events in the sample and show median firm characteristic one year prior to the 13D filing date, at the filing date and one year after the filing date. Firm size and assets are reported in million U.S. dollar. The trailing equity returns are computed over the past twelve months. Ratings are Standard & Poor’s issuer letter ratings. CDS spreads are quoted in basis points.

	Across all firms and dates	Across all HFA events		
		Prior	At	After
Size	19,270	3,490	3,020	2,987
Assets	10,349	5,451	4,996	5,026
LTD/Assets	0.256	0.285	0.284	0.295
(Cash+ST Inv)/Assets	0.056	0.066	0.066	0.077
ROA	0.039	0.025	0.024	0.018
Operating margin	0.124	0.100	0.088	0.081
Market-to-book	0.810	0.744	0.738	0.712
Dividend per share	0.510	0.160	0.160	0.160
Trailing equity return	0.118	0.108	0.024	0.098
Rating	BBB	BB	BB	BB
CDS	99	186	215	220

Consistent with the existing literature on hedge fund activism, as reviewed in Brav, Kim, and Jiang (2015), we find that target firms tend to be smaller than their peers. The median market capitalization of target firms is \$3 billion at the time of the 13D filing compared to \$19 billion for the full sample. Similarly, median total assets are much lower for target firms (\$5 billion) than for the full sample (\$10 billion). The long- and short-term debt-to asset ratios tend to be higher for target firms than in the full sample. We find that target firms tend to be less profitable than their peers, as measured by ROA. Target firms also tend to have lower operating margins, market-to-book ratios, dividend payouts and stock returns than their peer firms. It is therefore not surprising that target firms tend to be of lower credit quality than their peers, and that default protection for target firms is more expensive.

Table 5 distinguishes between confrontational and non-confrontational interventions. The left panel of the table shows that prior to the 13D filing, targets of confrontational interventions tend to be smaller (in terms of market capitalization), less profitable (in terms of ROA and trailing stock return) and of somewhat lower credit quality (in terms of CDS spreads) than targets of non-confrontational interventions. The right panel reports the fraction of interventions with a positive change in the firm characteristic in the year prior to and after the activism event. After the event, the long-term debt to asset ratio increases in roughly 70% of the cases, as do the short-term debt to assets ratio, CDS spread, ROA and market-to-book ratio. While the letter rating of the target firm

decreases in the year following the event for almost two-thirds of the confrontational interventions in our sample, is lowered for less than half of the non-confrontational interventions, pointing towards a more severe deterioration in credit quality following confrontational interventions.

Table 5: Firm characteristics around hedge fund interventions The table reports median firm characteristics. It covers the 269 hedge fund activism events in the sample and distinguishes between confrontational and non-confrontational interventions. Columns one through three show the median firm characteristic one year prior to the 13D filing date, at the filing date and one year after the filing date. Firm size and assets are reported in million U.S. dollar. The trailing equity returns are computed over the past twelve months. Ratings are Standard & Poor’s issuer letter ratings. CDS spreads are quoted in basis points. Columns four and five report the fraction of interventions with a positive change in the firm characteristic in the year prior to and after the event. For the issuer rating, we report the fraction of interventions with a decrease in credit quality/unchanged credit quality.

	Prior	At	After	Prior → At	At → After
<i>Confrontational interventions</i>					
Size	3,152	2,725	2,397	0.52	0.67
Assets	6,447	6,310	5,803	0.67	0.42
LTD/Assets	0.303	0.286	0.317	0.52	0.68
(Cash+ST Inv)/Assets	0.053	0.072	0.074	0.52	0.71
ROA	0.019	0.016	0.005	0.52	0.67
Operating margin	0.066	0.069	0.050	0.42	0.58
Market-to-book	0.747	0.725	0.693	0.48	0.71
Dividend per share	0.160	0.180	0.160	0.33	0.44
Trailing equity return	-0.025	0.031	0.081	0.61	0.64
Rating	BB	BB	B	0.29/0.70	0.64/0.35
CDS	196	205	254	0.58	0.65
<i>Non-confrontational interventions</i>					
Size	3,542	3,478	3,181	0.54	0.72
Assets	4,917	4,555	4,903	0.62	0.56
LTD/Assets	0.282	0.284	0.269	0.46	0.67
(Cash+ST Inv)/Assets	0.074	0.066	0.078	0.57	0.67
ROA	0.028	0.029	0.027	0.50	0.67
Operating margin	0.107	0.095	0.088	0.51	0.66
Market-to-book	0.742	0.744	0.721	0.52	0.73
Dividend per share	0.160	0.160	0.160	0.35	0.52
Trailing equity return	0.131	0.022	0.100	0.53	0.70
Rating	BB	BB	BB	0.27 /0.71	0.42/0.56
CDS	167	217	209	0.59	0.65

3. CDS Spreads Around Hedge Fund Interventions

In this section, we investigate the impact of hedge fund activism on credit spreads. To this end, we compute the abnormal increase in CDS spreads relative to their level one year prior to the intervention. For target firm i , let t_0^i denote the 13D filing date. For every firm j and trading day

$t_k^i = t_0^i + k$, $k = -252, \dots, 252$, we compute the cumulative growth rate as

$$\gamma_{i,k}^j = \frac{c_{t_0^i+k}^j}{c_{t_0^i-252}^j} - 1, \quad (1)$$

where c_t^j denotes the five-year at-market CDS spread of firm j at time t . The abnormal cumulative growth rate for CDS spreads for target firm i is computed as

$$\gamma_{i,k}^a = \gamma_{i,k}^i - \text{median}\{\gamma_{i,k}^j | j \in \mathcal{C}_{t_0^i}^i\}. \quad (2)$$

Here, $\mathcal{C}_{t_0^i}^i$ denotes the control set for target firm i and event date t_0^i . It includes all firms in the sample that do not have a hedge fund intervention between t_{-252}^i and t_{252}^i , that belong to the same sector, and that one year prior to t_0^i fall into the same credit spread category than the target firm. Credit spread categories are defined as intervals of CDS spreads: (0, 10], (10, 25], (25, 50], (50, 100], (100, 250], (250, 500], (500, 1000], (1,000, 2500], (2500, 5000] and > 5000 basis points.

The top panel in Figure 2 shows the median abnormal cumulative growth rate for CDS spreads across hedge fund interventions, for each trading day during the two years around the hedge fund intervention. To ensure cross-sectional consistency, we only include target and control firms for which we observe CDS data for the full two-year period. This restriction reduces the sample to 139 hedge fund interventions for 100 target firms. We observe a steady increase in abnormal credit spread growth rates in the year leading up to the event, to a level of about 10% just prior to the announcement. At the time of the 13D filing, we observe a sizable short-term effect as the abnormal percentage increase in credit spreads moves up to about 15%.⁶ In the year following the hedge fund intervention, abnormal CDS spreads exhibit some volatility but generally stay at their elevated level. In particular, they show no reversion to pre-activism levels. Table 6 summarizes these results.

The middle and bottom panel of Figure 2 show similar plots for confrontational and non-confrontational hedge fund interventions, and Table 6 reports the associated results. What is striking is that credit spreads of targets of confrontational activism tend to increase more in the year prior to the intervention than those of targets of non-confrontational activism. Indeed, median abnormal percentage spread changes are about 20% in the year prior to confrontational interventions

⁶A closer look at the short-term effects is provided in Figure A.1 in the appendix.

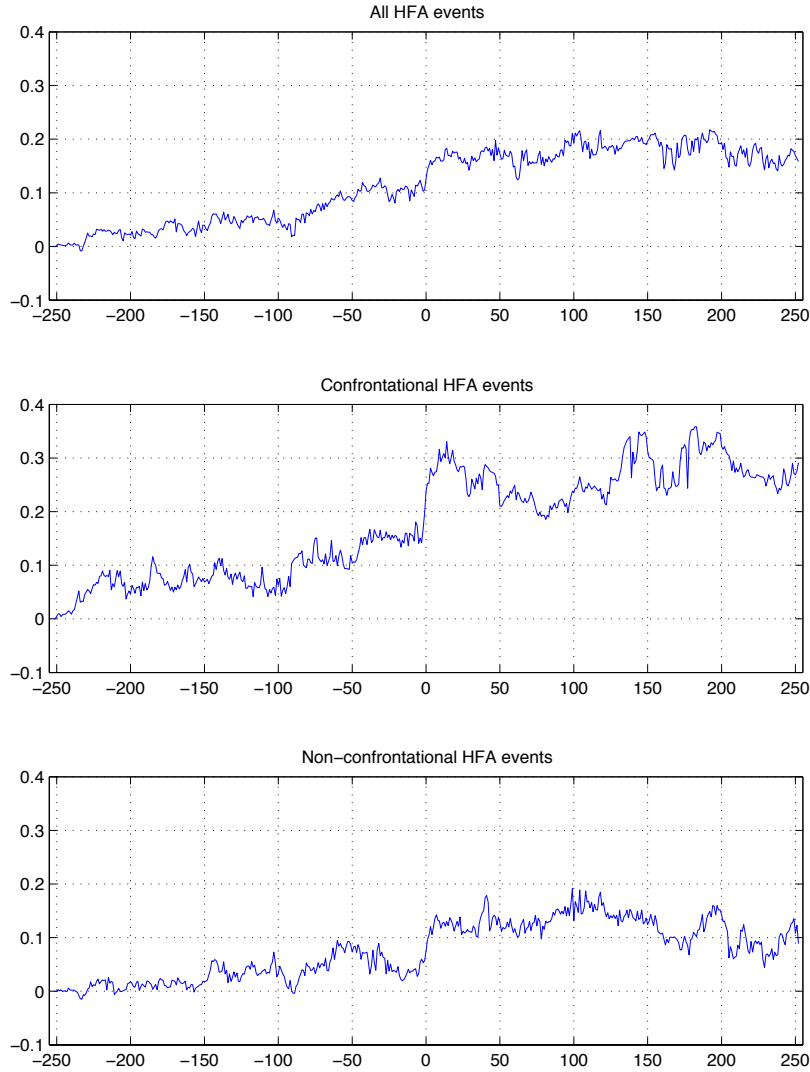


Figure 2: **Abnormal cumulative growth in CDS spreads** The figure shows the median abnormal growth rate for CDS spreads across hedge fund activism events, for each trading day in the two years around the event. The abnormal growth rate for CDS spreads for target firm i is defined as in Equation (2). The control set includes all firms in the sample that do not have a hedge fund intervention between t_{-252}^i and t_{252}^i , that belong to the same sector, and that one year prior to t_0^i fall into the same credit spread category than the target firm. To ensure cross-sectional consistency, we only include target and control firms for which we observe CDS data for the full two-year period around the 13D filing date. This restriction reduces the sample to 139 hedge fund interventions for 100 target firms (top panel), which include 37 confrontational interventions for 29 firms (middle panel) and 102 non-confrontational interventions for 83 firms (bottom panel).

but less than 10% prior to non-confrontational interventions. At the time of the intervention, there is a sizable short-term effect for both types of activism (see also Figure A.1 in the appendix). In the year following the 13D filing, abnormal cumulative growth rates increase for confrontational

Table 6: **Abnormal cumulative growth in CDS spreads** The table shows the median abnormal growth rate for CDS spreads across hedge fund activism events, at certain points in the two years around the event. The abnormal growth rate for CDS spreads for target firm i is defined as in Equation (2). The control set includes all firms in the sample that do not have a hedge fund intervention between t_{-252}^i and t_{252}^i , that belong to the same sector, and that one year prior to t_0^i fall into the same credit spread category than the target firm. To ensure cross-sectional consistency, we only include target and control firms for which we observe CDS data for the full two-year period around the 13D filing date. This restriction reduces the sample to 139 hedge fund interventions for 100 target firms, which include 37 confrontational interventions for 29 firms and 102 non-confrontational interventions for 83 firms.

	-252	-30	-10	-1	0	+1	+10	+30	+252
All events	0.00	0.11	0.11	0.11	0.13	0.14	0.16	0.15	0.16
Confrontational	0.00	0.15	0.16	0.20	0.24	0.25	0.29	0.23	0.29
Non-confrontational	0.00	0.07	0.04	0.06	0.07	0.10	0.12	0.11	0.09

interventions but level off for non-confrontational interventions.

In addition to the cumulative growth rates reported in Figure 2 and Table 6, we also compute period-specific growth rates: for the year prior to the HFA event, a short-term window around the event and the year after the event. To do so, we replace the denominator in Equation (1) by the beginning-of-period credit spread. Specifically, the growth rate for the interval $[t_0^i + k_1, t_0^i + k_2]$ is given by

$$\gamma_{i,k_1,k_2}^j = \frac{C_{t_0^i+k_2}^j}{C_{t_0^i+k_1}^j} - 1,$$

and the abnormal growth rate for CDS spreads for target firm i is computed as

$$\gamma_{i,k_1,k_2}^a = \gamma_{i,k_1,k_2}^j - \text{median}\{\gamma_{i,k_1,k_2}^j | j \in \mathcal{C}_{t_0^i}^i\}. \quad (3)$$

Table 7 reports the median abnormal growth rate for CDS spreads for the one-year period prior to the hedge fund intervention, a short-term period around the intervention and the one-year period following the intervention. For the median HFA event, short-term and long-term abnormal growth is positive and of similar magnitude for both confrontational and non-confrontational interventions. This implies that around and following the 13D filing, the price for default insurance of target firms tends to increase at a higher rate or decreases at a lower rate than that for the median control firm. As mentioned before, the distinctive feature of confrontational versus non-confrontational interventions is the higher abnormal CDS growth rate for confrontational events in the year leading up to the events.

Table 7: **Abnormal period-specific growth in CDS spreads** The table shows the median abnormal growth rate for CDS spreads across hedge fund activism events, for periods prior to, around and after the event. The abnormal growth rate for CDS spreads for target firm i is defined as in Equation (3). The control set includes all firms in the sample that do not have a hedge fund intervention between t_{-252}^i and t_{252}^i , that belong to the same sector, and that one year prior to t_0^i fall into the same credit spread category than the target firm. To ensure cross-sectional consistency, we only include target and control firms for which we observe CDS data for the full two-year period around the 13D filing date. This restriction reduces the sample to 139 hedge fund interventions for 100 target firms, which include 37 confrontational interventions for 29 firms and 102 non-confrontational interventions for 83 firms.

	$[-252, -10]$	$[-10, +1]$	$[+1, +252]$
All event	0.11	0.02	0.05
Confrontational	0.16	0.02	0.05
Non-confrontational	0.04	0.01	0.05

4. Bond Yield Spreads Around Hedge Fund Interventions

To quantify the impact of hedge fund activism on bondholders, we first back out constant bond yield spreads using available bond price and origination data. Let $s_t^{j,b}$ denote the constant time- t bond yield spread of bond b of firm j . We use the CDS spread c_t^j of the firm to decompose the bond yield spread into a credit component, c_t^j , and a non-credit component, $nc_t^{j,b}$:

$$s_t^{j,b} = c_t^j + nc_t^{j,b}. \quad (4)$$

Table 8 reports summary statistics for each component of Equation (4). During the two-year period around the hedge fund intervention, abnormal bond yield spreads tend to be positive. They are particularly high one year after the 13D filing, which is largely due to a high abnormal non-credit component at that time. One year after the filing, abnormal bond yield spreads tend to be higher for confrontational events than for non-confrontational events, mainly because abnormal credit spreads are higher for confrontational events.

Table 9 shows the median abnormal cumulative growth rate for bond yield spreads across hedge fund interventions and bonds issued by target firms. The abnormal growth rate for yield spreads of bond b of target firm j is defined as in Equations (1) and (2), with CDS spreads c^j replaced by bond yield spreads $s^{j,b}$.

We observe a near-zero abnormal growth in bond yield spreads over the year prior to the 13D filing date, and a small positive growth over the year after the filing. For confrontational hedge fund activism events, bond yield spreads tend to increase moderately during the year prior to the intervention, and increase by a sizable amount in the year following the intervention. The long-term

Table 8: **Bond yield spreads and their components** The table shows the median bond yield spread (top panel) and its credit (middle panel) and non-credit (bottom panel) component, at certain times in the two years around the event. The data include 71 bonds from 44 target firms. 14 firms (19 bonds) are target of a confrontational intervention and 34 firms (52 bonds) are target of a non-confrontational intervention. The first four columns represent debt issued by target firms, the next four columns represent debt issued by control firms and the last four columns show differences between the two. Control firms are selected from the same sector and credit spread category as of one year prior to the interventions. Among all bonds issued by control firms, we use the bond that matches the age and time to maturity of the target firm’s debt as closely as possible. Values are reported in basis points.

	Target				Control				Difference			
	-252	-10	+1	+252	-252	-10	+1	+252	-252	-10	+1	+252
Bond yield spread												
All events	256	344	342	360	248	315	329	301	15	31	38	56
Confrontational	247	333	342	348	217	297	315	278	8	2	9	74
Non-confrontational	269	355	348	362	260	317	333	309	21	38	49	48
Credit component												
All events	147	158	184	170	127	139	139	137	9	15	19	19
Confrontational	130	113	131	170	101	86	101	106	11	12	18	53
Non-confrontational	148	166	185	178	142	152	164	178	6	17	24	12
Non-credit component												
All events	91	144	138	175	85	122	125	114	14	7	5	33
Confrontational	119	163	139	168	119	131	129	150	-11	-4	-14	33
Non-confrontational	86	128	134	181	80	119	124	109	18	10	11	35

upward trend is at least partially due to an increase in the abnormal non-credit component.

Table 9: **Abnormal growth in bond yield spreads and their components** The table shows the median abnormal growth rate for bond yield spreads across hedge fund activism events, at certain times in the two years around the event. The abnormal growth rate for yield spreads of a given bond for target firm i is defined as in Equation (2), with CDS spreads replaced by the bond’s yield spread. The data include 71 bonds from 44 target firms. 14 firms (19 bonds) are target of a confrontational intervention and 34 firms (52 bonds) are target of a non-confrontational intervention. The first three columns represent debt issued by target firms, the next three columns represent debt issued by control firms and the last four columns show differences between the two. Control firms are selected from the same sector and credit spread category as of one year prior to the interventions. Among all bonds issued by control firms, we use the bond that matches the age and time to maturity of the target firm’s debt as closely as possible. Values are reported in basis points.

	Target			Control			Difference		
	-10	+1	+252	-10	+1	+252	-10	+1	+252
Bond yield spread									
All events	0.07	0.21	0.16	0.03	0.15	0.07	-0.01	0.00	0.04
Confrontational	0.11	0.01	-0.03	0.03	-0.03	-0.09	-0.05	0.05	0.21
Non-confrontational	0.06	0.22	0.22	0.03	0.15	0.10	0.00	-0.01	-0.02
Credit component									
All events	0.06	0.18	0.14	-0.01	0.00	-0.02	0.11	0.18	0.07
Confrontational	-0.14	-0.02	0.17	0.00	0.00	-0.08	0.11	0.30	0.21
Non-confrontational	0.14	0.29	0.10	-0.02	0.00	-0.02	0.10	0.15	0.04
Non-credit component									
All events	-0.08	-0.12	0.41	-0.23	-0.08	-0.17	-0.02	0.01	0.26
Confrontational	-0.08	-0.08	-0.04	-0.06	0.01	-0.17	0.00	0.10	0.52
Non-confrontational	-0.11	-0.17	0.51	-0.23	-0.19	-0.18	-0.04	-0.12	0.20

We now explore the notion that the increase in the abnormal non-credit component of bond yield spreads after hedge fund interventions may be linked to a reduction in abnormal bond liquidity. Table 10 reports the abnormal trading volume for the existing debt of target firms. We find that debt of confrontational activism targets tends to trade less frequently in the year after the intervention than debt in the control sample. Indeed, the abnormal trading volume in the year following the intervention is negative for nearly 60% of the bonds issued by target firms, with the median abnormal trading volume being about -\$50,000. Moreover, for nearly 75% of the observations new debt issuance of target firms is at least as high as it is for their peers. And for more than 30% of the observations it is strictly higher.

Table 10: **Abnormal bond trading volume and new issuances** Columns one through three of the table shows median bond liquidity measures across hedge fund activism events, during the two years around the event. Panel A uses the average daily trading volume for the bond as a liquidity proxy, and Panels B and C use the number and volume of new debt issuance for the target firm. The data include 71 bonds from 44 target firms. 14 firms (19 bonds) are target of a confrontational intervention and 34 firms (52 bonds) are target of a non-confrontational intervention. Control firms are selected from the same sector and credit spread category as of one year prior to the interventions. Among all bonds issued by control firms, we use the bond that matches the age and time to maturity of the target firm's debt as closely as possible. Volume figures are reported in million U.S. dollars. The remaining columns report the fraction of observations for for which the target firm's liquidity measure is less than, equal to or more than that of the control.

	[-252, -10]	[-10, +1]	[+1, +252]	[-252, -10]			[-10, +1]			[+1, +252]		
				<	=	>	<	=	>	<	=	>
Panel A: Average daily trading volume												
All events	-0.033	0.153	0.025	0.51	0.00	0.49	0.44	0.00	0.56	0.49	0.00	0.51
Confrontational	-0.160	-0.039	-0.047	0.53	0.00	0.47	0.53	0.00	0.47	0.58	0.00	0.42
Non-confrontational	-0.007	0.275	0.092	0.50	0.00	0.50	0.40	0.00	0.60	0.46	0.00	0.54
Panel B: Number of new issues												
All events	0.000	0.000	0.000	0.45	0.39	0.15	0.03	0.94	0.03	0.31	0.49	0.20
Confrontational	0.000	0.000	0.000	0.47	0.32	0.21	0.00	0.89	0.11	0.26	0.42	0.32
Non-confrontational	0.000	0.000	0.000	0.44	0.42	0.13	0.04	0.96	0.00	0.33	0.52	0.15
Panel C: Volume of new issues												
All events	0.000	0.000	0.000	0.46	0.37	0.17	0.03	0.94	0.03	0.32	0.45	0.23
Confrontational	0.000	0.000	0.000	0.47	0.26	0.26	0.00	0.89	0.11	0.26	0.37	0.37
Non-confrontational	0.000	0.000	0.000	0.46	0.40	0.13	0.04	0.96	0.00	0.35	0.48	0.17

In contrast, debt of non-confrontational activism targets tends to trade somewhat more frequently in the year after the intervention than debt in the control sample. The abnormal trading volume in the year following the intervention is positive for 54% of the bonds issued by target firms, with the median abnormal trading volume being about \$90,000. For nearly 85% of the observations new debt issuance of target firms is lower or the same as for their peers.

5. Conclusion

This paper offers insights into the impact of hedge fund activism on creditors in CDS and corporate bond markets. We document positive abnormal CDS spread growth in the year leading up to activist hedge fund interventions, an additional abnormal increase in CDS spreads at the 13D filing date, and no reversion in the year after the intervention. Credit spreads of targets of confrontational activism tend to increase more prior to the intervention than those of targets of non-confrontational activism. After the 13D filing, abnormal CDS growth continues for confrontational interventions but levels off for non-confrontational interventions.

We also show that abnormal corporate bond yield spreads tend to be positive in the two-year period around hedge fund interventions. We decompose bond yield spreads into a credit and non-credit component and argue that high abnormal yield spreads one year after the 13D filing are partially due to an increase in the abnormal non-credit component, consistent with an abnormal reduction in bond liquidity.

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A. Additional Tables and Figures

Table A.1: **TRACE data filtering** The table shows how many observations are deleted in each step of the error filter in Dick-Nielsen (2009). The raw data covers the period from July 2002 to December 2015.

Description	Trade reports
Raw reports	46,555,231
<u>Step 1</u>	
Deleted	1,753
Post Step 1	46,553,478
<u>Step 2</u>	
Deleted	545,116
Reversals	285,206
Unmatched reversals	84,796
Post Step 2	46,008,362
<u>Step 3</u>	
Deleted	1,653,432
Post Step 3	44,354,930
<u>Additional cleaning</u>	
Commission	825,030
When issued status	86
Final	43,529,814

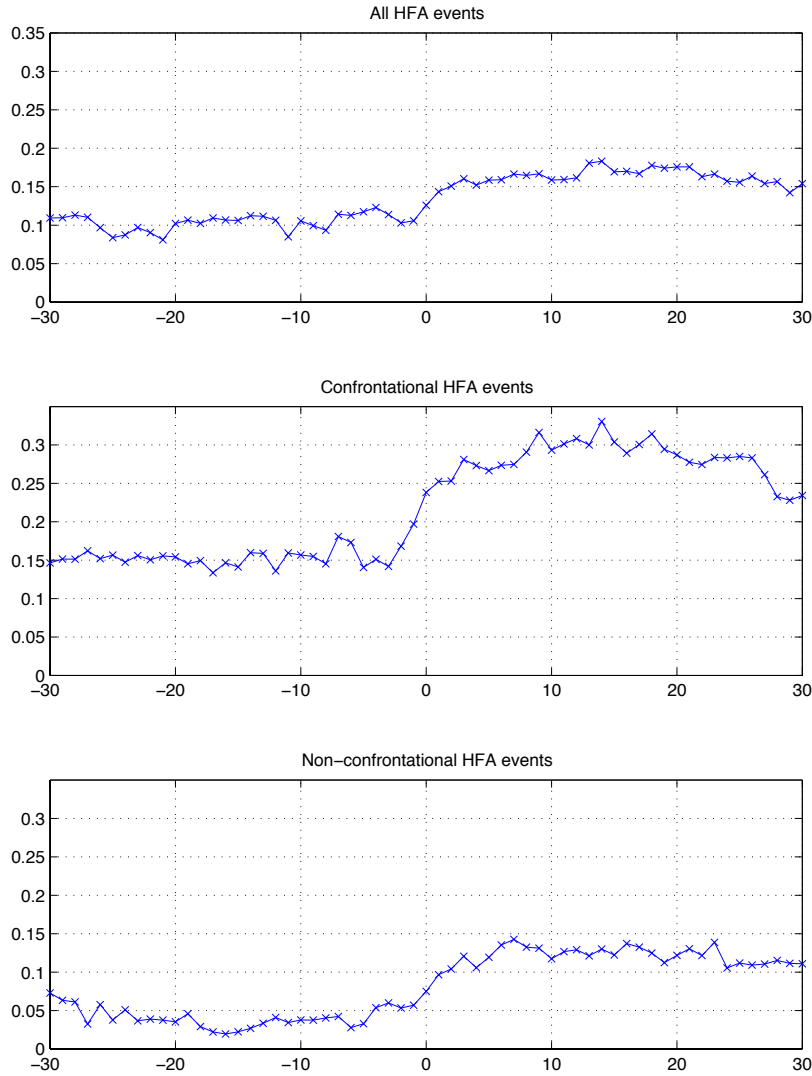


Figure A.1: **Abnormal cumulative growth in CDS spreads** The figure shows the median abnormal growth rate for CDS spreads across hedge fund activism events, for each trading day in the 60 days around the event. The abnormal growth rate for CDS spreads for target firm i is defined as in Equation (2). The control set includes all firms in the sample that do not have a hedge fund intervention between t_{-252}^i and t_{252}^i , that belong to the same sector, and that one year prior to t_0^i fall into the same credit spread category than the target firm. To ensure cross-sectional consistency, we only include target and control firms for which we observe CDS data for the full two-year period around the 13D filing date. This restriction reduces the sample to 139 hedge fund interventions for 100 target firms (top panel), which include 37 confrontational interventions for 29 firms (middle panel) and 102 non-confrontational interventions for 83 firms (bottom panel).